

Date: 7/25/17

R&A

Attention: Pavlina Williams

Reference: Powder Mountain Parcel 2C Review Comment Responses

Comment		Response
S1.	Only those items affecting the footing/foundation were reviewed. A thorough review of the details and calculations for the rest of the structure was not done and will need to be done prior to issuing a permit for work beyond the footing/foundation portion.	Noted.
S2.	Because a phased approval is being sought for this project, the owner must submit a letter to the building official stating that they understand that they will be proceeding at their own risk in accordance with IBC 107.3.3.	A letter from the Owner's Representative will be provided.
S3.	Not all of structural sheets have not been sealed, signed, or dated by the engineer of record. It appears that the intent was to only stamp those sheets pertaining to the footing/foundation permit. The sheets showing column and wall reinforcing details have not been stamped. Please verify the completeness of the information on these sheets and provide stamps with signatures as this information affects the footings and foundations.	Sheets S30.01, S30.13, and S60.02 will be stamped, with appropriate language to state that only the parts that affect the footing & foundation package are covered.
S4.	Please confirm that the drawings and details show the exterior footings bearing below the required 42 inch frost depth.	Confirmed.
S5.	Sheet S30.11: The concrete wall pier anchor schedule is not complete. Please verify whether the vertical bars in these piers will have matching dowels into the footing that will be needed for the foundation package.	CJC-13 was added at the footing & foundation level (see resubmitted plans). All other openings at the foundation level that would be designated by ACI 318 as a wall pier are already jamb columns. The Concrete Wall Pier Anchor Schedule is for horizontal hooked reinforcement per ACI 318 Section 18.10.8.2 and will be shown at wall elements that meet the wall pier criteria in the full building permit submittal.
S6.	Sheet S60.01: Section 18.13.3.2 of ACI 318-14 requires closed ties at a spacing not to exceed the lesser of one-half the smallest orthogonal cross-sectional dimension and 12 inches. This	The CGB-1 through CBG-4 have tie spacings of not more than 8" on center, which meets the criteria in Section



	requirement does not appear to have been met in the grade beam details. Please address.	18.13.3.2, given that none of the cross-sectional dimensions are less than 18".
S7.	Please address the failures on calculation pages CSW - 13, 16, 17, 31, 70, 78, 79, 85, 86, 94, 101, 111, 118, 198, 214, 215, 219, 222, 242, 243, 263, 266, 268, 283, 284, 287, 289, 305, 307, 324, 326, 327, 328.	Please see the attached updated calculation pages. Note that the calculation pages that were referenced have now been updated to the current design and may not reflect the previous calculation pages.
S8.	Please confirm that a percentage of the snow was considered in the seismic weight of the structure as required by Section 1605.3.1 and 1605.3.2 of the Utah Amended Code.	The seismic weight due to snow that was used in calculations of seismic weights is 0.29 times the roof snow load, which follows the Utah Amendments, given the 8600 foot elevation.
S9.	Please provide a summary of building irregularities as defined by Tables 12.3-1 and 12.3-2 of ASCE 7-10 and confirm that the requirements for the different irregularity types have been met.	Please see the attached tables for irregularities. Each irregularity is being addressed.

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11
07/25/17 11:03:32

Section Cut ID: SC23V:19 (Vertical)
Story: T.O. PENTHOUSE
Ag = 1512 in2 Imaj = 18144 in4 Imin = 2000376 in4
Wall Design Group: 23
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.012 OK
Pu = -1.03 kips phiPn = -84.95 kips
Mu = 10.4 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E27 (LC 540)
Code Ref: 10.3.7

Shear Results:
Segment SC23V:19:
Length = 10.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 12.7 kip phiVn = 228.1 kip OK
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.312% (11.9.9.2) OK
Segment SC23V:19:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

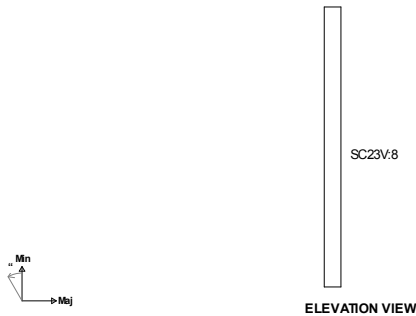
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11
07/25/17 11:03:32
Page 2/1293

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11
07/25/17 11:03:32
Page 3/1293

Section Cut ID: SC23V:8 (Vertical)
Story: T.O. PENTHOUSE
Ag = 1008 in2 Imaj = 5376 in4 Imin = 1333584 in4
Wall Design Group: 23
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.072 OK
Pu = -4.52 kips phiPn = -62.50 kips
Mu = 68.9 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC23V:8:
Length = 10.50 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 30.3 kip phiVn = 194.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E31 (LC 40)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.467% (11.9.9.2) OK
Segment SC23V:8:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK

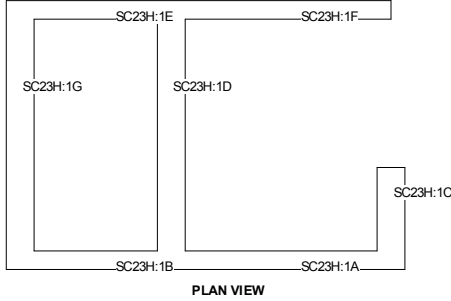
Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11
07/25/17 11:03:32
Page 4/1293

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC23H:1 (Horizontal)
Story: T.O. PENTHOUSE
Ag = 10826 in2 Imaj = 20003992 in4 Imin = 14769055 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 23
Design Status: PASS



Axial/Flexural Results:

Interaction: 0.040 OK
Pu = 227.53 kips phiPn = 5742.58 kips
Mu = 929.6 kip-ft at Beta = 9.7 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:

Segment SC23H:1A:
Length = 7.92 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 22.9 kip phiVn = 147.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E29 (LC 38)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:1B:
Length = 5.41 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 18.4 kip phiVn = 100.4 kip OK
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

Shear Results:

Segment SC23H:1C:
Length = 3.33 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 2.9 kip phiVn = 72.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E31 (LC 112)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:1D:
Length = 9.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 15.0 kip phiVn = 195.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E22 (LC 31)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:1E:
Length = 5.41 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 14.9 kip phiVn = 100.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E31 (LC 40)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:1F:
Length = 7.92 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 16.7 kip phiVn = 147.0 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:1G:
Length = 9.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 13.0 kip phiVn = 195.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E34 (LC 43)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) OK
Segment SC23H:1A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:1B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

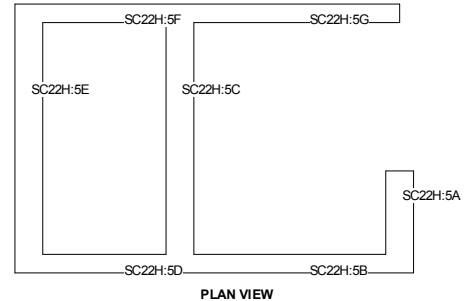
Section Cut Design Summary

Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:1C:
Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:1D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:1E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:1F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:1G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC22H:5 (Horizontal)

Story: ROOF LEVEL
Ag = 10826 in2 Imaj = 20003992 in4 Imin = 14769055 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 22
Design Status: PASS



Axial/Flexural Results:

Interaction: 0.052 OK
Pu = 416.32 kips phiPn = 7994.27 kips
Mu = 1173.1 kip-ft at Beta = -13.4 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:

Segment SC22H:5A:
Length = 3.33 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 1.9 kip phiVn = 72.4 kip OK
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Segment SC22H:5B:
Length = 7.92 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 29.3 kip phiVn = 147.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Shear Results:

Segment SC22H:5C:
 Length = 9.00 ft Thick = 12.00 in $f_c = 4000$ psi $f_y = 60$ ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 $V_u = 24.1$ kip $\phi V_n = 195.5$ kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

Segment SC22H:5D:
 Length = 5.41 ft Thick = 8.00 in $f_c = 4000$ psi $f_y = 60$ ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 $V_u = 7.2$ kip $\phi V_n = 100.4$ kip OK
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E33 (LC 330)
 Code Ref: 14.2.3 & 11.9.5

Segment SC22H:5E:
 Length = 9.00 ft Thick = 12.00 in $f_c = 4000$ psi $f_y = 60$ ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 $V_u = 26.3$ kip $\phi V_n = 195.5$ kip OK
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
 Code Ref: 14.2.3 & 11.9.5

Segment SC22H:5F:
 Length = 5.41 ft Thick = 8.00 in $f_c = 4000$ psi $f_y = 60$ ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 $V_u = 13.4$ kip $\phi V_n = 100.4$ kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

Segment SC22H:5G:
 Length = 7.92 ft Thick = 8.00 in $f_c = 4000$ psi $f_y = 60$ ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 $V_u = 31.3$ kip $\phi V_n = 147.0$ kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) OK
 Segment SC22H:5A:
 Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC22H:5B:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

Section Cut Design Summary

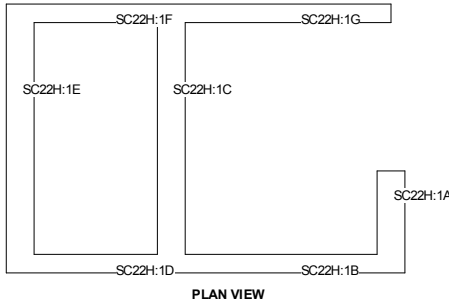
RAM Concrete Shearwall 15.04.00.000
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 Design Code: ACI 318-11

Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC22H:5C:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC22H:5D:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC22H:5E:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC22H:5F:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC22H:5G:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Section Cut ID: SC22H:1 (Horizontal)
Story: ROOF LEVEL
 Ag = 10826 in2 Imaj = 20003992 in4 Imin = 14769055 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 22
 Design Status: PASS



Axial/Flexural Results:
 Interaction: 0.056 OK
 $P_u = 457.83$ kips $\phi P_n = 8240.18$ kips
 $M_u = 1187.6$ kip-ft at Beta = -22.8 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:
 Segment SC22H:1A:
 Length = 3.33 ft Thick = 12.00 in $f_c = 4000$ psi $f_y = 60$ ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 $V_u = 1.9$ kip $\phi V_n = 72.4$ kip OK
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 14.2.3 & 11.9.5

Segment SC22H:1B:
 Length = 7.92 ft Thick = 8.00 in $f_c = 4000$ psi $f_y = 60$ ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 $V_u = 38.2$ kip $\phi V_n = 147.0$ kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
 Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Shear Results:

Segment SC22H:1C:
 Length = 9.00 ft Thick = 12.00 in $f_c = 4000$ psi $f_y = 60$ ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 $V_u = 24.1$ kip $\phi V_n = 195.5$ kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

Segment SC22H:1D:
 Length = 5.41 ft Thick = 8.00 in $f_c = 4000$ psi $f_y = 60$ ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 $V_u = 11.0$ kip $\phi V_n = 100.4$ kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E32 (LC 185)
 Code Ref: 14.2.3 & 11.9.5

Segment SC22H:1E:
 Length = 9.00 ft Thick = 12.00 in $f_c = 4000$ psi $f_y = 60$ ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 $V_u = 26.3$ kip $\phi V_n = 195.5$ kip OK
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
 Code Ref: 14.2.3 & 11.9.5

Segment SC22H:1F:
 Length = 5.41 ft Thick = 8.00 in $f_c = 4000$ psi $f_y = 60$ ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 $V_u = 13.0$ kip $\phi V_n = 100.4$ kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

Segment SC22H:1G:
 Length = 7.92 ft Thick = 8.00 in $f_c = 4000$ psi $f_y = 60$ ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 $V_u = 33.5$ kip $\phi V_n = 147.0$ kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) OK
 Segment SC22H:1A:
 Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC22H:1B:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

Section Cut Design Summary

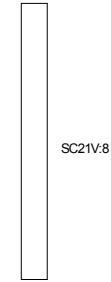
RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC22H:1C:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC22H:1D:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC22H:1E:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC22H:1F:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Section Cut ID: SC21V:8 (Vertical)
Story: LEVEL 4
 Ag = 1440 in2 Imaj = 17280 in4 Imin = 1728000 in4
 Wall Design Group: 21
 Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:
 Interaction: 0.311 OK
 Pu = -36.85 kips phiPn = -118.44 kips
 Mu = 175.0 kip-ft at Beta = 0.0 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
 Code Ref: 10.3.7

Shear Results:
 Segment SC21V:8:
 Length = 10.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 44.1 kip phiVn = 216.4 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E31 (LC 76)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.300% (11.9.9.2) OK
 Segment SC21V:8:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

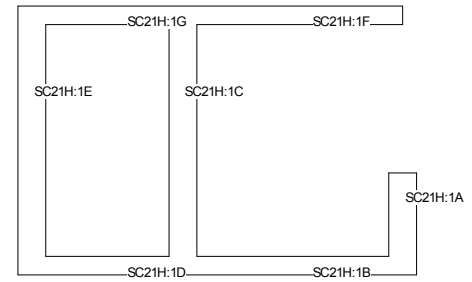
RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Section Cut ID: SC21H:1 (Horizontal) (Hinge)
Story: LEVEL 4
 Ag = 10826 in2 Imaj = 20003992 in4 Imin = 14769055 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 21
 Design Status: PASS



PLAN VIEW

Axial/Flexural Results:
 Interaction: 0.066 OK
 Pu = 626.05 kips phiPn = 9497.96 kips
 Mu = 1154.2 kip-ft at Beta = -32.2 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:
 Segment SC21H:1A:
 Length = 3.33 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 7.2 kip phiVn = 72.4 kip OK
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 14.2.3 & 11.9.5

Segment SC21H:1B:
 Length = 7.92 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 57.7 kip phiVn = 147.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
 Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:

Segment SC21H:1C:
Length = 9.00 ft
Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 33.6 kip phiVn = 195.5 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
Code Ref: 14.2.3 & 11.9.5

Segment SC21H:1D:
Length = 5.41 ft
Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 16.4 kip phiVn = 100.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Segment SC21H:1E:
Length = 9.00 ft
Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 35.4 kip phiVn = 195.5 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
Code Ref: 14.2.3 & 11.9.5

Segment SC21H:1F:
Length = 7.92 ft
Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 46.9 kip phiVn = 147.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Segment SC21H:1G:
Length = 5.41 ft
Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 12.7 kip phiVn = 100.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E31 (LC 40)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 3.23 ft c = 0.43 ft (21.9.6.2) OK

Segment SC21H:1A:
Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:1B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC21H:1C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC21H:1D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC21H:1E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

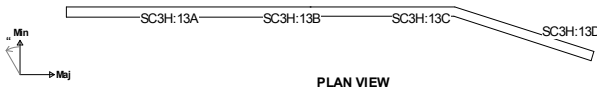
Segment SC21H:1F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC21H:1G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC3H:13 (Horizontal)
Story: LEVEL 2
Ag = 12262 in2 Imaj = 680721754 in4 Imin = 4162117 in4
Major Axis Orientation: 17.75 degrees (CCW from global X-axis)
Wall Design Group: 3
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.074 OK
Pu = 715.35 kips phiPn = 9707.98 kips
Mu = 2300.8 kip-ft at Beta = -11.8 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 10.3.7

Shear Results:
Segment SC3H:13A:
Length = 16.34 ft
Thick = 16.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@15" oc Horiz Bar Pat: #5@15" oc
Vu = 88.7 kip phiVn = 456.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
Code Ref: 14.2.3 & 11.9.5

Segment SC3H:13B:
Length = 14.99 ft
Thick = 16.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@15" oc Horiz Bar Pat: #5@15" oc
Vu = 97.6 kip phiVn = 418.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E13 (LC 22)
Code Ref: 14.2.3 & 11.9.5

Segment SC3H:13C:
Length = 18.53 ft
Thick = 14.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@15" oc Horiz Bar Pat: #5@15" oc
Vu = 129.5 kip phiVn = 488.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E13 (LC 22)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:

Segment SC3H:13D:
Length = 18.66 ft
Thick = 14.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@15" oc Horiz Bar Pat: #5@15" oc
Vu = 184.8 kip phiVn = 492.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.290% (11.9.9.4) OK

Segment SC3H:13A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 15.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 14.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.256% Actual: 0.256% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC3H:13B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 15.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 14.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.256% Actual: 0.256% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

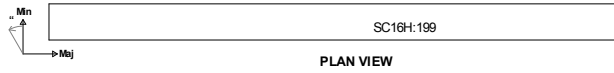
Segment SC3H:13C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 15.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 14.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.292% Actual: 0.292% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC3H:13D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 15.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 14.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.292% Actual: 0.292% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC16H:199 (Horizontal) (Hinge)
Story: LEVEL 2.3
Ag = 2232 in2 Imaj = 6434855 in4 Imin = 26784 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 16
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.115 OK
Pu = 446.50 kips phiPn = 3887.68 kips
Mu = 990.4 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 10.3.7

Shear Results:
Segment SC16H:199:
Length = 15.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 245.7 kip phiVn = 574.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
Code Ref: 14.2.3 & 11.9.5

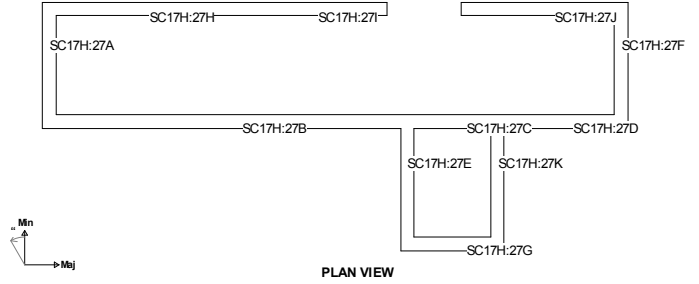
Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.673% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10:
cmax = 3.69 ft c = 2.50 ft (21.9.6.2) OK

Segment SC16H:199:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.614% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC17H:27 (Horizontal)
Story: LEVEL 4
Ag = 24222 in2 Imaj = 507025850 in4 Imin = 112929491 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 17
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.057 OK
Pu = 1898.54 kips phiPn = 33289.22 kips
Mu = 2628.2 kip-ft at Beta = 31.2 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC17H:27A:
Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 135.3 kip phiVn = 243.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E21 (LC 174)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27B:
Length = 26.83 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 309.8 kip phiVn = 767.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E28 (LC 181)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:
Segment SC17H:27C:
Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 58.6 kip phiVn = 193.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27D:
Length = 9.25 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 121.8 kip phiVn = 264.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27E:
Length = 9.17 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 53.0 kip phiVn = 262.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27F:
Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 101.8 kip phiVn = 243.2 kip OK
Controlling Load Combo: 1.316 D + 1.300 E7 (LC 448)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27G:
Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 21.7 kip phiVn = 193.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27H:
Length = 13.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 77.2 kip phiVn = 372.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27I:
Length = 12.33 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:
Vu = 60.2 kip phiVn = 352.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E12 (LC 21)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27J:
Length = 12.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 47.7 kip phiVn = 343.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E15 (LC 24)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27K:
Length = 9.17 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 70.5 kip phiVn = 262.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.471% (11.9.9.4) OK

Segment SC17H:27A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC17H:27B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC17H:27C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC17H:27D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC17H:27E:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC17H:27F:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC17H:27G:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC17H:27H:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC17H:27I:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC17H:27J:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC17H:27K:

Section Cut Design Summary

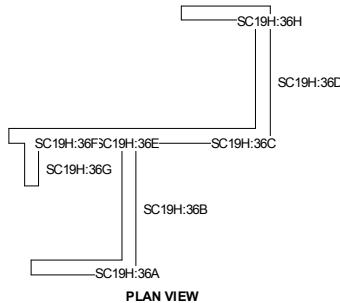
RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Section Cut ID: SC19H:36 (Horizontal)
Story: T.O. PENTHOUSE
 Ag = 7212 in² Imaj = 32002731 in⁴ Imin = 29971926 in⁴
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 19
 Design Status: PASS



Axial/Flexural Results:
 Interaction: 0.019 OK
 Pu = 243.56 kips phiPn = 13035.30 kips
 Mu = 286.2 kip-ft at Beta = -66.0 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:
 Segment SC19H:36A:
 Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 14.5 kip phiVn = 146.6 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E26 (LC 35)
 Code Ref: 14.2.3 & 11.9.5

Segment SC19H:36B:
 Length = 9.17 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 38.4 kip phiVn = 199.1 kip OK
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Shear Results:
 Segment SC19H:36C:
 Length = 9.25 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 21.6 kip phiVn = 200.9 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
 Code Ref: 14.2.3 & 11.9.5

Segment SC19H:36D:
 Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 17.3 kip phiVn = 184.7 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E10 (LC 163)
 Code Ref: 14.2.3 & 11.9.5

Segment SC19H:36E:
 Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 17.4 kip phiVn = 146.6 kip OK
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E6 (LC 303)
 Code Ref: 14.2.3 & 11.9.5

Segment SC19H:36F:
 Length = 1.58 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 9.2 kip phiVn = 34.4 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
 Code Ref: 14.2.3 & 11.9.5

Segment SC19H:36G:
 Length = 3.42 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 11.4 kip phiVn = 74.2 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
 Code Ref: 14.2.3 & 11.9.5

Segment SC19H:36H:
 Length = 5.67 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 9.8 kip phiVn = 123.1 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E5 (LC 158)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.310% (11.9.9.4) OK
 Segment SC19H:36A:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 29/1293
07/25/17 11:03:32

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:36B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:36C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:36D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:36E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:36F:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:36G:
Max Vert Bar Spacing Limit: 13.67 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:36H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 30/1293
07/25/17 11:03:32

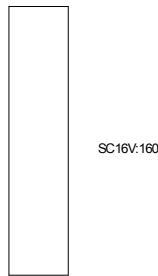
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 31/1293
07/25/17 11:03:32

Section Cut ID: SC16V:160 (Vertical)
Story: LEVEL 3
Ag = 648 in2 Imaj = 7776 in4 Imin = 157464 in4
Wall Design Group: 16
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.026 OK
Pu = -1.10 kips phiPn = -41.65 kips
Mu = 13.6 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 10.3.7

Shear Results:
Segment SC16V:160:
Length = 4.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 28.1 kip phiVn = 213.1 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp - 1.300 E7 (LC 340)
Code Ref: 14.2.3 & 11.9.5

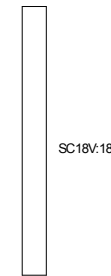
Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.818% (14.3.3) OK
Segment SC16V:160:
Max Horiz Bar Spacing Limit: 16.20 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 32/1293
07/25/17 11:03:32

Section Cut ID: SC18V:18 (Vertical)
Story: ROOF LEVEL
Ag = 1584 in2 Imaj = 19008 in4 Imin = 2299968 in4
Wall Design Group: 18
Design Status: PASS



ELEVATION VIEW

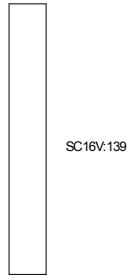
Axial/Flexural Results:
Interaction: 0.027 OK
Pu = 0.57 kips phiPn = 20.72 kips
Mu = 39.2 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E28 (LC 577)
Code Ref: 10.3.7

Shear Results:
Segment SC18V:18:
Length = 11.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 48.8 kip phiVn = 239.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E24 (LC 105)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.297% (11.9.9.2) OK
Segment SC18V:18:
Max Horiz Bar Spacing Limit: 16.20 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC16V:139 (Vertical)
Story: LEVEL 3.1
 Ag = 1008 in2 Imaj = 12096 in4 Imin = 592704 in4
 Wall Design Group: 16
 Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:

Interaction: 0.138 **OK**
 Pu = -24.91 kips phiPn = -180.44 kips
 Mu = 93.0 kip-ft at Beta = 0.0 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
 Code Ref: 10.3.7

Shear Results:

Segment SC16V:139:
 Length = 7.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 119.1 kip phiVn = 258.6 kip **OK**
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E28 (LC 325)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

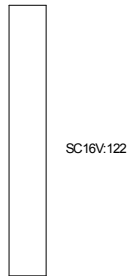
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.701% (14.3.3) **OK**
 Segment SC16V:139:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min web reinforcement ratio: 0.250% Actual: 0.614% (21.9.2.1) **OK**

Section Cut Design Summary

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

Section Cut ID: SC16V:122 (Vertical)
Story: LEVEL 3.1
 Ag = 1008 in2 Imaj = 12096 in4 Imin = 592704 in4
 Wall Design Group: 16
 Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:

Interaction: 0.063 **OK**
 Pu = -11.13 kips phiPn = -175.65 kips
 Mu = 43.7 kip-ft at Beta = -0.0 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E7 (LC 52)
 Code Ref: 10.3.7

Shear Results:

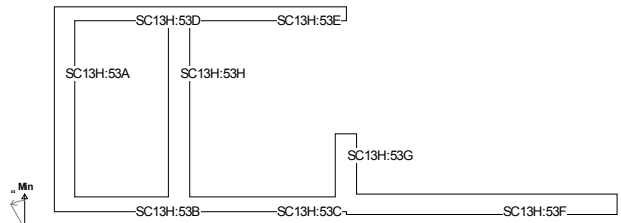
Segment SC16V:122:
 Length = 7.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 100.9 kip phiVn = 259.3 kip **OK**
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E28 (LC 325)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.701% (14.3.3) **OK**
 Segment SC16V:122:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

Section Cut ID: SC13H:53 (Horizontal) (Hinge)
Story: LEVEL 3.1
 Ag = 12609 in2 Imaj = 78641281 in4 Imin = 19012759 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 13
 Design Status: **PASS**



PLAN VIEW

Axial/Flexural Results:

Interaction: 0.096 **OK**
 Pu = 1385.41 kips phiPn = 14499.25 kips
 Mu = 2897.7 kip-ft at Beta = -18.0 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:

Segment SC13H:53A:
 Length = 9.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 91.5 kip phiVn = 257.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E13 (LC 310)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53B:

Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 39.9 kip phiVn = 137.7 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E9 (LC 18)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53C:

Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Shear Results:

Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 82.6 kip phiVn = 201.5 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E17 (LC 98)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53D:
 Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 28.9 kip phiVn = 137.7 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E17 (LC 26)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53E:
 Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 23.8 kip phiVn = 201.5 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Ln + 1.300 E34 (LC 259)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53F:
 Length = 12.80 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 195.3 kip phiVn = 366.2 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53G:
 Length = 3.33 ft Thick = 12.00 in f_c = 3500 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 57.4 kip phiVn = 95.4 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53H:
 Length = 9.00 ft Thick = 12.00 in f_c = 3500 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 124.9 kip phiVn = 257.5 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.725% (11.9.9.4) OK
 S.B.E. Check: Neutral axis distance less than limit for all load combos
 Worst case is load combo 10 :
 cmax = 6.00 ft c = 0.70 ft (21.9.6.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Segment SC13H:53A:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC13H:53B:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC13H:53C:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC13H:53D:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC13H:53E:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC13H:53F:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC13H:53G:

Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC13H:53H:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK

Section Cut Design Summary

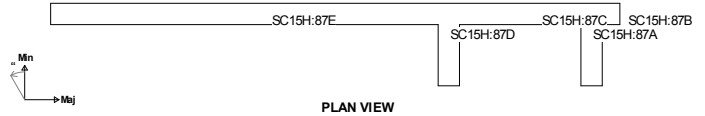
RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Section Cut ID: SC15H:87 (Horizontal) (Hinge)
Story: LEVEL 2
 Ag = 4716 in2 Imaj = 42697518 in4 Imin = 513525 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 15
 Design Status: FAILS



Axial/Flexural Results:
 Interaction: 0.134 OK
 Pu = 1000.36 kips phiPn = 7438.78 kips
 Mu = 5309.9 kip-ft at Beta = -1.0 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
 Code Ref: 10.3.7

Shear Results:
 Segment SC15H:87A:
 Length = 3.42 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 22.8 kip phiVn = 126.6 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
 Code Ref: 14.2.3 & 11.9.5

Segment SC15H:87B:
 Length = 1.33 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 3.4 kip phiVn = 49.4 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
 Code Ref: 14.2.3 & 11.9.5

Segment SC15H:87C:
 Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 95.4 kip phiVn = 250.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
 Code Ref: 14.2.3 & 11.9.5

Segment SC15H:87D:
 Length = 3.42 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:

Vert Bar Pat: Horiz Bar Pat:
Vu = 29.6 kip phiVn = 126.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:87E:

Length = 18.83 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 281.9 kip phiVn = 697.6 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E28 (LC 325)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 1.193% (11.9.9.4) OK
S.B.E. Check: Boundary zone required for one or more load combos
Worst case is load combo 299 :
cmax = 2.15 ft c = 2.31 ft (21.9.6.2) NG **SAY OK**

Segment SC15H:87A:

Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC15H:87B:

Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC15H:87C:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC15H:87D:

Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC15H:87E:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK

Section Cut Design Summary

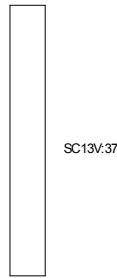
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC13V:37 (Vertical)
Story: LEVEL 2.3
Ag = 480 in2 Imaj = 2560 in4 Imin = 144000 in4
Wall Design Group: 13
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:

Interaction: 0.080 OK
Pu = -0.99 kips phiPn = -12.35 kips
Mu = 34.7 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E17 (LC 170)
Code Ref: 10.3.7

Shear Results:

Segment SC13V:37:
Length = 5.00 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 33.9 kip phiVn = 127.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E17 (LC 62)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.767% (11.9.9.2) OK
Segment SC13V:37:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.639% (21.9.2.1) OK

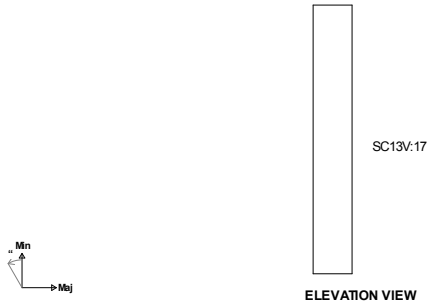
Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC13V:17 (Vertical)
Story: LEVEL 3
 Ag = 432 in2 Imaj = 2304 in4 Imin = 104976 in4
 Wall Design Group: 13
 Design Status: **PASS**



Axial/Flexural Results:
 Interaction: 0.039 **OK**
 Pu = -2.32 kips phiPn = -59.36 kips
 Mu = 11.6 kip-ft at Beta = -0.0 deg CCW from Major axis
 Controlling Load Combo: 0.784 D + 1.300 E30 (LC 543)
 Code Ref: 10.3.7

Shear Results:
 Segment SC13V:17:
 Length = 4.50 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 18.2 kip phiVn = 114.6 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp - 1.300 E35 (LC 224)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.852% (11.9.9.2) **OK**
 Segment SC13V:17:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

Section Cut ID: SC15V:74 (Vertical)
Story: LEVEL 2
 Ag = 1944 in2 Imaj = 23328 in4 Imin = 4251528 in4
 Wall Design Group: 15
 Design Status: **PASS**



Axial/Flexural Results:
 Interaction: 0.032 **OK**
 Pu = -10.92 kips phiPn = -341.58 kips
 Mu = 80.9 kip-ft at Beta = -0.0 deg CCW from Major axis
 Controlling Load Combo: 0.784 D - 1.300 E10 (LC 559)
 Code Ref: 10.3.7

Shear Results:
 Segment SC15V:74:
 Length = 13.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 182.5 kip phiVn = 500.0 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
 Code Ref: 14.2.3 & 11.9.5

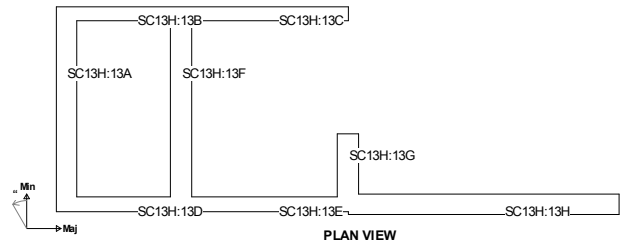
Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.727% (14.3.3) **OK**
 Segment SC15V:74:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min web reinforcement ratio: 0.250% Actual: 0.614% (21.9.2.1) **OK**

Section Cut Design Summary

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

Section Cut ID: SC13H:13 (Horizontal) (Hinge)
Story: LEVEL 3
 Ag = 12609 in2 Imaj = 78641281 in4 Imin = 19012759 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 13
 Design Status: **PASS**



Axial/Flexural Results:
 Interaction: 0.247 **OK**
 Pu = 453.30 kips phiPn = 1832.17 kips
 Mu = 4010.7 kip-ft at Beta = -58.0 deg CCW from Major axis
 Controlling Load Combo: 0.784 D + 1.300 E29 (LC 542)
 Code Ref: 10.3.7

Shear Results:
 Segment SC13H:13A:
 Length = 9.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 91.5 kip phiVn = 257.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E13 (LC 310)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13B:
 Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 24.4 kip phiVn = 137.7 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E17 (LC 26)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13C:
 Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Shear Results:

Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 27.4 kip phiVn = 201.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E35 (LC 44)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13D:
 Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 36.1 kip phiVn = 137.7 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E17 (LC 98)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13E:
 Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 93.8 kip phiVn = 201.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13F:
 Length = 9.00 ft Thick = 12.00 in f_c = 3500 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 125.0 kip phiVn = 257.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13G:
 Length = 3.33 ft Thick = 12.00 in f_c = 3500 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 57.4 kip phiVn = 95.4 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13H:
 Length = 12.80 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 163.1 kip phiVn = 366.2 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.725% (11.9.4) **OK**
 S.B.E. Check: Neutral axis distance less than limit for all load combos
 Worst case is load combo 10 :
 cmax = 5.41 ft c = 0.85 ft (21.9.6.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Segment SC13H:13A:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC13H:13B:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC13H:13C:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC13H:13D:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC13H:13E:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC13H:13F:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC13H:13G:

Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC13H:13H:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

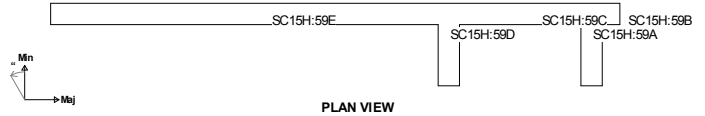
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Section Cut ID:

SC15H:59 (Horizontal) (Hinge)
Story: LEVEL 2
 Ag = 4716 in2 Imaj = 42697518 in4 Imin = 513525 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 15
 Design Status: **FAILS**



Axial/Flexural Results:

Interaction: 0.126 **OK**
 Pu = 1000.38 kips phiPn = 7936.60 kips
 Mu = 4463.6 kip-ft at Beta = 0.3 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
 Code Ref: 10.3.7

Shear Results:

Segment SC15H:59A:
 Length = 3.42 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 22.8 kip phiVn = 126.6 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
 Code Ref: 14.2.3 & 11.9.5

Segment SC15H:59B:
 Length = 1.33 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 29.9 kip phiVn = 49.4 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
 Code Ref: 14.2.3 & 11.9.5

Segment SC15H:59C:
 Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 84.4 kip phiVn = 250.0 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
 Code Ref: 14.2.3 & 11.9.5

Segment SC15H:59D:
 Length = 3.42 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi

Section Cut Design Summary

Shear Results:

Vert Bar Pat: Horiz Bar Pat:
Vu = 29.6 kip phiVn = 126.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:59E:

Length = 18.83 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 271.4 kip phiVn = 697.6 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E28 (LC 325)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 1.193% (11.9.9.4) OK
S.B.E. Check: Boundary zone required for one or more load combos **SAY OK**
Worst case is load combo 83 :
cmax = 1.96 ft c = 2.29 ft (21.9.6.2) NG

Segment SC15H:59A:

Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC15H:59B:

Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC15H:59C:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC15H:59D:

Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC15H:59E:

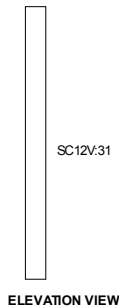
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK

Section Cut Design Summary

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC12V:31 (Vertical)
Story: LEVEL 2
Ag = 816 in2 Imaj = 4352 in4 Imin = 707472 in4
Wall Design Group: 12
Design Status: PASS



Axial/Flexural Results:

Interaction: 0.018 OK
Pu = -1.33 kips phiPn = -72.06 kips
Mu = 18.8 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E34 (LC 547)
Code Ref: 10.3.7

Shear Results:

Segment SC12V:31:
Length = 8.50 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 29.4 kip phiVn = 216.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E17 (LC 62)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.752% (11.9.9.2) OK
Segment SC12V:31:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK

Section Cut Design Summary

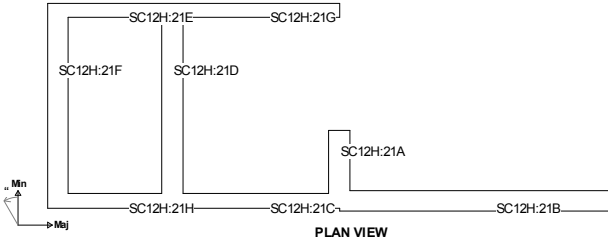
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 57/1293
07/25/17 11:03:32

Section Cut ID: SC12H:21 (Horizontal) (Hinge)
Story: LEVEL 2
Ag = 12609 in2 Imaj = 78641281 in4 Imin = 19012759 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 12
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.196 OK
Pu = 642.90 kips phiPn = 3280.58 kips
Mu = 5803.3 kip-ft at Beta = -39.3 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E29 (LC 542)
Code Ref: 10.3.7

Shear Results:
Segment SC12H:21A:
Length = 3.33 ft Thick = 12.00 in f'c = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 17.6 kip phiVn = 93.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21B:
Length = 12.80 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 167.8 kip phiVn = 358.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21C:
Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 58/1293
07/25/17 11:03:32

Shear Results:
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 110.4 kip phiVn = 198.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21D:
Length = 9.00 ft Thick = 12.00 in f'c = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 47.9 kip phiVn = 252.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E12 (LC 21)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21E:
Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 30.2 kip phiVn = 135.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E17 (LC 26)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21F:
Length = 9.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 40.7 kip phiVn = 252.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E10 (LC 163)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21G:
Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 39.4 kip phiVn = 198.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21H:
Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 48.6 kip phiVn = 135.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.725% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 6.24 ft c = 0.70 ft (21.9.6.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 59/1293
07/25/17 11:03:32

Segment SC12H:21A:
Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:21B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:21C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:21D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:21E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:21F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:21G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:21H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

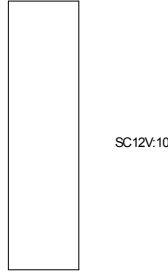
Page 60/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC12V:10 (Vertical)
Story: LEVEL 2.1
Ag = 240 in2 Imaj = 1280 in4 Imin = 18000 in4
Wall Design Group: 12
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.060 OK
Pu = 0.27 kips phiPn = 4.56 kips
Mu = 9.3 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 10.3.7

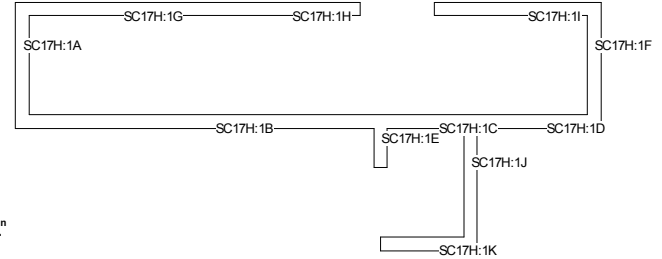
Shear Results:
Segment SC12V:10:
Length = 2.50 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 14.4 kip phiVn = 63.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 1.023% (11.9.9.2) OK
Segment SC12V:10:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC17H:1 (Horizontal)
Story: LEVEL 4
Ag = 16632 in2 Imaj = 464483501 in4 Imin = 67992964 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 17
Design Status: PASS



PLAN VIEW

Axial/Flexural Results:
Interaction: 0.059 OK
Pu = 1876.45 kips phiPn = 31716.96 kips
Mu = 2426.2 kip-ft at Beta = 39.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC17H:1A:
Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 135.3 kip phiVn = 243.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E21 (LC 174)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1B:
Length = 26.83 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 305.4 kip phiVn = 767.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:
Segment SC17H:1C:
Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 73.1 kip phiVn = 193.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1D:
Length = 9.25 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 119.0 kip phiVn = 264.7 kip OK
Controlling Load Combo: 1.316 D + 1.300 E7 (LC 448)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1E:
Length = 3.42 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 51.0 kip phiVn = 97.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1F:
Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 101.8 kip phiVn = 243.2 kip OK
Controlling Load Combo: 1.316 D + 1.300 E7 (LC 448)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1G:
Length = 13.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 59.3 kip phiVn = 372.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1H:
Length = 12.33 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 51.0 kip phiVn = 352.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E26 (LC 35)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1I:
Length = 12.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:
Vu = 46.7 kip phiVn = 343.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1J:
Length = 9.17 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 70.5 kip phiVn = 262.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1K:
Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 21.7 kip phiVn = 193.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.472% (11.9.9.4) OK

Segment SC17H:1A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC17H:1B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC17H:1C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC17H:1D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1E:
Max Vert Bar Spacing Limit: 13.67 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1I:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1J:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1K:

Section Cut Design Summary

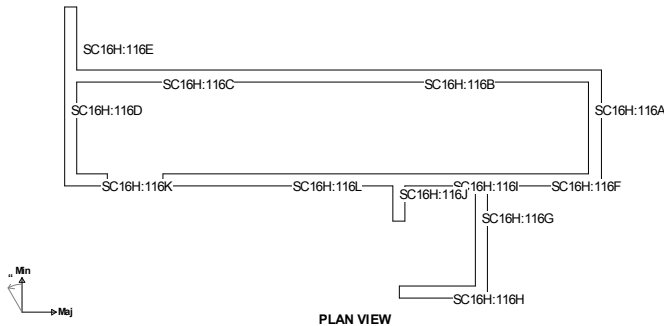
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC16H:116 (Horizontal) (Hinge)
Story: LEVEL 3.1
Ag = 17520 in2 Imaj = 494692829 in4 Imin = 79451243 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 16
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.080 OK
Pu = 1588.28 kips phiPn = 19808.27 kips
Mu = 11167.3 kip-ft at Beta = 35.8 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 10.3.7

Shear Results:
Segment SC16H:116A:
Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 139.2 kip phiVn = 314.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116B:
Length = 29.83 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 292.1 kip phiVn = 1105.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:
Code Ref: 14.2.3 & 11.9.5
Segment SC16H:116C:
Length = 13.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 56.4 kip phiVn = 481.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E35 (LC 44)
Code Ref: 14.2.3 & 11.9.5
Segment SC16H:116D:
Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 285.8 kip phiVn = 314.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5
Segment SC16H:116E:
Length = 5.67 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 147.8 kip phiVn = 209.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E21 (LC 30)
Code Ref: 14.2.3 & 11.9.5
Segment SC16H:116F:
Length = 9.25 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 110.8 kip phiVn = 342.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E6 (LC 159)
Code Ref: 14.2.3 & 11.9.5
Segment SC16H:116G:
Length = 9.17 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 70.5 kip phiVn = 339.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5
Segment SC16H:116H:
Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 21.7 kip phiVn = 250.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
Code Ref: 14.2.3 & 11.9.5
Segment SC16H:116I:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Shear Results:

Length = 6.75 ft Thick = 12.00 in $f_c = 4000$ psi $f_y = 60$ ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 $V_u = 60.9$ kip $\phi V_n = 250.0$ kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116J:

Length = 3.42 ft Thick = 12.00 in $f_c = 4000$ psi $f_y = 60$ ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 $V_u = 50.9$ kip $\phi V_n = 126.6$ kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116K:

Length = 3.00 ft Thick = 12.00 in $f_c = 4000$ psi $f_y = 60$ ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 $V_u = 50.2$ kip $\phi V_n = 111.1$ kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116L:

Length = 19.33 ft Thick = 12.00 in $f_c = 4000$ psi $f_y = 60$ ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 $V_u = 253.1$ kip $\phi V_n = 716.1$ kip OK
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E28 (LC 325)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.804% (11.9.9.4) OK
 S.B.E. Check: Neutral axis distance less than limit for all load combos
 Worst case is load combo 10 :
 $c_{max} = 7.93$ ft $c = 5.33$ ft (21.9.6.2) OK

Segment SC16H:116A:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116B:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116C:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116D:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116E:

Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 7.13 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.614% Actual: 1.253% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116F:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116G:

Max Vert Bar Spacing Limit: 18.00 in Actual: 6.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116H:

Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 7.25 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.920% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116I:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116J:

Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116K:

Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116L:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Section Cut ID:

SC19H:18 (Horizontal)

Story:

T.O. PENTHOUSE

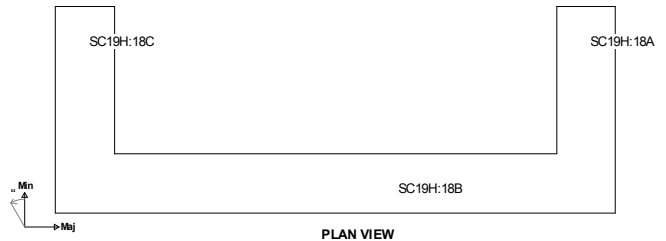
$A_g = 2088$ in²

$I_{maj} = 3362904$ in⁴ $I_{min} = 278446$ in⁴

Major Axis Orientation: 0.00 degrees (CCW from global X-axis)

Wall Design Group: 19

Design Status: PASS



Axial/Flexural Results:

Interaction: 0.024 OK
 $P_u = 56.52$ kips $\phi P_n = 2398.69$ kips
 $M_u = 49.0$ kip-ft at $\beta = -50.3$ deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:

Segment SC19H:18A:
 Length = 3.00 ft Thick = 12.00 in $f_c = 4000$ psi $f_y = 60$ ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 $V_u = 9.3$ kip $\phi V_n = 65.2$ kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E21 (LC 30)
 Code Ref: 14.2.3 & 11.9.5

Segment SC19H:18B:

Length = 8.50 ft Thick = 12.00 in $f_c = 4000$ psi $f_y = 60$ ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 $V_u = 21.5$ kip $\phi V_n = 184.7$ kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E23 (LC 32)
 Code Ref: 14.2.3 & 11.9.5

Segment SC19H:18C:

Length = 3.00 ft Thick = 12.00 in $f_c = 4000$ psi $f_y = 60$ ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:

Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 8.8 kip phiVn = 65.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

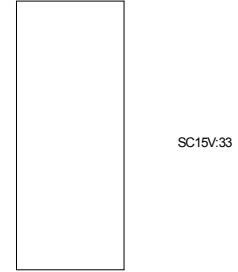
Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.357% (11.9.9.4) OK
Segment SC19H:18A:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:18B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:18C:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC15V:33 (Vertical)
Story: LEVEL 2.1
Ag = 360 in2 Imaj = 4320 in4 Imin = 27000 in4
Wall Design Group: 15
Design Status: PASS



ELEVATION VIEW



Axial/Flexural Results:

Interaction: 0.334 OK
Pu = 5.70 kips phiPn = 17.07 kips
Mu = 78.7 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 10.3.7

Shear Results:

Segment SC15V:33:
Length = 2.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 74.8 kip phiVn = 92.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

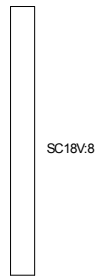
Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.982% (14.3.3) OK
Segment SC15V:33:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC18V:8 (Vertical)
Story: ROOF LEVEL
Ag = 1584 in2 Imaj = 19008 in4 Imin = 2299968 in4
Wall Design Group: 18
Design Status: PASS



ELEVATION VIEW



Axial/Flexural Results:

Interaction: 0.155 OK
Pu = -21.48 kips phiPn = -139.01 kips
Mu = 96.6 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E10 (LC 523)
Code Ref: 10.3.7

Shear Results:

Segment SC18V:8:
Length = 11.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 61.0 kip phiVn = 236.4 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E10 (LC 307)
Code Ref: 14.2.3 & 11.9.5

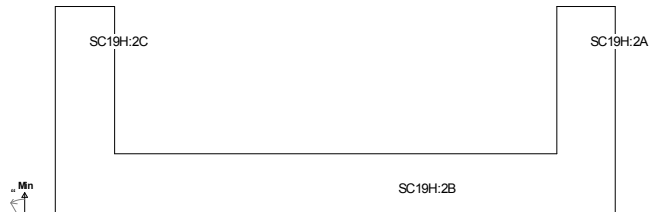
Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.297% (11.9.9.2) OK
Segment SC18V:8:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC19H:2 (Horizontal)
Story: T.O. PENTHOUSE
Ag = 2088 in2 Imaj = 3362904 in4 Imin = 278446 in4
Major Axis Orientation: 0.00 degrees (CCW from global X-axis)
Wall Design Group: 19
Design Status: PASS



PLAN VIEW



Axial/Flexural Results:

Interaction: 0.052 OK
Pu = 14.01 kips phiPn = 267.55 kips
Mu = 157.9 kip-ft at Beta = -7.6 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E27 (LC 540)
Code Ref: 10.3.7

Shear Results:

Segment SC19H:2A:
Length = 3.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 9.3 kip phiVn = 65.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E21 (LC 30)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:2B:

Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 21.5 kip phiVn = 184.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E23 (LC 32)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:2C:

Length = 3.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:

Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 8.8 kip phiVn = 65.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

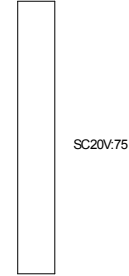
Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.357% (11.9.9.4) OK
Segment SC19H:2A:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:2B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:2C:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC20V:75 (Vertical)
Story: LEVEL 2
Ag = 1428 in2 Imaj = 23324 in4 Imin = 1238076 in4
Wall Design Group: 20
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:

Interaction: 0.034 OK
Pu = -3.06 kips phiPn = -88.78 kips
Mu = 20.4 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E17 (LC 566)
Code Ref: 10.3.7

Shear Results:

Segment SC20V:75:
Length = 8.50 ft Thick = 14.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 58.1 kip phiVn = 207.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E16 (LC 61)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.302% (11.9.9.2) OK
Segment SC20V:75:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

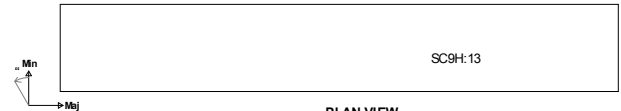
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC9H:13 (Horizontal) (Hinge)
Story: LEVEL 3
Ag = 1632 in2 Imaj = 1414946 in4 Imin = 34816 in4
Major Axis Orientation: 0.00 degrees (CCW from global X-axis)
Wall Design Group: 9
Design Status: PASS



PLAN VIEW

Axial/Flexural Results:

Interaction: 0.830 OK
Pu = 84.10 kips phiPn = 101.35 kips
Mu = 1413.7 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E14 (LC 527)
Code Ref: 10.3.7

Shear Results:

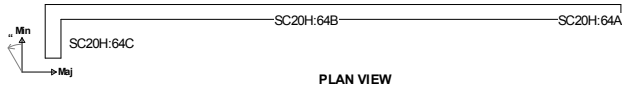
Segment SC9H:13:
Length = 8.50 ft Thick = 16.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 196.1 kip phiVn = 270.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.376% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 2.02 ft c = 1.07 ft (21.9.6.2) OK
Segment SC9H:13:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.320% Actual: 0.320% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC20H:64 (Horizontal)
Story: LEVEL 2
Ag = 7728 in2 Imaj = 190255699 in4 Imin = 443699 in4
Major Axis Orientation: 0.00 degrees (CCW from global X-axis)
Wall Design Group: 20
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.075 OK
Pu = 352.97 kips phiPn = 4691.59 kips
Mu = 1892.7 kip-ft at Beta = -2.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 10.3.7

Shear Results:
Segment SC20H:64A:
Length = 11.75 ft Thick = 14.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 80.4 kip phiVn = 286.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC20H:64B:
Length = 30.75 ft Thick = 14.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 141.6 kip phiVn = 750.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC20H:64C:
Length = 3.50 ft Thick = 14.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 55.1 kip phiVn = 85.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E17 (LC 26)
Code Ref: 14.2.3 & 11.9.5

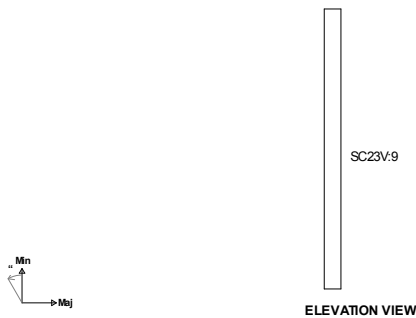
Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.264% (11.9.4) OK
Segment SC20H:64A:

Section Cut Design Summary

Max Vert Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC20H:64B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC20H:64C:
Max Vert Bar Spacing Limit: 14.00 in Actual: 11.00 in (11.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC23V:9 (Vertical)
Story: T.O. PENTHOUSE
Ag = 1008 in2 Imaj = 5376 in4 Imin = 1333584 in4
Wall Design Group: 23
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.064 OK
Pu = -3.09 kips phiPn = -48.41 kips
Mu = 65.0 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC23V:9:
Length = 10.50 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 28.1 kip phiVn = 194.8 kip OK
Controlling Load Combo: 1.316 D - 1.300 E31 (LC 508)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.467% (11.9.2) OK
Segment SC23V:9:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK

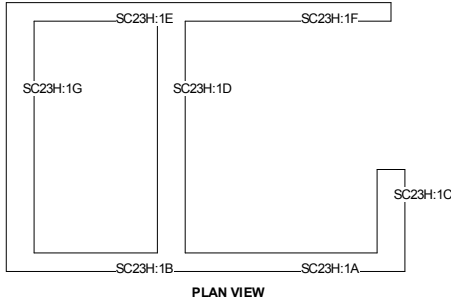
Section Cut Design Summary

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Section Cut ID: SC23H:1 (Horizontal)
Story: T.O. PENTHOUSE
 Ag = 10826 in2 I_{maj} = 20003992 in⁴ I_{min} = 14769055 in⁴
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 23
 Design Status: **PASS**



Axial/Flexural Results:
 Interaction: 0.040 **OK**
 Pu = 227.53 kips phiP_n = 5742.58 kips
 Mu = 929.6 kip-ft at Beta = 9.7 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:
Segment SC23H:1A:
 Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 22.9 kip phiV_n = 147.0 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E29 (LC 38)
 Code Ref: 14.2.3 & 11.9.5

Segment SC23H:1B:
 Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 18.4 kip phiV_n = 100.4 kip **OK**
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Shear Results:
Segment SC23H:1C:
 Length = 3.33 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 2.9 kip phiV_n = 72.4 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E31 (LC 112)
 Code Ref: 14.2.3 & 11.9.5

Segment SC23H:1D:
 Length = 9.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 15.0 kip phiV_n = 195.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E22 (LC 31)
 Code Ref: 14.2.3 & 11.9.5

Segment SC23H:1E:
 Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 14.9 kip phiV_n = 100.4 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E31 (LC 40)
 Code Ref: 14.2.3 & 11.9.5

Segment SC23H:1F:
 Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 16.7 kip phiV_n = 147.0 kip **OK**
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
 Code Ref: 14.2.3 & 11.9.5

Segment SC23H:1G:
 Length = 9.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 13.0 kip phiV_n = 195.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E34 (LC 43)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) **OK**
Segment SC23H:1A:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC23H:1B:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**

Section Cut Design Summary

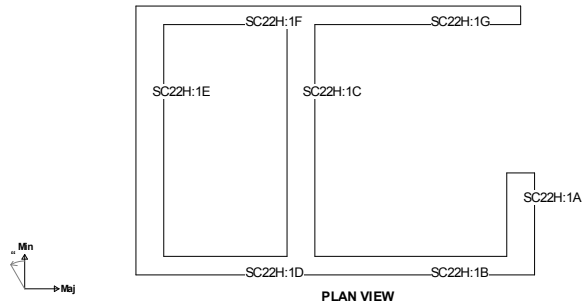
RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC23H:1C:
 Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC23H:1D:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC23H:1E:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC23H:1F:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC23H:1G:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Section Cut ID: SC22H:1 (Horizontal)
Story: ROOF LEVEL
 Ag = 10826 in2 I_{maj} = 20003992 in⁴ I_{min} = 14769055 in⁴
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 22
 Design Status: **PASS**



Axial/Flexural Results:
 Interaction: 0.056 **OK**
 Pu = 457.83 kips phiP_n = 8240.18 kips
 Mu = 1187.6 kip-ft at Beta = -22.8 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:
Segment SC22H:1A:
 Length = 3.33 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 1.9 kip phiV_n = 72.4 kip **OK**
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 14.2.3 & 11.9.5

Segment SC22H:1B:
 Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 38.2 kip phiV_n = 147.0 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
 Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 89/1293
 07/25/17 11:03:32

Shear Results:

Segment SC22H:1C:
 Length = 9.00 ft Thick = 12.00 in $f_c = 4000$ psi $f_y = 60$ ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 $V_u = 24.1$ kip $\phi V_n = 195.5$ kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

Segment SC22H:1D:
 Length = 5.41 ft Thick = 8.00 in $f_c = 4000$ psi $f_y = 60$ ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 $V_u = 11.0$ kip $\phi V_n = 100.4$ kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E32 (LC 185)
 Code Ref: 14.2.3 & 11.9.5

Segment SC22H:1E:
 Length = 9.00 ft Thick = 12.00 in $f_c = 4000$ psi $f_y = 60$ ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 $V_u = 26.3$ kip $\phi V_n = 195.5$ kip OK
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
 Code Ref: 14.2.3 & 11.9.5

Segment SC22H:1F:
 Length = 5.41 ft Thick = 8.00 in $f_c = 4000$ psi $f_y = 60$ ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 $V_u = 13.0$ kip $\phi V_n = 100.4$ kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

Segment SC22H:1G:
 Length = 7.92 ft Thick = 8.00 in $f_c = 4000$ psi $f_y = 60$ ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 $V_u = 33.5$ kip $\phi V_n = 147.0$ kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) OK
 Segment SC22H:1A:
 Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC22H:1B:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 90/1293
 07/25/17 11:03:32

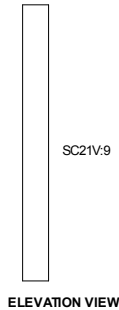
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC22H:1C:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC22H:1D:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC22H:1E:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC22H:1F:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC22H:1G:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 91/1293
 07/25/17 11:03:32

Section Cut ID: SC21V:9 (Vertical)
Story: LEVEL 4
 Ag = 1440 in2 Imaj = 17280 in4 Imin = 1728000 in4
 Wall Design Group: 21
 Design Status: PASS



Axial/Flexural Results:
 Interaction: 0.248 OK
 $P_u = -34.63$ kips $\phi P_n = -139.54$ kips
 $M_u = 114.4$ kip-ft at Beta = 0.0 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E15 (LC 60)
 Code Ref: 10.3.7

Shear Results:
 Segment SC21V:9:
 Length = 10.00 ft Thick = 12.00 in $f_c = 4000$ psi $f_y = 60$ ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 $V_u = 31.7$ kip $\phi V_n = 214.0$ kip OK
 Controlling Load Combo: 1.316 D + 0.200 Sp - 1.300 E32 (LC 365)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.300% (11.9.9.2) OK
 Segment SC21V:9:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

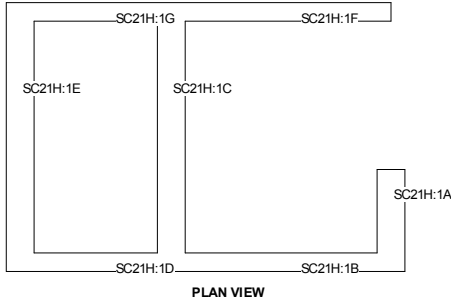
Page 92/1293
 07/25/17 11:03:32

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Section Cut ID: SC21H:1 (Horizontal) (Hinge)
Story: LEVEL 4
 Ag = 10826 in2 Imaj = 20003992 in4 Imin = 14769055 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 21
 Design Status: **PASS**



Axial/Flexural Results:
 Interaction: 0.066 **OK**
 Pu = 626.05 kips phiPn = 9497.96 kips
 Mu = 1154.2 kip-ft at Beta = -32.2 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:
 Segment SC21H:1A:
 Length = 3.33 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 7.2 kip phiVn = 72.4 kip **OK**
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 14.2.3 & 11.9.5

Segment SC21H:1B:
 Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 57.7 kip phiVn = 147.0 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
 Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Shear Results:
 Segment SC21H:1C:
 Length = 9.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 33.6 kip phiVn = 195.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
 Code Ref: 14.2.3 & 11.9.5

Segment SC21H:1D:
 Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 16.4 kip phiVn = 100.4 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
 Code Ref: 14.2.3 & 11.9.5

Segment SC21H:1E:
 Length = 9.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 35.4 kip phiVn = 195.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
 Code Ref: 14.2.3 & 11.9.5

Segment SC21H:1F:
 Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 46.9 kip phiVn = 147.0 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

Segment SC21H:1G:
 Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 12.7 kip phiVn = 100.4 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E31 (LC 40)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) **OK**
 S.B.E. Check: Neutral axis distance less than limit for all load combos
 Worst case is load combo 10 :
 cmax = 3.23 ft c = 0.43 ft (21.9.6.2) **OK**

Segment SC21H:1A:
 Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**

Section Cut Design Summary

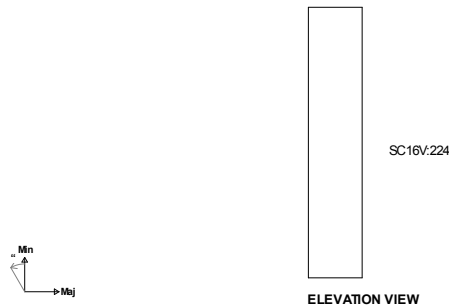
RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC21H:1B:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC21H:1C:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC21H:1D:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC21H:1E:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC21H:1F:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC21H:1G:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Section Cut ID: SC16V:224 (Vertical)
Story: LEVEL 2.3
 Ag = 720 in2 Imaj = 8640 in4 Imin = 216000 in4
 Wall Design Group: 16
 Design Status: **PASS**



Axial/Flexural Results:
 Interaction: 0.128 **OK**
 Pu = -24.78 kips phiPn = -193.19 kips
 Mu = 28.9 kip-ft at Beta = -0.0 deg CCW from Major axis
 Controlling Load Combo: 0.784 D - 1.300 E24 (LC 573)
 Code Ref: 10.3.7

Shear Results:
 Segment SC16V:224:
 Length = 5.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 45.6 kip phiVn = 182.6 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E24 (LC 69)
 Code Ref: 14.2.3 & 11.9.5

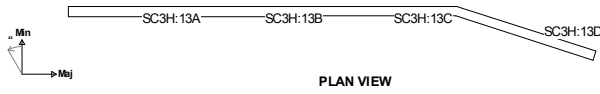
Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.736% (14.3.3) **OK**
 Segment SC16V:224:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 97/1293
07/25/17 11:03:32

Section Cut ID: SC3H:13 (Horizontal)
Story: LEVEL 2
Ag = 12262 in2 Imaj = 680721754 in4 Imin = 4162117 in4
Major Axis Orientation: 17.75 degrees (CCW from global X-axis)
Wall Design Group: 3
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.074 OK
Pu = 715.35 kips phiPn = 9707.98 kips
Mu = 2300.8 kip-ft at Beta = -11.8 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 10.3.7

Shear Results:
Segment SC3H:13A:
Length = 16.34 ft Thick = 16.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@15" oc Horiz Bar Pat: #5@15" oc
Vu = 88.7 kip phiVn = 456.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
Code Ref: 14.2.3 & 11.9.5

Segment SC3H:13B:
Length = 14.99 ft Thick = 16.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@15" oc Horiz Bar Pat: #5@15" oc
Vu = 97.6 kip phiVn = 418.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E13 (LC 22)
Code Ref: 14.2.3 & 11.9.5

Segment SC3H:13C:
Length = 18.53 ft Thick = 14.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@15" oc Horiz Bar Pat: #5@15" oc
Vu = 129.5 kip phiVn = 488.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E13 (LC 22)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 98/1293
07/25/17 11:03:32

Shear Results:
Segment SC3H:13D:
Length = 18.66 ft Thick = 14.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@15" oc Horiz Bar Pat: #5@15" oc
Vu = 184.8 kip phiVn = 492.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

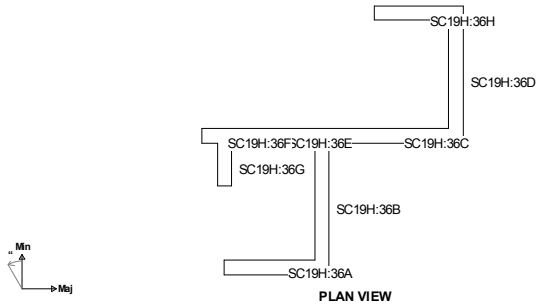
Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.290% (11.9.9.4) OK
Segment SC3H:13A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 15.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 14.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.256% Actual: 0.256% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC3H:13B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 15.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 14.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.256% Actual: 0.256% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC3H:13C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 15.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 14.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.292% Actual: 0.292% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 99/1293
07/25/17 11:03:32

Section Cut ID: SC19H:36 (Horizontal)
Story: T.O. PENTHOUSE
Ag = 7212 in2 Imaj = 32002731 in4 Imin = 29971926 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 19
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.019 OK
Pu = 243.56 kips phiPn = 13035.30 kips
Mu = 286.2 kip-ft at Beta = -66.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC19H:36A:
Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 14.5 kip phiVn = 146.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E26 (LC 35)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:36B:
Length = 9.17 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 38.4 kip phiVn = 199.1 kip OK
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 100/1293
07/25/17 11:03:32

Shear Results:
Segment SC19H:36C:
Length = 9.25 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 21.6 kip phiVn = 200.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:36D:
Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 17.3 kip phiVn = 184.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E10 (LC 163)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:36E:
Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 17.4 kip phiVn = 146.6 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E6 (LC 303)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:36F:
Length = 1.58 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 9.2 kip phiVn = 34.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:36G:
Length = 3.42 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 11.4 kip phiVn = 74.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:36H:
Length = 5.67 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 9.8 kip phiVn = 123.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E5 (LC 158)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.310% (11.9.9.4) OK
Segment SC19H:36A:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 101/1293
 07/25/17 11:03:32

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC19H:36B:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC19H:36C:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC19H:36D:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC19H:36E:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC19H:36F:
 Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC19H:36G:
 Max Vert Bar Spacing Limit: 13.67 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC19H:36H:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 102/1293
 07/25/17 11:03:32

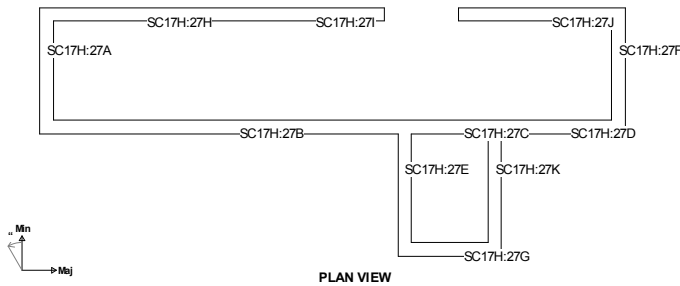
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 103/1293
 07/25/17 11:03:32

Section Cut ID: SC17H:27 (Horizontal)
Story: LEVEL 4
 Ag = 24222 in2 Imaj = 507025850 in4 Imin = 112929491 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 17
 Design Status: PASS



Axial/Flexural Results:
 Interaction: 0.057 OK
 Pu = 1898.54 kips phiPn = 33289.22 kips
 Mu = 2628.2 kip-ft at Beta = 31.2 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:
 Segment SC17H:27A:
 Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 135.3 kip phiVn = 243.2 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E21 (LC 174)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27B:
 Length = 26.83 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 309.8 kip phiVn = 767.9 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E28 (LC 181)
 Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 104/1293
 07/25/17 11:03:32

Shear Results:
 Segment SC17H:27C:
 Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 58.6 kip phiVn = 193.2 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27D:
 Length = 9.25 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 121.8 kip phiVn = 264.7 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27E:
 Length = 9.17 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 53.0 kip phiVn = 262.3 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27F:
 Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 101.8 kip phiVn = 243.2 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E7 (LC 448)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27G:
 Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 21.7 kip phiVn = 193.2 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27H:
 Length = 13.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 77.2 kip phiVn = 372.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27I:
 Length = 12.33 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:

Vu = 60.2 kip phiVn = 352.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E12 (LC 21)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27J:

Length = 12.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 47.7 kip phiVn = 343.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E15 (LC 24)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27K:

Length = 9.17 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 70.5 kip phiVn = 262.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.471% (11.9.9.4) OK
Segment SC17H:27A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27I:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27J:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27K:

Section Cut Design Summary

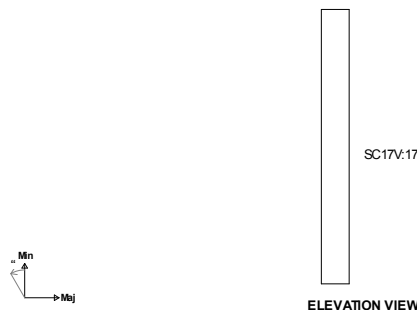
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC17V:17 (Vertical)
Story: LEVEL 4
Ag = 1368 in2 Imaj = 16416 in4 Imin = 1481544 in4
Wall Design Group: 17
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.171 OK
Pu = -24.49 kips phiPn = -143.35 kips
Mu = 170.9 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E24 (LC 573)
Code Ref: 10.3.7

Shear Results:
Segment SC17V:17:
Length = 9.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 94.0 kip phiVn = 271.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

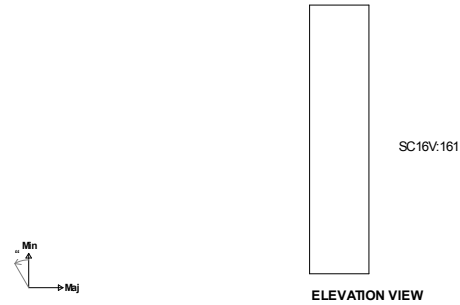
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC16V:161 (Vertical)
Story: LEVEL 3
Ag = 648 in2 Imaj = 7776 in4 Imin = 157464 in4
Wall Design Group: 16
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.275 OK
Pu = -44.05 kips phiPn = -160.11 kips
Mu = 62.6 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E10 (LC 559)
Code Ref: 10.3.7

Shear Results:
Segment SC16V:161:
Length = 4.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 37.1 kip phiVn = 166.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.818% (14.3.3) OK
Segment SC16V:161:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC18V:19 (Vertical)
Story: ROOF LEVEL
Ag = 1584 in2 Imaj = 19008 in4 Imin = 2299968 in4
Wall Design Group: 18
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.029 OK
Pu = -1.52 kips phiPn = -51.95 kips
Mu = 31.2 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E28 (LC 541)
Code Ref: 10.3.7

Shear Results:
Segment SC18V:19:
Length = 11.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 29.9 kip phiVn = 239.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.297% (11.9.9.2) OK
Segment SC18V:19:
Max Horiz Bar Spacing Limit: 16.20 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC3V:3 (Vertical)
Story: LEVEL 2.3
Ag = 960 in2 Imaj = 20480 in4 Imin = 288000 in4
Wall Design Group: 3
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.029 OK
Pu = -0.29 kips phiPn = -9.94 kips
Mu = 10.8 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
Code Ref: 10.3.7

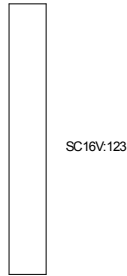
Shear Results:
Segment SC3V:3:
Length = 5.00 ft Thick = 16.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@15" oc Horiz Bar Pat: #5@15" oc
Vu = 11.9 kip phiVn = 139.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E17 (LC 62)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.320% (11.9.9.2) OK
Segment SC3V:3:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 15.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 14.38 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC16V:123 (Vertical)
Story: LEVEL 3.1
Ag = 1008 in2 Imaj = 12096 in4 Imin = 592704 in4
Wall Design Group: 16
Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.965 **OK**
Pu = 27.93 kips phiPn = 28.95 kips
Mu = 1253.4 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 10.3.7

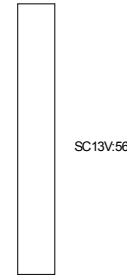
Shear Results:
Segment SC16V:123:
Length = 7.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 161.5 kip phiVn = 259.3 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E21 (LC 66)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.701% (14.3.3) **OK**
Segment SC16V:123:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC13V:56 (Vertical)
Story: LEVEL 3.1
Ag = 1008 in2 Imaj = 12096 in4 Imin = 592704 in4
Wall Design Group: 13
Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.151 **OK**
Pu = -10.96 kips phiPn = -72.70 kips
Mu = 96.6 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E16 (LC 529)
Code Ref: 10.3.7

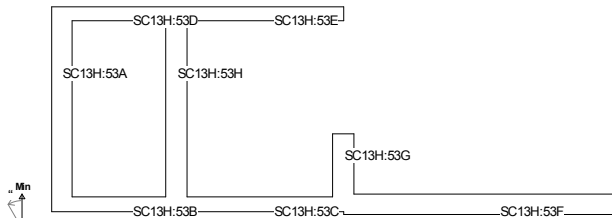
Shear Results:
Segment SC13V:56:
Length = 7.00 ft Thick = 12.00 in f'c = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 88.4 kip phiVn = 196.0 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E16 (LC 61)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.487% (11.9.9.2) **OK**
Segment SC13V:56:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC13H:53 (Horizontal) (Hinge)
Story: LEVEL 3.1
Ag = 12609 in2 Imaj = 78641281 in4 Imin = 19012759 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 13
Design Status: **PASS**



PLAN VIEW

Axial/Flexural Results:
Interaction: 0.096 **OK**
Pu = 1385.41 kips phiPn = 14499.25 kips
Mu = 2897.7 kip-ft at Beta = -18.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC13H:53A:
Length = 9.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 91.5 kip phiVn = 257.5 kip **OK**
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E13 (LC 310)
Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53B:
Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 39.9 kip phiVn = 137.7 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E9 (LC 18)
Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53C:
Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 82.6 kip phiVn = 201.5 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E17 (LC 98)
Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53D:
Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 28.9 kip phiVn = 137.7 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E17 (LC 26)
Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53E:
Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 23.8 kip phiVn = 201.5 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Ln + 1.300 E34 (LC 259)
Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53F:
Length = 12.80 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 195.3 kip phiVn = 366.2 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53G:
Length = 3.33 ft Thick = 12.00 in f'c = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 57.4 kip phiVn = 95.4 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53H:
Length = 9.00 ft Thick = 12.00 in f'c = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 124.9 kip phiVn = 257.5 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.725% (11.9.9.4) **OK**
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 6.00 ft c = 0.70 ft (21.9.6.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 117/1293
 07/25/17 11:03:32

Segment SC13H:53A:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC13H:53B:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC13H:53C:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC13H:53D:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC13H:53E:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC13H:53F:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC13H:53G:
 Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC13H:53H:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 118/1293
 07/25/17 11:03:32

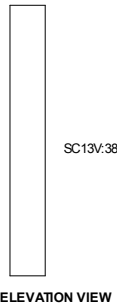
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 119/1293
 07/25/17 11:03:32

Section Cut ID: SC13V:38 (Vertical)
Story: LEVEL 2.3
 Ag = 480 in2 Imaj = 2560 in4 Imin = 144000 in4
 Wall Design Group: 13
 Design Status: **PASS**



Axial/Flexural Results:
 Interaction: 0.084 **OK**
 Pu = -1.72 kips phiPn = -20.49 kips
 Mu = 35.0 kip-ft at Beta = 0.0 deg CCW from Major axis
 Controlling Load Combo: 0.784 D + 1.300 E24 (LC 537)
 Code Ref: 10.3.7

Shear Results:
 Segment SC13V:38:
 Length = 5.00 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 39.1 kip phiVn = 127.3 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E17 (LC 62)
 Code Ref: 14.2.3 & 11.9.5

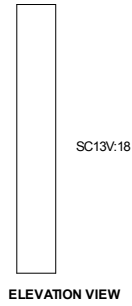
Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.767% (11.9.9.2) **OK**
 Segment SC13V:38:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 120/1293
 07/25/17 11:03:32

Section Cut ID: SC13V:18 (Vertical)
Story: LEVEL 3
 Ag = 432 in2 Imaj = 2304 in4 Imin = 104976 in4
 Wall Design Group: 13
 Design Status: **PASS**



Axial/Flexural Results:
 Interaction: 0.024 **OK**
 Pu = 4.58 kips phiPn = 194.14 kips
 Mu = 16.4 kip-ft at Beta = -0.0 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E13 (LC 22)
 Code Ref: 10.3.7

Shear Results:
 Segment SC13V:18:
 Length = 4.50 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 13.4 kip phiVn = 114.6 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.852% (11.9.9.2) **OK**
 Segment SC13V:18:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 121/1293
07/25/17 11:03:32

Section Cut ID: SC15V:75 (Vertical)
Story: LEVEL 2
Ag = 1944 in2 Imaj = 23328 in4 Imin = 4251528 in4
Wall Design Group: 15
Design Status: **PASS**



Axial/Flexural Results:
Interaction: 0.073 **OK**
Pu = -23.22 kips phiPn = -317.96 kips
Mu = 195.4 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E10 (LC 559)
Code Ref: 10.3.7

Shear Results:
Segment SC15V:75:
Length = 13.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 147.1 kip phiVn = 499.0 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E10 (LC 55)
Code Ref: 14.2.3 & 11.9.5

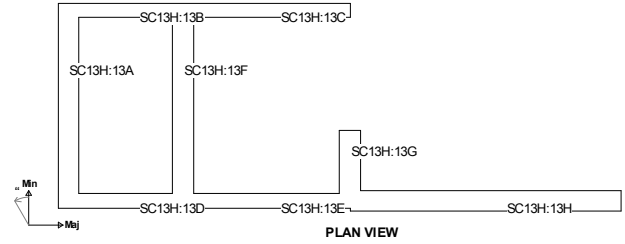
Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.727% (14.3.3) **OK**
Segment SC15V:75:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 122/1293
07/25/17 11:03:32

Section Cut ID: SC13H:13 (Horizontal) (Hinge)
Story: LEVEL 3
Ag = 12609 in2 Imaj = 78641281 in4 Imin = 19012759 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 13
Design Status: **PASS**



Axial/Flexural Results:
Interaction: 0.247 **OK**
Pu = 453.30 kips phiPn = 1832.17 kips
Mu = 4010.7 kip-ft at Beta = -58.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E29 (LC 542)
Code Ref: 10.3.7

Shear Results:
Segment SC13H:13A:
Length = 9.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 91.5 kip phiVn = 257.5 kip **OK**
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E13 (LC 310)
Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13B:
Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 24.4 kip phiVn = 137.7 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E17 (LC 26)
Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13C:
Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 123/1293
07/25/17 11:03:32

Shear Results:
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 27.4 kip phiVn = 201.5 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E35 (LC 44)
Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13D:
Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 36.1 kip phiVn = 137.7 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E17 (LC 98)
Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13E:
Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 93.8 kip phiVn = 201.5 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13F:
Length = 9.00 ft Thick = 12.00 in f'c = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 125.0 kip phiVn = 257.5 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13G:
Length = 3.33 ft Thick = 12.00 in f'c = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 57.4 kip phiVn = 95.4 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13H:
Length = 12.80 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 163.1 kip phiVn = 366.2 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.725% (11.9.9.4) **OK**
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 5.41 ft c = 0.85 ft (21.9.6.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 124/1293
07/25/17 11:03:32

Segment SC13H:13A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC13H:13B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC13H:13C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC13H:13D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC13H:13E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC13H:13F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC13H:13G:
Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC13H:13H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**

Section Cut Design Summary

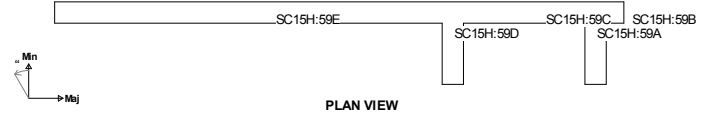
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC15H:59 (Horizontal) (Hinge)
Story: LEVEL 2
Ag = 4716 in2 Imaj = 42697518 in4 Imin = 513525 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 15
Design Status: **FAILS**



Axial/Flexural Results:
Interaction: 0.126 OK
Pu = 1000.38 kips phiPn = 7936.60 kips
Mu = 4463.6 kip-ft at Beta = 0.3 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 10.3.7

Shear Results:
Segment SC15H:59A:
Length = 3.42 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 22.8 kip phiVn = 126.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:59B:
Length = 1.33 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 29.9 kip phiVn = 49.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:59C:
Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 84.4 kip phiVn = 250.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:59D:
Length = 3.42 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:
Vert Bar Pat: Horiz Bar Pat:
Vu = 29.6 kip phiVn = 126.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:59E:
Length = 18.83 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 271.4 kip phiVn = 697.6 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E28 (LC 325)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 1.193% (11.9.9.4) OK
S.B.E. Check: **Boundary zone required for one or more load combos**
Worst case is load combo 83 : **SAY OK**
cmax = 1.96 ft c = 2.29 ft (21.9.6.2) NG

Segment SC15H:59A:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC15H:59B:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC15H:59C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC15H:59D:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC15H:59E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK

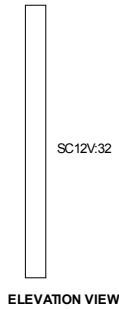
Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC12V:32 (Vertical)
Story: LEVEL 2
 Ag = 816 in2 Imaj = 4352 in4 Imin = 707472 in4
 Wall Design Group: 12
 Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:
 Interaction: 0.031 **OK**
 Pu = 10.82 kips phiPn = 347.24 kips
 Mu = 70.7 kip-ft at Beta = -0.0 deg CCW from Major axis
 Controlling Load Combo: 0.784 D + 1.300 E28 (LC 541)
 Code Ref: 10.3.7

Shear Results:
 Segment SC12V:32:
 Length = 8.50 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 114.7 kip phiVn = 216.4 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
 Code Ref: 14.2.3 & 11.9.5

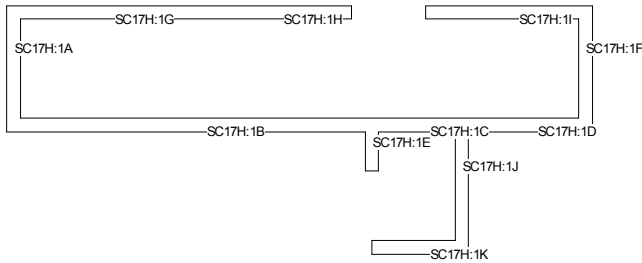
Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.752% (11.9.9.2) **OK**
 Segment SC12V:32:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**

Section Cut Design Summary

Min web reinforcement ratio: 0.250% Actual: 0.639% (21.9.2.1) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

Section Cut ID: SC17H:1 (Horizontal)
Story: LEVEL 4
 Ag = 16632 in2 Imaj = 464483501 in4 Imin = 67992964 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 17
 Design Status: **PASS**



PLAN VIEW

Axial/Flexural Results:
 Interaction: 0.059 **OK**
 Pu = 1876.45 kips phiPn = 31716.96 kips
 Mu = 2426.2 kip-ft at Beta = 39.0 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:
 Segment SC17H:1A:
 Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 135.3 kip phiVn = 243.2 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E21 (LC 174)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1B:
 Length = 26.83 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 305.4 kip phiVn = 767.9 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
 Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

Shear Results:
 Segment SC17H:1C:
 Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 73.1 kip phiVn = 193.2 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1D:
 Length = 9.25 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 119.0 kip phiVn = 264.7 kip **OK**
 Controlling Load Combo: 1.316 D + 1.300 E7 (LC 448)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1E:
 Length = 3.42 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 51.0 kip phiVn = 97.8 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1F:
 Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 101.8 kip phiVn = 243.2 kip **OK**
 Controlling Load Combo: 1.316 D + 1.300 E7 (LC 448)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1G:
 Length = 13.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 59.3 kip phiVn = 372.0 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1H:
 Length = 12.33 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 51.0 kip phiVn = 352.9 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E26 (LC 35)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1I:
 Length = 12.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 133/1293
 07/25/17 11:03:32

Shear Results:

Vu = 46.7 kip phiVn = 343.4 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1J:

Length = 9.17 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 70.5 kip phiVn = 262.3 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1K:

Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 21.7 kip phiVn = 193.2 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.472% (11.9.9.4) OK
 Segment SC17H:1A:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC17H:1B:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC17H:1C:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC17H:1D:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 134/1293
 07/25/17 11:03:32

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC17H:1E:
 Max Vert Bar Spacing Limit: 13.67 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC17H:1F:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC17H:1G:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC17H:1H:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC17H:1I:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC17H:1J:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC17H:1K:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 135/1293
 07/25/17 11:03:32

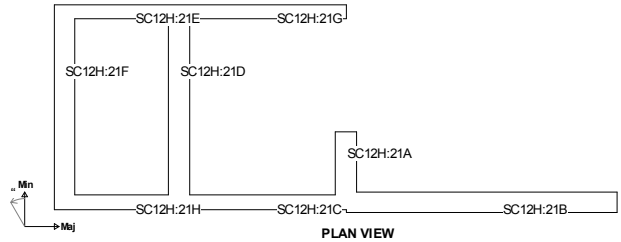
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 136/1293
 07/25/17 11:03:32

Section Cut ID: SC12H:21 (Horizontal) (Hinge)
Story: LEVEL 2
 Ag = 12609 in2 Imaj = 78641281 in4 Imin = 19012759 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 12
 Design Status: PASS



Axial/Flexural Results:

Interaction: 0.196 OK
 Pu = 642.90 kips phiPn = 3280.58 kips
 Mu = 5803.3 kip-ft at Beta = -39.3 deg CCW from Major axis
 Controlling Load Combo: 0.784 D + 1.300 E29 (LC 542)
 Code Ref: 10.3.7

Shear Results:

Segment SC12H:21A:
 Length = 3.33 ft Thick = 12.00 in fc = 3500 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 17.6 kip phiVn = 93.3 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
 Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21B:

Length = 12.80 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 167.8 kip phiVn = 358.4 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
 Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21C:

Length = 7.92 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 137/1293
07/25/17 11:03:32

Shear Results:

Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 110.4 kip phiVn = 198.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21D:
Length = 9.00 ft Thick = 12.00 in f'c = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 47.9 kip phiVn = 252.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E12 (LC 21)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21E:
Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 30.2 kip phiVn = 135.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E17 (LC 26)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21F:
Length = 9.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 40.7 kip phiVn = 252.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E10 (LC 163)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21G:
Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 39.4 kip phiVn = 198.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21H:
Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 48.6 kip phiVn = 135.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.725% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 6.24 ft c = 0.70 ft (21.9.6.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 138/1293
07/25/17 11:03:32

Segment SC12H:21A:

Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC12H:21B:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC12H:21C:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC12H:21D:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC12H:21E:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC12H:21F:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC12H:21G:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC12H:21H:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 139/1293
07/25/17 11:03:32

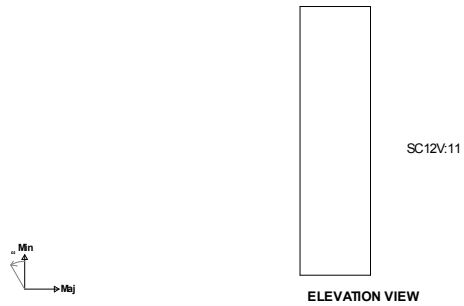
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 140/1293
07/25/17 11:03:32

Section Cut ID: SC12V:11 (Vertical)
Story: LEVEL 2.1
Ag = 240 in2 Imaj = 1280 in4 Imin = 18000 in4
Wall Design Group: 12
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.074 OK
Pu = -0.04 kips phiPn = -0.49 kips
Mu = 11.2 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E36 (LC 189)
Code Ref: 10.3.7

Shear Results:
Segment SC12V:11:
Length = 2.50 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 10.4 kip phiVn = 63.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E36 (LC 189)
Code Ref: 14.2.3 & 11.9.5

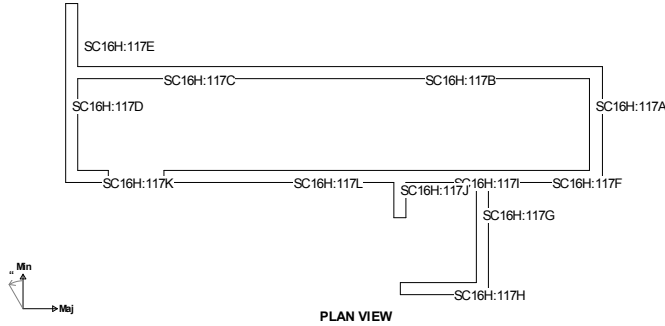
Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 1.023% (11.9.9.2) OK
Segment SC12V:11:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 141/1293
07/25/17 11:03:32

Section Cut ID: SC16H:117 (Horizontal) (Hinge)
Story: LEVEL 3.1
Ag = 17520 in2 Imaj = 494692829 in4 Imin = 79451243 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 16
Design Status: FAILS



Axial/Flexural Results:
Interaction: 0.062 OK
Pu = 2164.57 kips phiPn = 35121.04 kips
Mu = 7771.0 kip-ft at Beta = 3.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC16H:117A:
Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 139.1 kip phiVn = 314.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117B:
Length = 29.83 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 271.2 kip phiVn = 1105.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 143/1293
07/25/17 11:03:32

Shear Results:
Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 72.0 kip phiVn = 250.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117J:
Length = 3.42 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 51.0 kip phiVn = 126.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117K:
Length = 3.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 50.3 kip phiVn = 111.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117L:
Length = 19.33 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 255.4 kip phiVn = 716.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E28 (LC 109)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.804% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 : cmax = 9.79 ft c = 5.88 ft (21.9.6.2) OK

Segment SC16H:117A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 142/1293
07/25/17 11:03:32

Shear Results:
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117C:
Length = 13.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 75.8 kip phiVn = 481.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E35 (LC 116)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117D:
Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 193.0 kip phiVn = 314.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117E:
Length = 5.67 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 277.1 kip phiVn = 209.9 kip NG
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E21 (LC 30)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117F:
Length = 9.25 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 118.8 kip phiVn = 342.6 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E7 (LC 304)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117G:
Length = 9.17 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 70.5 kip phiVn = 339.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117H:
Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 21.7 kip phiVn = 250.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117I:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 144/1293
07/25/17 11:03:32

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.13 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 1.253% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.920% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117I:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117J:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 145/1293
 07/25/17 11:03:32

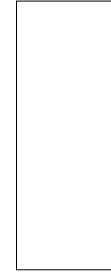
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC16H:117K:
 Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC16H:117L:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 146/1293
 07/25/17 11:03:32

Section Cut ID: SC15V:17 (Vertical)
Story: LEVEL 2.1
 Ag = 360 in2 Imaj = 4320 in4 Imin = 27000 in4
 Wall Design Group: 15
 Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:
 Interaction: 0.198 OK
 Pu = -14.52 kips phiPn = -73.28 kips
 Mu = 27.2 kip-ft at Beta = 0.0 deg CCW from Major axis
 Controlling Load Combo: 0.784 D - 1.300 E7 (LC 556)
 Code Ref: 10.3.7

Shear Results:
 Segment SC15V:17:
 Length = 2.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 49.3 kip phiVn = 92.6 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
 Code Ref: 14.2.3 & 11.9.5

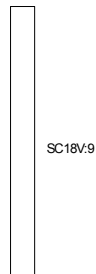
Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.982% (14.3.3) OK
 Segment SC15V:17:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 147/1293
 07/25/17 11:03:32

Section Cut ID: SC18V:9 (Vertical)
Story: ROOF LEVEL
 Ag = 1584 in2 Imaj = 19008 in4 Imin = 2299968 in4
 Wall Design Group: 18
 Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:
 Interaction: 0.070 OK
 Pu = -16.52 kips phiPn = -234.92 kips
 Mu = 7.4 kip-ft at Beta = 0.0 deg CCW from Major axis
 Controlling Load Combo: 0.784 D - 1.300 E32 (LC 581)
 Code Ref: 10.3.7

Shear Results:
 Segment SC18V:9:
 Length = 11.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 74.4 kip phiVn = 239.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.297% (11.9.9.2) OK
 Segment SC18V:9:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 148/1293
 07/25/17 11:03:32

Section Cut ID: SC19H:3 (Horizontal)
Story: T.O. PENTHOUSE
 Ag = 2052 in2 Imaj = 5000211 in4 Imin = 24624 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 19
 Design Status: PASS



PLAN VIEW

Axial/Flexural Results:
 Interaction: 0.116 OK
 Pu = 7.13 kips phiPn = 61.38 kips
 Mu = 311.9 kip-ft at Beta = 0.0 deg CCW from Major axis
 Controlling Load Combo: 0.784 D + 1.300 E25 (LC 538)
 Code Ref: 10.3.7

Shear Results:
 Segment SC19H:3:
 Length = 14.25 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 60.7 kip phiVn = 309.6 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E28 (LC 181)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.306% (11.9.9.4) OK
 Segment SC19H:3:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 149/1293
07/25/17 11:03:32

Section Cut ID: SC23V:10 (Vertical)
Story: T.O. PENTHOUSE
Ag = 1008 in2 **Imaj =** 5376 in4 **Imin =** 1333584 in4
Wall Design Group: 23
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.047 OK
Pu = -2.75 kips **phiPn =** -58.98 kips
Mu = 45.2 kip-ft at **Beta =** -0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E31 (LC 184)
Code Ref: 10.3.7

Shear Results:
Segment SC23V:10:
Length = 10.50 ft **Thick =** 8.00 in **fc =** 4000 psi **fy =** 60 ksi
Vert Bar Pat: #4@12" oc **Horiz Bar Pat:** #4@12" oc
Vu = 18.0 kip **phiVn =** 194.9 kip OK
Controlling Load Combo: 1.200 D + 1.600 Sp (LC 8)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.467% (11.9.9.2) OK
Segment SC23V:10:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 150/1293
07/25/17 11:03:32

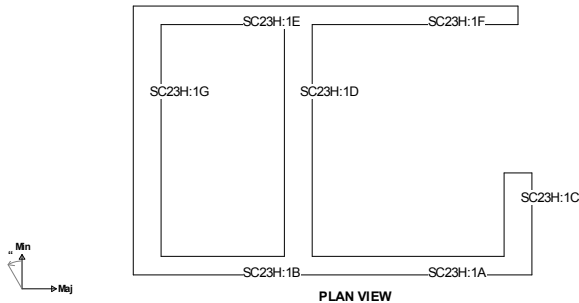
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 151/1293
07/25/17 11:03:32

Section Cut ID: SC23H:1 (Horizontal)
Story: T.O. PENTHOUSE
Ag = 10826 in2 **Imaj =** 20003992 in4 **Imin =** 14769055 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 23
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.040 OK
Pu = 227.53 kips **phiPn =** 5742.58 kips
Mu = 929.6 kip-ft at **Beta =** 9.7 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC23H:1A:
Length = 7.92 ft **Thick =** 8.00 in **fc =** 4000 psi **fy =** 60 ksi
Vert Bar Pat: #4@12" oc **Horiz Bar Pat:** #4@12" oc
Vu = 22.9 kip **phiVn =** 147.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E29 (LC 38)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:1B:
Length = 5.41 ft **Thick =** 8.00 in **fc =** 4000 psi **fy =** 60 ksi
Vert Bar Pat: #4@12" oc **Horiz Bar Pat:** #4@12" oc
Vu = 18.4 kip **phiVn =** 100.4 kip OK
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 152/1293
07/25/17 11:03:32

Shear Results:
Segment SC23H:1C:
Length = 3.33 ft **Thick =** 12.00 in **fc =** 4000 psi **fy =** 60 ksi
Vert Bar Pat: #4@12" oc **Horiz Bar Pat:** #4@12" oc
Vu = 2.9 kip **phiVn =** 72.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E31 (LC 112)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:1D:
Length = 9.00 ft **Thick =** 12.00 in **fc =** 4000 psi **fy =** 60 ksi
Vert Bar Pat: #4@12" oc **Horiz Bar Pat:** #4@12" oc
Vu = 15.0 kip **phiVn =** 195.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E22 (LC 31)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:1E:
Length = 5.41 ft **Thick =** 8.00 in **fc =** 4000 psi **fy =** 60 ksi
Vert Bar Pat: #4@12" oc **Horiz Bar Pat:** #4@12" oc
Vu = 14.9 kip **phiVn =** 100.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E31 (LC 40)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:1F:
Length = 7.92 ft **Thick =** 8.00 in **fc =** 4000 psi **fy =** 60 ksi
Vert Bar Pat: #4@12" oc **Horiz Bar Pat:** #4@12" oc
Vu = 16.7 kip **phiVn =** 147.0 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:1G:
Length = 9.00 ft **Thick =** 12.00 in **fc =** 4000 psi **fy =** 60 ksi
Vert Bar Pat: #4@12" oc **Horiz Bar Pat:** #4@12" oc
Vu = 13.0 kip **phiVn =** 195.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E34 (LC 43)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) OK
Segment SC23H:1A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:1B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

Section Cut Design Summary

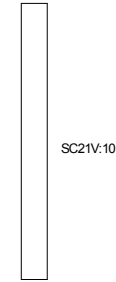
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:1C:
Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:1D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:1E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:1F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC21V:10 (Vertical)
Story: LEVEL 4
Ag = 1440 in2 Imaj = 17280 in4 Imin = 1728000 in4
Wall Design Group: 21
Design Status: PASS



ELEVATION VIEW



Axial/Flexural Results:
Interaction: 0.097 OK
Pu = -12.36 kips phiPn = -127.38 kips
Mu = 50.5 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E20 (LC 533)
Code Ref: 10.3.7

Shear Results:
Segment SC21V:10:
Length = 10.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 106.6 kip phiVn = 217.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E31 (LC 76)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.300% (11.9.9.2) OK
Segment SC21V:10:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

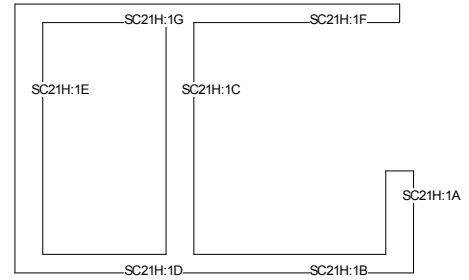
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC21H:1 (Horizontal) (Hinge)
Story: LEVEL 4
Ag = 10826 in2 Imaj = 20003992 in4 Imin = 14769055 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 21
Design Status: PASS



PLAN VIEW



Axial/Flexural Results:
Interaction: 0.066 OK
Pu = 626.05 kips phiPn = 9497.96 kips
Mu = 1154.2 kip-ft at Beta = -32.2 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC21H:1A:
Length = 3.33 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 7.2 kip phiVn = 72.4 kip OK
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Segment SC21H:1B:
Length = 7.92 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 57.7 kip phiVn = 147.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 157/1293
07/25/17 11:03:32

Shear Results:

Segment SC21H:1C:
Length = 9.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 33.6 kip phiVn = 195.5 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
Code Ref: 14.2.3 & 11.9.5

Segment SC21H:1D:
Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 16.4 kip phiVn = 100.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Segment SC21H:1E:
Length = 9.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 35.4 kip phiVn = 195.5 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
Code Ref: 14.2.3 & 11.9.5

Segment SC21H:1F:
Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 46.9 kip phiVn = 147.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Segment SC21H:1G:
Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 12.7 kip phiVn = 100.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E31 (LC 40)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 3.23 ft c = 0.43 ft (21.9.6.2) OK

Segment SC21H:1A:
Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 158/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:1B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC21H:1C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC21H:1D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC21H:1E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC21H:1F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

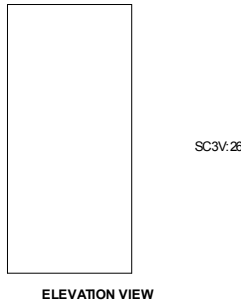
Segment SC21H:1G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 159/1293
07/25/17 11:03:32

Section Cut ID: SC3V:26 (Vertical)
Story: LEVEL 2.1
Ag = 420 in2 Imaj = 6860 in4 Imin = 31500 in4
Wall Design Group: 3
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.113 OK
Pu = -0.49 kips phiPn = -4.37 kips
Mu = 12.6 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn - 1.300 E6 (LC 123)
Code Ref: 10.3.7

Shear Results:
Segment SC3V:26:
Length = 2.50 ft Thick = 14.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@15" oc Horiz Bar Pat: #5@15" oc
Vu = 15.5 kip phiVn = 65.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

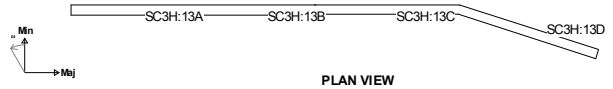
Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.438% (11.9.9.2) OK
Segment SC3V:26:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 15.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 14.38 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 160/1293
07/25/17 11:03:32

Section Cut ID: SC3H:13 (Horizontal)
Story: LEVEL 2
Ag = 12262 in2 Imaj = 680721754 in4 Imin = 4162117 in4
Major Axis Orientation: 17.75 degrees (CCW from global X-axis)
Wall Design Group: 3
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.074 OK
Pu = 715.35 kips phiPn = 9707.98 kips
Mu = 2300.8 kip-ft at Beta = -11.8 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 10.3.7

Shear Results:
Segment SC3H:13A:
Length = 16.34 ft Thick = 16.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@15" oc Horiz Bar Pat: #5@15" oc
Vu = 88.7 kip phiVn = 456.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
Code Ref: 14.2.3 & 11.9.5

Segment SC3H:13B:
Length = 14.99 ft Thick = 16.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@15" oc Horiz Bar Pat: #5@15" oc
Vu = 97.6 kip phiVn = 418.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E13 (LC 22)
Code Ref: 14.2.3 & 11.9.5

Segment SC3H:13C:
Length = 18.53 ft Thick = 14.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@15" oc Horiz Bar Pat: #5@15" oc
Vu = 129.5 kip phiVn = 488.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E13 (LC 22)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 161/1293
07/25/17 11:03:32

Shear Results:

Segment SC3H:13D:
Length = 18.66 ft Thick = 14.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@15" oc Horiz Bar Pat: #5@15" oc
Vu = 184.8 kip phiVn = 492.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.290% (11.9.9.4) OK
Segment SC3H:13A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 15.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 14.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.256% Actual: 0.256% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC3H:13B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 15.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 14.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.256% Actual: 0.256% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC3H:13C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 15.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 14.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.292% Actual: 0.292% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC3H:13D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 15.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 14.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.292% Actual: 0.292% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

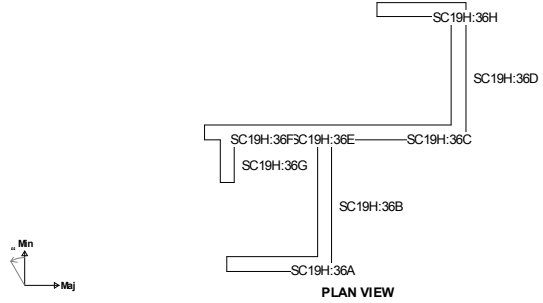
Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 162/1293
07/25/17 11:03:32

Section Cut ID:

SC19H:36 (Horizontal)
T.O. PENTHOUSE
Ag = 7212 in2 Imaj = 32002731 in4 lmin = 29971926 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 19
Design Status: PASS



Axial/Flexural Results:

Interaction: 0.019 OK
Pu = 243.56 kips phiPn = 13035.30 kips
Mu = 286.2 kip-ft at Beta = -66.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:

Segment SC19H:36A:
Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 14.5 kip phiVn = 146.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E26 (LC 35)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:36B:

Length = 9.17 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 38.4 kip phiVn = 199.1 kip OK
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 163/1293
07/25/17 11:03:32

Shear Results:

Segment SC19H:36C:
Length = 9.25 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 21.6 kip phiVn = 200.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:36D:

Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 17.3 kip phiVn = 184.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E10 (LC 163)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:36E:

Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 17.4 kip phiVn = 146.6 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E6 (LC 303)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:36F:

Length = 1.58 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 9.2 kip phiVn = 34.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:36G:

Length = 3.42 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 11.4 kip phiVn = 74.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:36H:

Length = 5.67 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 9.8 kip phiVn = 123.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E5 (LC 158)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.310% (11.9.9.4) OK
Segment SC19H:36A:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 164/1293
07/25/17 11:03:32

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC19H:36B:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC19H:36C:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC19H:36D:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC19H:36E:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC19H:36F:

Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC19H:36G:

Max Vert Bar Spacing Limit: 13.67 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC19H:36H:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

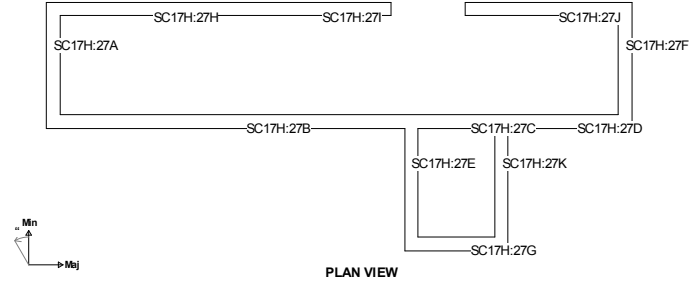
RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Section Cut ID: SC17H:27 (Horizontal)
Story: LEVEL 4
 Ag = 24222 in2 Imaj = 507025850 in4 Imin = 112929491 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 17
 Design Status: PASS



Axial/Flexural Results:

Interaction: 0.057 OK
 Pu = 1898.54 kips phiPn = 33289.22 kips
 Mu = 2628.2 kip-ft at Beta = 31.2 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:

Segment SC17H:27A:
 Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 135.3 kip phiVn = 243.2 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E21 (LC 174)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27B:

Length = 26.83 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 309.8 kip phiVn = 767.9 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E28 (LC 181)
 Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Shear Results:

Segment SC17H:27C:
 Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 58.6 kip phiVn = 193.2 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27D:

Length = 9.25 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 121.8 kip phiVn = 264.7 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27E:

Length = 9.17 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 53.0 kip phiVn = 262.3 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27F:

Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 101.8 kip phiVn = 243.2 kip OK
 Controlling Load Combo: 1.316 D + 1.300 E7 (LC 448)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27G:

Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 21.7 kip phiVn = 193.2 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27H:

Length = 13.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 77.2 kip phiVn = 372.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27I:

Length = 12.33 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Shear Results:

Vu = 60.2 kip phiVn = 352.9 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E12 (LC 21)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27J:

Length = 12.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 47.7 kip phiVn = 343.4 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E15 (LC 24)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27K:

Length = 9.17 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 70.5 kip phiVn = 262.3 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.471% (11.9.9.4) OK

Segment SC17H:27A:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC17H:27B:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC17H:27C:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC17H:27D:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 169/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27I:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27J:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27K:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 170/1293
07/25/17 11:03:32

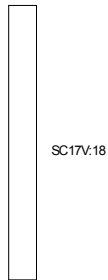
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 171/1293
07/25/17 11:03:32

Section Cut ID: SC17V:18 (Vertical)
Story: LEVEL 4
Ag = 1368 in2 Imaj = 16416 in4 Imin = 1481544 in4
Wall Design Group: 17
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.025 OK
Pu = -2.28 kips phiPn = -90.84 kips
Mu = 30.8 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E24 (LC 69)
Code Ref: 10.3.7

Shear Results:
Segment SC17V:18:
Length = 9.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 74.5 kip phiVn = 271.6 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp - 1.300 E24 (LC 357)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.493% (11.9.9.2) OK
Segment SC17V:18:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 172/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 173/1293
07/25/17 11:03:32

Section Cut ID: SC16V:162 (Vertical)
Story: LEVEL 3
Ag = 648 in2 Imaj = 7776 in4 Imin = 157464 in4
Wall Design Group: 16
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:

Interaction: 0.075 OK
Pu = -2.85 kips phiPn = -38.17 kips
Mu = 42.1 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 10.3.7

Shear Results:

Segment SC16V:162:
Length = 4.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 34.1 kip phiVn = 166.4 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp - 1.300 E7 (LC 340)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.818% (14.3.3) OK
Segment SC16V:162:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 174/1293
07/25/17 11:03:32

Section Cut ID: SC18V:20 (Vertical)
Story: ROOF LEVEL
Ag = 1584 in2 Imaj = 19008 in4 Imin = 2299968 in4
Wall Design Group: 18
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:

Interaction: 0.086 OK
Pu = -12.48 kips phiPn = -144.34 kips
Mu = 51.5 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E25 (LC 178)
Code Ref: 10.3.7

Shear Results:

Segment SC18V:20:
Length = 11.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 95.2 kip phiVn = 238.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E24 (LC 69)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.297% (11.9.9.2) OK
Segment SC18V:20:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 175/1293
07/25/17 11:03:32

Section Cut ID: SC16V:124 (Vertical)
Story: LEVEL 3.1
Ag = 1008 in2 Imaj = 12096 in4 Imin = 592704 in4
Wall Design Group: 16
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:

Interaction: 0.035 OK
Pu = -9.56 kips phiPn = -275.82 kips
Mu = 12.6 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E6 (LC 51)
Code Ref: 10.3.7

Shear Results:

Segment SC16V:124:
Length = 7.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 30.1 kip phiVn = 331.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E13 (LC 58)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.701% (14.3.3) OK
Segment SC16V:124:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 176/1293
07/25/17 11:03:32

Section Cut ID: SC13V:57 (Vertical)
Story: LEVEL 3.1
Ag = 1008 in2 Imaj = 12096 in4 Imin = 592704 in4
Wall Design Group: 13
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:

Interaction: 0.176 OK
Pu = -14.81 kips phiPn = -83.93 kips
Mu = 106.5 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E14 (LC 527)
Code Ref: 10.3.7

Shear Results:

Segment SC13V:57:
Length = 7.00 ft Thick = 12.00 in f'c = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 110.1 kip phiVn = 196.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E13 (LC 58)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.487% (11.9.9.2) OK
Segment SC13V:57:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 177/1293
07/25/17 11:03:32

Section Cut ID: SC15H:89 (Horizontal) (Hinge)
Story: LEVEL 2
Ag = 3752 in2 Imaj = 22336807 in4 Imin = 65760 in4
Major Axis Orientation: 0.00 degrees (CCW from global X-axis)
Wall Design Group: 15
Design Status: **PASS**



Axial/Flexural Results:

Interaction: 0.141 **OK**
Pu = -106.27 kips phiPn = -753.02 kips
Mu = 768.7 kip-ft at Beta = 0.5 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E10 (LC 559)
Code Ref: 10.3.7

Shear Results:

Segment SC15H:89A:
Length = 1.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 8.6 kip phiVn = 37.0 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:89B:

Length = 21.48 ft Thick = 14.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 280.0 kip phiVn = 829.4 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.589% (11.9.9.4) **OK**
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 5.24 ft c = 2.79 ft (21.9.6.2) **OK**

Segment SC15H:89A:

Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 178/1293
07/25/17 11:03:32

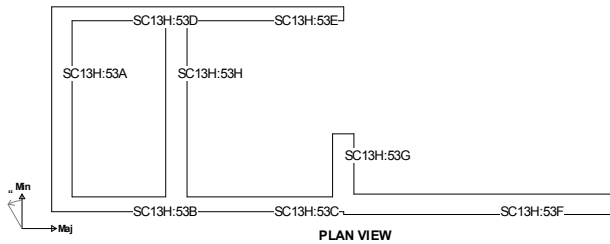
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC15H:89B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.526% Actual: 0.526% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 179/1293
07/25/17 11:03:32

Section Cut ID: SC13H:53 (Horizontal) (Hinge)
Story: LEVEL 3.1
Ag = 12609 in2 Imaj = 78641281 in4 Imin = 19012759 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 13
Design Status: **PASS**



Axial/Flexural Results:

Interaction: 0.096 **OK**
Pu = 1385.41 kips phiPn = 14499.25 kips
Mu = 2897.7 kip-ft at Beta = -18.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:

Segment SC13H:53A:
Length = 9.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 91.5 kip phiVn = 257.5 kip **OK**
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E13 (LC 310)
Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53B:

Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 39.9 kip phiVn = 137.7 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E9 (LC 18)
Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53C:

Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 180/1293
07/25/17 11:03:32

Shear Results:

Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 82.6 kip phiVn = 201.5 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E17 (LC 98)
Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53D:

Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 28.9 kip phiVn = 137.7 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E17 (LC 26)
Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53E:

Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 23.8 kip phiVn = 201.5 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Ln + 1.300 E34 (LC 259)
Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53F:

Length = 12.80 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 195.3 kip phiVn = 366.2 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53G:

Length = 3.33 ft Thick = 12.00 in f_c = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 57.4 kip phiVn = 95.4 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53H:

Length = 9.00 ft Thick = 12.00 in f_c = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 124.9 kip phiVn = 257.5 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.725% (11.9.9.4) **OK**
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 6.00 ft c = 0.70 ft (21.9.6.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 181/1293
07/25/17 11:03:32

Segment SC13H:53A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC13H:53B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC13H:53C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC13H:53D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC13H:53E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC13H:53F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC13H:53G:
Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC13H:53H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 182/1293
07/25/17 11:03:32

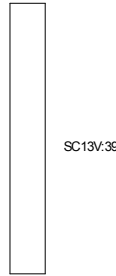
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 183/1293
07/25/17 11:03:32

Section Cut ID: SC13V:39 (Vertical)
Story: LEVEL 2.3
Ag = 480 in2 Imaj = 2560 in4 Imin = 144000 in4
Wall Design Group: 13
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:

Interaction: 0.075 OK
Pu = 1.90 kips phiPn = 25.32 kips
Mu = 38.1 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E17 (LC 530)
Code Ref: 10.3.7

Shear Results:

Segment SC13V:39:
Length = 5.00 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 61.1 kip phiVn = 127.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E17 (LC 62)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.767% (11.9.9.2) OK
Segment SC13V:39:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.639% (21.9.2.1) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 184/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Section Cut ID: SC13V:19 (Vertical)
Story: LEVEL 3
 Ag = 432 in2 Imaj = 2304 in4 Imin = 104976 in4
 Wall Design Group: 13
 Design Status: **PASS**



Axial/Flexural Results:
 Interaction: 0.128 **OK**
 Pu = -15.09 kips phiPn = -117.70 kips
 Mu = 22.4 kip-ft at Beta = 0.0 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:
 Segment SC13V:19:
 Length = 4.50 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 20.2 kip phiVn = 113.4 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E35 (LC 44)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.852% (11.9.9.2) **OK**
 Segment SC13V:19:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Section Cut ID: SC15V:76 (Vertical)
Story: LEVEL 2
 Ag = 1944 in2 Imaj = 23328 in4 Imin = 4251528 in4
 Wall Design Group: 15
 Design Status: **PASS**



Axial/Flexural Results:
 Interaction: 0.031 **OK**
 Pu = -9.98 kips phiPn = -316.90 kips
 Mu = 82.0 kip-ft at Beta = -0.0 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

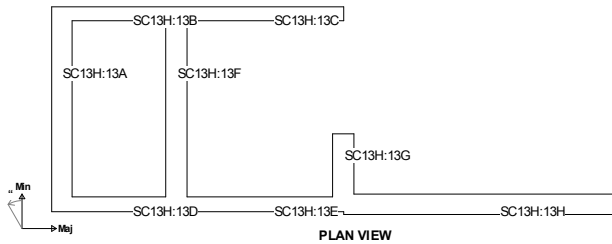
Shear Results:
 Segment SC15V:76:
 Length = 13.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 86.4 kip phiVn = 499.6 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.727% (14.3.3) **OK**
 Segment SC15V:76:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Section Cut ID: SC13H:13 (Horizontal) (Hinge)
Story: LEVEL 3
 Ag = 12609 in2 Imaj = 78641281 in4 Imin = 19012759 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 13
 Design Status: **PASS**



Axial/Flexural Results:
 Interaction: 0.247 **OK**
 Pu = 453.30 kips phiPn = 1832.17 kips
 Mu = 4010.7 kip-ft at Beta = -58.0 deg CCW from Major axis
 Controlling Load Combo: 0.784 D + 1.300 E29 (LC 542)
 Code Ref: 10.3.7

Shear Results:
 Segment SC13H:13A:
 Length = 9.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 91.5 kip phiVn = 257.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E13 (LC 310)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13B:
 Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 24.4 kip phiVn = 137.7 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E17 (LC 26)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13C:
 Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Shear Results:
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 27.4 kip phiVn = 201.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E35 (LC 44)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13D:
 Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 36.1 kip phiVn = 137.7 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E17 (LC 98)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13E:
 Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 93.8 kip phiVn = 201.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13F:
 Length = 9.00 ft Thick = 12.00 in f'c = 3500 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 125.0 kip phiVn = 257.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13G:
 Length = 3.33 ft Thick = 12.00 in f'c = 3500 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 57.4 kip phiVn = 95.4 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13H:
 Length = 12.80 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 163.1 kip phiVn = 366.2 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.725% (11.9.9.4) **OK**
 S.B.E. Check: Neutral axis distance less than limit for all load combos
 Worst case is load combo 10 :
 cmax = 5.41 ft c = 0.85 ft (21.9.6.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 189/1293
07/25/17 11:03:32

Segment SC13H:13A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC13H:13B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC13H:13C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC13H:13D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC13H:13E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC13H:13F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC13H:13G:
Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC13H:13H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 190/1293
07/25/17 11:03:32

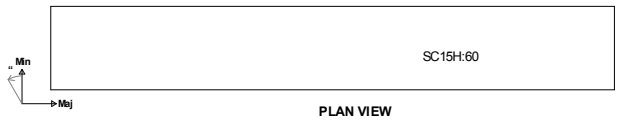
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 191/1293
07/25/17 11:03:32

Section Cut ID: SC15H:60 (Horizontal) (Hinge)
Story: LEVEL 2
Ag = 972 in2 Imaj = 531441 in4 Imin = 11664 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 15
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.217 OK
Pu = 447.15 kips phiPn = 2056.57 kips
Mu = 3.5 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E5 (LC 14)
Code Ref: 10.3.7

Shear Results:
Segment SC15H:60:
Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 25.2 kip phiVn = 250.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E25 (LC 178)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 1.182% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 1.61 ft c = 1.70 ft (21.9.6.2) OK

Segment SC15H:60:
Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.920% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 192/1293
07/25/17 11:03:32

Section Cut ID: SC17V:3 (Vertical)
Story: LEVEL 4
Ag = 1440 in2 Imaj = 17280 in4 Imin = 1728000 in4
Wall Design Group: 17
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.131 OK
Pu = -30.06 kips phiPn = -229.94 kips
Mu = 86.1 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 10.3.7

Shear Results:
Segment SC17V:3:
Length = 10.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 143.0 kip phiVn = 286.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E24 (LC 69)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.469% (11.9.9.2) OK
Segment SC17V:3:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 193/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 194/1293
07/25/17 11:03:32

Section Cut ID: SC12V:33 (Vertical)
Story: LEVEL 2
Ag = 816 in2 Imaj = 4352 in4 Imin = 707472 in4
Wall Design Group: 12
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.055 OK
Pu = -8.93 kips phiPn = -161.64 kips
Mu = 38.0 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E32 (LC 545)
Code Ref: 10.3.7

Shear Results:
Segment SC12V:33:
Length = 8.50 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 104.0 kip phiVn = 216.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.752% (11.9.9.2) OK
Segment SC12V:33:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 195/1293
07/25/17 11:03:32

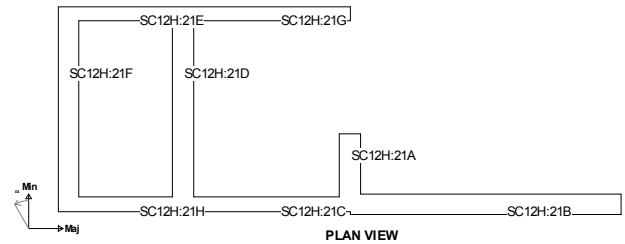
Min web reinforcement ratio: 0.250% Actual: 0.639% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 196/1293
07/25/17 11:03:32

Section Cut ID: SC12H:21 (Horizontal) (Hinge)
Story: LEVEL 2
Ag = 12609 in2 Imaj = 78641281 in4 Imin = 19012759 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 12
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.196 OK
Pu = 642.90 kips phiPn = 3280.58 kips
Mu = 5803.3 kip-ft at Beta = -39.3 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E29 (LC 542)
Code Ref: 10.3.7

Shear Results:
Segment SC12H:21A:
Length = 3.33 ft Thick = 12.00 in fc = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 17.6 kip phiVn = 93.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21B:
Length = 12.80 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 167.8 kip phiVn = 358.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21C:
Length = 7.92 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 197/1293
 07/25/17 11:03:32

Shear Results:

Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 110.4 kip phiVn = 198.3 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
 Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21D:
 Length = 9.00 ft Thick = 12.00 in f_c = 3500 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 47.9 kip phiVn = 252.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E12 (LC 21)
 Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21E:
 Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 30.2 kip phiVn = 135.5 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E17 (LC 26)
 Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21F:
 Length = 9.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 40.7 kip phiVn = 252.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E10 (LC 163)
 Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21G:
 Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 39.4 kip phiVn = 198.3 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
 Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21H:
 Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 48.6 kip phiVn = 135.5 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.725% (11.9.9.4) OK
 S.B.E. Check: Neutral axis distance less than limit for all load combos
 Worst case is load combo 10 :
 cmax = 6.24 ft c = 0.70 ft (21.9.6.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 198/1293
 07/25/17 11:03:32

Segment SC12H:21A:

Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC12H:21B:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC12H:21C:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC12H:21D:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC12H:21E:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC12H:21F:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC12H:21G:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC12H:21H:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 199/1293
 07/25/17 11:03:32

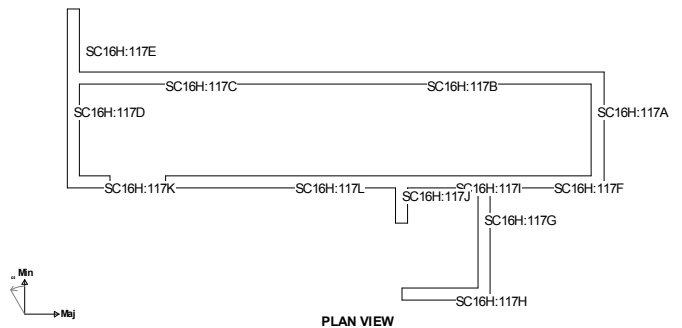
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 200/1293
 07/25/17 11:03:32

Section Cut ID: SC16H:117 (Horizontal) (Hinge)
Story: LEVEL 3.1
 Ag = 17520 in2 Imaj = 49692829 in4 Imin = 79451243 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 16
 Design Status: FAILS



Axial/Flexural Results:
 Interaction: 0.062 OK
 Pu = 2164.57 kips phiPn = 35121.04 kips
 Mu = 7771.0 kip-ft at Beta = 3.0 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:
 Segment SC16H:117A:
 Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 139.1 kip phiVn = 314.8 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117B:
 Length = 29.83 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 271.2 kip phiVn = 1105.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)

Section Cut Design Summary

Shear Results:

Table with 4 columns: Segment, Length, Thick, f'c, fy, Vu, phiVn, Controlling Load Combo, Code Ref. Includes segments SC16H:117C through SC16H:117I.

Uses also 117D for total capacity

Section Cut Design Summary

Shear Results:

Table with 4 columns: Segment, Length, Thick, f'c, fy, Vu, phiVn, Controlling Load Combo, Code Ref. Includes segments SC16H:117J through SC16H:117C.

Section Cut Design Summary

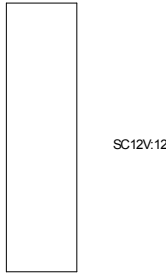
Summary table with 4 columns: Limit, Actual, and values in parentheses. Lists various reinforcement and spacing limits for segments SC16H:117D through SC16H:117I.

Section Cut Design Summary

Summary table with 4 columns: Limit, Actual, and values in parentheses. Lists various reinforcement and spacing limits for segments SC16H:117J through SC16H:117C.

Section Cut Design Summary

Section Cut ID: SC12V:12 (Vertical)
Story: LEVEL 2.1
 Ag = 240 in2 Imaj = 1280 in4 Imin = 18000 in4
 Wall Design Group: 12
 Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:
 Interaction: 0.129 **OK**
 Pu = -0.20 kips phiPn = -1.55 kips
 Mu = 19.3 kip-ft at Beta = -0.0 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E17 (LC 26)
 Code Ref: 10.3.7

Shear Results:
 Segment SC12V:12:
 Length = 2.50 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 19.3 kip phiVn = 63.6 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E17 (LC 26)
 Code Ref: 14.2.3 & 11.9.5

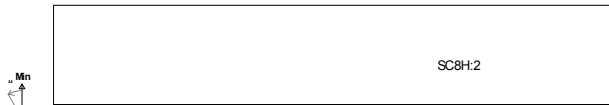
Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 1.023% (11.9.9.2) **OK**
 Segment SC12V:12:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
 Min web reinforcement ratio: 0.250% Actual: 0.639% (21.9.2.1) **OK**

Section Cut Design Summary

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

Section Cut ID: SC8H:2 (Horizontal)
Story: LEVEL 3.1
 Ag = 1440 in2 Imaj = 972000 in4 Imin = 30720 in4
 Major Axis Orientation: 0.00 degrees (CCW from global X-axis)
 Wall Design Group: 8
 Design Status: **PASS**



PLAN VIEW

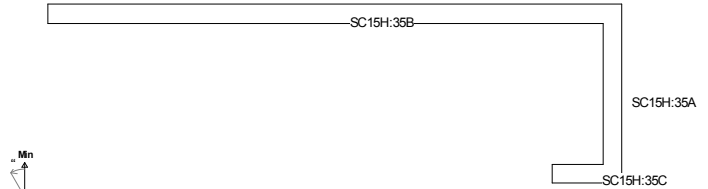
Axial/Flexural Results:
 Interaction: 0.259 **OK**
 Pu = 70.47 kips phiPn = 271.78 kips
 Mu = 493.4 kip-ft at Beta = -0.0 deg CCW from Major axis
 Controlling Load Combo: 0.784 D + 1.300 E16 (LC 529)
 Code Ref: 10.3.7

Shear Results:
 Segment SC8H:2:
 Length = 7.50 ft Thick = 16.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 100.4 kip phiVn = 238.3 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) **OK**
 Segment SC8H:2:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.320% Actual: 0.320% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

Section Cut ID: SC15H:35 (Horizontal) (Hinge)
Story: LEVEL 2
 Ag = 5976 in2 Imaj = 82683288 in4 Imin = 7104393 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 15
 Design Status: **FAILS**



PLAN VIEW

Axial/Flexural Results:
 Interaction: 0.170 **OK**
 Pu = 10.96 kips phiPn = 64.66 kips
 Mu = 9307.1 kip-ft at Beta = -9.8 deg CCW from Major axis
 Controlling Load Combo: 0.784 D + 1.300 E28 (LC 541)
 Code Ref: 10.3.7

Shear Results:
 Segment SC15H:35A:
 Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 49.5 kip phiVn = 314.8 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
 Code Ref: 14.2.3 & 11.9.5

Segment SC15H:35B:
 Length = 29.83 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 295.5 kip phiVn = 1105.0 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
 Code Ref: 14.2.3 & 11.9.5

Segment SC15H:35C:
 Length = 3.17 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 28.7 kip phiVn = 117.3 kip **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 209/1293
07/25/17 11:03:32

Shear Results:

Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 1.419% (11.9.9.4) OK
S.B.E. Check: Boundary zone required for one or more load combos
Worst case is load combo 39 :
cmax = 2.40 ft c = 2.71 ft (21.9.6.2) NG **SAY OK**

Segment SC15H:35A:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC15H:35B:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC15H:35C:

Max Vert Bar Spacing Limit: 12.67 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 210/1293
07/25/17 11:03:32

Section Cut ID: SC15V:18 (Vertical)

Story: LEVEL 2.1
Ag = 360 in2 Imaj = 4320 in4 Imin = 27000 in4
Wall Design Group: 15
Design Status: PASS



ELEVATION VIEW



Axial/Flexural Results:

Interaction: 0.177 OK
Pu = -6.43 kips phiPn = -36.41 kips
Mu = 31.6 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 10.3.7

Shear Results:

Segment SC15V:18:
Length = 2.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 54.2 kip phiVn = 92.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.982% (14.3.3) OK
Segment SC15V:18:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 211/1293
07/25/17 11:03:32

Section Cut ID: SC18V:10 (Vertical)

Story: ROOF LEVEL
Ag = 1584 in2 Imaj = 19008 in4 Imin = 2299968 in4
Wall Design Group: 18
Design Status: PASS



ELEVATION VIEW



Axial/Flexural Results:

Interaction: 0.072 OK
Pu = -1.56 kips phiPn = -21.73 kips
Mu = 87.5 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E24 (LC 573)
Code Ref: 10.3.7

Shear Results:

Segment SC18V:10:
Length = 11.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 112.1 kip phiVn = 239.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.297% (11.9.9.2) OK
Segment SC18V:10:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 212/1293
07/25/17 11:03:32

Section Cut ID: SC19H:4 (Horizontal)

Story: T.O. PENTHOUSE
Ag = 2772 in2 Imaj = 12332796 in4 Imin = 33270 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 19
Design Status: PASS



PLAN VIEW



Axial/Flexural Results:

Interaction: 0.018 OK
Pu = 91.72 kips phiPn = 5144.46 kips
Mu = 50.0 kip-ft at Beta = -0.2 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 1.600 Sp (LC 8)
Code Ref: 10.3.7

Shear Results:

Segment SC19H:4A:
Length = 13.25 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 19.2 kip phiVn = 287.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E26 (LC 179)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:4B:

Length = 6.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 23.5 kip phiVn = 130.3 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E31 (LC 328)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.297% (11.9.9.4) OK
Segment SC19H:4A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:4B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK

Section Cut Design Summary

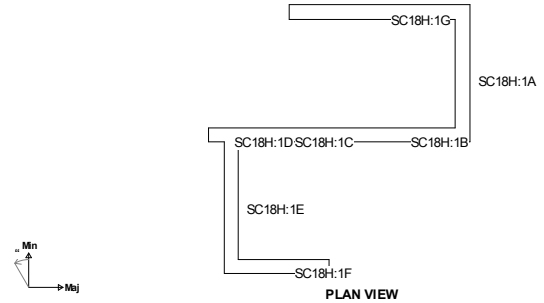
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC18H:1 (Horizontal)
Story: ROOF LEVEL
Ag = 7704 in2 Imaj = 39871674 in4 Imin = 39007351 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 18
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.052 OK
Pu = 745.19 kips phiPn = 14314.15 kips
Mu = 1521.7 kip-ft at Beta = 57.7 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC18H:1A:
Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 73.5 kip phiVn = 184.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:1B:
Length = 9.25 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 86.8 kip phiVn = 200.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E7 (LC 160)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:
Segment SC18H:1C:
Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 51.2 kip phiVn = 146.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:1D:
Length = 1.58 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 12.4 kip phiVn = 34.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:1E:
Length = 9.17 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 69.6 kip phiVn = 199.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:1F:
Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 23.8 kip phiVn = 146.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E28 (LC 109)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:1G:
Length = 12.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 28.9 kip phiVn = 260.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.306% (11.9.9.4) OK
Segment SC18H:1A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:1B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:1C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:1D:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:1E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:1F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:1G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC2V:15 (Vertical)
Story: LEVEL 2.1
Ag = 480 in2 Imaj = 10240 in4 Imin = 36000 in4
Wall Design Group: 2
Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:

Interaction: 0.061 **OK**
Pu = -0.13 kips phiPn = -2.06 kips
Mu = 7.0 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E35 (LC 584)
Code Ref: 10.3.7

Shear Results:

Segment SC2V:15:
Length = 2.50 ft Thick = 16.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@15" oc Horiz Bar Pat: #5@15" oc
Vu = 14.8 kip phiVn = 69.9 kip **OK**
Controlling Load Combo: 1.316 D - 1.300 E35 (LC 512)
Code Ref: 14.2.3 & 11.9.5

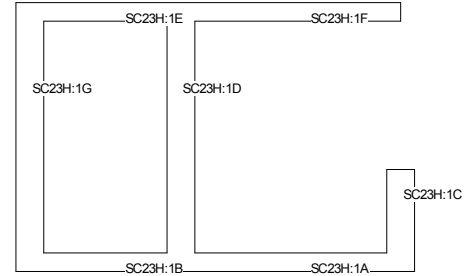
Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.2) **OK**
Segment SC2V:15:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 15.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 14.38 in (7.6.1) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC23H:1 (Horizontal)
Story: T.O. PENTHOUSE
Ag = 10826 in2 Imaj = 20003992 in4 Imin = 14769055 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 23
Design Status: **PASS**



PLAN VIEW

Axial/Flexural Results:

Interaction: 0.040 **OK**
Pu = 227.53 kips phiPn = 5742.58 kips
Mu = 929.6 kip-ft at Beta = 9.7 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:

Segment SC23H:1A:
Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 22.9 kip phiVn = 147.0 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E29 (LC 38)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:1B:

Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 18.4 kip phiVn = 100.4 kip **OK**
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:

Segment SC23H:1C:
Length = 3.33 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 2.9 kip phiVn = 72.4 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E31 (LC 112)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:1D:

Length = 9.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 15.0 kip phiVn = 195.5 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E22 (LC 31)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:1E:

Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 14.9 kip phiVn = 100.4 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E31 (LC 40)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:1F:

Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 16.7 kip phiVn = 147.0 kip **OK**
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:1G:

Length = 9.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 13.0 kip phiVn = 195.5 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E34 (LC 43)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) **OK**
Segment SC23H:1A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC23H:1B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**

Section Cut Design Summary

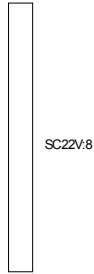
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC23H:1C:
Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC23H:1D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC23H:1E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC23H:1F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC23H:1G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Section Cut ID: SC22V:8 (Vertical)
Story: ROOF LEVEL
 Ag = 1584 in2 Imaj = 19008 in4 Imin = 2299968 in4
 Wall Design Group: 22
 Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:

Interaction: 0.018 **OK**
 Pu = -1.91 kips phiPn = -107.37 kips
 Mu = 14.0 kip-ft at Beta = 0.0 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:

Segment SC22V:8:
 Length = 11.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 28.3 kip phiVn = 239.0 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

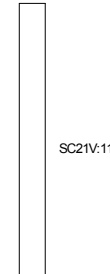
Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.297% (11.9.9.2) **OK**
 Segment SC22V:8:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Section Cut ID: SC21V:11 (Vertical)
Story: LEVEL 4
 Ag = 1440 in2 Imaj = 17280 in4 Imin = 1728000 in4
 Wall Design Group: 21
 Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:

Interaction: 0.394 **OK**
 Pu = -55.85 kips phiPn = -141.73 kips
 Mu = 177.4 kip-ft at Beta = 0.0 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E18 (LC 27)
 Code Ref: 10.3.7

Shear Results:

Segment SC21V:11:
 Length = 10.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 27.5 kip phiVn = 215.1 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E32 (LC 41)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.300% (11.9.9.2) **OK**
 Segment SC21V:11:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**

Section Cut Design Summary

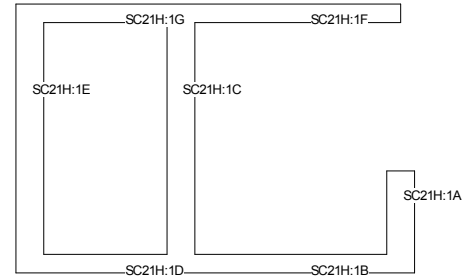
RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Section Cut ID: SC21H:1 (Horizontal) (Hinge)
Story: LEVEL 4
 Ag = 10826 in2 Imaj = 20003992 in4 Imin = 14769055 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 21
 Design Status: **PASS**



PLAN VIEW

Axial/Flexural Results:

Interaction: 0.066 **OK**
 Pu = 626.05 kips phiPn = 9497.96 kips
 Mu = 1154.2 kip-ft at Beta = -32.2 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:

Segment SC21H:1A:
 Length = 3.33 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 7.2 kip phiVn = 72.4 kip **OK**
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 14.2.3 & 11.9.5

Segment SC21H:1B:

Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 57.7 kip phiVn = 147.0 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
 Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 225/1293
 07/25/17 11:03:32

Shear Results:

Segment SC21H:1C:
 Length = 9.00 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 33.6 kip phiVn = 195.5 kip OK
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
 Code Ref: 14.2.3 & 11.9.5

Segment SC21H:1D:
 Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 16.4 kip phiVn = 100.4 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
 Code Ref: 14.2.3 & 11.9.5

Segment SC21H:1E:
 Length = 9.00 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 35.4 kip phiVn = 195.5 kip OK
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
 Code Ref: 14.2.3 & 11.9.5

Segment SC21H:1F:
 Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 46.9 kip phiVn = 147.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

Segment SC21H:1G:
 Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 12.7 kip phiVn = 100.4 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E31 (LC 40)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) OK
 S.B.E. Check: Neutral axis distance less than limit for all load combos
 Worst case is load combo 10 :
 cmax = 3.23 ft c = 0.43 ft (21.9.6.2) OK

Segment SC21H:1A:
 Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 226/1293
 07/25/17 11:03:32

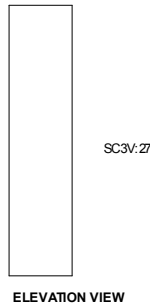
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC21H:1B:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC21H:1C:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC21H:1D:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC21H:1E:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC21H:1F:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC21H:1G:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 227/1293
 07/25/17 11:03:32

Section Cut ID: SC3V:27 (Vertical)
Story: LEVEL 2.3
 Ag = 840 in2 Imaj = 13720 in4 Imin = 252000 in4
 Wall Design Group: 3
 Design Status: PASS



Axial/Flexural Results:
 Interaction: 0.081 OK
 Pu = -6.71 kips phiPn = -82.77 kips
 Mu = 16.3 kip-ft at Beta = 0.0 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
 Code Ref: 10.3.7

Shear Results:
 Segment SC3V:27:
 Length = 5.00 ft Thick = 14.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #5@15" oc Horiz Bar Pat: #5@15" oc
 Vu = 28.4 kip phiVn = 130.9 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
 Code Ref: 14.2.3 & 11.9.5

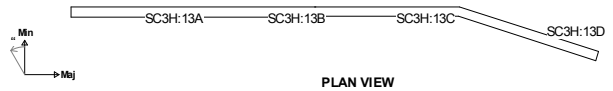
Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.365% (11.9.9.2) OK
 Segment SC3V:27:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 15.00 in (11.9.9.3) OK
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 14.38 in (7.6.1) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 228/1293
 07/25/17 11:03:32

Section Cut ID: SC3H:13 (Horizontal)
Story: LEVEL 2
 Ag = 12262 in2 Imaj = 680721754 in4 Imin = 4162117 in4
 Major Axis Orientation: 17.75 degrees (CCW from global X-axis)
 Wall Design Group: 3
 Design Status: PASS



Axial/Flexural Results:
 Interaction: 0.074 OK
 Pu = 715.35 kips phiPn = 9707.98 kips
 Mu = 2300.8 kip-ft at Beta = -11.8 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
 Code Ref: 10.3.7

Shear Results:
 Segment SC3H:13A:
 Length = 16.34 ft Thick = 16.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #5@15" oc Horiz Bar Pat: #5@15" oc
 Vu = 88.7 kip phiVn = 456.5 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
 Code Ref: 14.2.3 & 11.9.5

Segment SC3H:13B:
 Length = 14.99 ft Thick = 16.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #5@15" oc Horiz Bar Pat: #5@15" oc
 Vu = 97.6 kip phiVn = 418.8 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E13 (LC 22)
 Code Ref: 14.2.3 & 11.9.5

Segment SC3H:13C:
 Length = 18.53 ft Thick = 14.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #5@15" oc Horiz Bar Pat: #5@15" oc
 Vu = 129.5 kip phiVn = 488.5 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E13 (LC 22)
 Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 229/1293
07/25/17 11:03:32

Shear Results:

Segment SC3H:13D:
Length = 18.66 ft Thick = 14.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@15" oc Horiz Bar Pat: #5@15" oc
Vu = 184.8 kip phiVn = 492.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

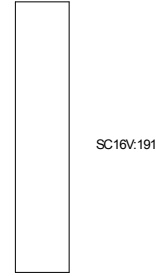
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.290% (11.9.9.4) OK
Segment SC3H:13A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 15.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 14.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.256% Actual: 0.256% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC3H:13B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 15.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 14.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.256% Actual: 0.256% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC3H:13C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 15.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 14.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.292% Actual: 0.292% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 230/1293
07/25/17 11:03:32

Section Cut ID: SC16V:191 (Vertical)
Story: LEVEL 2.3
Ag = 720 in2 Imaj = 8640 in4 Imin = 216000 in4
Wall Design Group: 16
Design Status: PASS



ELEVATION VIEW



Axial/Flexural Results:

Interaction: 0.081 OK
Pu = -3.63 kips phiPn = -44.56 kips
Mu = 46.4 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E13 (LC 58)
Code Ref: 10.3.7

Shear Results:

Segment SC16V:191:
Length = 5.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 65.9 kip phiVn = 184.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

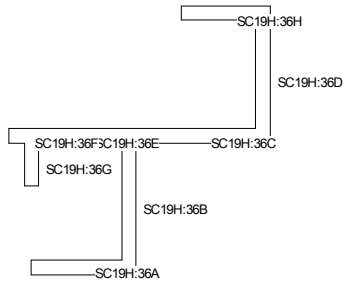
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.736% (14.3.3) OK
Segment SC16V:191:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 231/1293
07/25/17 11:03:32

Section Cut ID: SC19H:36 (Horizontal)
Story: T.O. PENTHOUSE
Ag = 7212 in2 Imaj = 32002731 in4 Imin = 29971926 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 19
Design Status: PASS



PLAN VIEW



Axial/Flexural Results:

Interaction: 0.019 OK
Pu = 243.56 kips phiPn = 13035.30 kips
Mu = 286.2 kip-ft at Beta = -66.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:

Segment SC19H:36A:
Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 14.5 kip phiVn = 146.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E26 (LC 35)
Code Ref: 14.2.3 & 11.9.5
Segment SC19H:36B:
Length = 9.17 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 38.4 kip phiVn = 199.1 kip OK
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 232/1293
07/25/17 11:03:32

Shear Results:

Segment SC19H:36C:
Length = 9.25 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 21.6 kip phiVn = 200.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:36D:

Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 17.3 kip phiVn = 184.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E10 (LC 163)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:36E:

Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 17.4 kip phiVn = 146.6 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E6 (LC 303)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:36F:

Length = 1.58 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 9.2 kip phiVn = 34.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:36G:

Length = 3.42 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 11.4 kip phiVn = 74.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:36H:

Length = 5.67 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 9.8 kip phiVn = 123.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E5 (LC 158)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.310% (11.9.9.4) OK
Segment SC19H:36A:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 233/1293
 07/25/17 11:03:32

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC19H:36B:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC19H:36C:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC19H:36D:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC19H:36E:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC19H:36F:
 Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC19H:36G:
 Max Vert Bar Spacing Limit: 13.67 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC19H:36H:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 234/1293
 07/25/17 11:03:32

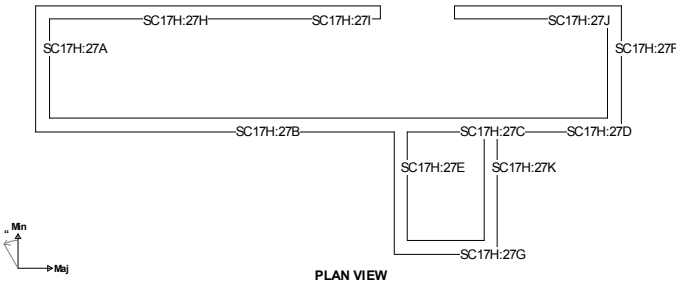
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 235/1293
 07/25/17 11:03:32

Section Cut ID: SC17H:27 (Horizontal)
Story: LEVEL 4
 Ag = 24222 in2 Imaj = 507025850 in4 Imin = 112929491 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 17
 Design Status: PASS



Axial/Flexural Results:
 Interaction: 0.057 OK
 Pu = 1898.54 kips phiPn = 33289.22 kips
 Mu = 2628.2 kip-ft at Beta = 31.2 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:
 Segment SC17H:27A:
 Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 135.3 kip phiVn = 243.2 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E21 (LC 174)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27B:
 Length = 26.83 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 309.8 kip phiVn = 767.9 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E28 (LC 181)
 Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 236/1293
 07/25/17 11:03:32

Shear Results:
 Segment SC17H:27C:
 Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 58.6 kip phiVn = 193.2 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27D:
 Length = 9.25 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 121.8 kip phiVn = 264.7 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27E:
 Length = 9.17 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 53.0 kip phiVn = 262.3 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27F:
 Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 101.8 kip phiVn = 243.2 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E7 (LC 448)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27G:
 Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 21.7 kip phiVn = 193.2 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27H:
 Length = 13.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 77.2 kip phiVn = 372.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27I:
 Length = 12.33 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:

Vu = 60.2 kip phiVn = 352.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E12 (LC 21)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27J:

Length = 12.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 47.7 kip phiVn = 343.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E15 (LC 24)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27K:

Length = 9.17 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 70.5 kip phiVn = 262.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.471% (11.9.9.4) OK
Segment SC17H:27A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27I:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27J:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27K:

Section Cut Design Summary

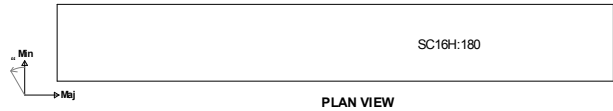
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC16H:180 (Horizontal) (Hinge)
Story: LEVEL 2.3
Ag = 1044 in2 Imaj = 658503 in4 Imin = 12528 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 16
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.282 OK
Pu = -47.96 kips phiPn = -170.04 kips
Mu = 248.4 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E25 (LC 538)
Code Ref: 10.3.7

Shear Results:
Segment SC16H:180:
Length = 7.25 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 106.8 kip phiVn = 268.5 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E10 (LC 307)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.762% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 1.73 ft c = 0.91 ft (21.9.6.2) OK

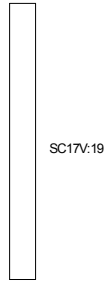
Segment SC16H:180:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.614% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 241/1293
07/25/17 11:03:32

Section Cut ID: SC17V:19 (Vertical)
Story: LEVEL 4
Ag = 1440 in2 Imaj = 17280 in4 Imin = 1728000 in4
Wall Design Group: 17
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.285 OK
Pu = -49.72 kips phiPn = -174.25 kips
Mu = 260.7 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E7 (LC 52)
Code Ref: 10.3.7

Shear Results:
Segment SC17V:19:
Length = 10.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 130.3 kip phiVn = 279.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E7 (LC 52)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.469% (11.9.2) OK
Segment SC17V:19:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 242/1293
07/25/17 11:03:32

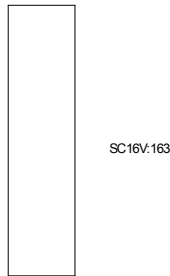
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 243/1293
07/25/17 11:03:32

Section Cut ID: SC16V:163 (Vertical)
Story: LEVEL 3
Ag = 576 in2 Imaj = 6912 in4 Imin = 110592 in4
Wall Design Group: 16
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.309 OK
Pu = -42.23 kips phiPn = -136.57 kips
Mu = 60.1 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.200 Sp - 1.300 E10 (LC 343)
Code Ref: 10.3.7

Shear Results:
Segment SC16V:163:
Length = 4.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 31.4 kip phiVn = 148.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

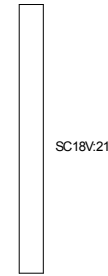
Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.767% (14.3.3) OK
Segment SC16V:163:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 244/1293
07/25/17 11:03:32

Section Cut ID: SC18V:21 (Vertical)
Story: ROOF LEVEL
Ag = 1584 in2 Imaj = 19008 in4 Imin = 2299968 in4
Wall Design Group: 18
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.247 OK
Pu = -45.42 kips phiPn = -183.83 kips
Mu = 94.5 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E25 (LC 538)
Code Ref: 10.3.7

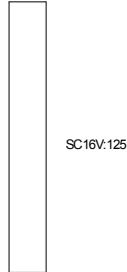
Shear Results:
Segment SC18V:21:
Length = 11.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 108.1 kip phiVn = 239.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.297% (11.9.2) OK
Segment SC18V:21:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC16V:125 (Vertical)
Story: LEVEL 3.1
Ag = 1008 in2 Imaj = 12096 in4 Imin = 592704 in4
Wall Design Group: 16
Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.059 **OK**
Pu = -5.43 kips phiPn = -92.01 kips
Mu = 56.7 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E6 (LC 51)
Code Ref: 10.3.7

Shear Results:
Segment SC16V:125:
Length = 7.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 66.0 kip phiVn = 258.6 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.701% (14.3.3) **OK**
Segment SC16V:125:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.526% Actual: 0.526% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC15H:89 (Horizontal) (Hinge)
Story: LEVEL 2
Ag = 3752 in2 Imaj = 22336807 in4 Imin = 65760 in4
Major Axis Orientation: 0.00 degrees (CCW from global X-axis)
Wall Design Group: 15
Design Status: **PASS**



PLAN VIEW

Axial/Flexural Results:
Interaction: 0.141 **OK**
Pu = -106.27 kips phiPn = -753.02 kips
Mu = 768.7 kip-ft at Beta = 0.5 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E10 (LC 559)
Code Ref: 10.3.7

Shear Results:
Segment SC15H:89A:
Length = 1.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 8.6 kip phiVn = 37.0 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:89B:
Length = 21.48 ft Thick = 14.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 280.0 kip phiVn = 829.4 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.589% (11.9.9.4) **OK**
S.B.E. Check: **Neutral axis distance less than limit for all load combos**
Worst case is load combo 10 :
cmax = 5.24 ft c = 2.79 ft (21.9.6.2) **OK**

Segment SC15H:89A:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**

Section Cut Design Summary

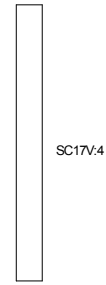
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC15H:89B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.526% Actual: 0.526% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC17V:4 (Vertical)
Story: LEVEL 4
Ag = 1440 in2 Imaj = 17280 in4 Imin = 1728000 in4
Wall Design Group: 17
Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.183 **OK**
Pu = -27.17 kips phiPn = -148.60 kips
Mu = 188.5 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E25 (LC 538)
Code Ref: 10.3.7

Shear Results:
Segment SC17V:4:
Length = 10.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 149.3 kip phiVn = 286.2 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.469% (11.9.9.2) **OK**
Segment SC17V:4:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**

Section Cut Design Summary

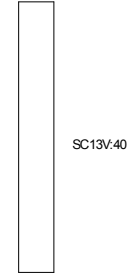
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC13V:40 (Vertical)
Story: LEVEL 2.3
Ag = 480 in2 Imaj = 2560 in4 Imin = 144000 in4
Wall Design Group: 13
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.132 OK
Pu = -1.43 kips phiPn = -10.82 kips
Mu = 57.3 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E16 (LC 565)
Code Ref: 10.3.7

Shear Results:
Segment SC13V:40:
Length = 5.00 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 80.8 kip phiVn = 127.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.767% (11.9.9.2) OK
Segment SC13V:40:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.639% (21.9.2.1) OK

Section Cut Design Summary

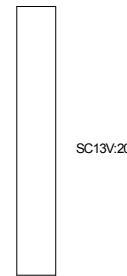
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC13V:20 (Vertical)
Story: LEVEL 3
Ag = 432 in2 Imaj = 2304 in4 Imin = 104976 in4
Wall Design Group: 13
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.096 OK
Pu = -10.50 kips phiPn = -109.24 kips
Mu = 18.5 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E16 (LC 61)
Code Ref: 10.3.7

Shear Results:
Segment SC13V:20:
Length = 4.50 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 19.1 kip phiVn = 113.3 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp - 1.300 E16 (LC 349)
Code Ref: 14.2.3 & 11.9.5

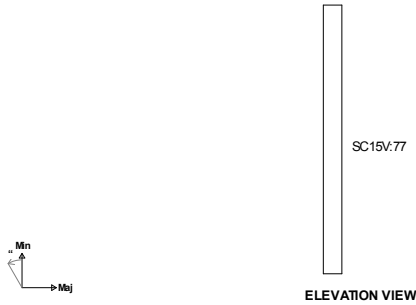
Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.852% (11.9.9.2) OK
Segment SC13V:20:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 253/1293
 07/25/17 11:03:32

Section Cut ID: SC15V:77 (Vertical)
Story: LEVEL 2
 Ag = 1944 in2 Imaj = 23328 in4 Imin = 4251528 in4
 Wall Design Group: 15
 Design Status: **PASS**



Axial/Flexural Results:
 Interaction: 0.034 **OK**
 Pu = 10.91 kips phiPn = 319.87 kips
 Mu = 209.6 kip-ft at Beta = -0.0 deg CCW from Major axis
 Controlling Load Combo: 0.784 D - 1.300 E10 (LC 559)
 Code Ref: 10.3.7

Shear Results:
 Segment SC15V:77:
 Length = 13.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 194.3 kip phiVn = 500.0 kip **OK**
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E28 (LC 325)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.727% (14.3.3) **OK**
 Segment SC15V:77:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min web reinforcement ratio: 0.250% Actual: 0.614% (21.9.2.1) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 254/1293
 07/25/17 11:03:32

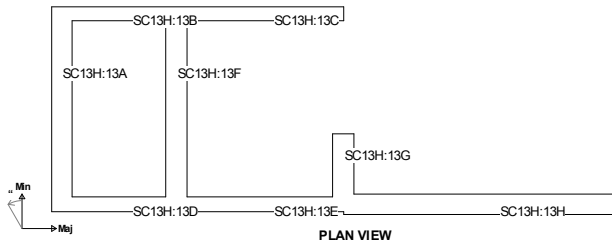
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 255/1293
 07/25/17 11:03:32

Section Cut ID: SC13H:13 (Horizontal) (Hinge)
Story: LEVEL 3
 Ag = 12609 in2 Imaj = 78641281 in4 Imin = 19012759 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 13
 Design Status: **PASS**



Axial/Flexural Results:
 Interaction: 0.247 **OK**
 Pu = 453.30 kips phiPn = 1832.17 kips
 Mu = 4010.7 kip-ft at Beta = -58.0 deg CCW from Major axis
 Controlling Load Combo: 0.784 D + 1.300 E29 (LC 542)
 Code Ref: 10.3.7

Shear Results:
 Segment SC13H:13A:
 Length = 9.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 91.5 kip phiVn = 257.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E13 (LC 310)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13B:
 Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 24.4 kip phiVn = 137.7 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E17 (LC 26)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13C:
 Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 256/1293
 07/25/17 11:03:32

Shear Results:
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 27.4 kip phiVn = 201.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E35 (LC 44)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13D:
 Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 36.1 kip phiVn = 137.7 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E17 (LC 98)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13E:
 Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 93.8 kip phiVn = 201.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13F:
 Length = 9.00 ft Thick = 12.00 in f'c = 3500 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 125.0 kip phiVn = 257.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13G:
 Length = 3.33 ft Thick = 12.00 in f'c = 3500 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 57.4 kip phiVn = 95.4 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13H:
 Length = 12.80 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 163.1 kip phiVn = 366.2 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.725% (11.9.9.4) **OK**
 S.B.E. Check: Neutral axis distance less than limit for all load combos
 Worst case is load combo 10 :
 cmax = 5.41 ft c = 0.85 ft (21.9.6.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Segment SC13H:13A:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC13H:13B:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC13H:13C:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC13H:13D:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC13H:13E:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC13H:13F:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC13H:13G:

Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC13H:13H:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK

Section Cut Design Summary

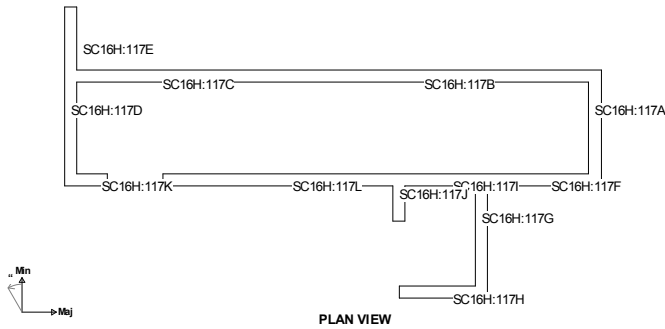
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC16H:117 (Horizontal) (Hinge)
Story: LEVEL 3.1
Ag = 17520 in2 Imaj = 494692829 in4 Imin = 79451243 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 16
Design Status: **FAILS**



Axial/Flexural Results:
Interaction: 0.062 OK
Pu = 2164.57 kips phiPn = 35121.04 kips
Mu = 7771.0 kip-ft at Beta = 3.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC16H:117A:
Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 139.1 kip phiVn = 314.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117B:
Length = 29.83 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 271.2 kip phiVn = 1105.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117C:
Length = 13.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 75.8 kip phiVn = 481.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E35 (LC 116)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117D:
Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 193.0 kip phiVn = 314.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117E:
Length = 5.67 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 277.1 kip phiVn = 209.9 kip NG
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E21 (LC 30)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117F:
Length = 9.25 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 118.8 kip phiVn = 342.6 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E7 (LC 304)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117G:
Length = 9.17 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 70.5 kip phiVn = 339.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117H:
Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 21.7 kip phiVn = 250.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117I:

Uses also 117D for total capacity

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:

Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
V_u = 72.0 kip phiV_n = 250.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117J:

Length = 3.42 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
V_u = 51.0 kip phiV_n = 126.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117K:

Length = 3.00 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
V_u = 50.3 kip phiV_n = 111.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117L:

Length = 19.33 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
V_u = 255.4 kip phiV_n = 716.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E28 (LC 109)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.804% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
c_{max} = 9.79 ft c = 5.88 ft (21.9.6.2) OK

Segment SC16H:117A:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117B:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117C:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117D:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117E:

Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.13 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 1.253% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117F:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117G:

Max Vert Bar Spacing Limit: 18.00 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117H:

Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.920% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117I:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117J:

Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117K:

Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117L:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC12V:34 (Vertical)

Story: LEVEL 2
A_g = 816 in² I_{maj} = 4352 in⁴ I_{min} = 707472 in⁴
Wall Design Group: 12
Design Status: PASS



Axial/Flexural Results:

Interaction: 0.057 OK
P_u = 9.26 kips phiP_n = 162.96 kips
M_u = 101.2 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 10.3.7

Shear Results:

Segment SC12V:34:
Length = 8.50 ft Thick = 8.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
V_u = 83.6 kip phiV_n = 216.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.752% (11.9.9.2) OK
Segment SC12V:34:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK

Section Cut Design Summary

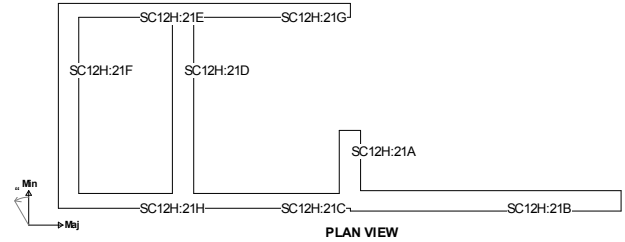
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min web reinforcement ratio: 0.250% Actual: 0.639% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC12H:21 (Horizontal) (Hinge)
Story: LEVEL 2
Ag = 12609 in2 Imaj = 78641281 in4 Imin = 19012759 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 12
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.196 OK
Pu = 642.90 kips phiPn = 3280.58 kips
Mu = 5803.3 kip-ft at Beta = -39.3 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E29 (LC 542)
Code Ref: 10.3.7

Shear Results:
Segment SC12H:21A:
Length = 3.33 ft Thick = 12.00 in f_c = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 17.6 kip phiVn = 93.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21B:
Length = 12.80 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 167.8 kip phiVn = 358.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21C:
Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 110.4 kip phiVn = 198.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21D:
Length = 9.00 ft Thick = 12.00 in f_c = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 47.9 kip phiVn = 252.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E12 (LC 21)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21E:
Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 30.2 kip phiVn = 135.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E17 (LC 26)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21F:
Length = 9.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 40.7 kip phiVn = 252.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E10 (LC 163)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21G:
Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 39.4 kip phiVn = 198.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21H:
Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 48.6 kip phiVn = 135.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.725% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 6.24 ft c = 0.70 ft (21.9.6.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Segment SC12H:21A:
Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:21B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:21C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:21D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:21E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:21F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:21G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:21H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK

Section Cut Design Summary

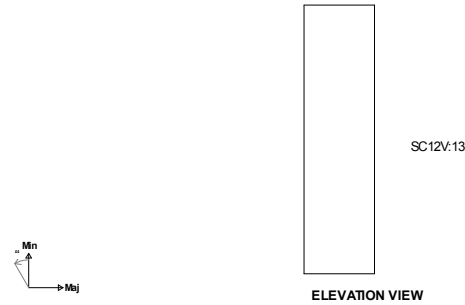
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC12V:13 (Vertical)
Story: LEVEL 2.1
Ag = 240 in2 Imaj = 1280 in4 Imin = 18000 in4
Wall Design Group: 12
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.124 OK
Pu = 2.02 kips phiPn = 16.31 kips
Mu = 20.8 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E17 (LC 530)
Code Ref: 10.3.7

Shear Results:
Segment SC12V:13:
Length = 2.50 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 31.4 kip phiVn = 63.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E17 (LC 170)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 1.023% (11.9.9.2) OK
Segment SC12V:13:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.639% (21.9.2.1) OK

Section Cut Design Summary

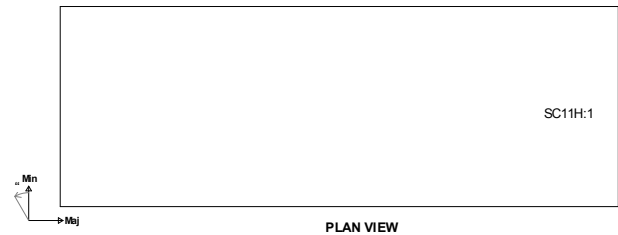
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 2 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC11H:1 (Horizontal) (Hinge)
Story: ROOF LEVEL
Ag = 708 in2 Imaj = 115283 in4 Imin = 15093 in4
Major Axis Orientation: 66.00 degrees (CCW from global X-axis)
Wall Design Group: 11
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.075 OK
Pu = 98.55 kips phiPn = 1310.74 kips
Mu = 39.1 kip-ft at Beta = -0.1 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC11H:1:
Length = 3.68 ft Thick = 16.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 7.8 kip phiVn = 117.1 kip OK
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.434% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 0.88 ft c = 0.33 ft (21.9.6.2) OK

Segment SC11H:1:
Max Vert Bar Spacing Limit: 14.74 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.320% Actual: 0.320% (21.9.4.3) OK

Section Cut Design Summary

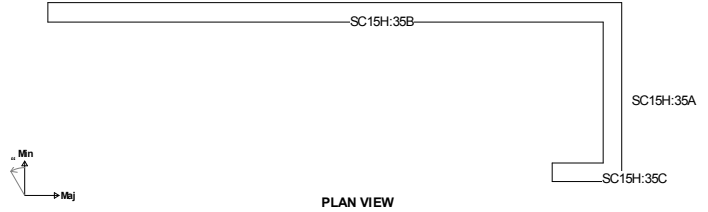
RAM Concrete Shearwall 15.04.00.000 Page 273/1293
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
 Design Code: ACI 318-11

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 274/1293
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
 Design Code: ACI 318-11

Section Cut ID: SC15H:35 (Horizontal) (Hinge)
Story: LEVEL 2
 Ag = 5976 in2 Imaj = 82683288 in4 Imin = 7104393 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 15
 Design Status: **FAILS**



Axial/Flexural Results:

Interaction: 0.170 OK
 Pu = 10.96 kips phiPn = 64.66 kips
 Mu = 9307.1 kip-ft at Beta = -9.8 deg CCW from Major axis
 Controlling Load Combo: 0.784 D + 1.300 E28 (LC 541)
 Code Ref: 10.3.7

Shear Results:

Segment SC15H:35A:
 Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 49.5 kip phiVn = 314.8 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
 Code Ref: 14.2.3 & 11.9.5

Segment SC15H:35B:
 Length = 29.83 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 295.5 kip phiVn = 1105.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
 Code Ref: 14.2.3 & 11.9.5

Segment SC15H:35C:
 Length = 3.17 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 28.7 kip phiVn = 117.3 kip OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 275/1293
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
 Design Code: ACI 318-11

Shear Results:
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

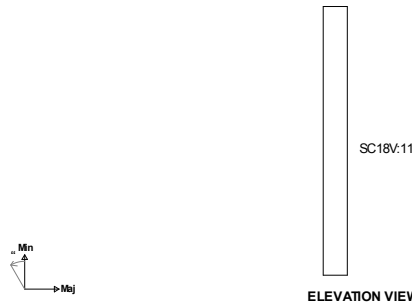
Min Vert Reinf Ratio: Limit: 0.250% Actual: 1.419% (11.9.9.4) OK
 S.B.E. Check: **Boundary zone required for one or more load combos**
 Worst case is load combo 39 : **SAY OK**
 cmax = 2.40 ft c = 2.71 ft (21.9.6.2) NG

Segment SC15H:35A:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC15H:35B:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC15H:35C:
 Max Vert Bar Spacing Limit: 12.67 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 276/1293
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
 Design Code: ACI 318-11

Section Cut ID: SC18V:11 (Vertical)
Story: ROOF LEVEL
 Ag = 1584 in2 Imaj = 19008 in4 Imin = 2299968 in4
 Wall Design Group: 18
 Design Status: **PASS**



Axial/Flexural Results:

Interaction: 0.163 OK
 Pu = -21.89 kips phiPn = -134.47 kips
 Mu = 105.5 kip-ft at Beta = -0.0 deg CCW from Major axis
 Controlling Load Combo: 0.784 D + 1.300 E10 (LC 523)
 Code Ref: 10.3.7

Shear Results:

Segment SC18V:11:
 Length = 11.00 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 56.7 kip phiVn = 237.7 kip OK
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E28 (LC 325)
 Code Ref: 14.2.3 & 11.9.5

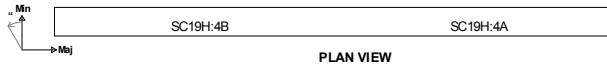
Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.297% (11.9.9.2) OK
 Segment SC18V:11:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC19H:4 (Horizontal)
Story: T.O. PENTHOUSE
Ag = 2772 in2 Iraj = 12332796 in4 Imin = 33270 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 19
Design Status: **PASS**



Axial/Flexural Results:

Interaction: 0.018 **OK**
Pu = 91.72 kips phiPn = 5144.46 kips
Mu = 50.0 kip-ft at Beta = -0.2 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 1.600 Sp (LC 8)
Code Ref: 10.3.7

Shear Results:

Segment SC19H:4A:
Length = 13.25 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 19.2 kip phiVn = 287.9 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E26 (LC 179)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:4B:

Length = 6.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 23.5 kip phiVn = 130.3 kip **OK**
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E31 (LC 328)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.297% (11.9.9.4) **OK**
Segment SC19H:4A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC19H:4B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**

Section Cut Design Summary

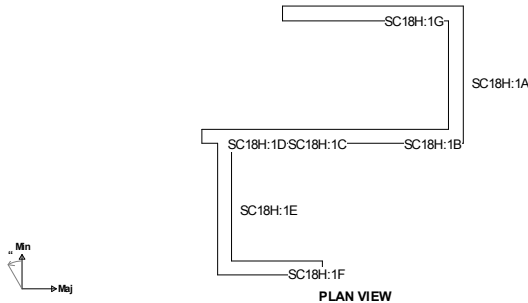
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC18H:1 (Horizontal)
Story: ROOF LEVEL
Ag = 7704 in2 Iraj = 39871674 in4 Imin = 39007351 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 18
Design Status: **PASS**



Axial/Flexural Results:

Interaction: 0.052 **OK**
Pu = 745.19 kips phiPn = 14314.15 kips
Mu = 1521.7 kip-ft at Beta = 57.7 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:

Segment SC18H:1A:
Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 73.5 kip phiVn = 184.7 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:1B:

Length = 9.25 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 86.8 kip phiVn = 200.9 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E7 (LC 160)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:

Segment SC18H:1C:
Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 51.2 kip phiVn = 146.6 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:1D:

Length = 1.58 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 12.4 kip phiVn = 34.4 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:1E:

Length = 9.17 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 69.6 kip phiVn = 199.1 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:1F:

Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 23.8 kip phiVn = 146.6 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E28 (LC 109)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:1G:

Length = 12.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 28.9 kip phiVn = 260.7 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.306% (11.9.9.4) **OK**
Segment SC18H:1A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC18H:1B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**

Section Cut Design Summary

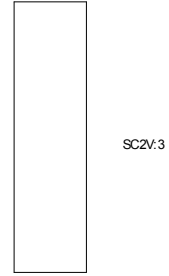
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:1C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:1D:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:1E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:1F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:1G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC2V:3 (Vertical)
Story: LEVEL 2.3
Ag = 960 in2 Imaj = 20480 in4 Imin = 288000 in4
Wall Design Group: 2
Design Status: PASS



ELEVATION VIEW



Axial/Flexural Results:
Interaction: 0.027 OK
Pu = -0.77 kips phiPn = -28.73 kips
Mu = 8.7 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E31 (LC 40)
Code Ref: 10.3.7

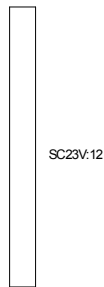
Shear Results:
Segment SC2V:3:
Length = 5.00 ft Thick = 16.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@15" oc Horiz Bar Pat: #5@15" oc
Vu = 15.2 kip phiVn = 139.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E35 (LC 44)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.320% (11.9.9.2) OK
Segment SC2V:3:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 15.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 14.38 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC23V:12 (Vertical)
Story: T.O. PENTHOUSE
Ag = 1512 in2 Imaj = 18144 in4 Imin = 2000376 in4
Wall Design Group: 23
Design Status: PASS



ELEVATION VIEW



Axial/Flexural Results:
Interaction: 0.011 OK
Pu = -1.22 kips phiPn = -107.36 kips
Mu = 8.5 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E24 (LC 69)
Code Ref: 10.3.7

Shear Results:
Segment SC23V:12:
Length = 10.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 19.4 kip phiVn = 228.1 kip OK
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.312% (11.9.9.2) OK
Segment SC23V:12:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

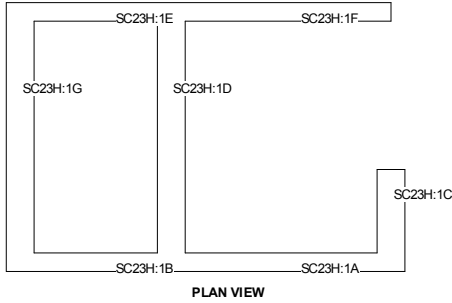
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 285/1293
07/25/17 11:03:32

Section Cut ID: SC23H:1 (Horizontal)
Story: T.O. PENTHOUSE
Ag = 10826 in2 Imap = 20003992 in4 Imin = 14769055 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 23
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.040 OK
Pu = 227.53 kips phiPn = 5742.58 kips
Mu = 929.6 kip-ft at Beta = 9.7 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC23H:1A:
Length = 7.92 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 22.9 kip phiVn = 147.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E29 (LC 38)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:1B:
Length = 5.41 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 18.4 kip phiVn = 100.4 kip OK
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 286/1293
07/25/17 11:03:32

Shear Results:
Segment SC23H:1C:
Length = 3.33 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 2.9 kip phiVn = 72.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E31 (LC 112)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:1D:
Length = 9.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 15.0 kip phiVn = 195.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E22 (LC 31)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:1E:
Length = 5.41 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 14.9 kip phiVn = 100.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E31 (LC 40)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:1F:
Length = 7.92 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 16.7 kip phiVn = 147.0 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:1G:
Length = 9.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 13.0 kip phiVn = 195.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E34 (LC 43)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) OK
Segment SC23H:1A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:1B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 287/1293
07/25/17 11:03:32

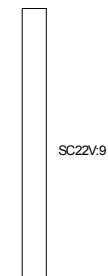
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:1C:
Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:1D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:1E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:1F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:1G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 288/1293
07/25/17 11:03:32

Section Cut ID: SC22V:9 (Vertical)
Story: ROOF LEVEL
Ag = 1584 in2 Imap = 19008 in4 Imin = 2299968 in4
Wall Design Group: 22
Design Status: PASS



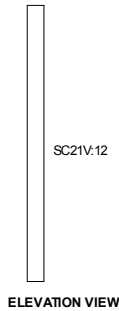
Axial/Flexural Results:
Interaction: 0.033 OK
Pu = -3.74 kips phiPn = -111.89 kips
Mu = 25.5 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E24 (LC 573)
Code Ref: 10.3.7

Shear Results:
Segment SC22V:9:
Length = 11.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 24.6 kip phiVn = 238.5 kip OK
Controlling Load Combo: 1.316 D + 1.300 E21 (LC 462)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.297% (11.9.9.2) OK
Segment SC22V:9:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC21V:12 (Vertical)
Story: LEVEL 4
 Ag = 960 in2 Imaj = 5120 in4 Imin = 1152000 in4
 Wall Design Group: 21
 Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:
 Interaction: 0.039 OK
 Pu = -1.79 kips phiPn = -45.83 kips
 Mu = 34.7 kip-ft at Beta = -0.0 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E32 (LC 185)
 Code Ref: 10.3.7

Shear Results:
 Segment SC21V:12:
 Length = 10.00 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 65.5 kip phiVn = 185.7 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
 Code Ref: 14.2.3 & 11.9.5

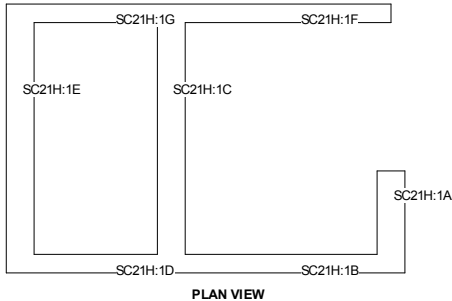
Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.450% (11.9.9.2) OK
 Segment SC21V:12:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK

Section Cut Design Summary

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC21H:1 (Horizontal) (Hinge)
Story: LEVEL 4
 Ag = 10826 in2 Imaj = 20003992 in4 Imin = 14769055 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 21
 Design Status: PASS



PLAN VIEW

Axial/Flexural Results:
 Interaction: 0.066 OK
 Pu = 626.05 kips phiPn = 9497.96 kips
 Mu = 1154.2 kip-ft at Beta = -32.2 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:
 Segment SC21H:1A:
 Length = 3.33 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 7.2 kip phiVn = 72.4 kip OK
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 14.2.3 & 11.9.5

Segment SC21H:1B:
 Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 57.7 kip phiVn = 147.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
 Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

Shear Results:
 Segment SC21H:1C:
 Length = 9.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 33.6 kip phiVn = 195.5 kip OK
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
 Code Ref: 14.2.3 & 11.9.5

Segment SC21H:1D:
 Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 16.4 kip phiVn = 100.4 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
 Code Ref: 14.2.3 & 11.9.5

Segment SC21H:1E:
 Length = 9.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 35.4 kip phiVn = 195.5 kip OK
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
 Code Ref: 14.2.3 & 11.9.5

Segment SC21H:1F:
 Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 46.9 kip phiVn = 147.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

Segment SC21H:1G:
 Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 12.7 kip phiVn = 100.4 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E31 (LC 40)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) OK
 S.B.E. Check: Neutral axis distance less than limit for all load combos
 Worst case is load combo 10 :
 cmax = 3.23 ft c = 0.43 ft (21.9.6.2) OK

Segment SC21H:1A:
 Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 293/1293
07/25/17 11:03:32

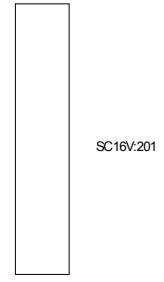
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:1B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:1C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:1D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:1E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:1F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:1G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 294/1293
07/25/17 11:03:32

Section Cut ID: SC16V:201 (Vertical)
Story: LEVEL 2.3
Ag = 720 in2 Imaj = 8640 in4 Imin = 216000 in4
Wall Design Group: 16
Design Status: PASS



ELEVATION VIEW



Axial/Flexural Results:
Interaction: 0.059 OK
Pu = -2.79 kips phiPn = -47.20 kips
Mu = 33.3 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E6 (LC S19)
Code Ref: 10.3.7

Shear Results:
Segment SC16V:201:
Length = 5.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 120.3 kip phiVn = 236.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E6 (LC S1)
Code Ref: 14.2.3 & 11.9.5

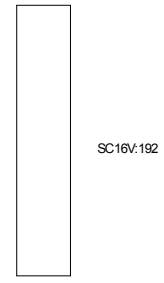
Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.736% (14.3.3) OK
Segment SC16V:201:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 295/1293
07/25/17 11:03:32

Section Cut ID: SC16V:192 (Vertical)
Story: LEVEL 2.3
Ag = 720 in2 Imaj = 8640 in4 Imin = 216000 in4
Wall Design Group: 16
Design Status: PASS



ELEVATION VIEW



Axial/Flexural Results:
Interaction: 0.103 OK
Pu = -3.80 kips phiPn = -36.93 kips
Mu = 60.1 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 10.3.7

Shear Results:
Segment SC16V:192:
Length = 5.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 89.0 kip phiVn = 184.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

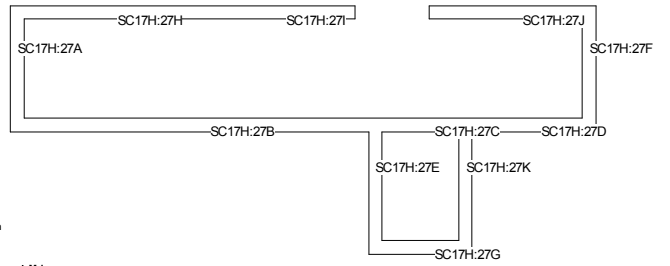
Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.736% (14.3.3) OK
Segment SC16V:192:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 296/1293
07/25/17 11:03:32

Section Cut ID: SC17H:27 (Horizontal)
Story: LEVEL 4
Ag = 24222 in2 Imaj = 507025850 in4 Imin = 112929491 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 17
Design Status: PASS



PLAN VIEW



Axial/Flexural Results:
Interaction: 0.057 OK
Pu = 1898.54 kips phiPn = 33289.22 kips
Mu = 2628.2 kip-ft at Beta = 31.2 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC17H:27A:
Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 135.3 kip phiVn = 243.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E21 (LC 174)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27B:
Length = 26.83 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 309.8 kip phiVn = 767.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E28 (LC 181)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:

Segment SC17H:27C:
Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 58.6 kip phiVn = 193.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27D:
Length = 9.25 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 121.8 kip phiVn = 264.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27E:
Length = 9.17 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 53.0 kip phiVn = 262.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27F:
Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 101.8 kip phiVn = 243.2 kip OK
Controlling Load Combo: 1.316 D + 1.300 E7 (LC 448)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27G:
Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 21.7 kip phiVn = 193.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27H:
Length = 13.00 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 77.2 kip phiVn = 372.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27I:
Length = 12.33 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:

Vu = 60.2 kip phiVn = 352.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E12 (LC 21)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27J:
Length = 12.00 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 47.7 kip phiVn = 343.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E15 (LC 24)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27K:
Length = 9.17 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 70.5 kip phiVn = 262.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.471% (11.9.9.4) OK

Segment SC17H:27A:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC17H:27B:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC17H:27C:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC17H:27D:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC17H:27E:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC17H:27F:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC17H:27G:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC17H:27H:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC17H:27I:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC17H:27J:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC17H:27K:

Section Cut Design Summary

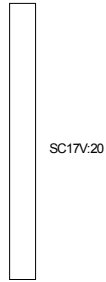
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC17V:20 (Vertical)
Story: LEVEL 4
Ag = 1440 in2 Imaj = 17280 in4 Imin = 1728000 in4
Wall Design Group: 17
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.125 OK
Pu = -16.30 kips phiPn = -130.90 kips
Mu = 138.5 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E10 (LC 523)
Code Ref: 10.3.7

Shear Results:
Segment SC17V:20:
Length = 10.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 134.0 kip phiVn = 286.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.469% (11.9.2) OK
Segment SC17V:20:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

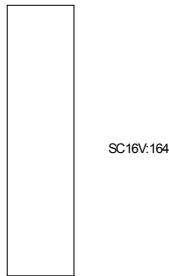
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC16V:164 (Vertical)
Story: LEVEL 3
Ag = 576 in2 Imaj = 6912 in4 Imin = 110592 in4
Wall Design Group: 16
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.215 OK
Pu = -35.81 kips phiPn = -166.77 kips
Mu = 29.7 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E7 (LC 520)
Code Ref: 10.3.7

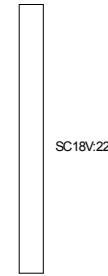
Shear Results:
Segment SC16V:164:
Length = 4.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 59.0 kip phiVn = 148.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.767% (14.3.3) OK
Segment SC16V:164:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC18V:22 (Vertical)
Story: ROOF LEVEL
Ag = 1584 in2 Imaj = 19008 in4 Imin = 2299968 in4
Wall Design Group: 18
Design Status: PASS



ELEVATION VIEW

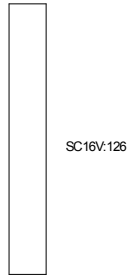
Axial/Flexural Results:
Interaction: 0.085 OK
Pu = -14.58 kips phiPn = -170.95 kips
Mu = 38.6 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E30 (LC 579)
Code Ref: 10.3.7

Shear Results:
Segment SC18V:22:
Length = 11.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 48.1 kip phiVn = 239.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E26 (LC 35)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.297% (11.9.2) OK
Segment SC18V:22:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC16V:126 (Vertical)
Story: LEVEL 3.1
 Ag = 1008 in2 Imaj = 12096 in4 Imin = 592704 in4
 Wall Design Group: 16
 Design Status: **PASS**



ELEVATION VIEW

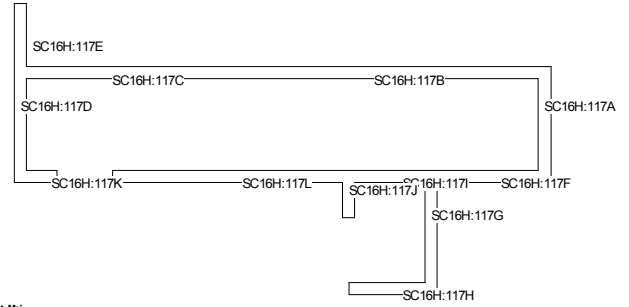
Axial/Flexural Results:
 Interaction: 0.032 **OK**
 Pu = -3.56 kips phiPn = -112.53 kips
 Mu = 28.3 kip-ft at Beta = -0.0 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
 Code Ref: 10.3.7

Shear Results:
 Segment SC16V:126:
 Length = 7.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 120.8 kip phiVn = 331.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.701% (14.3.3) **OK**
 Segment SC16V:126:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

Section Cut ID: SC16H:117 (Horizontal) (Hinge)
Story: LEVEL 3.1
 Ag = 17520 in2 Imaj = 494692829 in4 Imin = 79451243 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 16
 Design Status: **FAILS**



PLAN VIEW

Axial/Flexural Results:
 Interaction: 0.062 **OK**
 Pu = 2164.57 kips phiPn = 35121.04 kips
 Mu = 7771.0 kip-ft at Beta = 3.0 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:
 Segment SC16H:117A:
 Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 139.1 kip phiVn = 314.8 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117B:
 Length = 29.83 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 271.2 kip phiVn = 1105.0 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)

Section Cut Design Summary

Shear Results:
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117C:
 Length = 13.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 75.8 kip phiVn = 481.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E35 (LC 116)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117D:
 Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 193.0 kip phiVn = 314.8 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117E:
 Length = 5.67 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 277.1 kip phiVn = 209.9 kip **NG**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E21 (LC 30)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117F:
 Length = 9.25 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 118.8 kip phiVn = 342.6 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Sp + 1.300 E7 (LC 304)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117G:
 Length = 9.17 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 70.5 kip phiVn = 339.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117H:
 Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 21.7 kip phiVn = 250.0 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117I:

Section Cut Design Summary

Shear Results:
 Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 72.0 kip phiVn = 250.0 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117J:
 Length = 3.42 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 51.0 kip phiVn = 126.6 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117K:
 Length = 3.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 50.3 kip phiVn = 111.1 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117L:
 Length = 19.33 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 255.4 kip phiVn = 716.1 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E28 (LC 109)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.804% (11.9.9.4) **OK**
 S.B.E. Check: Neutral axis distance less than limit for all load combos
 Worst case is load combo 10 :
 cmax = 9.79 ft c = 5.88 ft (21.9.6.2) **OK**

Segment SC16H:117A:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC16H:117B:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC16H:117C:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 309/1293
07/25/17 11:03:32

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.13 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 1.253% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.920% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117I:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117J:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 310/1293
07/25/17 11:03:32

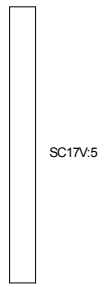
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117K:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117L:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 311/1293
07/25/17 11:03:32

Section Cut ID: SC17V:5 (Vertical)
Story: LEVEL 4
Ag = 1440 in2 Imaj = 17280 in4 Imin = 1728000 in4
Wall Design Group: 17
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.102 OK
Pu = -13.82 kips phiPn = -135.68 kips
Mu = 136.8 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E25 (LC 574)
Code Ref: 10.3.7

Shear Results:
Segment SC17V:5:
Length = 10.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 105.0 kip phiVn = 284.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.511% (11.9.9.2) OK
Segment SC17V:5:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

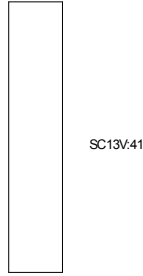
Page 312/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Section Cut ID: SC13V:41 (Vertical)
Story: LEVEL 2.3
 Ag = 720 in2 Imaj = 8640 in4 Imin = 216000 in4
 Wall Design Group: 13
 Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:
 Interaction: 0.086 **OK**
 Pu = -7.16 kips phiPn = -83.59 kips
 Mu = 23.6 kip-ft at Beta = -0.0 deg CCW from Major axis
 Controlling Load Combo: 0.784 D + 1.300 E6 (LC 519)
 Code Ref: 10.3.7

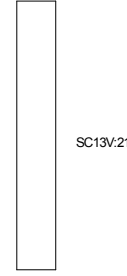
Shear Results:
 Segment SC13V:41:
 Length = 5.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 41.4 kip phiVn = 143.1 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E17 (LC 26)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.511% (11.9.9.2) **OK**
 Segment SC13V:41:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Section Cut ID: SC13V:21 (Vertical)
Story: LEVEL 3
 Ag = 432 in2 Imaj = 2304 in4 Imin = 104976 in4
 Wall Design Group: 13
 Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:
 Interaction: 0.074 **OK**
 Pu = -0.11 kips phiPn = -1.46 kips
 Mu = 30.0 kip-ft at Beta = -0.0 deg CCW from Major axis
 Controlling Load Combo: 0.784 D + 1.300 E16 (LC 529)
 Code Ref: 10.3.7

Shear Results:
 Segment SC13V:21:
 Length = 4.50 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 30.3 kip phiVn = 114.6 kip **OK**
 Controlling Load Combo: 1.316 D + 0.200 Sn - 1.300 E16 (LC 421)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.852% (11.9.9.2) **OK**
 Segment SC13V:21:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
 Min web reinforcement ratio: 0.250% Actual: 0.639% (21.9.2.1) **OK**

Section Cut Design Summary

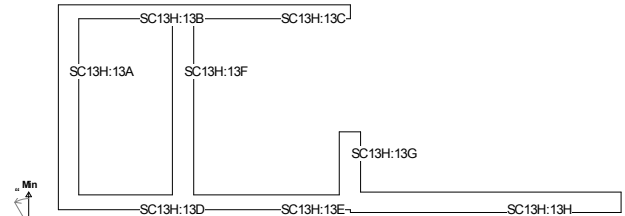
RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Section Cut ID: SC13H:13 (Horizontal) (Hinge)
Story: LEVEL 3
 Ag = 12609 in2 Imaj = 78641281 in4 Imin = 19012759 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 13
 Design Status: **PASS**



PLAN VIEW

Axial/Flexural Results:
 Interaction: 0.247 **OK**
 Pu = 453.30 kips phiPn = 1832.17 kips
 Mu = 4010.7 kip-ft at Beta = -58.0 deg CCW from Major axis
 Controlling Load Combo: 0.784 D + 1.300 E29 (LC 542)
 Code Ref: 10.3.7

Shear Results:
 Segment SC13H:13A:
 Length = 9.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 91.5 kip phiVn = 257.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E13 (LC 310)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13B:
 Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 24.4 kip phiVn = 137.7 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E17 (LC 26)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13C:
 Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 317/1293
 07/25/17 11:03:32

Shear Results:

Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 27.4 kip phiVn = 201.5 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E35 (LC 44)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13D:
 Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 36.1 kip phiVn = 137.7 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E17 (LC 98)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13E:
 Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 93.8 kip phiVn = 201.5 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13F:
 Length = 9.00 ft Thick = 12.00 in f'c = 3500 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 125.0 kip phiVn = 257.5 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13G:
 Length = 3.33 ft Thick = 12.00 in f'c = 3500 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 57.4 kip phiVn = 95.4 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13H:
 Length = 12.80 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 163.1 kip phiVn = 366.2 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.725% (11.9.4) OK
 S.B.E. Check: Neutral axis distance less than limit for all load combos
 Worst case is load combo 10 :
 cmax = 5.41 ft c = 0.85 ft (21.9.6.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 318/1293
 07/25/17 11:03:32

Segment SC13H:13A:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC13H:13B:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC13H:13C:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC13H:13D:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC13H:13E:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC13H:13F:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC13H:13G:

Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC13H:13H:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 319/1293
 07/25/17 11:03:32

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 320/1293
 07/25/17 11:03:32

Section Cut ID: SC12V:35 (Vertical)
Story: LEVEL 2
 Ag = 816 in2 Imaj = 4352 in4 Imin = 707472 in4
 Wall Design Group: 12
 Design Status: PASS



Axial/Flexural Results:
 Interaction: 0.038 OK
 Pu = 4.58 kips phiPn = 122.02 kips
 Mu = 62.3 kip-ft at Beta = -0.0 deg CCW from Major axis
 Controlling Load Combo: 0.784 D + 1.300 E17 (LC 530)
 Code Ref: 10.3.7

Shear Results:
 Segment SC12V:35:
 Length = 8.50 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 86.5 kip phiVn = 216.4 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.752% (11.9.9.2) OK
 Segment SC12V:35:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK

Section Cut Design Summary

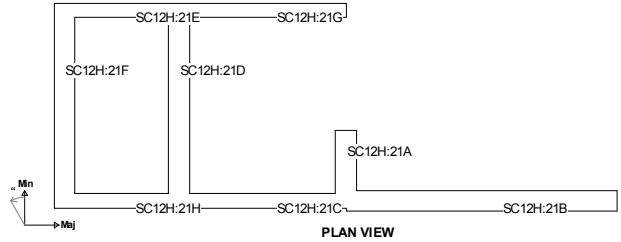
RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Min web reinforcement ratio: 0.250% Actual: 0.639% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Section Cut ID: SC12H:21 (Horizontal) (Hinge)
Story: LEVEL 2
 Ag = 12609 in2 Imaj = 78641281 in4 Imin = 19012759 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 12
 Design Status: PASS



Axial/Flexural Results:
 Interaction: 0.196 OK
 Pu = 642.90 kips phiPn = 3280.58 kips
 Mu = 5803.3 kip-ft at Beta = -39.3 deg CCW from Major axis
 Controlling Load Combo: 0.784 D + 1.300 E29 (LC 542)
 Code Ref: 10.3.7

Shear Results:
 Segment SC12H:21A:
 Length = 3.33 ft Thick = 12.00 in f_c = 3500 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 17.6 kip phiVn = 93.3 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
 Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21B:
 Length = 12.80 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 167.8 kip phiVn = 358.4 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
 Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21C:
 Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Shear Results:
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 110.4 kip phiVn = 198.3 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
 Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21D:
 Length = 9.00 ft Thick = 12.00 in f_c = 3500 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 47.9 kip phiVn = 252.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E12 (LC 21)
 Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21E:
 Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 30.2 kip phiVn = 135.5 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E17 (LC 26)
 Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21F:
 Length = 9.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 40.7 kip phiVn = 252.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E10 (LC 163)
 Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21G:
 Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 39.4 kip phiVn = 198.3 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
 Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21H:
 Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 48.6 kip phiVn = 135.5 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.725% (11.9.9.4) OK
 S.B.E. Check: Neutral axis distance less than limit for all load combos
 Worst case is load combo 10 :
 cmax = 6.24 ft c = 0.70 ft (21.9.6.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Segment SC12H:21A:
 Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC12H:21B:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC12H:21C:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC12H:21D:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC12H:21E:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC12H:21F:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC12H:21G:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC12H:21H:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK

Section Cut Design Summary

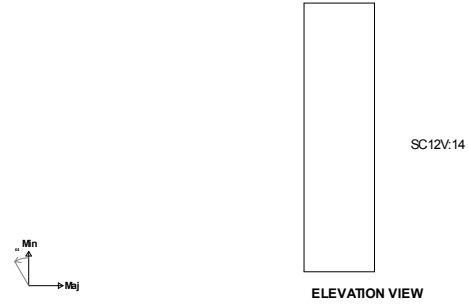
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC12V:14 (Vertical)
Story: LEVEL 2.1
Ag = 240 in2 Imaj = 1280 in4 Imin = 18000 in4
Wall Design Group: 12
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.177 OK
Pu = 2.22 kips phiPn = 12.53 kips
Mu = 29.1 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp - 1.300 E17 (LC 206)
Code Ref: 10.3.7

Shear Results:
Segment SC12V:14:
Length = 2.50 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 43.2 kip phiVn = 63.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E17 (LC 62)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 1.023% (11.9.9.2) OK
Segment SC12V:14:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.639% (21.9.2.1) OK

Section Cut Design Summary

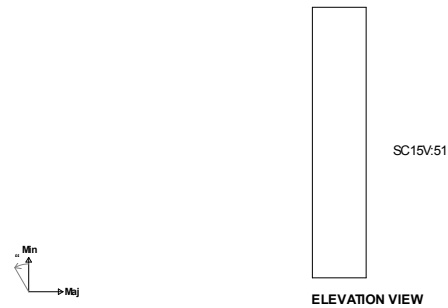
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC15V:51 (Vertical)
Story: LEVEL 2
Ag = 720 in2 Imaj = 8640 in4 Imin = 216000 in4
Wall Design Group: 15
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.196 OK
Pu = -36.41 kips phiPn = -185.86 kips
Mu = 47.4 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E11 (LC 560)
Code Ref: 10.3.7

Shear Results:
Segment SC15V:51:
Length = 5.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 118.2 kip phiVn = 185.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.736% (14.3.3) OK
Segment SC15V:51:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.614% (21.9.2.1) OK

Section Cut Design Summary

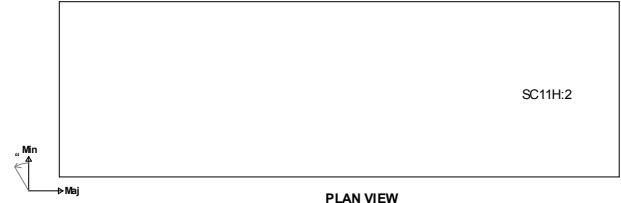
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC11H:2 (Horizontal) (Hinge)
Story: ROOF LEVEL
Ag = 819 in2 Imaj = 178794 in4 Imin = 17471 in4
Major Axis Orientation: 66.00 degrees (CCW from global X-axis)
Wall Design Group: 11
Design Status: PASS



PLAN VIEW

Axial/Flexural Results:
Interaction: 0.082 OK
Pu = 126.34 kips phiPn = 1538.20 kips
Mu = 26.5 kip-ft at Beta = 0.1 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC11H:2:
Length = 4.27 ft Thick = 16.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 11.8 kip phiVn = 135.5 kip OK
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.375% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 1.02 ft c = 0.39 ft (21.9.6.2) OK

Segment SC11H:2:
Max Vert Bar Spacing Limit: 17.06 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.320% Actual: 0.320% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC19H:23 (Horizontal)
Story: T.O. PENTHOUSE
Ag = 2052 in2 Imaj = 5000211 in4 Imin = 24624 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 19
Design Status: PASS



PLAN VIEW

Axial/Flexural Results:
Interaction: 0.032 OK
Pu = 7.13 kips phiPn = 223.68 kips
Mu = 117.2 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E25 (LC 538)
Code Ref: 10.3.7

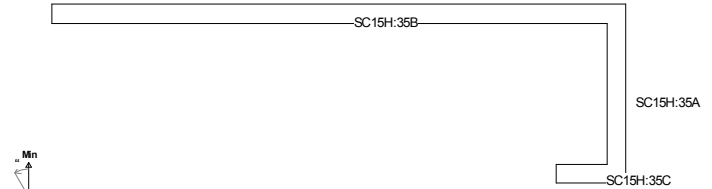
Shear Results:
Segment SC19H:23:
Length = 14.25 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 60.7 kip phiVn = 309.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E28 (LC 181)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.306% (11.9.9.4) OK
Segment SC19H:23:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC15H:35 (Horizontal) (Hinge)
Story: LEVEL 2
Ag = 5976 in2 Imaj = 82683288 in4 Imin = 7104393 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 15
Design Status: FAILS



PLAN VIEW

Axial/Flexural Results:
Interaction: 0.170 OK
Pu = 10.96 kips phiPn = 64.66 kips
Mu = 9307.1 kip-ft at Beta = -9.8 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E28 (LC 541)
Code Ref: 10.3.7

Shear Results:
Segment SC15H:35A:
Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 49.5 kip phiVn = 314.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:35B:
Length = 29.83 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 295.5 kip phiVn = 1105.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:35C:
Length = 3.17 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 28.7 kip phiVn = 117.3 kip OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:

Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 1.419% (11.9.9.4) OK
S.B.E. Check: Boundary zone required for one or more load combos **SAY OK**
Worst case is load combo 39 :
cmax = 2.40 ft c = 2.71 ft (21.9.6.2) NG

Segment SC15H:35A:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC15H:35B:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC15H:35C:

Max Vert Bar Spacing Limit: 12.67 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC15V:20 (Vertical)

Story: LEVEL 2.1
Ag = 360 in2 Imaj = 4320 in4 Imin = 27000 in4
Wall Design Group: 15
Design Status: PASS



ELEVATION VIEW



Axial/Flexural Results:

Interaction: 0.394 OK
Pu = 1.66 kips phiPn = 4.21 kips
Mu = 87.6 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:

Segment SC15V:20:
Length = 2.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 81.7 kip phiVn = 92.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E20 (LC 65)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.982% (14.3.3) OK
Segment SC15V:20:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.614% (21.9.2.1) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

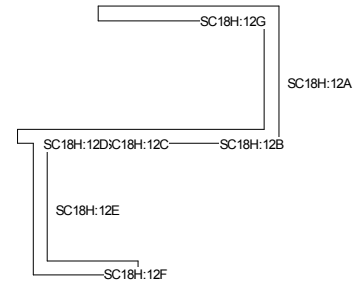
Min Number of Reinf Curtains: 2 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC18H:12 (Horizontal)

Story: ROOF LEVEL
Ag = 7704 in2 Imaj = 39871674 in4 Imin = 39007351 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 18
Design Status: PASS



PLAN VIEW



Axial/Flexural Results:

Interaction: 0.052 OK
Pu = 712.58 kips phiPn = 13822.09 kips
Mu = 1738.5 kip-ft at Beta = 65.7 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:

Segment SC18H:12A:
Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 73.5 kip phiVn = 184.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:12B:

Length = 9.25 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 75.9 kip phiVn = 200.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

Shear Results:

Segment SC18H:12C:
 Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 V_u = 46.0 kip phiV_n = 146.6 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
 Code Ref: 14.2.3 & 11.9.5

Segment SC18H:12D:
 Length = 1.58 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 V_u = 14.0 kip phiV_n = 34.4 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E25 (LC 178)
 Code Ref: 14.2.3 & 11.9.5

Segment SC18H:12E:
 Length = 9.17 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 V_u = 69.6 kip phiV_n = 199.1 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
 Code Ref: 14.2.3 & 11.9.5

Segment SC18H:12F:
 Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 V_u = 23.8 kip phiV_n = 146.6 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E28 (LC 109)
 Code Ref: 14.2.3 & 11.9.5

Segment SC18H:12G:
 Length = 12.00 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 V_u = 28.8 kip phiV_n = 260.7 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
 Code Ref: 14.2.3 & 11.9.5

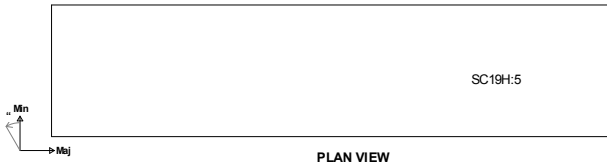
Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.306% (11.9.9.4) OK
 Segment SC18H:12A:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC18H:12B:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

Section Cut Design Summary

Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC18H:12C:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC18H:12D:
 Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC18H:12E:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC18H:12F:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC18H:12G:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC19H:5 (Horizontal)
Story: T.O. PENTHOUSE
 A_g = 612 in² I_{maj} = 132651 in⁴ I_{min} = 7344 in⁴
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 19
 Design Status: PASS



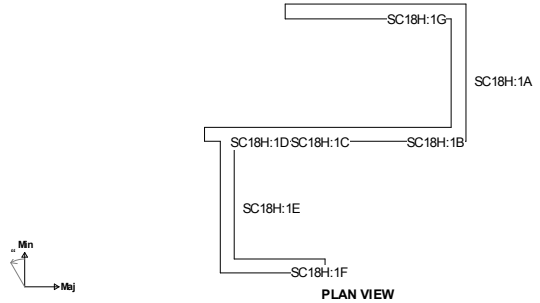
Axial/Flexural Results:
 Interaction: 0.097 OK
 P_u = -0.54 kips phiP_n = -5.57 kips
 M_u = 23.6 kip-ft at Beta = 0.0 deg CCW from Major axis
 Controlling Load Combo: 0.784 D + 1.300 E12 (LC 525)
 Code Ref: 10.3.7

Shear Results:
 Segment SC19H:5:
 Length = 4.25 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 V_u = 12.4 kip phiV_n = 92.3 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E9 (LC 18)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.385% (11.9.9.4) OK
 Segment SC19H:5:
 Max Vert Bar Spacing Limit: 17.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC18H:1 (Horizontal)
Story: ROOF LEVEL
 A_g = 7704 in² I_{maj} = 39871674 in⁴ I_{min} = 39007351 in⁴
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 18
 Design Status: PASS



Axial/Flexural Results:
 Interaction: 0.052 OK
 P_u = 745.19 kips phiP_n = 14314.15 kips
 M_u = 1521.7 kip-ft at Beta = 57.7 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:
 Segment SC18H:1A:
 Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 V_u = 73.5 kip phiV_n = 184.7 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
 Code Ref: 14.2.3 & 11.9.5

Segment SC18H:1B:
 Length = 9.25 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 V_u = 86.8 kip phiV_n = 200.9 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E7 (LC 160)
 Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

Shear Results:

Segment SC18H:1C:
Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 51.2 kip phiVn = 146.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:1D:
Length = 1.58 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 12.4 kip phiVn = 34.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:1E:
Length = 9.17 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 69.6 kip phiVn = 199.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:1F:
Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 23.8 kip phiVn = 146.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E28 (LC 109)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:1G:
Length = 12.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 28.9 kip phiVn = 260.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.306% (11.9.9.4) OK
Segment SC18H:1A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:1B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

Section Cut Design Summary

Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:1C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:1D:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:1E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:1F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:1G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC2H:17 (Horizontal)
Story: LEVEL 2
Ag = 12293 in2 Imaj = 604717212 in4 Imin = 262251 in4
Major Axis Orientation: 296.00 degrees (CCW from global X-axis)
Wall Design Group: 2
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.039 OK
Pu = 568.59 kips phiPn = 14430.19 kips
Mu = 9132.0 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E34 (LC 43)
Code Ref: 10.3.7

Shear Results:
Segment SC2H:17A:
Length = 19.03 ft Thick = 16.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@15" oc Horiz Bar Pat: #5@15" oc
Vu = 141.6 kip phiVn = 531.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E35 (LC 44)
Code Ref: 14.2.3 & 11.9.5

Segment SC2H:17B:
Length = 38.56 ft Thick = 16.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@15" oc Horiz Bar Pat: #5@15" oc
Vu = 278.9 kip phiVn = 1077.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E31 (LC 40)
Code Ref: 14.2.3 & 11.9.5

Segment SC2H:17C:
Length = 6.44 ft Thick = 16.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@15" oc Horiz Bar Pat: #5@15" oc
Vu = 39.2 kip phiVn = 180.1 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E34 (LC 331)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.260% (11.9.9.4) OK
Segment SC2H:17A:

Section Cut Design Summary

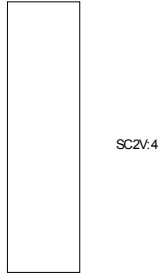
Max Vert Bar Spacing Limit: 18.00 in Actual: 15.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 14.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.256% Actual: 0.256% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC2H:17B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 15.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 14.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.256% Actual: 0.256% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC2H:17C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 15.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 14.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.256% Actual: 0.256% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 345/1293
07/25/17 11:03:32

Section Cut ID: SC2V:4 (Vertical)
Story: LEVEL 2.3
Ag = 960 in2 Imaj = 20480 in4 Imin = 288000 in4
Wall Design Group: 2
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.221 OK
Pu = -15.96 kips phiPn = -72.36 kips
Mu = 49.9 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E35 (LC 584)
Code Ref: 10.3.7

Shear Results:
Segment SC2V:4:
Length = 5.00 ft Thick = 16.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@15" oc Horiz Bar Pat: #5@15" oc
Vu = 57.6 kip phiVn = 139.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E35 (LC 44)
Code Ref: 14.2.3 & 11.9.5

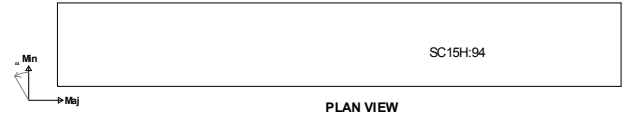
Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.320% (11.9.9.2) OK
Segment SC2V:4:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 15.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 14.38 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 346/1293
07/25/17 11:03:32

Section Cut ID: SC15H:94 (Horizontal)
Story: LEVEL 2
Ag = 972 in2 Imaj = 531441 in4 Imin = 11664 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 15
Design Status: PASS



PLAN VIEW

Axial/Flexural Results:
Interaction: 0.237 OK
Pu = -106.73 kips phiPn = -451.18 kips
Mu = 63.9 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E24 (LC 537)
Code Ref: 10.3.7

Shear Results:
Segment SC15H:94:
Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 25.2 kip phiVn = 250.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E25 (LC 178)
Code Ref: 14.2.3 & 11.9.5

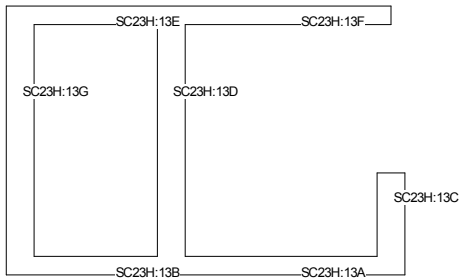
Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 1.182% (11.9.9.4) OK
Segment SC15H:94:
Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.920% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 347/1293
07/25/17 11:03:32

Section Cut ID: SC23H:13 (Horizontal)
Story: T.O. PENTHOUSE
Ag = 10826 in2 Imaj = 20003992 in4 Imin = 14769055 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 23
Design Status: PASS



PLAN VIEW

Axial/Flexural Results:
Interaction: 0.031 OK
Pu = 213.88 kips phiPn = 6900.44 kips
Mu = 644.6 kip-ft at Beta = 32.2 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC23H:13A:
Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 21.8 kip phiVn = 147.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E29 (LC 38)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:13B:
Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 12.9 kip phiVn = 100.4 kip OK
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 348/1293
07/25/17 11:03:32

Shear Results:
Segment SC23H:13C:
Length = 3.33 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 2.9 kip phiVn = 72.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E31 (LC 112)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:13D:
Length = 9.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 15.0 kip phiVn = 195.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E22 (LC 31)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:13E:
Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 14.9 kip phiVn = 100.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E31 (LC 40)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:13F:
Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 17.4 kip phiVn = 147.0 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:13G:
Length = 9.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 9.2 kip phiVn = 195.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E34 (LC 43)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) OK
Segment SC23H:13A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:13B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:13C:
Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:13D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:13E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:13F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:13G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC22V:10 (Vertical)
Story: ROOF LEVEL
Ag = 1584 in2 Imaj = 19008 in4 Imin = 2299968 in4
Wall Design Group: 22
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.037 OK
Pu = -4.58 kips phiPn = -125.25 kips
Mu = 25.4 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E31 (LC 544)
Code Ref: 10.3.7

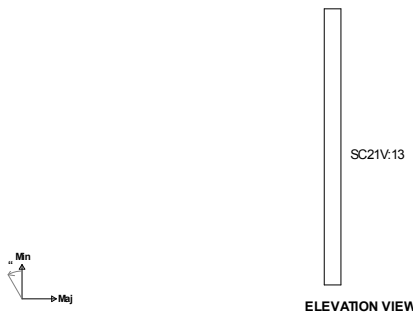
Shear Results:
Segment SC22V:10:
Length = 11.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 35.2 kip phiVn = 239.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E31 (LC 76)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.297% (11.9.9.2) OK
Segment SC22V:10:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC21V:13 (Vertical)
Story: LEVEL 4
Ag = 960 in2 Imaj = 5120 in4 Imin = 1152000 in4
Wall Design Group: 21
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.031 OK
Pu = 5.48 kips phiPn = 177.31 kips
Mu = 56.1 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E32 (LC 185)
Code Ref: 10.3.7

Shear Results:
Segment SC21V:13:
Length = 10.00 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 59.6 kip phiVn = 185.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E17 (LC 62)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.450% (11.9.9.2) OK
Segment SC21V:13:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK

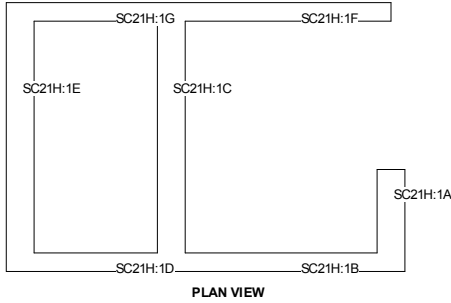
Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC21H:1 (Horizontal) (Hinge)
Story: LEVEL 4
Ag = 10826 in2 Imaj = 20003992 in4 Imin = 14769055 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 21
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.066 OK
Pu = 626.05 kips phiPn = 9497.96 kips
Mu = 1154.2 kip-ft at Beta = -32.2 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC21H:1A:
Length = 3.33 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 7.2 kip phiVn = 72.4 kip OK
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Segment SC21H:1B:
Length = 7.92 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 57.7 kip phiVn = 147.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

Shear Results:
Segment SC21H:1C:
Length = 9.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 33.6 kip phiVn = 195.5 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
Code Ref: 14.2.3 & 11.9.5

Segment SC21H:1D:
Length = 5.41 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 16.4 kip phiVn = 100.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Segment SC21H:1E:
Length = 9.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 35.4 kip phiVn = 195.5 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
Code Ref: 14.2.3 & 11.9.5

Segment SC21H:1F:
Length = 7.92 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 46.9 kip phiVn = 147.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Segment SC21H:1G:
Length = 5.41 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 12.7 kip phiVn = 100.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E31 (LC 40)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 3.23 ft c = 0.43 ft (21.9.6.2) OK

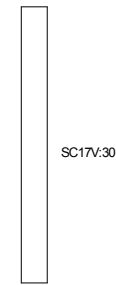
Segment SC21H:1A:
Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:1B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:1C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:1D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:1E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:1F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:1G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC17V:30 (Vertical)
Story: LEVEL 4
Ag = 1440 in2 Imaj = 17280 in4 Imin = 1728000 in4
Wall Design Group: 17
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.030 OK
Pu = -0.13 kips phiPn = -4.38 kips
Mu = 51.0 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E14 (LC 563)
Code Ref: 10.3.7

Shear Results:
Segment SC17V:30:
Length = 10.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 61.4 kip phiVn = 286.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E13 (LC 58)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.469% (11.9.9.2) OK
Segment SC17V:30:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

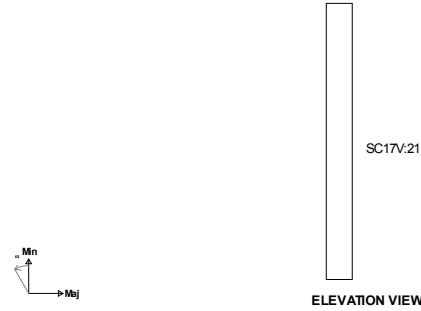
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC17V:21 (Vertical)
Story: LEVEL 4
Ag = 1440 in2 Imaj = 17280 in4 Imin = 1728000 in4
Wall Design Group: 17
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.010 OK
Pu = 0.13 kips phiPn = 13.61 kips
Mu = 17.3 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E24 (LC 69)
Code Ref: 10.3.7

Shear Results:
Segment SC17V:21:
Length = 10.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 38.5 kip phiVn = 286.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E24 (LC 69)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.469% (11.9.9.2) OK
Segment SC17V:21:
Max Horiz Bar Spacing Limit: 16.20 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC16V:165 (Vertical)
Story: LEVEL 3
Ag = 648 in2 Imaj = 7776 in4 Imin = 157464 in4
Wall Design Group: 16
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.161 OK
Pu = -41.48 kips phiPn = -258.03 kips
Mu = 16.9 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 10.3.7

Shear Results:
Segment SC16V:165:
Length = 4.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 51.4 kip phiVn = 163.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.818% (14.3.3) OK
Segment SC16V:165:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC18V:23 (Vertical)
Story: ROOF LEVEL
 Ag = 1584 in2 Imaj = 19008 in4 Imin = 2299968 in4
 Wall Design Group: 18
 Design Status: **PASS**



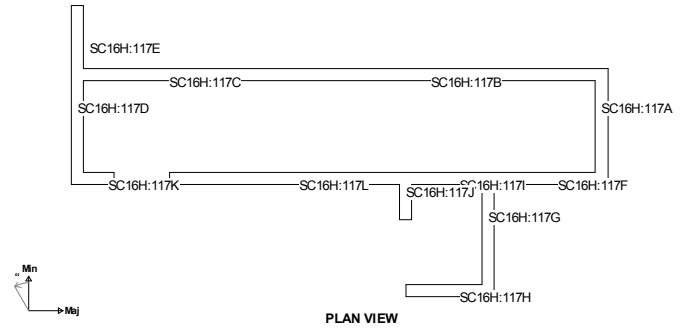
Axial/Flexural Results:
 Interaction: 0.072 **OK**
 Pu = -11.79 kips phiPn = -164.13 kips
 Mu = 35.1 kip-ft at Beta = 0.0 deg CCW from Major axis
 Controlling Load Combo: 0.784 D - 1.300 E14 (LC 563)
 Code Ref: 10.3.7

Shear Results:
 Segment SC18V:23:
 Length = 11.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 45.9 kip phiVn = 238.4 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.297% (11.9.9.2) **OK**
 Segment SC18V:23:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

Section Cut ID: SC16H:117 (Horizontal) (Hinge)
Story: LEVEL 3.1
 Ag = 17520 in2 Imaj = 494692829 in4 Imin = 79451243 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 16
 Design Status: **FAILS**



Axial/Flexural Results:
 Interaction: 0.062 **OK**
 Pu = 2164.57 kips phiPn = 35121.04 kips
 Mu = 7771.0 kip-ft at Beta = 3.0 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:
 Segment SC16H:117A:
 Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 139.1 kip phiVn = 314.8 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117B:
 Length = 29.83 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 271.2 kip phiVn = 1105.0 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)

Section Cut Design Summary

Shear Results:
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117C:
 Length = 13.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 75.8 kip phiVn = 481.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E35 (LC 116)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117D:
 Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 193.0 kip phiVn = 314.8 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117E:
 Length = 5.67 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 277.1 kip phiVn = 209.9 kip **NG**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E21 (LC 30)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117F:
 Length = 9.25 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 118.8 kip phiVn = 342.6 kip **OK**
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E7 (LC 304)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117G:
 Length = 9.17 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 70.5 kip phiVn = 339.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117H:
 Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 21.7 kip phiVn = 250.0 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117I:

Uses also 117D for total capacity

Section Cut Design Summary

Shear Results:
 Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 72.0 kip phiVn = 250.0 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117J:
 Length = 3.42 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 51.0 kip phiVn = 126.6 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117K:
 Length = 3.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 50.3 kip phiVn = 111.1 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117L:
 Length = 19.33 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 255.4 kip phiVn = 716.1 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E28 (LC 109)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.804% (11.9.9.4) **OK**
 S.B.E. Check: Neutral axis distance less than limit for all load combos
 Worst case is load combo 10 :
 cmax = 9.79 ft c = 5.88 ft (21.9.6.2) **OK**

Segment SC16H:117A:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC16H:117B:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC16H:117C:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 365/1293
07/25/17 11:03:32

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.13 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 1.253% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.920% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117I:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117J:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 366/1293
07/25/17 11:03:32

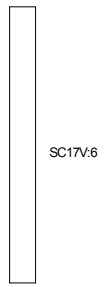
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117K:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117L:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 367/1293
07/25/17 11:03:32

Section Cut ID: SC17V:6 (Vertical)
Story: LEVEL 4
Ag = 1440 in2 Imaj = 17280 in4 Imin = 1728000 in4
Wall Design Group: 17
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.105 OK
Pu = -16.64 kips phiPn = -159.04 kips
Mu = 108.4 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E28 (LC 109)
Code Ref: 10.3.7

Shear Results:
Segment SC17V:6:
Length = 10.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 125.6 kip phiVn = 284.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.511% (11.9.9.2) OK
Segment SC17V:6:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

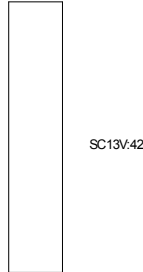
Page 368/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Section Cut ID: SC13V:42 (Vertical)
Story: LEVEL 2.3
 Ag = 720 in2 Imaj = 8640 in4 Imin = 216000 in4
 Wall Design Group: 13
 Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:

Interaction: 0.220 **OK**
 Pu = -22.37 kips phiPn = -101.88 kips
 Mu = 51.2 kip-ft at Beta = 0.0 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
 Code Ref: 10.3.7

Shear Results:

Segment SC13V:42:
 Length = 5.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 38.6 kip phiVn = 141.9 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp - 1.300 E16 (LC 205)
 Code Ref: 14.2.3 & 11.9.5

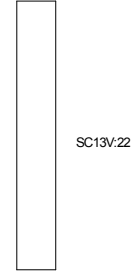
Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.511% (11.9.9.2) **OK**
 Segment SC13V:42:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Section Cut ID: SC13V:22 (Vertical)
Story: LEVEL 3
 Ag = 432 in2 Imaj = 2304 in4 Imin = 104976 in4
 Wall Design Group: 13
 Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:

Interaction: 0.072 **OK**
 Pu = -0.24 kips phiPn = -3.37 kips
 Mu = 29.0 kip-ft at Beta = -0.0 deg CCW from Major axis
 Controlling Load Combo: 0.784 D + 1.300 E17 (LC 530)
 Code Ref: 10.3.7

Shear Results:

Segment SC13V:22:
 Length = 4.50 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 30.6 kip phiVn = 114.6 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp - 1.300 E28 (LC 217)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.852% (11.9.9.2) **OK**
 Segment SC13V:22:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
 Min web reinforcement ratio: 0.250% Actual: 0.639% (21.9.2.1) **OK**

Section Cut Design Summary

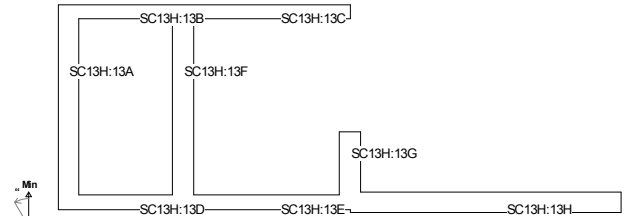
RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Section Cut ID: SC13H:13 (Horizontal) (Hinge)
Story: LEVEL 3
 Ag = 12609 in2 Imaj = 78641281 in4 Imin = 19012759 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 13
 Design Status: **PASS**



PLAN VIEW

Axial/Flexural Results:

Interaction: 0.247 **OK**
 Pu = 453.30 kips phiPn = 1832.17 kips
 Mu = 4010.7 kip-ft at Beta = -58.0 deg CCW from Major axis
 Controlling Load Combo: 0.784 D + 1.300 E29 (LC 542)
 Code Ref: 10.3.7

Shear Results:

Segment SC13H:13A:
 Length = 9.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 91.5 kip phiVn = 257.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E13 (LC 310)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13B:

Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 24.4 kip phiVn = 137.7 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E17 (LC 26)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13C:

Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 373/1293

07/25/17 11:03:32

Shear Results:

Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 27.4 kip phiVn = 201.5 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E35 (LC 44)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13D:

Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 36.1 kip phiVn = 137.7 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E17 (LC 98)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13E:

Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 93.8 kip phiVn = 201.5 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13F:

Length = 9.00 ft Thick = 12.00 in f'c = 3500 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 125.0 kip phiVn = 257.5 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13G:

Length = 3.33 ft Thick = 12.00 in f'c = 3500 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 57.4 kip phiVn = 95.4 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13H:

Length = 12.80 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 163.1 kip phiVn = 366.2 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.725% (11.9.4) OK
 S.B.E. Check: Neutral axis distance less than limit for all load combos
 Worst case is load combo 10 :
 cmax = 5.41 ft c = 0.85 ft (21.9.6.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 374/1293

07/25/17 11:03:32

Segment SC13H:13A:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC13H:13B:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC13H:13C:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC13H:13D:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC13H:13E:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC13H:13F:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC13H:13G:

Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC13H:13H:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 375/1293

07/25/17 11:03:32

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

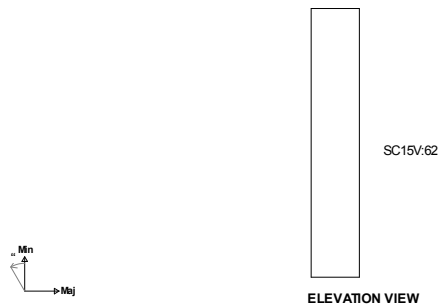
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 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 376/1293

07/25/17 11:03:32

Section Cut ID: SC15V:62 (Vertical)

Story: LEVEL 2
 Ag = 792 in2 Imaj = 9504 in4 Imin = 287496 in4
 Wall Design Group: 15
 Design Status: PASS



Axial/Flexural Results:

Interaction: 0.045 OK
 Pu = 10.43 kips phiPn = 230.97 kips
 Mu = 58.1 kip-ft at Beta = -0.0 deg CCW from Major axis
 Controlling Load Combo: 0.784 D - 1.300 E13 (LC 562)
 Code Ref: 10.3.7

Shear Results:

Segment SC15V:62:
 Length = 5.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 13.4 kip phiVn = 203.7 kip OK
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

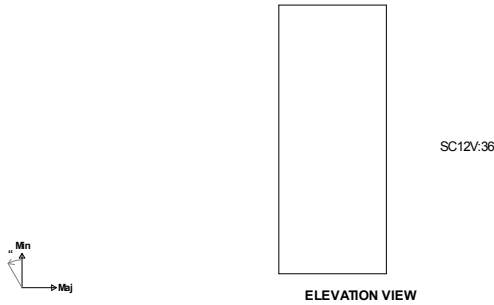
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.781% (14.3.3) OK
 Segment SC15V:62:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 377/1293
07/25/17 11:03:32

Section Cut ID: SC12V:36 (Vertical)
Story: LEVEL 2.1
Ag = 360 in2 Imaj = 4320 in4 Imin = 27000 in4
Wall Design Group: 12
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.162 OK
Pu = -0.99 kips phiPn = -6.13 kips
Mu = 23.8 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E36 (LC 549)
Code Ref: 10.3.7

Shear Results:
Segment SC12V:36:
Length = 2.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 34.5 kip phiVn = 71.5 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E36 (LC 333)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.682% (11.9.9.2) OK
Segment SC12V:36:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 378/1293
07/25/17 11:03:32

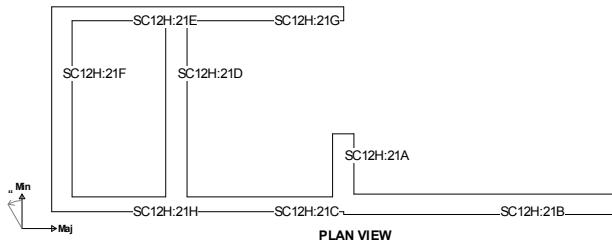
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 379/1293
07/25/17 11:03:32

Section Cut ID: SC12H:21 (Horizontal) (Hinge)
Story: LEVEL 2
Ag = 12609 in2 Imaj = 78641281 in4 Imin = 19012759 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 12
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.196 OK
Pu = 642.90 kips phiPn = 3280.58 kips
Mu = 5803.3 kip-ft at Beta = -39.3 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E29 (LC 542)
Code Ref: 10.3.7

Shear Results:
Segment SC12H:21A:
Length = 3.33 ft Thick = 12.00 in f'c = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 17.6 kip phiVn = 93.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21B:
Length = 12.80 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 167.8 kip phiVn = 358.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21C:
Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 380/1293
07/25/17 11:03:32

Shear Results:
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 110.4 kip phiVn = 198.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21D:
Length = 9.00 ft Thick = 12.00 in f'c = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 47.9 kip phiVn = 252.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E12 (LC 21)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21E:
Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 30.2 kip phiVn = 135.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E17 (LC 26)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21F:
Length = 9.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 40.7 kip phiVn = 252.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E10 (LC 163)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21G:
Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 39.4 kip phiVn = 198.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21H:
Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 48.6 kip phiVn = 135.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.725% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 6.24 ft c = 0.70 ft (21.9.6.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 381/1293
07/25/17 11:03:32

Segment SC12H:21A:
Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:21B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:21C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:21D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:21E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:21F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:21G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:21H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 382/1293
07/25/17 11:03:32

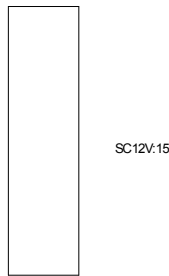
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 383/1293
07/25/17 11:03:32

Section Cut ID: SC12V:15 (Vertical)
Story: LEVEL 2.1
Ag = 240 in2 Imaj = 1280 in4 Imin = 18000 in4
Wall Design Group: 12
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:

Interaction: 0.124 OK
Pu = 1.71 kips phiPn = 13.82 kips
Mu = 20.5 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E28 (LC 577)
Code Ref: 10.3.7

Shear Results:

Segment SC12V:15:
Length = 2.50 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 21.0 kip phiVn = 63.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp - 1.300 E28 (LC 217)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 1.023% (11.9.9.2) OK
Segment SC12V:15:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.639% (21.9.2.1) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 384/1293
07/25/17 11:03:32

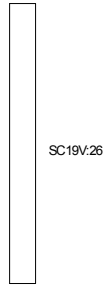
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 385/1293
07/25/17 11:03:32

Section Cut ID: SC19V:26 (Vertical)
Story: T.O. PENTHOUSE
Ag = 1512 in2 Imaj = 18144 in4 Imin = 2000376 in4
Wall Design Group: 19
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.097 OK
Pu = -9.61 kips phiPn = -98.97 kips
Mu = 76.5 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC19V:26:
Length = 10.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 29.0 kip phiVn = 226.8 kip OK
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.312% (11.9.2) OK
Segment SC19V:26:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 386/1293
07/25/17 11:03:32

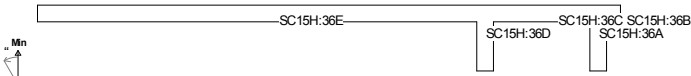
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 387/1293
07/25/17 11:03:32

Section Cut ID: SC15H:36 (Horizontal) (Hinge)
Story: LEVEL 2
Ag = 5868 in2 Imaj = 91796517 in4 Imin = 543570 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 15
Design Status: PASS



PLAN VIEW

Axial/Flexural Results:
Interaction: 0.115 OK
Pu = 850.13 kips phiPn = 7405.66 kips
Mu = 8870.1 kip-ft at Beta = -1.4 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
Code Ref: 10.3.7

Shear Results:
Segment SC15H:36A:
Length = 3.42 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 22.8 kip phiVn = 126.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:36B:
Length = 1.33 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 12.8 kip phiVn = 49.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:36C:
Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 92.3 kip phiVn = 250.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:36D:
Length = 3.42 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 388/1293
07/25/17 11:03:32

Shear Results:
Vu = 29.5 kip phiVn = 126.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:36E:
Length = 26.83 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 304.6 kip phiVn = 993.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 1.109% (11.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 8.32 ft c = 3.33 ft (21.9.6.2) OK

Segment SC15H:36A:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC15H:36B:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC15H:36C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC15H:36D:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC15H:36E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

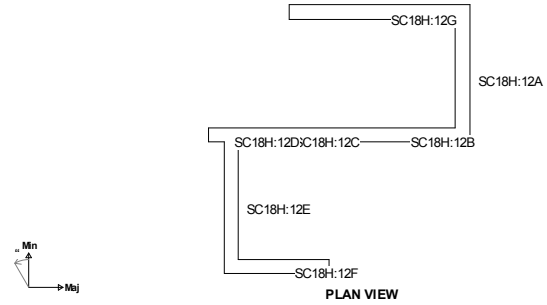
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC18H:12 (Horizontal)
Story: ROOF LEVEL
Ag = 7704 in2 Imaj = 39871674 in4 Imin = 39007351 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 18
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.052 OK
Pu = 712.58 kips phiPn = 13822.09 kips
Mu = 1738.5 kip-ft at Beta = 65.7 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC18H:12A:
Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 73.5 kip phiVn = 184.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:12B:
Length = 9.25 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 75.9 kip phiVn = 200.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:
Segment SC18H:12C:
Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 46.0 kip phiVn = 146.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:12D:
Length = 1.58 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 14.0 kip phiVn = 34.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E25 (LC 178)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:12E:
Length = 9.17 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 69.6 kip phiVn = 199.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:12F:
Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 23.8 kip phiVn = 146.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E28 (LC 109)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:12G:
Length = 12.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 28.8 kip phiVn = 260.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.306% (11.9.9.4) OK
Segment SC18H:12A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:12B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

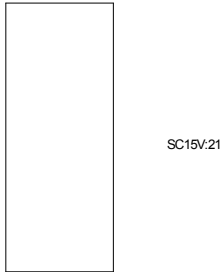
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:12C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:12D:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:12E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:12F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:12G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 393/1293
07/25/17 11:03:32

Section Cut ID: SC15V:21 (Vertical)
Story: LEVEL 2.1
Ag = 360 in2 Imaj = 4320 in4 Imin = 27000 in4
Wall Design Group: 15
Design Status: **FAILS**



ELEVATION VIEW

Axial/Flexural Results:

Interaction: 0.178 **OK**
Pu = -1.69 kips phiPn = -9.48 kips
Mu = 36.9 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E11 (LC 308)
Code Ref: 10.3.7

Shear Results:

Segment SC15V:21:
Length = 2.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 130.7 kip phiVn = 92.6 kip **NG**
Controlling Load Combo: 1.316 D + 0.500 Lp - 1.300 E11 (LC 200)
Code Ref: 14.2.3 & 11.9.5

Section is actually 4' deep, not 2'-6" deep, and shear capacity will be adequate.

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.982% (14.3.3) **OK**
Segment SC15V:21:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min web reinforcement ratio: 0.250% Actual: 0.614% (21.9.2.1) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 394/1293
07/25/17 11:03:32

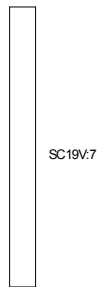
Min Number of Reinf Curtains: 2 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 395/1293
07/25/17 11:03:32

Section Cut ID: SC19V:7 (Vertical)
Story: T.O. PENTHOUSE
Ag = 1512 in2 Imaj = 18144 in4 Imin = 2000376 in4
Wall Design Group: 19
Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:

Interaction: 0.087 **OK**
Pu = -9.09 kips phiPn = -104.58 kips
Mu = 66.1 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:

Segment SC19V:7:
Length = 10.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 34.3 kip phiVn = 226.9 kip **OK**
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.312% (11.9.9.2) **OK**
Segment SC19V:7:
Max Horiz Bar Spacing Limit: 16.20 in Actual: 12.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**

Section Cut Design Summary

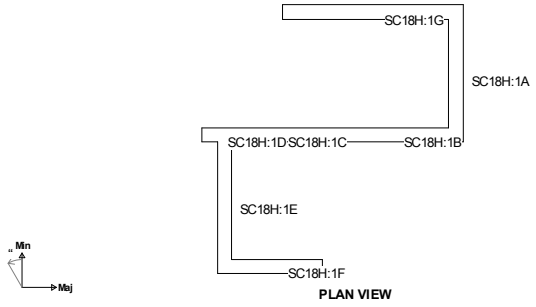
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 396/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

Section Cut ID: SC18H:1 (Horizontal)
Story: ROOF LEVEL
Ag = 7704 in2 Imaj = 39871674 in4 Imin = 39007351 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 18
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.052 OK
Pu = 745.19 kips phiPn = 14314.15 kips
Mu = 1521.7 kip-ft at Beta = 57.7 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC18H:1A:
Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 73.5 kip phiVn = 184.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:1B:
Length = 9.25 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 86.8 kip phiVn = 200.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E7 (LC 160)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

Shear Results:
Segment SC18H:1C:
Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 51.2 kip phiVn = 146.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:1D:
Length = 1.58 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 12.4 kip phiVn = 34.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:1E:
Length = 9.17 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 69.6 kip phiVn = 199.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:1F:
Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 23.8 kip phiVn = 146.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E28 (LC 109)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:1G:
Length = 12.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 28.9 kip phiVn = 260.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
Code Ref: 14.2.3 & 11.9.5

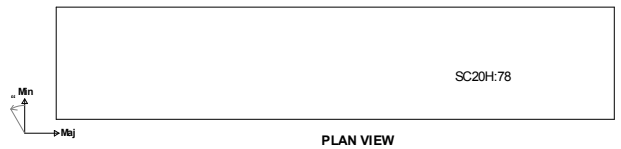
Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.306% (11.9.9.4) OK
Segment SC18H:1A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:1B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

Section Cut Design Summary

Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:1C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:1D:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:1E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:1F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:1G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC20H:78 (Horizontal)
Story: LEVEL 2.1
Ag = 980 in2 Imaj = 399764 in4 Imin = 16001 in4
Major Axis Orientation: 358.76 degrees (CCW from global X-axis)
Wall Design Group: 20
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.361 OK
Pu = -47.68 kips phiPn = -132.10 kips
Mu = 38.6 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E16 (LC 529)
Code Ref: 10.3.7

Shear Results:
Segment SC20H:78:
Length = 5.83 ft Thick = 14.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 103.6 kip phiVn = 142.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.321% (11.9.9.4) OK
Segment SC20H:78:
Max Vert Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 401/1293
07/25/17 11:03:32

Section Cut ID: SC5H:33 (Horizontal) (Hinge)
Story: LEVEL 2
Ag = 1632 in2 Imaj = 1414946 in4 Imin = 34816 in4
Major Axis Orientation: 0.00 degrees (CCW from global X-axis)
Wall Design Group: 5
Design Status: **PASS**



Axial/Flexural Results:
Interaction: 0.104 **OK**
Pu = 318.74 kips phiPn = 3065.97 kips
Mu = 15.4 kip-ft at Beta = -0.2 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC5H:33:
Length = 8.50 ft Thick = 16.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 13.2 kip phiVn = 270.1 kip **OK**
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E6 (LC 303)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.376% (11.9.9.4) **OK**
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 2.02 ft c = 1.03 ft (21.9.6.2) **OK**

Segment SC5H:33:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.320% Actual: 0.320% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 402/1293
07/25/17 11:03:32

Section Cut ID: SC2H:17 (Horizontal)
Story: LEVEL 2
Ag = 12293 in2 Imaj = 604717212 in4 Imin = 262251 in4
Major Axis Orientation: 296.00 degrees (CCW from global X-axis)
Wall Design Group: 2
Design Status: **PASS**



Axial/Flexural Results:
Interaction: 0.039 **OK**
Pu = 568.59 kips phiPn = 14430.19 kips
Mu = 9132.0 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E34 (LC 43)
Code Ref: 10.3.7

Shear Results:
Segment SC2H:17A:
Length = 19.03 ft Thick = 16.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@15" oc Horiz Bar Pat: #5@15" oc
Vu = 141.6 kip phiVn = 531.7 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E35 (LC 44)
Code Ref: 14.2.3 & 11.9.5

Segment SC2H:17B:
Length = 38.56 ft Thick = 16.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@15" oc Horiz Bar Pat: #5@15" oc
Vu = 278.9 kip phiVn = 1077.4 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E31 (LC 40)
Code Ref: 14.2.3 & 11.9.5

Segment SC2H:17C:
Length = 6.44 ft Thick = 16.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@15" oc Horiz Bar Pat: #5@15" oc
Vu = 39.2 kip phiVn = 180.1 kip **OK**
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E34 (LC 331)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.260% (11.9.9.4) **OK**
Segment SC2H:17A:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 403/1293
07/25/17 11:03:32

Max Vert Bar Spacing Limit: 18.00 in Actual: 15.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 14.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.256% Actual: 0.256% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC2H:17B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 15.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 14.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.256% Actual: 0.256% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

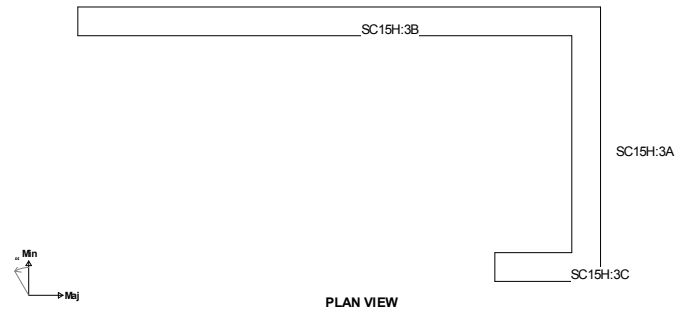
Segment SC2H:17C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 15.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 14.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.256% Actual: 0.256% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 404/1293
07/25/17 11:03:32

Section Cut ID: SC15H:3 (Horizontal) (Hinge)
Story: LEVEL 2.1
Ag = 4212 in2 Imaj = 19808473 in4 Imin = 6251565 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 15
Design Status: **PASS**



Axial/Flexural Results:
Interaction: 0.414 **OK**
Pu = -335.51 kips phiPn = -810.90 kips
Mu = 2041.2 kip-ft at Beta = 6.8 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E10 (LC 523)
Code Ref: 10.3.7

Shear Results:
Segment SC15H:3A:
Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 139.1 kip phiVn = 314.8 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:3B:
Length = 17.58 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 219.2 kip phiVn = 624.7 kip **OK**
Controlling Load Combo: 0.784 D + 1.300 E10 (LC 523)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 405/1293
07/25/17 11:03:32

Shear Results:

Segment SC15H:3C:
Length = 3.17 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 37.1 kip phiVn = 112.5 kip OK
Controlling Load Combo: 0.784 D + 1.300 E10 (LC 523)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.692% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 3.34 ft c = 1.53 ft (21.9.6.2) OK

Segment SC15H:3A:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC15H:3B:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC15H:3C:

Max Vert Bar Spacing Limit: 12.67 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 406/1293
07/25/17 11:03:32

Section Cut ID:

SC23H:13 (Horizontal)

Story:

T.O. PENTHOUSE

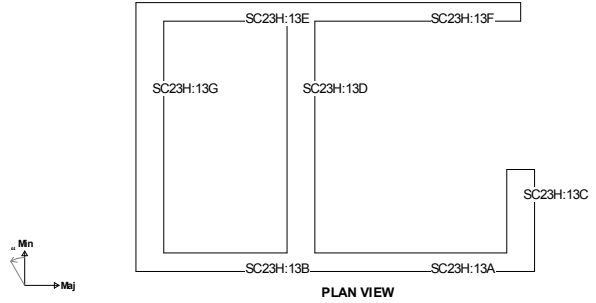
Ag = 10826 in2

Imaj = 20003992 in4 Imin = 14769055 in4

Major Axis Orientation: 90.00 degrees (CCW from global X-axis)

Wall Design Group: 23

Design Status: PASS



Axial/Flexural Results:

Interaction: 0.031 OK
Pu = 213.88 kips phiPn = 6900.44 kips
Mu = 644.6 kip-ft at Beta = 32.2 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:

Segment SC23H:13A:
Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 21.8 kip phiVn = 147.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E29 (LC 38)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:13B:

Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 12.9 kip phiVn = 100.4 kip OK
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 407/1293
07/25/17 11:03:32

Shear Results:

Segment SC23H:13C:
Length = 3.33 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 2.9 kip phiVn = 72.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E31 (LC 112)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:13D:

Length = 9.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 15.0 kip phiVn = 195.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E22 (LC 31)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:13E:

Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 14.9 kip phiVn = 100.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E31 (LC 40)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:13F:

Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 17.4 kip phiVn = 147.0 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:13G:

Length = 9.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 9.2 kip phiVn = 195.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E34 (LC 43)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) OK
Segment SC23H:13A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:13B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 408/1293
07/25/17 11:03:32

Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC23H:13C:

Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC23H:13D:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC23H:13E:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC23H:13F:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

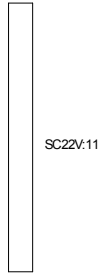
Segment SC23H:13G:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Section Cut ID: SC22V:11 (Vertical)
Story: ROOF LEVEL
 Ag = 1584 in2 Imaj = 19008 in4 Imin = 2299968 in4
 Wall Design Group: 22
 Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:

Interaction: 0.013 **OK**
 Pu = -1.64 kips phiPn = -121.62 kips
 Mu = 9.6 kip-ft at Beta = -0.0 deg CCW from Major axis
 Controlling Load Combo: 0.784 D - 1.300 E28 (LC 577)
 Code Ref: 10.3.7

Shear Results:

Segment SC22V:11:
 Length = 11.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 23.4 kip phiVn = 239.0 kip **OK**
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
 Code Ref: 14.2.3 & 11.9.5

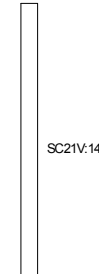
Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.297% (11.9.9.2) **OK**
 Segment SC22V:11:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Section Cut ID: SC21V:14 (Vertical)
Story: LEVEL 4
 Ag = 960 in2 Imaj = 5120 in4 Imin = 1152000 in4
 Wall Design Group: 21
 Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:

Interaction: 0.031 **OK**
 Pu = -3.65 kips phiPn = -119.25 kips
 Mu = 16.8 kip-ft at Beta = -0.0 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E36 (LC 189)
 Code Ref: 10.3.7

Shear Results:

Segment SC21V:14:
 Length = 10.00 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 23.7 kip phiVn = 185.2 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.450% (11.9.9.2) **OK**
 Segment SC21V:14:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**

Section Cut Design Summary

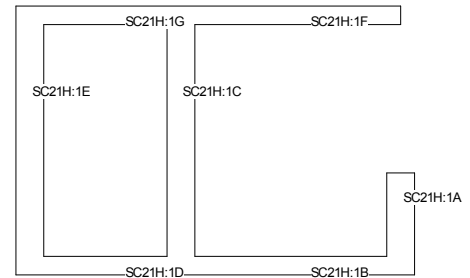
RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Section Cut ID: SC21H:1 (Horizontal) (Hinge)
Story: LEVEL 4
 Ag = 10826 in2 Imaj = 20003992 in4 Imin = 14769055 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 21
 Design Status: **PASS**



PLAN VIEW

Axial/Flexural Results:

Interaction: 0.066 **OK**
 Pu = 626.05 kips phiPn = 9497.96 kips
 Mu = 1154.2 kip-ft at Beta = -32.2 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:

Segment SC21H:1A:
 Length = 3.33 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 7.2 kip phiVn = 72.4 kip **OK**
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 14.2.3 & 11.9.5

Segment SC21H:1B:

Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 57.7 kip phiVn = 147.0 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
 Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

Shear Results:

Segment SC21H:1C:
 Length = 9.00 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 33.6 kip phiVn = 195.5 kip OK
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
 Code Ref: 14.2.3 & 11.9.5

Segment SC21H:1D:
 Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 16.4 kip phiVn = 100.4 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
 Code Ref: 14.2.3 & 11.9.5

Segment SC21H:1E:
 Length = 9.00 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 35.4 kip phiVn = 195.5 kip OK
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
 Code Ref: 14.2.3 & 11.9.5

Segment SC21H:1F:
 Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 46.9 kip phiVn = 147.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

Segment SC21H:1G:
 Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 12.7 kip phiVn = 100.4 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E31 (LC 40)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) OK
 S.B.E. Check: Neutral axis distance less than limit for all load combos
 Worst case is load combo 10 :
 cmax = 3.23 ft c = 0.43 ft (21.9.6.2) OK

Segment SC21H:1A:
 Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC21H:1B:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC21H:1C:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC21H:1D:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

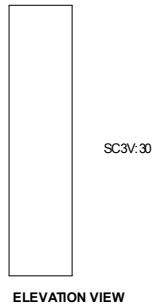
Segment SC21H:1E:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC21H:1F:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC21H:1G:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC3V:30 (Vertical)
Story: LEVEL 2.3
 Ag = 840 in2 Imaj = 13720 in4 Imin = 252000 in4
 Wall Design Group: 3
 Design Status: PASS



ELEVATION VIEW

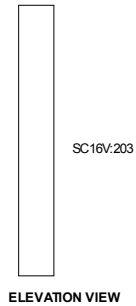
Axial/Flexural Results:
 Interaction: 0.128 OK
 Pu = -6.62 kips phiPn = -51.53 kips
 Mu = 35.2 kip-ft at Beta = -0.0 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E16 (LC 61)
 Code Ref: 10.3.7

Shear Results:
 Segment SC3V:30:
 Length = 5.00 ft Thick = 14.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #5@15" oc Horiz Bar Pat: #5@15" oc
 Vu = 33.2 kip phiVn = 131.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E13 (LC 22)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.365% (11.9.9.2) OK
 Segment SC3V:30:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 15.00 in (11.9.9.3) OK
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 14.38 in (7.6.1) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC16V:203 (Vertical)
Story: LEVEL 2.3
 Ag = 480 in2 Imaj = 2560 in4 Imin = 144000 in4
 Wall Design Group: 16
 Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:
 Interaction: 0.033 OK
 Pu = -4.03 kips phiPn = -121.87 kips
 Mu = 12.9 kip-ft at Beta = 0.0 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp - 1.300 E10 (LC 199)
 Code Ref: 10.3.7

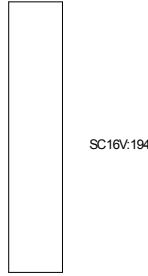
Shear Results:
 Segment SC16V:203:
 Length = 5.00 ft Thick = 8.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 18.1 kip phiVn = 157.9 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp - 1.300 E10 (LC 199)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 1.104% (14.3.3) OK
 Segment SC16V:203:
 Max Horiz Bar Spacing Limit: 16.20 in Actual: 12.00 in (11.9.9.3) OK
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC16V:194 (Vertical)
Story: LEVEL 2.3
Ag = 720 in2 Imaj = 8640 in4 Imin = 216000 in4
Wall Design Group: 16
Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:

Interaction: 0.077 **OK**
Pu = 1.38 kips phiPn = 18.04 kips
Mu = 55.0 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E20 (LC 569)
Code Ref: 10.3.7

Shear Results:

Segment SC16V:194:
Length = 5.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 49.1 kip phiVn = 185.2 kip **OK**
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E36 (LC 333)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.859% (14.3.3) **OK**
Segment SC16V:194:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min web reinforcement ratio: 0.250% Actual: 0.614% (21.9.2.1) **OK**

Section Cut Design Summary

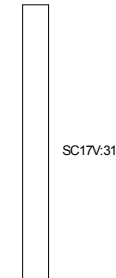
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC17V:31 (Vertical)
Story: LEVEL 4
Ag = 1440 in2 Imaj = 17280 in4 Imin = 1728000 in4
Wall Design Group: 17
Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:

Interaction: 0.037 **OK**
Pu = 0.10 kips phiPn = 2.81 kips
Mu = 63.3 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 10.3.7

Shear Results:

Segment SC17V:31:
Length = 10.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 70.6 kip phiVn = 286.2 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.469% (11.9.9.2) **OK**
Segment SC17V:31:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**

Section Cut Design Summary

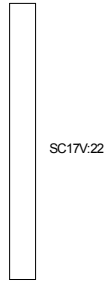
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC17V:22 (Vertical)
Story: LEVEL 4
Ag = 1440 in2 Imaj = 17280 in4 Imin = 1728000 in4
Wall Design Group: 17
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.013 OK
Pu = -2.90 kips phiPn = -221.60 kips
Mu = 9.1 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E9 (LC 558)
Code Ref: 10.3.7

Shear Results:
Segment SC17V:22:
Length = 10.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 50.4 kip phiVn = 286.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.469% (11.9.9.2) OK
Segment SC17V:22:
Max Horiz Bar Spacing Limit: 16.20 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

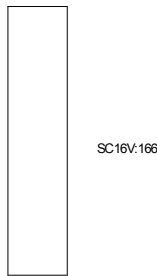
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC16V:166 (Vertical)
Story: LEVEL 3
Ag = 648 in2 Imaj = 7776 in4 Imin = 157464 in4
Wall Design Group: 16
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.205 OK
Pu = -48.58 kips phiPn = -237.55 kips
Mu = 12.9 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 10.3.7

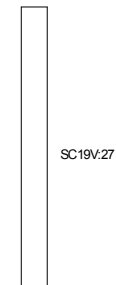
Shear Results:
Segment SC16V:166:
Length = 4.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 46.4 kip phiVn = 166.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.818% (14.3.3) OK
Segment SC16V:166:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC19V:27 (Vertical)
Story: T.O. PENTHOUSE
Ag = 1512 in2 Imaj = 18144 in4 Imin = 2000376 in4
Wall Design Group: 19
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.056 OK
Pu = -6.25 kips phiPn = -110.78 kips
Mu = 41.3 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E26 (LC 539)
Code Ref: 10.3.7

Shear Results:
Segment SC19V:27:
Length = 10.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 14.8 kip phiVn = 227.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E23 (LC 68)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.312% (11.9.9.2) OK
Segment SC19V:27:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC18V:26 (Vertical)
Story: ROOF LEVEL
Ag = 1584 in2 Imaj = 19008 in4 Imin = 2299968 in4
Wall Design Group: 18
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.053 OK
Pu = -6.32 kips phiPn = -120.17 kips
Mu = 37.9 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E21 (LC 570)
Code Ref: 10.3.7

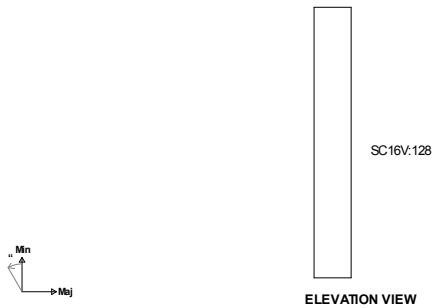
Shear Results:
Segment SC18V:26:
Length = 11.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 80.9 kip phiVn = 239.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E21 (LC 30)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.297% (11.9.9.2) OK
Segment SC18V:26:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC16V:128 (Vertical)
Story: LEVEL 3.1
Ag = 1008 in2 Imaj = 12096 in4 Imin = 592704 in4
Wall Design Group: 16
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.053 OK
Pu = -8.59 kips phiPn = -162.49 kips
Mu = 38.7 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E31 (LC 76)
Code Ref: 10.3.7

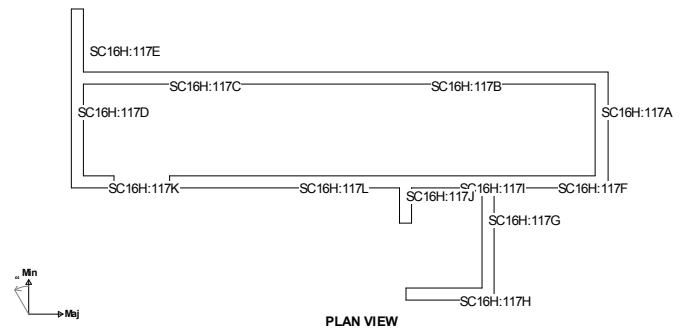
Shear Results:
Segment SC16V:128:
Length = 7.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 26.1 kip phiVn = 331.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E24 (LC 69)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.701% (14.3.3) OK
Segment SC16V:128:
Max Horiz Bar Spacing Limit: 16.20 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC16H:117 (Horizontal) (Hinge)
Story: LEVEL 3.1
Ag = 17520 in2 Imaj = 494692829 in4 Imin = 79451243 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 16
Design Status: FAILS



Axial/Flexural Results:
Interaction: 0.062 OK
Pu = 2164.57 kips phiPn = 35121.04 kips
Mu = 7771.0 kip-ft at Beta = 3.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC16H:117A:
Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 139.1 kip phiVn = 314.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117B:
Length = 29.83 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 271.2 kip phiVn = 1105.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 429/1293
07/25/17 11:03:32

Shear Results:

Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117C:
Length = 13.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 75.8 kip phiVn = 481.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E35 (LC 116)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117D:
Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 193.0 kip phiVn = 314.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117E:
Length = 5.67 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 277.1 kip phiVn = 209.9 kip NG
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E21 (LC 30)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117F:
Length = 9.25 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 118.8 kip phiVn = 342.6 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E7 (LC 304)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117G:
Length = 9.17 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 70.5 kip phiVn = 339.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117H:
Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 21.7 kip phiVn = 250.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117I:

Uses also 117D for total capacity

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 430/1293
07/25/17 11:03:32

Shear Results:

Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 72.0 kip phiVn = 250.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117J:
Length = 3.42 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 51.0 kip phiVn = 126.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117K:
Length = 3.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 50.3 kip phiVn = 111.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117L:
Length = 19.33 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 255.4 kip phiVn = 716.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E28 (LC 109)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.804% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 9.79 ft c = 5.88 ft (21.9.6.2) OK

Segment SC16H:117A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117C:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 431/1293
07/25/17 11:03:32

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.13 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 1.253% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.920% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117I:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117J:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 432/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117K:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117L:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Section Cut ID: SC17V:7 (Vertical)
Story: LEVEL 4
 Ag = 1392 in2 Imaj = 16710 in4 Imin = 1562511 in4
 Wall Design Group: 17
 Design Status: **PASS**



Axial/Flexural Results:
 Interaction: 0.118 **OK**
 Pu = -16.44 kips phiPn = -139.77 kips
 Mu = 121.7 kip-ft at Beta = -0.0 deg CCW from Major axis
 Controlling Load Combo: 0.784 D - 1.300 E25 (LC 574)
 Code Ref: 10.3.7

Shear Results:
 Segment SC17V:7:
 Length = 9.67 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 101.4 kip phiVn = 275.1 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.485% (11.9.9.2) **OK**
 Segment SC17V:7:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Section Cut ID: SC13V:23 (Vertical)
Story: LEVEL 3
 Ag = 432 in2 Imaj = 2304 in4 Imin = 104976 in4
 Wall Design Group: 13
 Design Status: **PASS**



Axial/Flexural Results:
 Interaction: 0.089 **OK**
 Pu = -0.91 kips phiPn = -10.24 kips
 Mu = 34.6 kip-ft at Beta = 0.0 deg CCW from Major axis
 Controlling Load Combo: 0.784 D + 1.300 E17 (LC 530)
 Code Ref: 10.3.7

Shear Results:
 Segment SC13V:23:
 Length = 4.50 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 57.4 kip phiVn = 114.6 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.852% (11.9.9.2) **OK**
 Segment SC13V:23:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
 Min web reinforcement ratio: 0.250% Actual: 0.639% (21.9.2.1) **OK**

Section Cut Design Summary

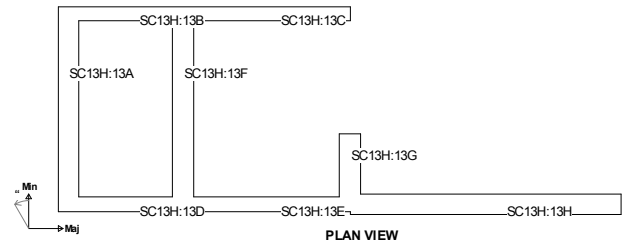
RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Section Cut ID: SC13H:13 (Horizontal) (Hinge)
Story: LEVEL 3
 Ag = 12609 in2 Imaj = 78641281 in4 Imin = 19012759 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 13
 Design Status: **PASS**



Axial/Flexural Results:
 Interaction: 0.247 **OK**
 Pu = 453.30 kips phiPn = 1832.17 kips
 Mu = 4010.7 kip-ft at Beta = -58.0 deg CCW from Major axis
 Controlling Load Combo: 0.784 D + 1.300 E29 (LC 542)
 Code Ref: 10.3.7

Shear Results:
 Segment SC13H:13A:
 Length = 9.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 91.5 kip phiVn = 257.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E13 (LC 310)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13B:
 Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 24.4 kip phiVn = 137.7 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E17 (LC 26)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13C:
 Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 437/1293
 07/25/17 11:03:32

Shear Results:

Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 27.4 kip phiVn = 201.5 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E35 (LC 44)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13D:
 Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 36.1 kip phiVn = 137.7 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E17 (LC 98)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13E:
 Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 93.8 kip phiVn = 201.5 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13F:
 Length = 9.00 ft Thick = 12.00 in f'c = 3500 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 125.0 kip phiVn = 257.5 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13G:
 Length = 3.33 ft Thick = 12.00 in f'c = 3500 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 57.4 kip phiVn = 95.4 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13H:
 Length = 12.80 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 163.1 kip phiVn = 366.2 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.725% (11.9.9.4) OK
 S.B.E. Check: Neutral axis distance less than limit for all load combos
 Worst case is load combo 10 :
 cmax = 5.41 ft c = 0.85 ft (21.9.6.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 438/1293
 07/25/17 11:03:32

Segment SC13H:13A:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC13H:13B:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC13H:13C:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC13H:13D:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC13H:13E:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC13H:13F:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC13H:13G:

Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC13H:13H:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 439/1293
 07/25/17 11:03:32

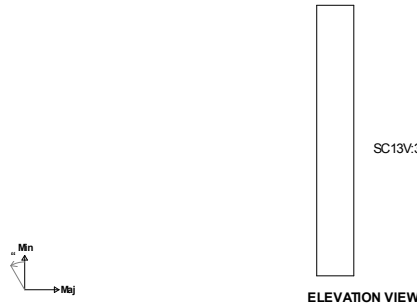
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 440/1293
 07/25/17 11:03:32

Section Cut ID: SC13V:3 (Vertical)
Story: LEVEL 3.1
 Ag = 1008 in2 Imaj = 12096 in4 Imin = 592704 in4
 Wall Design Group: 13
 Design Status: PASS



Axial/Flexural Results:
 Interaction: 0.125 OK
 Pu = -14.31 kips phiPn = -114.22 kips
 Mu = 63.5 kip-ft at Beta = -0.0 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E35 (LC 80)
 Code Ref: 10.3.7

Shear Results:
 Segment SC13V:3:
 Length = 7.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 77.3 kip phiVn = 200.3 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E29 (LC 38)
 Code Ref: 14.2.3 & 11.9.5

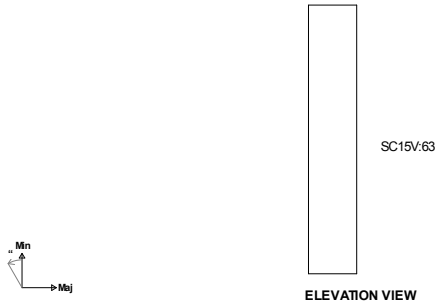
Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.487% (11.9.9.2) OK
 Segment SC13V:3:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 441/1293
07/25/17 11:03:32

Section Cut ID: SC15V:63 (Vertical)
Story: LEVEL 2
Ag = 792 in2 Imaj = 9504 in4 Imin = 287496 in4
Wall Design Group: 15
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.047 OK
Pu = 42.11 kips phiPn = 888.90 kips
Mu = 72.9 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E21 (LC 30)
Code Ref: 10.3.7

Shear Results:
Segment SC15V:63:
Length = 5.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 30.1 kip phiVn = 203.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E6 (LC 51)
Code Ref: 14.2.3 & 11.9.5

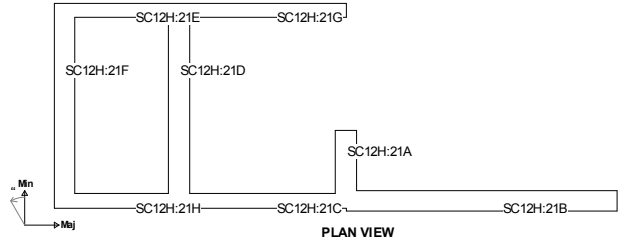
Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.781% (14.3.3) OK
Segment SC15V:63:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 442/1293
07/25/17 11:03:32

Section Cut ID: SC12H:21 (Horizontal) (Hinge)
Story: LEVEL 2
Ag = 12609 in2 Imaj = 78641281 in4 Imin = 19012759 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 12
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.196 OK
Pu = 642.90 kips phiPn = 3280.58 kips
Mu = 5803.3 kip-ft at Beta = -39.3 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E29 (LC 542)
Code Ref: 10.3.7

Shear Results:
Segment SC12H:21A:
Length = 3.33 ft Thick = 12.00 in fc = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 17.6 kip phiVn = 93.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21B:
Length = 12.80 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 167.8 kip phiVn = 358.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21C:
Length = 7.92 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 443/1293
07/25/17 11:03:32

Shear Results:
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 110.4 kip phiVn = 198.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21D:
Length = 9.00 ft Thick = 12.00 in fc = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 47.9 kip phiVn = 252.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E12 (LC 21)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21E:
Length = 5.41 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 30.2 kip phiVn = 135.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E17 (LC 26)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21F:
Length = 9.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 40.7 kip phiVn = 252.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E10 (LC 163)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21G:
Length = 7.92 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 39.4 kip phiVn = 198.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21H:
Length = 5.41 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 48.6 kip phiVn = 135.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.725% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10:
cmax = 6.24 ft c = 0.70 ft (21.9.6.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 444/1293
07/25/17 11:03:32

Segment SC12H:21A:
Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:21B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:21C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:21D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:21E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:21F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:21G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:21H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK

Section Cut Design Summary

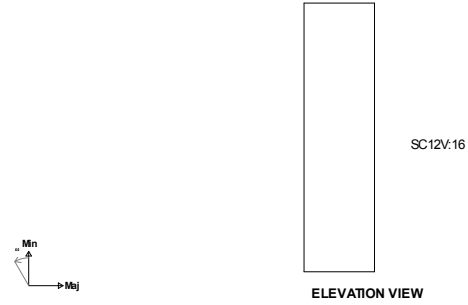
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Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC12V:16 (Vertical)
Story: LEVEL 2.1
Ag = 240 in2 Imaj = 1280 in4 Imin = 18000 in4
Wall Design Group: 12
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.144 OK
Pu = 4.38 kips phiPn = 30.55 kips
Mu = 26.0 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E28 (LC 181)
Code Ref: 10.3.7

Shear Results:
Segment SC12V:16:
Length = 2.50 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 25.3 kip phiVn = 63.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 1.023% (11.9.9.2) OK
Segment SC12V:16:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.639% (21.9.2.1) OK

Section Cut Design Summary

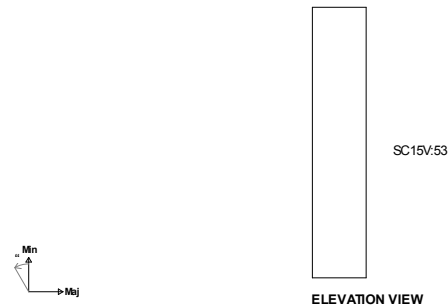
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC15V:53 (Vertical)
Story: LEVEL 2
Ag = 720 in2 Imaj = 8640 in4 Imin = 216000 in4
Wall Design Group: 15
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.154 OK
Pu = -20.59 kips phiPn = -133.41 kips
Mu = 56.3 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E28 (LC 577)
Code Ref: 10.3.7

Shear Results:
Segment SC15V:53:
Length = 5.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 67.6 kip phiVn = 185.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

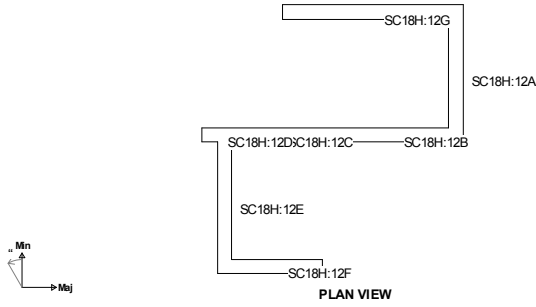
Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.736% (14.3.3) OK
Segment SC15V:53:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 449/1293
07/25/17 11:03:32

Section Cut ID: SC18H:12 (Horizontal)
Story: ROOF LEVEL
Ag = 7704 in2 Imaj = 39871674 in4 Imin = 39007351 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 18
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.052 OK
Pu = 712.58 kips phiPn = 13822.09 kips
Mu = 1738.5 kip-ft at Beta = 65.7 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC18H:12A:
Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 73.5 kip phiVn = 184.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:12B:
Length = 9.25 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 75.9 kip phiVn = 200.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 450/1293
07/25/17 11:03:32

Shear Results:
Segment SC18H:12C:
Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 46.0 kip phiVn = 146.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:12D:
Length = 1.58 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 14.0 kip phiVn = 34.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E25 (LC 178)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:12E:
Length = 9.17 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 69.6 kip phiVn = 199.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:12F:
Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 23.8 kip phiVn = 146.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E28 (LC 109)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:12G:
Length = 12.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 28.8 kip phiVn = 260.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.306% (11.9.9.4) OK
Segment SC18H:12A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:12B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 451/1293
07/25/17 11:03:32

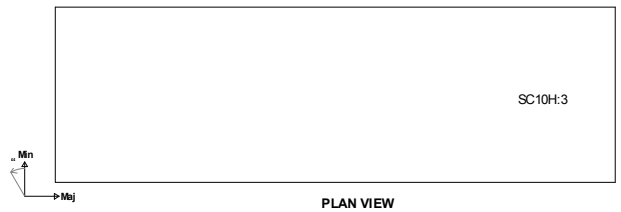
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:12C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:12D:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:12E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:12F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:12G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 452/1293
07/25/17 11:03:32

Section Cut ID: SC10H:3 (Horizontal) (Hinge)
Story: LEVEL 4
Ag = 819 in2 Imaj = 178794 in4 Imin = 17471 in4
Major Axis Orientation: 66.00 degrees (CCW from global X-axis)
Wall Design Group: 10
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.174 OK
Pu = 267.16 kips phiPn = 1538.20 kips
Mu = 72.9 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

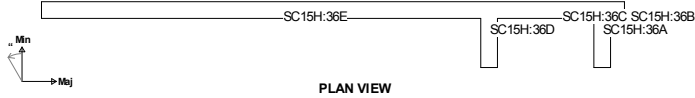
Shear Results:
Segment SC10H:3:
Length = 4.27 ft Thick = 16.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 9.0 kip phiVn = 135.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.375% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 1.02 ft c = 0.47 ft (21.9.6.2) OK

Segment SC10H:3:
Max Vert Bar Spacing Limit: 17.06 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.320% Actual: 0.320% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC15H:36 (Horizontal) (Hinge)
Story: LEVEL 2
Ag = 5868 in2 Imaj = 91796517 in4 Imin = 543570 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 15
Design Status: **PASS**



Axial/Flexural Results:
Interaction: 0.115 **OK**
Pu = 850.13 kips phiPn = 7405.66 kips
Mu = 8870.1 kip-ft at Beta = -1.4 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
Code Ref: 10.3.7

Shear Results:
Segment SC15H:36A:
Length = 3.42 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 22.8 kip phiVn = 126.6 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:36B:
Length = 1.33 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 12.8 kip phiVn = 49.4 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:36C:
Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 92.3 kip phiVn = 250.0 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:36D:
Length = 3.42 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:

Section Cut Design Summary

Shear Results:
Vu = 29.5 kip phiVn = 126.6 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:36E:
Length = 26.83 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 304.6 kip phiVn = 993.9 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 1.109% (11.9.9.4) **OK**
S.B.E. Check: **Neutral axis distance less than limit for all load combos**
Worst case is load combo 10 :
cmax = 8.32 ft c = 3.33 ft (21.9.6.2) **OK**

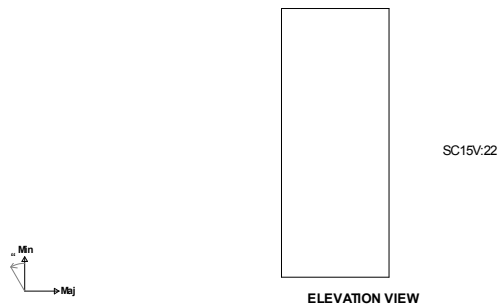
Segment SC15H:36A:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC15H:36B:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC15H:36C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC15H:36D:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC15H:36E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**

Section Cut Design Summary

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

Section Cut ID: SC15V:22 (Vertical)
Story: LEVEL 2.1
Ag = 360 in2 Imaj = 4320 in4 Imin = 27000 in4
Wall Design Group: 15
Design Status: **FAILS**



Axial/Flexural Results:
Interaction: 6.522 **NG**
Pu = -0.62 kips phiPn = -0.10 kips
Mu = 1418.7 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
Code Ref: 10.3.7

Shear Results:
Segment SC15V:22:
Length = 2.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 109.4 kip phiVn = 92.5 kip **NG**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.982% (14.3.3) **OK**
Segment SC15V:22:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min web reinforcement ratio: 0.250% Actual: 0.614% (21.9.2.1) **OK**

Section is actually 4' deep, not 2'-6" deep, and capacity will be adequate.



Section Cut Design Summary

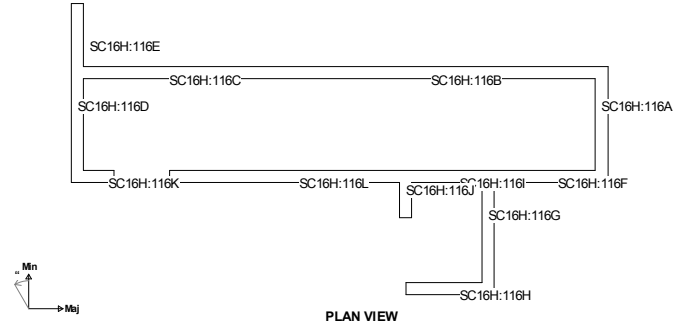
RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Min Number of Reinf Curtains: 2 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Section Cut ID: SC16H:116 (Horizontal) (Hinge)
Story: LEVEL 3.1
 Ag = 17520 in2 Imaj = 494692829 in4 Imin = 79451243 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 16
 Design Status: PASS



Axial/Flexural Results:
 Interaction: 0.080 OK
 Pu = 1588.28 kips phiPn = 19808.27 kips
 Mu = 11167.3 kip-ft at Beta = 35.8 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
 Code Ref: 10.3.7

Shear Results:
 Segment SC16H:116A:
 Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 139.2 kip phiVn = 314.8 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116B:
 Length = 29.83 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 292.1 kip phiVn = 1105.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Shear Results:
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116C:
 Length = 13.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 56.4 kip phiVn = 481.5 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E35 (LC 44)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116D:
 Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 285.8 kip phiVn = 314.8 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116E:
 Length = 5.67 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 147.8 kip phiVn = 209.9 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E21 (LC 30)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116F:
 Length = 9.25 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 110.8 kip phiVn = 342.6 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E6 (LC 159)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116G:
 Length = 9.17 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 70.5 kip phiVn = 339.5 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116H:
 Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 21.7 kip phiVn = 250.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116I:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Shear Results:
 Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 60.9 kip phiVn = 250.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116J:
 Length = 3.42 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 50.9 kip phiVn = 126.6 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116K:
 Length = 3.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 50.2 kip phiVn = 111.1 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116L:
 Length = 19.33 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 253.1 kip phiVn = 716.1 kip OK
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E28 (LC 325)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.804% (11.9.9.4) OK
 S.B.E. Check: Neutral axis distance less than limit for all load combos
 Worst case is load combo 10 :
 cmax = 7.93 ft c = 5.33 ft (21.9.6.2) OK

Segment SC16H:116A:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC16H:116B:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC16H:116C:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.13 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 1.253% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.920% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116I:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116J:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

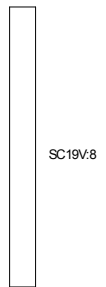
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116K:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116L:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC19V:8 (Vertical)
Story: T.O. PENTHOUSE
Ag = 1512 in2 Imaj = 18144 in4 Imin = 2000376 in4
Wall Design Group: 19
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.041 OK
Pu = -8.76 kips phiPn = -211.45 kips
Mu = 9.2 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC19V:8:
Length = 10.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 16.5 kip phiVn = 227.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E26 (LC 35)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.312% (11.9.9.2) OK
Segment SC19V:8:
Max Horiz Bar Spacing Limit: 16.20 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

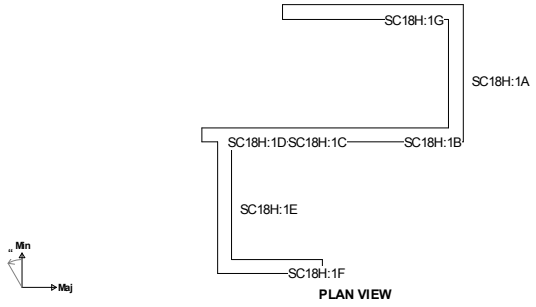
Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC18H:1 (Horizontal)
Story: ROOF LEVEL
Ag = 7704 in2 Imaj = 39871674 in4 Imin = 39007351 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 18
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.052 OK
Pu = 745.19 kips phiPn = 14314.15 kips
Mu = 1521.7 kip-ft at Beta = 57.7 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC18H:1A:
Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 73.5 kip phiVn = 184.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:1B:
Length = 9.25 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 86.8 kip phiVn = 200.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E7 (LC 160)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

Shear Results:
Segment SC18H:1C:
Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 51.2 kip phiVn = 146.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:1D:
Length = 1.58 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 12.4 kip phiVn = 34.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:1E:
Length = 9.17 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 69.6 kip phiVn = 199.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:1F:
Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 23.8 kip phiVn = 146.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E28 (LC 109)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:1G:
Length = 12.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 28.9 kip phiVn = 260.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
Code Ref: 14.2.3 & 11.9.5

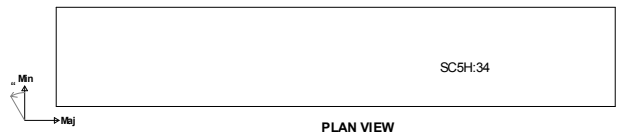
Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.306% (11.9.9.4) OK
Segment SC18H:1A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:1B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

Section Cut Design Summary

Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:1C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:1D:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:1E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:1F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:1G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC5H:34 (Horizontal) (Hinge)
Story: LEVEL 2
Ag = 1440 in2 Imaj = 972000 in4 Imin = 30720 in4
Major Axis Orientation: 0.00 degrees (CCW from global X-axis)
Wall Design Group: 5
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.087 OK
Pu = 234.60 kips phiPn = 2708.45 kips
Mu = 0.4 kip-ft at Beta = 89.6 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC5H:34:
Length = 7.50 ft Thick = 16.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 12.2 kip phiVn = 238.3 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E17 (LC 314)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 1.79 ft c = 0.84 ft (21.9.6.2) OK

Segment SC5H:34:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.320% Actual: 0.320% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 469/1293
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
 Design Code: ACI 318-11

Section Cut ID: SC2H:17 (Horizontal)
Story: LEVEL 2
 Ag = 12293 in2 Imaj = 604717212 in4 Imin = 262251 in4
 Major Axis Orientation: 296.00 degrees (CCW from global X-axis)
 Wall Design Group: 2
 Design Status: **PASS**



Axial/Flexural Results:

Interaction: 0.039 **OK**
 Pu = 568.59 kips phiPn = 14430.19 kips
 Mu = 9132.0 kip-ft at Beta = -0.0 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E34 (LC 43)
 Code Ref: 10.3.7

Shear Results:

Segment SC2H:17A:
 Length = 19.03 ft Thick = 16.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@15" oc Horiz Bar Pat: #5@15" oc
 Vu = 141.6 kip phiVn = 531.7 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E35 (LC 44)
 Code Ref: 14.2.3 & 11.9.5

Segment SC2H:17B:
 Length = 38.56 ft Thick = 16.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@15" oc Horiz Bar Pat: #5@15" oc
 Vu = 278.9 kip phiVn = 1077.4 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E31 (LC 40)
 Code Ref: 14.2.3 & 11.9.5

Segment SC2H:17C:
 Length = 6.44 ft Thick = 16.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@15" oc Horiz Bar Pat: #5@15" oc
 Vu = 39.2 kip phiVn = 180.1 kip **OK**
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E34 (LC 331)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.260% (11.9.9.4) **OK**
 Segment SC2H:17A:

Section Cut Design Summary

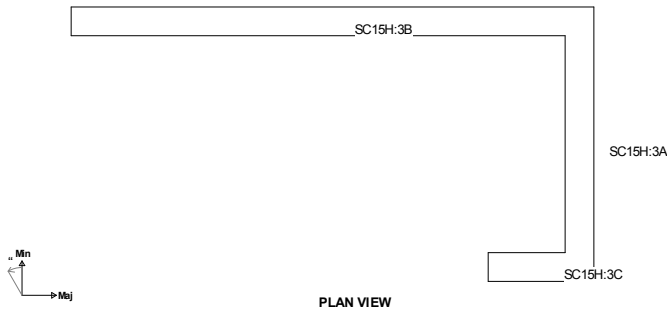
RAM Concrete Shearwall 15.04.00.000 Page 470/1293
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
 Design Code: ACI 318-11

Max Vert Bar Spacing Limit: 18.00 in Actual: 15.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 14.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.256% Actual: 0.256% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC2H:17B:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 15.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 14.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.256% Actual: 0.256% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC2H:17C:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 15.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 14.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.256% Actual: 0.256% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 471/1293
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
 Design Code: ACI 318-11

Section Cut ID: SC15H:3 (Horizontal) (Hinge)
Story: LEVEL 2.1
 Ag = 4212 in2 Imaj = 19808473 in4 Imin = 6251565 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 15
 Design Status: **PASS**



Axial/Flexural Results:

Interaction: 0.414 **OK**
 Pu = -335.51 kips phiPn = -810.90 kips
 Mu = 2041.2 kip-ft at Beta = 6.8 deg CCW from Major axis
 Controlling Load Combo: 0.784 D + 1.300 E10 (LC 523)
 Code Ref: 10.3.7

Shear Results:

Segment SC15H:3A:
 Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 139.1 kip phiVn = 314.8 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
 Code Ref: 14.2.3 & 11.9.5

Segment SC15H:3B:
 Length = 17.58 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 219.2 kip phiVn = 624.7 kip **OK**
 Controlling Load Combo: 0.784 D + 1.300 E10 (LC 523)
 Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 472/1293
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
 Design Code: ACI 318-11

Shear Results:

Segment SC15H:3C:
 Length = 3.17 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 37.1 kip phiVn = 112.5 kip **OK**
 Controlling Load Combo: 0.784 D + 1.300 E10 (LC 523)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.692% (11.9.9.4) **OK**
 S.B.E. Check: Neutral axis distance less than limit for all load combos
 Worst case is load combo 10 :
 cmax = 3.34 ft c = 1.53 ft (21.9.6.2) **OK**

Segment SC15H:3A:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC15H:3B:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC15H:3C:

Max Vert Bar Spacing Limit: 12.67 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

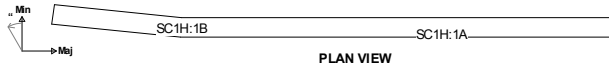
Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 473/1293

07/25/17 11:03:32

Section Cut ID: SC1H:1 (Horizontal)
Story: LEVEL 2
Ag = 5639 in2 Imaj = 76131122 in4 Imin = 125982 in4
Major Axis Orientation: 6.08 degrees (CCW from global X-axis)
Wall Design Group: 1
Design Status: **PASS**



Axial/Flexural Results:

Interaction: 0.097 **OK**
Pu = 3.56 kips phiPn = 36.64 kips
Mu = 1362.0 kip-ft at Beta = -0.8 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E24 (LC 537)
Code Ref: 10.3.7

Shear Results:

Segment SC1H:1A:
Length = 25.87 ft Thick = 14.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 117.2 kip phiVn = 631.7 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E31 (LC 40)
Code Ref: 14.2.3 & 11.9.5

Segment SC1H:1B:

Length = 7.69 ft Thick = 14.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 102.1 kip phiVn = 187.8 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.272% (11.9.9.4) **OK**

Segment SC1H:1A:

Max Vert Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC1H:1B:

Max Vert Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 474/1293

07/25/17 11:03:32

Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

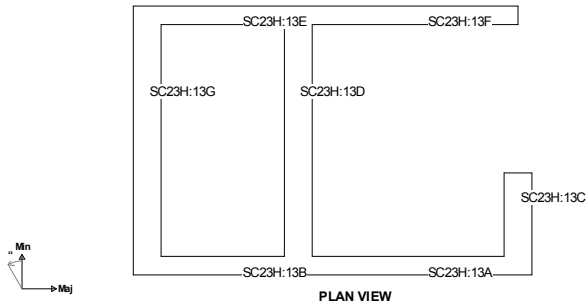
Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 475/1293

07/25/17 11:03:32

Section Cut ID: SC23H:13 (Horizontal)
Story: T.O. PENTHOUSE
Ag = 10826 in2 Imaj = 20003992 in4 Imin = 14769055 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 23
Design Status: **PASS**



Axial/Flexural Results:

Interaction: 0.031 **OK**
Pu = 213.88 kips phiPn = 6900.44 kips
Mu = 644.6 kip-ft at Beta = 32.2 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:

Segment SC23H:13A:
Length = 7.92 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 21.8 kip phiVn = 147.0 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E29 (LC 38)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:13B:

Length = 5.41 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 12.9 kip phiVn = 100.4 kip **OK**
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 476/1293

07/25/17 11:03:32

Shear Results:

Segment SC23H:13C:
Length = 3.33 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 2.9 kip phiVn = 72.4 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E31 (LC 112)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:13D:

Length = 9.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 15.0 kip phiVn = 195.5 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E22 (LC 31)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:13E:

Length = 5.41 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 14.9 kip phiVn = 100.4 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E31 (LC 40)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:13F:

Length = 7.92 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 17.4 kip phiVn = 147.0 kip **OK**
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:13G:

Length = 9.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 9.2 kip phiVn = 195.5 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E34 (LC 43)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) **OK**

Segment SC23H:13A:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC23H:13B:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 477/1293
07/25/17 11:03:32

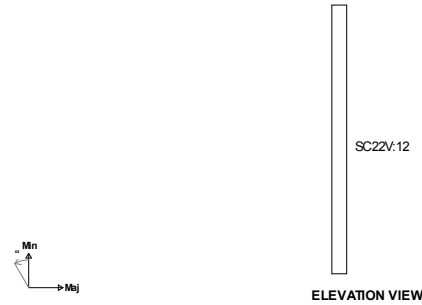
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:13C:
Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:13D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:13E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:13F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:13G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 478/1293
07/25/17 11:03:32

Section Cut ID: SC22V:12 (Vertical)
Story: ROOF LEVEL
Ag = 1056 in2 Imaj = 5632 in4 Imin = 1533312 in4
Wall Design Group: 22
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.016 OK
Pu = -0.76 kips phiPn = -48.59 kips
Mu = 16.7 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E32 (LC 581)
Code Ref: 10.3.7

Shear Results:
Segment SC22V:12:
Length = 11.00 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 38.9 kip phiVn = 204.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E32 (LC 185)
Code Ref: 14.2.3 & 11.9.5

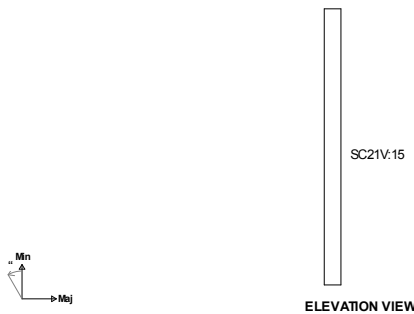
Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.446% (11.9.9.2) OK
Segment SC22V:12:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 479/1293
07/25/17 11:03:32

Section Cut ID: SC21V:15 (Vertical)
Story: LEVEL 4
Ag = 960 in2 Imaj = 5120 in4 Imin = 1152000 in4
Wall Design Group: 21
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.046 OK
Pu = -4.29 kips phiPn = -92.90 kips
Mu = 30.9 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E32 (LC 185)
Code Ref: 10.3.7

Shear Results:
Segment SC21V:15:
Length = 10.00 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 32.8 kip phiVn = 185.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.450% (11.9.9.2) OK
Segment SC21V:15:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 480/1293
07/25/17 11:03:32

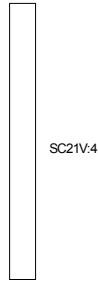
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 481/1293
07/25/17 11:03:32

Section Cut ID: SC21V:4 (Vertical)
Story: LEVEL 4
Ag = 1440 in2 Imaj = 17280 in4 Imin = 1728000 in4
Wall Design Group: 21
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.037 OK
Pu = -4.38 kips phiPn = -119.68 kips
Mu = 20.4 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
Code Ref: 10.3.7

Shear Results:
Segment SC21V:4:
Length = 10.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 33.4 kip phiVn = 217.1 kip OK
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.300% (11.9.9.2) OK
Segment SC21V:4:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 482/1293
07/25/17 11:03:32

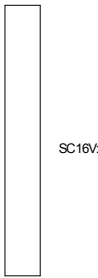
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 483/1293
07/25/17 11:03:32

Section Cut ID: SC16V:204 (Vertical)
Story: LEVEL 2.3
Ag = 480 in2 Imaj = 2560 in4 Imin = 144000 in4
Wall Design Group: 16
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.030 OK
Pu = -2.55 kips phiPn = -85.25 kips
Mu = 14.1 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E10 (LC 163)
Code Ref: 10.3.7

Shear Results:
Segment SC16V:204:
Length = 5.00 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 27.7 kip phiVn = 157.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp - 1.300 E7 (LC 196)
Code Ref: 14.2.3 & 11.9.5

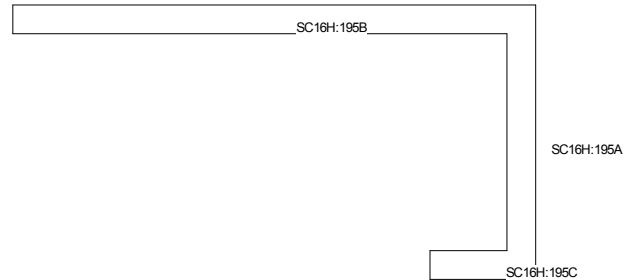
Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 1.104% (14.3.3) OK
Segment SC16V:204:
Max Horiz Bar Spacing Limit: 16.20 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 484/1293
07/25/17 11:03:32

Section Cut ID: SC16H:195 (Horizontal) (Hinge)
Story: LEVEL 2.3
Ag = 4212 in2 Imaj = 19808473 in4 Imin = 6251565 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 16
Design Status: PASS



PLAN VIEW

Axial/Flexural Results:
Interaction: 0.243 OK
Pu = -343.81 kips phiPn = -1412.85 kips
Mu = 340.7 kip-ft at Beta = -6.8 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E10 (LC 523)
Code Ref: 10.3.7

Shear Results:
Segment SC16H:195A:
Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 139.2 kip phiVn = 314.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:195B:
Length = 17.58 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 219.3 kip phiVn = 624.1 kip OK
Controlling Load Combo: 0.784 D + 1.300 E10 (LC 523)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 485/1293

07/25/17 11:03:32

Shear Results:

Segment SC16H:195C:
Length = 3.17 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
V_u = 37.2 kip phiV_n = 112.4 kip OK
Controlling Load Combo: 0.784 D + 1.300 E10 (LC 523)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.692% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
c_{max} = 4.62 ft c = 1.73 ft (21.9.6.2) OK

Segment SC16H:195A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:195B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:195C:
Max Vert Bar Spacing Limit: 12.67 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

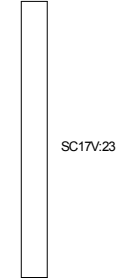
Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 486/1293

07/25/17 11:03:32

Section Cut ID: SC17V:23 (Vertical)
Story: LEVEL 4
A_g = 1440 in² I_{maj} = 17280 in⁴ I_{min} = 1728000 in⁴
Wall Design Group: 17
Design Status: PASS



ELEVATION VIEW



Axial/Flexural Results:

Interaction: 0.022 OK
P_u = 2.65 kips phiP_n = 123.05 kips
M_u = 47.6 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E24 (LC 573)
Code Ref: 10.3.7

Shear Results:

Segment SC17V:23:
Length = 10.00 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
V_u = 100.8 kip phiV_n = 286.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E21 (LC 30)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.469% (11.9.9.2) OK
Segment SC17V:23:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 487/1293

07/25/17 11:03:32

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

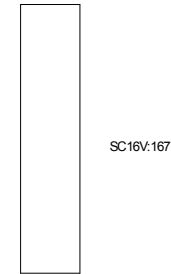
Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 488/1293

07/25/17 11:03:32

Section Cut ID: SC16V:167 (Vertical)
Story: LEVEL 3
A_g = 648 in² I_{maj} = 7776 in⁴ I_{min} = 157464 in⁴
Wall Design Group: 16
Design Status: PASS



ELEVATION VIEW



Axial/Flexural Results:

Interaction: 0.079 OK
P_u = -9.18 kips phiP_n = -116.13 kips
M_u = 28.7 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E11 (LC 56)
Code Ref: 10.3.7

Shear Results:

Segment SC16V:167:
Length = 4.50 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
V_u = 44.3 kip phiV_n = 165.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E31 (LC 76)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.818% (14.3.3) OK
Segment SC16V:167:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 489/1293
07/25/17 11:03:32

Section Cut ID: SC19V:28 (Vertical)
Story: T.O. PENTHOUSE
Ag = 1512 in2 Imaj = 18144 in4 Imin = 2000376 in4
Wall Design Group: 19
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.021 OK
Pu = -3.80 kips phiPn = -184.46 kips
Mu = 7.4 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E11 (LC 56)
Code Ref: 10.3.7

Shear Results:
Segment SC19V:28:
Length = 10.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 28.0 kip phiVn = 227.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.312% (11.9.2) OK
Segment SC19V:28:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 490/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 491/1293
07/25/17 11:03:32

Section Cut ID: SC18V:27 (Vertical)
Story: ROOF LEVEL
Ag = 1584 in2 Imaj = 19008 in4 Imin = 2299968 in4
Wall Design Group: 18
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.110 OK
Pu = -15.78 kips phiPn = -143.41 kips
Mu = 66.1 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E30 (LC 579)
Code Ref: 10.3.7

Shear Results:
Segment SC18V:27:
Length = 11.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 45.5 kip phiVn = 239.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E26 (LC 35)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.297% (11.9.2) OK
Segment SC18V:27:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 492/1293
07/25/17 11:03:32

Section Cut ID: SC16V:129 (Vertical)
Story: LEVEL 3.1
Ag = 1008 in2 Imaj = 12096 in4 Imin = 592704 in4
Wall Design Group: 16
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.022 OK
Pu = -2.71 kips phiPn = -125.09 kips
Mu = 18.5 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp - 1.300 E7 (LC 196)
Code Ref: 10.3.7

Shear Results:
Segment SC16V:129:
Length = 7.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 41.2 kip phiVn = 331.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

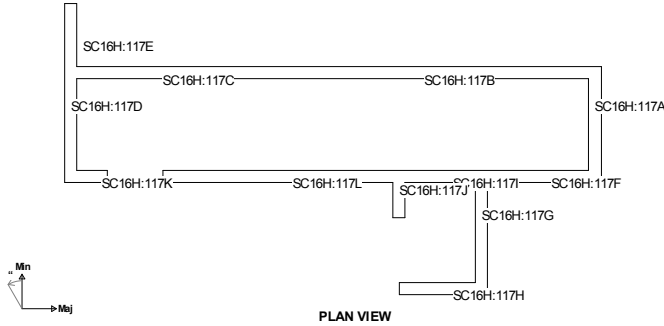
Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.701% (14.3.3) OK
Segment SC16V:129:
Max Horiz Bar Spacing Limit: 16.20 in Actual: 12.00 in (11.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 493/1293
07/25/17 11:03:32

Section Cut ID: SC16H:117 (Horizontal) (Hinge)
Level: 3.1
Ag = 17520 in2 Imaj = 494692829 in4 Imin = 79451243 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 16
Design Status: FAILS



Axial/Flexural Results:
Interaction: 0.062 OK
Pu = 2164.57 kips phiPn = 35121.04 kips
Mu = 7771.0 kip-ft at Beta = 3.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC16H:117A:
Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 139.1 kip phiVn = 314.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117B:
Length = 29.83 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 271.2 kip phiVn = 1105.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 494/1293
07/25/17 11:03:32

Shear Results:
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117C:
Length = 13.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 75.8 kip phiVn = 481.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E35 (LC 116)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117D:
Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 193.0 kip phiVn = 314.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Uses also 117D for total capacity

Segment SC16H:117E:
Length = 5.67 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 277.1 kip phiVn = 209.9 kip NG
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E21 (LC 30)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117F:
Length = 9.25 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 118.8 kip phiVn = 342.6 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E7 (LC 304)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117G:
Length = 9.17 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 70.5 kip phiVn = 339.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117H:
Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 21.7 kip phiVn = 250.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117I:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 495/1293
07/25/17 11:03:32

Shear Results:
Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 72.0 kip phiVn = 250.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117J:
Length = 3.42 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 51.0 kip phiVn = 126.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117K:
Length = 3.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 50.3 kip phiVn = 111.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117L:
Length = 19.33 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 255.4 kip phiVn = 716.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E28 (LC 109)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.804% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10: cmax = 9.79 ft c = 5.88 ft (21.9.6.2) OK

Segment SC16H:117A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117C:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 496/1293
07/25/17 11:03:32

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.13 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 1.253% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.920% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117I:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117J:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 497/1293
07/25/17 11:03:32

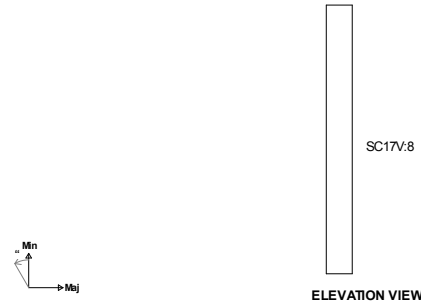
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117K:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117L:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 498/1293
07/25/17 11:03:32

Section Cut ID: SC17V:8 (Vertical)
Story: LEVEL 4
Ag = 1392 in2 Imaj = 16710 in4 Imin = 1562511 in4
Wall Design Group: 17
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.077 OK
Pu = -22.65 kips phiPn = -293.56 kips
Mu = 26.0 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E25 (LC 574)
Code Ref: 10.3.7

Shear Results:
Segment SC17V:8:
Length = 9.67 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 156.7 kip phiVn = 274.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E25 (LC 70)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.485% (11.9.9.2) OK
Segment SC17V:8:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 499/1293
07/25/17 11:03:32

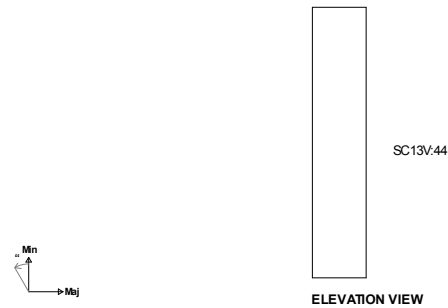
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 500/1293
07/25/17 11:03:32

Section Cut ID: SC13V:44 (Vertical)
Story: LEVEL 2.3
Ag = 720 in2 Imaj = 8640 in4 Imin = 216000 in4
Wall Design Group: 13
Design Status: PASS



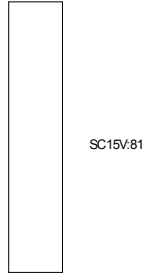
Axial/Flexural Results:
Interaction: 0.265 OK
Pu = -40.99 kips phiPn = -154.42 kips
Mu = 28.7 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 1.600 Lp + 0.500 Sp (LC 2)
Code Ref: 10.3.7

Shear Results:
Segment SC13V:44:
Length = 5.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 38.8 kip phiVn = 138.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp - 1.300 E5 (LC 194)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.511% (11.9.9.2) OK
Segment SC13V:44:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC15V:81 (Vertical)
Story: LEVEL 2
 Ag = 720 in2 Imaj = 8640 in4 Imin = 216000 in4
 Wall Design Group: 15
 Design Status: **PASS**



ELEVATION VIEW

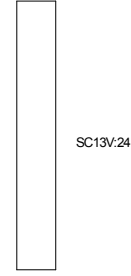
Axial/Flexural Results:
 Interaction: 0.062 **OK**
 Pu = -0.11 kips phiPn = -1.73 kips
 Mu = 40.7 kip-ft at Beta = -0.0 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
 Code Ref: 10.3.7

Shear Results:
 Segment SC15V:81:
 Length = 5.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 19.5 kip phiVn = 185.2 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E30 (LC 75)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.736% (14.3.3) **OK**
 Segment SC15V:81:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

Section Cut ID: SC13V:24 (Vertical)
Story: LEVEL 3
 Ag = 432 in2 Imaj = 2304 in4 Imin = 104976 in4
 Wall Design Group: 13
 Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:
 Interaction: 0.081 **OK**
 Pu = -6.42 kips phiPn = -79.26 kips
 Mu = 20.7 kip-ft at Beta = -0.0 deg CCW from Major axis
 Controlling Load Combo: 0.784 D + 1.300 E17 (LC 530)
 Code Ref: 10.3.7

Shear Results:
 Segment SC13V:24:
 Length = 4.50 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 44.2 kip phiVn = 114.6 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E17 (LC 62)
 Code Ref: 14.2.3 & 11.9.5

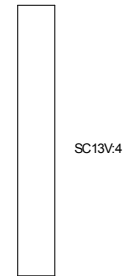
Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.852% (11.9.9.2) **OK**
 Segment SC13V:24:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
 Min web reinforcement ratio: 0.250% Actual: 0.639% (21.9.2.1) **OK**

Section Cut Design Summary

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

Section Cut ID: SC13V:4 (Vertical)
Story: LEVEL 3.1
 Ag = 1008 in2 Imaj = 12096 in4 Imin = 592704 in4
 Wall Design Group: 13
 Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:
 Interaction: 0.133 **OK**
 Pu = -10.47 kips phiPn = -78.77 kips
 Mu = 82.6 kip-ft at Beta = -0.0 deg CCW from Major axis
 Controlling Load Combo: 0.784 D - 1.300 E15 (LC 564)
 Code Ref: 10.3.7

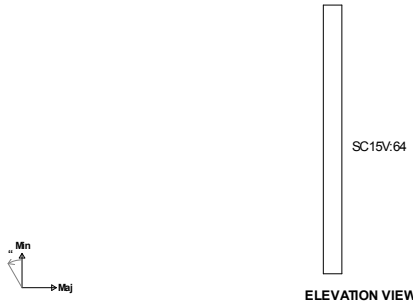
Shear Results:
 Segment SC13V:4:
 Length = 7.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 84.1 kip phiVn = 200.3 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E5 (LC 50)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.487% (11.9.9.2) **OK**
 Segment SC13V:4:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC15V:64 (Vertical)
Story: LEVEL 2
Ag = 1944 in2 Imaj = 23328 in4 Imin = 4251528 in4
Wall Design Group: 15
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.020 OK
Pu = 45.22 kips phiPn = 2283.74 kips
Mu = 171.2 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 1.600 Lp (LC 4)
Code Ref: 10.3.7

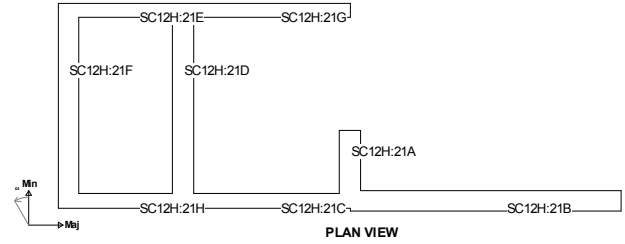
Shear Results:
Segment SC15V:64:
Length = 13.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 79.4 kip phiVn = 639.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp - 1.300 E28 (LC 217)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.682% (14.3.3) OK
Segment SC15V:64:
Max Horiz Bar Spacing Limit: 16.20 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC12H:21 (Horizontal) (Hinge)
Story: LEVEL 2
Ag = 12609 in2 Imaj = 78641281 in4 Imin = 19012759 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 12
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.196 OK
Pu = 642.90 kips phiPn = 3280.58 kips
Mu = 5803.3 kip-ft at Beta = -39.3 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E29 (LC 542)
Code Ref: 10.3.7

Shear Results:
Segment SC12H:21A:
Length = 3.33 ft Thick = 12.00 in f'c = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 17.6 kip phiVn = 93.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21B:
Length = 12.80 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 167.8 kip phiVn = 358.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21C:
Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 110.4 kip phiVn = 198.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21D:
Length = 9.00 ft Thick = 12.00 in f'c = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 47.9 kip phiVn = 252.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E12 (LC 21)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21E:
Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 30.2 kip phiVn = 135.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E17 (LC 26)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21F:
Length = 9.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 40.7 kip phiVn = 252.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E10 (LC 163)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21G:
Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 39.4 kip phiVn = 198.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:21H:
Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 48.6 kip phiVn = 135.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.725% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10:
cmax = 6.24 ft c = 0.70 ft (21.9.6.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Segment SC12H:21A:
Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:21B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:21C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:21D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:21E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:21F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:21G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:21H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK

Section Cut Design Summary

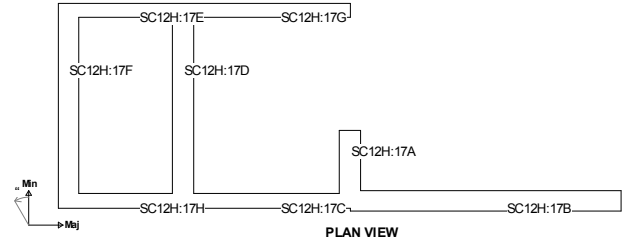
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC12H:17 (Horizontal) (Hinge)
Story: LEVEL 2
Ag = 12609 in2 Imaj = 78641281 in4 Imin = 19012759 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 12
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.213 OK
Pu = 623.25 kips phiPn = 2931.33 kips
Mu = 7166.1 kip-ft at Beta = -32.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E13 (LC 526)
Code Ref: 10.3.7

Shear Results:
Segment SC12H:17A:
Length = 3.33 ft Thick = 12.00 in f_c = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 17.7 kip phiVn = 93.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17B:
Length = 12.80 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 162.0 kip phiVn = 358.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17C:
Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 99.1 kip phiVn = 198.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17D:
Length = 9.00 ft Thick = 12.00 in f_c = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 47.9 kip phiVn = 252.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E12 (LC 21)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17E:
Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 39.7 kip phiVn = 135.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17F:
Length = 9.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 40.7 kip phiVn = 252.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E10 (LC 163)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17G:
Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 39.1 kip phiVn = 198.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E17 (LC 26)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17H:
Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 65.6 kip phiVn = 135.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.725% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 6.43 ft c = 0.58 ft (21.9.6.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Segment SC12H:17A:
Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:17B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:17C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:17D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:17E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:17F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:17G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:17H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK

Section Cut Design Summary

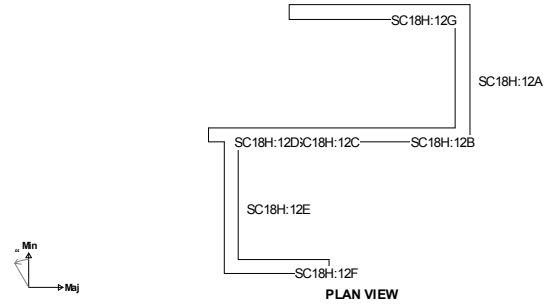
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC18H:12 (Horizontal)
Story: ROOF LEVEL
Ag = 7704 in2 Imaj = 39871674 in4 Imin = 39007351 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 18
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.052 OK
Pu = 712.58 kips phiPn = 13822.09 kips
Mu = 1738.5 kip-ft at Beta = 65.7 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC18H:12A:
Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 73.5 kip phiVn = 184.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:12B:
Length = 9.25 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 75.9 kip phiVn = 200.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:
Segment SC18H:12C:
Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 46.0 kip phiVn = 146.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5
Segment SC18H:12D:
Length = 1.58 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 14.0 kip phiVn = 34.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E25 (LC 178)
Code Ref: 14.2.3 & 11.9.5
Segment SC18H:12E:
Length = 9.17 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 69.6 kip phiVn = 199.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5
Segment SC18H:12F:
Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 23.8 kip phiVn = 146.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E28 (LC 109)
Code Ref: 14.2.3 & 11.9.5
Segment SC18H:12G:
Length = 12.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 28.8 kip phiVn = 260.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.306% (11.9.9.4) OK
Segment SC18H:12A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:12B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

Section Cut Design Summary

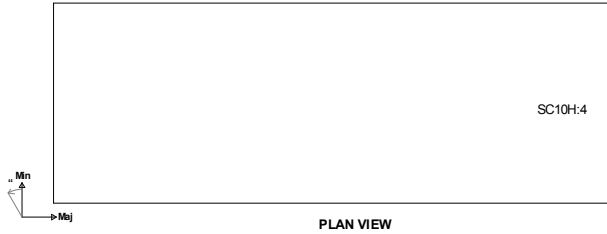
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:12C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:12D:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:12E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:12F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:12G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC10H:4 (Horizontal) (Hinge)
Story: LEVEL 4
Ag = 708 in2 Imaj = 115283 in4 Imin = 15093 in4
Major Axis Orientation: 66.00 degrees (CCW from global X-axis)
Wall Design Group: 10
Design Status: **PASS**



Axial/Flexural Results:

Interaction: 0.137 **OK**
Pu = 183.65 kips phiPn = 1341.16 kips
Mu = 8.8 kip-ft at Beta = 0.1 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:

Segment SC10H:4:
Length = 3.68 ft Thick = 16.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 4.8 kip phiVn = 117.1 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E21 (LC 174)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.434% (11.9.9.4) **OK**
S.B.E. Check: **Neutral axis distance less than limit for all load combos**
Worst case is load combo 10 :
cmax = 0.88 ft c = 0.45 ft (21.9.6.2) **OK**

Segment SC10H:4:
Max Vert Bar Spacing Limit: 14.74 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.320% Actual: 0.320% (21.9.4.3) **OK**

Section Cut Design Summary

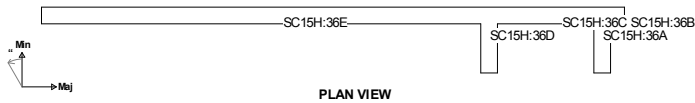
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC15H:36 (Horizontal) (Hinge)
Story: LEVEL 2
Ag = 5868 in2 Imaj = 91796517 in4 Imin = 543570 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 15
Design Status: **PASS**



Axial/Flexural Results:

Interaction: 0.115 **OK**
Pu = 850.13 kips phiPn = 7405.66 kips
Mu = 8870.1 kip-ft at Beta = -1.4 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
Code Ref: 10.3.7

Shear Results:

Segment SC15H:36A:
Length = 3.42 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 22.8 kip phiVn = 126.6 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:36B:
Length = 1.33 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 12.8 kip phiVn = 49.4 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:36C:
Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 92.3 kip phiVn = 250.0 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:36D:
Length = 3.42 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:

Vu = 29.5 kip phiVn = 126.6 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:36E:

Length = 26.83 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 304.6 kip phiVn = 993.9 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 1.109% (11.9.9.4) **OK**
S.B.E. Check: **Neutral axis distance less than limit for all load combos**
Worst case is load combo 10 :
cmax = 8.32 ft c = 3.33 ft (21.9.6.2) **OK**

Segment SC15H:36A:

Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC15H:36B:

Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC15H:36C:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC15H:36D:

Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC15H:36E:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC6H:5 (Horizontal)
Story: LEVEL 3
Ag = 5552 in2 Imaj = 99036960 in4 Imin = 66624 in4
Major Axis Orientation: 296.00 degrees (CCW from global X-axis)
Wall Design Group: 6
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.071 OK
Pu = 113.02 kips phiPn = 1592.22 kips
Mu = 3103.3 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E34 (LC 547)
Code Ref: 10.3.7

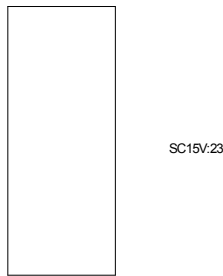
Shear Results:
Segment SC6H:5:
Length = 38.56 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@15" oc Horiz Bar Pat: #5@15" oc
Vu = 293.3 kip phiVn = 955.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E35 (LC 44)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.354% (11.9.9.4) OK
Segment SC6H:5:
Max Vert Bar Spacing Limit: 18.00 in Actual: 15.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 14.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.341% Actual: 0.341% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC15V:23 (Vertical)
Story: LEVEL 2.1
Ag = 360 in2 Imaj = 4320 in4 Imin = 27000 in4
Wall Design Group: 15
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.096 OK
Pu = -15.46 kips phiPn = -161.66 kips
Mu = 3.3 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E10 (LC 523)
Code Ref: 10.3.7

Shear Results:
Segment SC15V:23:
Length = 2.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 46.0 kip phiVn = 92.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E10 (LC 55)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.982% (14.3.3) OK
Segment SC15V:23:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.614% (21.9.2.1) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

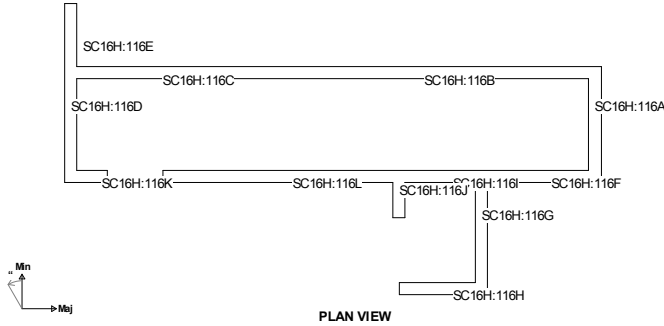
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 525/1293
07/25/17 11:03:32

Section Cut ID: SC16H:116 (Horizontal) (Hinge)
Level: 3.1
Ag = 17520 in2 Imaj = 494692829 in4 Imin = 79451243 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 16
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.080 OK
Pu = 1588.28 kips phiPn = 19808.27 kips
Mu = 11167.3 kip-ft at Beta = 35.8 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 10.3.7

Shear Results:
Segment SC16H:116A:
Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 139.2 kip phiVn = 314.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116B:
Length = 29.83 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 292.1 kip phiVn = 1105.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 526/1293
07/25/17 11:03:32

Shear Results:
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116C:
Length = 13.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 56.4 kip phiVn = 481.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E35 (LC 44)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116D:
Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 285.8 kip phiVn = 314.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116E:
Length = 5.67 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 147.8 kip phiVn = 209.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E21 (LC 30)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116F:
Length = 9.25 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 110.8 kip phiVn = 342.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E6 (LC 159)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116G:
Length = 9.17 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 70.5 kip phiVn = 339.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116H:
Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 21.7 kip phiVn = 250.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116I:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 527/1293
07/25/17 11:03:32

Shear Results:
Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 60.9 kip phiVn = 250.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116J:
Length = 3.42 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 50.9 kip phiVn = 126.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116K:
Length = 3.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 50.2 kip phiVn = 111.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116L:
Length = 19.33 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 253.1 kip phiVn = 716.1 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E28 (LC 325)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.804% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10:
cmax = 7.93 ft c = 5.33 ft (21.9.6.2) OK

Segment SC16H:116A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116C:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 528/1293
07/25/17 11:03:32

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.13 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 1.253% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.920% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116I:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116J:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 529/1293
 07/25/17 11:03:32

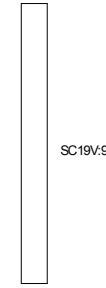
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC16H:116K:
 Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC16H:116L:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 530/1293
 07/25/17 11:03:32

Section Cut ID: SC19V:9 (Vertical)
Story: T.O. PENTHOUSE
 Ag = 1512 in2 Imaj = 18144 in4 Imin = 2000376 in4
 Wall Design Group: 19
 Design Status: PASS



ELEVATION VIEW



Axial/Flexural Results:
 Interaction: 0.235 OK
 Pu = -36.85 kips phiPn = -156.81 kips
 Mu = 118.5 kip-ft at Beta = -0.0 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E11 (LC 56)
 Code Ref: 10.3.7

Shear Results:
 Segment SC19V:9:
 Length = 10.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 22.3 kip phiVn = 228.1 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.312% (11.9.9.2) OK
 Segment SC19V:9:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 531/1293
 07/25/17 11:03:32

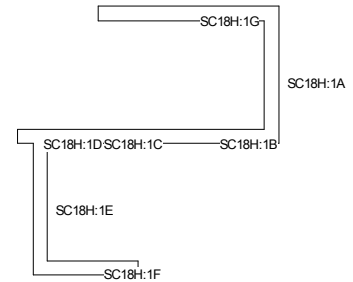
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 532/1293
 07/25/17 11:03:32

Section Cut ID: SC18H:1 (Horizontal)
Story: ROOF LEVEL
 Ag = 7704 in2 Imaj = 39871674 in4 Imin = 39007351 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 18
 Design Status: PASS



PLAN VIEW



Axial/Flexural Results:
 Interaction: 0.052 OK
 Pu = 745.19 kips phiPn = 14314.15 kips
 Mu = 1521.7 kip-ft at Beta = 57.7 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:
 Segment SC18H:1A:
 Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 73.5 kip phiVn = 184.7 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
 Code Ref: 14.2.3 & 11.9.5

Segment SC18H:1B:
 Length = 9.25 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 86.8 kip phiVn = 200.9 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E7 (LC 160)
 Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

Shear Results:

Segment SC18H:1C:
Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 51.2 kip phiVn = 146.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:1D:
Length = 1.58 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 12.4 kip phiVn = 34.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:1E:
Length = 9.17 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 69.6 kip phiVn = 199.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:1F:
Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 23.8 kip phiVn = 146.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E28 (LC 109)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:1G:
Length = 12.00 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 28.9 kip phiVn = 260.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
Code Ref: 14.2.3 & 11.9.5

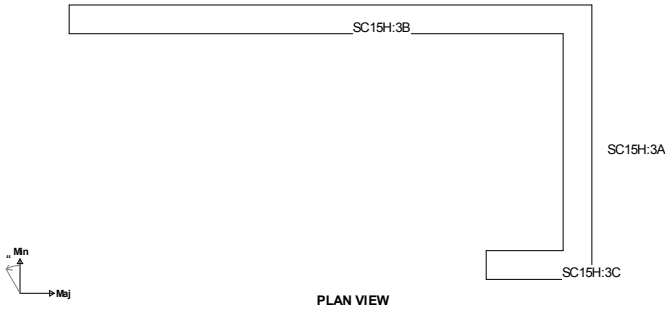
Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.306% (11.9.9.4) OK
Segment SC18H:1A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:1B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

Section Cut Design Summary

Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:1C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:1D:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:1E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:1F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:1G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC15H:3 (Horizontal) (Hinge)
Story: LEVEL 2.1
Ag = 4212 in2 Imaj = 19808473 in4 Imin = 6251565 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 15
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.414 OK
Pu = -335.51 kips phiPn = -810.90 kips
Mu = 2041.2 kip-ft at Beta = 6.8 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E10 (LC 523)
Code Ref: 10.3.7

Shear Results:
Segment SC15H:3A:
Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 139.1 kip phiVn = 314.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:3B:
Length = 17.58 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 219.2 kip phiVn = 624.7 kip OK
Controlling Load Combo: 0.784 D + 1.300 E10 (LC 523)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

Shear Results:
Segment SC15H:3C:
Length = 3.17 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 37.1 kip phiVn = 112.5 kip OK
Controlling Load Combo: 0.784 D + 1.300 E10 (LC 523)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.692% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 3.34 ft c = 1.53 ft (21.9.6.2) OK

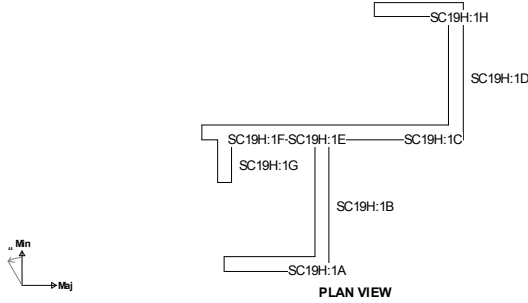
Segment SC15H:3A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC15H:3B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC15H:3C:
Max Vert Bar Spacing Limit: 12.67 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 537/1293
07/25/17 11:03:32

Section Cut ID: SC19H:1 (Horizontal)
Story: T.O. PENTHOUSE
Ag = 7212 in2 **Imaj =** 32002731 in4 **Imin =** 29971926 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 19
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.028 OK
Pu = 272.21 kips **phiPn =** 9826.28 kips
Mu = 958.6 kip-ft at **Beta =** 71.8 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC19H:1A:
Length = 6.75 ft **Thick =** 12.00 in **f'c =** 4000 psi **fy =** 60 ksi
Vert Bar Pat: #4@12" oc **Horiz Bar Pat:** #4@12" oc
Vu = 14.5 kip **phiVn =** 146.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E26 (LC 35)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1B:
Length = 9.17 ft **Thick =** 12.00 in **f'c =** 4000 psi **fy =** 60 ksi
Vert Bar Pat: #4@12" oc **Horiz Bar Pat:** #4@12" oc
Vu = 38.4 kip **phiVn =** 199.1 kip OK
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 538/1293
07/25/17 11:03:32

Shear Results:
Segment SC19H:1C:
Length = 9.25 ft **Thick =** 12.00 in **f'c =** 4000 psi **fy =** 60 ksi
Vert Bar Pat: #4@12" oc **Horiz Bar Pat:** #4@12" oc
Vu = 31.2 kip **phiVn =** 200.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1D:
Length = 8.50 ft **Thick =** 12.00 in **f'c =** 4000 psi **fy =** 60 ksi
Vert Bar Pat: #4@12" oc **Horiz Bar Pat:** #4@12" oc
Vu = 29.3 kip **phiVn =** 184.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E10 (LC 163)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1E:
Length = 6.75 ft **Thick =** 12.00 in **f'c =** 4000 psi **fy =** 60 ksi
Vert Bar Pat: #4@12" oc **Horiz Bar Pat:** #4@12" oc
Vu = 17.4 kip **phiVn =** 146.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E11 (LC 164)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1F:
Length = 1.58 ft **Thick =** 12.00 in **f'c =** 4000 psi **fy =** 60 ksi
Vert Bar Pat: #4@12" oc **Horiz Bar Pat:** #4@12" oc
Vu = 9.0 kip **phiVn =** 34.4 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E28 (LC 325)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1G:
Length = 3.42 ft **Thick =** 12.00 in **f'c =** 4000 psi **fy =** 60 ksi
Vert Bar Pat: #4@12" oc **Horiz Bar Pat:** #4@12" oc
Vu = 11.4 kip **phiVn =** 74.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1H:
Length = 5.67 ft **Thick =** 12.00 in **f'c =** 4000 psi **fy =** 60 ksi
Vert Bar Pat: #4@12" oc **Horiz Bar Pat:** #4@12" oc
Vu = 9.8 kip **phiVn =** 123.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E5 (LC 158)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.310% (11.9.9.4) OK
Segment SC19H:1A:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 539/1293
07/25/17 11:03:32

Max Vert Bar Spacing Limit: 18.00 in **Actual:** 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in **Actual:** 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% **Actual:** 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 **Actual:** 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 **Actual:** 2 (21.9.2.2) OK
Segment SC19H:1B:
Max Vert Bar Spacing Limit: 18.00 in **Actual:** 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in **Actual:** 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% **Actual:** 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 **Actual:** 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 **Actual:** 2 (21.9.2.2) OK
Segment SC19H:1C:
Max Vert Bar Spacing Limit: 18.00 in **Actual:** 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in **Actual:** 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% **Actual:** 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 **Actual:** 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 **Actual:** 2 (21.9.2.2) OK
Segment SC19H:1D:
Max Vert Bar Spacing Limit: 18.00 in **Actual:** 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in **Actual:** 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% **Actual:** 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 **Actual:** 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 **Actual:** 2 (21.9.2.2) OK
Segment SC19H:1E:
Max Vert Bar Spacing Limit: 18.00 in **Actual:** 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in **Actual:** 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% **Actual:** 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 **Actual:** 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 **Actual:** 2 (21.9.2.2) OK
Segment SC19H:1F:
Max Vert Bar Spacing Limit: 12.00 in **Actual:** 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in **Actual:** 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% **Actual:** 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 **Actual:** 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 **Actual:** 2 (21.9.2.2) OK
Segment SC19H:1G:
Max Vert Bar Spacing Limit: 13.67 in **Actual:** 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in **Actual:** 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% **Actual:** 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 **Actual:** 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 **Actual:** 2 (21.9.2.2) OK
Segment SC19H:1H:
Max Vert Bar Spacing Limit: 18.00 in **Actual:** 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in **Actual:** 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% **Actual:** 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 **Actual:** 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

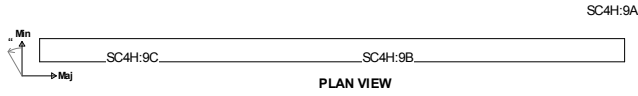
Page 540/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 1 **Actual:** 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 541/1293
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
 Design Code: ACI 318-11

Section Cut ID: SC4H:9 (Horizontal)
Story: LEVEL 2
 Ag = 4916 in2 Imaj = 50498476 in4 Imin = 80287 in4
 Major Axis Orientation: 66.00 degrees (CCW from global X-axis)
 Wall Design Group: 4
 Design Status: **PASS**



Axial/Flexural Results:
 Interaction: 0.053 **OK**
 Pu = 477.86 kips phiPn = 9072.10 kips
 Mu = 600.5 kip-ft at Beta = 0.0 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:
 Segment SC4H:9A:
 Length = 3.68 ft Thick = 14.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
 Vu = 13.2 kip phiVn = 90.0 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E25 (LC 178)
 Code Ref: 14.2.3 & 11.9.5

Segment SC4H:9B:
 Length = 21.31 ft Thick = 14.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
 Vu = 132.0 kip phiVn = 520.3 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E28 (LC 109)
 Code Ref: 14.2.3 & 11.9.5

Segment SC4H:9C:
 Length = 4.27 ft Thick = 14.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
 Vu = 19.6 kip phiVn = 104.1 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.264% (11.9.9.4) **OK**
 Segment SC4H:9A:

Section Cut Design Summary

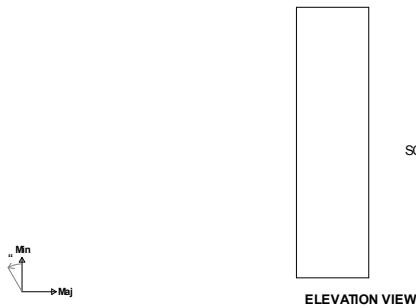
RAM Concrete Shearwall 15.04.00.000 Page 542/1293
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
 Design Code: ACI 318-11

Max Vert Bar Spacing Limit: 14.74 in Actual: 11.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC4H:9B:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC4H:9C:
 Max Vert Bar Spacing Limit: 17.06 in Actual: 11.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 543/1293
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
 Design Code: ACI 318-11

Section Cut ID: SC2V:7 (Vertical)
Story: LEVEL 2.3
 Ag = 960 in2 Imaj = 20480 in4 Imin = 288000 in4
 Wall Design Group: 2
 Design Status: **PASS**



Axial/Flexural Results:
 Interaction: 0.084 **OK**
 Pu = -3.64 kips phiPn = -43.23 kips
 Mu = 24.8 kip-ft at Beta = -0.0 deg CCW from Major axis
 Controlling Load Combo: 0.784 D + 1.300 E35 (LC 548)
 Code Ref: 10.3.7

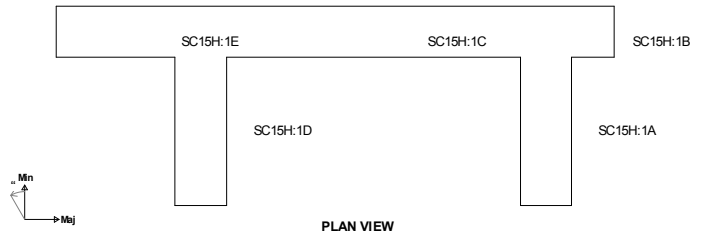
Shear Results:
 Segment SC2V:7:
 Length = 5.00 ft Thick = 16.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@15" oc Horiz Bar Pat: #5@15" oc
 Vu = 39.1 kip phiVn = 139.7 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E35 (LC 80)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.320% (11.9.9.2) **OK**
 Segment SC2V:7:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 15.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 14.38 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 544/1293
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
 Design Code: ACI 318-11

Section Cut ID: SC15H:1 (Horizontal) (Hinge)
Story: LEVEL 2.1
 Ag = 2412 in2 Imaj = 3680308 in4 Imin = 406950 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 15
 Design Status: **PASS**



Axial/Flexural Results:
 Interaction: 0.123 **OK**
 Pu = 69.63 kips phiPn = 567.50 kips
 Mu = 477.9 kip-ft at Beta = -58.1 deg CCW from Major axis
 Controlling Load Combo: 0.784 D + 1.300 E8 (LC 521)
 Code Ref: 10.3.7

Shear Results:
 Segment SC15H:1A:
 Length = 3.42 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 67.5 kip phiVn = 126.6 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
 Code Ref: 14.2.3 & 11.9.5

Segment SC15H:1B:
 Length = 1.33 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 27.1 kip phiVn = 49.4 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
 Code Ref: 14.2.3 & 11.9.5

Segment SC15H:1C:
 Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 545/1293
07/25/17 11:03:32

Shear Results:

Vu = 109.9 kip phiVn = 250.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:1D:

Length = 3.42 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 31.5 kip phiVn = 126.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E8 (LC 17)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:1E:

Length = 2.83 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 58.5 kip phiVn = 104.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 1.351% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 1.71 ft c = 1.86 ft (21.9.6.2) OK

Segment SC15H:1A:

Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC15H:1B:

Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC15H:1C:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC15H:1D:

Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 546/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC15H:1E:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 547/1293
07/25/17 11:03:32

Section Cut ID:

SC1H:1 (Horizontal)

Story:

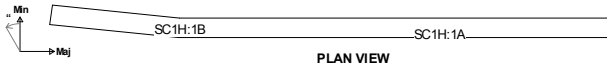
LEVEL 2

Ag = 5639 in2 Imaj = 76131122 in4 Imin = 125982 in4

Major Axis Orientation: 6.08 degrees (CCW from global X-axis)

Wall Design Group: 1

Design Status: PASS



Axial/Flexural Results:

Interaction: 0.097 OK
Pu = 3.56 kips phiPn = 36.64 kips
Mu = 1362.0 kip-ft at Beta = -0.8 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E24 (LC 537)
Code Ref: 10.3.7

Shear Results:

Segment SC1H:1A:
Length = 25.87 ft Thick = 14.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 117.2 kip phiVn = 631.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E31 (LC 40)
Code Ref: 14.2.3 & 11.9.5

Segment SC1H:1B:

Length = 7.69 ft Thick = 14.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 102.1 kip phiVn = 187.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.272% (11.9.9.4) OK
Segment SC1H:1A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC1H:1B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 548/1293
07/25/17 11:03:32

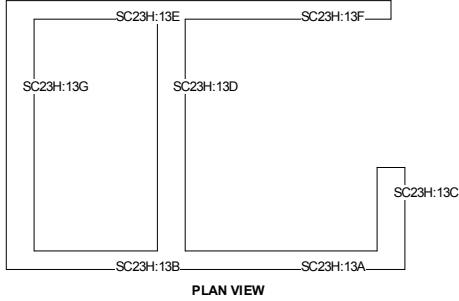
Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 549/1293
07/25/17 11:03:32

Section Cut ID: SC23H:13 (Horizontal)
Story: T.O. PENTHOUSE
Ag = 10826 in2 Imaj = 20003992 in4 Imin = 14769055 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 23
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.031 OK
Pu = 213.88 kips phiPn = 6900.44 kips
Mu = 644.6 kip-ft at Beta = 32.2 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC23H:13A:
Length = 7.92 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 21.8 kip phiVn = 147.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E29 (LC 38)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:13B:
Length = 5.41 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 12.9 kip phiVn = 100.4 kip OK
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 550/1293
07/25/17 11:03:32

Shear Results:
Segment SC23H:13C:
Length = 3.33 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 2.9 kip phiVn = 72.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E31 (LC 112)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:13D:
Length = 9.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 15.0 kip phiVn = 195.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E22 (LC 31)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:13E:
Length = 5.41 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 14.9 kip phiVn = 100.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E31 (LC 40)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:13F:
Length = 7.92 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 17.4 kip phiVn = 147.0 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:13G:
Length = 9.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 9.2 kip phiVn = 195.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E34 (LC 43)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) OK
Segment SC23H:13A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:13B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 551/1293
07/25/17 11:03:32

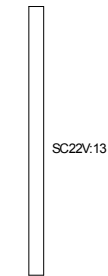
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:13C:
Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:13D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:13E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:13F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:13G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 552/1293
07/25/17 11:03:32

Section Cut ID: SC22V:13 (Vertical)
Story: ROOF LEVEL
Ag = 1056 in2 Imaj = 5632 in4 Imin = 1533312 in4
Wall Design Group: 22
Design Status: PASS



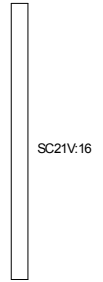
Axial/Flexural Results:
Interaction: 0.020 OK
Pu = -2.72 kips phiPn = -132.91 kips
Mu = 13.2 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E32 (LC 581)
Code Ref: 10.3.7

Shear Results:
Segment SC22V:13:
Length = 11.00 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 46.4 kip phiVn = 204.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.446% (11.9.9.2) OK
Segment SC22V:13:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC21V:16 (Vertical)
Story: LEVEL 4
 Ag = 960 in2 Imaj = 5120 in4 Imin = 1152000 in4
 Wall Design Group: 21
 Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:
 Interaction: 0.100 OK
 Pu = -14.00 kips phiPn = -139.57 kips
 Mu = 45.9 kip-ft at Beta = -0.0 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:
 Segment SC21V:16:
 Length = 10.00 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 60.6 kip phiVn = 184.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E31 (LC 76)
 Code Ref: 14.2.3 & 11.9.5

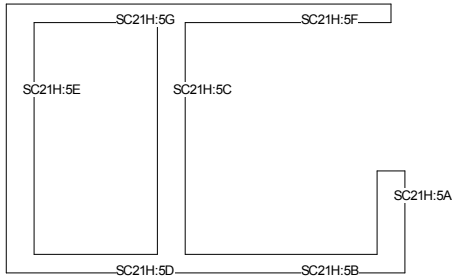
Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.450% (11.9.9.2) OK
 Segment SC21V:16:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK

Section Cut Design Summary

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC21H:5 (Horizontal) (Hinge)
Story: LEVEL 4
 Ag = 10826 in2 Imaj = 20003992 in4 Imin = 14769055 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 21
 Design Status: PASS



PLAN VIEW

Axial/Flexural Results:
 Interaction: 0.063 OK
 Pu = 561.16 kips phiPn = 8960.61 kips
 Mu = 1219.0 kip-ft at Beta = -24.4 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:
 Segment SC21H:5A:
 Length = 3.33 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 7.2 kip phiVn = 72.4 kip OK
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 14.2.3 & 11.9.5

Segment SC21H:5B:
 Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 46.6 kip phiVn = 147.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
 Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

Shear Results:
 Segment SC21H:5C:
 Length = 9.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 33.6 kip phiVn = 195.5 kip OK
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
 Code Ref: 14.2.3 & 11.9.5

Segment SC21H:5D:
 Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 16.0 kip phiVn = 100.4 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
 Code Ref: 14.2.3 & 11.9.5

Segment SC21H:5E:
 Length = 9.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 35.4 kip phiVn = 195.5 kip OK
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
 Code Ref: 14.2.3 & 11.9.5

Segment SC21H:5F:
 Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 40.4 kip phiVn = 147.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

Segment SC21H:5G:
 Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 15.5 kip phiVn = 100.4 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) OK
 S.B.E. Check: Neutral axis distance less than limit for all load combos
 Worst case is load combo 10 :
 cmax = 3.86 ft c = 0.84 ft (21.9.6.2) OK

Segment SC21H:5A:
 Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 557/1293
07/25/17 11:03:32

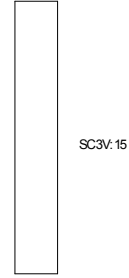
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:5B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:5C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:5D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:5E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:5F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:5G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 558/1293
07/25/17 11:03:32

Section Cut ID: SC3V:15 (Vertical)
Story: LEVEL 2
Ag = 1632 in2 Imaj = 34816 in4 Imin = 1414944 in4
Wall Design Group: 3
Design Status: PASS



ELEVATION VIEW



Axial/Flexural Results:
Interaction: 0.036 OK
Pu = -2.91 kips phiPn = -79.94 kips
Mu = 27.7 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E13 (LC 526)
Code Ref: 10.3.7

Shear Results:
Segment SC3V:15:
Length = 8.50 ft Thick = 16.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@15" oc Horiz Bar Pat: #5@15" oc
Vu = 25.6 kip phiVn = 237.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.301% (11.9.9.2) OK
Segment SC3V:15:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 15.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 14.38 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 559/1293
07/25/17 11:03:32

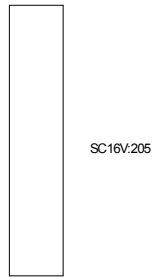
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 560/1293
07/25/17 11:03:32

Section Cut ID: SC16V:205 (Vertical)
Story: LEVEL 2.3
Ag = 720 in2 Imaj = 8640 in4 Imin = 216000 in4
Wall Design Group: 16
Design Status: PASS



ELEVATION VIEW



Axial/Flexural Results:
Interaction: 0.023 OK
Pu = -1.47 kips phiPn = -63.75 kips
Mu = 12.1 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E8 (LC 557)
Code Ref: 10.3.7

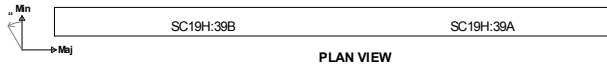
Shear Results:
Segment SC16V:205:
Length = 5.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 56.9 kip phiVn = 236.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E8 (LC 17)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.736% (14.3.3) OK
Segment SC16V:205:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 561/1293
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
 Design Code: ACI 318-11

Section Cut ID: SC19H:39 (Horizontal)
Story: T.O. PENTHOUSE
 Ag = 2772 in2 Imaj = 12332796 in4 Imin = 33270 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 19
 Design Status: **PASS**



Axial/Flexural Results:

Interaction: 0.018 **OK**
 Pu = 91.74 kips phiPn = 5144.46 kips
 Mu = 16.7 kip-ft at Beta = 0.0 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 1.600 Sp (LC 8)
 Code Ref: 10.3.7

Shear Results:

Segment SC19H:39A:
 Length = 13.25 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 26.1 kip phiVn = 287.9 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E22 (LC 175)
 Code Ref: 14.2.3 & 11.9.5

Segment SC19H:39B:

Length = 6.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 13.7 kip phiVn = 130.3 kip **OK**
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E31 (LC 328)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.297% (11.9.9.4) **OK**
 Segment SC19H:39A:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC19H:39B:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**

Section Cut Design Summary

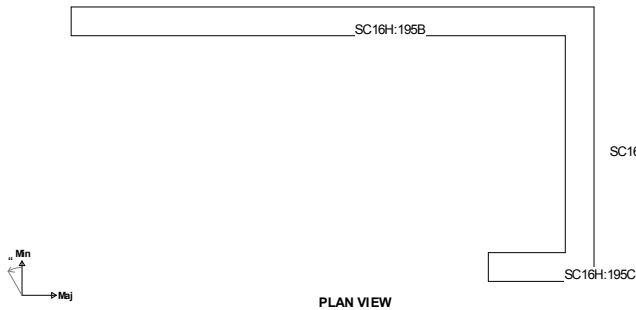
RAM Concrete Shearwall 15.04.00.000 Page 562/1293
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
 Design Code: ACI 318-11

Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 563/1293
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
 Design Code: ACI 318-11

Section Cut ID: SC16H:195 (Horizontal) (Hinge)
Story: LEVEL 2.3
 Ag = 4212 in2 Imaj = 19808473 in4 Imin = 6251565 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 16
 Design Status: **PASS**



Axial/Flexural Results:

Interaction: 0.243 **OK**
 Pu = -343.81 kips phiPn = -1412.85 kips
 Mu = 340.7 kip-ft at Beta = -6.8 deg CCW from Major axis
 Controlling Load Combo: 0.784 D + 1.300 E10 (LC 523)
 Code Ref: 10.3.7

Shear Results:

Segment SC16H:195A:
 Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 139.2 kip phiVn = 314.8 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:195B:

Length = 17.58 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 219.3 kip phiVn = 624.1 kip **OK**
 Controlling Load Combo: 0.784 D + 1.300 E10 (LC 523)
 Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 564/1293
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
 Design Code: ACI 318-11

Shear Results:

Segment SC16H:195C:
 Length = 3.17 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 37.2 kip phiVn = 112.4 kip **OK**
 Controlling Load Combo: 0.784 D + 1.300 E10 (LC 523)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.692% (11.9.9.4) **OK**
 S.B.E. Check: **Neutral axis distance less than limit for all load combos**
 Worst case is load combo 10 :
 cmax = 4.62 ft c = 1.73 ft (21.9.6.2) **OK**

Segment SC16H:195A:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC16H:195B:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

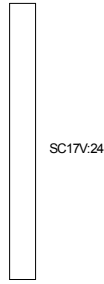
Segment SC16H:195C:

Max Vert Bar Spacing Limit: 12.67 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC17V:24 (Vertical)
Story: LEVEL 4
Ag = 1440 in2 Imaj = 17280 in4 Imin = 1728000 in4
Wall Design Group: 17
Design Status: **PASS**



ELEVATION VIEW



Axial/Flexural Results:
Interaction: 0.065 **OK**
Pu = -13.95 kips phiPn = -215.71 kips
Mu = 46.8 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E22 (LC 535)
Code Ref: 10.3.7

Shear Results:
Segment SC17V:24:
Length = 10.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 44.7 kip phiVn = 286.2 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E26 (LC 35)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.469% (11.9.9.2) **OK**
Segment SC17V:24:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**

Section Cut Design Summary

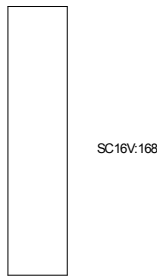
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC16V:168 (Vertical)
Story: LEVEL 3
Ag = 648 in2 Imaj = 7776 in4 Imin = 157464 in4
Wall Design Group: 16
Design Status: **PASS**



ELEVATION VIEW



Axial/Flexural Results:
Interaction: 0.212 **OK**
Pu = -11.45 kips phiPn = -53.98 kips
Mu = 94.7 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E28 (LC 541)
Code Ref: 10.3.7

Shear Results:
Segment SC16V:168:
Length = 4.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 62.2 kip phiVn = 166.7 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E28 (LC 73)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.818% (14.3.3) **OK**
Segment SC16V:168:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min web reinforcement ratio: 0.250% Actual: 0.614% (21.9.2.1) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

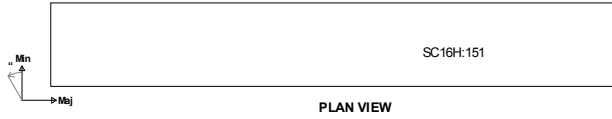
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 569/1293
07/25/17 11:03:32

Section Cut ID: SC16H:151 (Horizontal) (Hinge)
Story: LEVEL 3
Ag = 972 in2 Imaj = 531441 in4 Imin = 11664 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 16
Design Status: **PASS**



Axial/Flexural Results:

Interaction: 0.288 **OK**
Pu = -143.14 kips phiPn = -497.17 kips
Mu = 35.6 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E24 (LC 537)
Code Ref: 10.3.7

Shear Results:

Segment SC16H:151:
Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 26.3 kip phiVn = 237.0 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E7 (LC 160)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

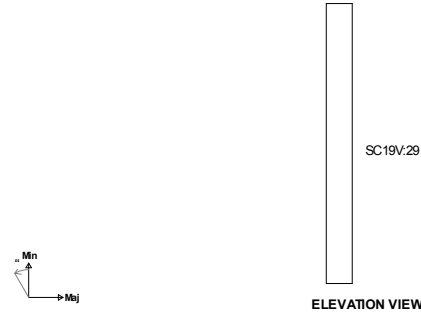
Min Vert Reinf Ratio: Limit: 0.250% Actual: 1.182% (11.9.9.4) **OK**
S.B.E. Check: **Neutral axis distance less than limit for all load combos**
Worst case is load combo 10:
cmax = 1.61 ft c = 1.68 ft (21.9.6.2) **OK**
Segment SC16H:151:
Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.25 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.920% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 570/1293
07/25/17 11:03:32

Section Cut ID: SC19V:29 (Vertical)
Story: T.O. PENTHOUSE
Ag = 1512 in2 Imaj = 18144 in4 Imin = 2000376 in4
Wall Design Group: 19
Design Status: **PASS**



Axial/Flexural Results:

Interaction: 0.020 **OK**
Pu = -4.82 kips phiPn = -237.71 kips
Mu = 1.8 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E24 (LC 573)
Code Ref: 10.3.7

Shear Results:

Segment SC19V:29:
Length = 10.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 18.5 kip phiVn = 228.1 kip **OK**
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.312% (11.9.9.2) **OK**
Segment SC19V:29:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 571/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 572/1293
07/25/17 11:03:32

Section Cut ID: SC16V:130 (Vertical)
Story: LEVEL 3.1
Ag = 1008 in2 Imaj = 12096 in4 Imin = 592704 in4
Wall Design Group: 16
Design Status: **PASS**



Axial/Flexural Results:

Interaction: 0.267 **OK**
Pu = -70.68 kips phiPn = -264.25 kips
Mu = 107.4 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E7 (LC 520)
Code Ref: 10.3.7

Shear Results:

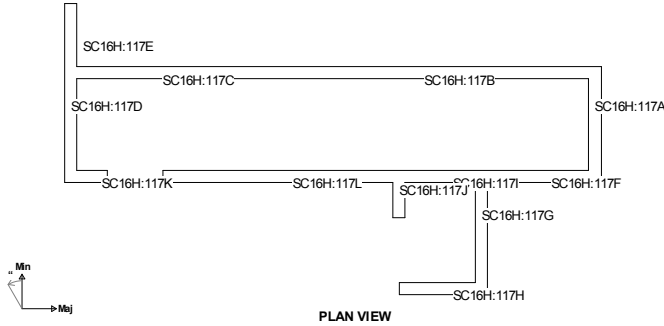
Segment SC16V:130:
Length = 7.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 205.8 kip phiVn = 259.3 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E6 (LC 159)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.701% (14.3.3) **OK**
Segment SC16V:130:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

Section Cut ID: SC16H:117 (Horizontal) (Hinge)
Level: 3.1
Ag = 17520 in2 Imaj = 494692829 in4 Imin = 79451243 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 16
Design Status: FAILS



Axial/Flexural Results:
Interaction: 0.062 OK
Pu = 2164.57 kips phiPn = 35121.04 kips
Mu = 7771.0 kip-ft at Beta = 3.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC16H:117A:
Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 139.1 kip phiVn = 314.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117B:
Length = 29.83 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 271.2 kip phiVn = 1105.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)

Section Cut Design Summary

Shear Results:
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117C:
Length = 13.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 75.8 kip phiVn = 481.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E35 (LC 116)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117D:
Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 193.0 kip phiVn = 314.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Uses also 117D for total capacity

Segment SC16H:117E:
Length = 5.67 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 277.1 kip phiVn = 209.9 kip NG
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E21 (LC 30)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117F:
Length = 9.25 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 118.8 kip phiVn = 342.6 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E7 (LC 304)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117G:
Length = 9.17 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 70.5 kip phiVn = 339.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117H:
Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 21.7 kip phiVn = 250.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117I:

Section Cut Design Summary

Shear Results:
Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 72.0 kip phiVn = 250.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117J:
Length = 3.42 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 51.0 kip phiVn = 126.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117K:
Length = 3.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 50.3 kip phiVn = 111.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117L:
Length = 19.33 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 255.4 kip phiVn = 716.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E28 (LC 109)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.804% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 : cmax = 9.79 ft c = 5.88 ft (21.9.6.2) OK

Segment SC16H:117A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117C:

Section Cut Design Summary

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.13 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 1.253% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.920% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117I:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117J:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 577/1293

07/25/17 11:03:32

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117K:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117L:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

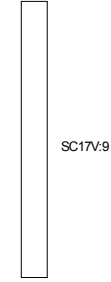
Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 578/1293

07/25/17 11:03:32

Section Cut ID: SC17V:9 (Vertical)
Story: LEVEL 4
Ag = 1440 in2 Imaj = 17280 in4 Imin = 1728000 in4
Wall Design Group: 17
Design Status: PASS



ELEVATION VIEW



Axial/Flexural Results:
Interaction: 0.021 OK
Pu = -2.20 kips phiPn = -102.46 kips
Mu = 32.1 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E32 (LC 581)
Code Ref: 10.3.7

Shear Results:
Segment SC17V:9:
Length = 10.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 108.4 kip phiVn = 286.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.511% (11.9.9.2) OK
Segment SC17V:9:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 579/1293

07/25/17 11:03:32

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

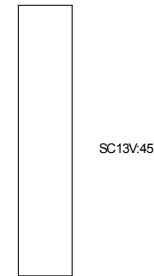
Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 580/1293

07/25/17 11:03:32

Section Cut ID: SC13V:45 (Vertical)
Story: LEVEL 2.3
Ag = 720 in2 Imaj = 8640 in4 Imin = 216000 in4
Wall Design Group: 13
Design Status: PASS



ELEVATION VIEW



Axial/Flexural Results:
Interaction: 0.067 OK
Pu = 6.30 kips phiPn = 93.79 kips
Mu = 44.5 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E16 (LC 529)
Code Ref: 10.3.7

Shear Results:
Segment SC13V:45:
Length = 5.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 72.7 kip phiVn = 143.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.511% (11.9.9.2) OK
Segment SC13V:45:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC15V:83 (Vertical)
Story: LEVEL 2
Ag = 720 in2 Imaj = 8640 in4 Imin = 216000 in4
Wall Design Group: 15
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.266 OK
Pu = -40.67 kips phiPn = -153.15 kips
Mu = 84.6 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E28 (LC 577)
Code Ref: 10.3.7

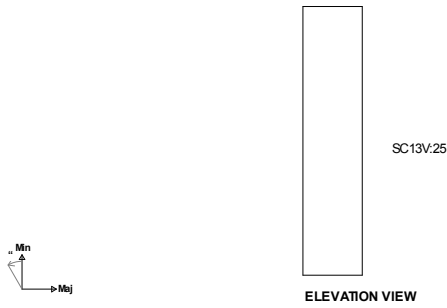
Shear Results:
Segment SC15V:83:
Length = 5.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 97.9 kip phiVn = 185.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.736% (14.3.3) OK
Segment SC15V:83:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC13V:25 (Vertical)
Story: LEVEL 3
Ag = 648 in2 Imaj = 7776 in4 Imin = 157464 in4
Wall Design Group: 13
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.380 OK
Pu = -34.36 kips phiPn = -90.42 kips
Mu = 88.3 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 10.3.7

Shear Results:
Segment SC13V:25:
Length = 4.50 ft Thick = 12.00 in fc = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 84.2 kip phiVn = 122.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E13 (LC 22)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.568% (11.9.9.2) OK
Segment SC13V:25:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC13V:5 (Vertical)
Story: LEVEL 3.1
Ag = 672 in2 Imaj = 3584 in4 Imin = 395136 in4
Wall Design Group: 13
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.059 OK
Pu = -0.13 kips phiPn = -2.24 kips
Mu = 49.8 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E17 (LC 530)
Code Ref: 10.3.7

Shear Results:
Segment SC13V:5:
Length = 7.00 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 79.6 kip phiVn = 178.2 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sn - 1.300 E16 (LC 421)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.730% (11.9.9.2) OK
Segment SC13V:5:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.639% (21.9.2.1) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC15V:65 (Vertical)
Story: LEVEL 2
Ag = 1944 in2 Imaj = 23328 in4 Imin = 4251528 in4
Wall Design Group: 15
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.016 OK
Pu = 3.38 kips phiPn = 205.76 kips
Mu = 89.5 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E24 (LC 537)
Code Ref: 10.3.7

Shear Results:
Segment SC15V:65:
Length = 13.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 44.2 kip phiVn = 639.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.682% (14.3.3) OK
Segment SC15V:65:
Max Horiz Bar Spacing Limit: 16.20 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC12V:22 (Vertical)
Story: LEVEL 2
Ag = 1224 in2 Imaj = 14688 in4 Imin = 1061208 in4
Wall Design Group: 12
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.023 OK
Pu = -0.62 kips phiPn = -26.36 kips
Mu = 28.3 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E17 (LC 530)
Code Ref: 10.3.7

Shear Results:
Segment SC12V:22:
Length = 8.50 ft Thick = 12.00 in fc = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 41.6 kip phiVn = 238.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E12 (LC 21)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.501% (11.9.9.2) OK
Segment SC12V:22:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

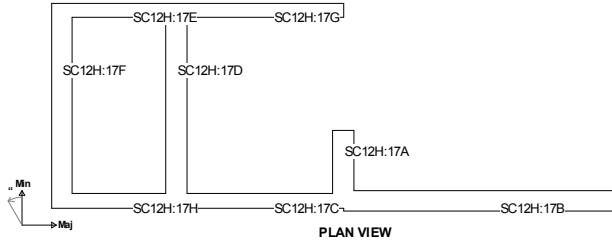
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 589/1293
07/25/17 11:03:32

Section Cut ID: SC12H:17 (Horizontal) (Hinge)
Story: LEVEL 2
Ag = 12609 in2 I_{maj} = 78641281 in4 I_{min} = 19012759 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 12
Design Status: **PASS**



Axial/Flexural Results:
Interaction: 0.213 **OK**
Pu = 623.25 kips phiPn = 2931.33 kips
Mu = 7166.1 kip-ft at Beta = -32.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E13 (LC 526)
Code Ref: 10.3.7

Shear Results:
Segment SC12H:17A:
Length = 3.33 ft Thick = 12.00 in f_c = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 17.7 kip phiVn = 93.3 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17B:
Length = 12.80 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 162.0 kip phiVn = 358.4 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17C:
Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 590/1293
07/25/17 11:03:32

Shear Results:
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 99.1 kip phiVn = 198.3 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17D:
Length = 9.00 ft Thick = 12.00 in f_c = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 47.9 kip phiVn = 252.0 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E12 (LC 21)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17E:
Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 39.7 kip phiVn = 135.5 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17F:
Length = 9.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 40.7 kip phiVn = 252.0 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E10 (LC 163)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17G:
Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 39.1 kip phiVn = 198.3 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E17 (LC 26)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17H:
Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 65.6 kip phiVn = 135.5 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.725% (11.9.9.4) **OK**
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
c_{max} = 6.43 ft c = 0.58 ft (21.9.6.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 591/1293
07/25/17 11:03:32

Segment SC12H:17A:
Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC12H:17B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC12H:17C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC12H:17D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC12H:17E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC12H:17F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC12H:17G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC12H:17H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

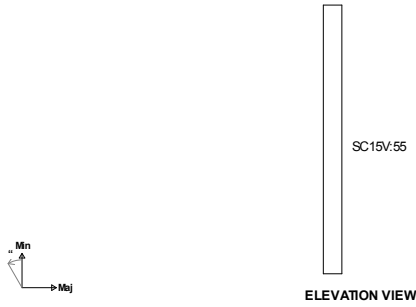
Page 592/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC15V:55 (Vertical)
Story: LEVEL 2
Ag = 1944 in2 Imaj = 23328 in4 Imin = 4251528 in4
Wall Design Group: 15
Design Status: **PASS**



Axial/Flexural Results:

Interaction: 0.014 **OK**
Pu = 0.96 kips phiPn = 68.80 kips
Mu = 64.4 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E7 (LC 556)
Code Ref: 10.3.7

Shear Results:

Segment SC15V:55:
Length = 13.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 74.9 kip phiVn = 639.3 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

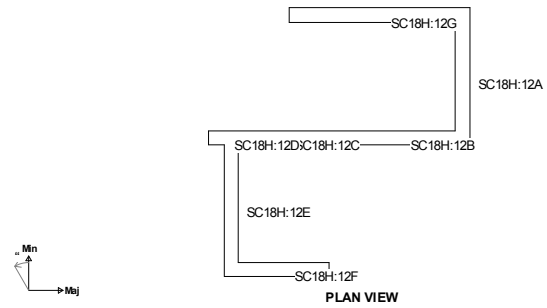
Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.682% (14.3.3) **OK**
Segment SC15V:55:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC18H:12 (Horizontal)
Story: ROOF LEVEL
Ag = 7704 in2 Imaj = 39871674 in4 Imin = 39007351 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 18
Design Status: **PASS**



Axial/Flexural Results:

Interaction: 0.052 **OK**
Pu = 712.58 kips phiPn = 13822.09 kips
Mu = 1738.5 kip-ft at Beta = 65.7 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:

Segment SC18H:12A:
Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 73.5 kip phiVn = 184.7 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:12B:

Length = 9.25 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 75.9 kip phiVn = 200.9 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:

Segment SC18H:12C:
Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 46.0 kip phiVn = 146.6 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:12D:

Length = 1.58 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 14.0 kip phiVn = 34.4 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E25 (LC 178)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:12E:

Length = 9.17 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 69.6 kip phiVn = 199.1 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:12F:

Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 23.8 kip phiVn = 146.6 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E28 (LC 109)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:12G:

Length = 12.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 28.8 kip phiVn = 260.7 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.306% (11.9.9.4) **OK**
Segment SC18H:12A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC18H:12B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

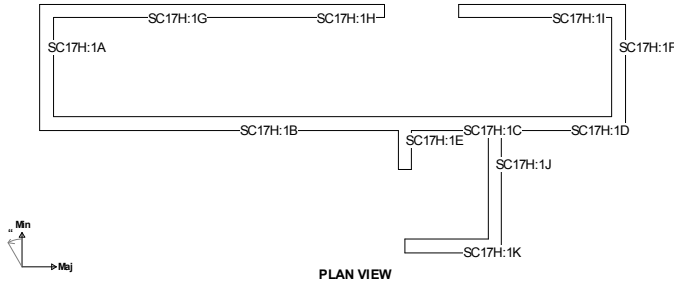
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC18H:12C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC18H:12D:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC18H:12E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC18H:12F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC18H:12G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 597/1293
07/25/17 11:03:32

Section Cut ID: SC17H:1 (Horizontal)
Story: LEVEL 4
Ag = 16632 in2 Imaj = 464483501 in4 Imin = 67992964 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 17
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.059 OK
Pu = 1876.45 kips phiPn = 31716.96 kips
Mu = 2426.2 kip-ft at Beta = 39.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC17H:1A:
Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 135.3 kip phiVn = 243.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E21 (LC 174)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1B:
Length = 26.83 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 305.4 kip phiVn = 767.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 598/1293
07/25/17 11:03:32

Shear Results:
Segment SC17H:1C:
Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 73.1 kip phiVn = 193.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1D:
Length = 9.25 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 119.0 kip phiVn = 264.7 kip OK
Controlling Load Combo: 1.316 D + 1.300 E7 (LC 448)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1E:
Length = 3.42 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 51.0 kip phiVn = 97.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1F:
Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 101.8 kip phiVn = 243.2 kip OK
Controlling Load Combo: 1.316 D + 1.300 E7 (LC 448)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1G:
Length = 13.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 59.3 kip phiVn = 372.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1H:
Length = 12.33 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 51.0 kip phiVn = 352.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E26 (LC 35)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1I:
Length = 12.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 599/1293
07/25/17 11:03:32

Shear Results:
Vu = 46.7 kip phiVn = 343.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1J:
Length = 9.17 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 70.5 kip phiVn = 262.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1K:
Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 21.7 kip phiVn = 193.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.472% (11.9.9.4) OK
Segment SC17H:1A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 600/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1E:
Max Vert Bar Spacing Limit: 13.67 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1I:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1J:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1K:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 601/1293
 07/25/17 11:03:32

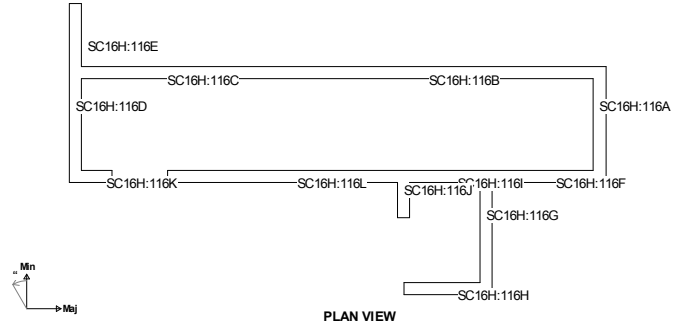
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 602/1293
 07/25/17 11:03:32

Section Cut ID: SC16H:116 (Horizontal) (Hinge)
Story: LEVEL 3.1
 Ag = 17520 in2 Imaj = 494692829 in4 lmin = 79451243 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 16
 Design Status: **PASS**



Axial/Flexural Results:
 Interaction: 0.080 **OK**
 Pu = 1588.28 kips phiPn = 19808.27 kips
 Mu = 11167.3 kip-ft at Beta = 35.8 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
 Code Ref: 10.3.7

Shear Results:
 Segment SC16H:116A:
 Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 139.2 kip phiVn = 314.8 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116B:
 Length = 29.83 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 292.1 kip phiVn = 1105.0 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 603/1293
 07/25/17 11:03:32

Shear Results:
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116C:
 Length = 13.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 56.4 kip phiVn = 481.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E35 (LC 44)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116D:
 Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 285.8 kip phiVn = 314.8 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116E:
 Length = 5.67 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 147.8 kip phiVn = 209.9 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E21 (LC 30)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116F:
 Length = 9.25 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 110.8 kip phiVn = 342.6 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E6 (LC 159)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116G:
 Length = 9.17 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 70.5 kip phiVn = 339.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116H:
 Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 21.7 kip phiVn = 250.0 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116I:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 604/1293
 07/25/17 11:03:32

Shear Results:
 Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 60.9 kip phiVn = 250.0 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116J:
 Length = 3.42 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 50.9 kip phiVn = 126.6 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116K:
 Length = 3.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 50.2 kip phiVn = 111.1 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116L:
 Length = 19.33 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 253.1 kip phiVn = 716.1 kip **OK**
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E28 (LC 325)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.804% (11.9.9.4) **OK**
 S.B.E. Check: Neutral axis distance less than limit for all load combos
 Worst case is load combo 10 :
 cmax = 7.93 ft c = 5.33 ft (21.9.6.2) **OK**

Segment SC16H:116A:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC16H:116B:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC16H:116C:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 605/1293
07/25/17 11:03:32

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.13 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 1.253% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.920% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116I:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116J:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 606/1293
07/25/17 11:03:32

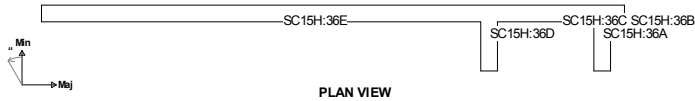
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116K:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116L:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 607/1293
07/25/17 11:03:32

Section Cut ID: SC15H:36 (Horizontal) (Hinge)
Story: LEVEL 2
Ag = 5868 in2 **Imaj =** 91796517 in4 **Imin =** 543570 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 15
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.115 OK
Pu = 850.13 kips **phiPn =** 7405.66 kips
Mu = 8870.1 kip-ft at **Beta =** -1.4 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
Code Ref: 10.3.7

Shear Results:
Segment SC15H:36A:
Length = 3.42 ft **Thick =** 12.00 in **fc =** 4000 psi **fy =** 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 22.8 kip **phiVn =** 126.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:36B:
Length = 1.33 ft **Thick =** 12.00 in **fc =** 4000 psi **fy =** 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 12.8 kip **phiVn =** 49.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:36C:
Length = 6.75 ft **Thick =** 12.00 in **fc =** 4000 psi **fy =** 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 92.3 kip **phiVn =** 250.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:36D:
Length = 3.42 ft **Thick =** 12.00 in **fc =** 4000 psi **fy =** 60 ksi
Vert Bar Pat: Horiz Bar Pat:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 608/1293
07/25/17 11:03:32

Shear Results:
Vu = 29.5 kip **phiVn =** 126.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:36E:
Length = 26.83 ft **Thick =** 12.00 in **fc =** 4000 psi **fy =** 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 304.6 kip **phiVn =** 993.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 1.109% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 8.32 ft **c =** 3.33 ft (21.9.6.2) OK

Segment SC15H:36A:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC15H:36B:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC15H:36C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC15H:36D:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC15H:36E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

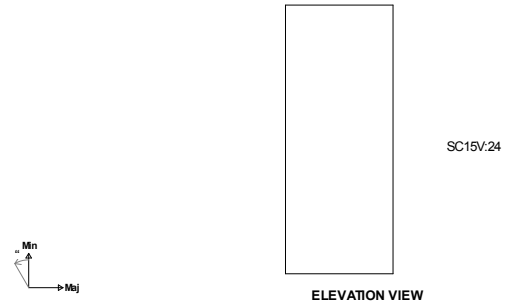
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC15V:24 (Vertical)
Story: LEVEL 2.1
Ag = 360 in2 Imaj = 4320 in4 Imin = 27000 in4
Wall Design Group: 15
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.107 OK
Pu = -8.93 kips phiPn = -83.39 kips
Mu = 13.4 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 10.3.7

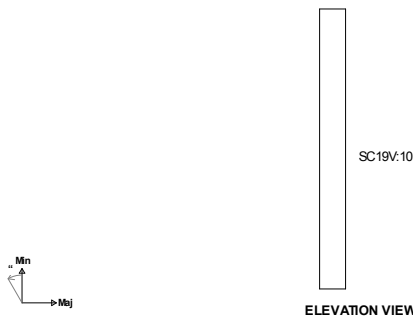
Shear Results:
Segment SC15V:24:
Length = 2.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 33.2 kip phiVn = 92.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.982% (14.3.3) OK
Segment SC15V:24:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC19V:10 (Vertical)
Story: T.O. PENTHOUSE
Ag = 1512 in2 Imaj = 18144 in4 Imin = 2000376 in4
Wall Design Group: 19
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.160 OK
Pu = -28.06 kips phiPn = -175.87 kips
Mu = 64.8 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 10.3.7

Shear Results:
Segment SC19V:10:
Length = 10.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 25.7 kip phiVn = 224.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E11 (LC 56)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.312% (11.9.9.2) OK
Segment SC19V:10:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

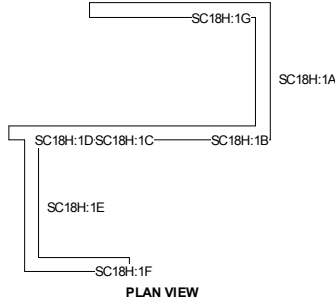
Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC18H:1 (Horizontal)
Story: ROOF LEVEL
Ag = 7704 in2 Imaj = 39871674 in4 Imin = 39007351 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 18
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.052 OK
Pu = 745.19 kips phiPn = 14314.15 kips
Mu = 1521.7 kip-ft at Beta = 57.7 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC18H:1A:
Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 73.5 kip phiVn = 184.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:1B:
Length = 9.25 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 86.8 kip phiVn = 200.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E7 (LC 160)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

Shear Results:
Segment SC18H:1C:
Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 51.2 kip phiVn = 146.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:1D:
Length = 1.58 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 12.4 kip phiVn = 34.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:1E:
Length = 9.17 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 69.6 kip phiVn = 199.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:1F:
Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 23.8 kip phiVn = 146.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E28 (LC 109)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:1G:
Length = 12.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 28.9 kip phiVn = 260.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
Code Ref: 14.2.3 & 11.9.5

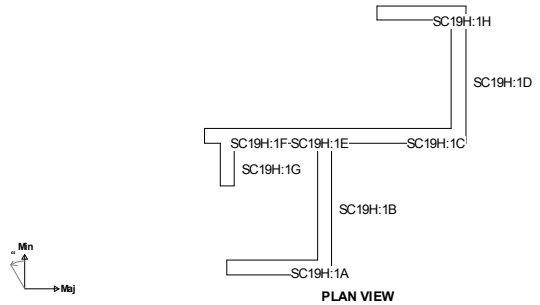
Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.306% (11.9.9.4) OK
Segment SC18H:1A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:1B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

Section Cut Design Summary

Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:1C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:1D:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:1E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:1F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:1G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC19H:1 (Horizontal)
Story: T.O. PENTHOUSE
Ag = 7212 in2 Imaj = 32002731 in4 Imin = 29971926 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 19
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.028 OK
Pu = 272.21 kips phiPn = 9826.28 kips
Mu = 958.6 kip-ft at Beta = 71.8 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC19H:1A:
Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 14.5 kip phiVn = 146.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E26 (LC 35)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1B:
Length = 9.17 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 38.4 kip phiVn = 199.1 kip OK
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 617/1293
07/25/17 11:03:32

Shear Results:

Segment SC19H:1C:
Length = 9.25 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 31.2 kip phiVn = 200.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1D:
Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 29.3 kip phiVn = 184.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E10 (LC 163)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1E:
Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 17.4 kip phiVn = 146.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E11 (LC 164)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1F:
Length = 1.58 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 9.0 kip phiVn = 34.4 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E28 (LC 325)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1G:
Length = 3.42 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 11.4 kip phiVn = 74.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1H:
Length = 5.67 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 9.8 kip phiVn = 123.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E5 (LC 158)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.310% (11.9.9.4) OK
Segment SC19H:1A:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 618/1293
07/25/17 11:03:32

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC19H:1B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC19H:1C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC19H:1D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC19H:1E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC19H:1F:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC19H:1G:
Max Vert Bar Spacing Limit: 13.67 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC19H:1H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 619/1293
07/25/17 11:03:32

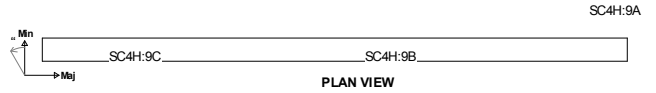
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 620/1293
07/25/17 11:03:32

Section Cut ID: SC4H:9 (Horizontal)
Story: LEVEL 2
Ag = 4916 in2 Imaj = 50498476 in4 Imin = 80287 in4
Major Axis Orientation: 66.00 degrees (CCW from global X-axis)
Wall Design Group: 4
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.053 OK
Pu = 477.86 kips phiPn = 9072.10 kips
Mu = 600.5 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC4H:9A:
Length = 3.68 ft Thick = 14.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 13.2 kip phiVn = 90.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E25 (LC 178)
Code Ref: 14.2.3 & 11.9.5

Segment SC4H:9B:
Length = 21.31 ft Thick = 14.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 132.0 kip phiVn = 520.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E28 (LC 109)
Code Ref: 14.2.3 & 11.9.5

Segment SC4H:9C:
Length = 4.27 ft Thick = 14.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 19.6 kip phiVn = 104.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.264% (11.9.9.4) OK
Segment SC4H:9A:

Section Cut Design Summary

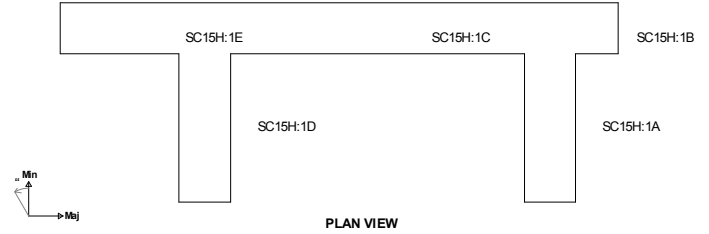
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Max Vert Bar Spacing Limit: 14.74 in Actual: 11.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC4H:9B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC4H:9C:
Max Vert Bar Spacing Limit: 17.06 in Actual: 11.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC15H:1 (Horizontal) (Hinge)
Story: LEVEL 2.1
Ag = 2412 in2 Imaj = 3680308 in4 Imin = 406950 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 15
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.123 OK
Pu = 69.63 kips phiPn = 567.50 kips
Mu = 477.9 kip-ft at Beta = -58.1 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E8 (LC 521)
Code Ref: 10.3.7

Shear Results:
Segment SC15H:1A:
Length = 3.42 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 67.5 kip phiVn = 126.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:1B:
Length = 1.33 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 27.1 kip phiVn = 49.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:1C:
Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:
Vu = 109.9 kip phiVn = 250.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5
Segment SC15H:1D:
Length = 3.42 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 31.5 kip phiVn = 126.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E8 (LC 17)
Code Ref: 14.2.3 & 11.9.5
Segment SC15H:1E:
Length = 2.83 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 58.5 kip phiVn = 104.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 1.351% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 1.71 ft c = 1.86 ft (21.9.6.2) OK

Segment SC15H:1A:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC15H:1B:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC15H:1C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC15H:1D:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

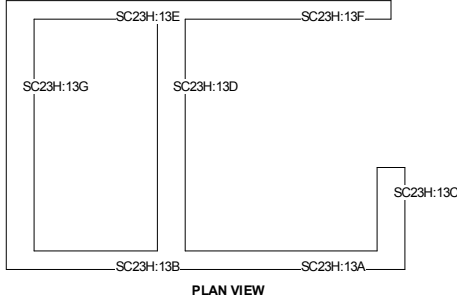
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC15H:1E:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 625/1293
07/25/17 11:03:32

Section Cut ID: SC23H:13 (Horizontal)
Story: T.O. PENTHOUSE
Ag = 10826 in2 Iraj = 20003992 in4 Imin = 14769055 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 23
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.031 OK
Pu = 213.88 kips phiPn = 6900.44 kips
Mu = 644.6 kip-ft at Beta = 32.2 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC23H:13A:
Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 21.8 kip phiVn = 147.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E29 (LC 38)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:13B:
Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 12.9 kip phiVn = 100.4 kip OK
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 626/1293
07/25/17 11:03:32

Shear Results:
Segment SC23H:13C:
Length = 3.33 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 2.9 kip phiVn = 72.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E31 (LC 112)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:13D:
Length = 9.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 15.0 kip phiVn = 195.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E22 (LC 31)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:13E:
Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 14.9 kip phiVn = 100.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E31 (LC 40)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:13F:
Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 17.4 kip phiVn = 147.0 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:13G:
Length = 9.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 9.2 kip phiVn = 195.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E34 (LC 43)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) OK
Segment SC23H:13A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:13B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 627/1293
07/25/17 11:03:32

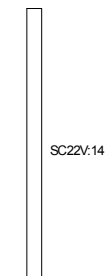
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:13C:
Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:13D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:13E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:13F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:13G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 628/1293
07/25/17 11:03:32

Section Cut ID: SC22V:14 (Vertical)
Story: ROOF LEVEL
Ag = 1056 in2 Iraj = 5632 in4 Imin = 1533312 in4
Wall Design Group: 22
Design Status: PASS



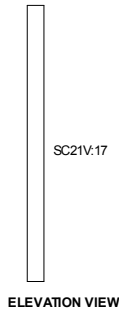
Axial/Flexural Results:
Interaction: 0.010 OK
Pu = 0.14 kips phiPn = 13.63 kips
Mu = 14.3 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E32 (LC 581)
Code Ref: 10.3.7

Shear Results:
Segment SC22V:14:
Length = 11.00 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 15.7 kip phiVn = 204.2 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp - 1.300 E32 (LC 365)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.446% (11.9.9.2) OK
Segment SC22V:14:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC21V:17 (Vertical)
Story: LEVEL 4
 Ag = 960 in2 Imaj = 5120 in4 Imin = 1152000 in4
 Wall Design Group: 21
 Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:

Interaction: 0.119 OK
 Pu = -17.07 kips phiPn = -142.91 kips
 Mu = 52.8 kip-ft at Beta = 0.0 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E35 (LC 80)
 Code Ref: 10.3.7

Shear Results:

Segment SC21V:17:
 Length = 10.00 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 54.5 kip phiVn = 183.4 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E35 (LC 80)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

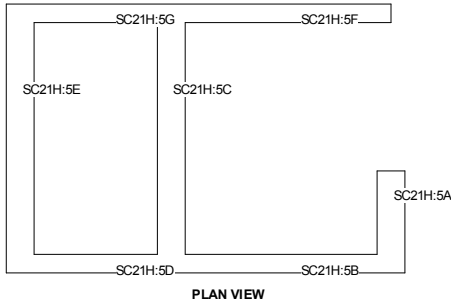
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.450% (11.9.9.2) OK
 Segment SC21V:17:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK

Section Cut Design Summary

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC21H:5 (Horizontal) (Hinge)
Story: LEVEL 4
 Ag = 10826 in2 Imaj = 20003992 in4 Imin = 14769055 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 21
 Design Status: PASS



PLAN VIEW

Axial/Flexural Results:

Interaction: 0.063 OK
 Pu = 561.16 kips phiPn = 8960.61 kips
 Mu = 1219.0 kip-ft at Beta = -24.4 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:

Segment SC21H:5A:
 Length = 3.33 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 7.2 kip phiVn = 72.4 kip OK
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 14.2.3 & 11.9.5

Segment SC21H:5B:

Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 46.6 kip phiVn = 147.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
 Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

Shear Results:

Segment SC21H:5C:
 Length = 9.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 33.6 kip phiVn = 195.5 kip OK
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
 Code Ref: 14.2.3 & 11.9.5

Segment SC21H:5D:

Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 16.0 kip phiVn = 100.4 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
 Code Ref: 14.2.3 & 11.9.5

Segment SC21H:5E:

Length = 9.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 35.4 kip phiVn = 195.5 kip OK
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
 Code Ref: 14.2.3 & 11.9.5

Segment SC21H:5F:

Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 40.4 kip phiVn = 147.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

Segment SC21H:5G:

Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 15.5 kip phiVn = 100.4 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) OK
 S.B.E. Check: Neutral axis distance less than limit for all load combos
 Worst case is load combo 10 :
 cmax = 3.86 ft c = 0.84 ft (21.9.6.2) OK

Segment SC21H:5A:

Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 633/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:5B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:5C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:5D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:5E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:5F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:5G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 634/1293
07/25/17 11:03:32

Section Cut ID: SC19V:50 (Vertical)
Story: T.O. PENTHOUSE
Ag = 1512 in2 Imaj = 18144 in4 Imin = 2000376 in4
Wall Design Group: 19
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.008 OK
Pu = -0.91 kips phiPn = -111.05 kips
Mu = 6.0 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC19V:50:
Length = 10.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 27.7 kip phiVn = 228.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.312% (11.9.9.2) OK
Segment SC19V:50:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 635/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 636/1293
07/25/17 11:03:32

Section Cut ID: SC19H:39 (Horizontal)
Story: T.O. PENTHOUSE
Ag = 2772 in2 Imaj = 12332796 in4 Imin = 33270 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 19
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.018 OK
Pu = 91.74 kips phiPn = 5144.46 kips
Mu = 16.7 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 1.600 Sp (LC 8)
Code Ref: 10.3.7

Shear Results:
Segment SC19H:39A:
Length = 13.25 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 26.1 kip phiVn = 287.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E22 (LC 175)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:39B:
Length = 6.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 13.7 kip phiVn = 130.3 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E31 (LC 328)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.297% (11.9.9.4) OK
Segment SC19H:39A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:39B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK

Section Cut Design Summary

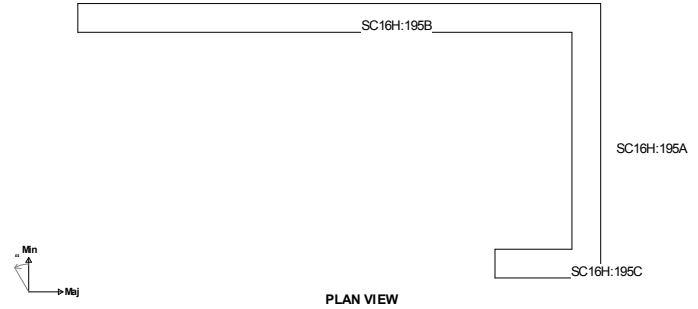
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC16H:195 (Horizontal) (Hinge)
Story: LEVEL 2.3
Ag = 4212 in2 Imaj = 19808473 in4 Imin = 6251565 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 16
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.243 OK
Pu = -343.81 kips phiPn = -1412.85 kips
Mu = 340.7 kip-ft at Beta = -6.8 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E10 (LC 523)
Code Ref: 10.3.7

Shear Results:
Segment SC16H:195A:
Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 139.2 kip phiVn = 314.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:195B:
Length = 17.58 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 219.3 kip phiVn = 624.1 kip OK
Controlling Load Combo: 0.784 D + 1.300 E10 (LC 523)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:
Segment SC16H:195C:
Length = 3.17 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 37.2 kip phiVn = 112.4 kip OK
Controlling Load Combo: 0.784 D + 1.300 E10 (LC 523)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.692% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 4.62 ft c = 1.73 ft (21.9.6.2) OK

Segment SC16H:195A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:195B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:195C:
Max Vert Bar Spacing Limit: 12.67 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC17V:25 (Vertical)
Story: LEVEL 4
Ag = 1440 in2 Imaj = 17280 in4 Imin = 1728000 in4
Wall Design Group: 17
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.053 OK
Pu = -13.20 kips phiPn = -249.10 kips
Mu = 30.0 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E21 (LC 534)
Code Ref: 10.3.7

Shear Results:
Segment SC17V:25:
Length = 10.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 41.3 kip phiVn = 286.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp - 1.300 E9 (LC 198)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.469% (11.9.9.2) OK
Segment SC17V:25:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC16V:171 (Vertical)
Story: LEVEL 3
Ag = 648 in2 Imaj = 7776 in4 Imin = 157464 in4
Wall Design Group: 16
Design Status: PASS



Axial/Flexural Results:

Interaction: 0.161 OK
Pu = -22.44 kips phiPn = -139.13 kips
Mu = 50.8 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E30 (LC 579)
Code Ref: 10.3.7

Shear Results:

Segment SC16V:171:
Length = 4.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 81.7 kip phiVn = 166.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E14 (LC 23)
Code Ref: 14.2.3 & 11.9.5

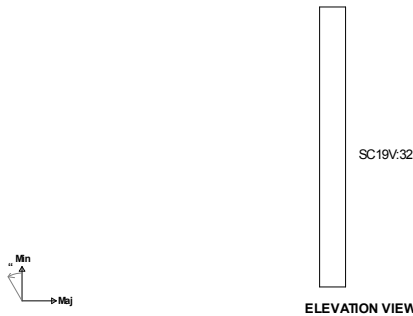
Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.818% (14.3.3) OK
Segment SC16V:171:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC19V:32 (Vertical)
Story: T.O. PENTHOUSE
Ag = 1512 in2 Imaj = 18144 in4 Imin = 2000376 in4
Wall Design Group: 19
Design Status: PASS



Axial/Flexural Results:

Interaction: 0.046 OK
Pu = -8.11 kips phiPn = -175.35 kips
Mu = 18.9 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E28 (LC 73)
Code Ref: 10.3.7

Shear Results:

Segment SC19V:32:
Length = 10.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 25.5 kip phiVn = 228.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E23 (LC 68)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.312% (11.9.9.2) OK
Segment SC19V:32:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

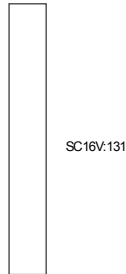
Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC16V:131 (Vertical)
Story: LEVEL 3.1
 Ag = 1008 in2 Imaj = 12096 in4 Imin = 592704 in4
 Wall Design Group: 16
 Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:
 Interaction: 0.362 **OK**
 Pu = -62.75 kips phiPn = -173.39 kips
 Mu = 252.1 kip-ft at Beta = 0.0 deg CCW from Major axis
 Controlling Load Combo: 0.784 D - 1.300 E22 (LC 571)
 Code Ref: 10.3.7

Shear Results:
 Segment SC16V:131:
 Length = 7.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 170.0 kip phiVn = 259.3 kip **OK**
 Controlling Load Combo: 1.316 D + 1.300 E21 (LC 462)
 Code Ref: 14.2.3 & 11.9.5

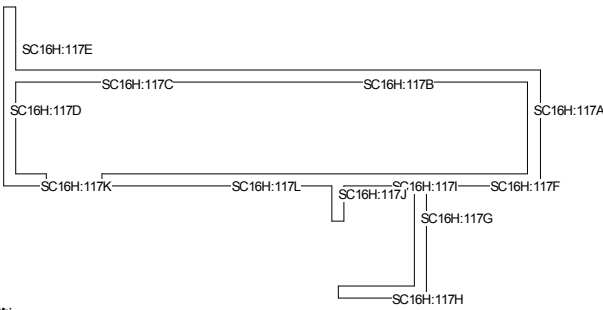
Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.701% (14.3.3) **OK**
 Segment SC16V:131:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min web reinforcement ratio: 0.250% Actual: 0.614% (21.9.2.1) **OK**

Section Cut Design Summary

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

Section Cut ID: SC16H:117 (Horizontal) (Hinge)
Story: LEVEL 3.1
 Ag = 17520 in2 Imaj = 494692829 in4 Imin = 79451243 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 16
 Design Status: **FAILS**



PLAN VIEW

Axial/Flexural Results:
 Interaction: 0.062 **OK**
 Pu = 2164.57 kips phiPn = 35121.04 kips
 Mu = 7771.0 kip-ft at Beta = 3.0 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:
 Segment SC16H:117A:
 Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 139.1 kip phiVn = 314.8 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117B:
 Length = 29.83 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 271.2 kip phiVn = 1105.0 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)

Section Cut Design Summary

Shear Results:
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117C:
 Length = 13.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 75.8 kip phiVn = 481.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E35 (LC 116)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117D:
 Length = 9.25 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 193.0 kip phiVn = 314.8 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 33)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117E:
 Length = 5.67 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 277.1 kip phiVn = 209.9 kip **NG**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E21 (LC 30)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117F:
 Length = 9.25 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 118.8 kip phiVn = 342.6 kip **OK**
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E7 (LC 304)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117G:
 Length = 9.17 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 70.5 kip phiVn = 339.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117H:
 Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 21.7 kip phiVn = 250.0 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117I:

Uses also 117D for total capacity

Section Cut Design Summary

Shear Results:

Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 72.0 kip phiVn = 250.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117J:

Length = 3.42 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 51.0 kip phiVn = 126.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117K:

Length = 3.00 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 50.3 kip phiVn = 111.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117L:

Length = 19.33 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 255.4 kip phiVn = 716.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E28 (LC 109)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.804% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 9.79 ft c = 5.88 ft (21.9.6.2) OK

Segment SC16H:117A:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117B:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117C:

Section Cut Design Summary

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117D:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117E:

Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.13 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 1.253% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117F:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117G:

Max Vert Bar Spacing Limit: 18.00 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117H:

Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.920% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117I:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117J:

Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:117K:

Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

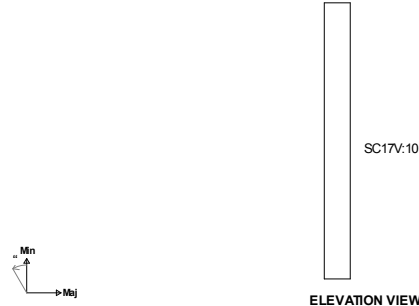
Segment SC16H:117L:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC17V:10 (Vertical)

Story: LEVEL 4
Ag = 1440 in2 Imaj = 17280 in4 Imin = 1728000 in4
Wall Design Group: 17
Design Status: PASS



Axial/Flexural Results:

Interaction: 0.055 OK
Pu = -7.54 kips phiPn = -136.83 kips
Mu = 73.8 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E28 (LC 577)
Code Ref: 10.3.7

Shear Results:

Segment SC17V:10:
Length = 10.00 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 104.5 kip phiVn = 286.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.511% (11.9.9.2) OK
Segment SC17V:10:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

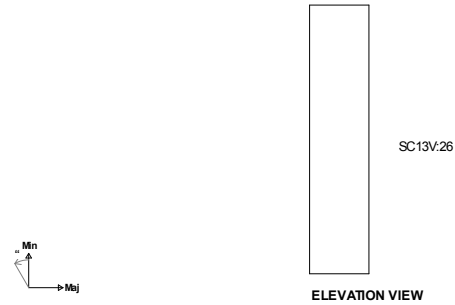
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Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC13V:26 (Vertical)
Story: LEVEL 3
Ag = 648 in2 Imaj = 7776 in4 Imin = 157464 in4
Wall Design Group: 13
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.114 OK
Pu = -3.71 kips phiPn = -32.48 kips
Mu = 40.4 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp - 1.300 E16 (LC 205)
Code Ref: 10.3.7

Shear Results:
Segment SC13V:26:
Length = 4.50 ft Thick = 12.00 in fc = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 54.8 kip phiVn = 126.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.568% (11.9.9.2) OK
Segment SC13V:26:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC13V:6 (Vertical)
Story: LEVEL 3.1
Ag = 672 in2 Imaj = 3584 in4 Imin = 395136 in4
Wall Design Group: 13
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.049 OK
Pu = -0.53 kips phiPn = -10.76 kips
Mu = 39.8 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E17 (LC 530)
Code Ref: 10.3.7

Shear Results:
Segment SC13V:6:
Length = 7.00 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 69.0 kip phiVn = 178.2 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E17 (LC 314)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.730% (11.9.9.2) OK
Segment SC13V:6:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.639% (21.9.2.1) OK

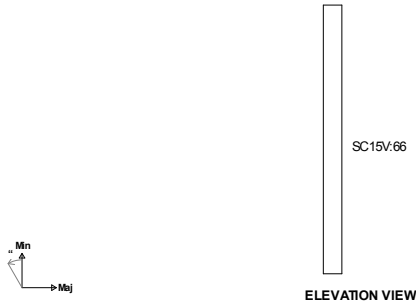
Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC15V:66 (Vertical)
Story: LEVEL 2
 Ag = 1944 in2 Imaj = 23328 in4 Imin = 4251528 in4
 Wall Design Group: 15
 Design Status: **PASS**



Axial/Flexural Results:
 Interaction: 0.006 **OK**
 Pu = 14.61 kips phiPn = 2651.79 kips
 Mu = 45.4 kip-ft at Beta = -0.0 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
 Code Ref: 10.3.7

Shear Results:
 Segment SC15V:66:
 Length = 13.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 64.2 kip phiVn = 639.3 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E7 (LC 52)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.682% (14.3.3) **OK**
 Segment SC15V:66:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

Section Cut ID: SC12V:23 (Vertical)
Story: LEVEL 2
 Ag = 1224 in2 Imaj = 14688 in4 Imin = 1061208 in4
 Wall Design Group: 12
 Design Status: **PASS**



Axial/Flexural Results:
 Interaction: 0.032 **OK**
 Pu = 4.53 kips phiPn = 142.27 kips
 Mu = 56.9 kip-ft at Beta = -0.0 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp - 1.300 E12 (LC 201)
 Code Ref: 10.3.7

Shear Results:
 Segment SC12V:23:
 Length = 8.50 ft Thick = 12.00 in f'c = 3500 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 39.6 kip phiVn = 238.0 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E12 (LC 21)
 Code Ref: 14.2.3 & 11.9.5

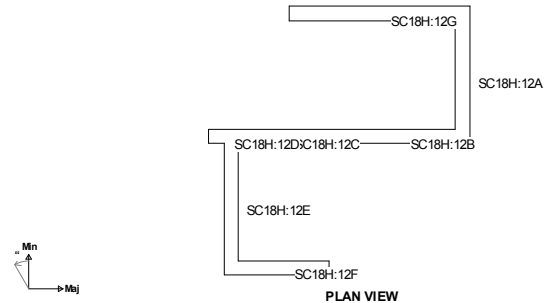
Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.501% (11.9.9.2) **OK**
 Segment SC12V:23:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**

Section Cut Design Summary

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

Section Cut ID: SC18H:12 (Horizontal)
Story: ROOF LEVEL
 Ag = 7704 in2 Imaj = 39871674 in4 Imin = 39007351 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 18
 Design Status: **PASS**



Axial/Flexural Results:
 Interaction: 0.052 **OK**
 Pu = 712.58 kips phiPn = 13822.09 kips
 Mu = 1738.5 kip-ft at Beta = 65.7 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:
 Segment SC18H:12A:
 Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 73.5 kip phiVn = 184.7 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
 Code Ref: 14.2.3 & 11.9.5

Segment SC18H:12B:
 Length = 9.25 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 75.9 kip phiVn = 200.9 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
 Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

Shear Results:

Segment SC18H:12C:
 Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 46.0 kip phiVn = 146.6 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
 Code Ref: 14.2.3 & 11.9.5

Segment SC18H:12D:
 Length = 1.58 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 14.0 kip phiVn = 34.4 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E25 (LC 178)
 Code Ref: 14.2.3 & 11.9.5

Segment SC18H:12E:
 Length = 9.17 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 69.6 kip phiVn = 199.1 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
 Code Ref: 14.2.3 & 11.9.5

Segment SC18H:12F:
 Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 23.8 kip phiVn = 146.6 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E28 (LC 109)
 Code Ref: 14.2.3 & 11.9.5

Segment SC18H:12G:
 Length = 12.00 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 28.8 kip phiVn = 260.7 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
 Code Ref: 14.2.3 & 11.9.5

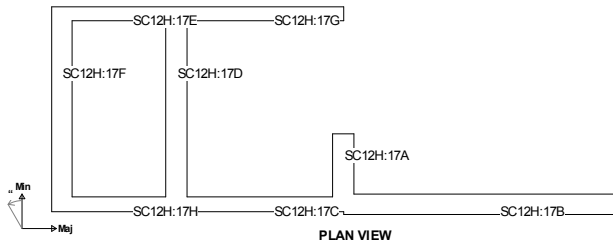
Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.306% (11.9.9.4) OK
 Segment SC18H:12A:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC18H:12B:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

Section Cut Design Summary

Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC18H:12C:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC18H:12D:
 Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC18H:12E:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC18H:12F:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC18H:12G:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC12H:17 (Horizontal) (Hinge)
Story: LEVEL 2
 Ag = 12609 in2 Imaj = 78641281 in4 Imin = 19012759 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 12
 Design Status: PASS



Axial/Flexural Results:
 Interaction: 0.213 OK
 Pu = 623.25 kips phiPn = 2931.33 kips
 Mu = 7166.1 kip-ft at Beta = -32.0 deg CCW from Major axis
 Controlling Load Combo: 0.784 D + 1.300 E13 (LC 526)
 Code Ref: 10.3.7

Shear Results:
 Segment SC12H:17A:
 Length = 3.33 ft Thick = 12.00 in f_c = 3500 psi f_y = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 17.7 kip phiVn = 93.3 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
 Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17B:
 Length = 12.80 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 162.0 kip phiVn = 358.4 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
 Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17C:
 Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi f_y = 60 ksi

Section Cut Design Summary

Shear Results:

Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 99.1 kip phiVn = 198.3 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
 Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17D:
 Length = 9.00 ft Thick = 12.00 in f_c = 3500 psi f_y = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 47.9 kip phiVn = 252.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E12 (LC 21)
 Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17E:
 Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 39.7 kip phiVn = 135.5 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
 Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17F:
 Length = 9.00 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 40.7 kip phiVn = 252.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E10 (LC 163)
 Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17G:
 Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 39.1 kip phiVn = 198.3 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E17 (LC 26)
 Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17H:
 Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 65.6 kip phiVn = 135.5 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.725% (11.9.9.4) OK
 S.B.E. Check: Neutral axis distance less than limit for all load combos
 Worst case is load combo 10 :
 c_{max} = 6.43 ft c = 0.58 ft (21.9.6.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Segment SC12H:17A:

Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC12H:17B:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC12H:17C:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC12H:17D:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC12H:17E:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC12H:17F:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC12H:17G:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC12H:17H:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK

Section Cut Design Summary

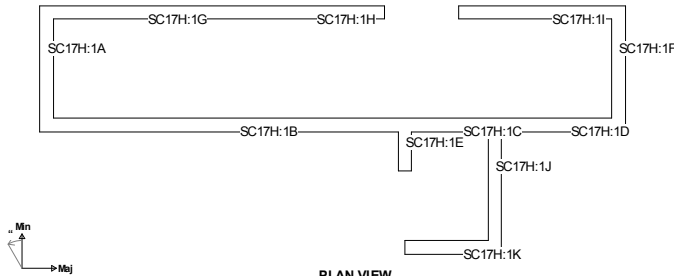
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC17H:1 (Horizontal)
Story: LEVEL 4
Ag = 16632 in2 Imaj = 464483501 in4 Imin = 67992964 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 17
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.059 OK
Pu = 1876.45 kips phiPn = 31716.96 kips
Mu = 2426.2 kip-ft at Beta = 39.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC17H:1A:
Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 135.3 kip phiVn = 243.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E21 (LC 174)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1B:
Length = 26.83 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 305.4 kip phiVn = 767.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:
Segment SC17H:1C:
Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 73.1 kip phiVn = 193.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1D:
Length = 9.25 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 119.0 kip phiVn = 264.7 kip OK
Controlling Load Combo: 1.316 D + 1.300 E7 (LC 448)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1E:
Length = 3.42 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 51.0 kip phiVn = 97.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1F:
Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 101.8 kip phiVn = 243.2 kip OK
Controlling Load Combo: 1.316 D + 1.300 E7 (LC 448)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1G:
Length = 13.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 59.3 kip phiVn = 372.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1H:
Length = 12.33 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 51.0 kip phiVn = 352.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E26 (LC 35)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1I:
Length = 12.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:

Vu = 46.7 kip phiVn = 343.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1J:

Length = 9.17 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 70.5 kip phiVn = 262.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1K:

Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 21.7 kip phiVn = 193.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.472% (11.9.9.4) OK
Segment SC17H:1A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1E:
Max Vert Bar Spacing Limit: 13.67 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1I:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1J:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1K:

Section Cut Design Summary

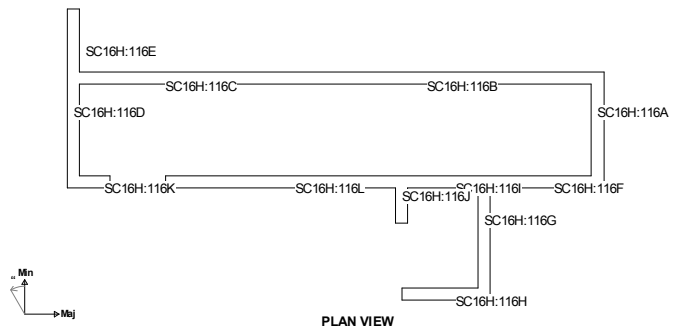
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC16H:116 (Horizontal) (Hinge)
Story: LEVEL 3.1
Ag = 17520 in2 Imaj = 494692829 in4 Imin = 79451243 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 16
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.080 OK
Pu = 1588.28 kips phiPn = 19808.27 kips
Mu = 11167.3 kip-ft at Beta = 35.8 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 10.3.7

Shear Results:
Segment SC16H:116A:
Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 139.2 kip phiVn = 314.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116B:
Length = 29.83 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 292.1 kip phiVn = 1105.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:

Code Ref: 14.2.3 & 11.9.5
Segment SC16H:116C:
Length = 13.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 56.4 kip phiVn = 481.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E35 (LC 44)
Code Ref: 14.2.3 & 11.9.5
Segment SC16H:116D:
Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 285.8 kip phiVn = 314.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5
Segment SC16H:116E:
Length = 5.67 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 147.8 kip phiVn = 209.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E21 (LC 30)
Code Ref: 14.2.3 & 11.9.5
Segment SC16H:116F:
Length = 9.25 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 110.8 kip phiVn = 342.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E6 (LC 159)
Code Ref: 14.2.3 & 11.9.5
Segment SC16H:116G:
Length = 9.17 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 70.5 kip phiVn = 339.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5
Segment SC16H:116H:
Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 21.7 kip phiVn = 250.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
Code Ref: 14.2.3 & 11.9.5
Segment SC16H:116I:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:

Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 60.9 kip phiVn = 250.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5
Segment SC16H:116J:
Length = 3.42 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 50.9 kip phiVn = 126.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5
Segment SC16H:116K:
Length = 3.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 50.2 kip phiVn = 111.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5
Segment SC16H:116L:
Length = 19.33 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 253.1 kip phiVn = 716.1 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E28 (LC 325)
Code Ref: 14.2.3 & 11.9.5
Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.804% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 7.93 ft c = 5.33 ft (21.9.6.2) OK
Segment SC16H:116A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116C:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.13 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 1.253% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.920% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116I:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116J:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116K:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116L:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC8H:9 (Horizontal) (Hinge)
Story: LEVEL 2.3
Ag = 1440 in2 Imaj = 972000 in4 Imin = 30720 in4
Major Axis Orientation: 0.00 degrees (CCW from global X-axis)
Wall Design Group: 8
Design Status: **PASS**



Axial/Flexural Results:
Interaction: 0.668 **OK**
Pu = 81.27 kips phiPn = 121.71 kips
Mu = 965.2 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E16 (LC 529)
Code Ref: 10.3.7

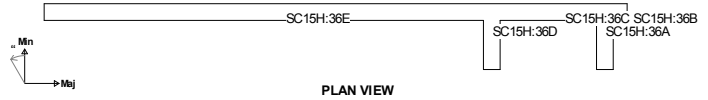
Shear Results:
Segment SC8H:9:
Length = 7.50 ft Thick = 16.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 100.4 kip phiVn = 238.3 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) **OK**
S.B.E. Check: **Neutral axis distance less than limit for all load combos**
Worst case is load combo 10 :
cmax = 1.79 ft c = 1.01 ft (21.9.6.2) **OK**

Segment SC8H:9:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.320% Actual: 0.320% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

Section Cut ID: SC15H:36 (Horizontal) (Hinge)
Story: LEVEL 2
Ag = 5868 in2 Imaj = 91796517 in4 Imin = 543570 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 15
Design Status: **PASS**



Axial/Flexural Results:
Interaction: 0.115 **OK**
Pu = 850.13 kips phiPn = 7405.66 kips
Mu = 8870.1 kip-ft at Beta = -1.4 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
Code Ref: 10.3.7

Shear Results:
Segment SC15H:36A:
Length = 3.42 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 22.8 kip phiVn = 126.6 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:36B:
Length = 1.33 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 12.8 kip phiVn = 49.4 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:36C:
Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 92.3 kip phiVn = 250.0 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:36D:
Length = 3.42 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:

Section Cut Design Summary

Shear Results:
Vu = 29.5 kip phiVn = 126.6 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:36E:
Length = 26.83 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 304.6 kip phiVn = 993.9 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 1.109% (11.9.9.4) **OK**
S.B.E. Check: **Neutral axis distance less than limit for all load combos**
Worst case is load combo 10 :
cmax = 8.32 ft c = 3.33 ft (21.9.6.2) **OK**

Segment SC15H:36A:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC15H:36B:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC15H:36C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC15H:36D:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC15H:36E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**

Section Cut Design Summary

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 681/1293
07/25/17 11:03:32

Section Cut ID: SC15V:25 (Vertical)
Story: LEVEL 2.1
Ag = 360 in2 Imaj = 4320 in4 Imin = 27000 in4
Wall Design Group: 15
Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:

Interaction: 0.061 **OK**
Pu = -1.99 kips phiPn = -32.38 kips
Mu = 11.3 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E10 (LC 559)
Code Ref: 10.3.7

Shear Results:

Segment SC15V:25:
Length = 2.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 57.1 kip phiVn = 92.6 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E10 (LC 55)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.982% (14.3.3) **OK**
Segment SC15V:25:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min web reinforcement ratio: 0.250% Actual: 0.614% (21.9.2.1) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 682/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 683/1293
07/25/17 11:03:32

Section Cut ID: SC19V:11 (Vertical)
Story: T.O. PENTHOUSE
Ag = 1512 in2 Imaj = 18144 in4 Imin = 2000376 in4
Wall Design Group: 19
Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:

Interaction: 0.078 **OK**
Pu = -18.35 kips phiPn = -234.41 kips
Mu = 8.1 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E24 (LC 573)
Code Ref: 10.3.7

Shear Results:

Segment SC19V:11:
Length = 10.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 32.7 kip phiVn = 228.1 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.312% (11.9.9.2) **OK**
Segment SC19V:11:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**

Section Cut Design Summary

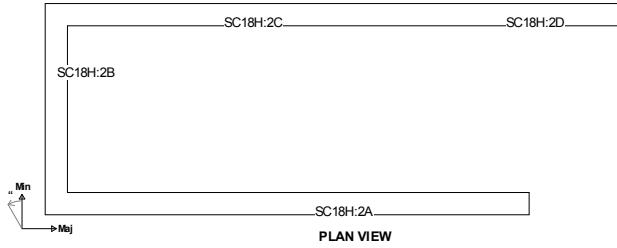
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 684/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

Section Cut ID: SC18H:2 (Horizontal)
Story: ROOF LEVEL
Ag = 7932 in2 Imaj = 66320154 in4 Imin = 18519902 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 18
Design Status: **PASS**



Axial/Flexural Results:
Interaction: 0.061 **OK**
Pu = 91.95 kips phiPn = 1499.92 kips
Mu = 1787.6 kip-ft at Beta = -14.3 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E25 (LC 538)
Code Ref: 10.3.7

Shear Results:
Segment SC18H:2A:
Length = 21.25 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 195.3 kip phiVn = 461.6 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E28 (LC 181)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:2B:
Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 76.5 kip phiVn = 184.7 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E21 (LC 174)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:2C:
Length = 13.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi

Section Cut Design Summary

Shear Results:
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 83.5 kip phiVn = 282.4 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:2D:
Length = 12.33 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 47.7 kip phiVn = 267.9 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E26 (LC 35)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.292% (11.9.9.4) **OK**
Segment SC18H:2A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC18H:2B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC18H:2C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

Section Cut ID: SC20V:67 (Vertical)
Story: LEVEL 2
Ag = 1428 in2 Imaj = 23324 in4 Imin = 1238076 in4
Wall Design Group: 20
Design Status: **PASS**



Axial/Flexural Results:
Interaction: 0.108 **OK**
Pu = -12.34 kips phiPn = -113.81 kips
Mu = 53.7 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp - 1.300 E10 (LC 199)
Code Ref: 10.3.7

Shear Results:
Segment SC20V:67:
Length = 8.50 ft Thick = 14.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 33.4 kip phiVn = 207.3 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E13 (LC 22)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.302% (11.9.9.2) **OK**
Segment SC20V:67:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**

Section Cut Design Summary

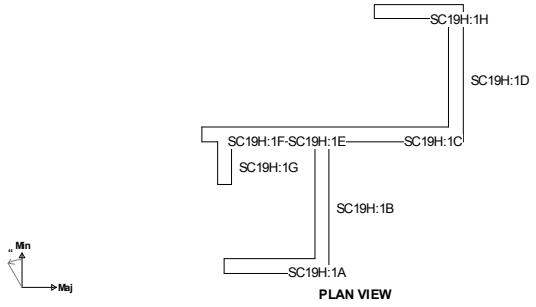
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 689/1293
07/25/17 11:03:32

Section Cut ID: SC19H:1 (Horizontal)
Story: T.O. PENTHOUSE
Ag = 7212 in2 Imaj = 32002731 in4 Imin = 29971926 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 19
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.028 OK
Pu = 272.21 kips phiPn = 9826.28 kips
Mu = 958.6 kip-ft at Beta = 71.8 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC19H:1A: Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 14.5 kip phiVn = 146.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E26 (LC 35)
Code Ref: 14.2.3 & 11.9.5
Segment SC19H:1B: Length = 9.17 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 38.4 kip phiVn = 199.1 kip OK
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 690/1293
07/25/17 11:03:32

Shear Results:
Segment SC19H:1C: Length = 9.25 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 31.2 kip phiVn = 200.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1D: Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 29.3 kip phiVn = 184.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E10 (LC 163)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1E: Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 17.4 kip phiVn = 146.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E11 (LC 164)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1F: Length = 1.58 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 9.0 kip phiVn = 34.4 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E28 (LC 325)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1G: Length = 3.42 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 11.4 kip phiVn = 74.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1H: Length = 5.67 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 9.8 kip phiVn = 123.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E5 (LC 158)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.310% (11.9.9.4) OK
Segment SC19H:1A:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 691/1293
07/25/17 11:03:32

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:1B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:1C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:1D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:1E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:1F:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:1G:
Max Vert Bar Spacing Limit: 13.67 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:1H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 692/1293
07/25/17 11:03:32

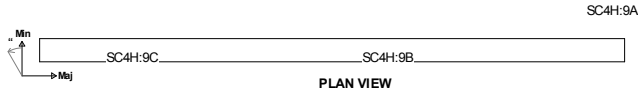
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 693/1293
07/25/17 11:03:32

Section Cut ID: SC4H:9 (Horizontal)
Story: LEVEL 2
Ag = 4916 in2 Imaj = 50498476 in4 Imin = 80287 in4
Major Axis Orientation: 66.00 degrees (CCW from global X-axis)
Wall Design Group: 4
Design Status: **PASS**



Axial/Flexural Results:
Interaction: 0.053 **OK**
Pu = 477.86 kips phiPn = 9072.10 kips
Mu = 600.5 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC4H:9A:
Length = 3.68 ft Thick = 14.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 13.2 kip phiVn = 90.0 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E25 (LC 178)
Code Ref: 14.2.3 & 11.9.5

Segment SC4H:9B:
Length = 21.31 ft Thick = 14.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 132.0 kip phiVn = 520.3 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E28 (LC 109)
Code Ref: 14.2.3 & 11.9.5

Segment SC4H:9C:
Length = 4.27 ft Thick = 14.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 19.6 kip phiVn = 104.1 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.264% (11.9.9.4) **OK**
Segment SC4H:9A:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 694/1293
07/25/17 11:03:32

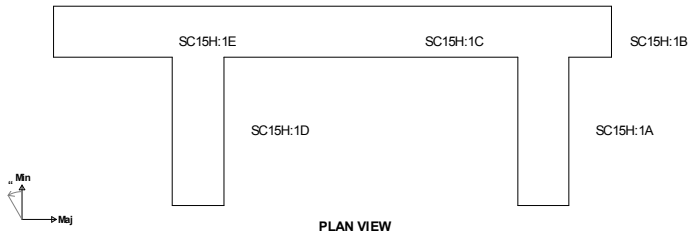
Max Vert Bar Spacing Limit: 14.74 in Actual: 11.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC4H:9B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC4H:9C:
Max Vert Bar Spacing Limit: 17.06 in Actual: 11.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 695/1293
07/25/17 11:03:32

Section Cut ID: SC15H:1 (Horizontal) (Hinge)
Story: LEVEL 2.1
Ag = 2412 in2 Imaj = 3680308 in4 Imin = 406950 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 15
Design Status: **PASS**



Axial/Flexural Results:
Interaction: 0.123 **OK**
Pu = 69.63 kips phiPn = 567.50 kips
Mu = 477.9 kip-ft at Beta = -58.1 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E8 (LC 521)
Code Ref: 10.3.7

Shear Results:
Segment SC15H:1A:
Length = 3.42 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 67.5 kip phiVn = 126.6 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:1B:
Length = 1.33 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 27.1 kip phiVn = 49.4 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:1C:
Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 696/1293
07/25/17 11:03:32

Shear Results:
Vu = 109.9 kip phiVn = 250.0 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:1D:
Length = 3.42 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 31.5 kip phiVn = 126.6 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E8 (LC 17)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:1E:
Length = 2.83 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 58.5 kip phiVn = 104.9 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 1.351% (11.9.9.4) **OK**
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 1.71 ft c = 1.86 ft (21.9.6.2) **OK**

Segment SC15H:1A:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC15H:1B:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC15H:1C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC15H:1D:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) **OK**

Section Cut Design Summary

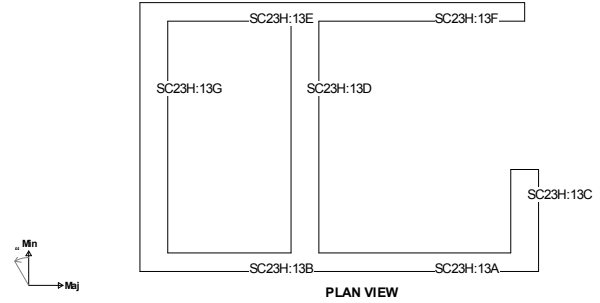
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC15H:1E:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC23H:13 (Horizontal)
Story: T.O. PENTHOUSE
Ag = 10826 in2 Imaj = 20003992 in4 Imin = 14769055 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 23
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.031 OK
Pu = 213.88 kips phiPn = 6900.44 kips
Mu = 644.6 kip-ft at Beta = 32.2 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC23H:13A:
Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 21.8 kip phiVn = 147.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E29 (LC 38)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:13B:
Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 12.9 kip phiVn = 100.4 kip OK
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:
Segment SC23H:13C:
Length = 3.33 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 2.9 kip phiVn = 72.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E31 (LC 112)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:13D:
Length = 9.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 15.0 kip phiVn = 195.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E22 (LC 31)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:13E:
Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 14.9 kip phiVn = 100.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E31 (LC 40)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:13F:
Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 17.4 kip phiVn = 147.0 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:13G:
Length = 9.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 9.2 kip phiVn = 195.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E34 (LC 43)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) OK
Segment SC23H:13A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:13B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:13C:
Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:13D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:13E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:13F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:13G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC22V:15 (Vertical)
Story: ROOF LEVEL
Ag = 1056 in2 Imaj = 5632 in4 Imin = 1533312 in4
Wall Design Group: 22
Design Status: PASS



Axial/Flexural Results:

Interaction: 0.009 OK
Pu = 0.62 kips phiPn = 66.25 kips
Mu = 15.0 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E19 (LC 568)
Code Ref: 10.3.7

Shear Results:

Segment SC22V:15:
Length = 11.00 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 18.5 kip phiVn = 204.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E36 (LC 189)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.446% (11.9.9.2) OK
Segment SC22V:15:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC22V:4 (Vertical)
Story: ROOF LEVEL
Ag = 1584 in2 Imaj = 19008 in4 Imin = 2299968 in4
Wall Design Group: 22
Design Status: PASS



Axial/Flexural Results:

Interaction: 0.008 OK
Pu = -1.34 kips phiPn = -164.93 kips
Mu = 3.9 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp - 1.300 E24 (LC 213)
Code Ref: 10.3.7

Shear Results:

Segment SC22V:4:
Length = 11.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 19.9 kip phiVn = 239.0 kip OK
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

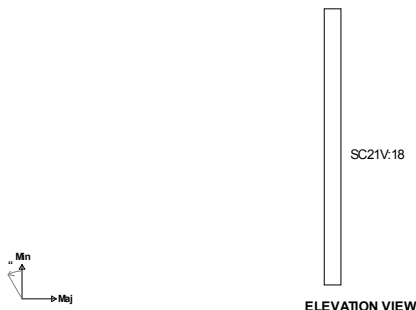
Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.297% (11.9.9.2) OK
Segment SC22V:4:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC21V:18 (Vertical)
Story: LEVEL 4
Ag = 960 in2 Imaj = 5120 in4 Imin = 1152000 in4
Wall Design Group: 21
Design Status: PASS



Axial/Flexural Results:

Interaction: 0.131 OK
Pu = -19.25 kips phiPn = -146.76 kips
Mu = 55.7 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:

Segment SC21V:18:
Length = 10.00 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 28.1 kip phiVn = 184.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E31 (LC 40)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.450% (11.9.9.2) OK
Segment SC21V:18:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

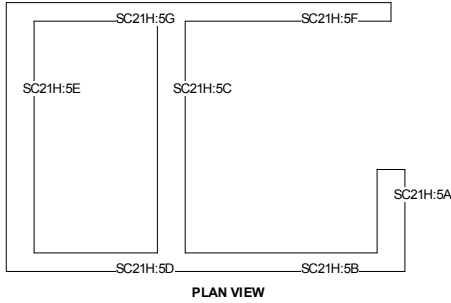
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 705/1293
07/25/17 11:03:32

Section Cut ID: SC21H:5 (Horizontal) (Hinge)
Story: LEVEL 4
Ag = 10826 in2 Imaj = 20003992 in4 Imin = 14769055 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 21
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.063 OK
Pu = 561.16 kips phiPn = 8960.61 kips
Mu = 1219.0 kip-ft at Beta = -24.4 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC21H:5A:
Length = 3.33 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 7.2 kip phiVn = 72.4 kip OK
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Segment SC21H:5B:
Length = 7.92 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 46.6 kip phiVn = 147.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 706/1293
07/25/17 11:03:32

Shear Results:
Segment SC21H:5C:
Length = 9.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 33.6 kip phiVn = 195.5 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
Code Ref: 14.2.3 & 11.9.5

Segment SC21H:5D:
Length = 5.41 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 16.0 kip phiVn = 100.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Segment SC21H:5E:
Length = 9.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 35.4 kip phiVn = 195.5 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
Code Ref: 14.2.3 & 11.9.5

Segment SC21H:5F:
Length = 7.92 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 40.4 kip phiVn = 147.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Segment SC21H:5G:
Length = 5.41 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 15.5 kip phiVn = 100.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 3.86 ft c = 0.84 ft (21.9.6.2) OK

Segment SC21H:5A:
Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 707/1293
07/25/17 11:03:32

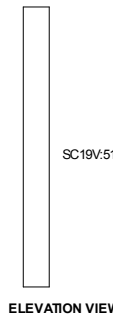
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:5B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:5C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:5D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:5E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:5F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:5G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 708/1293
07/25/17 11:03:32

Section Cut ID: SC19V:51 (Vertical)
Story: T.O. PENTHOUSE
Ag = 1512 in2 Imaj = 18144 in4 Imin = 2000376 in4
Wall Design Group: 19
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.074 OK
Pu = -17.26 kips phiPn = -232.19 kips
Mu = 8.6 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E30 (LC 75)
Code Ref: 10.3.7

Shear Results:
Segment SC19V:51:
Length = 10.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 27.8 kip phiVn = 225.8 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E31 (LC 328)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.312% (11.9.9.2) OK
Segment SC19V:51:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 709/1293

07/25/17 11:03:32

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

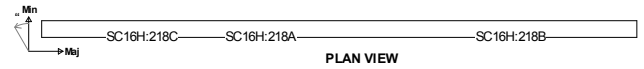
Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 710/1293

07/25/17 11:03:32

Section Cut ID: SC16H:218 (Horizontal) (Hinge)
Story: LEVEL 2.3
Ag = 5136 in2 Imaj = 78402752 in4 Imin = 61632 in4
Major Axis Orientation: 360.00 degrees (CCW from global X-axis)
Wall Design Group: 16
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.168 OK
Pu = -161.84 kips phiPn = -962.03 kips
Mu = 3452.2 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E25 (LC 538)
Code Ref: 10.3.7

Shear Results:
Segment SC16H:218A:
Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 91.6 kip phiVn = 314.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E5 (LC 14)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:218B:
Length = 21.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 371.5 kip phiVn = 796.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:218C:
Length = 5.67 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 49.7 kip phiVn = 209.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E21 (LC 30)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.714% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 711/1293

07/25/17 11:03:32

cmax = 8.49 ft c = 5.19 ft (21.9.6.2) OK

Segment SC16H:218A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:218B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:218C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.13 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 1.253% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

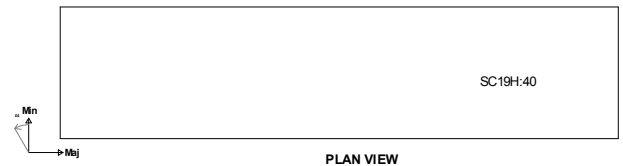
Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 712/1293

07/25/17 11:03:32

Section Cut ID: SC19H:40 (Horizontal)
Story: T.O. PENTHOUSE
Ag = 612 in2 Imaj = 132651 in4 Imin = 7344 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 19
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.093 OK
Pu = -0.54 kips phiPn = -5.75 kips
Mu = 22.8 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E12 (LC 525)
Code Ref: 10.3.7

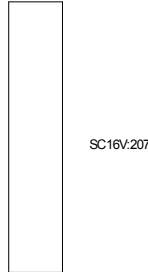
Shear Results:
Segment SC19H:40:
Length = 4.25 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 12.4 kip phiVn = 92.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E9 (LC 18)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.385% (11.9.9.4) OK
Segment SC19H:40:
Max Vert Bar Spacing Limit: 17.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC16V:207 (Vertical)
Story: LEVEL 2.3
Ag = 720 in2 Imaj = 8640 in4 Imin = 216000 in4
Wall Design Group: 16
Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.063 **OK**
Pu = -11.16 kips phiPn = -176.62 kips
Mu = 16.7 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E7 (LC 520)
Code Ref: 10.3.7

Shear Results:
Segment SC16V:207:
Length = 5.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 59.8 kip phiVn = 185.2 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E10 (LC 91)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.859% (14.3.3) **OK**
Segment SC16V:207:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC16H:196 (Horizontal) (Hinge)
Story: LEVEL 2.3
Ag = 1044 in2 Imaj = 658503 in4 Imin = 12528 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 16
Design Status: **PASS**



PLAN VIEW

Axial/Flexural Results:
Interaction: 0.162 **OK**
Pu = -47.96 kips phiPn = -295.69 kips
Mu = 77.5 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E25 (LC 538)
Code Ref: 10.3.7

Shear Results:
Segment SC16H:196:
Length = 7.25 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 106.8 kip phiVn = 268.5 kip **OK**
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E10 (LC 307)
Code Ref: 14.2.3 & 11.9.5

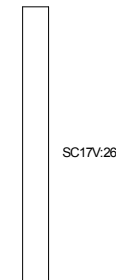
Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.762% (11.9.9.4) **OK**
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 1.73 ft c = 0.91 ft (21.9.6.2) **OK**

Segment SC16H:196:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min web reinforcement ratio: 0.250% Actual: 0.614% (21.9.2.1) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC17V:26 (Vertical)
Story: LEVEL 4
Ag = 1440 in2 Imaj = 17280 in4 Imin = 1728000 in4
Wall Design Group: 17
Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.031 **OK**
Pu = -0.82 kips phiPn = -26.80 kips
Mu = 48.7 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E19 (LC 28)
Code Ref: 10.3.7

Shear Results:
Segment SC17V:26:
Length = 10.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 72.8 kip phiVn = 286.2 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.469% (11.9.9.2) **OK**
Segment SC17V:26:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC16V:172 (Vertical)
Story: LEVEL 3
Ag = 648 in2 Imaj = 7776 in4 Imin = 157464 in4
Wall Design Group: 16
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:

Interaction: 0.354 OK
Pu = -86.29 kips phiPn = -243.94 kips
Mu = 32.7 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E31 (LC 544)
Code Ref: 10.3.7

Shear Results:

Segment SC16V:172:
Length = 4.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 41.2 kip phiVn = 157.1 kip OK
Controlling Load Combo: 0.784 D - 1.300 E5 (LC 554)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.818% (14.3.3) OK
Segment SC16V:172:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC19V:33 (Vertical)
Story: T.O. PENTHOUSE
Ag = 1512 in2 Imaj = 18144 in4 Imin = 2000376 in4
Wall Design Group: 19
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:

Interaction: 0.261 OK
Pu = -34.71 kips phiPn = -132.80 kips
Mu = 163.4 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
Code Ref: 10.3.7

Shear Results:

Segment SC19V:33:
Length = 10.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 30.1 kip phiVn = 228.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E23 (LC 32)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.312% (11.9.9.2) OK
Segment SC19V:33:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC17V:11 (Vertical)
Story: LEVEL 4
Ag = 1440 in2 Imaj = 17280 in4 Imin = 1728000 in4
Wall Design Group: 17
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:

Interaction: 0.047 OK
Pu = -1.74 kips phiPn = -36.81 kips
Mu = 75.5 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E10 (LC 559)
Code Ref: 10.3.7

Shear Results:

Segment SC17V:11:
Length = 10.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 125.1 kip phiVn = 286.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E7 (LC 52)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.511% (11.9.9.2) OK
Segment SC17V:11:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Section Cut ID: SC16H:143 (Horizontal) (Hinge)
Story: LEVEL 3
 Ag = 5133 in2 Imaj = 78254891 in4 Imin = 61593 in4
 Major Axis Orientation: 360.00 degrees (CCW from global X-axis)
 Wall Design Group: 16
 Design Status: PASS



Axial/Flexural Results:
 Interaction: 0.175 OK
 Pu = -184.94 kips phiPn = -1058.63 kips
 Mu = 3307.5 kip-ft at Beta = -0.0 deg CCW from Major axis
 Controlling Load Combo: 0.784 D + 1.300 E25 (LC 538)
 Code Ref: 10.3.7

Shear Results:
 Segment SC16H:143A:
 Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 106.1 kip phiVn = 314.8 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E5 (LC 14)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:143B:
 Length = 21.48 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 344.7 kip phiVn = 795.5 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:143C:
 Length = 5.67 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 61.1 kip phiVn = 209.9 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E21 (LC 30)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.715% (11.9.9.4) OK
 S.B.E. Check: Neutral axis distance less than limit for all load combos
 Worst case is load combo 10 :

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

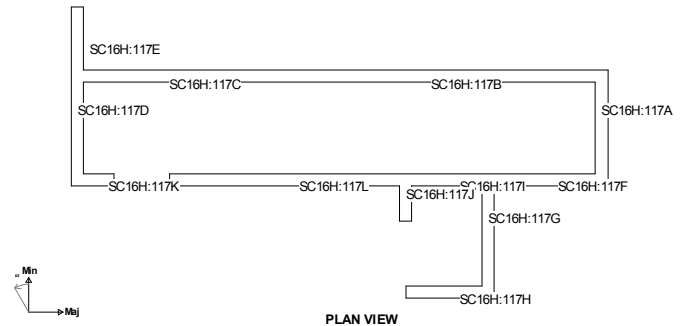
cmax = 8.49 ft c = 4.32 ft (21.9.6.2) OK

Segment SC16H:143A:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC16H:143B:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC16H:143C:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 7.13 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.614% Actual: 1.253% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Section Cut ID: SC16H:117 (Horizontal) (Hinge)
Story: LEVEL 3.1
 Ag = 17520 in2 Imaj = 494692829 in4 Imin = 79451243 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 16
 Design Status: FAILS



Axial/Flexural Results:
 Interaction: 0.062 OK
 Pu = 2164.57 kips phiPn = 35121.04 kips
 Mu = 7771.0 kip-ft at Beta = 3.0 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:
 Segment SC16H:117A:
 Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 139.1 kip phiVn = 314.8 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117B:
 Length = 29.83 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 271.2 kip phiVn = 1105.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:

Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117C:
Length = 13.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 75.8 kip phiVn = 481.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E35 (LC 116)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117D:
Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 193.0 kip phiVn = 314.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E27 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117E:
Length = 5.67 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 277.1 kip phiVn = 209.9 kip NG
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E21 (LC 30)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117F:
Length = 9.25 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 118.8 kip phiVn = 342.6 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E7 (LC 304)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117G:
Length = 9.17 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 70.5 kip phiVn = 339.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117H:
Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 21.7 kip phiVn = 250.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117I:

Uses also 117D for total capacity

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:

Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 72.0 kip phiVn = 250.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117J:
Length = 3.42 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 51.0 kip phiVn = 126.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117K:
Length = 3.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 50.3 kip phiVn = 111.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117L:
Length = 19.33 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 255.4 kip phiVn = 716.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E28 (LC 109)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.804% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 9.79 ft c = 5.88 ft (21.9.6.2) OK

Segment SC16H:117A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117C:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.13 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 1.253% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.920% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117I:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117J:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117K:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117L:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 729/1293
07/25/17 11:03:32

Section Cut ID: SC13V:47 (Vertical)
Story: LEVEL 3
Ag = 648 in2 Imaj = 7776 in4 Imin = 157464 in4
Wall Design Group: 13
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.097 OK
Pu = -0.19 kips phiPn = -1.98 kips
Mu = 40.3 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E17 (LC 530)
Code Ref: 10.3.7

Shear Results:
Segment SC13V:47:
Length = 4.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 82.2 kip phiVn = 128.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E17 (LC 62)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.568% (11.9.9.2) OK
Segment SC13V:47:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 730/1293
07/25/17 11:03:32

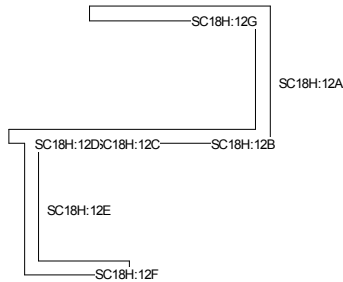
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 731/1293
07/25/17 11:03:32

Section Cut ID: SC18H:12 (Horizontal)
Story: ROOF LEVEL
Ag = 7704 in2 Imaj = 39871674 in4 Imin = 39007351 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 18
Design Status: PASS



PLAN VIEW

Axial/Flexural Results:
Interaction: 0.052 OK
Pu = 712.58 kips phiPn = 13822.09 kips
Mu = 1738.5 kip-ft at Beta = 65.7 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC18H:12A:
Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 73.5 kip phiVn = 184.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:12B:
Length = 9.25 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 75.9 kip phiVn = 200.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 732/1293
07/25/17 11:03:32

Shear Results:
Segment SC18H:12C:
Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 46.0 kip phiVn = 146.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:12D:
Length = 1.58 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 14.0 kip phiVn = 34.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E25 (LC 178)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:12E:
Length = 9.17 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 69.6 kip phiVn = 199.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:12F:
Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 23.8 kip phiVn = 146.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E28 (LC 109)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:12G:
Length = 12.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 28.8 kip phiVn = 260.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.306% (11.9.9.4) OK
Segment SC18H:12A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:12B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 733/1293

07/25/17 11:03:32

Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:12C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:12D:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:12E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:12F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:12G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

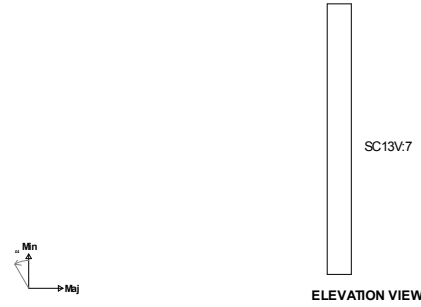
Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 734/1293

07/25/17 11:03:32

Section Cut ID: SC13V:7 (Vertical)
Story: LEVEL 3.1
Ag = 672 in2 Imaj = 3584 in4 Imin = 395136 in4
Wall Design Group: 13
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.064 OK
Pu = 7.79 kips phiPn = 122.21 kips
Mu = 74.2 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E16 (LC 61)
Code Ref: 10.3.7

Shear Results:
Segment SC13V:7:
Length = 7.00 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 56.4 kip phiVn = 178.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E8 (LC 53)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.730% (11.9.9.2) OK
Segment SC13V:7:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.639% (21.9.2.1) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 735/1293

07/25/17 11:03:32

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

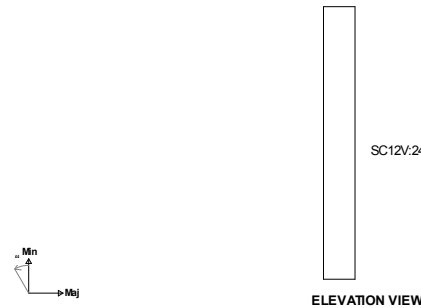
Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 736/1293

07/25/17 11:03:32

Section Cut ID: SC12V:24 (Vertical)
Story: LEVEL 2
Ag = 1224 in2 Imaj = 14688 in4 Imin = 1061208 in4
Wall Design Group: 12
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.046 OK
Pu = -8.35 kips phiPn = -182.69 kips
Mu = 27.9 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E17 (LC 530)
Code Ref: 10.3.7

Shear Results:
Segment SC12V:24:
Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 20.0 kip phiVn = 243.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp - 1.300 E23 (LC 212)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.501% (11.9.9.2) OK
Segment SC12V:24:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

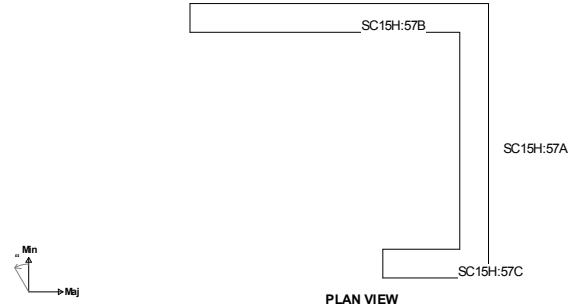
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC15H:57 (Horizontal) (Hinge)
Story: LEVEL 2
Ag = 3096 in2 Imaj = 4085713 in4 Imin = 5222572 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 15
Design Status: **FAILS**



Axial/Flexural Results:
Interaction: 0.169 OK
Pu = -390.15 kips phiPn = -2307.62 kips
Mu = 134.6 kip-ft at Beta = 34.3 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E10 (LC 523)
Code Ref: 10.3.7

Shear Results:
Segment SC15H:57A:
Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 49.5 kip phiVn = 314.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:57B:
Length = 9.83 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 126.6 kip phiVn = 340.7 kip OK
Controlling Load Combo: 0.784 D + 1.300 E10 (LC 523)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:
Segment SC15H:57C:
Length = 3.17 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 28.7 kip phiVn = 117.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
Code Ref: 14.2.3 & 11.9.5

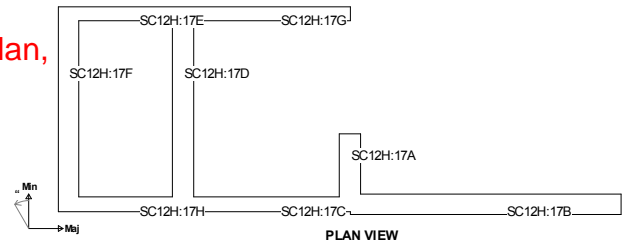
Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 1.665% (11.9.9.4) OK
S.B.E. Check: Boundary zone required for one or more load combos
Worst case is load combo 12 : cmax = 2.78 ft c = 3.76 ft (21.9.6.2) OK

Segment SC15H:57A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC15H:57B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC15H:57C:
Max Vert Bar Spacing Limit: 12.67 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC12H:17 (Horizontal) (Hinge)
Story: LEVEL 2
Ag = 12609 in2 Imaj = 78641281 in4 Imin = 19012759 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 12
Design Status: **PASS**



Axial/Flexural Results:
Interaction: 0.213 OK
Pu = 623.25 kips phiPn = 2931.33 kips
Mu = 7166.1 kip-ft at Beta = -32.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E13 (LC 526)
Code Ref: 10.3.7

Shear Results:
Segment SC12H:17A:
Length = 3.33 ft Thick = 12.00 in f_c = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 17.7 kip phiVn = 93.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17B:
Length = 12.80 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 162.0 kip phiVn = 358.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17C:
Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi

Not accurate per plan, Say OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:

Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 99.1 kip phiVn = 198.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17D:
Length = 9.00 ft Thick = 12.00 in f'c = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 47.9 kip phiVn = 252.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E12 (LC 21)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17E:
Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 39.7 kip phiVn = 135.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17F:
Length = 9.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 40.7 kip phiVn = 252.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E10 (LC 163)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17G:
Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 39.1 kip phiVn = 198.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E17 (LC 26)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17H:
Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 65.6 kip phiVn = 135.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.725% (11.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 6.43 ft c = 0.58 ft (21.9.6.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Segment SC12H:17A:

Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC12H:17B:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC12H:17C:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC12H:17D:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC12H:17E:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC12H:17F:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC12H:17G:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC12H:17H:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK

Section Cut Design Summary

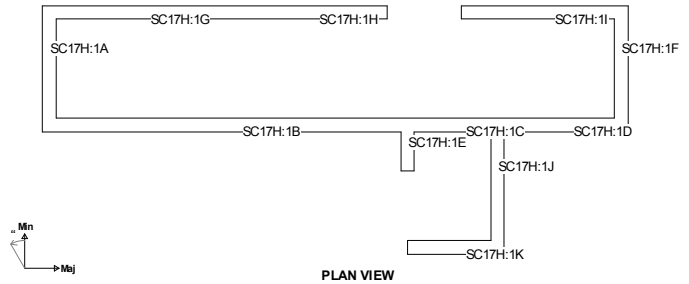
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC17H:1 (Horizontal)
Story: LEVEL 4
Ag = 16632 in2 Imaj = 464483501 in4 Imin = 67992964 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 17
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.059 OK
Pu = 1876.45 kips phiPn = 31716.96 kips
Mu = 2426.2 kip-ft at Beta = 39.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC17H:1A:
Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 135.3 kip phiVn = 243.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E21 (LC 174)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1B:
Length = 26.83 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 305.4 kip phiVn = 767.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:

Segment SC17H:1C:
Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 73.1 kip phiVn = 193.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1D:
Length = 9.25 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 119.0 kip phiVn = 264.7 kip OK
Controlling Load Combo: 1.316 D + 1.300 E7 (LC 448)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1E:
Length = 3.42 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 51.0 kip phiVn = 97.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1F:
Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 101.8 kip phiVn = 243.2 kip OK
Controlling Load Combo: 1.316 D + 1.300 E7 (LC 448)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1G:
Length = 13.00 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 59.3 kip phiVn = 372.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1H:
Length = 12.33 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 51.0 kip phiVn = 352.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E26 (LC 35)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1I:
Length = 12.00 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:

Vu = 46.7 kip phiVn = 343.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1J:
Length = 9.17 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 70.5 kip phiVn = 262.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1K:
Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 21.7 kip phiVn = 193.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.472% (11.9.9.4) OK

Segment SC17H:1A:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK

Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC17H:1B:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK

Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC17H:1C:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK

Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC17H:1D:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK

Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC17H:1E:

Max Vert Bar Spacing Limit: 13.67 in Actual: 12.00 in (11.9.9.5) OK

Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK

Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC17H:1F:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK

Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC17H:1G:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK

Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC17H:1H:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK

Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC17H:1I:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK

Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC17H:1J:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK

Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC17H:1K:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK

Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK

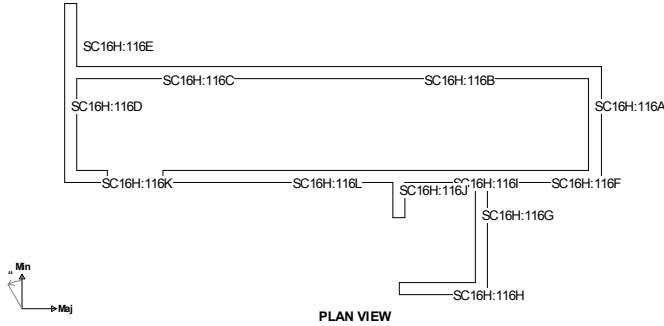
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC16H:116 (Horizontal) (Hinge)
Story: LEVEL 3.1
 Ag = 17520 in2 Imaj = 494692829 in4 Imin = 79451243 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 16
 Design Status: **PASS**



Axial/Flexural Results:
 Interaction: 0.080 **OK**
 Pu = 1588.28 kips phiPn = 19808.27 kips
 Mu = 11167.3 kip-ft at Beta = 35.8 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
 Code Ref: 10.3.7

Shear Results:
 Segment SC16H:116A:
 Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 139.2 kip phiVn = 314.8 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116B:
 Length = 29.83 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 292.1 kip phiVn = 1105.0 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)

Section Cut Design Summary

Shear Results:
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116C:
 Length = 13.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 56.4 kip phiVn = 481.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E35 (LC 44)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116D:
 Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 285.8 kip phiVn = 314.8 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116E:
 Length = 5.67 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 147.8 kip phiVn = 209.9 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E21 (LC 30)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116F:
 Length = 9.25 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 110.8 kip phiVn = 342.6 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E6 (LC 159)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116G:
 Length = 9.17 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 70.5 kip phiVn = 339.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116H:
 Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 21.7 kip phiVn = 250.0 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116I:

Section Cut Design Summary

Shear Results:
 Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 60.9 kip phiVn = 250.0 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116J:
 Length = 3.42 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 50.9 kip phiVn = 126.6 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116K:
 Length = 3.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 50.2 kip phiVn = 111.1 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116L:
 Length = 19.33 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 253.1 kip phiVn = 716.1 kip **OK**
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E28 (LC 325)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.804% (11.9.9.4) **OK**
 S.B.E. Check: Neutral axis distance less than limit for all load combos
 Worst case is load combo 10 :
 cmax = 7.93 ft c = 5.33 ft (21.9.6.2) **OK**

Segment SC16H:116A:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC16H:116B:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC16H:116C:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC16H:116D:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC16H:116E:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 7.13 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.614% Actual: 1.253% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC16H:116F:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC16H:116G:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 6.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC16H:116H:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 7.25 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.920% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC16H:116I:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC16H:116J:
 Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 753/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116K:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116L:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 754/1293
07/25/17 11:03:32

Section Cut ID: SC15H:37 (Horizontal) (Hinge)
Story: LEVEL 2
Ag = 972 in2 Imaj = 531441 in4 Imin = 11664 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 15
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.270 OK
Pu = -113.70 kips phiPn = -421.11 kips
Mu = 98.1 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E24 (LC 537)
Code Ref: 10.3.7

Shear Results:
Segment SC15H:37:
Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 25.2 kip phiVn = 250.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E25 (LC 178)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 1.182% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 1.61 ft c = 1.95 ft (21.9.6.2) OK

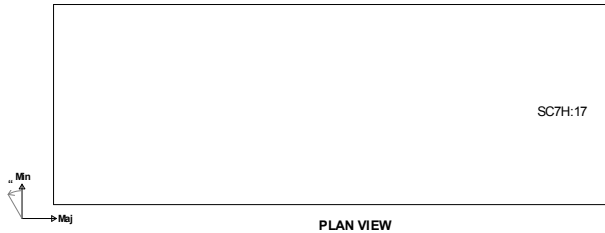
Segment SC15H:37:
Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.920% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 755/1293
07/25/17 11:03:32

Section Cut ID: SC7H:17 (Horizontal) (Hinge)
Story: LEVEL 2.1
Ag = 708 in2 Imaj = 115283 in4 Imin = 15093 in4
Major Axis Orientation: 66.00 degrees (CCW from global X-axis)
Wall Design Group: 7
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.218 OK
Pu = 61.67 kips phiPn = 282.50 kips
Mu = 149.3 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E10 (LC 523)
Code Ref: 10.3.7

Shear Results:
Segment SC7H:17:
Length = 3.68 ft Thick = 16.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 13.9 kip phiVn = 117.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E11 (LC 164)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.434% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 0.88 ft c = 0.49 ft (21.9.6.2) OK

Segment SC7H:17:
Max Vert Bar Spacing Limit: 14.74 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.320% Actual: 0.320% (21.9.4.3) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

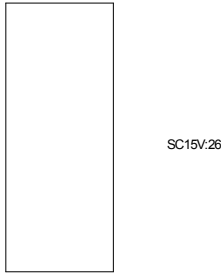
Page 756/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Section Cut ID: SC15V:26 (Vertical)
Story: LEVEL 2.1
 Ag = 360 in2 Imaj = 4320 in4 Imin = 27000 in4
 Wall Design Group: 15
 Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:

Interaction: 0.114 **OK**
 Pu = -9.22 kips phiPn = -80.75 kips
 Mu = 14.7 kip-ft at Beta = 0.0 deg CCW from Major axis
 Controlling Load Combo: 0.784 D + 1.300 E10 (LC 523)
 Code Ref: 10.3.7

Shear Results:

Segment SC15V:26:
 Length = 2.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 43.8 kip phiVn = 92.2 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
 Code Ref: 14.2.3 & 11.9.5

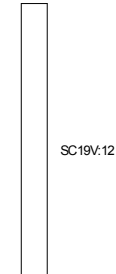
Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.982% (14.3.3) **OK**
 Segment SC15V:26:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Section Cut ID: SC19V:12 (Vertical)
Story: T.O. PENTHOUSE
 Ag = 1512 in2 Imaj = 18144 in4 Imin = 2000376 in4
 Wall Design Group: 19
 Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:

Interaction: 0.018 **OK**
 Pu = -2.54 kips phiPn = -141.17 kips
 Mu = 10.5 kip-ft at Beta = 0.0 deg CCW from Major axis
 Controlling Load Combo: 0.784 D - 1.300 E24 (LC 573)
 Code Ref: 10.3.7

Shear Results:

Segment SC19V:12:
 Length = 10.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 16.2 kip phiVn = 228.1 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E13 (LC 58)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.312% (11.9.9.2) **OK**
 Segment SC19V:12:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**

Section Cut Design Summary

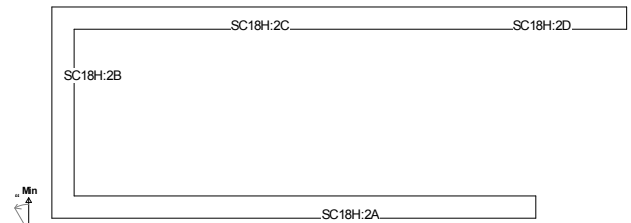
RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Section Cut ID: SC18H:2 (Horizontal)
Story: ROOF LEVEL
 Ag = 7932 in2 Imaj = 66320154 in4 Imin = 18519902 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 18
 Design Status: **PASS**



PLAN VIEW

Axial/Flexural Results:

Interaction: 0.061 **OK**
 Pu = 91.95 kips phiPn = 1499.92 kips
 Mu = 1787.6 kip-ft at Beta = -14.3 deg CCW from Major axis
 Controlling Load Combo: 0.784 D + 1.300 E25 (LC 538)
 Code Ref: 10.3.7

Shear Results:

Segment SC18H:2A:
 Length = 21.25 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 195.3 kip phiVn = 461.6 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E28 (LC 181)
 Code Ref: 14.2.3 & 11.9.5

Segment SC18H:2B:

Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 76.5 kip phiVn = 184.7 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E21 (LC 174)
 Code Ref: 14.2.3 & 11.9.5

Segment SC18H:2C:

Length = 13.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Shear Results:

Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 83.5 kip phiVn = 282.4 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

Segment SC18H:2D:

Length = 12.33 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 47.7 kip phiVn = 267.9 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E26 (LC 35)
 Code Ref: 14.2.3 & 11.9.5

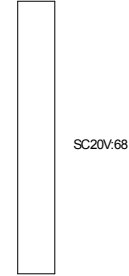
Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.292% (11.9.9.4) OK
 Segment SC18H:2A:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC18H:2B:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC18H:2C:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Section Cut ID: SC20V:68 (Vertical)
Story: LEVEL 2
 Ag = 1428 in2 Imaj = 23324 in4 Imin = 1238076 in4
 Wall Design Group: 20
 Design Status: PASS



ELEVATION VIEW



Axial/Flexural Results:

Interaction: 0.069 OK
 Pu = -6.65 kips phiPn = -96.39 kips
 Mu = 38.8 kip-ft at Beta = -0.0 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E28 (LC 73)
 Code Ref: 10.3.7

Shear Results:

Segment SC20V:68:
 Length = 8.50 ft Thick = 14.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
 Vu = 29.2 kip phiVn = 207.2 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E13 (LC 22)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.302% (11.9.9.2) OK
 Segment SC20V:68:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.9.3) OK
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

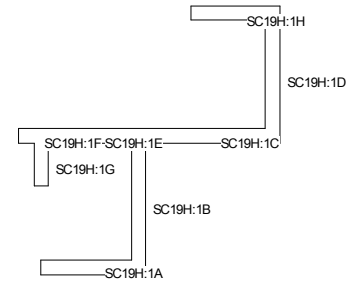
RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Section Cut ID: SC19H:1 (Horizontal)
Story: T.O. PENTHOUSE
 Ag = 7212 in2 Imaj = 32002731 in4 Imin = 29971926 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 19
 Design Status: PASS



PLAN VIEW



Axial/Flexural Results:

Interaction: 0.028 OK
 Pu = 272.21 kips phiPn = 9826.28 kips
 Mu = 958.6 kip-ft at Beta = 71.8 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:

Segment SC19H:1A:
 Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 14.5 kip phiVn = 146.6 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E26 (LC 35)
 Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1B:

Length = 9.17 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 38.4 kip phiVn = 199.1 kip OK
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

Shear Results:

Segment SC19H:1C:
 Length = 9.25 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 V_u = 31.2 kip phiV_n = 200.9 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
 Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1D:
 Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 V_u = 29.3 kip phiV_n = 184.7 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E10 (LC 163)
 Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1E:
 Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 V_u = 17.4 kip phiV_n = 146.6 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E11 (LC 164)
 Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1F:
 Length = 1.58 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 V_u = 9.0 kip phiV_n = 34.4 kip OK
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E28 (LC 325)
 Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1G:
 Length = 3.42 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 V_u = 11.4 kip phiV_n = 74.2 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
 Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1H:
 Length = 5.67 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 V_u = 9.8 kip phiV_n = 123.1 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E5 (LC 158)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.310% (11.9.9.4) OK
 Segment SC19H:1A:

Section Cut Design Summary

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC19H:1B:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC19H:1C:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC19H:1D:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC19H:1E:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC19H:1F:
 Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC19H:1G:
 Max Vert Bar Spacing Limit: 13.67 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC19H:1H:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC2V:19 (Vertical)
Story: LEVEL 2
 A_g = 1632 in² I_{maj} = 34816 in⁴ I_{min} = 1414944 in⁴
 Wall Design Group: 2
 Design Status: PASS



Axial/Flexural Results:
 Interaction: 0.040 OK
 P_u = -4.24 kips phiP_n = -106.72 kips
 M_u = 26.0 kip-ft at Beta = 0.0 deg CCW from Major axis
 Controlling Load Combo: 0.784 D - 1.300 E31 (LC 580)
 Code Ref: 10.3.7

Shear Results:
 Segment SC2V:19:
 Length = 8.50 ft Thick = 16.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #5@15" oc Horiz Bar Pat: #5@15" oc
 V_u = 37.6 kip phiV_n = 237.5 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E35 (LC 44)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.301% (11.9.9.2) OK
 Segment SC2V:19:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 15.00 in (11.9.9.3) OK
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 14.38 in (7.6.1) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC4V:10 (Vertical)
Story: LEVEL 2
Ag = 1428 in2 Imaj = 23324 in4 Imin = 1238076 in4
Wall Design Group: 4
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.092 OK
Pu = 6.40 kips phiPn = 69.19 kips
Mu = 111.7 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E28 (LC 577)
Code Ref: 10.3.7

Shear Results:
Segment SC4V:10:
Length = 8.50 ft Thick = 14.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 96.1 kip phiVn = 207.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E28 (LC 73)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.302% (11.9.9.2) OK
Segment SC4V:10:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

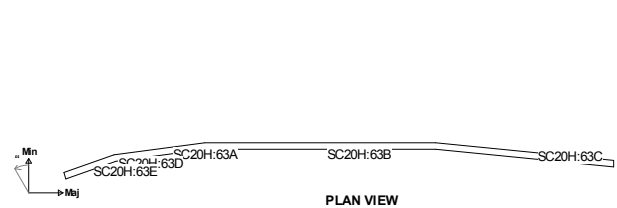
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC20H:63 (Horizontal)
Story: LEVEL 2
Ag = 16708 in2 Imaj = 1967973002 in4 Imin = 4201342 in4
Major Axis Orientation: 339.50 degrees (CCW from global X-axis)
Wall Design Group: 20
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.040 OK
Pu = 556.44 kips phiPn = 13802.17 kips
Mu = 4563.5 kip-ft at Beta = 7.2 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E13 (LC 22)
Code Ref: 10.3.7

Shear Results:
Segment SC20H:63A:
Length = 16.38 ft Thick = 14.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 57.8 kip phiVn = 400.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E13 (LC 22)
Code Ref: 14.2.3 & 11.9.5

Segment SC20H:63B:
Length = 41.35 ft Thick = 14.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 169.6 kip phiVn = 1009.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Segment SC20H:63C:
Length = 32.21 ft Thick = 14.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 128.9 kip phiVn = 786.6 kip OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 773/1293
07/25/17 11:03:32

Shear Results:

Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC20H:63D:

Length = 3.67 ft Thick = 14.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 35.6 kip phiVn = 89.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E13 (LC 22)
Code Ref: 14.2.3 & 11.9.5

Segment SC20H:63E:

Length = 5.83 ft Thick = 14.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 46.4 kip phiVn = 142.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E13 (LC 22)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.266% (11.9.9.4) OK
Segment SC20H:63A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC20H:63B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC20H:63C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC20H:63D:
Max Vert Bar Spacing Limit: 14.68 in Actual: 11.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC20H:63E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.9.5) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 774/1293
07/25/17 11:03:32

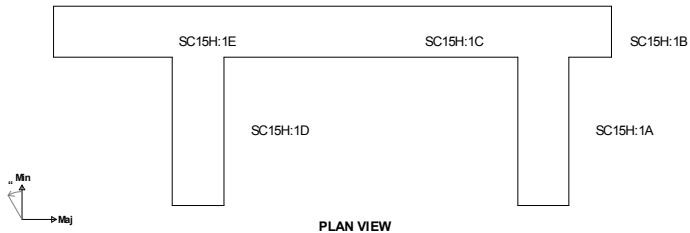
Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 775/1293
07/25/17 11:03:32

Section Cut ID: SC15H:1 (Horizontal) (Hinge)
Story: LEVEL 2.1
Ag = 2412 in2 Imaj = 3680308 in4 Imin = 406950 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 15
Design Status: PASS



Axial/Flexural Results:

Interaction: 0.123 OK
Pu = 69.63 kips phiPn = 567.50 kips
Mu = 477.9 kip-ft at Beta = -58.1 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E8 (LC 521)
Code Ref: 10.3.7

Shear Results:

Segment SC15H:1A:
Length = 3.42 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 67.5 kip phiVn = 126.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:1B:

Length = 1.33 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 27.1 kip phiVn = 49.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:1C:

Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 776/1293
07/25/17 11:03:32

Shear Results:

Vu = 109.9 kip phiVn = 250.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:1D:

Length = 3.42 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 31.5 kip phiVn = 126.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E8 (LC 17)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:1E:

Length = 2.83 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 58.5 kip phiVn = 104.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 1.351% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 1.71 ft c = 1.86 ft (21.9.6.2) OK

Segment SC15H:1A:

Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC15H:1B:

Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC15H:1C:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC15H:1D:

Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK

Section Cut Design Summary

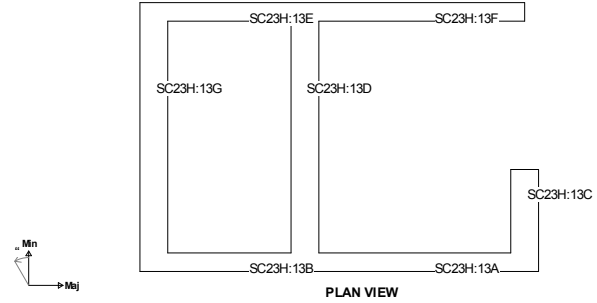
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC15H:1E:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC23H:13 (Horizontal)
Story: T.O. PENTHOUSE
Ag = 10826 in2 Imaj = 20003992 in4 Imin = 14769055 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 23
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.031 OK
Pu = 213.88 kips phiPn = 6900.44 kips
Mu = 644.6 kip-ft at Beta = 32.2 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC23H:13A:
Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 21.8 kip phiVn = 147.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E29 (LC 38)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:13B:
Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 12.9 kip phiVn = 100.4 kip OK
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:
Segment SC23H:13C:
Length = 3.33 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 2.9 kip phiVn = 72.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E31 (LC 112)
Code Ref: 14.2.3 & 11.9.5
Segment SC23H:13D:
Length = 9.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 15.0 kip phiVn = 195.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E22 (LC 31)
Code Ref: 14.2.3 & 11.9.5
Segment SC23H:13E:
Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 14.9 kip phiVn = 100.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E31 (LC 40)
Code Ref: 14.2.3 & 11.9.5
Segment SC23H:13F:
Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 17.4 kip phiVn = 147.0 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
Code Ref: 14.2.3 & 11.9.5
Segment SC23H:13G:
Length = 9.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 9.2 kip phiVn = 195.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E34 (LC 43)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) OK
Segment SC23H:13A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:13B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

Section Cut Design Summary

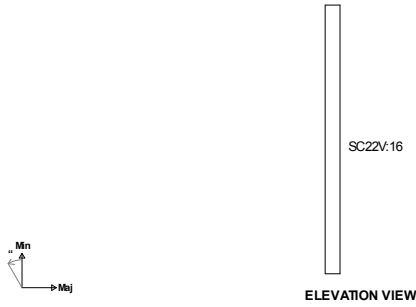
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:13C:
Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:13D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:13E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:13F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC23H:13G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC22V:16 (Vertical)
Story: ROOF LEVEL
Ag = 1056 in2 Imaj = 5632 in4 Imin = 1533312 in4
Wall Design Group: 22
Design Status: PASS



Axial/Flexural Results:

Interaction: 0.033 OK
Pu = -3.27 kips phiPn = -99.03 kips
Mu = 27.0 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E35 (LC 80)
Code Ref: 10.3.7

Shear Results:

Segment SC22V:16:
Length = 11.00 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 29.0 kip phiVn = 204.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E31 (LC 76)
Code Ref: 14.2.3 & 11.9.5

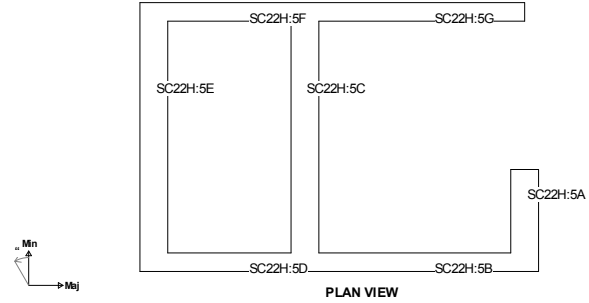
Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.446% (11.9.9.2) OK
Segment SC22V:16:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC22H:5 (Horizontal)
Story: ROOF LEVEL
Ag = 10826 in2 Imaj = 20003992 in4 Imin = 14769055 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 22
Design Status: PASS



Axial/Flexural Results:

Interaction: 0.052 OK
Pu = 416.32 kips phiPn = 7994.27 kips
Mu = 1173.1 kip-ft at Beta = -13.4 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:

Segment SC22H:5A:
Length = 3.33 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 1.9 kip phiVn = 72.4 kip OK
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Segment SC22H:5B:

Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 29.3 kip phiVn = 147.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:

Segment SC22H:5C:
Length = 9.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 24.1 kip phiVn = 195.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Segment SC22H:5D:

Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 7.2 kip phiVn = 100.4 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E33 (LC 330)
Code Ref: 14.2.3 & 11.9.5

Segment SC22H:5E:

Length = 9.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 26.3 kip phiVn = 195.5 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
Code Ref: 14.2.3 & 11.9.5

Segment SC22H:5F:

Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 13.4 kip phiVn = 100.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Segment SC22H:5G:

Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 31.3 kip phiVn = 147.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) OK
Segment SC22H:5A:
Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC22H:5B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

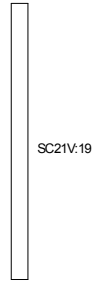
Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC22H:5C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC22H:5D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC22H:5E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC22H:5F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC22H:5G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC21V:19 (Vertical)
Story: LEVEL 4
 Ag = 960 in2 Imaj = 5120 in4 Imin = 1152000 in4
 Wall Design Group: 21
 Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:
 Interaction: 0.113 OK
 Pu = -19.07 kips phiPn = -168.61 kips
 Mu = 36.0 kip-ft at Beta = 0.0 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E35 (LC 80)
 Code Ref: 10.3.7

Shear Results:
 Segment SC21V:19:
 Length = 10.00 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 18.8 kip phiVn = 183.6 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E31 (LC 76)
 Code Ref: 14.2.3 & 11.9.5

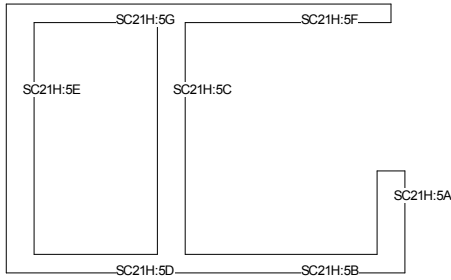
Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.450% (11.9.9.2) OK
 Segment SC21V:19:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK

Section Cut Design Summary

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC21H:5 (Horizontal) (Hinge)
Story: LEVEL 4
 Ag = 10826 in2 Imaj = 20003992 in4 Imin = 14769055 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 21
 Design Status: PASS



PLAN VIEW

Axial/Flexural Results:
 Interaction: 0.063 OK
 Pu = 561.16 kips phiPn = 8960.61 kips
 Mu = 1219.0 kip-ft at Beta = -24.4 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:
 Segment SC21H:5A:
 Length = 3.33 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 7.2 kip phiVn = 72.4 kip OK
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 14.2.3 & 11.9.5

Segment SC21H:5B:
 Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 46.6 kip phiVn = 147.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
 Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

Shear Results:
 Segment SC21H:5C:
 Length = 9.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 33.6 kip phiVn = 195.5 kip OK
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
 Code Ref: 14.2.3 & 11.9.5

Segment SC21H:5D:
 Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 16.0 kip phiVn = 100.4 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
 Code Ref: 14.2.3 & 11.9.5

Segment SC21H:5E:
 Length = 9.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 35.4 kip phiVn = 195.5 kip OK
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
 Code Ref: 14.2.3 & 11.9.5

Segment SC21H:5F:
 Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 40.4 kip phiVn = 147.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

Segment SC21H:5G:
 Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 15.5 kip phiVn = 100.4 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) OK
 S.B.E. Check: Neutral axis distance less than limit for all load combos
 Worst case is load combo 10 :
 cmax = 3.86 ft c = 0.84 ft (21.9.6.2) OK

Segment SC21H:5A:
 Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

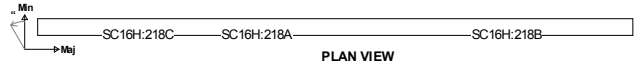
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:5B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:5C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:5D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:5E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:5F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:5G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC16H:218 (Horizontal) (Hinge)
Story: LEVEL 2.3
Ag = 5136 in2 Imaj = 78402752 in4 Imin = 61632 in4
Major Axis Orientation: 360.00 degrees (CCW from global X-axis)
Wall Design Group: 16
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.168 OK
Pu = -161.84 kips phiPn = -962.03 kips
Mu = 3452.2 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E25 (LC 538)
Code Ref: 10.3.7

Shear Results:
Segment SC16H:218A:
Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 91.6 kip phiVn = 314.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E5 (LC 14)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:218B:
Length = 21.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 371.5 kip phiVn = 796.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:218C:
Length = 5.67 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 49.7 kip phiVn = 209.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E21 (LC 30)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.714% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

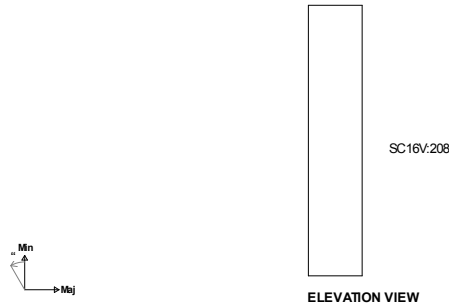
cmax = 8.49 ft c = 5.19 ft (21.9.6.2) OK

Segment SC16H:218A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:218B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:218C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.13 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 1.253% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC16V:208 (Vertical)
Story: LEVEL 2.3
Ag = 720 in2 Imaj = 8640 in4 Imin = 216000 in4
Wall Design Group: 16
Design Status: PASS



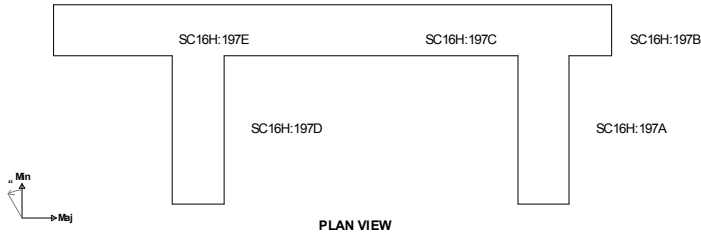
Axial/Flexural Results:
Interaction: 0.053 OK
Pu = -1.75 kips phiPn = -33.23 kips
Mu = 31.2 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E7 (LC 556)
Code Ref: 10.3.7

Shear Results:
Segment SC16V:208:
Length = 5.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 78.3 kip phiVn = 185.2 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E7 (LC 304)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.736% (14.3.3) OK
Segment SC16V:208:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC16H:197 (Horizontal) (Hinge)
Story: LEVEL 2.3
Ag = 2412 in2 Imaj = 3680308 in4 Imin = 406950 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 16
Design Status: **PASS**



Axial/Flexural Results:
Interaction: 0.099 **OK**
Pu = 515.90 kips phiPn = 5223.72 kips
Mu = 134.8 kip-ft at Beta = 82.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC16H:197A:
Length = 3.42 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 67.5 kip phiVn = 126.6 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:197B:
Length = 1.33 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 15.0 kip phiVn = 49.4 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E10 (LC 163)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:197C:
Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc

Section Cut Design Summary

Shear Results:
Vu = 126.9 kip phiVn = 250.0 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:197D:
Length = 3.42 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 31.5 kip phiVn = 126.6 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E8 (LC 17)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:197E:
Length = 2.83 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 55.1 kip phiVn = 104.9 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 1.351% (11.9.9.4) **OK**
S.B.E. Check: **Neutral axis distance less than limit for all load combos**
Worst case is load combo 10 :
cmax = 2.57 ft c = 2.45 ft (21.9.6.2) **OK**

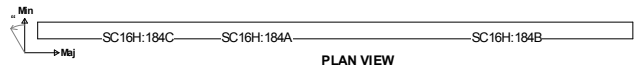
Segment SC16H:197A:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC16H:197B:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC16H:197C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC16H:197D:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) **OK**

Section Cut Design Summary

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC16H:197E:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

Section Cut ID: SC16H:184 (Horizontal) (Hinge)
Story: LEVEL 2.3
Ag = 5136 in2 Imaj = 78402752 in4 Imin = 61632 in4
Major Axis Orientation: 360.00 degrees (CCW from global X-axis)
Wall Design Group: 16
Design Status: **PASS**



Axial/Flexural Results:
Interaction: 0.194 **OK**
Pu = -170.95 kips phiPn = -879.84 kips
Mu = 4246.8 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E25 (LC 538)
Code Ref: 10.3.7

Shear Results:
Segment SC16H:184A:
Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 70.4 kip phiVn = 314.8 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E5 (LC 14)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:184B:
Length = 21.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 388.1 kip phiVn = 796.3 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:184C:
Length = 5.67 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 64.2 kip phiVn = 209.9 kip **OK**
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E24 (LC 321)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.714% (11.9.9.4) **OK**
S.B.E. Check: **Neutral axis distance less than limit for all load combos**
Worst case is load combo 10 :

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

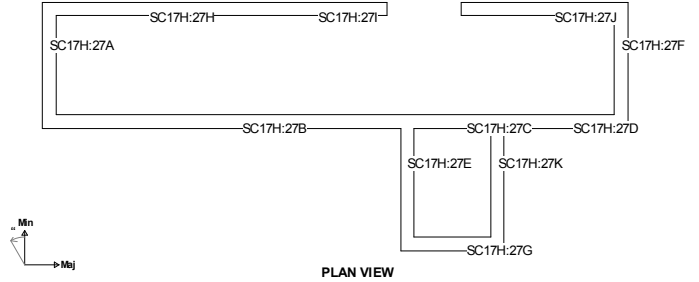
cmax = 8.49 ft c = 5.20 ft (21.9.6.2) OK

Segment SC16H:184A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:184B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:184C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.13 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 1.253% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC17H:27 (Horizontal)
Story: LEVEL 4
Ag = 24222 in2 Imaj = 507025850 in4 lmin = 112929491 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 17
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.057 OK
Pu = 1898.54 kips phiPn = 33289.22 kips
Mu = 2628.2 kip-ft at Beta = 31.2 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC17H:27A:
Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 135.3 kip phiVn = 243.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E21 (LC 174)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27B:
Length = 26.83 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 309.8 kip phiVn = 767.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E28 (LC 181)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:
Segment SC17H:27C:
Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 58.6 kip phiVn = 193.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5
Segment SC17H:27D:
Length = 9.25 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 121.8 kip phiVn = 264.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5
Segment SC17H:27E:
Length = 9.17 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 53.0 kip phiVn = 262.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5
Segment SC17H:27F:
Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 101.8 kip phiVn = 243.2 kip OK
Controlling Load Combo: 1.316 D + 1.300 E7 (LC 448)
Code Ref: 14.2.3 & 11.9.5
Segment SC17H:27G:
Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 21.7 kip phiVn = 193.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
Code Ref: 14.2.3 & 11.9.5
Segment SC17H:27H:
Length = 13.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 77.2 kip phiVn = 372.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5
Segment SC17H:27I:
Length = 12.33 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:
Vu = 60.2 kip phiVn = 352.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E12 (LC 21)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27J:
Length = 12.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 47.7 kip phiVn = 343.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E15 (LC 24)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27K:
Length = 9.17 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 70.5 kip phiVn = 262.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.471% (11.9.9.4) OK

Segment SC17H:27A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 801/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27I:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27J:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27K:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 802/1293
07/25/17 11:03:32

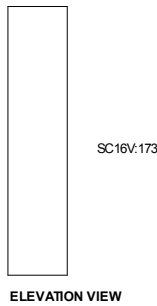
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 803/1293
07/25/17 11:03:32

Section Cut ID: SC16V:173 (Vertical)
Story: LEVEL 3
Ag = 648 in2 Imaj = 7776 in4 Imin = 157464 in4
Wall Design Group: 16
Design Status: FAILS



Axial/Flexural Results:
Interaction: 0.730 OK
Pu = -116.17 kips phiPn = -159.14 kips
Mu = 199.2 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E30 (LC 579)
Code Ref: 10.3.7

Shear Results:
Segment SC16V:173:
Length = 4.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 184.3 kip phiVn = 166.7 kip NG
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E23 (LC 68)
Code Ref: 14.2.3 & 11.9.5

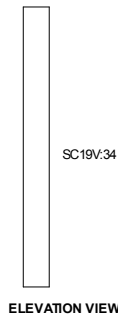
Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.818% (14.3.3) OK
Segment SC16V:173:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 804/1293
07/25/17 11:03:32

Section Cut ID: SC19V:34 (Vertical)
Story: T.O. PENTHOUSE
Ag = 1512 in2 Imaj = 18144 in4 Imin = 2000376 in4
Wall Design Group: 19
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.093 OK
Pu = -19.63 kips phiPn = -210.86 kips
Mu = 21.0 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E30 (LC 579)
Code Ref: 10.3.7

Shear Results:
Segment SC19V:34:
Length = 10.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 26.9 kip phiVn = 225.5 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E31 (LC 328)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.312% (11.9.9.2) OK
Segment SC19V:34:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Uses adjacent section cut for full capacity

Section Cut Design Summary

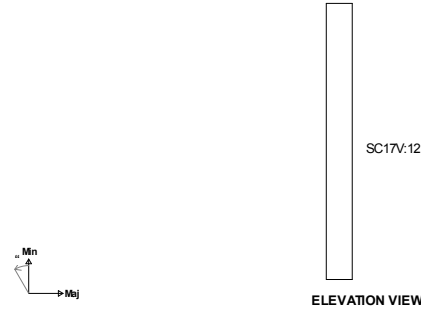
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC17V:12 (Vertical)
Story: LEVEL 4
Ag = 1440 in2 Imaj = 17280 in4 Imin = 1728000 in4
Wall Design Group: 17
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.061 OK
Pu = 0.79 kips phiPn = 12.92 kips
Mu = 111.9 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E7 (LC 556)
Code Ref: 10.3.7

Shear Results:
Segment SC17V:12:
Length = 10.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 131.1 kip phiVn = 286.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E7 (LC 52)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.511% (11.9.9.2) OK
Segment SC17V:12:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

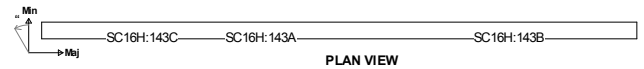
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC16H:143 (Horizontal) (Hinge)
Story: LEVEL 3
Ag = 5133 in2 Imaj = 78254891 in4 Imin = 61593 in4
Major Axis Orientation: 360.00 degrees (CCW from global X-axis)
Wall Design Group: 16
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.175 OK
Pu = -184.94 kips phiPn = -1058.63 kips
Mu = 3307.5 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E25 (LC 538)
Code Ref: 10.3.7

Shear Results:
Segment SC16H:143A:
Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 106.1 kip phiVn = 314.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E5 (LC 14)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:143B:
Length = 21.48 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 344.7 kip phiVn = 795.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:143C:
Length = 5.67 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 61.1 kip phiVn = 209.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E21 (LC 30)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.715% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

$c_{max} = 8.49 \text{ ft}$ $c = 4.32 \text{ ft}$ (21.9.6.2) OK

Segment SC16H:143A:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:143B:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:143C:

Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.13 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 1.253% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

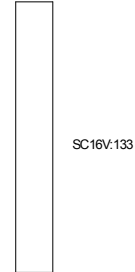
Uses adjacent section cut for full capacity



Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC16V:133 (Vertical)
Story: LEVEL 3.1
Ag = 1008 in2 Imaj = 12096 in4 Imin = 592704 in4
Wall Design Group: 16
Design Status: FAILS



ELEVATION VIEW



Axial/Flexural Results:

Interaction: 0.236 OK
Pu = -33.26 kips phiPn = -140.67 kips
Mu = 189.9 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E21 (LC 570)
Code Ref: 10.3.7

Shear Results:

Segment SC16V:133:
Length = 7.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 268.0 kip phiVn = 259.3 kip NG
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E21 (LC 30)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.701% (14.3.3) OK
Segment SC16V:133:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.614% (21.9.2.1) OK

Section Cut Design Summary

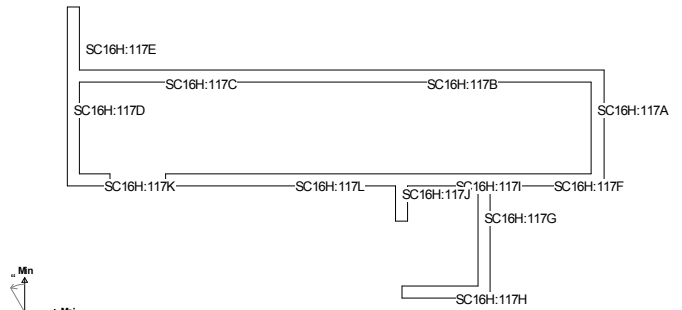
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC16H:117 (Horizontal) (Hinge)
Story: LEVEL 3.1
Ag = 17520 in2 Imaj = 494692829 in4 Imin = 79451243 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 16
Design Status: FAILS



PLAN VIEW



Axial/Flexural Results:

Interaction: 0.062 OK
Pu = 2164.57 kips phiPn = 35121.04 kips
Mu = 7771.0 kip-ft at Beta = 3.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:

Segment SC16H:117A:
Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 139.1 kip phiVn = 314.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117B:

Length = 29.83 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 271.2 kip phiVn = 1105.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:

Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117C:
Length = 13.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 75.8 kip phiVn = 481.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E35 (LC 116)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117D:
Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 193.0 kip phiVn = 314.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117E:
Length = 5.67 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 277.1 kip phiVn = 209.9 kip NG
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E21 (LC 30)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117F:
Length = 9.25 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 118.8 kip phiVn = 342.6 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E7 (LC 304)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117G:
Length = 9.17 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 70.5 kip phiVn = 339.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117H:
Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 21.7 kip phiVn = 250.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117I:

Uses also 117D for total capacity

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:

Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 72.0 kip phiVn = 250.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117J:
Length = 3.42 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 51.0 kip phiVn = 126.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117K:
Length = 3.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 50.3 kip phiVn = 111.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117L:
Length = 19.33 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 255.4 kip phiVn = 716.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E28 (LC 109)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.804% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 9.79 ft c = 5.88 ft (21.9.6.2) OK

Segment SC16H:117A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117C:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.13 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 1.253% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.920% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117I:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117J:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

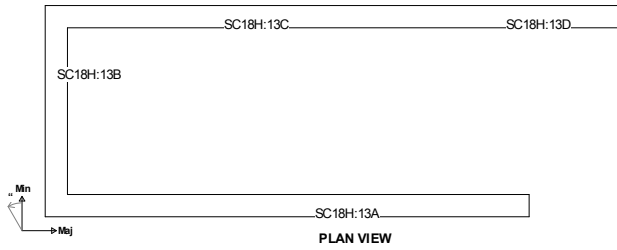
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117K:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117L:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC18H:13 (Horizontal)
Story: ROOF LEVEL
Ag = 7932 in2 Iraj = 66320154 in4 Imin = 18519902 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 18
Design Status: **PASS**



Axial/Flexural Results:
Interaction: 0.045 **OK**
Pu = 655.30 kips phiPn = 14705.69 kips
Mu = 176.4 kip-ft at Beta = 72.2 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC18H:13A:
Length = 21.25 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 195.3 kip phiVn = 461.6 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E28 (LC 181)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:13B:
Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 76.5 kip phiVn = 184.7 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E21 (LC 174)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:13C:
Length = 13.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 71.2 kip phiVn = 282.4 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

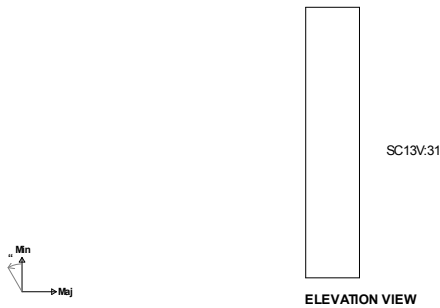
Segment SC18H:13D:
Length = 12.33 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 55.6 kip phiVn = 267.9 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E26 (LC 35)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.292% (11.9.9.4) **OK**
Segment SC18H:13A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC18H:13B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC18H:13C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC13V:31 (Vertical)
Story: LEVEL 2.3
Ag = 720 in2 Iraj = 8640 in4 Imin = 216000 in4
Wall Design Group: 13
Design Status: **PASS**



Axial/Flexural Results:
Interaction: 0.099 **OK**
Pu = 62.82 kips phiPn = 632.76 kips
Mu = 138.7 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E6 (LC 51)
Code Ref: 10.3.7

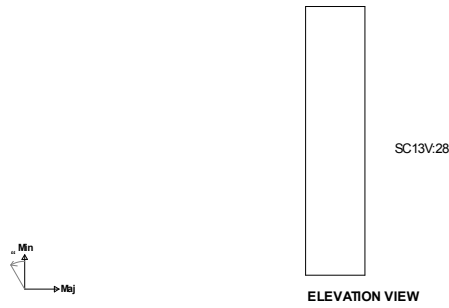
Shear Results:
Segment SC13V:31:
Length = 5.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 38.2 kip phiVn = 143.1 kip **OK**
Controlling Load Combo: 1.200 D + 1.600 Lp + 0.500 Sp (LC 2)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.511% (11.9.9.2) **OK**
Segment SC13V:31:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC13V:28 (Vertical)
Story: LEVEL 3
Ag = 648 in2 Iraj = 7776 in4 Imin = 157464 in4
Wall Design Group: 13
Design Status: **PASS**



Axial/Flexural Results:
Interaction: 0.120 **OK**
Pu = -5.64 kips phiPn = -47.05 kips
Mu = 38.7 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E16 (LC 565)
Code Ref: 10.3.7

Shear Results:
Segment SC13V:28:
Length = 4.50 ft Thick = 12.00 in f'c = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 83.9 kip phiVn = 126.0 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.568% (11.9.9.2) **OK**
Segment SC13V:28:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) **OK**

Section Cut Design Summary

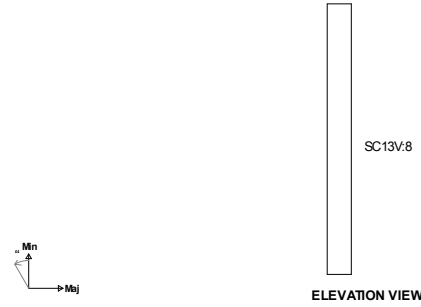
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC13V:8 (Vertical)
Story: LEVEL 3.1
Ag = 672 in2 Imaj = 3584 in4 Imin = 395136 in4
Wall Design Group: 13
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.046 OK
Pu = 1.16 kips phiPn = 25.02 kips
Mu = 42.3 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E17 (LC 530)
Code Ref: 10.3.7

Shear Results:
Segment SC13V:8:
Length = 7.00 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 53.6 kip phiVn = 178.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E28 (LC 73)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.730% (11.9.9.2) OK
Segment SC13V:8:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.639% (21.9.2.1) OK

Section Cut Design Summary

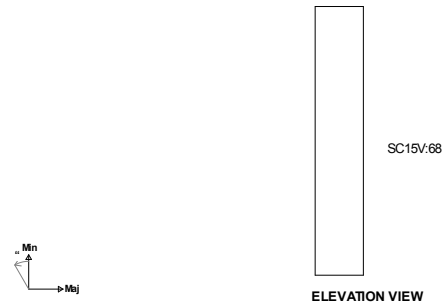
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC15V:68 (Vertical)
Story: LEVEL 2
Ag = 792 in2 Imaj = 9504 in4 Imin = 287496 in4
Wall Design Group: 15
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.058 OK
Pu = 50.29 kips phiPn = 868.88 kips
Mu = 91.3 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 10.3.7

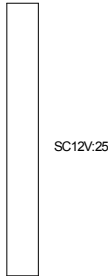
Shear Results:
Segment SC15V:68:
Length = 5.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 28.7 kip phiVn = 203.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.781% (14.3.3) OK
Segment SC15V:68:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC12V:25 (Vertical)
Story: LEVEL 2
Ag = 1224 in2 Imaj = 14688 in4 Imin = 1061208 in4
Wall Design Group: 12
Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.040 **OK**
Pu = 0.06 kips phiPn = 1.39 kips
Mu = 53.3 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp - 1.300 E28 (LC 217)
Code Ref: 10.3.7

Shear Results:
Segment SC12V:25:
Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 52.8 kip phiVn = 243.2 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E28 (LC 181)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.501% (11.9.9.2) **OK**
Segment SC12V:25:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

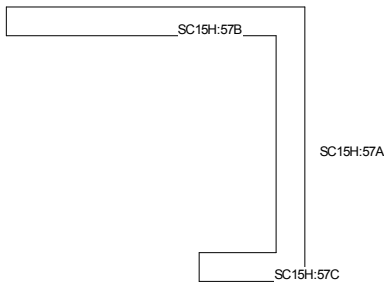
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Not accurate per plan,
Say OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC15H:57 (Horizontal) (Hinge)
Story: LEVEL 2
Ag = 3096 in2 Imaj = 4085713 in4 Imin = 5222572 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 15
Design Status: **FAILS**



PLAN VIEW

Axial/Flexural Results:
Interaction: 0.169 **OK**
Pu = -390.15 kips phiPn = -2307.62 kips
Mu = 134.6 kip-ft at Beta = 34.3 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E10 (LC 523)
Code Ref: 10.3.7

Shear Results:
Segment SC15H:57A:
Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 49.5 kip phiVn = 314.8 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:57B:
Length = 9.83 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 126.6 kip phiVn = 340.7 kip **OK**
Controlling Load Combo: 0.784 D + 1.300 E10 (LC 523)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:
Segment SC15H:57C:
Length = 3.17 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 28.7 kip phiVn = 117.3 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 1.665% (11.9.9.4) **OK**
S.B.E. Check: **Boundary zone required for one or more load combos**
Worst case is load combo 12 :
cmax = 2.78 ft c = 3.76 ft (21.9.6.2) **NG**

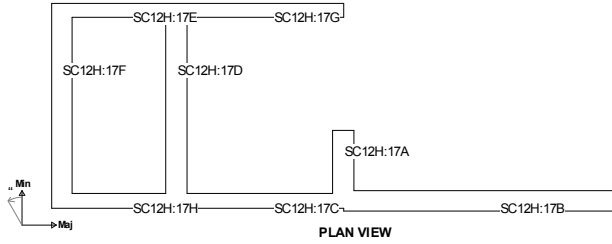
Segment SC15H:57A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC15H:57B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC15H:57C:
Max Vert Bar Spacing Limit: 12.67 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 829/1293
07/25/17 11:03:32

Section Cut ID: SC12H:17 (Horizontal) (Hinge)
Story: LEVEL 2
Ag = 12609 in2 I_{maj} = 78641281 in4 I_{min} = 19012759 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 12
Design Status: **PASS**



Axial/Flexural Results:
Interaction: 0.213 **OK**
Pu = 623.25 kips phiPn = 2931.33 kips
Mu = 7166.1 kip-ft at Beta = -32.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E13 (LC 526)
Code Ref: 10.3.7

Shear Results:
Segment SC12H:17A:
Length = 3.33 ft Thick = 12.00 in f_c = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 17.7 kip phiVn = 93.3 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17B:
Length = 12.80 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 162.0 kip phiVn = 358.4 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17C:
Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 830/1293
07/25/17 11:03:32

Shear Results:
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 99.1 kip phiVn = 198.3 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17D:
Length = 9.00 ft Thick = 12.00 in f_c = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 47.9 kip phiVn = 252.0 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E12 (LC 21)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17E:
Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 39.7 kip phiVn = 135.5 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17F:
Length = 9.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 40.7 kip phiVn = 252.0 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E10 (LC 163)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17G:
Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 39.1 kip phiVn = 198.3 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E17 (LC 26)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17H:
Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 65.6 kip phiVn = 135.5 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.725% (11.9.9.4) **OK**
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
c_{max} = 6.43 ft c = 0.58 ft (21.9.6.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 831/1293
07/25/17 11:03:32

Segment SC12H:17A:
Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC12H:17B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC12H:17C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC12H:17D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC12H:17E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC12H:17F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC12H:17G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC12H:17H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 832/1293
07/25/17 11:03:32

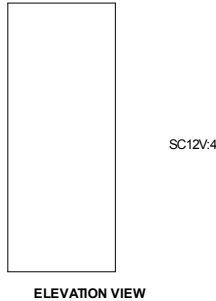
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 833/1293
07/25/17 11:03:32

Section Cut ID: SC12V:4 (Vertical)
Story: LEVEL 2.1
Ag = 360 in2 Imaj = 4320 in4 Imin = 27000 in4
Wall Design Group: 12
Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.045 **OK**
Pu = 24.72 kips phiPn = 555.47 kips
Mu = 9.2 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E17 (LC 170)
Code Ref: 10.3.7

Shear Results:
Segment SC12V:4:
Length = 2.50 ft Thick = 12.00 in f'c = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 8.9 kip phiVn = 70.0 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp - 1.300 E16 (LC 205)
Code Ref: 14.2.3 & 11.9.5

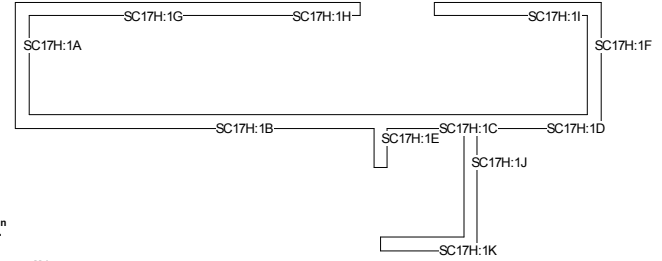
Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.682% (11.9.9.2) **OK**
Segment SC12V:4:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 834/1293
07/25/17 11:03:32

Section Cut ID: SC17H:1 (Horizontal)
Story: LEVEL 4
Ag = 16632 in2 Imaj = 464483501 in4 Imin = 67992964 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 17
Design Status: **PASS**



PLAN VIEW

Axial/Flexural Results:
Interaction: 0.059 **OK**
Pu = 1876.45 kips phiPn = 31716.96 kips
Mu = 2426.2 kip-ft at Beta = 39.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC17H:1A:
Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 135.3 kip phiVn = 243.2 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E21 (LC 174)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1B:
Length = 26.83 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 305.4 kip phiVn = 767.9 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 835/1293
07/25/17 11:03:32

Shear Results:
Segment SC17H:1C:
Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 73.1 kip phiVn = 193.2 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1D:
Length = 9.25 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 119.0 kip phiVn = 264.7 kip **OK**
Controlling Load Combo: 1.316 D + 1.300 E7 (LC 448)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1E:
Length = 3.42 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 51.0 kip phiVn = 97.8 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1F:
Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 101.8 kip phiVn = 243.2 kip **OK**
Controlling Load Combo: 1.316 D + 1.300 E7 (LC 448)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1G:
Length = 13.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 59.3 kip phiVn = 372.0 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1H:
Length = 12.33 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 51.0 kip phiVn = 352.9 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E26 (LC 35)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1I:
Length = 12.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 836/1293
07/25/17 11:03:32

Shear Results:
Vu = 46.7 kip phiVn = 343.4 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1J:
Length = 9.17 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 70.5 kip phiVn = 262.3 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1K:
Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 21.7 kip phiVn = 193.2 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.472% (11.9.9.4) **OK**

Segment SC17H:1A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC17H:1B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC17H:1C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC17H:1D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 837/1293
 07/25/17 11:03:32

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC17H:1E:
 Max Vert Bar Spacing Limit: 13.67 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC17H:1F:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC17H:1G:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC17H:1H:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC17H:1I:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC17H:1J:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC17H:1K:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 838/1293
 07/25/17 11:03:32

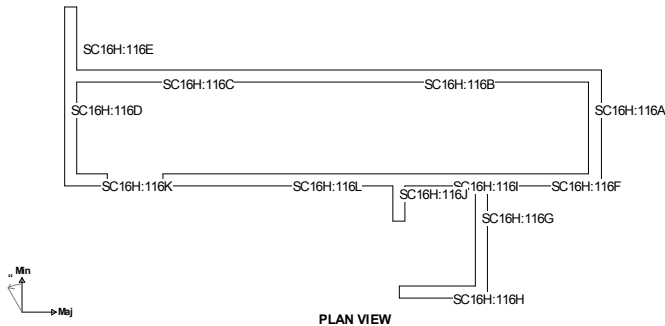
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 839/1293
 07/25/17 11:03:32

Section Cut ID: SC16H:116 (Horizontal) (Hinge)
Story: LEVEL 3.1
 Ag = 17520 in2 Imaj = 494692829 in4 Imin = 79451243 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 16
 Design Status: PASS



Axial/Flexural Results:
 Interaction: 0.080 OK
 Pu = 1588.28 kips phiPn = 19808.27 kips
 Mu = 11167.3 kip-ft at Beta = 35.8 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
 Code Ref: 10.3.7

Shear Results:
 Segment SC16H:116A:
 Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 139.2 kip phiVn = 314.8 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
 Code Ref: 14.2.3 & 11.9.5
 Segment SC16H:116B:
 Length = 29.83 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 292.1 kip phiVn = 1105.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 840/1293
 07/25/17 11:03:32

Shear Results:
 Code Ref: 14.2.3 & 11.9.5
 Segment SC16H:116C:
 Length = 13.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 56.4 kip phiVn = 481.5 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E35 (LC 44)
 Code Ref: 14.2.3 & 11.9.5
 Segment SC16H:116D:
 Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 285.8 kip phiVn = 314.8 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
 Code Ref: 14.2.3 & 11.9.5
 Segment SC16H:116E:
 Length = 5.67 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 147.8 kip phiVn = 209.9 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E21 (LC 30)
 Code Ref: 14.2.3 & 11.9.5
 Segment SC16H:116F:
 Length = 9.25 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 110.8 kip phiVn = 342.6 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E6 (LC 159)
 Code Ref: 14.2.3 & 11.9.5
 Segment SC16H:116G:
 Length = 9.17 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 70.5 kip phiVn = 339.5 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
 Code Ref: 14.2.3 & 11.9.5
 Segment SC16H:116H:
 Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 21.7 kip phiVn = 250.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
 Code Ref: 14.2.3 & 11.9.5
 Segment SC16H:116I:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:

Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
V_u = 60.9 kip phiV_n = 250.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116J:

Length = 3.42 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
V_u = 50.9 kip phiV_n = 126.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116K:

Length = 3.00 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
V_u = 50.2 kip phiV_n = 111.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116L:

Length = 19.33 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
V_u = 253.1 kip phiV_n = 716.1 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E28 (LC 325)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.804% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
c_{max} = 7.93 ft c = 5.33 ft (21.9.6.2) OK

Segment SC16H:116A:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116B:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116C:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116D:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116E:

Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.13 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 1.253% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116F:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116G:

Max Vert Bar Spacing Limit: 18.00 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116H:

Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.920% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116I:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116J:

Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116K:

Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116L:

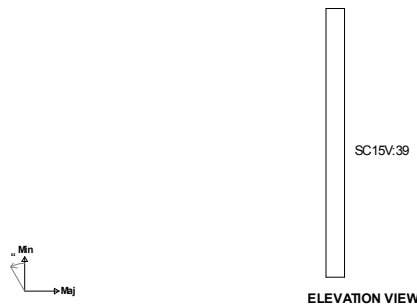
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC15V:39 (Vertical)

Story: LEVEL 2
A_g = 1944 in² I_{maj} = 23328 in⁴ I_{min} = 4251528 in⁴
Wall Design Group: 15
Design Status: PASS



Axial/Flexural Results:

Interaction: 0.018 OK
P_u = -8.75 kips phiP_n = -489.99 kips
M_u = 26.4 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E10 (LC 523)
Code Ref: 10.3.7

Shear Results:

Segment SC15V:39:
Length = 13.50 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
V_u = 120.1 kip phiV_n = 639.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp - 1.300 E10 (LC 199)
Code Ref: 14.2.3 & 11.9.5

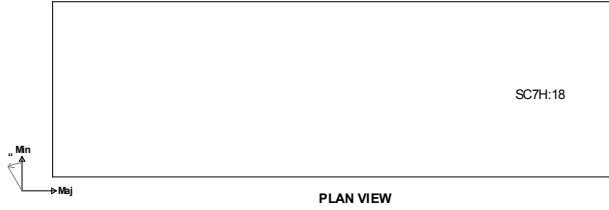
Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.682% (14.3.3) OK
Segment SC15V:39:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC7H:18 (Horizontal) (Hinge)
Story: LEVEL 2.1
Ag = 819 in2 Imaj = 178794 in4 Imin = 17471 in4
Major Axis Orientation: 66.00 degrees (CCW from global X-axis)
Wall Design Group: 7
Design Status: **PASS**



Axial/Flexural Results:

Interaction: 0.275 **OK**
Pu = 74.05 kips phiPn = 269.21 kips
Mu = 218.6 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E10 (LC 523)
Code Ref: 10.3.7

Shear Results:

Segment SC7H:18:
Length = 4.27 ft Thick = 16.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 21.1 kip phiVn = 135.5 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

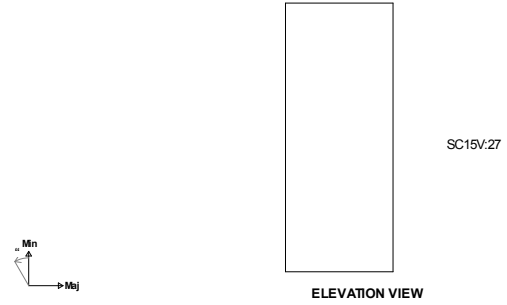
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.375% (11.9.9.4) **OK**
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 1.02 ft c = 0.56 ft (21.9.6.2) **OK**

Segment SC7H:18:
Max Vert Bar Spacing Limit: 17.06 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.320% Actual: 0.320% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC15V:27 (Vertical)
Story: LEVEL 2.1
Ag = 360 in2 Imaj = 4320 in4 Imin = 27000 in4
Wall Design Group: 15
Design Status: **PASS**



Axial/Flexural Results:

Interaction: 0.018 **OK**
Pu = -1.38 kips phiPn = -77.35 kips
Mu = 2.4 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp - 1.300 E25 (LC 214)
Code Ref: 10.3.7

Shear Results:

Segment SC15V:27:
Length = 2.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 21.4 kip phiVn = 92.4 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E11 (LC 56)
Code Ref: 14.2.3 & 11.9.5

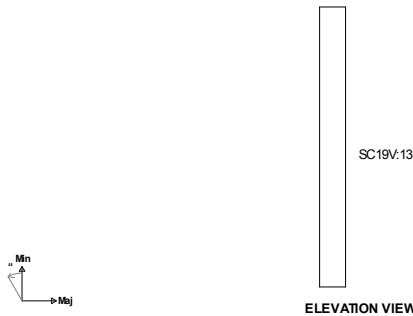
Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.982% (14.3.3) **OK**
Segment SC15V:27:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC19V:13 (Vertical)
Story: T.O. PENTHOUSE
Ag = 1512 in2 Imaj = 18144 in4 Imin = 2000376 in4
Wall Design Group: 19
Design Status: **PASS**



Axial/Flexural Results:

Interaction: 0.155 **OK**
Pu = -33.50 kips phiPn = -215.73 kips
Mu = 31.1 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E21 (LC 534)
Code Ref: 10.3.7

Shear Results:

Segment SC19V:13:
Length = 10.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 24.0 kip phiVn = 228.1 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E10 (LC 55)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.312% (11.9.9.2) **OK**
Segment SC19V:13:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**

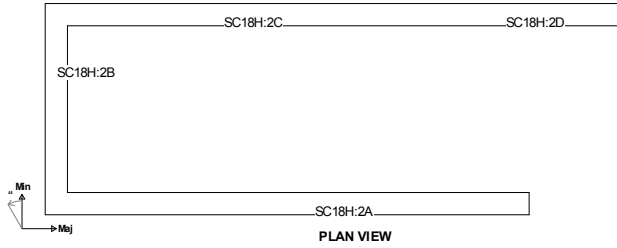
Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

Section Cut ID: SC18H:2 (Horizontal)
Story: ROOF LEVEL
Ag = 7932 in2 Imaj = 66320154 in4 Imin = 18519902 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 18
Design Status: **PASS**



Axial/Flexural Results:
Interaction: 0.061 **OK**
Pu = 91.95 kips phiPn = 1499.92 kips
Mu = 1787.6 kip-ft at Beta = -14.3 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E25 (LC 538)
Code Ref: 10.3.7

Shear Results:
Segment SC18H:2A:
Length = 21.25 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 195.3 kip phiVn = 461.6 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E28 (LC 181)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:2B:
Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 76.5 kip phiVn = 184.7 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E21 (LC 174)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:2C:
Length = 13.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi

Section Cut Design Summary

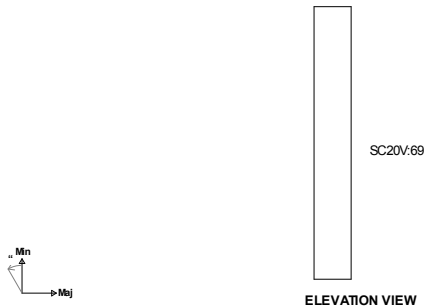
Shear Results:
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 83.5 kip phiVn = 282.4 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:2D:
Length = 12.33 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 47.7 kip phiVn = 267.9 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E26 (LC 35)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.292% (11.9.9.4) **OK**
Segment SC18H:2A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC18H:2B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC18H:2C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

Section Cut ID: SC20V:69 (Vertical)
Story: LEVEL 2
Ag = 1428 in2 Imaj = 23324 in4 Imin = 1238076 in4
Wall Design Group: 20
Design Status: **PASS**



Axial/Flexural Results:
Interaction: 0.071 **OK**
Pu = -5.19 kips phiPn = -72.58 kips
Mu = 46.9 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E10 (LC 55)
Code Ref: 10.3.7

Shear Results:
Segment SC20V:69:
Length = 8.50 ft Thick = 14.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 28.6 kip phiVn = 207.4 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp - 1.300 E7 (LC 196)
Code Ref: 14.2.3 & 11.9.5

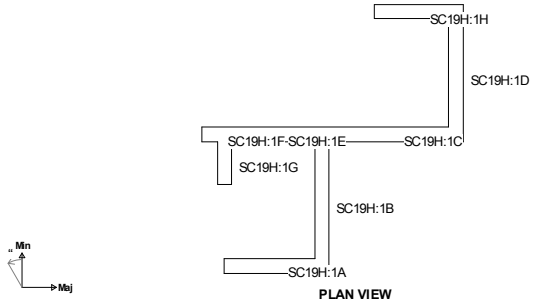
Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.302% (11.9.9.2) **OK**
Segment SC20V:69:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**

Section Cut Design Summary

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

Section Cut ID: SC19H:1 (Horizontal)
Story: T.O. PENTHOUSE
Ag = 7212 in2 Imaj = 32002731 in4 Imin = 29971926 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 19
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.028 OK
Pu = 272.21 kips phiPn = 9826.28 kips
Mu = 958.6 kip-ft at Beta = 71.8 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC19H:1A: Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 14.5 kip phiVn = 146.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E26 (LC 35)
Code Ref: 14.2.3 & 11.9.5
Segment SC19H:1B: Length = 9.17 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 38.4 kip phiVn = 199.1 kip OK
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

Shear Results:
Segment SC19H:1C: Length = 9.25 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 31.2 kip phiVn = 200.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1D: Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 29.3 kip phiVn = 184.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E10 (LC 163)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1E: Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 17.4 kip phiVn = 146.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E11 (LC 164)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1F: Length = 1.58 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 9.0 kip phiVn = 34.4 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E28 (LC 325)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1G: Length = 3.42 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 11.4 kip phiVn = 74.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1H: Length = 5.67 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 9.8 kip phiVn = 123.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E5 (LC 158)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.310% (11.9.9.4) OK
Segment SC19H:1A:

Section Cut Design Summary

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:1B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:1C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:1D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:1E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:1F:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:1G:
Max Vert Bar Spacing Limit: 13.67 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:1H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

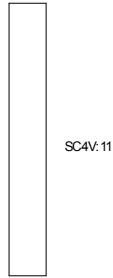
Section Cut Design Summary

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC4V:11 (Vertical)
Story: LEVEL 2
Ag = 1428 in2 Imaj = 23324 in4 Imin = 1238076 in4
Wall Design Group: 4
Design Status: PASS



ELEVATION VIEW



Axial/Flexural Results:

Interaction: 0.105 OK
Pu = -5.98 kips phiPn = -57.02 kips
Mu = 75.1 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E28 (LC 541)
Code Ref: 10.3.7

Shear Results:

Segment SC4V:11:
Length = 8.50 ft Thick = 14.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 78.0 kip phiVn = 207.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.302% (11.9.9.2) OK
Segment SC4V:11:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

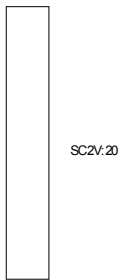
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC2V:20 (Vertical)
Story: LEVEL 2
Ag = 1632 in2 Imaj = 34816 in4 Imin = 1414944 in4
Wall Design Group: 2
Design Status: PASS



ELEVATION VIEW



Axial/Flexural Results:

Interaction: 0.044 OK
Pu = -0.94 kips phiPn = -21.07 kips
Mu = 44.0 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E35 (LC 584)
Code Ref: 10.3.7

Shear Results:

Segment SC2V:20:
Length = 8.50 ft Thick = 16.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@15" oc Horiz Bar Pat: #5@15" oc
Vu = 73.1 kip phiVn = 237.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E31 (LC 40)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.301% (11.9.9.2) OK
Segment SC2V:20:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 15.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 14.38 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

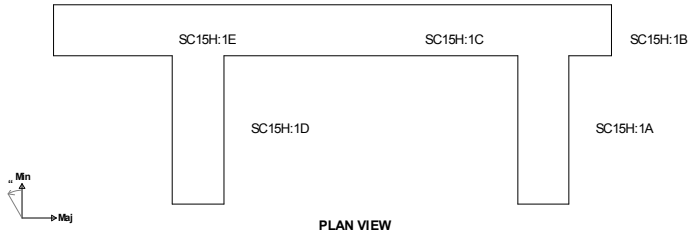
Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC15H:1 (Horizontal) (Hinge)
Story: LEVEL 2.1
 Ag = 2412 in2 Imaj = 3680308 in4 Imin = 406950 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 15
 Design Status: **PASS**



Axial/Flexural Results:
 Interaction: 0.123 **OK**
 Pu = 69.63 kips phiPn = 567.50 kips
 Mu = 477.9 kip-ft at Beta = -58.1 deg CCW from Major axis
 Controlling Load Combo: 0.784 D + 1.300 E8 (LC 521)
 Code Ref: 10.3.7

Shear Results:
 Segment SC15H:1A:
 Length = 3.42 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 67.5 kip phiVn = 126.6 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
 Code Ref: 14.2.3 & 11.9.5

Segment SC15H:1B:
 Length = 1.33 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 27.1 kip phiVn = 49.4 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
 Code Ref: 14.2.3 & 11.9.5

Segment SC15H:1C:
 Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc

Section Cut Design Summary

Shear Results:
 Vu = 109.9 kip phiVn = 250.0 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
 Code Ref: 14.2.3 & 11.9.5

Segment SC15H:1D:
 Length = 3.42 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 31.5 kip phiVn = 126.6 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E8 (LC 17)
 Code Ref: 14.2.3 & 11.9.5

Segment SC15H:1E:
 Length = 2.83 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 58.5 kip phiVn = 104.9 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 1.351% (11.9.9.4) **OK**
 S.B.E. Check: **Neutral axis distance less than limit for all load combos**
 Worst case is load combo 10 :
 cmax = 1.71 ft c = 1.86 ft (21.9.6.2) **OK**

Segment SC15H:1A:
 Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC15H:1B:
 Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC15H:1C:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

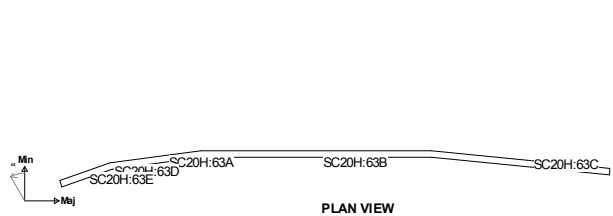
Segment SC15H:1D:
 Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) **OK**

Section Cut Design Summary

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC15H:1E:
 Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

Section Cut ID: SC20H:63 (Horizontal)
Story: LEVEL 2
 Ag = 16708 in2 Imaj = 1967973002 in4 Imin = 4201342 in4
 Major Axis Orientation: 339.50 degrees (CCW from global X-axis)
 Wall Design Group: 20
 Design Status: **PASS**



Axial/Flexural Results:
 Interaction: 0.040 **OK**
 Pu = 556.44 kips phiPn = 13802.17 kips
 Mu = 4563.5 kip-ft at Beta = 7.2 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E13 (LC 22)
 Code Ref: 10.3.7

Shear Results:
 Segment SC20H:63A:
 Length = 16.38 ft Thick = 14.00 in fc = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
 Vu = 57.8 kip phiVn = 400.0 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E13 (LC 22)
 Code Ref: 14.2.3 & 11.9.5

Segment SC20H:63B:
 Length = 41.35 ft Thick = 14.00 in fc = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
 Vu = 169.6 kip phiVn = 1009.7 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
 Code Ref: 14.2.3 & 11.9.5

Segment SC20H:63C:
 Length = 32.21 ft Thick = 14.00 in fc = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
 Vu = 128.9 kip phiVn = 786.6 kip **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 865/1293
07/25/17 11:03:32

Shear Results:

Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC20H:63D:

Length = 3.67 ft Thick = 14.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 35.6 kip phiVn = 89.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E13 (LC 22)
Code Ref: 14.2.3 & 11.9.5

Segment SC20H:63E:

Length = 5.83 ft Thick = 14.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 46.4 kip phiVn = 142.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E13 (LC 22)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.266% (11.9.9.4) OK

Segment SC20H:63A:

Max Vert Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC20H:63B:

Max Vert Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC20H:63C:

Max Vert Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC20H:63D:

Max Vert Bar Spacing Limit: 14.68 in Actual: 11.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC20H:63E:

Max Vert Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.9.5) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 866/1293
07/25/17 11:03:32

Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 867/1293
07/25/17 11:03:32

Section Cut ID:

SC1V:4 (Vertical)

Story:

LEVEL 2

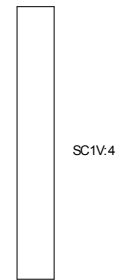
Ag = 1428 in²

Imaj = 23324 in⁴

Imin = 1238076 in⁴

Wall Design Group: 1

Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:

Interaction: 0.026 OK
Pu = -2.85 kips phiPn = -107.65 kips
Mu = 13.7 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E7 (LC 520)
Code Ref: 10.3.7

Shear Results:

Segment SC1V:4:
Length = 8.50 ft Thick = 14.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 64.9 kip phiVn = 207.5 kip OK
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.302% (11.9.9.2) OK

Segment SC1V:4:

Max Horiz Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

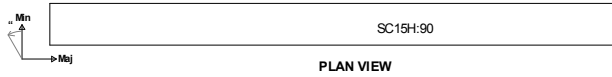
Page 868/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC15H:90 (Horizontal) (Hinge)
Story: LEVEL 2
Ag = 1980 in2 Imaj = 4492158 in4 Imin = 23760 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 15
Design Status: **PASS**



Axial/Flexural Results:
Interaction: 0.146 **OK**
Pu = 632.79 kips phiPn = 4324.15 kips
Mu = 232.6 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 10.3.7

Shear Results:
Segment SC15H:90:
Length = 13.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 174.0 kip phiVn = 509.3 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
Code Ref: 14.2.3 & 11.9.5

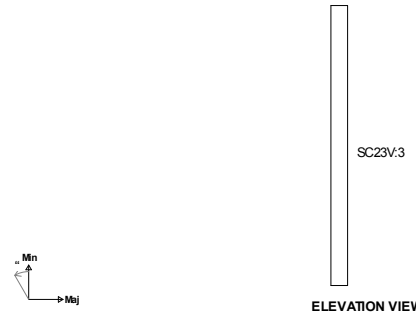
Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 1.413% (11.9.4) **OK**
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 3.27 ft c = 2.55 ft (21.9.6.2) **OK**

Segment SC15H:90:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min web reinforcement ratio: 0.250% Actual: 0.614% (21.9.2.1) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC23V:3 (Vertical)
Story: T.O. PENTHOUSE
Ag = 1008 in2 Imaj = 5376 in4 Imin = 1333584 in4
Wall Design Group: 23
Design Status: **PASS**



Axial/Flexural Results:
Interaction: 0.099 **OK**
Pu = -18.70 kips phiPn = -189.45 kips
Mu = 33.2 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC23V:3:
Length = 10.50 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 31.7 kip phiVn = 193.7 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E32 (LC 77)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.467% (11.9.2) **OK**
Segment SC23V:3:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC22V:17 (Vertical)
Story: ROOF LEVEL
Ag = 1056 in2 Imaj = 5632 in4 Imin = 1533312 in4
Wall Design Group: 22
Design Status: **PASS**



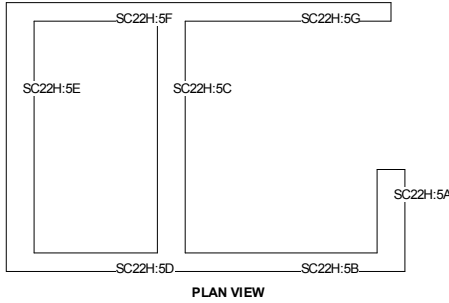
Axial/Flexural Results:
Interaction: 0.046 **OK**
Pu = -7.97 kips phiPn = -171.71 kips
Mu = 20.8 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
Code Ref: 10.3.7

Shear Results:
Segment SC22V:17:
Length = 11.00 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 23.3 kip phiVn = 204.2 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E31 (LC 76)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.446% (11.9.2) **OK**
Segment SC22V:17:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

Section Cut ID: SC22H:5 (Horizontal)
Story: ROOF LEVEL
Ag = 10826 in2 Imaj = 20003992 in4 Imin = 14769055 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 22
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.052 OK
Pu = 416.32 kips phiPn = 7994.27 kips
Mu = 1173.1 kip-ft at Beta = -13.4 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC22H:5A:
Length = 3.33 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 1.9 kip phiVn = 72.4 kip OK
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Segment SC22H:5B:
Length = 7.92 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 29.3 kip phiVn = 147.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

Shear Results:
Segment SC22H:5C:
Length = 9.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 24.1 kip phiVn = 195.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Segment SC22H:5D:
Length = 5.41 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 7.2 kip phiVn = 100.4 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E33 (LC 330)
Code Ref: 14.2.3 & 11.9.5

Segment SC22H:5E:
Length = 9.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 26.3 kip phiVn = 195.5 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
Code Ref: 14.2.3 & 11.9.5

Segment SC22H:5F:
Length = 5.41 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 13.4 kip phiVn = 100.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Segment SC22H:5G:
Length = 7.92 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 31.3 kip phiVn = 147.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

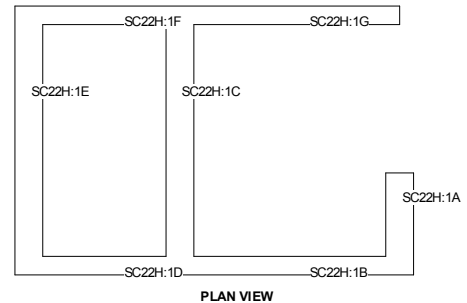
Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) OK
Segment SC22H:5A:
Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC22H:5B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

Section Cut Design Summary

Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC22H:5C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC22H:5D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC22H:5E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC22H:5F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC22H:5G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC22H:1 (Horizontal)
Story: ROOF LEVEL
Ag = 10826 in2 Imaj = 20003992 in4 Imin = 14769055 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 22
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.056 OK
Pu = 457.83 kips phiPn = 8240.18 kips
Mu = 1187.6 kip-ft at Beta = -22.8 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC22H:1A:
Length = 3.33 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 1.9 kip phiVn = 72.4 kip OK
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Segment SC22H:1B:
Length = 7.92 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 38.2 kip phiVn = 147.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Shear Results:

Segment SC22H:1C:
 Length = 9.00 ft Thick = 12.00 in $f_c = 4000$ psi $f_y = 60$ ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 $V_u = 24.1$ kip $\phi V_n = 195.5$ kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

Segment SC22H:1D:
 Length = 5.41 ft Thick = 8.00 in $f_c = 4000$ psi $f_y = 60$ ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 $V_u = 11.0$ kip $\phi V_n = 100.4$ kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E32 (LC 185)
 Code Ref: 14.2.3 & 11.9.5

Segment SC22H:1E:
 Length = 9.00 ft Thick = 12.00 in $f_c = 4000$ psi $f_y = 60$ ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 $V_u = 26.3$ kip $\phi V_n = 195.5$ kip OK
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
 Code Ref: 14.2.3 & 11.9.5

Segment SC22H:1F:
 Length = 5.41 ft Thick = 8.00 in $f_c = 4000$ psi $f_y = 60$ ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 $V_u = 13.0$ kip $\phi V_n = 100.4$ kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

Segment SC22H:1G:
 Length = 7.92 ft Thick = 8.00 in $f_c = 4000$ psi $f_y = 60$ ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 $V_u = 33.5$ kip $\phi V_n = 147.0$ kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) OK
 Segment SC22H:1A:
 Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC22H:1B:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

Section Cut Design Summary

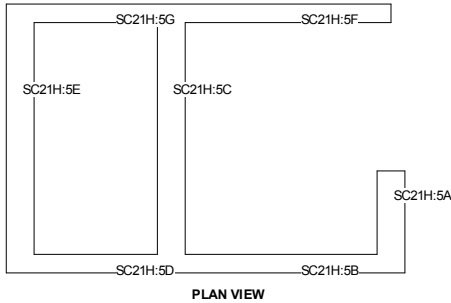
RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC22H:1C:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC22H:1D:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC22H:1E:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC22H:1F:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC22H:1G:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Section Cut ID: SC21H:5 (Horizontal) (Hinge)
Story: LEVEL 4
 Ag = 10826 in2 Imaj = 20003992 in4 Imin = 14769055 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 21
 Design Status: PASS



Axial/Flexural Results:
 Interaction: 0.063 OK
 $P_u = 561.16$ kips $\phi P_n = 896.61$ kips
 $M_u = 1219.0$ kip-ft at Beta = -24.4 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:
 Segment SC21H:5A:
 Length = 3.33 ft Thick = 12.00 in $f_c = 4000$ psi $f_y = 60$ ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 $V_u = 7.2$ kip $\phi V_n = 72.4$ kip OK
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 14.2.3 & 11.9.5

Segment SC21H:5B:
 Length = 7.92 ft Thick = 8.00 in $f_c = 4000$ psi $f_y = 60$ ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 $V_u = 46.6$ kip $\phi V_n = 147.0$ kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
 Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Shear Results:
 Segment SC21H:5C:
 Length = 9.00 ft Thick = 12.00 in $f_c = 4000$ psi $f_y = 60$ ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 $V_u = 33.6$ kip $\phi V_n = 195.5$ kip OK
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
 Code Ref: 14.2.3 & 11.9.5

Segment SC21H:5D:
 Length = 5.41 ft Thick = 8.00 in $f_c = 4000$ psi $f_y = 60$ ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 $V_u = 16.0$ kip $\phi V_n = 100.4$ kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
 Code Ref: 14.2.3 & 11.9.5

Segment SC21H:5E:
 Length = 9.00 ft Thick = 12.00 in $f_c = 4000$ psi $f_y = 60$ ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 $V_u = 35.4$ kip $\phi V_n = 195.5$ kip OK
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
 Code Ref: 14.2.3 & 11.9.5

Segment SC21H:5F:
 Length = 7.92 ft Thick = 8.00 in $f_c = 4000$ psi $f_y = 60$ ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 $V_u = 40.4$ kip $\phi V_n = 147.0$ kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

Segment SC21H:5G:
 Length = 5.41 ft Thick = 8.00 in $f_c = 4000$ psi $f_y = 60$ ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 $V_u = 15.5$ kip $\phi V_n = 100.4$ kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) OK
 S.B.E. Check: Neutral axis distance less than limit for all load combos
 Worst case is load combo 10 :
 $c_{max} = 3.86$ ft $c = 0.84$ ft (21.9.6.2) OK

Segment SC21H:5A:
 Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

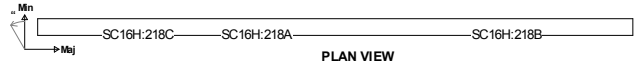
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:5B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:5C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:5D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:5E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:5F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:5G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC16H:218 (Horizontal) (Hinge)
Story: LEVEL 2.3
Ag = 5136 in2 Imaj = 78402752 in4 Imin = 61632 in4
Major Axis Orientation: 360.00 degrees (CCW from global X-axis)
Wall Design Group: 16
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.168 OK
Pu = -161.84 kips phiPn = -962.03 kips
Mu = 3452.2 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E25 (LC 538)
Code Ref: 10.3.7

Shear Results:
Segment SC16H:218A:
Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 91.6 kip phiVn = 314.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E5 (LC 14)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:218B:
Length = 21.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 371.5 kip phiVn = 796.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:218C:
Length = 5.67 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 49.7 kip phiVn = 209.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E21 (LC 30)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.714% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

cmax = 8.49 ft c = 5.19 ft (21.9.6.2) OK

Segment SC16H:218A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:218B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:218C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.13 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 1.253% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC3V:19 (Vertical)
Story: LEVEL 2
Ag = 1428 in2 Imaj = 23324 in4 Imin = 1238076 in4
Wall Design Group: 3
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.041 OK
Pu = 4.02 kips phiPn = 97.22 kips
Mu = 59.7 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E6 (LC 555)
Code Ref: 10.3.7

Shear Results:
Segment SC3V:19:
Length = 8.50 ft Thick = 14.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@15" oc Horiz Bar Pat: #5@15" oc
Vu = 69.6 kip phiVn = 224.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp - 1.300 E6 (LC 195)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.344% (11.9.9.2) OK
Segment SC3V:19:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 15.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 14.38 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

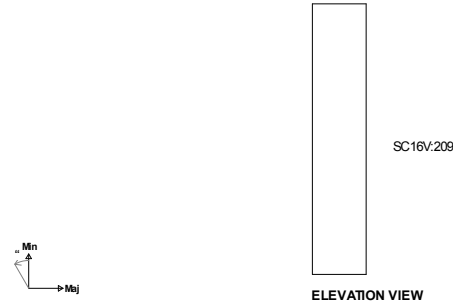
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC16V:209 (Vertical)
Story: LEVEL 2.3
Ag = 720 in2 Imaj = 8640 in4 Imin = 216000 in4
Wall Design Group: 16
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.156 OK
Pu = -16.25 kips phiPn = -103.97 kips
Mu = 68.1 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E28 (LC 541)
Code Ref: 10.3.7

Shear Results:
Segment SC16V:209:
Length = 5.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 97.6 kip phiVn = 184.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E10 (LC 91)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.859% (14.3.3) OK
Segment SC16V:209:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.614% (21.9.2.1) OK

Section Cut Design Summary

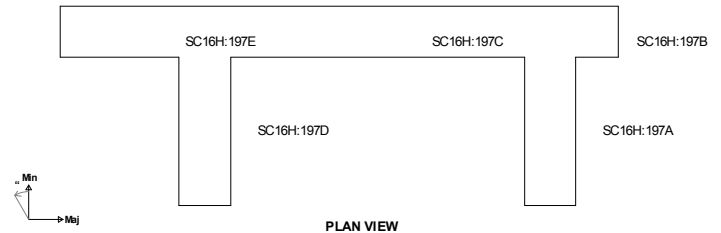
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC16H:197 (Horizontal) (Hinge)
Story: LEVEL 2.3
Ag = 2412 in2 Imaj = 3680308 in4 Imin = 406950 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 16
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.099 OK
Pu = 515.90 kips phiPn = 5223.72 kips
Mu = 134.8 kip-ft at Beta = 82.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC16H:197A:
Length = 3.42 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 67.5 kip phiVn = 126.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:197B:
Length = 1.33 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 15.0 kip phiVn = 49.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E10 (LC 163)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:197C:
Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 889/1293
07/25/17 11:03:32

Shear Results:

Vu = 126.9 kip phiVn = 250.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:197D:

Length = 3.42 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 31.5 kip phiVn = 126.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E8 (LC 17)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:197E:

Length = 2.83 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 55.1 kip phiVn = 104.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 1.351% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 2.57 ft c = 2.45 ft (21.9.6.2) OK

Segment SC16H:197A:

Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:197B:

Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:197C:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:197D:

Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 890/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:197E:

Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 891/1293
07/25/17 11:03:32

Section Cut ID:

SC16H:184 (Horizontal) (Hinge)

Story:

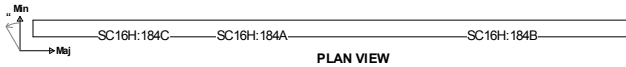
LEVEL 2.3

Ag = 5136 in2 Imaj = 78402752 in4 Imin = 61632 in4

Major Axis Orientation: 360.00 degrees (CCW from global X-axis)

Wall Design Group: 16

Design Status: PASS



Axial/Flexural Results:

Interaction: 0.194 OK
Pu = -170.95 kips phiPn = -879.84 kips
Mu = 4246.8 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E25 (LC 538)
Code Ref: 10.3.7

Shear Results:

Segment SC16H:184A:
Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 70.4 kip phiVn = 314.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E5 (LC 14)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:184B:

Length = 21.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 388.1 kip phiVn = 796.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:184C:

Length = 5.67 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 64.2 kip phiVn = 209.9 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E24 (LC 321)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.714% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 892/1293
07/25/17 11:03:32

cmax = 8.49 ft c = 5.20 ft (21.9.6.2) OK

Segment SC16H:184A:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:184B:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:184C:

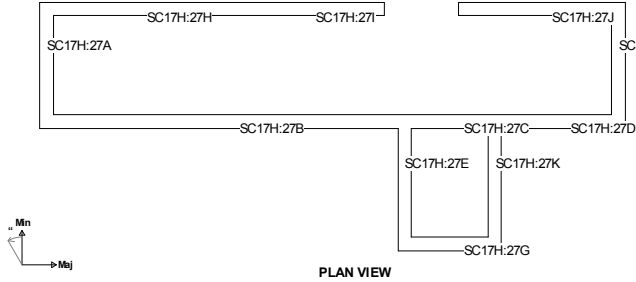
Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.13 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 1.253% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 893/1293
07/25/17 11:03:32

Section Cut ID: SC17H:27 (Horizontal)
Story: LEVEL 4
Ag = 24222 in2 Imaj = 507025850 in4 Imin = 112929491 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 17
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.057 OK
Pu = 1898.54 kips phiPn = 33289.22 kips
Mu = 2628.2 kip-ft at Beta = 31.2 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC17H:27A:
Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 135.3 kip phiVn = 243.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E21 (LC 174)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27B:
Length = 26.83 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 309.8 kip phiVn = 767.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E28 (LC 181)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 894/1293
07/25/17 11:03:32

Shear Results:
Segment SC17H:27C:
Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 58.6 kip phiVn = 193.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27D:
Length = 9.25 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 121.8 kip phiVn = 264.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27E:
Length = 9.17 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 53.0 kip phiVn = 262.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27F:
Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 101.8 kip phiVn = 243.2 kip OK
Controlling Load Combo: 1.316 D + 1.300 E7 (LC 448)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27G:
Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 21.7 kip phiVn = 193.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27H:
Length = 13.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 77.2 kip phiVn = 372.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27I:
Length = 12.33 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 895/1293
07/25/17 11:03:32

Shear Results:
Vu = 60.2 kip phiVn = 352.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E12 (LC 21)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27J:
Length = 12.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 47.7 kip phiVn = 343.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E15 (LC 24)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27K:
Length = 9.17 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 70.5 kip phiVn = 262.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.471% (11.9.9.4) OK
Segment SC17H:27A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 896/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27I:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27J:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27K:

Section Cut Design Summary

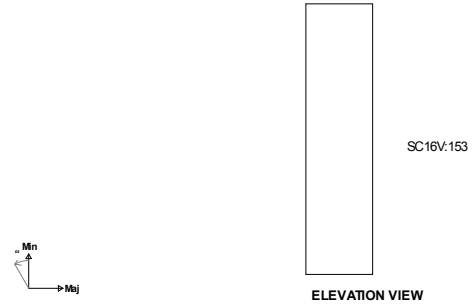
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC16V:153 (Vertical)
Story: LEVEL 3
Ag = 576 in2 Imaj = 6912 in4 Imin = 110592 in4
Wall Design Group: 16
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.342 OK
Pu = -46.26 kips phiPn = -135.09 kips
Mu = 67.6 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E7 (LC 556)
Code Ref: 10.3.7

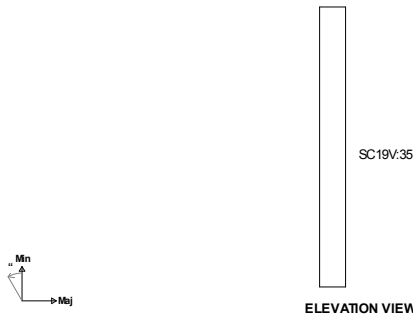
Shear Results:
Segment SC16V:153:
Length = 4.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 75.7 kip phiVn = 148.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.767% (14.3.3) OK
Segment SC16V:153:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC19V:35 (Vertical)
Story: T.O. PENTHOUSE
Ag = 1512 in2 Imaj = 18144 in4 Imin = 2000376 in4
Wall Design Group: 19
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.021 OK
Pu = -2.25 kips phiPn = -107.32 kips
Mu = 14.6 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E26 (LC 575)
Code Ref: 10.3.7

Shear Results:
Segment SC19V:35:
Length = 10.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 11.1 kip phiVn = 228.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp - 1.300 E26 (LC 215)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.312% (11.9.9.2) OK
Segment SC19V:35:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

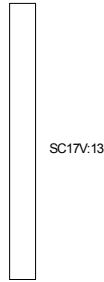
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 901/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Section Cut ID: SC17V:13 (Vertical)
Story: LEVEL 4
Ag = 1440 in2 I_{mag} = 17280 in4 I_{min} = 1728000 in4
Wall Design Group: 17
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.049 OK
Pu = -5.88 kips phiPn = -119.36 kips
Mu = 61.3 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E24 (LC 573)
Code Ref: 10.3.7

Shear Results:
Segment SC17V:13:
Length = 10.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 26.1 kip phiVn = 286.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.511% (11.9.9.2) OK
Segment SC17V:13:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

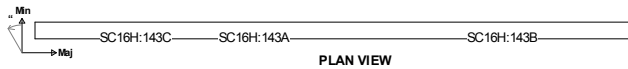
RAM Concrete Shearwall 15.04.00.000 Page 902/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 903/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Section Cut ID: SC16H:143 (Horizontal) (Hinge)
Story: LEVEL 3
Ag = 5133 in2 I_{mag} = 78254891 in4 I_{min} = 61593 in4
Major Axis Orientation: 360.00 degrees (CCW from global X-axis)
Wall Design Group: 16
Design Status: PASS



PLAN VIEW

Axial/Flexural Results:
Interaction: 0.175 OK
Pu = -184.94 kips phiPn = -1058.63 kips
Mu = 3307.5 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E25 (LC 538)
Code Ref: 10.3.7

Shear Results:
Segment SC16H:143A:
Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 106.1 kip phiVn = 314.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E5 (LC 14)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:143B:
Length = 21.48 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 344.7 kip phiVn = 795.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:143C:
Length = 5.67 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 61.1 kip phiVn = 209.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E21 (LC 30)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.715% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 904/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

c_{max} = 8.49 ft c = 4.32 ft (21.9.6.2) OK

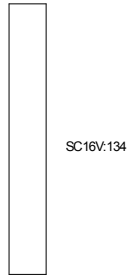
Segment SC16H:143A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:143B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:143C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.13 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 1.253% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 905/1293
07/25/17 11:03:32

Section Cut ID: SC16V:134 (Vertical)
Story: LEVEL 3.1
Ag = 1008 in2 Imaj = 12096 in4 Imin = 592704 in4
Wall Design Group: 16
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.077 OK
Pu = -7.92 kips phiPn = -102.41 kips
Mu = 71.7 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E7 (LC 520)
Code Ref: 10.3.7

Shear Results:
Segment SC16V:134:
Length = 7.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 90.8 kip phiVn = 259.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

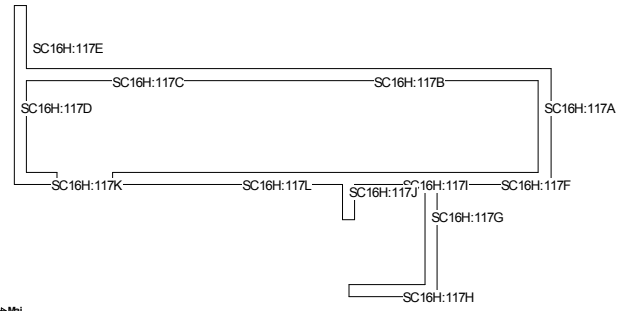
Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.701% (14.3.3) OK
Segment SC16V:134:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 906/1293
07/25/17 11:03:32

Section Cut ID: SC16H:117 (Horizontal) (Hinge)
Story: LEVEL 3.1
Ag = 17520 in2 Imaj = 494692829 in4 Imin = 79451243 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 16
Design Status: FAILS



PLAN VIEW

Axial/Flexural Results:
Interaction: 0.062 OK
Pu = 2164.57 kips phiPn = 35121.04 kips
Mu = 7771.0 kip-ft at Beta = 3.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC16H:117A:
Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 139.1 kip phiVn = 314.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117B:
Length = 29.83 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 271.2 kip phiVn = 1105.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 907/1293
07/25/17 11:03:32

Shear Results:
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117C:
Length = 13.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 75.8 kip phiVn = 481.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E35 (LC 116)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117D:
Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 193.0 kip phiVn = 314.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117E:
Length = 5.67 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 277.1 kip phiVn = 209.9 kip NG
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E21 (LC 30)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117F:
Length = 9.25 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 118.8 kip phiVn = 342.6 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E7 (LC 304)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117G:
Length = 9.17 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 70.5 kip phiVn = 339.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117H:
Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 21.7 kip phiVn = 250.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117I:

Uses also 117D for total capacity

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 908/1293
07/25/17 11:03:32

Shear Results:
Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 72.0 kip phiVn = 250.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117J:
Length = 3.42 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 51.0 kip phiVn = 126.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117K:
Length = 3.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 50.3 kip phiVn = 111.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:117L:
Length = 19.33 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 255.4 kip phiVn = 716.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E28 (LC 109)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.804% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10:
cmax = 9.79 ft c = 5.88 ft (21.9.6.2) OK

Segment SC16H:117A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:117C:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 909/1293
 07/25/17 11:03:32

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC16H:117D:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC16H:117E:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 7.13 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.614% Actual: 1.253% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC16H:117F:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC16H:117G:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC16H:117H:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 7.25 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.920% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC16H:117I:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC16H:117J:
 Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 910/1293
 07/25/17 11:03:32

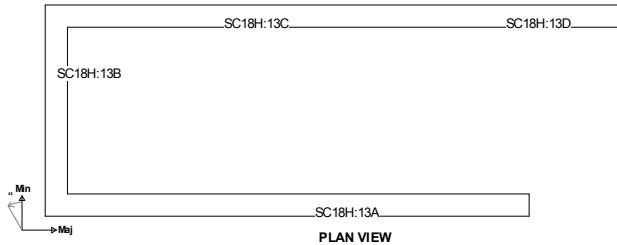
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC16H:117K:
 Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC16H:117L:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 911/1293
 07/25/17 11:03:32

Section Cut ID: SC18H:13 (Horizontal)
Story: ROOF LEVEL
 Ag = 7932 in2 Imaj = 66320154 in4 Imin = 18519902 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 18
 Design Status: **PASS**



Axial/Flexural Results:
 Interaction: 0.045 **OK**
 Pu = 655.30 kips phiPn = 14705.69 kips
 Mu = 176.4 kip-ft at Beta = 72.2 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:
 Segment SC18H:13A:
 Length = 21.25 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 195.3 kip phiVn = 461.6 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E28 (LC 181)
 Code Ref: 14.2.3 & 11.9.5

Segment SC18H:13B:
 Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 76.5 kip phiVn = 184.7 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E21 (LC 174)
 Code Ref: 14.2.3 & 11.9.5

Segment SC18H:13C:
 Length = 13.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 912/1293
 07/25/17 11:03:32

Shear Results:
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 71.2 kip phiVn = 282.4 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

Segment SC18H:13D:
 Length = 12.33 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 55.6 kip phiVn = 267.9 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E26 (LC 35)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.292% (11.9.9.4) **OK**

Segment SC18H:13A:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC18H:13B:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC18H:13C:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

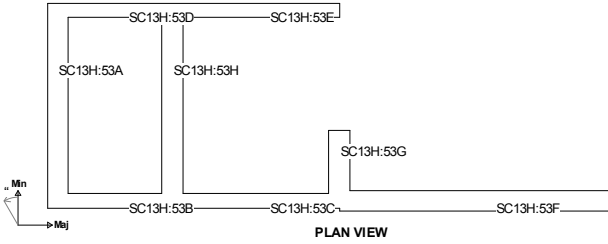
Segment SC18H:13D:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 913/1293
07/25/17 11:03:32

Section Cut ID: SC13H:53 (Horizontal) (Hinge)
Story: LEVEL 3.1
Ag = 12609 in2 Imaj = 78641281 in4 Imin = 19012759 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 13
Design Status: PASS



Axial/Flexural Results:

Interaction: 0.096 OK
Pu = 1385.41 kips phiPn = 14499.25 kips
Mu = 2897.7 kip-ft at Beta = -18.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:

Segment SC13H:53A:
Length = 9.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 91.5 kip phiVn = 257.5 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E13 (LC 310)
Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53B:
Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 39.9 kip phiVn = 137.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E9 (LC 18)
Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53C:
Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 914/1293
07/25/17 11:03:32

Shear Results:

Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 82.6 kip phiVn = 201.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E17 (LC 98)
Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53D:
Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 28.9 kip phiVn = 137.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E17 (LC 26)
Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53E:
Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 23.8 kip phiVn = 201.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 1.300 E34 (LC 259)
Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53F:
Length = 12.80 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 195.3 kip phiVn = 366.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53G:
Length = 3.33 ft Thick = 12.00 in f'c = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 57.4 kip phiVn = 95.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53H:
Length = 9.00 ft Thick = 12.00 in f'c = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 124.9 kip phiVn = 257.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.725% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 6.00 ft c = 0.70 ft (21.9.6.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 915/1293
07/25/17 11:03:32

Segment SC13H:53A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC13H:53B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC13H:53C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC13H:53D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC13H:53E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC13H:53F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC13H:53G:
Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC13H:53H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 916/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

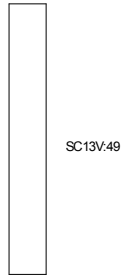
Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 917/1293

07/25/17 11:03:32

Section Cut ID: SC13V:49 (Vertical)
Story: LEVEL 3.1
Ag = 1008 in2 Imaj = 12096 in4 Imin = 592704 in4
Wall Design Group: 13
Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.084 **OK**
Pu = -0.32 kips phiPn = -3.77 kips
Mu = 72.7 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E17 (LC 530)
Code Ref: 10.3.7

Shear Results:
Segment SC13V:49:
Length = 7.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 108.8 kip phiVn = 200.3 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E17 (LC 62)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.487% (11.9.9.2) **OK**
Segment SC13V:49:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 918/1293

07/25/17 11:03:32

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**



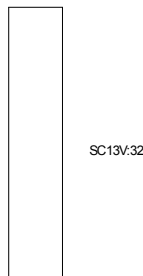
Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 919/1293

07/25/17 11:03:32

Section Cut ID: SC13V:32 (Vertical)
Story: LEVEL 2.3
Ag = 720 in2 Imaj = 8640 in4 Imin = 216000 in4
Wall Design Group: 13
Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.121 **OK**
Pu = -11.66 kips phiPn = -96.71 kips
Mu = 29.6 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E16 (LC 169)
Code Ref: 10.3.7

Shear Results:
Segment SC13V:32:
Length = 5.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 34.6 kip phiVn = 141.9 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E17 (LC 170)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.511% (11.9.9.2) **OK**
Segment SC13V:32:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**



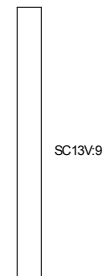
Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 920/1293

07/25/17 11:03:32

Section Cut ID: SC13V:9 (Vertical)
Story: LEVEL 3.1
Ag = 672 in2 Imaj = 3584 in4 Imin = 395136 in4
Wall Design Group: 13
Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.039 **OK**
Pu = 24.30 kips phiPn = 625.77 kips
Mu = 74.5 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC13V:9:
Length = 7.00 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 40.2 kip phiVn = 178.2 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E35 (LC 44)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.730% (11.9.9.2) **OK**
Segment SC13V:9:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**



Section Cut Design Summary

Section Cut ID: SC15V:69 (Vertical)
Story: LEVEL 2
 Ag = 792 in2 Imaj = 9504 in4 Imin = 287496 in4
 Wall Design Group: 15
 Design Status: **PASS**



Axial/Flexural Results:
 Interaction: 0.051 **OK**
 Pu = 48.95 kips phiPn = 965.62 kips
 Mu = 74.7 kip-ft at Beta = 0.0 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E7 (LC 52)
 Code Ref: 10.3.7

Shear Results:
 Segment SC15V:69:
 Length = 5.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 42.1 kip phiVn = 203.7 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.781% (14.3.3) **OK**
 Segment SC15V:69:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

Section Cut ID: SC12V:26 (Vertical)
Story: LEVEL 2
 Ag = 1224 in2 Imaj = 14688 in4 Imin = 1061208 in4
 Wall Design Group: 12
 Design Status: **PASS**



Axial/Flexural Results:
 Interaction: 0.097 **OK**
 Pu = -7.04 kips phiPn = -72.74 kips
 Mu = 100.6 kip-ft at Beta = -0.0 deg CCW from Major axis
 Controlling Load Combo: 0.784 D + 1.300 E36 (LC 549)
 Code Ref: 10.3.7

Shear Results:
 Segment SC12V:26:
 Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 142.4 kip phiVn = 243.2 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
 Code Ref: 14.2.3 & 11.9.5

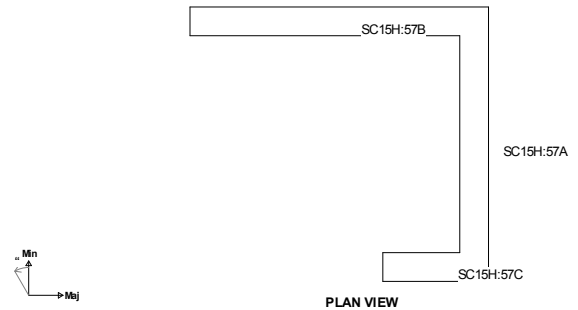
Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.501% (11.9.9.2) **OK**
 Segment SC12V:26:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**

Section Cut Design Summary

Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

Section Cut ID: SC15H:57 (Horizontal) (Hinge)
Story: LEVEL 2
 Ag = 3096 in2 Imaj = 4085713 in4 Imin = 5222572 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 15
 Design Status: **FAILS**



Axial/Flexural Results:
 Interaction: 0.169 **OK**
 Pu = -390.15 kips phiPn = -2307.62 kips
 Mu = 134.6 kip-ft at Beta = 34.3 deg CCW from Major axis
 Controlling Load Combo: 0.784 D + 1.300 E10 (LC 523)
 Code Ref: 10.3.7

Shear Results:
 Segment SC15H:57A:
 Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 49.5 kip phiVn = 314.8 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
 Code Ref: 14.2.3 & 11.9.5

Segment SC15H:57B:
 Length = 9.83 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 126.6 kip phiVn = 340.7 kip **OK**
 Controlling Load Combo: 0.784 D + 1.300 E10 (LC 523)
 Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:

Segment SC15H:57C:
Length = 3.17 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 28.7 kip phiVn = 117.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 1.665% (11.9.9.4) OK
S.B.E. Check: Boundary zone required for one or more load combos
Worst case is load combo 12 :
cmx = 2.78 ft c = 3.76 ft (21.9.6.2) NG

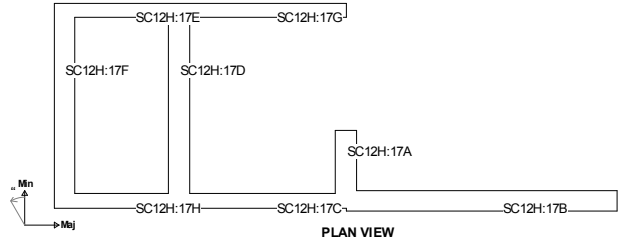
Segment SC15H:57A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC15H:57B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC15H:57C:
Max Vert Bar Spacing Limit: 12.67 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Not accurate per plan, Say OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC12H:17 (Horizontal) (Hinge)
Story: LEVEL 2
Ag = 12609 in2 Imaj = 78641281 in4 lmin = 19012759 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 12
Design Status: PASS



Axial/Flexural Results:

Interaction: 0.213 OK
Pu = 623.25 kips phiPn = 2931.33 kips
Mu = 7166.1 kip-ft at Beta = -32.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E13 (LC 526)
Code Ref: 10.3.7

Shear Results:

Segment SC12H:17A:
Length = 3.33 ft Thick = 12.00 in f'c = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 17.7 kip phiVn = 93.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17B:

Length = 12.80 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 162.0 kip phiVn = 358.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17C:

Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:

Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 99.1 kip phiVn = 198.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17D:

Length = 9.00 ft Thick = 12.00 in f'c = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 47.9 kip phiVn = 252.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E12 (LC 21)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17E:

Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 39.7 kip phiVn = 135.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17F:

Length = 9.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 40.7 kip phiVn = 252.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E10 (LC 163)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17G:

Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 39.1 kip phiVn = 198.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E17 (LC 26)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17H:

Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 65.6 kip phiVn = 135.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.725% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmx = 6.43 ft c = 0.58 ft (21.9.6.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Segment SC12H:17A:

Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC12H:17B:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC12H:17C:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC12H:17D:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC12H:17E:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC12H:17F:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC12H:17G:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC12H:17H:

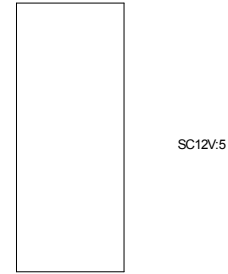
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK

Section Cut Design Summary

Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC12V:5 (Vertical)
Story: LEVEL 2.1
 Ag = 360 in2 Imaj = 4320 in4 Imin = 27000 in4
 Wall Design Group: 12
 Design Status: PASS



ELEVATION VIEW



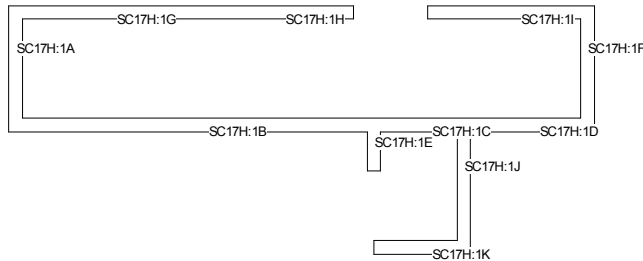
Axial/Flexural Results:
 Interaction: 0.046 OK
 Pu = 0.46 kips phiPn = 9.97 kips
 Mu = 7.5 kip-ft at Beta = 0.0 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn - 1.300 E12 (LC 129)
 Code Ref: 10.3.7

Shear Results:
 Segment SC12V:5:
 Length = 2.50 ft Thick = 12.00 in f_c = 3500 psi f_y = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 11.7 kip phiVn = 70.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E17 (LC 170)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.682% (11.9.9.2) OK
 Segment SC12V:5:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC17H:1 (Horizontal)
Story: LEVEL 4
 Ag = 16632 in2 Imaj = 464483501 in4 Imin = 67992964 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 17
 Design Status: PASS



PLAN VIEW



Axial/Flexural Results:
 Interaction: 0.059 OK
 Pu = 1876.45 kips phiPn = 31716.96 kips
 Mu = 2426.2 kip-ft at Beta = 39.0 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:
 Segment SC17H:1A:
 Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 135.3 kip phiVn = 243.2 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E21 (LC 174)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1B:
 Length = 26.83 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 305.4 kip phiVn = 767.9 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
 Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

Shear Results:
 Segment SC17H:1C:
 Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 73.1 kip phiVn = 193.2 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1D:
 Length = 9.25 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 119.0 kip phiVn = 264.7 kip OK
 Controlling Load Combo: 1.316 D + 1.300 E7 (LC 448)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1E:
 Length = 3.42 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 51.0 kip phiVn = 97.8 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1F:
 Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 101.8 kip phiVn = 243.2 kip OK
 Controlling Load Combo: 1.316 D + 1.300 E7 (LC 448)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1G:
 Length = 13.00 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 59.3 kip phiVn = 372.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1H:
 Length = 12.33 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 51.0 kip phiVn = 352.9 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E26 (LC 35)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1I:
 Length = 12.00 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 933/1293
07/25/17 11:03:32

Shear Results:

Vu = 46.7 kip phiVn = 343.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1J:

Length = 9.17 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 70.5 kip phiVn = 262.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1K:

Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 21.7 kip phiVn = 193.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.472% (11.9.9.4) OK
Segment SC17H:1A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 934/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1E:
Max Vert Bar Spacing Limit: 13.67 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1I:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1J:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1K:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 935/1293
07/25/17 11:03:32

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 936/1293
07/25/17 11:03:32

Section Cut ID: SC15H:47 (Horizontal) (Hinge)
Story: LEVEL 2
Ag = 1980 in2 Imaj = 4492158 in4 Imin = 23760 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 15
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.146 OK
Pu = 632.79 kips phiPn = 4324.15 kips
Mu = 143.3 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 10.3.7

Shear Results:

Segment SC15H:47:
Length = 13.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 174.0 kip phiVn = 509.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

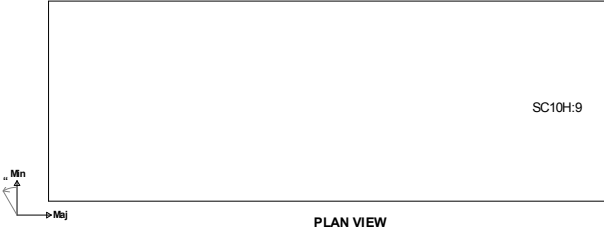
Min Vert Reinf Ratio: Limit: 0.250% Actual: 1.413% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 3.27 ft c = 2.55 ft (21.9.6.2) OK
Segment SC15H:47:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.614% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 937/1293
07/25/17 11:03:32

Section Cut ID: SC10H:9 (Horizontal) (Hinge)
Story: LEVEL 3.1
Ag = 708 in2 Imaj = 115283 in4 Imin = 15093 in4
Major Axis Orientation: 66.00 degrees (CCW from global X-axis)
Wall Design Group: 10
Design Status: **PASS**



Axial/Flexural Results:
Interaction: 0.141 **OK**
Pu = 189.64 kips phiPn = 1341.16 kips
Mu = 19.1 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC10H:9:
Length = 3.68 ft Thick = 16.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 4.8 kip phiVn = 117.1 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E21 (LC 174)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.434% (11.9.9.4) **OK**
S.B.E. Check: **Neutral axis distance less than limit for all load combos**
Worst case is load combo 10 :
cmax = 0.88 ft c = 0.40 ft (21.9.6.2) **OK**

Segment SC10H:9:
Max Vert Bar Spacing Limit: 14.74 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.320% Actual: 0.320% (21.9.4.3) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 938/1293
07/25/17 11:03:32

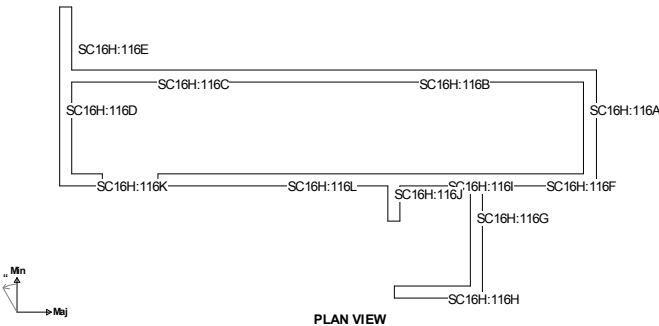
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 939/1293
07/25/17 11:03:32

Section Cut ID: SC16H:116 (Horizontal) (Hinge)
Story: LEVEL 3.1
Ag = 17520 in2 Imaj = 494692829 in4 Imin = 79451243 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 16
Design Status: **PASS**



Axial/Flexural Results:
Interaction: 0.080 **OK**
Pu = 1588.28 kips phiPn = 19808.27 kips
Mu = 11167.3 kip-ft at Beta = 35.8 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 10.3.7

Shear Results:
Segment SC16H:116A:
Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 139.2 kip phiVn = 314.8 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116B:
Length = 29.83 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 292.1 kip phiVn = 1105.0 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 940/1293
07/25/17 11:03:32

Shear Results:
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116C:
Length = 13.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 56.4 kip phiVn = 481.5 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E35 (LC 44)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116D:
Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 285.8 kip phiVn = 314.8 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116E:
Length = 5.67 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 147.8 kip phiVn = 209.9 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E21 (LC 30)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116F:
Length = 9.25 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 110.8 kip phiVn = 342.6 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E6 (LC 159)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116G:
Length = 9.17 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 70.5 kip phiVn = 339.5 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116H:
Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 21.7 kip phiVn = 250.0 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116I:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 941/1293

07/25/17 11:03:32

Shear Results:

Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 60.9 kip phiVn = 250.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116J:

Length = 3.42 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 50.9 kip phiVn = 126.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116K:

Length = 3.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 50.2 kip phiVn = 111.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116L:

Length = 19.33 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 253.1 kip phiVn = 716.1 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E28 (LC 325)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.804% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 7.93 ft c = 5.33 ft (21.9.6.2) OK

Segment SC16H:116A:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116B:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116C:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 942/1293

07/25/17 11:03:32

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116D:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116E:

Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.13 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 1.253% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116F:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116G:

Max Vert Bar Spacing Limit: 18.00 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116H:

Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.920% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116I:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116J:

Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 943/1293

07/25/17 11:03:32

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116K:

Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116L:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

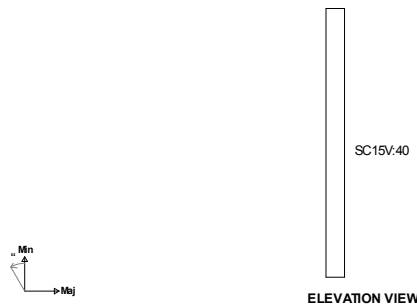
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 944/1293

07/25/17 11:03:32

Section Cut ID: SC15V:40 (Vertical)

Story: LEVEL 2
Ag = 1944 in2 Imaj = 23328 in4 Imin = 4251528 in4
Wall Design Group: 15
Design Status: PASS



Axial/Flexural Results:

Interaction: 0.024 OK
Pu = -1.89 kips phiPn = -78.11 kips
Mu = 95.2 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E10 (LC 523)
Code Ref: 10.3.7

Shear Results:

Segment SC15V:40:
Length = 13.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 54.9 kip phiVn = 639.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.682% (14.3.3) OK
Segment SC15V:40:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

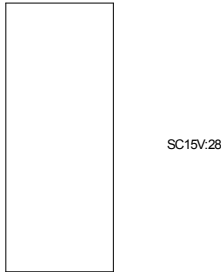
Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 945/1293

07/25/17 11:03:32

Section Cut ID: SC15V:28 (Vertical)
Story: LEVEL 2.1
Ag = 360 in2 Imaj = 4320 in4 Imin = 27000 in4
Wall Design Group: 15
Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.152 **OK**
Pu = -15.86 kips phiPn = -104.04 kips
Mu = 15.5 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E10 (LC 559)
Code Ref: 10.3.7

Shear Results:
Segment SC15V:28:
Length = 2.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 49.0 kip phiVn = 92.6 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.982% (14.3.3) **OK**
Segment SC15V:28:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min web reinforcement ratio: 0.250% Actual: 0.614% (21.9.2.1) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 946/1293

07/25/17 11:03:32

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

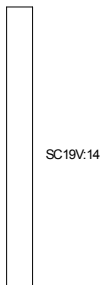
Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 947/1293

07/25/17 11:03:32

Section Cut ID: SC19V:14 (Vertical)
Story: T.O. PENTHOUSE
Ag = 1512 in2 Imaj = 18144 in4 Imin = 2000376 in4
Wall Design Group: 19
Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.105 **OK**
Pu = -24.95 kips phiPn = -237.63 kips
Mu = 9.1 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E24 (LC 573)
Code Ref: 10.3.7

Shear Results:
Segment SC19V:14:
Length = 10.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 30.7 kip phiVn = 226.2 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E7 (LC 52)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.312% (11.9.9.2) **OK**
Segment SC19V:14:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 948/1293

07/25/17 11:03:32

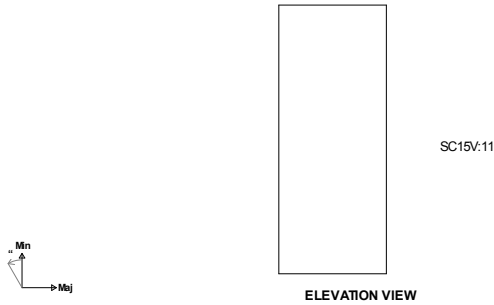
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 949/1293
07/25/17 11:03:32

Section Cut ID: SC15V:11 (Vertical)
Story: LEVEL 2.1
Ag = 360 in2 Imaj = 4320 in4 Imin = 27000 in4
Wall Design Group: 15
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.153 OK
Pu = -2.49 kips phiPn = -16.32 kips
Mu = 30.6 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E6 (LC 51)
Code Ref: 10.3.7

Shear Results:
Segment SC15V:11:
Length = 2.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 50.9 kip phiVn = 118.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E6 (LC 51)
Code Ref: 14.2.3 & 11.9.5

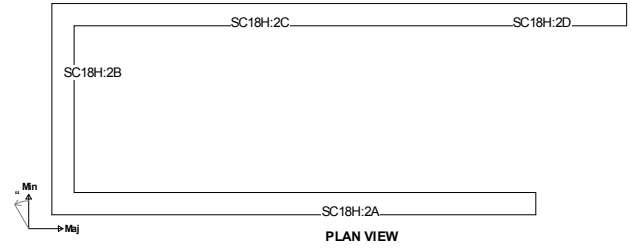
Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.982% (14.3.3) OK
Segment SC15V:11:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 950/1293
07/25/17 11:03:32

Section Cut ID: SC18H:2 (Horizontal)
Story: ROOF LEVEL
Ag = 7932 in2 Imaj = 66320154 in4 Imin = 18519902 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 18
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.061 OK
Pu = 91.95 kips phiPn = 1499.92 kips
Mu = 1787.6 kip-ft at Beta = -14.3 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E25 (LC 538)
Code Ref: 10.3.7

Shear Results:
Segment SC18H:2A:
Length = 21.25 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 195.3 kip phiVn = 461.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E28 (LC 181)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:2B:
Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 76.5 kip phiVn = 184.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E21 (LC 174)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:2C:
Length = 13.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 951/1293
07/25/17 11:03:32

Shear Results:
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 83.5 kip phiVn = 282.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:2D:
Length = 12.33 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 47.7 kip phiVn = 267.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E26 (LC 35)
Code Ref: 14.2.3 & 11.9.5

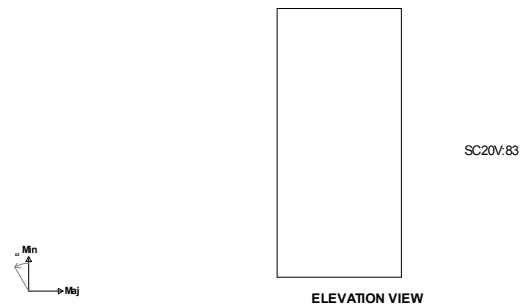
Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.292% (11.9.9.4) OK
Segment SC18H:2A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:2B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:2C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:2D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 952/1293
07/25/17 11:03:32

Section Cut ID: SC20V:83 (Vertical)
Story: LEVEL 2.1
Ag = 420 in2 Imaj = 6860 in4 Imin = 31500 in4
Wall Design Group: 20
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.166 OK
Pu = -7.32 kips phiPn = -43.99 kips
Mu = 8.1 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E17 (LC 26)
Code Ref: 10.3.7

Shear Results:
Segment SC20V:83:
Length = 2.50 ft Thick = 14.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 9.7 kip phiVn = 60.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp - 1.300 E17 (LC 206)
Code Ref: 14.2.3 & 11.9.5

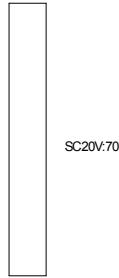
Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.374% (11.9.9.2) OK
Segment SC20V:83:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 953/1293
 07/25/17 11:03:32

Section Cut ID: SC20V:70 (Vertical)
Story: LEVEL 2
 Ag = 1428 in2 Imaj = 23324 in4 Imin = 1238076 in4
 Wall Design Group: 20
 Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:
 Interaction: 0.102 **OK**
 Pu = -6.99 kips phiPn = -68.71 kips
 Mu = 68.2 kip-ft at Beta = -0.0 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E24 (LC 69)
 Code Ref: 10.3.7

Shear Results:
 Segment SC20V:70:
 Length = 8.50 ft Thick = 14.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
 Vu = 40.9 kip phiVn = 206.7 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E5 (LC 14)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.302% (11.9.9.2) **OK**
 Segment SC20V:70:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 954/1293
 07/25/17 11:03:32

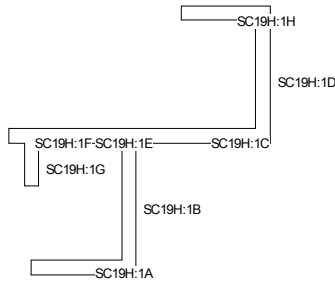
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 955/1293
 07/25/17 11:03:32

Section Cut ID: SC19H:1 (Horizontal)
Story: T.O. PENTHOUSE
 Ag = 7212 in2 Imaj = 32002731 in4 Imin = 29971926 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 19
 Design Status: **PASS**



PLAN VIEW

Axial/Flexural Results:
 Interaction: 0.028 **OK**
 Pu = 272.21 kips phiPn = 9826.28 kips
 Mu = 958.6 kip-ft at Beta = 71.8 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:
 Segment SC19H:1A:
 Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 14.5 kip phiVn = 146.6 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E26 (LC 35)
 Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1B:
 Length = 9.17 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 38.4 kip phiVn = 199.1 kip **OK**
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 956/1293
 07/25/17 11:03:32

Shear Results:
 Segment SC19H:1C:
 Length = 9.25 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 31.2 kip phiVn = 200.9 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
 Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1D:
 Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 29.3 kip phiVn = 184.7 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E10 (LC 163)
 Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1E:
 Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 17.4 kip phiVn = 146.6 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E11 (LC 164)
 Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1F:
 Length = 1.58 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 9.0 kip phiVn = 34.4 kip **OK**
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E28 (LC 325)
 Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1G:
 Length = 3.42 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 11.4 kip phiVn = 74.2 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
 Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1H:
 Length = 5.67 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 9.8 kip phiVn = 123.1 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E5 (LC 158)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.310% (11.9.9.4) **OK**
 Segment SC19H:1A:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 957/1293
 07/25/17 11:03:32

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC19H:1B:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC19H:1C:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC19H:1D:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC19H:1E:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC19H:1F:
 Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC19H:1G:
 Max Vert Bar Spacing Limit: 13.67 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC19H:1H:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 958/1293
 07/25/17 11:03:32

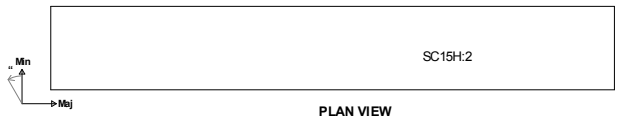
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 959/1293
 07/25/17 11:03:32

Section Cut ID: SC15H:2 (Horizontal) (Hinge)
Story: LEVEL 2.1
 Ag = 972 in2 Imaj = 531441 in4 Imin = 11664 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 15
 Design Status: PASS



Axial/Flexural Results:
 Interaction: 0.348 OK
 Pu = -182.49 kips phiPn = -523.67 kips
 Mu = 22.3 kip-ft at Beta = 0.8 deg CCW from Major axis
 Controlling Load Combo: 0.784 D + 1.300 E16 (LC 529)
 Code Ref: 10.3.7

Shear Results:
 Segment SC15H:2:
 Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 26.3 kip phiVn = 232.5 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E7 (LC 160)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 1.182% (11.9.9.4) OK
 S.B.E. Check: Neutral axis distance less than limit for all load combos
 Worst case is load combo 10 :
 cmax = 1.61 ft c = 1.50 ft (21.9.6.2) OK

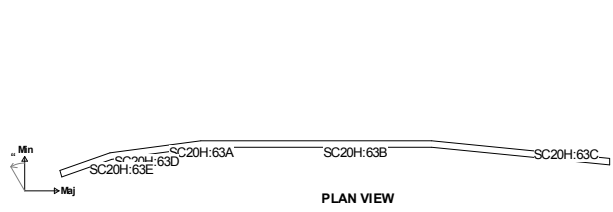
Segment SC15H:2:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 7.25 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.920% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 960/1293
 07/25/17 11:03:32

Section Cut ID: SC20H:63 (Horizontal)
Story: LEVEL 2
 Ag = 16708 in2 Imaj = 1967973002 in4 Imin = 4201342 in4
 Major Axis Orientation: 339.50 degrees (CCW from global X-axis)
 Wall Design Group: 20
 Design Status: PASS



Axial/Flexural Results:
 Interaction: 0.040 OK
 Pu = 556.44 kips phiPn = 13802.17 kips
 Mu = 4563.5 kip-ft at Beta = 7.2 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E13 (LC 22)
 Code Ref: 10.3.7

Shear Results:
 Segment SC20H:63A:
 Length = 16.38 ft Thick = 14.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
 Vu = 57.8 kip phiVn = 400.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E13 (LC 22)
 Code Ref: 14.2.3 & 11.9.5

Segment SC20H:63B:
 Length = 41.35 ft Thick = 14.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
 Vu = 169.6 kip phiVn = 1009.7 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
 Code Ref: 14.2.3 & 11.9.5

Segment SC20H:63C:
 Length = 32.21 ft Thick = 14.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
 Vu = 128.9 kip phiVn = 786.6 kip OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 961/1293
07/25/17 11:03:32

Shear Results:

Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC20H:63D:

Length = 3.67 ft Thick = 14.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 35.6 kip phiVn = 89.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E13 (LC 22)
Code Ref: 14.2.3 & 11.9.5

Segment SC20H:63E:

Length = 5.83 ft Thick = 14.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 46.4 kip phiVn = 142.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E13 (LC 22)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.266% (11.9.9.4) OK

Segment SC20H:63A:

Max Vert Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC20H:63B:

Max Vert Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC20H:63C:

Max Vert Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC20H:63D:

Max Vert Bar Spacing Limit: 14.68 in Actual: 11.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC20H:63E:

Max Vert Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.9.5) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 962/1293
07/25/17 11:03:32

Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 963/1293
07/25/17 11:03:32

Section Cut ID:

SC1V:5 (Vertical)

Story:

LEVEL 2

Ag = 1428 in2

Imaj = 23324 in4

Imin = 1238076 in4

Wall Design Group: 1

Design Status: PASS



SC1V:5

ELEVATION VIEW

Axial/Flexural Results:

Interaction: 0.350 OK
Pu = -48.09 kips phiPn = -137.60 kips
Mu = 139.7 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E21 (LC 570)
Code Ref: 10.3.7

Shear Results:

Segment SC1V:5:
Length = 8.50 ft Thick = 14.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 114.5 kip phiVn = 207.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E21 (LC 30)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.302% (11.9.9.2) OK

Segment SC1V:5:

Max Horiz Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 964/1293
07/25/17 11:03:32

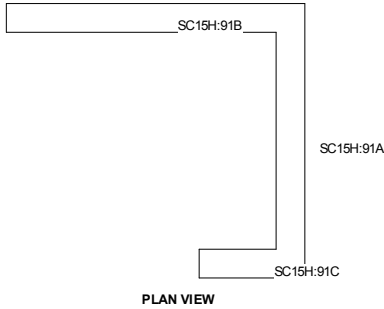
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 965/1293
07/25/17 11:03:32

Section Cut ID: SC15H:91 (Horizontal) (Hinge)
Story: LEVEL 2
Ag = 3096 in2 Imaj = 4085713 in4 Imin = 5222572 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 15
Design Status: **FAILS**



Axial/Flexural Results:

Interaction: 0.194 **OK**
Pu = -390.17 kips phiPn = -2011.52 kips
Mu = 455.3 kip-ft at Beta = -2.1 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E10 (LC 523)
Code Ref: 10.3.7

Shear Results:

Segment SC15H:91A:
Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 49.5 kip phiVn = 314.8 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:91B:

Length = 9.83 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 126.6 kip phiVn = 340.7 kip **OK**
Controlling Load Combo: 0.784 D + 1.300 E10 (LC 523)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 966/1293
07/25/17 11:03:32

Shear Results:

Segment SC15H:91C:
Length = 3.17 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 28.7 kip phiVn = 117.3 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 1.665% (11.9.9.4) **OK**
S.B.E. Check: **Boundary zone required for one or more load combos**
Worst case is load combo 19 :
cmax = 2.47 ft c = 2.61 ft (21.9.6.2) **NG**

Segment SC15H:91A:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC15H:91B:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC15H:91C:

Max Vert Bar Spacing Limit: 12.67 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

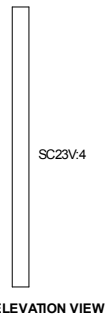
Not accurate per plan,
Say OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 967/1293
07/25/17 11:03:32

Section Cut ID: SC23V:4 (Vertical)
Story: T.O. PENTHOUSE
Ag = 1008 in2 Imaj = 5376 in4 Imin = 1333584 in4
Wall Design Group: 23
Design Status: **PASS**



Axial/Flexural Results:

Interaction: 0.219 **OK**
Pu = -27.74 kips phiPn = -126.49 kips
Mu = 141.7 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:

Segment SC23V:4:
Length = 10.50 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 22.0 kip phiVn = 192.3 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E32 (LC 77)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.467% (11.9.9.2) **OK**
Segment SC23V:4:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 968/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC22V:18 (Vertical)
Story: ROOF LEVEL
Ag = 1056 in2 Imaj = 5632 in4 Imin = 1533312 in4
Wall Design Group: 22
Design Status: PASS



Axial/Flexural Results:

Interaction: 0.042 OK
Pu = -6.59 kips phiPn = -156.14 kips
Mu = 22.3 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E34 (LC 187)
Code Ref: 10.3.7

Shear Results:

Segment SC22V:18:
Length = 11.00 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 50.1 kip phiVn = 204.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E31 (LC 76)
Code Ref: 14.2.3 & 11.9.5

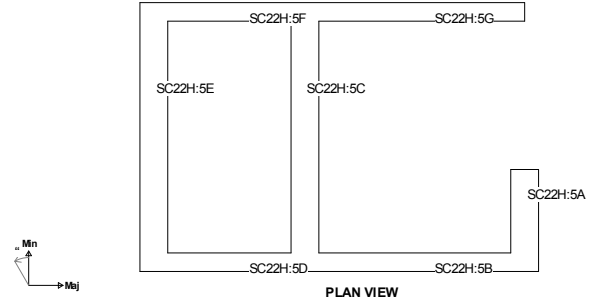
Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.446% (11.9.9.2) OK
Segment SC22V:18:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Section Cut ID: SC22H:5 (Horizontal)
Story: ROOF LEVEL
Ag = 10826 in2 Imaj = 20003992 in4 Imin = 14769055 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 22
Design Status: PASS



Axial/Flexural Results:

Interaction: 0.052 OK
Pu = 416.32 kips phiPn = 7994.27 kips
Mu = 1173.1 kip-ft at Beta = -13.4 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:

Segment SC22H:5A:
Length = 3.33 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 1.9 kip phiVn = 72.4 kip OK
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Segment SC22H:5B:

Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 29.3 kip phiVn = 147.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Shear Results:

Segment SC22H:5C:
Length = 9.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 24.1 kip phiVn = 195.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Segment SC22H:5D:

Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 7.2 kip phiVn = 100.4 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E33 (LC 330)
Code Ref: 14.2.3 & 11.9.5

Segment SC22H:5E:

Length = 9.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 26.3 kip phiVn = 195.5 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
Code Ref: 14.2.3 & 11.9.5

Segment SC22H:5F:

Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 13.4 kip phiVn = 100.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Segment SC22H:5G:

Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 31.3 kip phiVn = 147.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) OK
Segment SC22H:5A:
Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC22H:5B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

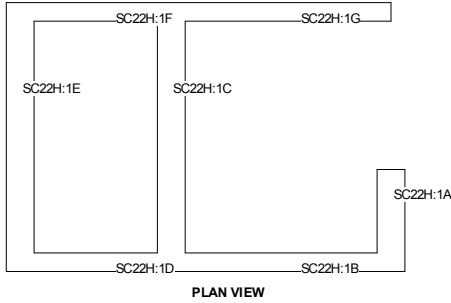
Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC22H:5C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC22H:5D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC22H:5E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC22H:5F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC22H:5G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC22H:1 (Horizontal)
Story: ROOF LEVEL
Ag = 10826 in2 Imaj = 20003992 in4 Imin = 14769055 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 22
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.056 OK
Pu = 457.83 kips phiPn = 8240.18 kips
Mu = 1187.6 kip-ft at Beta = -22.8 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC22H:1A:
Length = 3.33 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 1.9 kip phiVn = 72.4 kip OK
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Segment SC22H:1B:
Length = 7.92 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 38.2 kip phiVn = 147.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

Shear Results:
Segment SC22H:1C:
Length = 9.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 24.1 kip phiVn = 195.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Segment SC22H:1D:
Length = 5.41 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 11.0 kip phiVn = 100.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E32 (LC 185)
Code Ref: 14.2.3 & 11.9.5

Segment SC22H:1E:
Length = 9.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 26.3 kip phiVn = 195.5 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
Code Ref: 14.2.3 & 11.9.5

Segment SC22H:1F:
Length = 5.41 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 13.0 kip phiVn = 100.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Segment SC22H:1G:
Length = 7.92 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 33.5 kip phiVn = 147.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

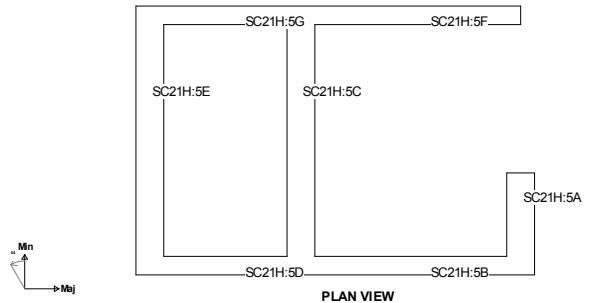
Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) OK
Segment SC22H:1A:
Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC22H:1B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

Section Cut Design Summary

Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC22H:1C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC22H:1D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC22H:1E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC22H:1F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC22H:1G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC21H:5 (Horizontal) (Hinge)
Story: LEVEL 4
Ag = 10826 in2 Imaj = 20003992 in4 Imin = 14769055 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 21
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.063 OK
Pu = 561.16 kips phiPn = 8960.61 kips
Mu = 1219.0 kip-ft at Beta = -24.4 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC21H:5A:
Length = 3.33 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 7.2 kip phiVn = 72.4 kip OK
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Segment SC21H:5B:
Length = 7.92 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 46.6 kip phiVn = 147.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 977/1293
07/25/17 11:03:32

Shear Results:

Segment SC21H:5C:
Length = 9.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 33.6 kip phiVn = 195.5 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
Code Ref: 14.2.3 & 11.9.5

Segment SC21H:5D:
Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 16.0 kip phiVn = 100.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Segment SC21H:5E:
Length = 9.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 35.4 kip phiVn = 195.5 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
Code Ref: 14.2.3 & 11.9.5

Segment SC21H:5F:
Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 40.4 kip phiVn = 147.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Segment SC21H:5G:
Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 15.5 kip phiVn = 100.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 3.86 ft c = 0.84 ft (21.9.6.2) OK

Segment SC21H:5A:
Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 978/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:5B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC21H:5C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC21H:5D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC21H:5E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC21H:5F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

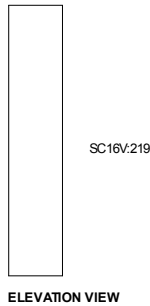
Segment SC21H:5G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 979/1293
07/25/17 11:03:32

Section Cut ID: SC16V:219 (Vertical)
Story: LEVEL 2.3
Ag = 720 in2 Imaj = 8640 in4 Imin = 216000 in4
Wall Design Group: 16
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.106 OK
Pu = -11.11 kips phiPn = -104.83 kips
Mu = 45.7 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E6 (LC 519)
Code Ref: 10.3.7

Shear Results:
Segment SC16V:219:
Length = 5.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 41.8 kip phiVn = 185.2 kip OK
Controlling Load Combo: 1.316 D + 1.300 E24 (LC 465)
Code Ref: 14.2.3 & 11.9.5

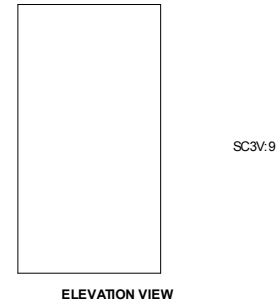
Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.736% (14.3.3) OK
Segment SC16V:219:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 980/1293
07/25/17 11:03:32

Section Cut ID: SC3V:9 (Vertical)
Story: LEVEL 2.1
Ag = 480 in2 Imaj = 10240 in4 Imin = 36000 in4
Wall Design Group: 3
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.055 OK
Pu = -0.63 kips phiPn = -11.44 kips
Mu = 5.7 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.200 Sp - 1.300 E20 (LC 353)
Code Ref: 10.3.7

Shear Results:
Segment SC3V:9:
Length = 2.50 ft Thick = 16.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@15" oc Horiz Bar Pat: #5@15" oc
Vu = 6.1 kip phiVn = 69.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E20 (LC 173)
Code Ref: 14.2.3 & 11.9.5

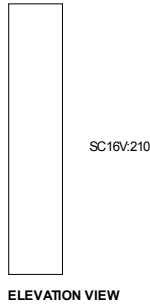
Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.2) OK
Segment SC3V:9:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 15.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 14.38 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 981/1293
07/25/17 11:03:32

Section Cut ID: SC16V:210 (Vertical)
Story: LEVEL 2.3
Ag = 720 in2 Imaj = 8640 in4 Imin = 216000 in4
Wall Design Group: 16
Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.140 **OK**
Pu = -12.47 kips phiPn = -89.34 kips
Mu = 65.6 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E10 (LC 559)
Code Ref: 10.3.7

Shear Results:
Segment SC16V:210:
Length = 5.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 94.4 kip phiVn = 185.2 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.859% (14.3.3) **OK**
Segment SC16V:210:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min web reinforcement ratio: 0.250% Actual: 0.614% (21.9.2.1) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 982/1293
07/25/17 11:03:32

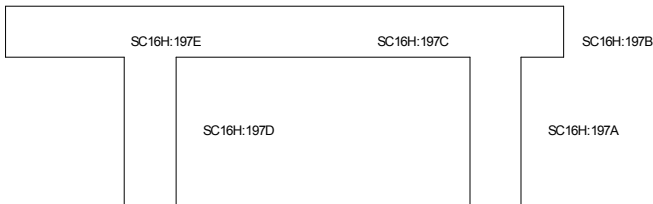
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 983/1293
07/25/17 11:03:32

Section Cut ID: SC16H:197 (Horizontal) (Hinge)
Story: LEVEL 2.3
Ag = 2412 in2 Imaj = 3680308 in4 Imin = 406950 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 16
Design Status: **PASS**



PLAN VIEW

Axial/Flexural Results:
Interaction: 0.099 **OK**
Pu = 515.90 kips phiPn = 5223.72 kips
Mu = 134.8 kip-ft at Beta = 82.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC16H:197A:
Length = 3.42 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 67.5 kip phiVn = 126.6 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:197B:
Length = 1.33 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 15.0 kip phiVn = 49.4 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E10 (LC 163)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:197C:
Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 984/1293
07/25/17 11:03:32

Shear Results:
Vu = 126.9 kip phiVn = 250.0 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:197D:
Length = 3.42 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 31.5 kip phiVn = 126.6 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E8 (LC 17)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:197E:
Length = 2.83 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 55.1 kip phiVn = 104.9 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 1.351% (11.9.9.4) **OK**
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 2.57 ft c = 2.45 ft (21.9.6.2) **OK**

Segment SC16H:197A:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC16H:197B:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC16H:197C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC16H:197D:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 985/1293
07/25/17 11:03:32

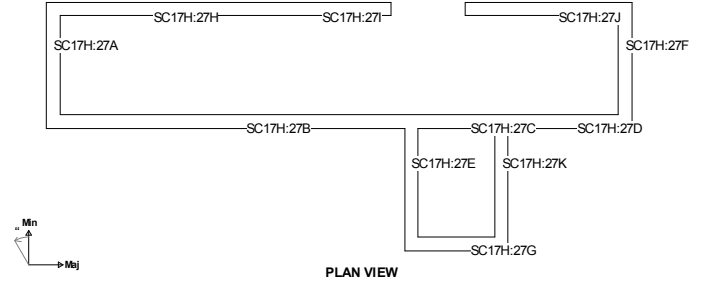
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:197E:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 986/1293
07/25/17 11:03:32

Section Cut ID: SC17H:27 (Horizontal)
Story: LEVEL 4
Ag = 24222 in2 Imaj = 507025850 in4 Imin = 112929491 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 17
Design Status: PASS



Axial/Flexural Results:

Interaction: 0.057 OK
Pu = 1898.54 kips phiPn = 33289.22 kips
Mu = 2628.2 kip-ft at Beta = 31.2 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:

Segment SC17H:27A:
Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 135.3 kip phiVn = 243.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E21 (LC 174)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27B:

Length = 26.83 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 309.8 kip phiVn = 767.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E28 (LC 181)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 987/1293
07/25/17 11:03:32

Shear Results:

Segment SC17H:27C:
Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 58.6 kip phiVn = 193.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27D:

Length = 9.25 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 121.8 kip phiVn = 264.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27E:

Length = 9.17 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 53.0 kip phiVn = 262.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27F:

Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 101.8 kip phiVn = 243.2 kip OK
Controlling Load Combo: 1.316 D + 1.300 E7 (LC 448)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27G:

Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 21.7 kip phiVn = 193.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27H:

Length = 13.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 77.2 kip phiVn = 372.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27I:

Length = 12.33 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 988/1293
07/25/17 11:03:32

Shear Results:

Vu = 60.2 kip phiVn = 352.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E12 (LC 21)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27J:

Length = 12.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 47.7 kip phiVn = 343.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E15 (LC 24)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27K:

Length = 9.17 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 70.5 kip phiVn = 262.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.471% (11.9.9.4) OK

Segment SC17H:27A:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC17H:27B:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC17H:27C:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC17H:27D:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 989/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27I:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27J:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27K:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 990/1293
07/25/17 11:03:32

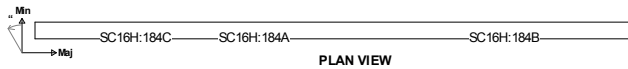
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 991/1293
07/25/17 11:03:32

Section Cut ID: SC16H:184 (Horizontal) (Hinge)
Story: LEVEL 2.3
Ag = 5136 in2 Imaj = 78402752 in4 Imin = 61632 in4
Major Axis Orientation: 360.00 degrees (CCW from global X-axis)
Wall Design Group: 16
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.194 OK
Pu = -170.95 kips phiPn = -879.84 kips
Mu = 4246.8 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E25 (LC 538)
Code Ref: 10.3.7

Shear Results:
Segment SC16H:184A:
Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 70.4 kip phiVn = 314.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E5 (LC 14)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:184B:
Length = 21.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 388.1 kip phiVn = 796.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:184C:
Length = 5.67 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 64.2 kip phiVn = 209.9 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E24 (LC 321)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.714% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 992/1293
07/25/17 11:03:32

cmax = 8.49 ft c = 5.20 ft (21.9.6.2) OK

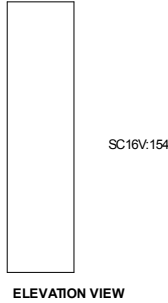
Segment SC16H:184A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:184B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:184C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.13 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 1.253% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 993/1293
07/25/17 11:03:32

Section Cut ID: SC16V:154 (Vertical)
Story: LEVEL 3
Ag = 576 in2 Imaj = 6912 in4 Imin = 110592 in4
Wall Design Group: 16
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:

Interaction: 0.053 OK
Pu = -11.05 kips phiPn = -207.09 kips
Mu = 3.3 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 10.3.7

Shear Results:

Segment SC16V:154:
Length = 4.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 53.4 kip phiVn = 146.7 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E6 (LC 303)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

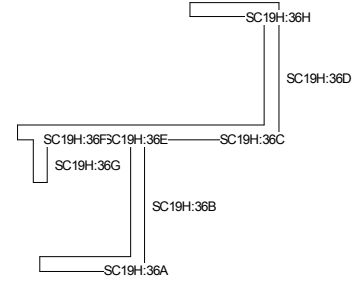
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.767% (14.3.3) OK
Segment SC16V:154:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 994/1293
07/25/17 11:03:32

Section Cut ID: SC19H:36 (Horizontal)
Story: T.O. PENTHOUSE
Ag = 7212 in2 Imaj = 32002731 in4 Imin = 29971926 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 19
Design Status: PASS



PLAN VIEW

Axial/Flexural Results:

Interaction: 0.019 OK
Pu = 243.56 kips phiPn = 13035.30 kips
Mu = 286.2 kip-ft at Beta = -66.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:

Segment SC19H:36A:
Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 14.5 kip phiVn = 146.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E26 (LC 35)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:36B:

Length = 9.17 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 38.4 kip phiVn = 199.1 kip OK
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 995/1293
07/25/17 11:03:32

Shear Results:

Segment SC19H:36C:
Length = 9.25 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 21.6 kip phiVn = 200.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:36D:

Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 17.3 kip phiVn = 184.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E10 (LC 163)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:36E:

Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 17.4 kip phiVn = 146.6 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E6 (LC 303)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:36F:

Length = 1.58 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 9.2 kip phiVn = 34.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:36G:

Length = 3.42 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 11.4 kip phiVn = 74.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:36H:

Length = 5.67 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 9.8 kip phiVn = 123.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E5 (LC 158)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.310% (11.9.9.4) OK
Segment SC19H:36A:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 996/1293
07/25/17 11:03:32

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:36B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:36C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:36D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:36E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:36F:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:36G:
Max Vert Bar Spacing Limit: 13.67 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:36H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 997/1293
07/25/17 11:03:32

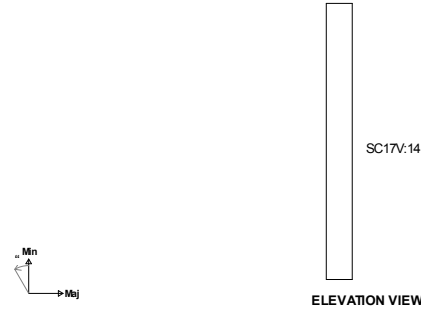
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 998/1293
07/25/17 11:03:32

Section Cut ID: SC17V:14 (Vertical)
Story: LEVEL 4
Ag = 1440 in2 Imaj = 17280 in4 Imin = 1728000 in4
Wall Design Group: 17
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.024 OK
Pu = -5.02 kips phiPn = -209.08 kips
Mu = 23.5 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E9 (LC 522)
Code Ref: 10.3.7

Shear Results:
Segment SC17V:14:
Length = 10.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 62.9 kip phiVn = 285.8 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp - 1.300 E24 (LC 357)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.511% (11.9.9.2) OK
Segment SC17V:14:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 999/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1000/1293
07/25/17 11:03:32

Section Cut ID: SC16V:145 (Vertical)
Story: LEVEL 3
Ag = 648 in2 Imaj = 7776 in4 Imin = 157464 in4
Wall Design Group: 16
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.128 OK
Pu = -9.84 kips phiPn = -76.86 kips
Mu = 57.1 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 10.3.7

Shear Results:
Segment SC16V:145:
Length = 4.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 79.7 kip phiVn = 165.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E13 (LC 58)
Code Ref: 14.2.3 & 11.9.5

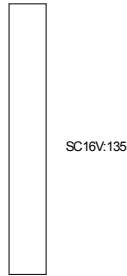
Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.818% (14.3.3) OK
Segment SC16V:145:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1001/1293
07/25/17 11:03:32

Section Cut ID: SC16V:135 (Vertical)
Story: LEVEL 3.1
Ag = 1008 in2 Imaj = 12096 in4 Imin = 592704 in4
Wall Design Group: 16
Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.064 **OK**
Pu = -3.20 kips phiPn = -49.83 kips
Mu = 69.2 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 10.3.7

Shear Results:
Segment SC16V:135:
Length = 7.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 97.3 kip phiVn = 258.9 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

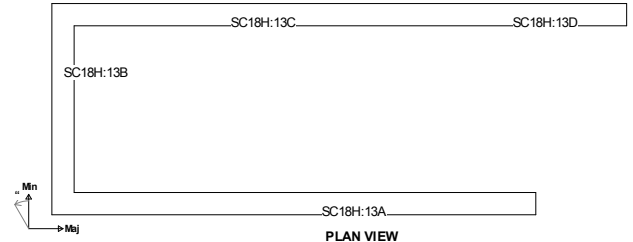
Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.701% (14.3.3) **OK**
Segment SC16V:135:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1002/1293
07/25/17 11:03:32

Section Cut ID: SC18H:13 (Horizontal)
Story: ROOF LEVEL
Ag = 7932 in2 Imaj = 66320154 in4 Imin = 18519902 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 18
Design Status: **PASS**



PLAN VIEW

Axial/Flexural Results:
Interaction: 0.045 **OK**
Pu = 655.30 kips phiPn = 14705.69 kips
Mu = 176.4 kip-ft at Beta = 72.2 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC18H:13A:
Length = 21.25 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 195.3 kip phiVn = 461.6 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E28 (LC 181)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:13B:
Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 76.5 kip phiVn = 184.7 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E21 (LC 174)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:13C:
Length = 13.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1003/1293
07/25/17 11:03:32

Shear Results:
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 71.2 kip phiVn = 282.4 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:13D:
Length = 12.33 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 55.6 kip phiVn = 267.9 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E26 (LC 35)
Code Ref: 14.2.3 & 11.9.5

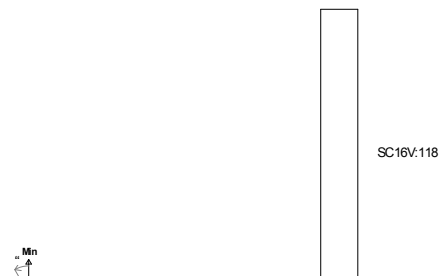
Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.292% (11.9.9.4) **OK**
Segment SC18H:13A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC18H:13B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC18H:13C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC18H:13D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1004/1293
07/25/17 11:03:32

Section Cut ID: SC16V:118 (Vertical)
Story: LEVEL 3.1
Ag = 1008 in2 Imaj = 12096 in4 Imin = 592704 in4
Wall Design Group: 16
Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.102 **OK**
Pu = -6.55 kips phiPn = -63.92 kips
Mu = 106.5 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E24 (LC 537)
Code Ref: 10.3.7

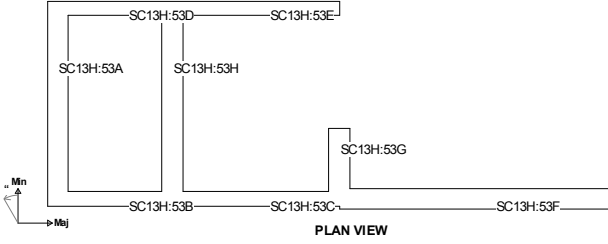
Shear Results:
Segment SC16V:118:
Length = 7.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 156.6 kip phiVn = 259.3 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E6 (LC 51)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.701% (14.3.3) **OK**
Segment SC16V:118:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1005/1293
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
 Design Code: ACI 318-11

Section Cut ID: SC13H:53 (Horizontal) (Hinge)
Story: LEVEL 3.1
 Ag = 12609 in2 I_{maj} = 78641281 in4 I_{min} = 19012759 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 13
 Design Status: **PASS**



Axial/Flexural Results:
 Interaction: 0.096 **OK**
 P_u = 1385.41 kips phiP_n = 14499.25 kips
 Mu = 2897.7 kip-ft at Beta = -18.0 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:
 Segment SC13H:53A:
 Length = 9.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 V_u = 91.5 kip phiV_n = 257.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E13 (LC 310)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53B:
 Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 V_u = 39.9 kip phiV_n = 137.7 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E9 (LC 18)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53C:
 Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1006/1293
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
 Design Code: ACI 318-11

Shear Results:
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 V_u = 82.6 kip phiV_n = 201.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E17 (LC 98)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53D:
 Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 V_u = 28.9 kip phiV_n = 137.7 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E17 (LC 26)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53E:
 Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 V_u = 23.8 kip phiV_n = 201.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Ln + 1.300 E34 (LC 259)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53F:
 Length = 12.80 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 V_u = 195.3 kip phiV_n = 366.2 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53G:
 Length = 3.33 ft Thick = 12.00 in f_c = 3500 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 V_u = 57.4 kip phiV_n = 95.4 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53H:
 Length = 9.00 ft Thick = 12.00 in f_c = 3500 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 V_u = 124.9 kip phiV_n = 257.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.725% (11.9.9.4) **OK**
 S.B.E. Check: Neutral axis distance less than limit for all load combos
 Worst case is load combo 10 :
 c_{max} = 6.00 ft c = 0.70 ft (21.9.6.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1007/1293
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
 Design Code: ACI 318-11

Segment SC13H:53A:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC13H:53B:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC13H:53C:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC13H:53D:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC13H:53E:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC13H:53F:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC13H:53G:
 Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC13H:53H:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**

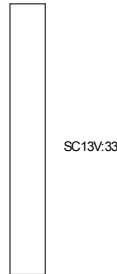
Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1008/1293
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
 Design Code: ACI 318-11

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

Section Cut ID: SC13V:33 (Vertical)
Story: LEVEL 2.3
Ag = 480 in2 Imaj = 2560 in4 Imin = 144000 in4
Wall Design Group: 13
Design Status: **PASS**



ELEVATION VIEW

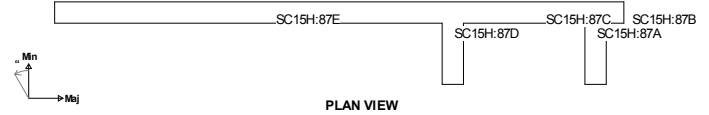
Axial/Flexural Results:
Interaction: 0.029 **OK**
Pu = 3.31 kips phiPn = 113.28 kips
Mu = 19.4 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E28 (LC 541)
Code Ref: 10.3.7

Shear Results:
Segment SC13V:33:
Length = 5.00 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 20.6 kip phiVn = 127.3 kip **OK**
Controlling Load Combo: 1.316 D + 0.200 Sp - 1.300 E28 (LC 361)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.767% (11.9.9.2) **OK**
Segment SC13V:33:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

Section Cut ID: SC15H:87 (Horizontal) (Hinge)
Story: LEVEL 2
Ag = 4716 in2 Imaj = 42697518 in4 Imin = 513525 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 15
Design Status: **FAILS**



PLAN VIEW

Axial/Flexural Results:
Interaction: 0.134 **OK**
Pu = 1000.36 kips phiPn = 7438.78 kips
Mu = 5309.9 kip-ft at Beta = -1.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 10.3.7

Shear Results:
Segment SC15H:87A:
Length = 3.42 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 22.8 kip phiVn = 126.6 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:87B:
Length = 1.33 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 3.4 kip phiVn = 49.4 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:87C:
Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 95.4 kip phiVn = 250.0 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:87D:
Length = 3.42 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi

Section Cut Design Summary

Shear Results:
Vert Bar Pat: Horiz Bar Pat:
Vu = 29.6 kip phiVn = 126.6 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:87E:
Length = 18.83 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 281.9 kip phiVn = 697.6 kip **OK**
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E28 (LC 325)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 1.193% (11.9.9.4) **OK**
S.B.E. Check: **Boundary zone required for one or more load combos - Say OK**
Worst case is load combo 299 :
cmax = 2.15 ft c = 2.31 ft (21.9.6.2) **NG**

Segment SC15H:87A:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC15H:87B:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC15H:87C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC15H:87D:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC15H:87E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**

Section Cut Design Summary

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

Section Cut ID: SC13V:10 (Vertical)
Story: LEVEL 3.1
 Ag = 672 in2 Imaj = 3584 in4 Imin = 395136 in4
 Wall Design Group: 13
 Design Status: **PASS**



Axial/Flexural Results:
 Interaction: 0.020 **OK**
 Pu = 26.27 kips phiPn = 1332.57 kips
 Mu = 5.0 kip-ft at Beta = -0.0 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:
 Segment SC13V:10:
 Length = 7.00 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 45.7 kip phiVn = 178.2 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E17 (LC 26)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.730% (11.9.9.2) **OK**
 Segment SC13V:10:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

Section Cut ID: SC15V:70 (Vertical)
Story: LEVEL 2
 Ag = 1944 in2 Imaj = 23328 in4 Imin = 4251528 in4
 Wall Design Group: 15
 Design Status: **PASS**



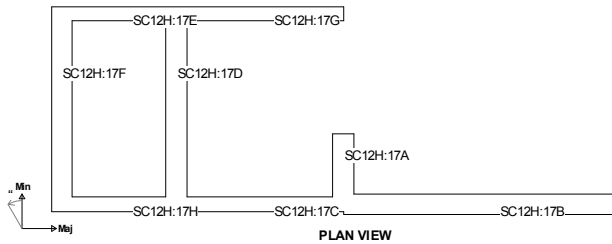
Axial/Flexural Results:
 Interaction: 0.070 **OK**
 Pu = -29.15 kips phiPn = -414.76 kips
 Mu = 146.4 kip-ft at Beta = -0.0 deg CCW from Major axis
 Controlling Load Combo: 0.784 D - 1.300 E10 (LC 559)
 Code Ref: 10.3.7

Shear Results:
 Segment SC15V:70:
 Length = 13.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 83.2 kip phiVn = 500.0 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.727% (14.3.3) **OK**
 Segment SC15V:70:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

Section Cut ID: SC12H:17 (Horizontal) (Hinge)
Story: LEVEL 2
 Ag = 12609 in2 Imaj = 78641281 in4 Imin = 19012759 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 12
 Design Status: **PASS**



Axial/Flexural Results:
 Interaction: 0.213 **OK**
 Pu = 623.25 kips phiPn = 2931.33 kips
 Mu = 7166.1 kip-ft at Beta = -32.0 deg CCW from Major axis
 Controlling Load Combo: 0.784 D + 1.300 E13 (LC 526)
 Code Ref: 10.3.7

Shear Results:
 Segment SC12H:17A:
 Length = 3.33 ft Thick = 12.00 in f_c = 3500 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 17.7 kip phiVn = 93.3 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
 Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17B:
 Length = 12.80 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 162.0 kip phiVn = 358.4 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
 Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17C:
 Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi

Section Cut Design Summary

Shear Results:
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 99.1 kip phiVn = 198.3 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
 Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17D:
 Length = 9.00 ft Thick = 12.00 in f_c = 3500 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 47.9 kip phiVn = 252.0 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E12 (LC 21)
 Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17E:
 Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 39.7 kip phiVn = 135.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
 Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17F:
 Length = 9.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 40.7 kip phiVn = 252.0 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E10 (LC 163)
 Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17G:
 Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 39.1 kip phiVn = 198.3 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E17 (LC 26)
 Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17H:
 Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 65.6 kip phiVn = 135.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.725% (11.9.9.4) **OK**
 S.B.E. Check: Neutral axis distance less than limit for all load combos
 Worst case is load combo 10 :
 cmax = 6.43 ft c = 0.58 ft (21.9.6.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1017/1293
07/25/17 11:03:32

Segment SC12H:17A:
Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:17B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:17C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:17D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:17E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:17F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:17G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC12H:17H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1018/1293
07/25/17 11:03:32

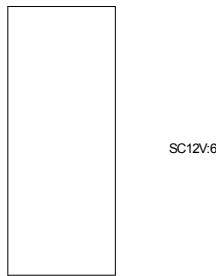
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1019/1293
07/25/17 11:03:32

Section Cut ID: SC12V:6 (Vertical)
Story: LEVEL 2.1
Ag = 360 in2 Imaj = 4320 in4 Imin = 27000 in4
Wall Design Group: 12
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.091 OK
Pu = 29.73 kips phiPn = 327.76 kips
Mu = 27.1 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E10 (LC 163)
Code Ref: 10.3.7

Shear Results:
Segment SC12V:6:
Length = 2.50 ft Thick = 12.00 in f'c = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 24.2 kip phiVn = 70.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.682% (11.9.9.2) OK
Segment SC12V:6:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1020/1293
07/25/17 11:03:32

Section Cut ID: SC17H:1 (Horizontal)
Story: LEVEL 4
Ag = 16632 in2 Imaj = 464483501 in4 Imin = 67992964 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 17
Design Status: PASS



PLAN VIEW

Axial/Flexural Results:
Interaction: 0.059 OK
Pu = 1876.45 kips phiPn = 31716.96 kips
Mu = 2426.2 kip-ft at Beta = 39.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC17H:1A:
Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 135.3 kip phiVn = 243.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E21 (LC 174)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1B:
Length = 26.83 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 305.4 kip phiVn = 767.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1021/1293
07/25/17 11:03:32

Shear Results:

Segment SC17H:1C:
Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 73.1 kip phiVn = 193.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1D:
Length = 9.25 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 119.0 kip phiVn = 264.7 kip OK
Controlling Load Combo: 1.316 D + 1.300 E7 (LC 448)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1E:
Length = 3.42 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 51.0 kip phiVn = 97.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1F:
Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 101.8 kip phiVn = 243.2 kip OK
Controlling Load Combo: 1.316 D + 1.300 E7 (LC 448)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1G:
Length = 13.00 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 59.3 kip phiVn = 372.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1H:
Length = 12.33 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 51.0 kip phiVn = 352.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E26 (LC 35)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1I:
Length = 12.00 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1022/1293
07/25/17 11:03:32

Shear Results:

Vu = 46.7 kip phiVn = 343.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1J:
Length = 9.17 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 70.5 kip phiVn = 262.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1K:
Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 21.7 kip phiVn = 193.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.472% (11.9.9.4) OK
Segment SC17H:1A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1023/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1E:
Max Vert Bar Spacing Limit: 13.67 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1I:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1J:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1K:

Section Cut Design Summary

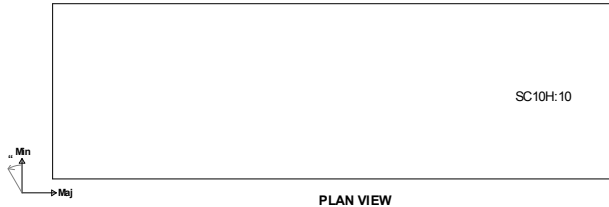
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1024/1293
07/25/17 11:03:32

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC10H:10 (Horizontal) (Hinge)
Story: LEVEL 3.1
 Ag = 819 in2 Imaj = 178794 in4 Imin = 17471 in4
 Major Axis Orientation: 66.00 degrees (CCW from global X-axis)
 Wall Design Group: 10
 Design Status: **PASS**



Axial/Flexural Results:
 Interaction: 0.178 **OK**
 Pu = 274.08 kips phiPn = 1538.20 kips
 Mu = 17.3 kip-ft at Beta = 0.0 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

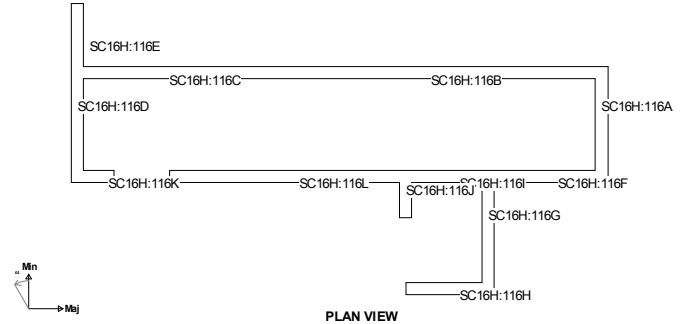
Shear Results:
 Segment SC10H:10:
 Length = 4.27 ft Thick = 16.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 9.0 kip phiVn = 135.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.375% (11.9.9.4) **OK**
 S.B.E. Check: Neutral axis distance less than limit for all load combos
 Worst case is load combo 10 :
 cmax = 1.02 ft c = 0.48 ft (21.9.6.2) **OK**

Segment SC10H:10:
 Max Vert Bar Spacing Limit: 17.06 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.320% Actual: 0.320% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

Section Cut ID: SC16H:116 (Horizontal) (Hinge)
Story: LEVEL 3.1
 Ag = 17520 in2 Imaj = 494692829 in4 Imin = 79451243 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 16
 Design Status: **PASS**



Axial/Flexural Results:
 Interaction: 0.080 **OK**
 Pu = 1588.28 kips phiPn = 19808.27 kips
 Mu = 11167.3 kip-ft at Beta = 35.8 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
 Code Ref: 10.3.7

Shear Results:
 Segment SC16H:116A:
 Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 139.2 kip phiVn = 314.8 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116B:
 Length = 29.83 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 292.1 kip phiVn = 1105.0 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)

Section Cut Design Summary

Shear Results:
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116C:
 Length = 13.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 56.4 kip phiVn = 481.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E35 (LC 44)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116D:
 Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 285.8 kip phiVn = 314.8 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116E:
 Length = 5.67 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 147.8 kip phiVn = 209.9 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E21 (LC 30)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116F:
 Length = 9.25 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 110.8 kip phiVn = 342.6 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E6 (LC 159)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116G:
 Length = 9.17 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 70.5 kip phiVn = 339.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116H:
 Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 21.7 kip phiVn = 250.0 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116I:

Section Cut Design Summary

Shear Results:
 Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 60.9 kip phiVn = 250.0 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116J:
 Length = 3.42 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 50.9 kip phiVn = 126.6 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116K:
 Length = 3.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 50.2 kip phiVn = 111.1 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116L:
 Length = 19.33 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 253.1 kip phiVn = 716.1 kip **OK**
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E28 (LC 325)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.804% (11.9.9.4) **OK**
 S.B.E. Check: Neutral axis distance less than limit for all load combos
 Worst case is load combo 10 :
 cmax = 7.93 ft c = 5.33 ft (21.9.6.2) **OK**

Segment SC16H:116A:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC16H:116B:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC16H:116C:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1029/1293
07/25/17 11:03:32

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.13 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 1.253% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.920% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116I:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116J:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1030/1293
07/25/17 11:03:32

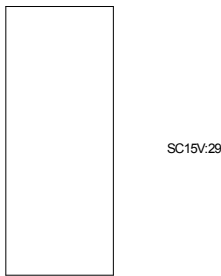
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116K:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116L:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1031/1293
07/25/17 11:03:32

Section Cut ID: SC15V:29 (Vertical)
Story: LEVEL 2.1
Ag = 360 in2 Imaj = 4320 in4 Imin = 27000 in4
Wall Design Group: 15
Design Status: FAILS



ELEVATION VIEW

Axial/Flexural Results:

Interaction: 6.466 NG
Pu = -0.71 kips phiPn = -0.11 kips
Mu = 1406.4 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 10.3.7

Shear Results:

Segment SC15V:29:
Length = 2.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 36.6 kip phiVn = 92.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E28 (LC 109)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.982% (14.3.3) OK
Segment SC15V:29:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.614% (21.9.2.1) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1032/1293
07/25/17 11:03:32

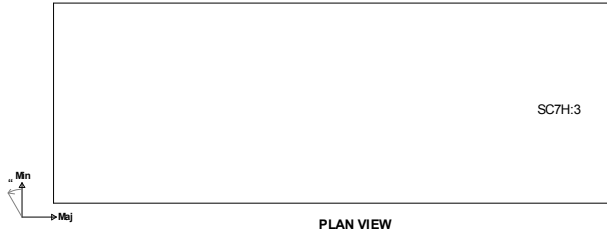
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section is 4' deep, not 2'-6"; say OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1033/1293
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
 Design Code: ACI 318-11

Section Cut ID: SC7H:3 (Horizontal) (Hinge)
Story: LEVEL 3
 Ag = 708 in2 Imaj = 115283 in4 Imin = 15093 in4
 Major Axis Orientation: 66.00 degrees (CCW from global X-axis)
 Wall Design Group: 7
 Design Status: **PASS**



Axial/Flexural Results:

Interaction: 0.168 **OK**
 Pu = 225.25 kips phiPn = 1341.16 kips
 Mu = 14.8 kip-ft at Beta = -0.0 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:

Segment SC7H:3:
 Length = 3.68 ft Thick = 16.00 in fc = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 13.9 kip phiVn = 117.1 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E11 (LC 164)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.434% (11.9.9.4) **OK**
 S.B.E. Check: **Neutral axis distance less than limit for all load combos**
 Worst case is load combo 10 :
 cmax = 0.88 ft c = 0.48 ft (21.9.6.2) **OK**
 Segment SC7H:3:
 Max Vert Bar Spacing Limit: 14.74 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.320% Actual: 0.320% (21.9.4.3) **OK**

Section Cut Design Summary

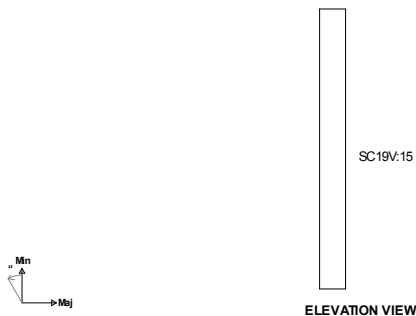
RAM Concrete Shearwall 15.04.00.000 Page 1034/1293
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
 Design Code: ACI 318-11

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1035/1293
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
 Design Code: ACI 318-11

Section Cut ID: SC19V:15 (Vertical)
Story: T.O. PENTHOUSE
 Ag = 1512 in2 Imaj = 18144 in4 Imin = 2000376 in4
 Wall Design Group: 19
 Design Status: **PASS**



Axial/Flexural Results:

Interaction: 0.049 **OK**
 Pu = -6.53 kips phiPn = -133.71 kips
 Mu = 30.3 kip-ft at Beta = 0.0 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:

Segment SC19V:15:
 Length = 10.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 32.9 kip phiVn = 228.1 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E21 (LC 30)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.312% (11.9.9.2) **OK**
 Segment SC19V:15:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1036/1293
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
 Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

Section Cut ID: SC18V:4 (Vertical)
Story: ROOF LEVEL
Ag = 1584 in2 Imaj = 19008 in4 Imin = 2299968 in4
Wall Design Group: 18
Design Status: PASS



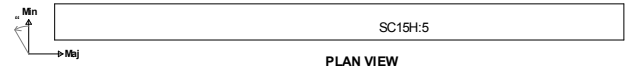
Axial/Flexural Results:
Interaction: 0.078 OK
Pu = -2.97 kips phiPn = -37.93 kips
Mu = 88.9 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 10.3.7

Shear Results:
Segment SC18V:4:
Length = 11.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 78.9 kip phiVn = 239.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E7 (LC 52)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.297% (11.9.9.2) OK
Segment SC18V:4:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC15H:5 (Horizontal) (Hinge)
Story: LEVEL 2.1
Ag = 2232 in2 Imaj = 6434855 in4 Imin = 26784 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 15
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.146 OK
Pu = 16.06 kips phiPn = 109.95 kips
Mu = 928.4 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E11 (LC 524)
Code Ref: 10.3.7

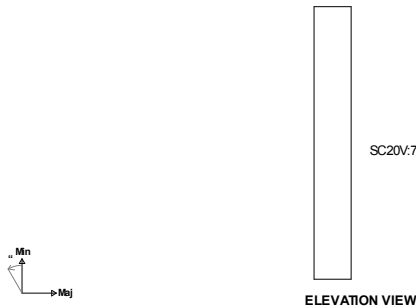
Shear Results:
Segment SC15H:5:
Length = 15.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 230.3 kip phiVn = 574.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.673% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 3.69 ft c = 2.55 ft (21.9.6.2) OK

Segment SC15H:5:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.614% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC20V:71 (Vertical)
Story: LEVEL 2
Ag = 1428 in2 Imaj = 23324 in4 Imin = 1238076 in4
Wall Design Group: 20
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.073 OK
Pu = -10.72 kips phiPn = -146.66 kips
Mu = 26.4 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E10 (LC 55)
Code Ref: 10.3.7

Shear Results:
Segment SC20V:71:
Length = 8.50 ft Thick = 14.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 33.6 kip phiVn = 206.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E5 (LC 158)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.302% (11.9.9.2) OK
Segment SC20V:71:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

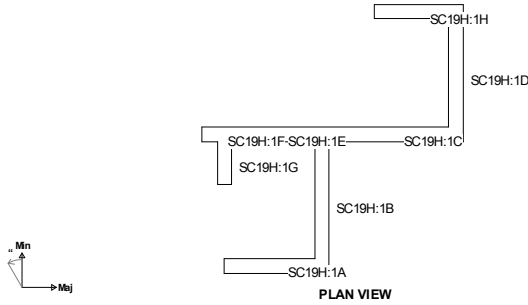
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1041/1293
07/25/17 11:03:32

Section Cut ID: SC19H:1 (Horizontal)
Story: T.O. PENTHOUSE
Ag = 7212 in2 **Imaj =** 32002731 in4 **Imin =** 29971926 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 19
Design Status: PASS



Axial/Flexural Results:

Interaction: 0.028 OK
Pu = 272.21 kips **phiPn =** 9826.28 kips
Mu = 958.6 kip-ft at **Beta =** 71.8 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:

Segment SC19H:1A:
Length = 6.75 ft **Thick =** 12.00 in **fc =** 4000 psi **fy =** 60 ksi
Vert Bar Pat: #4@12" oc **Horiz Bar Pat:** #4@12" oc
Vu = 14.5 kip **phiVn =** 146.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E26 (LC 35)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1B:
Length = 9.17 ft **Thick =** 12.00 in **fc =** 4000 psi **fy =** 60 ksi
Vert Bar Pat: #4@12" oc **Horiz Bar Pat:** #4@12" oc
Vu = 38.4 kip **phiVn =** 199.1 kip OK
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1042/1293
07/25/17 11:03:32

Shear Results:

Segment SC19H:1C:
Length = 9.25 ft **Thick =** 12.00 in **fc =** 4000 psi **fy =** 60 ksi
Vert Bar Pat: #4@12" oc **Horiz Bar Pat:** #4@12" oc
Vu = 31.2 kip **phiVn =** 200.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1D:
Length = 8.50 ft **Thick =** 12.00 in **fc =** 4000 psi **fy =** 60 ksi
Vert Bar Pat: #4@12" oc **Horiz Bar Pat:** #4@12" oc
Vu = 29.3 kip **phiVn =** 184.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E10 (LC 163)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1E:
Length = 6.75 ft **Thick =** 12.00 in **fc =** 4000 psi **fy =** 60 ksi
Vert Bar Pat: #4@12" oc **Horiz Bar Pat:** #4@12" oc
Vu = 17.4 kip **phiVn =** 146.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E11 (LC 164)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1F:
Length = 1.58 ft **Thick =** 12.00 in **fc =** 4000 psi **fy =** 60 ksi
Vert Bar Pat: #4@12" oc **Horiz Bar Pat:** #4@12" oc
Vu = 9.0 kip **phiVn =** 34.4 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E28 (LC 325)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1G:
Length = 3.42 ft **Thick =** 12.00 in **fc =** 4000 psi **fy =** 60 ksi
Vert Bar Pat: #4@12" oc **Horiz Bar Pat:** #4@12" oc
Vu = 11.4 kip **phiVn =** 74.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1H:
Length = 5.67 ft **Thick =** 12.00 in **fc =** 4000 psi **fy =** 60 ksi
Vert Bar Pat: #4@12" oc **Horiz Bar Pat:** #4@12" oc
Vu = 9.8 kip **phiVn =** 123.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E5 (LC 158)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.310% (11.9.9.4) OK
Segment SC19H:1A:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1043/1293
07/25/17 11:03:32

Max Vert Bar Spacing Limit: 18.00 in **Actual:** 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in **Actual:** 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% **Actual:** 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 **Actual:** 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 **Actual:** 2 (21.9.2.2) OK
Segment SC19H:1B:
Max Vert Bar Spacing Limit: 18.00 in **Actual:** 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in **Actual:** 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% **Actual:** 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 **Actual:** 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 **Actual:** 2 (21.9.2.2) OK
Segment SC19H:1C:
Max Vert Bar Spacing Limit: 18.00 in **Actual:** 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in **Actual:** 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% **Actual:** 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 **Actual:** 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 **Actual:** 2 (21.9.2.2) OK
Segment SC19H:1D:
Max Vert Bar Spacing Limit: 18.00 in **Actual:** 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in **Actual:** 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% **Actual:** 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 **Actual:** 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 **Actual:** 2 (21.9.2.2) OK
Segment SC19H:1E:
Max Vert Bar Spacing Limit: 18.00 in **Actual:** 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in **Actual:** 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% **Actual:** 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 **Actual:** 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 **Actual:** 2 (21.9.2.2) OK
Segment SC19H:1F:
Max Vert Bar Spacing Limit: 12.00 in **Actual:** 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in **Actual:** 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% **Actual:** 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 **Actual:** 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 **Actual:** 2 (21.9.2.2) OK
Segment SC19H:1G:
Max Vert Bar Spacing Limit: 13.67 in **Actual:** 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in **Actual:** 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% **Actual:** 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 **Actual:** 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 **Actual:** 2 (21.9.2.2) OK
Segment SC19H:1H:
Max Vert Bar Spacing Limit: 18.00 in **Actual:** 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in **Actual:** 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% **Actual:** 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 **Actual:** 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

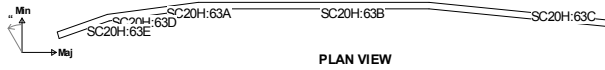
Page 1044/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 1 **Actual:** 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1045/1293
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
 Design Code: ACI 318-11

Section Cut ID: SC20H:63 (Horizontal)
Story: LEVEL 2
 Ag = 16708 in2 Imaj = 1967973002 in4 Imin = 4201342 in4
 Major Axis Orientation: 339.50 degrees (CCW from global X-axis)
 Wall Design Group: 20
 Design Status: **PASS**



Axial/Flexural Results:
 Interaction: 0.040 **OK**
 Pu = 556.44 kips phiPn = 13802.17 kips
 Mu = 4563.5 kip-ft at Beta = 7.2 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E13 (LC 22)
 Code Ref: 10.3.7

Shear Results:
 Segment SC20H:63A:
 Length = 16.38 ft Thick = 14.00 in fc = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
 Vu = 57.8 kip phiVn = 400.0 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E13 (LC 22)
 Code Ref: 14.2.3 & 11.9.5

Segment SC20H:63B:
 Length = 41.35 ft Thick = 14.00 in fc = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
 Vu = 169.6 kip phiVn = 1009.7 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
 Code Ref: 14.2.3 & 11.9.5

Segment SC20H:63C:
 Length = 32.21 ft Thick = 14.00 in fc = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
 Vu = 128.9 kip phiVn = 786.6 kip **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1046/1293
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
 Design Code: ACI 318-11

Shear Results:
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
 Code Ref: 14.2.3 & 11.9.5
 Segment SC20H:63D:
 Length = 3.67 ft Thick = 14.00 in fc = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
 Vu = 35.6 kip phiVn = 89.6 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E13 (LC 22)
 Code Ref: 14.2.3 & 11.9.5

Segment SC20H:63E:
 Length = 5.83 ft Thick = 14.00 in fc = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
 Vu = 46.4 kip phiVn = 142.4 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E13 (LC 22)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.266% (11.9.9.4) **OK**
 Segment SC20H:63A:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC20H:63B:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC20H:63C:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC20H:63D:
 Max Vert Bar Spacing Limit: 14.68 in Actual: 11.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC20H:63E:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.9.5) **OK**

Section Cut Design Summary

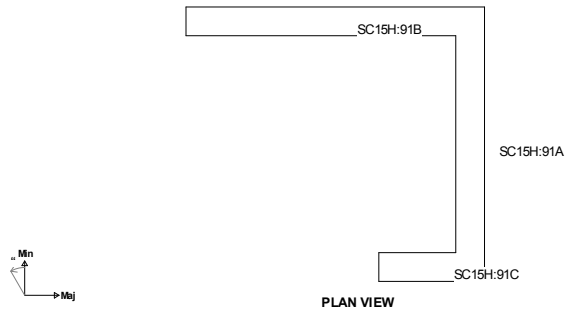
RAM Concrete Shearwall 15.04.00.000 Page 1047/1293
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
 Design Code: ACI 318-11

Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1048/1293
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
 Design Code: ACI 318-11

Section Cut ID: SC15H:91 (Horizontal) (Hinge)
Story: LEVEL 2
 Ag = 3096 in2 Imaj = 4085713 in4 Imin = 5222572 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 15
 Design Status: **FAILS**



Axial/Flexural Results:
 Interaction: 0.194 **OK**
 Pu = -390.17 kips phiPn = -2011.52 kips
 Mu = 455.3 kip-ft at Beta = -2.1 deg CCW from Major axis
 Controlling Load Combo: 0.784 D + 1.300 E10 (LC 523)
 Code Ref: 10.3.7

Shear Results:
 Segment SC15H:91A:
 Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 49.5 kip phiVn = 314.8 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
 Code Ref: 14.2.3 & 11.9.5

Segment SC15H:91B:
 Length = 9.83 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 126.6 kip phiVn = 340.7 kip **OK**
 Controlling Load Combo: 0.784 D + 1.300 E10 (LC 523)
 Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1049/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Shear Results:

Segment SC15H:91C:
Length = 3.17 ft Thick = 12.00 in $f_c = 4000$ psi $f_y = 60$ ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 28.7 kip $\phi V_n = 117.3$ kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

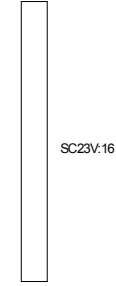
Min Vert Reinf Ratio: Limit: 0.250% Actual: 1.665% (11.9.9.4) OK
S.B.E. Check: Boundary zone required for one or more load combos Say OK
Worst case is load combo 19 :
cmax = 2.47 ft c = 2.61 ft (21.9.6.2) NG

Segment SC15H:91A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC15H:91B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC15H:91C:
Max Vert Bar Spacing Limit: 12.67 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1050/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Section Cut ID: SC23V:16 (Vertical)
Story: T.O. PENTHOUSE
Ag = 1512 in2 Imaj = 18144 in4 Imin = 2000376 in4
Wall Design Group: 23
Design Status: PASS



ELEVATION VIEW



Axial/Flexural Results:

Interaction: 0.019 OK
Pu = -2.88 kips $\phi P_n = -150.34$ kips
Mu = 10.3 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E32 (LC 545)
Code Ref: 10.3.7

Shear Results:

Segment SC23V:16:
Length = 10.50 ft Thick = 12.00 in $f_c = 4000$ psi $f_y = 60$ ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 36.8 kip $\phi V_n = 228.1$ kip OK
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.312% (11.9.9.2) OK
Segment SC23V:16:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

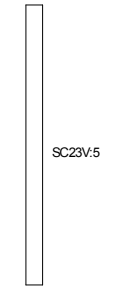
RAM Concrete Shearwall 15.04.00.000 Page 1051/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1052/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Section Cut ID: SC23V:5 (Vertical)
Story: T.O. PENTHOUSE
Ag = 1008 in2 Imaj = 5376 in4 Imin = 1333584 in4
Wall Design Group: 23
Design Status: PASS



ELEVATION VIEW



Axial/Flexural Results:

Interaction: 0.041 OK
Pu = -5.45 kips $\phi P_n = -131.91$ kips
Mu = 25.6 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:

Segment SC23V:5:
Length = 10.50 ft Thick = 8.00 in $f_c = 4000$ psi $f_y = 60$ ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 22.9 kip $\phi V_n = 194.2$ kip OK
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.467% (11.9.9.2) OK
Segment SC23V:5:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1053/1293
07/25/17 11:03:32

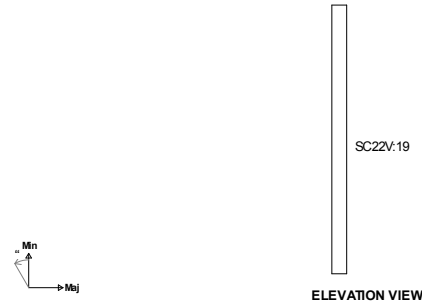
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1054/1293
07/25/17 11:03:32

Section Cut ID: SC22V:19 (Vertical)
Story: ROOF LEVEL
Ag = 1056 in2 Imaj = 5632 in4 Imin = 1533312 in4
Wall Design Group: 22
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.056 OK
Pu = -6.58 kips phiPn = -118.08 kips
Mu = 40.1 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 10.3.7

Shear Results:
Segment SC22V:19:
Length = 11.00 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 39.8 kip phiVn = 203.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E35 (LC 80)
Code Ref: 14.2.3 & 11.9.5

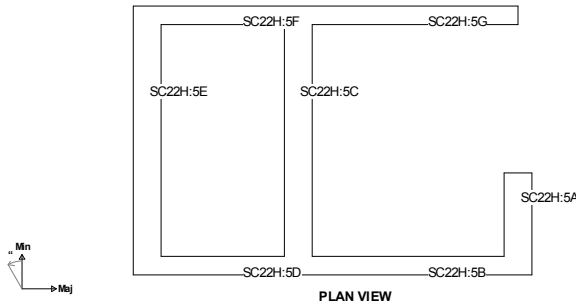
Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.446% (11.9.9.2) OK
Segment SC22V:19:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1055/1293
07/25/17 11:03:32

Section Cut ID: SC22H:5 (Horizontal)
Story: ROOF LEVEL
Ag = 10826 in2 Imaj = 20003992 in4 Imin = 14769055 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 22
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.052 OK
Pu = 416.32 kips phiPn = 7994.27 kips
Mu = 1173.1 kip-ft at Beta = -13.4 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC22H:5A:
Length = 3.33 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 1.9 kip phiVn = 72.4 kip OK
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Segment SC22H:5B:
Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 29.3 kip phiVn = 147.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1056/1293
07/25/17 11:03:32

Shear Results:
Segment SC22H:5C:
Length = 9.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 24.1 kip phiVn = 195.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Segment SC22H:5D:
Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 7.2 kip phiVn = 100.4 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E33 (LC 330)
Code Ref: 14.2.3 & 11.9.5

Segment SC22H:5E:
Length = 9.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 26.3 kip phiVn = 195.5 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
Code Ref: 14.2.3 & 11.9.5

Segment SC22H:5F:
Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 13.4 kip phiVn = 100.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Segment SC22H:5G:
Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 31.3 kip phiVn = 147.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) OK
Segment SC22H:5A:
Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC22H:5B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1057/1293
07/25/17 11:03:32

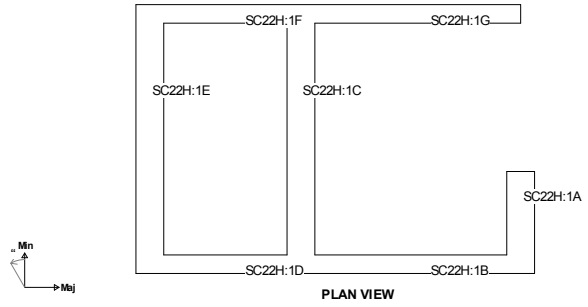
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC22H:5C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC22H:5D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC22H:5E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC22H:5F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1058/1293
07/25/17 11:03:32

Section Cut ID: SC22H:1 (Horizontal)
Story: ROOF LEVEL
Ag = 10826 in2 Imaj = 20003992 in4 lmin = 14769055 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 22
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.056 OK
Pu = 457.83 kips phiPn = 8240.18 kips
Mu = 1187.6 kip-ft at Beta = -22.8 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC22H:1A:
Length = 3.33 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 1.9 kip phiVn = 72.4 kip OK
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Segment SC22H:1B:
Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 38.2 kip phiVn = 147.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1059/1293
07/25/17 11:03:32

Shear Results:
Segment SC22H:1C:
Length = 9.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 24.1 kip phiVn = 195.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Segment SC22H:1D:
Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 11.0 kip phiVn = 100.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E32 (LC 185)
Code Ref: 14.2.3 & 11.9.5

Segment SC22H:1E:
Length = 9.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 26.3 kip phiVn = 195.5 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
Code Ref: 14.2.3 & 11.9.5

Segment SC22H:1F:
Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 13.0 kip phiVn = 100.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Segment SC22H:1G:
Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 33.5 kip phiVn = 147.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) OK
Segment SC22H:1A:
Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC22H:1B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1060/1293
07/25/17 11:03:32

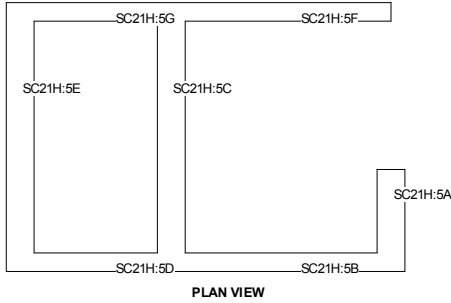
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC22H:1C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC22H:1D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC22H:1E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC22H:1F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC22H:1G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1061/1293
07/25/17 11:03:32

Section Cut ID: SC21H:5 (Horizontal) (Hinge)
Story: LEVEL 4
Ag = 10826 in2 Imap = 20003992 in4 Imin = 14769055 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 21
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.063 OK
Pu = 561.16 kips phiPn = 8960.61 kips
Mu = 1219.0 kip-ft at Beta = -24.4 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC21H:5A:
Length = 3.33 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 7.2 kip phiVn = 72.4 kip OK
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Segment SC21H:5B:
Length = 7.92 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 46.6 kip phiVn = 147.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1062/1293
07/25/17 11:03:32

Shear Results:
Segment SC21H:5C:
Length = 9.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 33.6 kip phiVn = 195.5 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
Code Ref: 14.2.3 & 11.9.5

Segment SC21H:5D:
Length = 5.41 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 16.0 kip phiVn = 100.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Segment SC21H:5E:
Length = 9.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 35.4 kip phiVn = 195.5 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
Code Ref: 14.2.3 & 11.9.5

Segment SC21H:5F:
Length = 7.92 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 40.4 kip phiVn = 147.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Segment SC21H:5G:
Length = 5.41 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 15.5 kip phiVn = 100.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 3.86 ft c = 0.84 ft (21.9.6.2) OK

Segment SC21H:5A:
Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1063/1293
07/25/17 11:03:32

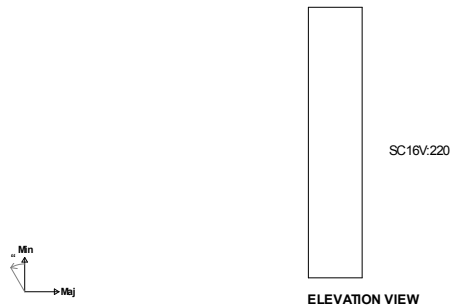
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:5B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:5C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:5D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:5E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:5F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC21H:5G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1064/1293
07/25/17 11:03:32

Section Cut ID: SC16V:220 (Vertical)
Story: LEVEL 2.3
Ag = 720 in2 Imap = 8640 in4 Imin = 216000 in4
Wall Design Group: 16
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.031 OK
Pu = 30.11 kips phiPn = 971.98 kips
Mu = 36.2 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E7 (LC 52)
Code Ref: 10.3.7

Shear Results:
Segment SC16V:220:
Length = 5.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 68.3 kip phiVn = 185.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E7 (LC 52)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.736% (14.3.3) OK
Segment SC16V:220:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC16V:211 (Vertical)
Story: LEVEL 2.3
Ag = 720 in2 Imaj = 8640 in4 Imin = 216000 in4
Wall Design Group: 16
Design Status: PASS



ELEVATION VIEW

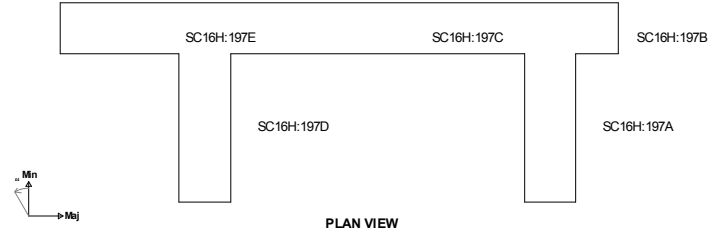
Axial/Flexural Results:
Interaction: 0.023 OK
Pu = -3.03 kips phiPn = -131.94 kips
Mu = 8.5 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E24 (LC 537)
Code Ref: 10.3.7

Shear Results:
Segment SC16V:211:
Length = 5.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 45.9 kip phiVn = 185.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E11 (LC 56)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.736% (14.3.3) OK
Segment SC16V:211:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC16H:197 (Horizontal) (Hinge)
Story: LEVEL 2.3
Ag = 2412 in2 Imaj = 3680308 in4 Imin = 406950 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 16
Design Status: PASS



PLAN VIEW

Axial/Flexural Results:
Interaction: 0.099 OK
Pu = 515.90 kips phiPn = 5223.72 kips
Mu = 134.8 kip-ft at Beta = 82.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC16H:197A:
Length = 3.42 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 67.5 kip phiVn = 126.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:197B:
Length = 1.33 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 15.0 kip phiVn = 49.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E10 (LC 163)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:197C:
Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc

Section Cut Design Summary

Shear Results:
Vu = 126.9 kip phiVn = 250.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:197D:
Length = 3.42 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 31.5 kip phiVn = 126.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E8 (LC 17)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:197E:
Length = 2.83 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 55.1 kip phiVn = 104.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 1.351% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 2.57 ft c = 2.45 ft (21.9.6.2) OK

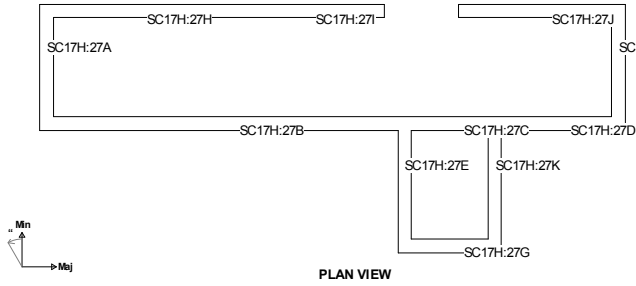
Segment SC16H:197A:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:197B:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:197C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:197D:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK

Section Cut Design Summary

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:197E:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC17H:27 (Horizontal)
Story: LEVEL 4
Ag = 24222 in2 Imaj = 507025850 in4 Imin = 112929491 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 17
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.057 OK
Pu = 1898.54 kips phiPn = 33289.22 kips
Mu = 2628.2 kip-ft at Beta = 31.2 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC17H:27A:
Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 135.3 kip phiVn = 243.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E21 (LC 174)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27B:
Length = 26.83 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 309.8 kip phiVn = 767.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E28 (LC 181)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

Shear Results:
Segment SC17H:27C:
Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 58.6 kip phiVn = 193.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27D:
Length = 9.25 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 121.8 kip phiVn = 264.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27E:
Length = 9.17 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 53.0 kip phiVn = 262.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27F:
Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 101.8 kip phiVn = 243.2 kip OK
Controlling Load Combo: 1.316 D + 1.300 E7 (LC 448)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27G:
Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 21.7 kip phiVn = 193.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27H:
Length = 13.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 77.2 kip phiVn = 372.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27I:
Length = 12.33 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc

Section Cut Design Summary

Shear Results:
Vu = 60.2 kip phiVn = 352.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E12 (LC 21)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27J:
Length = 12.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 47.7 kip phiVn = 343.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E15 (LC 24)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27K:
Length = 9.17 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 70.5 kip phiVn = 262.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.471% (11.9.9.4) OK
Segment SC17H:27A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK

Section Cut Design Summary

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27I:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27J:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27K:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1073/1293
07/25/17 11:03:32

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1074/1293
07/25/17 11:03:32

Section Cut ID: SC16V:176 (Vertical)
Story: LEVEL 3
Ag = 648 in2 Imaj = 7776 in4 Imin = 157464 in4
Wall Design Group: 16
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.138 OK
Pu = -12.54 kips phiPn = -90.65 kips
Mu = 57.6 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E24 (LC 537)
Code Ref: 10.3.7

Shear Results:
Segment SC16V:176:
Length = 4.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 85.0 kip phiVn = 166.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E24 (LC 69)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.818% (14.3.3) OK
Segment SC16V:176:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.614% (21.9.2.1) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1075/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1076/1293
07/25/17 11:03:32

Section Cut ID: SC16V:155 (Vertical)
Story: LEVEL 3
Ag = 648 in2 Imaj = 7776 in4 Imin = 157464 in4
Wall Design Group: 16
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.033 OK
Pu = -4.83 kips phiPn = -144.44 kips
Mu = 10.2 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E8 (LC 557)
Code Ref: 10.3.7

Shear Results:
Segment SC16V:155:
Length = 4.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 27.1 kip phiVn = 213.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

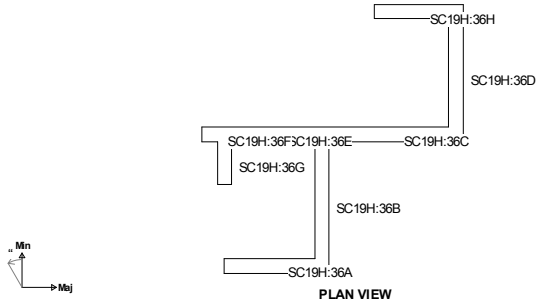
Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.818% (14.3.3) OK
Segment SC16V:155:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1077/1293
07/25/17 11:03:32

Section Cut ID: SC19H:36 (Horizontal)
Story: T.O. PENTHOUSE
Ag = 7212 in2 lmag = 32002731 in4 lmin = 29971926 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 19
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.019 OK
Pu = 243.56 kips phiPn = 13035.30 kips
Mu = 286.2 kip-ft at Beta = -66.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC19H:36A:
Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 14.5 kip phiVn = 146.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E26 (LC 35)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:36B:
Length = 9.17 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 38.4 kip phiVn = 199.1 kip OK
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1078/1293
07/25/17 11:03:32

Shear Results:
Segment SC19H:36C:
Length = 9.25 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 21.6 kip phiVn = 200.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:36D:
Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 17.3 kip phiVn = 184.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E10 (LC 163)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:36E:
Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 17.4 kip phiVn = 146.6 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E6 (LC 303)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:36F:
Length = 1.58 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 9.2 kip phiVn = 34.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:36G:
Length = 3.42 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 11.4 kip phiVn = 74.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:36H:
Length = 5.67 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 9.8 kip phiVn = 123.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E5 (LC 158)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.310% (11.9.9.4) OK
Segment SC19H:36A:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1079/1293
07/25/17 11:03:32

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:36B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:36C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:36D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:36E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:36F:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:36G:
Max Vert Bar Spacing Limit: 13.67 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:36H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1080/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1081/1293
07/25/17 11:03:32

Section Cut ID: SC16V:146 (Vertical)
Story: LEVEL 3
Ag = 648 in2 Imaj = 7776 in4 Imin = 157464 in4
Wall Design Group: 16
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.087 OK
Pu = -1.90 kips phiPn = -21.92 kips
Mu = 47.6 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 10.3.7

Shear Results:
Segment SC16V:146:
Length = 4.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 63.4 kip phiVn = 166.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.818% (14.3.3) OK
Segment SC16V:146:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1082/1293
07/25/17 11:03:32

Section Cut ID: SC16V:136 (Vertical)
Story: LEVEL 3.1
Ag = 1008 in2 Imaj = 12096 in4 Imin = 592704 in4
Wall Design Group: 16
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.141 OK
Pu = -34.07 kips phiPn = -241.49 kips
Mu = 67.1 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 10.3.7

Shear Results:
Segment SC16V:136:
Length = 7.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 65.7 kip phiVn = 259.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E10 (LC 91)
Code Ref: 14.2.3 & 11.9.5

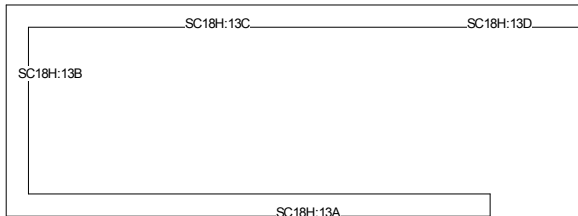
Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.701% (14.3.3) OK
Segment SC16V:136:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1083/1293
07/25/17 11:03:32

Section Cut ID: SC18H:13 (Horizontal)
Story: ROOF LEVEL
Ag = 7932 in2 Imaj = 66320154 in4 Imin = 18519902 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 18
Design Status: PASS



PLAN VIEW

Axial/Flexural Results:
Interaction: 0.045 OK
Pu = 655.30 kips phiPn = 14705.69 kips
Mu = 176.4 kip-ft at Beta = 72.2 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC18H:13A:
Length = 21.25 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 195.3 kip phiVn = 461.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E28 (LC 181)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:13B:
Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 76.5 kip phiVn = 184.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E21 (LC 174)
Code Ref: 14.2.3 & 11.9.5

Segment SC18H:13C:
Length = 13.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1084/1293
07/25/17 11:03:32

Shear Results:
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 71.2 kip phiVn = 282.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

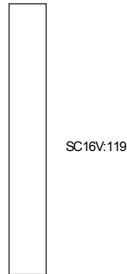
Segment SC18H:13D:
Length = 12.33 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 55.6 kip phiVn = 267.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E26 (LC 35)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.292% (11.9.9.4) OK
Segment SC18H:13A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:13B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC18H:13C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1085/1293
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
 Design Code: ACI 318-11

Section Cut ID: SC16V:119 (Vertical)
Story: LEVEL 3.1
 Ag = 1008 in2 Imaj = 12096 in4 Imin = 592704 in4
 Wall Design Group: 16
 Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:
 Interaction: 0.055 **OK**
 Pu = 0.40 kips phiPn = 7.33 kips
 Mu = 68.3 kip-ft at Beta = 0.0 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
 Code Ref: 10.3.7

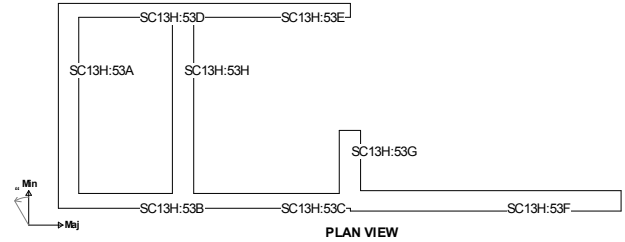
Shear Results:
 Segment SC16V:119:
 Length = 7.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 100.5 kip phiVn = 259.3 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.701% (14.3.3) **OK**
 Segment SC16V:119:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1086/1293
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
 Design Code: ACI 318-11

Section Cut ID: SC13H:53 (Horizontal) (Hinge)
Story: LEVEL 3.1
 Ag = 12609 in2 Imaj = 78641281 in4 Imin = 19012759 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 13
 Design Status: **PASS**



PLAN VIEW

Axial/Flexural Results:
 Interaction: 0.096 **OK**
 Pu = 1385.41 kips phiPn = 14499.25 kips
 Mu = 2897.7 kip-ft at Beta = -18.0 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:
 Segment SC13H:53A:
 Length = 9.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 91.5 kip phiVn = 257.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E13 (LC 310)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53B:
 Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 39.9 kip phiVn = 137.7 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E9 (LC 18)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53C:
 Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1087/1293
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
 Design Code: ACI 318-11

Shear Results:
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 82.6 kip phiVn = 201.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E17 (LC 98)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53D:
 Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 28.9 kip phiVn = 137.7 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E17 (LC 26)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53E:
 Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 23.8 kip phiVn = 201.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Ln + 1.300 E34 (LC 259)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53F:
 Length = 12.80 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 195.3 kip phiVn = 366.2 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53G:
 Length = 3.33 ft Thick = 12.00 in f_c = 3500 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 57.4 kip phiVn = 95.4 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53H:
 Length = 9.00 ft Thick = 12.00 in f_c = 3500 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 124.9 kip phiVn = 257.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.725% (11.9.9.4) **OK**
 S.B.E. Check: Neutral axis distance less than limit for all load combos
 Worst case is load combo 10 :
 cmax = 6.00 ft c = 0.70 ft (21.9.6.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1088/1293
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
 Design Code: ACI 318-11

Segment SC13H:53A:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC13H:53B:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC13H:53C:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC13H:53D:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC13H:53E:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC13H:53F:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC13H:53G:
 Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC13H:53H:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1089/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1090/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Section Cut ID: SC13V:34 (Vertical)
Story: LEVEL 2.3
Ag = 480 in2 Imaj = 2560 in4 Imin = 144000 in4
Wall Design Group: 13
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.062 OK
Pu = -5.82 kips phiPn = -94.09 kips
Mu = 15.5 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E10 (LC 559)
Code Ref: 10.3.7

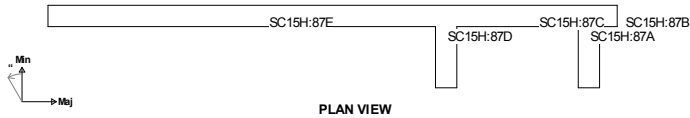
Shear Results:
Segment SC13V:34:
Length = 5.00 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 25.2 kip phiVn = 127.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E17 (LC 98)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.767% (11.9.9.2) OK
Segment SC13V:34:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1091/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Section Cut ID: SC15H:87 (Horizontal) (Hinge)
Story: LEVEL 2
Ag = 4716 in2 Imaj = 42697518 in4 Imin = 513525 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 15
Design Status: FAILS



Axial/Flexural Results:
Interaction: 0.134 OK
Pu = 1000.36 kips phiPn = 7438.78 kips
Mu = 5309.9 kip-ft at Beta = -1.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 10.3.7

Shear Results:
Segment SC15H:87A:
Length = 3.42 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 22.8 kip phiVn = 126.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:87B:
Length = 1.33 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 3.4 kip phiVn = 49.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:87C:
Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 95.4 kip phiVn = 250.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:87D:
Length = 3.42 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1092/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Shear Results:
Vert Bar Pat: Horiz Bar Pat:
Vu = 29.6 kip phiVn = 126.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:87E:
Length = 18.83 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 281.9 kip phiVn = 697.6 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E28 (LC 325)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 1.193% (11.9.9.4) OK
S.B.E. Check: Boundary zone required for one or more load combos - Say OK
Worst case is load combo 299 : cmax = 2.15 ft c = 2.31 ft (21.9.6.2) NG

Segment SC15H:87A:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC15H:87B:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC15H:87C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC15H:87D:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC15H:87E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1093/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1094/1293
07/25/17 11:03:32

Section Cut ID: SC13V:11 (Vertical)
Story: LEVEL 3.1
Ag = 672 in2 Imaj = 3584 in4 Imin = 395136 in4
Wall Design Group: 13
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.025 OK
Pu = -1.41 kips phiPn = -57.15 kips
Mu = 16.8 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E31 (LC 580)
Code Ref: 10.3.7

Shear Results:
Segment SC13V:11:
Length = 7.00 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 25.7 kip phiVn = 178.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E31 (LC 40)
Code Ref: 14.2.3 & 11.9.5

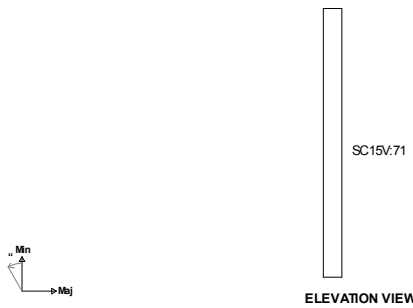
Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.730% (11.9.9.2) OK
Segment SC13V:11:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1095/1293
07/25/17 11:03:32

Section Cut ID: SC15V:71 (Vertical)
Story: LEVEL 2
Ag = 1944 in2 Imaj = 23328 in4 Imin = 4251528 in4
Wall Design Group: 15
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.023 OK
Pu = -8.09 kips phiPn = -351.43 kips
Mu = 58.2 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E28 (LC 541)
Code Ref: 10.3.7

Shear Results:
Segment SC15V:71:
Length = 13.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 61.4 kip phiVn = 639.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

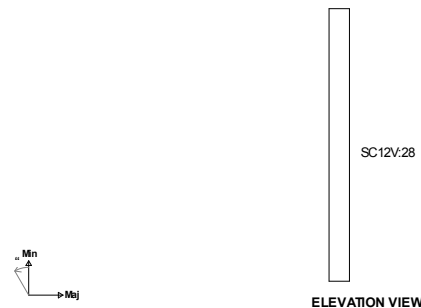
Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.682% (14.3.3) OK
Segment SC15V:71:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1096/1293
07/25/17 11:03:32

Section Cut ID: SC12V:28 (Vertical)
Story: LEVEL 2
Ag = 816 in2 Imaj = 4352 in4 Imin = 707472 in4
Wall Design Group: 12
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.054 OK
Pu = -4.79 kips phiPn = -88.65 kips
Mu = 52.2 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E17 (LC 530)
Code Ref: 10.3.7

Shear Results:
Segment SC12V:28:
Length = 8.50 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 40.7 kip phiVn = 216.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.752% (11.9.9.2) OK
Segment SC12V:28:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK

Section Cut Design Summary

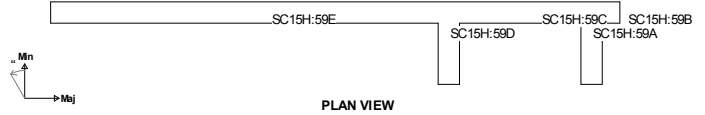
RAM Concrete Shearwall 15.04.00.000 Page 1097/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1098/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Section Cut ID: SC15H:59 (Horizontal) (Hinge)
Story: LEVEL 2
Ag = 4716 in2 Imaj = 42697518 in4 Imin = 513525 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 15
Design Status: **FAILS**



Axial/Flexural Results:
Interaction: 0.126 OK
Pu = 1000.38 kips phiPn = 7936.60 kips
Mu = 4463.6 kip-ft at Beta = 0.3 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 10.3.7

Shear Results:
Segment SC15H:59A:
Length = 3.42 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 22.8 kip phiVn = 126.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:59B:
Length = 1.33 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 29.9 kip phiVn = 49.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:59C:
Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 84.4 kip phiVn = 250.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:59D:
Length = 3.42 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1099/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Shear Results:
Vert Bar Pat: Horiz Bar Pat:
Vu = 29.6 kip phiVn = 126.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:59E:
Length = 18.83 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 271.4 kip phiVn = 697.6 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E28 (LC 325)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 1.193% (11.9.9.4) OK
S.B.E. Check: Boundary zone required for one or more load combos Say OK
Worst case is load combo 83 :
cmax = 1.96 ft c = 2.29 ft (21.9.6.2) NG

Segment SC15H:59A:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC15H:59B:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC15H:59C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC15H:59D:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC15H:59E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1100/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

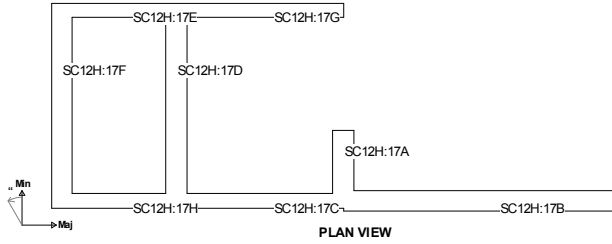
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1101/1293
07/25/17 11:03:32

Section Cut ID: SC12H:17 (Horizontal) (Hinge)
Story: LEVEL 2
Ag = 12609 in2 I_{maj} = 78641281 in4 I_{min} = 19012759 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 12
Design Status: **PASS**



Axial/Flexural Results:

Interaction: 0.213 **OK**
Pu = 623.25 kips phiP_n = 2931.33 kips
Mu = 7166.1 kip-ft at Beta = -32.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E13 (LC 526)
Code Ref: 10.3.7

Shear Results:

Segment SC12H:17A:
Length = 3.33 ft Thick = 12.00 in f_c = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 17.7 kip phiV_n = 93.3 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17B:
Length = 12.80 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 162.0 kip phiV_n = 358.4 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17C:
Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1102/1293
07/25/17 11:03:32

Shear Results:

Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 99.1 kip phiV_n = 198.3 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17D:
Length = 9.00 ft Thick = 12.00 in f_c = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 47.9 kip phiV_n = 252.0 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E12 (LC 21)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17E:
Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 39.7 kip phiV_n = 135.5 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17F:
Length = 9.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 40.7 kip phiV_n = 252.0 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E10 (LC 163)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17G:
Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 39.1 kip phiV_n = 198.3 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E17 (LC 26)
Code Ref: 14.2.3 & 11.9.5

Segment SC12H:17H:
Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 65.6 kip phiV_n = 135.5 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.725% (11.9.9.4) **OK**
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
c_{max} = 6.43 ft c = 0.58 ft (21.9.6.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1103/1293
07/25/17 11:03:32

Segment SC12H:17A:
Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC12H:17B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC12H:17C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC12H:17D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC12H:17E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC12H:17F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC12H:17G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC12H:17H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1104/1293
07/25/17 11:03:32

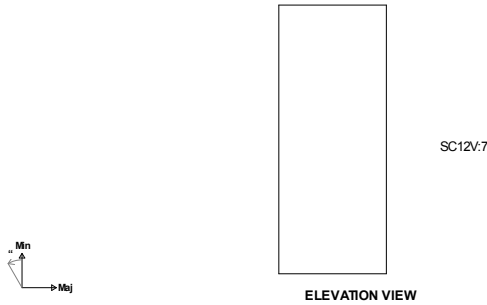
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1105/1293
07/25/17 11:03:32

Section Cut ID: SC12V:7 (Vertical)
Story: LEVEL 2.1
Ag = 360 in2 Imaj = 4320 in4 Imin = 27000 in4
Wall Design Group: 12
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.029 OK
Pu = -0.07 kips phiPn = -2.28 kips
Mu = 4.3 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E29 (LC 38)
Code Ref: 10.3.7

Shear Results:
Segment SC12V:7:
Length = 2.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 6.5 kip phiVn = 71.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E29 (LC 74)
Code Ref: 14.2.3 & 11.9.5

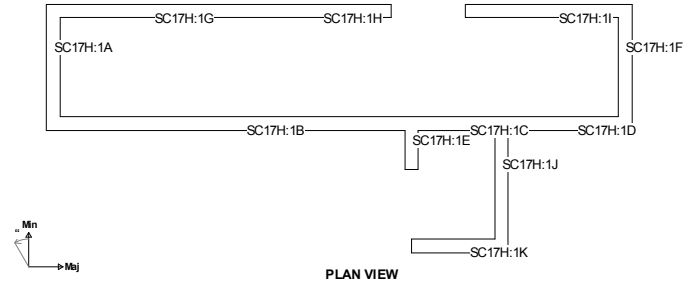
Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.682% (11.9.9.2) OK
Segment SC12V:7:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1106/1293
07/25/17 11:03:32

Section Cut ID: SC17H:1 (Horizontal)
Story: LEVEL 4
Ag = 16632 in2 Imaj = 464483501 in4 Imin = 67992964 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 17
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.059 OK
Pu = 1876.45 kips phiPn = 31716.96 kips
Mu = 2426.2 kip-ft at Beta = 39.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC17H:1A:
Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 135.3 kip phiVn = 243.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E21 (LC 174)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1B:
Length = 26.83 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 305.4 kip phiVn = 767.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1107/1293
07/25/17 11:03:32

Shear Results:
Segment SC17H:1C:
Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 73.1 kip phiVn = 193.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1D:
Length = 9.25 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 119.0 kip phiVn = 264.7 kip OK
Controlling Load Combo: 1.316 D + 1.300 E7 (LC 448)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1E:
Length = 3.42 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 51.0 kip phiVn = 97.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1F:
Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 101.8 kip phiVn = 243.2 kip OK
Controlling Load Combo: 1.316 D + 1.300 E7 (LC 448)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1G:
Length = 13.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 59.3 kip phiVn = 372.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1H:
Length = 12.33 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 51.0 kip phiVn = 352.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E26 (LC 35)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1I:
Length = 12.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1108/1293
07/25/17 11:03:32

Shear Results:
Vu = 46.7 kip phiVn = 343.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1J:
Length = 9.17 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 70.5 kip phiVn = 262.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1K:
Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 21.7 kip phiVn = 193.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.472% (11.9.9.4) OK
Segment SC17H:1A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 1109/1293
 07/25/17 11:03:32

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC17H:1E:
 Max Vert Bar Spacing Limit: 13.67 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC17H:1F:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC17H:1G:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC17H:1H:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC17H:1I:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC17H:1J:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC17H:1K:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 1110/1293
 07/25/17 11:03:32

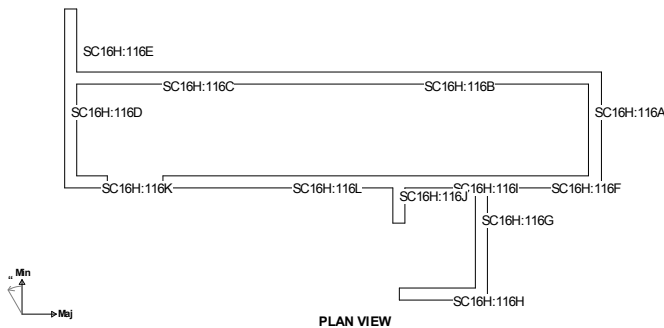
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 1111/1293
 07/25/17 11:03:32

Section Cut ID: SC16H:116 (Horizontal) (Hinge)
Story: LEVEL 3.1
 Ag = 17520 in2 Imaj = 494692829 in4 Imin = 79451243 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 16
 Design Status: PASS



Axial/Flexural Results:
 Interaction: 0.080 OK
 Pu = 1588.28 kips phiPn = 19808.27 kips
 Mu = 11167.3 kip-ft at Beta = 35.8 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
 Code Ref: 10.3.7

Shear Results:
 Segment SC16H:116A:
 Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 139.2 kip phiVn = 314.8 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116B:
 Length = 29.83 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 292.1 kip phiVn = 1105.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 1112/1293
 07/25/17 11:03:32

Shear Results:
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116C:
 Length = 13.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 56.4 kip phiVn = 481.5 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E35 (LC 44)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116D:
 Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 285.8 kip phiVn = 314.8 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116E:
 Length = 5.67 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 147.8 kip phiVn = 209.9 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E21 (LC 30)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116F:
 Length = 9.25 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 110.8 kip phiVn = 342.6 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E6 (LC 159)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116G:
 Length = 9.17 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 70.5 kip phiVn = 339.5 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116H:
 Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 21.7 kip phiVn = 250.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
 Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116I:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1113/1293
07/25/17 11:03:32

Shear Results:

Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 60.9 kip phiVn = 250.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116J:

Length = 3.42 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 50.9 kip phiVn = 126.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116K:

Length = 3.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 50.2 kip phiVn = 111.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116L:

Length = 19.33 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 253.1 kip phiVn = 716.1 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E28 (LC 325)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.804% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 7.93 ft c = 5.33 ft (21.9.6.2) OK

Segment SC16H:116A:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116B:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116C:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1114/1293
07/25/17 11:03:32

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116D:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116E:

Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.13 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 1.253% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116F:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116G:

Max Vert Bar Spacing Limit: 18.00 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116H:

Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.920% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116I:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116J:

Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1115/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116K:

Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116L:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

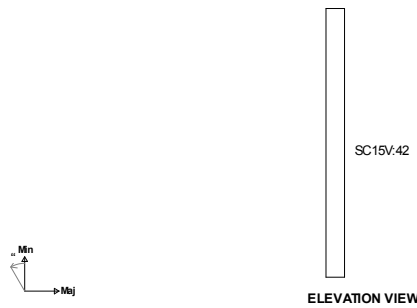
Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1116/1293
07/25/17 11:03:32

Section Cut ID: SC15V:42 (Vertical)

Story: LEVEL 2
Ag = 1944 in2 Imaj = 23328 in4 Imin = 4251528 in4
Wall Design Group: 15
Design Status: PASS



Axial/Flexural Results:

Interaction: 0.048 OK
Pu = -15.81 kips phiPn = -329.99 kips
Mu = 145.8 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E10 (LC 523)
Code Ref: 10.3.7

Shear Results:

Segment SC15V:42:
Length = 13.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 291.9 kip phiVn = 639.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.727% (14.3.3) OK
Segment SC15V:42:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.614% (21.9.2.1) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1117/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

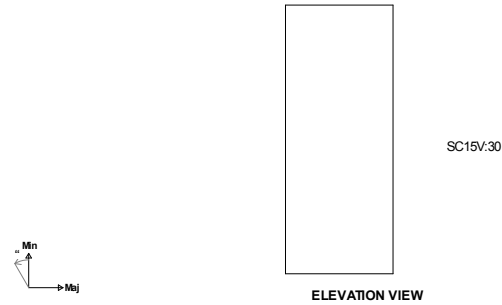
Section is much deeper than shown and combined section has adequate capacity. Say OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1118/1293
07/25/17 11:03:32

Section Cut ID: SC15V:30 (Vertical)
Story: LEVEL 2.1
Ag = 360 in2 Imaj = 4320 in4 Imin = 27000 in4
Wall Design Group: 15
Design Status: **FAILS**



Axial/Flexural Results:
Interaction: 0.502 OK
Pu = 6.80 kips phiPn = 13.54 kips
Mu = 116.5 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 10.3.7

Shear Results:
Segment SC15V:30:
Length = 2.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 258.9 kip phiVn = 92.6 kip NG
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.982% (14.3.3) OK
Segment SC15V:30:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.614% (21.9.2.1) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1119/1293
07/25/17 11:03:32

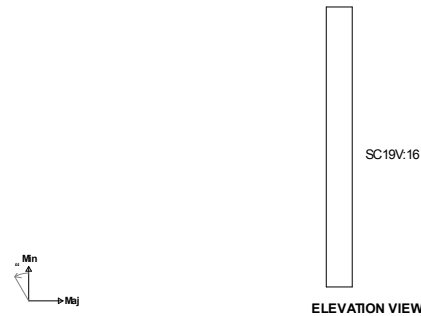
Min Number of Reinf Curtains: 2 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1120/1293
07/25/17 11:03:32

Section Cut ID: SC19V:16 (Vertical)
Story: T.O. PENTHOUSE
Ag = 1512 in2 Imaj = 18144 in4 Imin = 2000376 in4
Wall Design Group: 19
Design Status: **PASS**



Axial/Flexural Results:
Interaction: 0.171 OK
Pu = -32.58 kips phiPn = -190.65 kips
Mu = 56.3 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E24 (LC 573)
Code Ref: 10.3.7

Shear Results:
Segment SC19V:16:
Length = 10.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 38.0 kip phiVn = 228.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E28 (LC 109)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.312% (11.9.9.2) OK
Segment SC19V:16:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

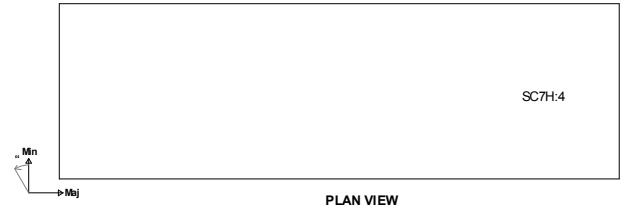
RAM Concrete Shearwall 15.04.00.000 Page 1121/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1122/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Section Cut ID: SC7H:4 (Horizontal) (Hinge)
Story: LEVEL 3
Ag = 819 in2 Imaj = 178794 in4 Imin = 17471 in4
Major Axis Orientation: 66.00 degrees (CCW from global X-axis)
Wall Design Group: 7
Design Status: PASS



PLAN VIEW

Axial/Flexural Results:
Interaction: 0.198 OK
Pu = 304.82 kips phiPn = 1538.20 kips
Mu = 9.7 kip-ft at Beta = 0.1 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC7H:4:
Length = 4.27 ft Thick = 16.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 21.1 kip phiVn = 135.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

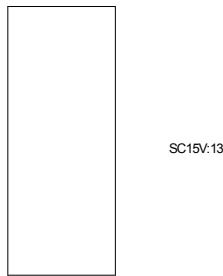
Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.375% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 1.02 ft c = 0.54 ft (21.9.6.2) OK

Segment SC7H:4:
Max Vert Bar Spacing Limit: 17.06 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.320% Actual: 0.320% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1123/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Section Cut ID: SC15V:13 (Vertical)
Story: LEVEL 2.1
Ag = 360 in2 Imaj = 4320 in4 Imin = 27000 in4
Wall Design Group: 15
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.246 OK
Pu = -25.08 kips phiPn = -101.78 kips
Mu = 25.7 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E7 (LC 160)
Code Ref: 10.3.7

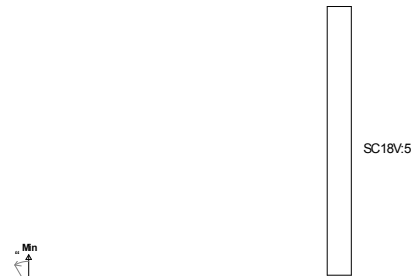
Shear Results:
Segment SC15V:13:
Length = 2.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 44.0 kip phiVn = 118.4 kip OK
Controlling Load Combo: 1.200 D + 1.600 Lp (LC 4)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.982% (14.3.3) OK
Segment SC15V:13:
Max Horiz Bar Spacing Limit: 16.20 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1124/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Section Cut ID: SC18V:5 (Vertical)
Story: ROOF LEVEL
Ag = 1584 in2 Imaj = 19008 in4 Imin = 2299968 in4
Wall Design Group: 18
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.183 OK
Pu = -31.05 kips phiPn = -169.86 kips
Mu = 83.7 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E10 (LC 523)
Code Ref: 10.3.7

Shear Results:
Segment SC18V:5:
Length = 11.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 99.8 kip phiVn = 236.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E7 (LC 52)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.297% (11.9.9.2) OK
Segment SC18V:5:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1125/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Section Cut ID: SC20V:85 (Vertical)
Story: LEVEL 2
Ag = 1428 in2 Imaj = 23324 in4 Imin = 1238076 in4
Wall Design Group: 20
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.145 OK
Pu = -18.82 kips phiPn = -129.64 kips
Mu = 62.8 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E10 (LC 559)
Code Ref: 10.3.7

Shear Results:
Segment SC20V:85:
Length = 8.50 ft Thick = 14.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 70.9 kip phiVn = 207.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E16 (LC 61)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.302% (11.9.9.2) OK
Segment SC20V:85:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1126/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1127/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Section Cut ID: SC20V:72 (Vertical)
Story: LEVEL 2
Ag = 1428 in2 Imaj = 23324 in4 Imin = 1238076 in4
Wall Design Group: 20
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.030 OK
Pu = 0.74 kips phiPn = 24.74 kips
Mu = 30.9 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E24 (LC 537)
Code Ref: 10.3.7

Shear Results:
Segment SC20V:72:
Length = 8.50 ft Thick = 14.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 46.5 kip phiVn = 207.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.302% (11.9.9.2) OK
Segment SC20V:72:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1128/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

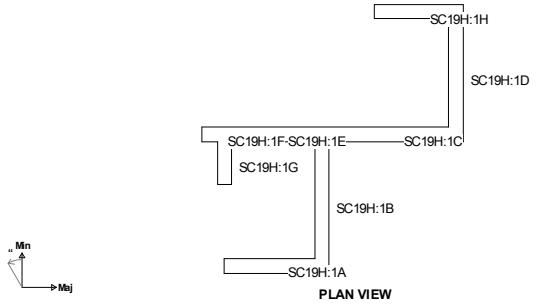
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1129/1293
07/25/17 11:03:32

Section Cut ID: SC19H:1 (Horizontal)
Story: T.O. PENTHOUSE
Ag = 7212 in2 I_{maj} = 32002731 in4 I_{min} = 29971926 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 19
Design Status: **PASS**



Axial/Flexural Results:
Interaction: 0.028 **OK**
Pu = 272.21 kips phiPn = 9826.28 kips
Mu = 958.6 kip-ft at Beta = 71.8 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC19H:1A:
Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 14.5 kip phiVn = 146.6 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E26 (LC 35)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1B:
Length = 9.17 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 38.4 kip phiVn = 199.1 kip **OK**
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1130/1293
07/25/17 11:03:32

Shear Results:
Segment SC19H:1C:
Length = 9.25 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 31.2 kip phiVn = 200.9 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1D:
Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 29.3 kip phiVn = 184.7 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E10 (LC 163)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1E:
Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 17.4 kip phiVn = 146.6 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E11 (LC 164)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1F:
Length = 1.58 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 9.0 kip phiVn = 34.4 kip **OK**
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E28 (LC 325)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1G:
Length = 3.42 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 11.4 kip phiVn = 74.2 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:1H:
Length = 5.67 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 9.8 kip phiVn = 123.1 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E5 (LC 158)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.310% (11.9.9.4) **OK**
Segment SC19H:1A:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1131/1293
07/25/17 11:03:32

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC19H:1B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC19H:1C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC19H:1D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC19H:1E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC19H:1F:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC19H:1G:
Max Vert Bar Spacing Limit: 13.67 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC19H:1H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1132/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

Section Cut ID: SC9H:10 (Horizontal)
Story: LEVEL 3.1
Ag = 1632 in2 Imaj = 1414946 in4 Imin = 34816 in4
Major Axis Orientation: 0.00 degrees (CCW from global X-axis)
Wall Design Group: 9
Design Status: **PASS**



Axial/Flexural Results:

Interaction: 0.178 **OK**
Pu = 546.99 kips phiPn = 3065.97 kips
Mu = 109.6 kip-ft at Beta = 0.1 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:

Segment SC9H:10:
Length = 8.50 ft Thick = 16.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 196.1 kip phiVn = 270.1 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.376% (11.9.9.4) **OK**
Segment SC9H:10:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.320% Actual: 0.320% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

Section Cut ID: SC2V:23 (Vertical)
Story: LEVEL 2
Ag = 1632 in2 Imaj = 34816 in4 Imin = 1414944 in4
Wall Design Group: 2
Design Status: **PASS**



Axial/Flexural Results:

Interaction: 0.037 **OK**
Pu = -6.85 kips phiPn = -186.27 kips
Mu = 12.1 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E31 (LC 544)
Code Ref: 10.3.7

Shear Results:

Segment SC2V:23:
Length = 8.50 ft Thick = 16.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@15" oc Horiz Bar Pat: #5@15" oc
Vu = 52.0 kip phiVn = 237.5 kip **OK**
Controlling Load Combo: 1.316 D - 1.300 E35 (LC 512)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.301% (11.9.9.2) **OK**
Segment SC2V:23:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 15.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 14.38 in (7.6.1) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**

Section Cut Design Summary

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

Section Cut ID: SC20H:63 (Horizontal)
Story: LEVEL 2
Ag = 16708 in2 Imaj = 1967973002 in4 Imin = 4201342 in4
Major Axis Orientation: 339.50 degrees (CCW from global X-axis)
Wall Design Group: 20
Design Status: **PASS**



Axial/Flexural Results:

Interaction: 0.040 **OK**
Pu = 556.44 kips phiPn = 13802.17 kips
Mu = 4563.5 kip-ft at Beta = 7.2 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E13 (LC 22)
Code Ref: 10.3.7

Shear Results:

Segment SC20H:63A:
Length = 16.38 ft Thick = 14.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 57.8 kip phiVn = 400.0 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E13 (LC 22)
Code Ref: 14.2.3 & 11.9.5

Segment SC20H:63B:

Length = 41.35 ft Thick = 14.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 169.6 kip phiVn = 1009.7 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Segment SC20H:63C:

Length = 32.21 ft Thick = 14.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 128.9 kip phiVn = 786.6 kip **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1137/1293
07/25/17 11:03:32

Shear Results:

Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC20H:63D:

Length = 3.67 ft Thick = 14.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 35.6 kip phiVn = 89.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E13 (LC 22)
Code Ref: 14.2.3 & 11.9.5

Segment SC20H:63E:

Length = 5.83 ft Thick = 14.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 46.4 kip phiVn = 142.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E13 (LC 22)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.266% (11.9.4) OK
Segment SC20H:63A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC20H:63B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC20H:63C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC20H:63D:
Max Vert Bar Spacing Limit: 14.68 in Actual: 11.00 in (11.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC20H:63E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.5) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1138/1293
07/25/17 11:03:32

Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

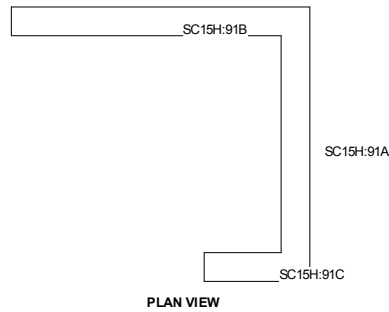
Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1139/1293
07/25/17 11:03:32

Section Cut ID:

SC15H:91 (Horizontal) (Hinge)
Story: LEVEL 2
Ag = 3096 in2 Imaj = 4085713 in4 Imin = 5222572 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 15
Design Status: FAILS



Axial/Flexural Results:

Interaction: 0.194 OK
Pu = -390.17 kips phiPn = -2011.52 kips
Mu = 455.3 kip-ft at Beta = -2.1 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E10 (LC 523)
Code Ref: 10.3.7

Shear Results:

Segment SC15H:91A:
Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 49.5 kip phiVn = 314.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:91B:

Length = 9.83 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 126.6 kip phiVn = 340.7 kip OK
Controlling Load Combo: 0.784 D + 1.300 E10 (LC 523)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1140/1293
07/25/17 11:03:32

Shear Results:

Segment SC15H:91C:
Length = 3.17 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 28.7 kip phiVn = 117.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 1.665% (11.9.4) OK
S.B.E. Check: Boundary zone required for one or more load combos - Say OK
Worst case is load combo 19 :
cmax = 2.47 ft c = 2.61 ft (21.9.6.2) NG

Segment SC15H:91A:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC15H:91B:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC15H:91C:

Max Vert Bar Spacing Limit: 12.67 in Actual: 12.00 in (11.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1141/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Section Cut ID: SC23V:17 (Vertical)
Story: T.O. PENTHOUSE
Ag = 1512 in2 Imaj = 18144 in4 Imin = 2000376 in4
Wall Design Group: 23
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.009 OK
Pu = -1.41 kips phiPn = -156.24 kips
Mu = 4.6 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E28 (LC 577)
Code Ref: 10.3.7

Shear Results:
Segment SC23V:17:
Length = 10.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 14.1 kip phiVn = 228.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E22 (LC 175)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.312% (11.9.9.2) OK
Segment SC23V:17:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

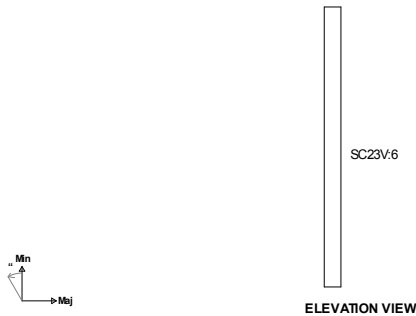
RAM Concrete Shearwall 15.04.00.000 Page 1142/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1143/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Section Cut ID: SC23V:6 (Vertical)
Story: T.O. PENTHOUSE
Ag = 1008 in2 Imaj = 5376 in4 Imin = 1333584 in4
Wall Design Group: 23
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.089 OK
Pu = -12.69 kips phiPn = -141.83 kips
Mu = 51.2 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC23V:6:
Length = 10.50 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 29.6 kip phiVn = 193.3 kip OK
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.467% (11.9.9.2) OK
Segment SC23V:6:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1144/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

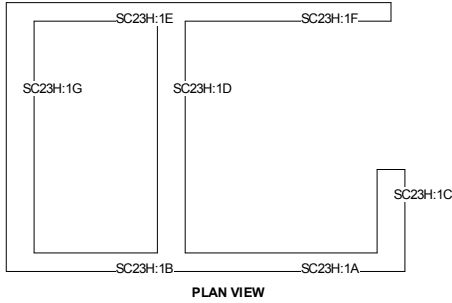
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1145/1293
07/25/17 11:03:32

Section Cut ID: SC23H:1 (Horizontal)
Story: T.O. PENTHOUSE
Ag = 10826 in2 I_{maj} = 20003992 in4 I_{min} = 14769055 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 23
Design Status: **PASS**



Axial/Flexural Results:

Interaction: 0.040 **OK**
Pu = 227.53 kips phiPn = 5742.58 kips
Mu = 929.6 kip-ft at Beta = 9.7 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:

Segment SC23H:1A:
Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 22.9 kip phiVn = 147.0 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E29 (LC 38)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:1B:
Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 18.4 kip phiVn = 100.4 kip **OK**
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1146/1293
07/25/17 11:03:32

Shear Results:

Segment SC23H:1C:
Length = 3.33 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 2.9 kip phiVn = 72.4 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E31 (LC 112)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:1D:
Length = 9.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 15.0 kip phiVn = 195.5 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E22 (LC 31)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:1E:
Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 14.9 kip phiVn = 100.4 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E31 (LC 40)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:1F:
Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 16.7 kip phiVn = 147.0 kip **OK**
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:1G:
Length = 9.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 13.0 kip phiVn = 195.5 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E34 (LC 43)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) **OK**
Segment SC23H:1A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC23H:1B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1147/1293
07/25/17 11:03:32

Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC23H:1C:
Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC23H:1D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC23H:1E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC23H:1F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC23H:1G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

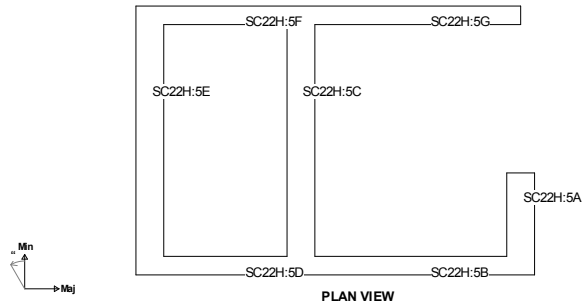
Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1148/1293
07/25/17 11:03:32

Section Cut ID: SC22H:5 (Horizontal)

Story: ROOF LEVEL
Ag = 10826 in2 I_{maj} = 20003992 in4 I_{min} = 14769055 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 22
Design Status: **PASS**



Axial/Flexural Results:

Interaction: 0.052 **OK**
Pu = 416.32 kips phiPn = 7994.27 kips
Mu = 1173.1 kip-ft at Beta = -13.4 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:

Segment SC22H:5A:
Length = 3.33 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 1.9 kip phiVn = 72.4 kip **OK**
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Segment SC22H:5B:
Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 29.3 kip phiVn = 147.0 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

Shear Results:

Segment SC22H:5C:
 Length = 9.00 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 V_u = 24.1 kip phiV_n = 195.5 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

Segment SC22H:5D:
 Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 V_u = 7.2 kip phiV_n = 100.4 kip OK
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E33 (LC 330)
 Code Ref: 14.2.3 & 11.9.5

Segment SC22H:5E:
 Length = 9.00 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 V_u = 26.3 kip phiV_n = 195.5 kip OK
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
 Code Ref: 14.2.3 & 11.9.5

Segment SC22H:5F:
 Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 V_u = 13.4 kip phiV_n = 100.4 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

Segment SC22H:5G:
 Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 V_u = 31.3 kip phiV_n = 147.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

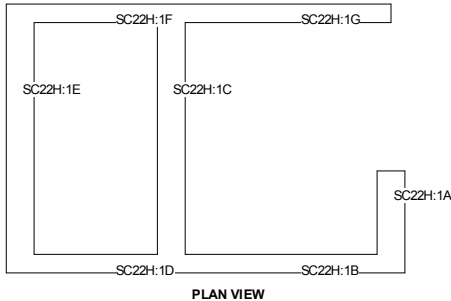
Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) OK
 Segment SC22H:5A:
 Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC22H:5B:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

Section Cut Design Summary

Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC22H:5C:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC22H:5D:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC22H:5E:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC22H:5F:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC22H:5G:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC22H:1 (Horizontal)
Story: ROOF LEVEL
 Ag = 10826 in2 Imaj = 20003992 in4 Imin = 14769055 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 22
 Design Status: PASS



Axial/Flexural Results:
 Interaction: 0.056 OK
 P_u = 457.83 kips phiP_n = 8240.18 kips
 Mu = 1187.6 kip-ft at Beta = -22.8 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:
 Segment SC22H:1A:
 Length = 3.33 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 V_u = 1.9 kip phiV_n = 72.4 kip OK
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 14.2.3 & 11.9.5

Segment SC22H:1B:
 Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 V_u = 38.2 kip phiV_n = 147.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
 Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

Shear Results:

Segment SC22H:1C:
 Length = 9.00 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 V_u = 24.1 kip phiV_n = 195.5 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

Segment SC22H:1D:
 Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 V_u = 11.0 kip phiV_n = 100.4 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E32 (LC 185)
 Code Ref: 14.2.3 & 11.9.5

Segment SC22H:1E:
 Length = 9.00 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 V_u = 26.3 kip phiV_n = 195.5 kip OK
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
 Code Ref: 14.2.3 & 11.9.5

Segment SC22H:1F:
 Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 V_u = 13.0 kip phiV_n = 100.4 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

Segment SC22H:1G:
 Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 V_u = 33.5 kip phiV_n = 147.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) OK
 Segment SC22H:1A:
 Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC22H:1B:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1153/1293
07/25/17 11:03:32

Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC22H:1C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC22H:1D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC22H:1E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC22H:1F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1154/1293
07/25/17 11:03:32

Section Cut ID: SC3V:22 (Vertical)
Story: LEVEL 2
Ag = 1428 in2 Imaj = 23324 in4 Imin = 1238076 in4
Wall Design Group: 3
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.039 OK
Pu = 1.50 kips phiPn = 38.79 kips
Mu = 47.3 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 10.3.7

Shear Results:
Segment SC3V:22:
Length = 8.50 ft Thick = 14.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@15" oc Horiz Bar Pat: #5@15" oc
Vu = 53.7 kip phiVn = 224.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.344% (11.9.9.2) OK
Segment SC3V:22:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 15.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 14.38 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1155/1293
07/25/17 11:03:32

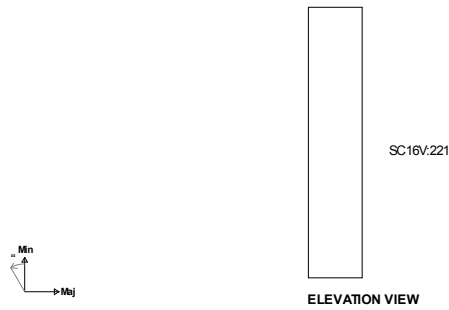
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1156/1293
07/25/17 11:03:32

Section Cut ID: SC16V:221 (Vertical)
Story: LEVEL 2.3
Ag = 720 in2 Imaj = 8640 in4 Imin = 216000 in4
Wall Design Group: 16
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.175 OK
Pu = -12.51 kips phiPn = -71.59 kips
Mu = 88.9 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E7 (LC 520)
Code Ref: 10.3.7

Shear Results:
Segment SC16V:221:
Length = 5.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 146.8 kip phiVn = 185.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E7 (LC 52)
Code Ref: 14.2.3 & 11.9.5

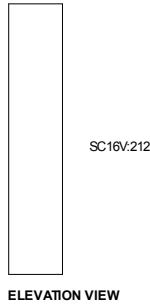
Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.736% (14.3.3) OK
Segment SC16V:221:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1157/1293
07/25/17 11:03:32

Section Cut ID: SC16V:212 (Vertical)
Story: LEVEL 2.3
Ag = 720 in2 Imaj = 8640 in4 Imin = 216000 in4
Wall Design Group: 16
Design Status: **PASS**



Axial/Flexural Results:
Interaction: 0.073 **OK**
Pu = -19.81 kips phiPn = -273.21 kips
Mu = 19.3 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E28 (LC 541)
Code Ref: 10.3.7

Shear Results:
Segment SC16V:212:
Length = 5.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 101.0 kip phiVn = 182.9 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.859% (14.3.3) **OK**
Segment SC16V:212:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min web reinforcement ratio: 0.250% Actual: 0.614% (21.9.2.1) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1158/1293
07/25/17 11:03:32

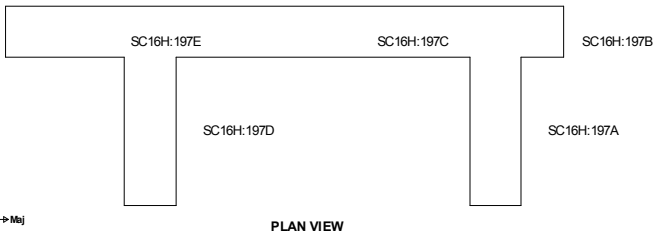
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1159/1293
07/25/17 11:03:32

Section Cut ID: SC16H:197 (Horizontal) (Hinge)
Story: LEVEL 2.3
Ag = 2412 in2 Imaj = 3680308 in4 Imin = 406950 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 16
Design Status: **PASS**



Axial/Flexural Results:
Interaction: 0.099 **OK**
Pu = 515.90 kips phiPn = 5223.72 kips
Mu = 134.8 kip-ft at Beta = 82.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC16H:197A:
Length = 3.42 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 67.5 kip phiVn = 126.6 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:197B:
Length = 1.33 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 15.0 kip phiVn = 49.4 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E10 (LC 163)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:197C:
Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1160/1293
07/25/17 11:03:32

Shear Results:
Vu = 126.9 kip phiVn = 250.0 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:197D:
Length = 3.42 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 31.5 kip phiVn = 126.6 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E8 (LC 17)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:197E:
Length = 2.83 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 55.1 kip phiVn = 104.9 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 1.351% (11.9.9.4) **OK**
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 2.57 ft c = 2.45 ft (21.9.6.2) **OK**

Segment SC16H:197A:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC16H:197B:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC16H:197C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC16H:197D:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1161/1293
07/25/17 11:03:32

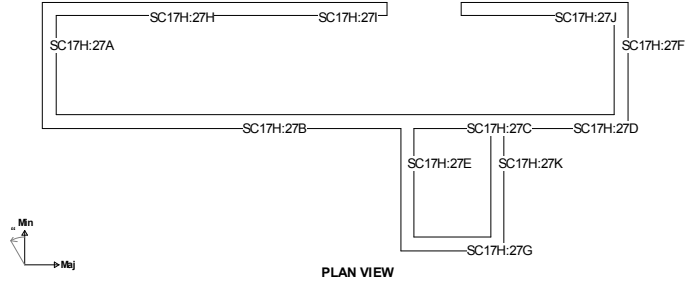
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:197E:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1162/1293
07/25/17 11:03:32

Section Cut ID: SC17H:27 (Horizontal)
Story: LEVEL 4
Ag = 24222 in2 Imaj = 507025850 in4 Imin = 112929491 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 17
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.057 OK
Pu = 1898.54 kips phiPn = 33289.22 kips
Mu = 2628.2 kip-ft at Beta = 31.2 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC17H:27A:
Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 135.3 kip phiVn = 243.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E21 (LC 174)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27B:
Length = 26.83 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 309.8 kip phiVn = 767.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E28 (LC 181)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1163/1293
07/25/17 11:03:32

Shear Results:
Segment SC17H:27C:
Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 58.6 kip phiVn = 193.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5
Segment SC17H:27D:
Length = 9.25 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 121.8 kip phiVn = 264.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5
Segment SC17H:27E:
Length = 9.17 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 53.0 kip phiVn = 262.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5
Segment SC17H:27F:
Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 101.8 kip phiVn = 243.2 kip OK
Controlling Load Combo: 1.316 D + 1.300 E7 (LC 448)
Code Ref: 14.2.3 & 11.9.5
Segment SC17H:27G:
Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 21.7 kip phiVn = 193.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
Code Ref: 14.2.3 & 11.9.5
Segment SC17H:27H:
Length = 13.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 77.2 kip phiVn = 372.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5
Segment SC17H:27I:
Length = 12.33 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1164/1293
07/25/17 11:03:32

Shear Results:
Vu = 60.2 kip phiVn = 352.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E12 (LC 21)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27J:
Length = 12.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 47.7 kip phiVn = 343.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E15 (LC 24)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27K:
Length = 9.17 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 70.5 kip phiVn = 262.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.471% (11.9.9.4) OK
Segment SC17H:27A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 1165/1293
 07/25/17 11:03:32

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC17H:27E:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC17H:27F:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC17H:27G:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC17H:27H:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC17H:27I:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC17H:27J:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC17H:27K:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 1166/1293
 07/25/17 11:03:32

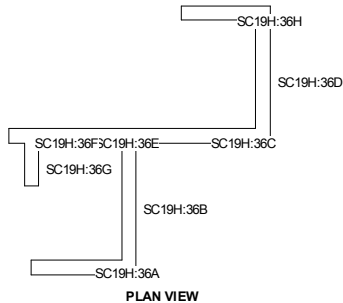
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 1167/1293
 07/25/17 11:03:32

Section Cut ID: SC19H:36 (Horizontal)
Story: T.O. PENTHOUSE
 Ag = 7212 in2 Imaj = 32002731 in4 Imin = 29971926 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 19
 Design Status: PASS



Axial/Flexural Results:
 Interaction: 0.019 OK
 Pu = 243.56 kips phiPn = 13035.30 kips
 Mu = 286.2 kip-ft at Beta = -66.0 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:
 Segment SC19H:36A:
 Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 14.5 kip phiVn = 146.6 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E26 (LC 35)
 Code Ref: 14.2.3 & 11.9.5

Segment SC19H:36B:
 Length = 9.17 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 38.4 kip phiVn = 199.1 kip OK
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 1168/1293
 07/25/17 11:03:32

Shear Results:
 Segment SC19H:36C:
 Length = 9.25 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 21.6 kip phiVn = 200.9 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
 Code Ref: 14.2.3 & 11.9.5

Segment SC19H:36D:
 Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 17.3 kip phiVn = 184.7 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E10 (LC 163)
 Code Ref: 14.2.3 & 11.9.5

Segment SC19H:36E:
 Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 17.4 kip phiVn = 146.6 kip OK
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E6 (LC 303)
 Code Ref: 14.2.3 & 11.9.5

Segment SC19H:36F:
 Length = 1.58 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 9.2 kip phiVn = 34.4 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
 Code Ref: 14.2.3 & 11.9.5

Segment SC19H:36G:
 Length = 3.42 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 11.4 kip phiVn = 74.2 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
 Code Ref: 14.2.3 & 11.9.5

Segment SC19H:36H:
 Length = 5.67 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 Vu = 9.8 kip phiVn = 123.1 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E5 (LC 158)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.310% (11.9.9.4) OK
 Segment SC19H:36A:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1169/1293
07/25/17 11:03:32

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:36B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:36C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:36D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:36E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:36F:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:36G:
Max Vert Bar Spacing Limit: 13.67 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:36H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1170/1293
07/25/17 11:03:32

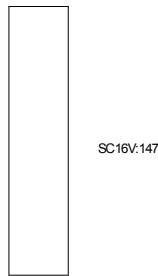
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1171/1293
07/25/17 11:03:32

Section Cut ID: SC16V:147 (Vertical)
Story: LEVEL 3
Ag = 648 in2 Imaj = 7776 in4 Imin = 157464 in4
Wall Design Group: 16
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.076 OK
Pu = -12.88 kips phiPn = -170.35 kips
Mu = 15.6 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E6 (LC 519)
Code Ref: 10.3.7

Shear Results:
Segment SC16V:147:
Length = 4.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 19.1 kip phiVn = 213.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E24 (LC 69)
Code Ref: 14.2.3 & 11.9.5

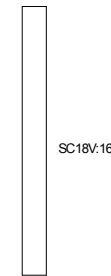
Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.818% (14.3.3) OK
Segment SC16V:147:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1172/1293
07/25/17 11:03:32

Section Cut ID: SC18V:16 (Vertical)
Story: ROOF LEVEL
Ag = 1584 in2 Imaj = 19008 in4 Imin = 2299968 in4
Wall Design Group: 18
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.031 OK
Pu = 1.02 kips phiPn = 32.93 kips
Mu = 46.2 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E24 (LC 537)
Code Ref: 10.3.7

Shear Results:
Segment SC18V:16:
Length = 11.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 59.5 kip phiVn = 239.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E21 (LC 66)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.297% (11.9.9.2) OK
Segment SC18V:16:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1173/1293
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
 Design Code: ACI 318-11

Section Cut ID: SC16V:137 (Vertical)
Story: LEVEL 3.1
 Ag = 1008 in2 Imaj = 12096 in4 Imin = 592704 in4
 Wall Design Group: 16
 Design Status: **PASS**



Axial/Flexural Results:
 Interaction: 0.059 **OK**
 Pu = -15.78 kips phiPn = -269.03 kips
 Mu = 22.6 kip-ft at Beta = 0.0 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
 Code Ref: 10.3.7

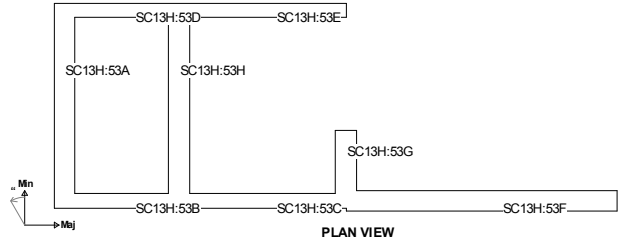
Shear Results:
 Segment SC16V:137:
 Length = 7.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
 Vu = 76.6 kip phiVn = 259.2 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.701% (14.3.3) **OK**
 Segment SC16V:137:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1174/1293
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
 Design Code: ACI 318-11

Section Cut ID: SC13H:53 (Horizontal) (Hinge)
Story: LEVEL 3.1
 Ag = 12609 in2 Imaj = 78641281 in4 Imin = 19012759 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 13
 Design Status: **PASS**



Axial/Flexural Results:
 Interaction: 0.096 **OK**
 Pu = 1385.41 kips phiPn = 14499.25 kips
 Mu = 2897.7 kip-ft at Beta = -18.0 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:
 Segment SC13H:53A:
 Length = 9.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 91.5 kip phiVn = 257.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E13 (LC 310)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53B:
 Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 39.9 kip phiVn = 137.7 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E9 (LC 18)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53C:
 Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1175/1293
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
 Design Code: ACI 318-11

Shear Results:
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 82.6 kip phiVn = 201.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E17 (LC 98)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53D:
 Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 28.9 kip phiVn = 137.7 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E17 (LC 26)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53E:
 Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 23.8 kip phiVn = 201.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Ln + 1.300 E34 (LC 259)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53F:
 Length = 12.80 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 195.3 kip phiVn = 366.2 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53G:
 Length = 3.33 ft Thick = 12.00 in f_c = 3500 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 57.4 kip phiVn = 95.4 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53H:
 Length = 9.00 ft Thick = 12.00 in f_c = 3500 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 124.9 kip phiVn = 257.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.725% (11.9.9.4) **OK**
 S.B.E. Check: Neutral axis distance less than limit for all load combos
 Worst case is load combo 10 :
 cmax = 6.00 ft c = 0.70 ft (21.9.6.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1176/1293
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
 Design Code: ACI 318-11

Segment SC13H:53A:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC13H:53B:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC13H:53C:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC13H:53D:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC13H:53E:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC13H:53F:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC13H:53G:
 Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Segment SC13H:53H:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**

Section Cut Design Summary

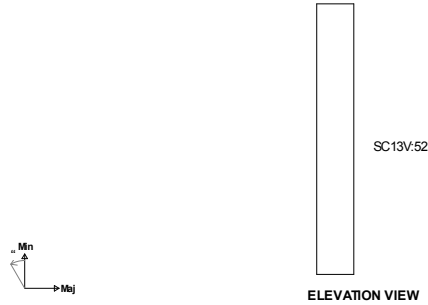
RAM Concrete Shearwall 15.04.00.000 Page 1177/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1178/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Section Cut ID: SC13V:52 (Vertical)
Story: LEVEL 3.1
Ag = 1008 in2 Imaj = 12096 in4 Imin = 592704 in4
Wall Design Group: 13
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.114 OK
Pu = -5.56 kips phiPn = -48.74 kips
Mu = 82.0 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
Code Ref: 10.3.7

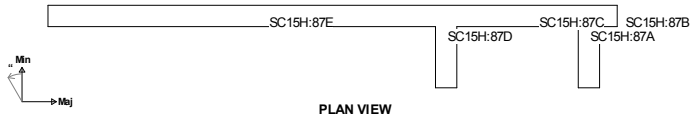
Shear Results:
Segment SC13V:52:
Length = 7.00 ft Thick = 12.00 in f'c = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 105.9 kip phiVn = 195.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.487% (11.9.9.2) OK
Segment SC13V:52:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1179/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Section Cut ID: SC15H:87 (Horizontal) (Hinge)
Story: LEVEL 2
Ag = 4716 in2 Imaj = 42697518 in4 Imin = 513525 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 15
Design Status: FAILS



Axial/Flexural Results:
Interaction: 0.134 OK
Pu = 1000.36 kips phiPn = 7438.78 kips
Mu = 5309.9 kip-ft at Beta = -1.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 10.3.7

Shear Results:
Segment SC15H:87A:
Length = 3.42 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 22.8 kip phiVn = 126.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:87B:
Length = 1.33 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 3.4 kip phiVn = 49.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:87C:
Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 95.4 kip phiVn = 250.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:87D:
Length = 3.42 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1180/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Shear Results:
Vert Bar Pat: Horiz Bar Pat:
Vu = 29.6 kip phiVn = 126.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:87E:
Length = 18.83 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 281.9 kip phiVn = 697.6 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E28 (LC 325)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 1.193% (11.9.9.4) OK
S.B.E. Check: Boundary zone required for one or more load combos - Say OK
Worst case is load combo 299 : cmax = 2.15 ft c = 2.31 ft (21.9.6.2) NG

Segment SC15H:87A:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC15H:87B:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC15H:87C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC15H:87D:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC15H:87E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1181/1293
07/25/17 11:03:32

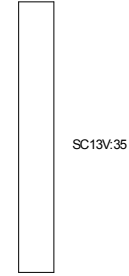
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1182/1293
07/25/17 11:03:32

Section Cut ID: SC13V:35 (Vertical)
Story: LEVEL 2.3
Ag = 480 in2 Imaj = 2560 in4 Imin = 144000 in4
Wall Design Group: 13
Design Status: PASS



ELEVATION VIEW



Axial/Flexural Results:
Interaction: 0.042 OK
Pu = 23.01 kips phiPn = 552.06 kips
Mu = 34.7 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC13V:35:
Length = 5.00 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 27.8 kip phiVn = 127.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E28 (LC 73)
Code Ref: 14.2.3 & 11.9.5

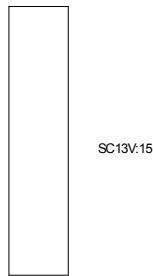
Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.767% (11.9.9.2) OK
Segment SC13V:35:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1183/1293
07/25/17 11:03:32

Section Cut ID: SC13V:15 (Vertical)
Story: LEVEL 3
Ag = 648 in2 Imaj = 7776 in4 Imin = 157464 in4
Wall Design Group: 13
Design Status: PASS



ELEVATION VIEW



Axial/Flexural Results:
Interaction: 0.577 OK
Pu = -60.07 kips phiPn = -104.06 kips
Mu = 117.9 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 10.3.7

Shear Results:
Segment SC13V:15:
Length = 4.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 76.1 kip phiVn = 120.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E15 (LC 60)
Code Ref: 14.2.3 & 11.9.5

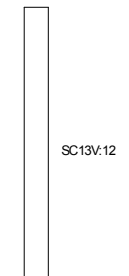
Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.568% (11.9.9.2) OK
Segment SC13V:15:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1184/1293
07/25/17 11:03:32

Section Cut ID: SC13V:12 (Vertical)
Story: LEVEL 3.1
Ag = 672 in2 Imaj = 3584 in4 Imin = 395136 in4
Wall Design Group: 13
Design Status: PASS



ELEVATION VIEW



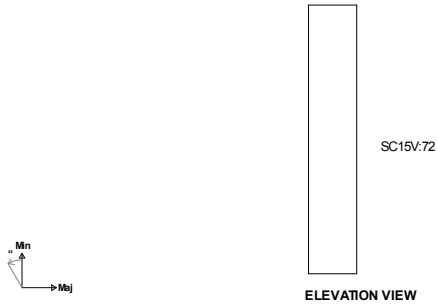
Axial/Flexural Results:
Interaction: 0.024 OK
Pu = -1.98 kips phiPn = -82.04 kips
Mu = 14.7 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E5 (LC 518)
Code Ref: 10.3.7

Shear Results:
Segment SC13V:12:
Length = 7.00 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 33.7 kip phiVn = 178.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.730% (11.9.9.2) OK
Segment SC13V:12:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC15V:72 (Vertical)
Story: LEVEL 2
 Ag = 792 in2 Imaj = 9504 in4 Imin = 287496 in4
 Wall Design Group: 15
 Design Status: **PASS**



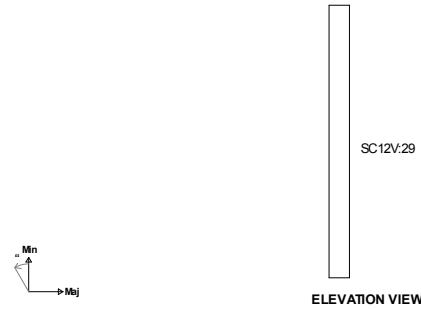
Axial/Flexural Results:
 Interaction: 0.235 **OK**
 Pu = -43.19 kips phiPn = -184.10 kips
 Mu = 108.0 kip-ft at Beta = 0.0 deg CCW from Major axis
 Controlling Load Combo: 0.784 D - 1.300 E10 (LC 559)
 Code Ref: 10.3.7

Shear Results:
 Segment SC15V:72:
 Length = 5.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 54.1 kip phiVn = 203.7 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.781% (14.3.3) **OK**
 Segment SC15V:72:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

Section Cut ID: SC12V:29 (Vertical)
Story: LEVEL 2
 Ag = 816 in2 Imaj = 4352 in4 Imin = 707472 in4
 Wall Design Group: 12
 Design Status: **PASS**



Axial/Flexural Results:
 Interaction: 0.042 **OK**
 Pu = -3.30 kips phiPn = -78.38 kips
 Mu = 42.2 kip-ft at Beta = -0.0 deg CCW from Major axis
 Controlling Load Combo: 0.784 D + 1.300 E17 (LC 530)
 Code Ref: 10.3.7

Shear Results:
 Segment SC12V:29:
 Length = 8.50 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 56.2 kip phiVn = 216.4 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp - 1.300 E17 (LC 206)
 Code Ref: 14.2.3 & 11.9.5

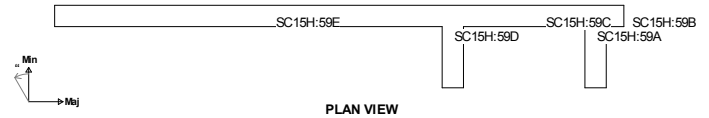
Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.752% (11.9.9.2) **OK**
 Segment SC12V:29:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**

Section Cut Design Summary

Min web reinforcement ratio: 0.250% Actual: 0.639% (21.9.2.1) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

Section Cut ID: SC15H:59 (Horizontal) (Hinge)
Story: LEVEL 2
 Ag = 4716 in2 Imaj = 42697518 in4 Imin = 513525 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 15
 Design Status: **FAILS**



Axial/Flexural Results:
 Interaction: 0.126 **OK**
 Pu = 1000.38 kips phiPn = 7936.60 kips
 Mu = 4463.6 kip-ft at Beta = 0.3 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
 Code Ref: 10.3.7

Shear Results:
 Segment SC15H:59A:
 Length = 3.42 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 22.8 kip phiVn = 126.6 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
 Code Ref: 14.2.3 & 11.9.5

Segment SC15H:59B:
 Length = 1.33 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 29.9 kip phiVn = 49.4 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
 Code Ref: 14.2.3 & 11.9.5

Segment SC15H:59C:
 Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 84.4 kip phiVn = 250.0 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
 Code Ref: 14.2.3 & 11.9.5

Segment SC15H:59D:
 Length = 3.42 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi

Section Cut Design Summary

Shear Results:

Vert Bar Pat: Horiz Bar Pat:
 Vu = 29.6 kip phiVn = 126.6 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
 Code Ref: 14.2.3 & 11.9.5

Segment SC15H:59E:

Length = 18.83 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 271.4 kip phiVn = 697.6 kip OK
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E28 (LC 325)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 1.193% (11.9.9.4) OK
 S.B.E. Check: Boundary zone required for one or more load combos - Say OK
 Worst case is load combo 83 :
 cmax = 1.96 ft c = 2.29 ft (21.9.6.2) NG

Segment SC15H:59A:

Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC15H:59B:

Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC15H:59C:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC15H:59D:

Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC15H:59E:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK

Section Cut Design Summary

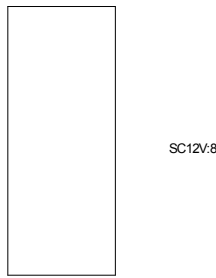
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID:

SC12V:8 (Vertical)

Story: LEVEL 2.1
 Ag = 360 in2 Imaj = 4320 in4 Imin = 27000 in4
 Wall Design Group: 12
 Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:

Interaction: 0.080 OK
 Pu = 25.37 kips phiPn = 316.33 kips
 Mu = 29.7 kip-ft at Beta = 0.0 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
 Code Ref: 10.3.7

Shear Results:

Segment SC12V:8:
 Length = 2.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 27.4 kip phiVn = 71.5 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.682% (11.9.9.2) OK
 Segment SC12V:8:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID:

SC17H:1 (Horizontal)

Story: LEVEL 4
 Ag = 16632 in2 Imaj = 464483501 in4 Imin = 67992964 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 17
 Design Status: PASS



PLAN VIEW

Axial/Flexural Results:

Interaction: 0.059 OK
 Pu = 1876.45 kips phiPn = 31716.96 kips
 Mu = 2426.2 kip-ft at Beta = 39.0 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:

Segment SC17H:1A:
 Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 135.3 kip phiVn = 243.2 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E21 (LC 174)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1B:

Length = 26.83 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 305.4 kip phiVn = 767.9 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
 Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1193/1293
07/25/17 11:03:32

Shear Results:

Segment SC17H:1C:
Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 73.1 kip phiVn = 193.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1D:
Length = 9.25 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 119.0 kip phiVn = 264.7 kip OK
Controlling Load Combo: 1.316 D + 1.300 E7 (LC 448)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1E:
Length = 3.42 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 51.0 kip phiVn = 97.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1F:
Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 101.8 kip phiVn = 243.2 kip OK
Controlling Load Combo: 1.316 D + 1.300 E7 (LC 448)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1G:
Length = 13.00 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 59.3 kip phiVn = 372.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1H:
Length = 12.33 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 51.0 kip phiVn = 352.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E26 (LC 35)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1I:
Length = 12.00 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1194/1293
07/25/17 11:03:32

Shear Results:

Vu = 46.7 kip phiVn = 343.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1J:
Length = 9.17 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 70.5 kip phiVn = 262.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1K:
Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 21.7 kip phiVn = 193.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.472% (11.9.9.4) OK
Segment SC17H:1A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1195/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1E:
Max Vert Bar Spacing Limit: 13.67 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1I:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1J:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1K:

Section Cut Design Summary

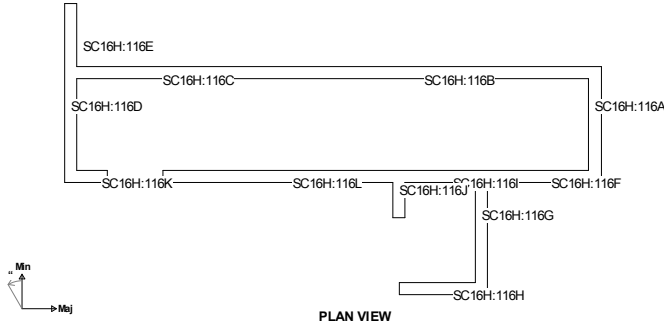
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1196/1293
07/25/17 11:03:32

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC16H:116 (Horizontal) (Hinge)
Level: 3.1
Ag = 17520 in2 Imaj = 494692829 in4 Imin = 79451243 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 16
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.080 OK
Pu = 1588.28 kips phiPn = 19808.27 kips
Mu = 11167.3 kip-ft at Beta = 35.8 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 10.3.7

Shear Results:
Segment SC16H:116A:
Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 139.2 kip phiVn = 314.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116B:
Length = 29.83 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 292.1 kip phiVn = 1105.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)

Section Cut Design Summary

Shear Results:
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116C:
Length = 13.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 56.4 kip phiVn = 481.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E35 (LC 44)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116D:
Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 285.8 kip phiVn = 314.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116E:
Length = 5.67 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 147.8 kip phiVn = 209.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E21 (LC 30)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116F:
Length = 9.25 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 110.8 kip phiVn = 342.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E6 (LC 159)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116G:
Length = 9.17 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 70.5 kip phiVn = 339.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116H:
Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 21.7 kip phiVn = 250.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116I:

Section Cut Design Summary

Shear Results:
Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 60.9 kip phiVn = 250.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116J:
Length = 3.42 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 50.9 kip phiVn = 126.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116K:
Length = 3.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 50.2 kip phiVn = 111.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116L:
Length = 19.33 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 253.1 kip phiVn = 716.1 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E28 (LC 325)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.804% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10:
cmax = 7.93 ft c = 5.33 ft (21.9.6.2) OK

Segment SC16H:116A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116C:

Section Cut Design Summary

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.13 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 1.253% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.920% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116I:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116J:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1201/1293
07/25/17 11:03:32

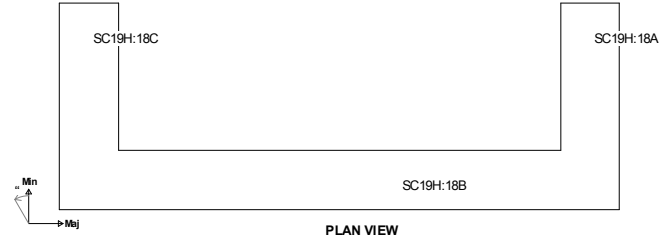
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116K:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116L:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1202/1293
07/25/17 11:03:32

Section Cut ID: SC19H:18 (Horizontal)
Story: T.O. PENTHOUSE
Ag = 2088 in2 Imaj = 3362904 in4 Imin = 278446 in4
Major Axis Orientation: 0.00 degrees (CCW from global X-axis)
Wall Design Group: 19
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.024 OK
Pu = 56.52 kips phiPn = 2398.69 kips
Mu = 49.0 kip-ft at Beta = -50.3 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC19H:18A:
Length = 3.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 9.3 kip phiVn = 65.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E21 (LC 30)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:18B:
Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 21.5 kip phiVn = 184.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E23 (LC 32)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:18C:
Length = 3.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1203/1293
07/25/17 11:03:32

Shear Results:
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 8.8 kip phiVn = 65.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

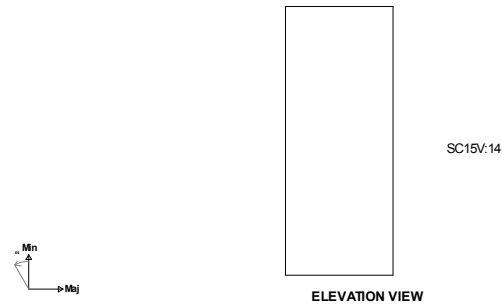
Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.357% (11.9.9.4) OK
Segment SC19H:18A:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:18B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:18C:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1204/1293
07/25/17 11:03:32

Section Cut ID: SC15V:14 (Vertical)
Story: LEVEL 2.1
Ag = 360 in2 Imaj = 4320 in4 Imin = 27000 in4
Wall Design Group: 15
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.172 OK
Pu = -19.31 kips phiPn = -112.30 kips
Mu = 15.8 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E24 (LC 177)
Code Ref: 10.3.7

Shear Results:
Segment SC15V:14:
Length = 2.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 34.4 kip phiVn = 118.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E10 (LC 163)
Code Ref: 14.2.3 & 11.9.5

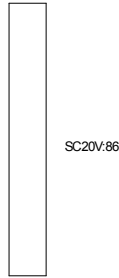
Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.982% (14.3.3) OK
Segment SC15V:14:
Max Horiz Bar Spacing Limit: 16.20 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1205/1293
07/25/17 11:03:32

Section Cut ID: SC20V:86 (Vertical)
Story: LEVEL 2
Ag = 1428 in2 Imaj = 23324 in4 Imin = 1238076 in4
Wall Design Group: 20
Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.125 **OK**
Pu = -12.92 kips phiPn = -103.41 kips
Mu = 66.9 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp - 1.300 E10 (LC 199)
Code Ref: 10.3.7

Shear Results:
Segment SC20V:86:
Length = 8.50 ft Thick = 14.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 58.7 kip phiVn = 207.5 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E16 (LC 61)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.302% (11.9.9.2) **OK**
Segment SC20V:86:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1206/1293
07/25/17 11:03:32

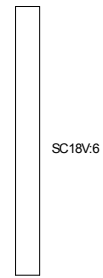
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1207/1293
07/25/17 11:03:32

Section Cut ID: SC18V:6 (Vertical)
Story: ROOF LEVEL
Ag = 1584 in2 Imaj = 19008 in4 Imin = 2299968 in4
Wall Design Group: 18
Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.102 **OK**
Pu = -8.29 kips phiPn = -81.48 kips
Mu = 93.1 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E7 (LC 556)
Code Ref: 10.3.7

Shear Results:
Segment SC18V:6:
Length = 11.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 99.0 kip phiVn = 239.0 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E10 (LC 55)
Code Ref: 14.2.3 & 11.9.5

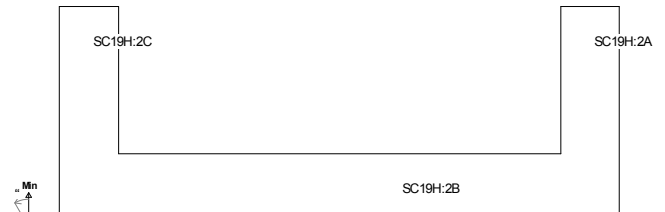
Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.297% (11.9.9.2) **OK**
Segment SC18V:6:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1208/1293
07/25/17 11:03:32

Section Cut ID: SC19H:2 (Horizontal)
Story: T.O. PENTHOUSE
Ag = 2088 in2 Imaj = 3362904 in4 Imin = 278446 in4
Major Axis Orientation: 0.00 degrees (CCW from global X-axis)
Wall Design Group: 19
Design Status: **PASS**



PLAN VIEW

Axial/Flexural Results:
Interaction: 0.052 **OK**
Pu = 14.01 kips phiPn = 267.55 kips
Mu = 157.9 kip-ft at Beta = -7.6 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E27 (LC 540)
Code Ref: 10.3.7

Shear Results:
Segment SC19H:2A:
Length = 3.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 9.3 kip phiVn = 65.2 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E21 (LC 30)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:2B:
Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 21.5 kip phiVn = 184.7 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E23 (LC 32)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:2C:
Length = 3.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1209/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Shear Results:

Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 8.8 kip phiVn = 65.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

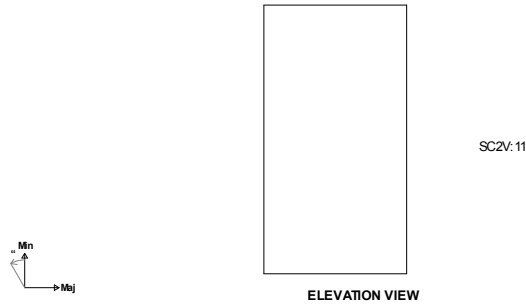
Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.357% (11.9.9.4) OK
Segment SC19H:2A:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:2B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:2C:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1210/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Section Cut ID: SC2V:11 (Vertical)
Story: LEVEL 2.1
Ag = 480 in2 Imaj = 10240 in4 Imin = 36000 in4
Wall Design Group: 2
Design Status: PASS



Axial/Flexural Results:

Interaction: 0.053 OK
Pu = 0.20 kips phiPn = 3.75 kips
Mu = 6.5 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E35 (LC 44)
Code Ref: 10.3.7

Shear Results:

Segment SC2V:11:
Length = 2.50 ft Thick = 16.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@15" oc Horiz Bar Pat: #5@15" oc
Vu = 7.8 kip phiVn = 69.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E35 (LC 44)
Code Ref: 14.2.3 & 11.9.5

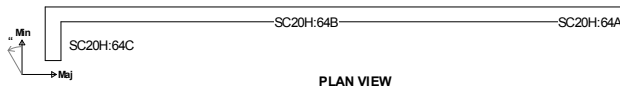
Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.2) OK
Segment SC2V:11:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 15.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 14.38 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1211/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Section Cut ID: SC20H:64 (Horizontal)
Story: LEVEL 2
Ag = 7728 in2 Imaj = 190255699 in4 Imin = 443699 in4
Major Axis Orientation: 0.00 degrees (CCW from global X-axis)
Wall Design Group: 20
Design Status: PASS



Axial/Flexural Results:

Interaction: 0.075 OK
Pu = 352.97 kips phiPn = 4691.59 kips
Mu = 1892.7 kip-ft at Beta = -2.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 10.3.7

Shear Results:

Segment SC20H:64A:
Length = 11.75 ft Thick = 14.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 80.4 kip phiVn = 286.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC20H:64B:

Length = 30.75 ft Thick = 14.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 141.6 kip phiVn = 750.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC20H:64C:

Length = 3.50 ft Thick = 14.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 55.1 kip phiVn = 85.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E17 (LC 26)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.264% (11.9.9.4) OK
Segment SC20H:64A:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1212/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

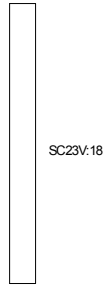
Max Vert Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC20H:64B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC20H:64C:
Max Vert Bar Spacing Limit: 14.00 in Actual: 11.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1213/1293
07/25/17 11:03:32

Section Cut ID: SC23V:18 (Vertical)
Story: T.O. PENTHOUSE
Ag = 1512 in2 Imaj = 18144 in4 Imin = 2000376 in4
Wall Design Group: 23
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.040 OK
Pu = -9.07 kips phiPn = -225.10 kips
Mu = 6.1 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E31 (LC 544)
Code Ref: 10.3.7

Shear Results:
Segment SC23V:18:
Length = 10.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 13.4 kip phiVn = 227.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E35 (LC 188)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.312% (11.9.9.2) OK
Segment SC23V:18:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1214/1293
07/25/17 11:03:32

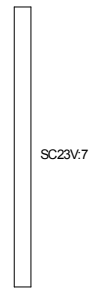
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1215/1293
07/25/17 11:03:32

Section Cut ID: SC23V:7 (Vertical)
Story: T.O. PENTHOUSE
Ag = 1008 in2 Imaj = 5376 in4 Imin = 1333584 in4
Wall Design Group: 23
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:
Interaction: 0.032 OK
Pu = -2.96 kips phiPn = -92.41 kips
Mu = 25.9 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E21 (LC 66)
Code Ref: 10.3.7

Shear Results:
Segment SC23V:7:
Length = 10.50 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 25.3 kip phiVn = 194.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E31 (LC 40)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.467% (11.9.9.2) OK
Segment SC23V:7:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1216/1293
07/25/17 11:03:32

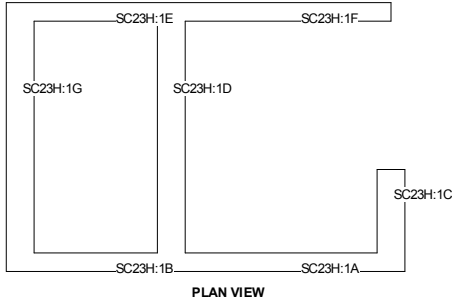
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1217/1293
07/25/17 11:03:32

Section Cut ID: SC23H:1 (Horizontal)
Story: T.O. PENTHOUSE
Ag = 10826 in2 I_{maj} = 20003992 in4 I_{min} = 14769055 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 23
Design Status: **PASS**



Axial/Flexural Results:

Interaction: 0.040 **OK**
Pu = 227.53 kips phiPn = 5742.58 kips
Mu = 929.6 kip-ft at Beta = 9.7 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:

Segment SC23H:1A:
Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 22.9 kip phiVn = 147.0 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E29 (LC 38)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:1B:
Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 18.4 kip phiVn = 100.4 kip **OK**
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1218/1293
07/25/17 11:03:32

Shear Results:

Segment SC23H:1C:
Length = 3.33 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 2.9 kip phiVn = 72.4 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E31 (LC 112)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:1D:
Length = 9.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 15.0 kip phiVn = 195.5 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E22 (LC 31)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:1E:
Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 14.9 kip phiVn = 100.4 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E31 (LC 40)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:1F:
Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 16.7 kip phiVn = 147.0 kip **OK**
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
Code Ref: 14.2.3 & 11.9.5

Segment SC23H:1G:
Length = 9.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 13.0 kip phiVn = 195.5 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E34 (LC 43)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) **OK**
Segment SC23H:1A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC23H:1B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1219/1293
07/25/17 11:03:32

Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC23H:1C:
Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC23H:1D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC23H:1E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC23H:1F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC23H:1G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

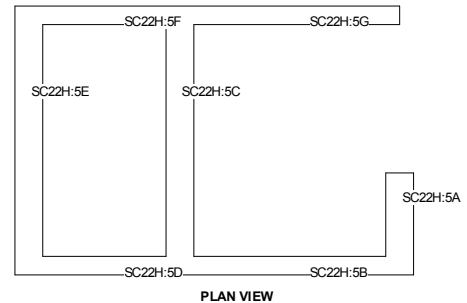
Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1220/1293
07/25/17 11:03:32

Section Cut ID: SC22H:5 (Horizontal)

Story: ROOF LEVEL
Ag = 10826 in2 I_{maj} = 20003992 in4 I_{min} = 14769055 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 22
Design Status: **PASS**



Axial/Flexural Results:

Interaction: 0.052 **OK**
Pu = 416.32 kips phiPn = 7994.27 kips
Mu = 1173.1 kip-ft at Beta = -13.4 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:

Segment SC22H:5A:
Length = 3.33 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 1.9 kip phiVn = 72.4 kip **OK**
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Segment SC22H:5B:
Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 29.3 kip phiVn = 147.0 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

Shear Results:

Segment SC22H:5C:
 Length = 9.00 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 V_u = 24.1 kip phiV_n = 195.5 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

Segment SC22H:5D:
 Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 V_u = 7.2 kip phiV_n = 100.4 kip OK
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E33 (LC 330)
 Code Ref: 14.2.3 & 11.9.5

Segment SC22H:5E:
 Length = 9.00 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 V_u = 26.3 kip phiV_n = 195.5 kip OK
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
 Code Ref: 14.2.3 & 11.9.5

Segment SC22H:5F:
 Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 V_u = 13.4 kip phiV_n = 100.4 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

Segment SC22H:5G:
 Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 V_u = 31.3 kip phiV_n = 147.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

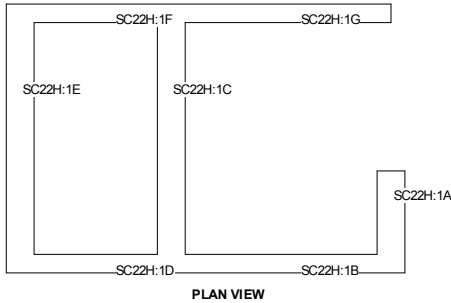
Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) OK
 Segment SC22H:5A:
 Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC22H:5B:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

Section Cut Design Summary

Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC22H:5C:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC22H:5D:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC22H:5E:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC22H:5F:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC22H:5G:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC22H:1 (Horizontal)
Story: ROOF LEVEL
 Ag = 10826 in2 Imaj = 20003992 in4 Imin = 14769055 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 22
 Design Status: PASS



Axial/Flexural Results:
 Interaction: 0.056 OK
 P_u = 457.83 kips phiP_n = 8240.18 kips
 M_u = 1187.6 kip-ft at Beta = -22.8 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:
 Segment SC22H:1A:
 Length = 3.33 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 V_u = 1.9 kip phiV_n = 72.4 kip OK
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 14.2.3 & 11.9.5

Segment SC22H:1B:
 Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 V_u = 38.2 kip phiV_n = 147.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E36 (LC 45)
 Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

Shear Results:

Segment SC22H:1C:
 Length = 9.00 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 V_u = 24.1 kip phiV_n = 195.5 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

Segment SC22H:1D:
 Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 V_u = 11.0 kip phiV_n = 100.4 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E32 (LC 185)
 Code Ref: 14.2.3 & 11.9.5

Segment SC22H:1E:
 Length = 9.00 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 V_u = 26.3 kip phiV_n = 195.5 kip OK
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E30 (LC 327)
 Code Ref: 14.2.3 & 11.9.5

Segment SC22H:1F:
 Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 V_u = 13.0 kip phiV_n = 100.4 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

Segment SC22H:1G:
 Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
 V_u = 33.5 kip phiV_n = 147.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.4) OK
 Segment SC22H:1A:
 Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
 Segment SC22H:1B:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 1225/1293
 07/25/17 11:03:32

Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC22H:1C:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC22H:1D:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC22H:1E:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC22H:1F:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
 Segment SC22H:1G:
 Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
 Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) **OK**
 Min Longit Reinf Ratio Limit: 0.409% Actual: 0.409% (21.9.4.3) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 1226/1293
 07/25/17 11:03:32

Section Cut ID: SC3V:23 (Vertical)
Story: LEVEL 2.1
 Ag = 420 in2 Imaj = 6860 in4 Imin = 31500 in4
 Wall Design Group: 3
 Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:
 Interaction: 0.128 **OK**
 Pu = -0.28 kips phiPn = -2.23 kips
 Mu = 14.6 kip-ft at Beta = 0.0 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
 Code Ref: 10.3.7

Shear Results:
 Segment SC3V:23:
 Length = 2.50 ft Thick = 14.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #5@15" oc Horiz Bar Pat: #5@15" oc
 Vu = 17.3 kip phiVn = 65.9 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
 Code Ref: 14.2.3 & 11.9.5

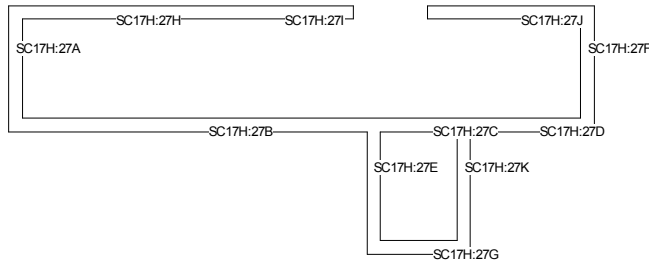
Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.438% (11.9.9.2) **OK**
 Segment SC3V:23:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 15.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 14.38 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 1227/1293
 07/25/17 11:03:32

Section Cut ID: SC17H:27 (Horizontal)
Story: LEVEL 4
 Ag = 24222 in2 Imaj = 507025850 in4 Imin = 112929491 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 17
 Design Status: **PASS**



PLAN VIEW

Axial/Flexural Results:
 Interaction: 0.057 **OK**
 Pu = 1898.54 kips phiPn = 33289.22 kips
 Mu = 2628.2 kip-ft at Beta = 31.2 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
 Code Ref: 10.3.7

Shear Results:
 Segment SC17H:27A:
 Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 135.3 kip phiVn = 243.2 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E21 (LC 174)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27B:
 Length = 26.83 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 309.8 kip phiVn = 767.9 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E28 (LC 181)
 Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support
 Design Code: ACI 318-11

Page 1228/1293
 07/25/17 11:03:32

Shear Results:
 Segment SC17H:27C:
 Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 58.6 kip phiVn = 193.2 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27D:
 Length = 9.25 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 121.8 kip phiVn = 264.7 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27E:
 Length = 9.17 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 53.0 kip phiVn = 262.3 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27F:
 Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 101.8 kip phiVn = 243.2 kip **OK**
 Controlling Load Combo: 1.316 D + 1.300 E7 (LC 448)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27G:
 Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 21.7 kip phiVn = 193.2 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27H:
 Length = 13.00 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 77.2 kip phiVn = 372.0 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
 Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27I:
 Length = 12.33 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1229/1293
07/25/17 11:03:32

Shear Results:

Vu = 60.2 kip phiVn = 352.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E12 (LC 21)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27J:

Length = 12.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 47.7 kip phiVn = 343.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E15 (LC 24)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:27K:

Length = 9.17 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 70.5 kip phiVn = 262.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.471% (11.9.9.4) OK
Segment SC17H:27A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1230/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27I:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:27K:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1231/1293
07/25/17 11:03:32

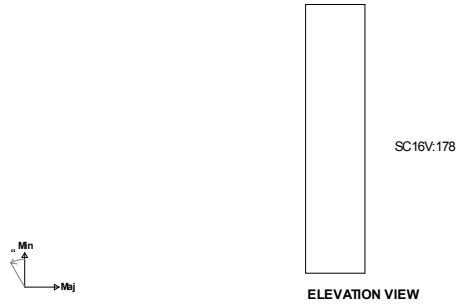
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Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1232/1293
07/25/17 11:03:32

Section Cut ID: SC16V:178 (Vertical)
Story: LEVEL 3
Ag = 648 in2 Imaj = 7776 in4 Imin = 157464 in4
Wall Design Group: 16
Design Status: PASS



Axial/Flexural Results:

Interaction: 0.121 OK
Pu = -3.97 kips phiPn = -32.82 kips
Mu = 64.0 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E13 (LC 58)
Code Ref: 10.3.7

Shear Results:

Segment SC16V:178:
Length = 4.50 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 130.9 kip phiVn = 166.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.818% (14.3.3) OK
Segment SC16V:178:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.614% (21.9.2.1) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1233/1293
07/25/17 11:03:32

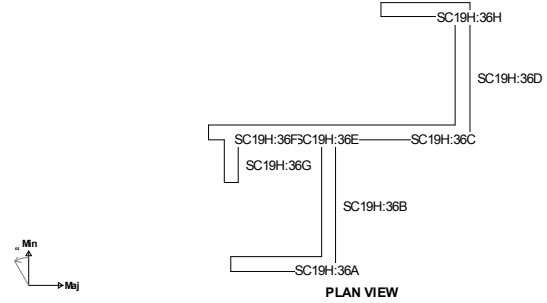
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1234/1293
07/25/17 11:03:32

Section Cut ID: SC19H:36 (Horizontal)
Story: T.O. PENTHOUSE
Ag = 7212 in2 Imaj = 32002731 in4 Imin = 29971926 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 19
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.019 OK
Pu = 243.56 kips phiPn = 13035.30 kips
Mu = 286.2 kip-ft at Beta = -66.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC19H:36A:
Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 14.5 kip phiVn = 146.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E26 (LC 35)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:36B:
Length = 9.17 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 38.4 kip phiVn = 199.1 kip OK
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1235/1293
07/25/17 11:03:32

Shear Results:
Segment SC19H:36C:
Length = 9.25 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 21.6 kip phiVn = 200.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5
Segment SC19H:36D:
Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 17.3 kip phiVn = 184.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E10 (LC 163)
Code Ref: 14.2.3 & 11.9.5
Segment SC19H:36E:
Length = 6.75 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 17.4 kip phiVn = 146.6 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E6 (LC 303)
Code Ref: 14.2.3 & 11.9.5
Segment SC19H:36F:
Length = 1.58 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 9.2 kip phiVn = 34.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E25 (LC 34)
Code Ref: 14.2.3 & 11.9.5
Segment SC19H:36G:
Length = 3.42 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 11.4 kip phiVn = 74.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5
Segment SC19H:36H:
Length = 5.67 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 9.8 kip phiVn = 123.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E5 (LC 158)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.310% (11.9.9.4) OK
Segment SC19H:36A:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1236/1293
07/25/17 11:03:32

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:36B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:36C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:36D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:36E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:36F:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:36G:
Max Vert Bar Spacing Limit: 13.67 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:36H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

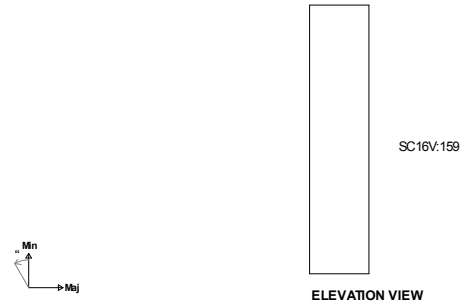
RAM Concrete Shearwall 15.04.00.000 Page 1237/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1238/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Section Cut ID: SC16V:159 (Vertical)
Story: LEVEL 3
Ag = 648 in2 Imaj = 7776 in4 Imin = 157464 in4
Wall Design Group: 16
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.068 OK
Pu = -10.24 kips phiPn = -150.54 kips
Mu = 19.8 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.200 Sp - 1.300 E31 (LC 364)
Code Ref: 10.3.7

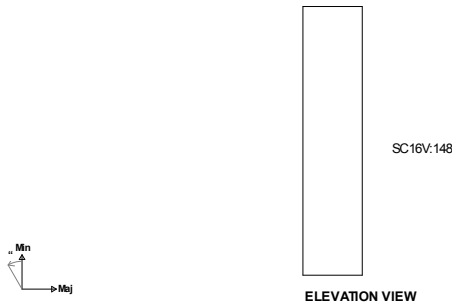
Shear Results:
Segment SC16V:159:
Length = 4.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 14.1 kip phiVn = 213.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp - 1.300 E10 (LC 199)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.818% (14.3.3) OK
Segment SC16V:159:
Max Horiz Bar Spacing Limit: 16.20 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1239/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Section Cut ID: SC16V:148 (Vertical)
Story: LEVEL 3
Ag = 648 in2 Imaj = 7776 in4 Imin = 157464 in4
Wall Design Group: 16
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.081 OK
Pu = -11.55 kips phiPn = -143.05 kips
Mu = 28.3 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E6 (LC 519)
Code Ref: 10.3.7

Shear Results:
Segment SC16V:148:
Length = 4.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 38.1 kip phiVn = 165.1 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E6 (LC 303)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.818% (14.3.3) OK
Segment SC16V:148:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1240/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Section Cut ID: SC18V:17 (Vertical)
Story: ROOF LEVEL
Ag = 1584 in2 Imaj = 19008 in4 Imin = 2299968 in4
Wall Design Group: 18
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.064 OK
Pu = -1.58 kips phiPn = -24.66 kips
Mu = 76.9 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E30 (LC 75)
Code Ref: 10.3.7

Shear Results:
Segment SC18V:17:
Length = 11.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 85.8 kip phiVn = 239.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

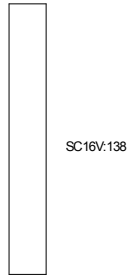
Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.297% (11.9.9.2) OK
Segment SC18V:17:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1241/1293
07/25/17 11:03:32

Section Cut ID: SC16V:138 (Vertical)
Story: LEVEL 3.1
Ag = 1008 in2 Imaj = 12096 in4 Imin = 592704 in4
Wall Design Group: 16
Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:

Interaction: 0.028 **OK**
Pu = 3.44 kips phiPn = 122.21 kips
Mu = 43.7 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E25 (LC 70)
Code Ref: 10.3.7

Shear Results:

Segment SC16V:138:
Length = 7.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 138.3 kip phiVn = 259.3 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E25 (LC 70)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.701% (14.3.3) **OK**
Segment SC16V:138:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min web reinforcement ratio: 0.250% Actual: 0.614% (21.9.2.1) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1242/1293
07/25/17 11:03:32

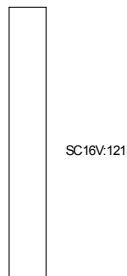
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1243/1293
07/25/17 11:03:32

Section Cut ID: SC16V:121 (Vertical)
Story: LEVEL 3.1
Ag = 1008 in2 Imaj = 12096 in4 Imin = 592704 in4
Wall Design Group: 16
Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:

Interaction: 0.056 **OK**
Pu = 5.37 kips phiPn = 95.34 kips
Mu = 83.5 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
Code Ref: 10.3.7

Shear Results:

Segment SC16V:121:
Length = 7.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 129.3 kip phiVn = 259.3 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.701% (14.3.3) **OK**
Segment SC16V:121:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min web reinforcement ratio: 0.250% Actual: 0.614% (21.9.2.1) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

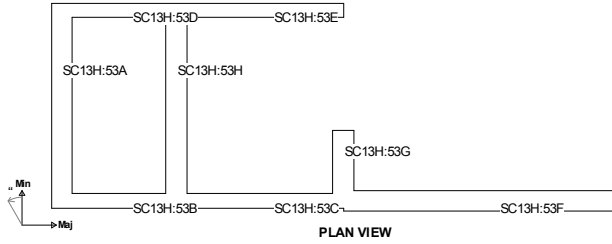
Page 1244/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1245/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Section Cut ID: SC13H:53 (Horizontal) (Hinge)
Story: LEVEL 3.1
Ag = 12609 in2 I_{maj} = 78641281 in4 I_{min} = 19012759 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 13
Design Status: **PASS**



Axial/Flexural Results:
Interaction: 0.096 **OK**
P_u = 1385.41 kips phiP_n = 14499.25 kips
M_u = 2897.7 kip-ft at Beta = -18.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC13H:53A:
Length = 9.00 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
V_u = 91.5 kip phiV_n = 257.5 kip **OK**
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E13 (LC 310)
Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53B:
Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
V_u = 39.9 kip phiV_n = 137.7 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E9 (LC 18)
Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53C:
Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1246/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Shear Results:
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
V_u = 82.6 kip phiV_n = 201.5 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E17 (LC 98)
Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53D:
Length = 5.41 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
V_u = 28.9 kip phiV_n = 137.7 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E17 (LC 26)
Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53E:
Length = 7.92 ft Thick = 8.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
V_u = 23.8 kip phiV_n = 201.5 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Ln + 1.300 E34 (LC 259)
Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53F:
Length = 12.80 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
V_u = 195.3 kip phiV_n = 366.2 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53G:
Length = 3.33 ft Thick = 12.00 in f_c = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
V_u = 57.4 kip phiV_n = 95.4 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
Code Ref: 14.2.3 & 11.9.5

Segment SC13H:53H:
Length = 9.00 ft Thick = 12.00 in f_c = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
V_u = 124.9 kip phiV_n = 257.5 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.725% (11.9.9.4) **OK**
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
c_{max} = 6.00 ft c = 0.70 ft (21.9.6.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1247/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Segment SC13H:53A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC13H:53B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC13H:53C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC13H:53D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC13H:53E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC13H:53F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC13H:53G:
Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC13H:53H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) **OK**

Section Cut Design Summary

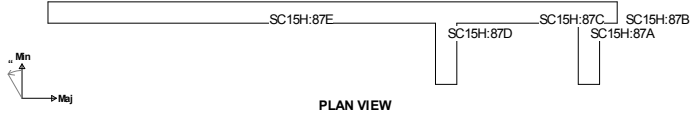
RAM Concrete Shearwall 15.04.00.000 Page 1248/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1249/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Section Cut ID: SC15H:87 (Horizontal) (Hinge)
Story: LEVEL 2
Ag = 4716 in2 Imaj = 42697518 in4 Imin = 513525 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 15
Design Status: **FAILS**



Axial/Flexural Results:

Interaction: 0.134 **OK**
Pu = 1000.36 kips phiPn = 7438.78 kips
Mu = 5309.9 kip-ft at Beta = -1.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 10.3.7

Shear Results:

Segment SC15H:87A:
Length = 3.42 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 22.8 kip phiVn = 126.6 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:87B:
Length = 1.33 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 3.4 kip phiVn = 49.4 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:87C:
Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 95.4 kip phiVn = 250.0 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:87D:
Length = 3.42 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1250/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Shear Results:

Vert Bar Pat: Horiz Bar Pat:
Vu = 29.6 kip phiVn = 126.6 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:87E:
Length = 18.83 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 281.9 kip phiVn = 697.6 kip **OK**
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E28 (LC 325)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 1.193% (11.9.9.4) **OK**
S.B.E. Check: **Boundary zone required for one or more load combos** **Say OK**
Worst case is load combo 299 : cmax = 2.15 ft c = 2.31 ft (21.9.6.2) **NG**

Segment SC15H:87A:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC15H:87B:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC15H:87C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC15H:87D:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) **OK**
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**
Segment SC15H:87E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) **OK**
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1251/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1252/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Section Cut ID: SC13V:36 (Vertical)
Story: LEVEL 2.3
Ag = 480 in2 Imaj = 2560 in4 Imin = 144000 in4
Wall Design Group: 13
Design Status: **PASS**



Axial/Flexural Results:

Interaction: 0.051 **OK**
Pu = 2.11 kips phiPn = 41.26 kips
Mu = 27.5 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E16 (LC 565)
Code Ref: 10.3.7

Shear Results:

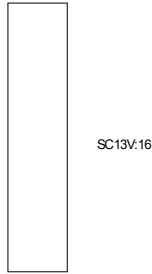
Segment SC13V:36:
Length = 5.00 ft Thick = 8.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 30.4 kip phiVn = 127.3 kip **OK**
Controlling Load Combo: 1.316 D + 0.500 Lp - 1.300 E17 (LC 206)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.767% (11.9.9.2) **OK**
Segment SC13V:36:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) **OK**
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

Section Cut ID: SC13V:16 (Vertical)
Story: LEVEL 3
 Ag = 648 in2 Imaj = 7776 in4 Imin = 157464 in4
 Wall Design Group: 13
 Design Status: **PASS**



ELEVATION VIEW

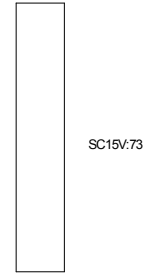
Axial/Flexural Results:
 Interaction: 0.104 **OK**
 Pu = -4.20 kips phiPn = -40.35 kips
 Mu = 35.1 kip-ft at Beta = -0.0 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E16 (LC 61)
 Code Ref: 10.3.7

Shear Results:
 Segment SC13V:16:
 Length = 4.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 41.7 kip phiVn = 128.8 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.568% (11.9.9.2) **OK**
 Segment SC13V:16:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

Section Cut ID: SC15V:73 (Vertical)
Story: LEVEL 2
 Ag = 792 in2 Imaj = 9504 in4 Imin = 287496 in4
 Wall Design Group: 15
 Design Status: **PASS**



ELEVATION VIEW

Axial/Flexural Results:
 Interaction: 0.022 **OK**
 Pu = 31.24 kips phiPn = 1420.20 kips
 Mu = 23.3 kip-ft at Beta = 0.0 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E28 (LC 73)
 Code Ref: 10.3.7

Shear Results:
 Segment SC15V:73:
 Length = 5.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 79.1 kip phiVn = 203.7 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E10 (LC 55)
 Code Ref: 14.2.3 & 11.9.5

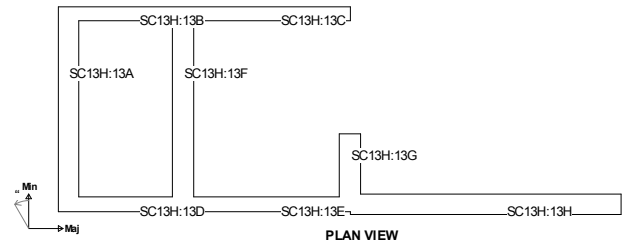
Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.781% (14.3.3) **OK**
 Segment SC15V:73:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) **OK**
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) **OK**
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) **OK**
 Min web reinforcement ratio: 0.250% Actual: 0.614% (21.9.2.1) **OK**

Section Cut Design Summary

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) **OK**

Section Cut Design Summary

Section Cut ID: SC13H:13 (Horizontal) (Hinge)
Story: LEVEL 3
 Ag = 12609 in2 Imaj = 78641281 in4 Imin = 19012759 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 13
 Design Status: **PASS**



PLAN VIEW

Axial/Flexural Results:
 Interaction: 0.247 **OK**
 Pu = 453.30 kips phiPn = 1832.17 kips
 Mu = 4010.7 kip-ft at Beta = -58.0 deg CCW from Major axis
 Controlling Load Combo: 0.784 D + 1.300 E29 (LC 542)
 Code Ref: 10.3.7

Shear Results:
 Segment SC13H:13A:
 Length = 9.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 91.5 kip phiVn = 257.5 kip **OK**
 Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E13 (LC 310)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13B:
 Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 24.4 kip phiVn = 137.7 kip **OK**
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E17 (LC 26)
 Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13C:
 Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1257/1293
07/25/17 11:03:32

Shear Results:

Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 27.4 kip phiVn = 201.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E35 (LC 44)
Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13D:
Length = 5.41 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 36.1 kip phiVn = 137.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Ln + 0.200 Sn + 1.300 E17 (LC 98)
Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13E:
Length = 7.92 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 93.8 kip phiVn = 201.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13F:
Length = 9.00 ft Thick = 12.00 in f'c = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 125.0 kip phiVn = 257.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13G:
Length = 3.33 ft Thick = 12.00 in f'c = 3500 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 57.4 kip phiVn = 95.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E16 (LC 25)
Code Ref: 14.2.3 & 11.9.5

Segment SC13H:13H:
Length = 12.80 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 163.1 kip phiVn = 366.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E20 (LC 29)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.725% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 5.41 ft c = 0.85 ft (21.9.6.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1258/1293
07/25/17 11:03:32

Segment SC13H:13A:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC13H:13B:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC13H:13C:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC13H:13D:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC13H:13E:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.639% Actual: 0.639% (21.9.4.3) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC13H:13F:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC13H:13G:

Max Vert Bar Spacing Limit: 13.33 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC13H:13H:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1259/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1260/1293
07/25/17 11:03:32

Section Cut ID: SC12V:30 (Vertical)
Story: LEVEL 2
Ag = 816 in2 Imaj = 4352 in4 Imin = 707472 in4
Wall Design Group: 12
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.043 OK
Pu = -5.58 kips phiPn = -128.99 kips
Mu = 35.2 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E32 (LC 581)
Code Ref: 10.3.7

Shear Results:
Segment SC12V:30:
Length = 8.50 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 43.4 kip phiVn = 216.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E36 (LC 81)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.752% (11.9.9.2) OK
Segment SC12V:30:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1261/1293
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
 Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1262/1293
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
 Design Code: ACI 318-11

Section Cut ID: SC12V:20 (Vertical)
Story: LEVEL 2
 Ag = 1224 in2 Imaj = 14688 in4 Imin = 1061208 in4
 Wall Design Group: 12
 Design Status: PASS



Axial/Flexural Results:
 Interaction: 0.018 OK
 Pu = 4.05 kips phiPn = 221.41 kips
 Mu = 36.2 kip-ft at Beta = -0.0 deg CCW from Major axis
 Controlling Load Combo: 1.200 D + 1.600 Lp (LC 4)
 Code Ref: 10.3.7

Shear Results:
 Segment SC12V:20:
 Length = 8.50 ft Thick = 12.00 in f_c = 3500 psi fy = 60 ksi
 Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
 Vu = 56.8 kip phiVn = 238.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E17 (LC 62)
 Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
 Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.501% (11.9.9.2) OK
 Segment SC12V:20:
 Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
 Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
 Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

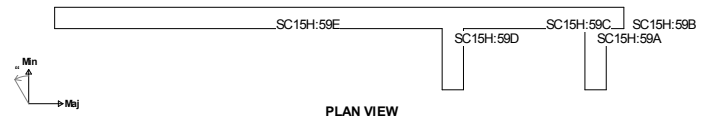
RAM Concrete Shearwall 15.04.00.000 Page 1263/1293
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
 Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1264/1293
 Reaveley Engineers + Associates
 Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
 Design Code: ACI 318-11

Section Cut ID: SC15H:59 (Horizontal) (Hinge)
Story: LEVEL 2
 Ag = 4716 in2 Imaj = 42697518 in4 Imin = 513525 in4
 Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
 Wall Design Group: 15
 Design Status: FAILS



Axial/Flexural Results:
 Interaction: 0.126 OK
 Pu = 1000.38 kips phiPn = 7936.60 kips
 Mu = 4463.6 kip-ft at Beta = 0.3 deg CCW from Major axis
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
 Code Ref: 10.3.7

Shear Results:
 Segment SC15H:59A:
 Length = 3.42 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 22.8 kip phiVn = 126.6 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
 Code Ref: 14.2.3 & 11.9.5

Segment SC15H:59B:
 Length = 1.33 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 29.9 kip phiVn = 49.4 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
 Code Ref: 14.2.3 & 11.9.5

Segment SC15H:59C:
 Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi
 Vert Bar Pat: Horiz Bar Pat:
 Vu = 84.4 kip phiVn = 250.0 kip OK
 Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
 Code Ref: 14.2.3 & 11.9.5

Segment SC15H:59D:
 Length = 3.42 ft Thick = 12.00 in f_c = 4000 psi fy = 60 ksi

Section Cut Design Summary

Shear Results:

Vert Bar Pat: Horiz Bar Pat:
Vu = 29.6 kip phiVn = 126.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC15H:59E:

Length = 18.83 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 271.4 kip phiVn = 697.6 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E28 (LC 325)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 1.193% (11.9.9.4) OK
S.B.E. Check: Boundary zone required for one or more load combos Say OK
Worst case is load combo 83 :
cmax = 1.96 ft c = 2.29 ft (21.9.6.2) NG

Segment SC15H:59A:

Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC15H:59B:

Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC15H:59C:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC15H:59D:

Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC15H:59E:

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK

Section Cut Design Summary

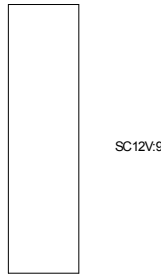
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID:

SC12V:9 (Vertical)

Story: LEVEL 2.1
Ag = 240 in2 Imaj = 1280 in4 Imin = 18000 in4
Wall Design Group: 12
Design Status: PASS



ELEVATION VIEW

Axial/Flexural Results:

Interaction: 0.052 OK
Pu = 0.34 kips phiPn = 6.51 kips
Mu = 8.3 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E36 (LC 585)
Code Ref: 10.3.7

Shear Results:

Segment SC12V:9:
Length = 2.50 ft Thick = 8.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 12.5 kip phiVn = 63.6 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp - 1.300 E28 (LC 361)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 1.023% (11.9.9.2) OK
Segment SC12V:9:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID:

SC17H:1 (Horizontal)

Story: LEVEL 4
Ag = 16632 in2 Imaj = 464483501 in4 Imin = 67992964 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 17
Design Status: PASS



PLAN VIEW

Axial/Flexural Results:

Interaction: 0.059 OK
Pu = 1876.45 kips phiPn = 31716.96 kips
Mu = 2426.2 kip-ft at Beta = 39.0 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:

Segment SC17H:1A:
Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 135.3 kip phiVn = 243.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E21 (LC 174)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1B:

Length = 26.83 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 305.4 kip phiVn = 767.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1269/1293
07/25/17 11:03:32

Shear Results:

Segment SC17H:1C:
Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 73.1 kip phiVn = 193.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1D:
Length = 9.25 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 119.0 kip phiVn = 264.7 kip OK
Controlling Load Combo: 1.316 D + 1.300 E7 (LC 448)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1E:
Length = 3.42 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 51.0 kip phiVn = 97.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1F:
Length = 8.50 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 101.8 kip phiVn = 243.2 kip OK
Controlling Load Combo: 1.316 D + 1.300 E7 (LC 448)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1G:
Length = 13.00 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 59.3 kip phiVn = 372.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1H:
Length = 12.33 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 51.0 kip phiVn = 352.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E26 (LC 35)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1I:
Length = 12.00 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1270/1293
07/25/17 11:03:32

Shear Results:

Vu = 46.7 kip phiVn = 343.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1J:
Length = 9.17 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 70.5 kip phiVn = 262.3 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC17H:1K:
Length = 6.75 ft Thick = 12.00 in f_c = 4000 psi f_y = 60 ksi
Vert Bar Pat: #5@12" oc Horiz Bar Pat: #5@12" oc
Vu = 21.7 kip phiVn = 193.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.472% (11.9.9.4) OK
Segment SC17H:1A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC17H:1D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1271/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC17H:1E:
Max Vert Bar Spacing Limit: 13.67 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC17H:1F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC17H:1G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC17H:1H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC17H:1I:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC17H:1J:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC17H:1K:

Section Cut Design Summary

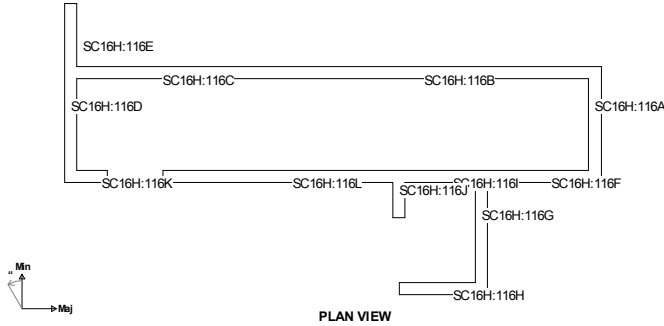
RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1272/1293
07/25/17 11:03:32

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.38 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.426% Actual: 0.426% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.426% (21.9.2.1) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC16H:116 (Horizontal) (Hinge)
Level: 3.1
Ag = 17520 in2 Imaj = 494692829 in4 Imin = 79451243 in4
Major Axis Orientation: 90.00 degrees (CCW from global X-axis)
Wall Design Group: 16
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.080 OK
Pu = 1588.28 kips phiPn = 19808.27 kips
Mu = 11167.3 kip-ft at Beta = 35.8 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 10.3.7

Shear Results:
Segment SC16H:116A:
Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 139.2 kip phiVn = 314.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116B:
Length = 29.83 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 292.1 kip phiVn = 1105.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)

Section Cut Design Summary

Shear Results:
Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 60.9 kip phiVn = 250.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116J:
Length = 3.42 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 50.9 kip phiVn = 126.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E24 (LC 33)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116K:
Length = 3.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 50.2 kip phiVn = 111.1 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116L:
Length = 19.33 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 253.1 kip phiVn = 716.1 kip OK
Controlling Load Combo: 1.316 D + 0.200 Sp + 1.300 E28 (LC 325)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.804% (11.9.9.4) OK
S.B.E. Check: Neutral axis distance less than limit for all load combos
Worst case is load combo 10 :
cmax = 7.93 ft c = 5.33 ft (21.9.6.2) OK

Segment SC16H:116A:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116C:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Shear Results:
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116C:
Length = 13.00 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 56.4 kip phiVn = 481.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E35 (LC 44)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116D:
Length = 8.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 285.8 kip phiVn = 314.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E6 (LC 15)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116E:
Length = 5.67 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 147.8 kip phiVn = 209.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E21 (LC 30)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116F:
Length = 9.25 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #6@12" oc Horiz Bar Pat: #6@12" oc
Vu = 110.8 kip phiVn = 342.6 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 1.300 E6 (LC 159)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116G:
Length = 9.17 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 70.5 kip phiVn = 339.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116H:
Length = 6.75 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 21.7 kip phiVn = 250.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E11 (LC 20)
Code Ref: 14.2.3 & 11.9.5

Segment SC16H:116I:

Section Cut Design Summary

Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116D:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116E:
Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.13 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 1.253% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116F:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116G:
Max Vert Bar Spacing Limit: 18.00 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116H:
Max Vert Bar Spacing Limit: 18.00 in Actual: 8.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 7.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.920% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116I:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Segment SC16H:116J:
Max Vert Bar Spacing Limit: 13.67 in Actual: 6.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 5.00 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 2.182% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1277/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116K:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC16H:116L:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.614% Actual: 0.614% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

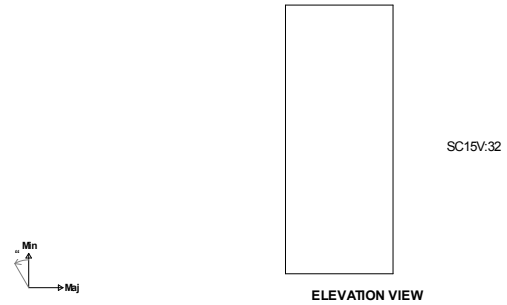
Section is much deeper than shown and combined section has adequate capacity. Say OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1278/1293
07/25/17 11:03:32

Section Cut ID: SC15V:32 (Vertical)
Story: LEVEL 2.1
Ag = 360 in2 Imaj = 4320 in4 Imin = 27000 in4
Wall Design Group: 15
Design Status: FAILS



Axial/Flexural Results:
Interaction: 12.877 NG
Pu = 1.78 kips phiPn = 0.14 kips
Mu = 2804.4 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 10.3.7

Shear Results:
Segment SC15V:32:
Length = 2.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 339.6 kip phiVn = 92.1 kip NG
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E10 (LC 19)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.982% (14.3.3) OK
Segment SC15V:32:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min web reinforcement ratio: 0.250% Actual: 0.614% (21.9.2.1) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1279/1293
07/25/17 11:03:32

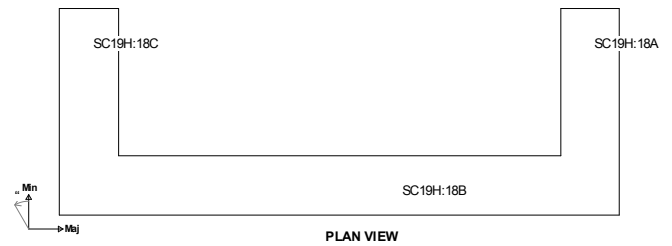
Min Number of Reinf Curtains: 2 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1280/1293
07/25/17 11:03:32

Section Cut ID: SC19H:18 (Horizontal)
Story: T.O. PENTHOUSE
Ag = 2088 in2 Imaj = 3362904 in4 Imin = 278446 in4
Major Axis Orientation: 0.00 degrees (CCW from global X-axis)
Wall Design Group: 19
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.024 OK
Pu = 56.52 kips phiPn = 2398.69 kips
Mu = 49.0 kip-ft at Beta = -50.3 deg CCW from Major axis
Controlling Load Combo: 1.200 D + 0.500 Lp + 1.600 Sp (LC 6)
Code Ref: 10.3.7

Shear Results:
Segment SC19H:18A:
Length = 3.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 9.3 kip phiVn = 65.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E21 (LC 30)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:18B:
Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 21.5 kip phiVn = 184.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E23 (LC 32)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:18C:
Length = 3.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1281/1293
07/25/17 11:03:32

Shear Results:

Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 8.8 kip phiVn = 65.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

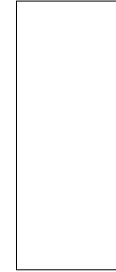
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.357% (11.9.9.4) OK
Segment SC19H:18A:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:18B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:18C:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1282/1293
07/25/17 11:03:32

Section Cut ID: SC15V:15 (Vertical)
Story: LEVEL 2.1
Ag = 360 in2 Imaj = 4320 in4 Imin = 27000 in4
Wall Design Group: 15
Design Status: PASS



SC15V:15



ELEVATION VIEW

Axial/Flexural Results:

Interaction: 0.075 OK
Pu = -3.65 kips phiPn = -48.51 kips
Mu = 12.5 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E8 (LC 17)
Code Ref: 10.3.7

Shear Results:

Segment SC15V:15:
Length = 2.50 ft Thick = 12.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: Horiz Bar Pat:
Vu = 21.7 kip phiVn = 118.4 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E8 (LC 17)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.982% (14.3.3) OK
Segment SC15V:15:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.25 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1283/1293
07/25/17 11:03:32

Section Cut ID: SC20V:87 (Vertical)
Story: LEVEL 2
Ag = 1428 in2 Imaj = 23324 in4 Imin = 1238076 in4
Wall Design Group: 20
Design Status: PASS



SC20V:87



ELEVATION VIEW

Axial/Flexural Results:

Interaction: 0.106 OK
Pu = -17.57 kips phiPn = -165.25 kips
Mu = 30.2 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E10 (LC 559)
Code Ref: 10.3.7

Shear Results:

Segment SC20V:87:
Length = 8.50 ft Thick = 14.00 in fc = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 75.8 kip phiVn = 207.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E16 (LC 61)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:

Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.302% (11.9.9.2) OK
Segment SC20V:87:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1284/1293
07/25/17 11:03:32

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC18V:7 (Vertical)
Story: ROOF LEVEL
Ag = 1584 in2 Imaj = 19008 in4 Imin = 2299968 in4
Wall Design Group: 18
Design Status: PASS



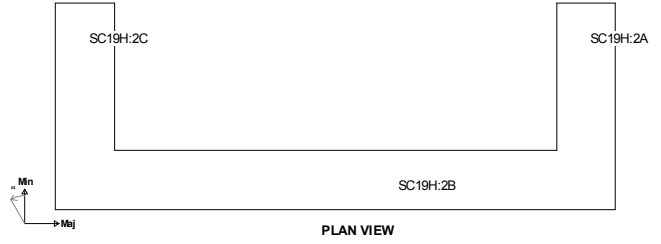
Axial/Flexural Results:
Interaction: 0.057 OK
Pu = 0.09 kips phiPn = 1.66 kips
Mu = 75.9 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E7 (LC 556)
Code Ref: 10.3.7

Shear Results:
Segment SC18V:7:
Length = 11.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 93.7 kip phiVn = 239.0 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E7 (LC 52)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.297% (11.9.9.2) OK
Segment SC18V:7:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC19H:2 (Horizontal)
Story: T.O. PENTHOUSE
Ag = 2088 in2 Imaj = 3362904 in4 Imin = 278446 in4
Major Axis Orientation: 0.00 degrees (CCW from global X-axis)
Wall Design Group: 19
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.052 OK
Pu = 14.01 kips phiPn = 267.55 kips
Mu = 157.9 kip-ft at Beta = -7.6 deg CCW from Major axis
Controlling Load Combo: 0.784 D + 1.300 E27 (LC 540)
Code Ref: 10.3.7

Shear Results:
Segment SC19H:2A:
Length = 3.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 9.3 kip phiVn = 65.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E21 (LC 30)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:2B:
Length = 8.50 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 21.5 kip phiVn = 184.7 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E23 (LC 32)
Code Ref: 14.2.3 & 11.9.5

Segment SC19H:2C:
Length = 3.00 ft Thick = 12.00 in f'c = 4000 psi fy = 60 ksi

Section Cut Design Summary

Shear Results:
Vert Bar Pat: #4@12" oc Horiz Bar Pat: #4@12" oc
Vu = 8.8 kip phiVn = 65.2 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E30 (LC 39)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.357% (11.9.9.4) OK
Segment SC19H:2A:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:2B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC19H:2C:
Max Vert Bar Spacing Limit: 12.00 in Actual: 12.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 11.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.273% Actual: 0.273% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

Section Cut ID: SC20V:74 (Vertical)
Story: LEVEL 2
Ag = 1428 in2 Imaj = 23324 in4 Imin = 1238076 in4
Wall Design Group: 20
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.086 OK
Pu = -7.50 kips phiPn = -87.02 kips
Mu = 51.6 kip-ft at Beta = 0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E6 (LC 555)
Code Ref: 10.3.7

Shear Results:
Segment SC20V:74:
Length = 8.50 ft Thick = 14.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 81.6 kip phiVn = 207.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp - 1.300 E6 (LC 51)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.302% (11.9.9.2) OK
Segment SC20V:74:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK

Section Cut Design Summary

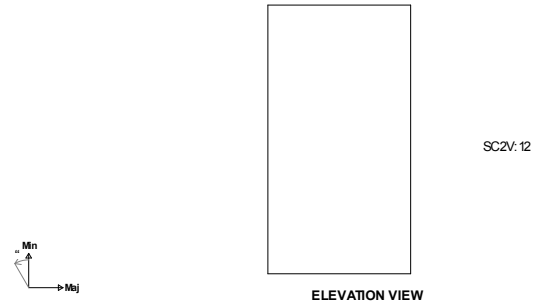
RAM Concrete Shearwall 15.04.00.000 Page 1289/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1290/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Section Cut ID: SC2V:12 (Vertical)
Story: LEVEL 2.1
Ag = 480 in2 Imaj = 10240 in4 Imin = 36000 in4
Wall Design Group: 2
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.152 OK
Pu = -1.92 kips phiPn = -12.67 kips
Mu = 15.5 kip-ft at Beta = -0.0 deg CCW from Major axis
Controlling Load Combo: 0.784 D - 1.300 E35 (LC 584)
Code Ref: 10.3.7

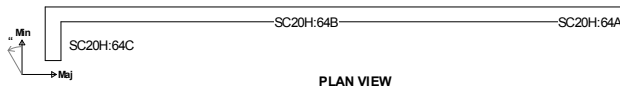
Shear Results:
Segment SC2V:12:
Length = 2.50 ft Thick = 16.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #5@15" oc Horiz Bar Pat: #5@15" oc
Vu = 24.0 kip phiVn = 69.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E31 (LC 40)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Horiz Reinf Ratio: Limit: 0.250% Actual: 0.383% (11.9.9.2) OK
Segment SC2V:12:
Max Horiz Bar Spacing Limit: 18.00 in Actual: 15.00 in (11.9.9.3) OK
Min Horiz Bar Spacing Limit: 1.00 in Actual: 14.38 in (7.6.1) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1291/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Section Cut ID: SC20H:64 (Horizontal)
Story: LEVEL 2
Ag = 7728 in2 Imaj = 190255699 in4 Imin = 443699 in4
Major Axis Orientation: 0.00 degrees (CCW from global X-axis)
Wall Design Group: 20
Design Status: PASS



Axial/Flexural Results:
Interaction: 0.075 OK
Pu = 352.97 kips phiPn = 4691.59 kips
Mu = 1892.7 kip-ft at Beta = -2.0 deg CCW from Major axis
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E28 (LC 37)
Code Ref: 10.3.7

Shear Results:
Segment SC20H:64A:
Length = 11.75 ft Thick = 14.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 80.4 kip phiVn = 286.9 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC20H:64B:
Length = 30.75 ft Thick = 14.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 141.6 kip phiVn = 750.8 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E7 (LC 16)
Code Ref: 14.2.3 & 11.9.5

Segment SC20H:64C:
Length = 3.50 ft Thick = 14.00 in f'c = 4000 psi fy = 60 ksi
Vert Bar Pat: #4@11" oc Horiz Bar Pat: #4@11" oc
Vu = 55.1 kip phiVn = 85.5 kip OK
Controlling Load Combo: 1.316 D + 0.500 Lp + 0.200 Sp + 1.300 E17 (LC 26)
Code Ref: 14.2.3 & 11.9.5

Reinforcement Checks:
Min Vert Reinf Ratio: Limit: 0.250% Actual: 0.264% (11.9.9.4) OK
Segment SC20H:64A:

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000 Page 1292/1293
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support 07/25/17 11:03:32
Design Code: ACI 318-11

Max Vert Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC20H:64B:
Max Vert Bar Spacing Limit: 18.00 in Actual: 11.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK
Segment SC20H:64C:
Max Vert Bar Spacing Limit: 14.00 in Actual: 11.00 in (11.9.9.5) OK
Min Vert Bar Spacing Limit: 1.00 in Actual: 10.50 in (7.6.1) OK
Min Longit Reinf Ratio Limit: 0.255% Actual: 0.255% (21.9.4.3) OK
Min Number of Reinf Curtains: 2 Actual: 2 (14.3.4) OK
Min Number of Reinf Curtains: 1 Actual: 2 (21.9.2.2) OK

Section Cut Design Summary

RAM Concrete Shearwall 15.04.00.000
Reaveley Engineers + Associates
Database: Powder Mountain Parcel 2C 7-12-17_support
Design Code: ACI 318-11

Page 1293/1293

07/25/17 11:03:32

ASCE 7-10 SECTION 12.3, TABLES 12.3-1 AND 12.3-2

IRREGULARITIES IN TABLE 12.3-1

- 1a. Torsional irregularity exists but drift is well within acceptable limits. Use modal analysis for upper structure (currently using equivalent static, just for foundation design).
- 1b. No extreme torsional irregularity exists.
2. Re-entrant corner irregularity exists- increase diaphragm connection forces by 25%.
3. Diaphragm discontinuity exists- increase diaphragm connection forces by 25% and use modal analysis for upper structure.
4. Out-of-Plane offset irregularity exists at the Penthouse. Increase seismic demands on supporting structure by the amplified seismic load combinations.
5. The building has a non-parallel system irregularity. 100%/30% load cases were used in the RAM Structural System to help evaluate shear walls.

IRREGULARITIES IN TABLE 12.3-2

- 1a. No soft-story exists.
- 1b. No extreme soft story exists.
2. There is a mass irregularity; modal (dynamic) analysis will be used for upper structure.
3. There is a vertical geometric irregularity; modal (dynamic) analysis will be used for upper structure.
4. There aren't any in-plane discontinuities.
5. There aren't any weak story discontinuities.
6. There aren't any extreme weak story discontinuities.