



908 WEST GORDON AVE. SUITE #3
LAYTON, UT 84041
(801) 547-8133

August 22, 2017

FIRST REVIEW
WC³ Project #: 217-525-145

Weber County
Building Inspection Department
2380 Washington Boulevard, Suite 240
Ogden, Utah 84401
Phone: (801) 399-8374

Attention: Craig Browne, Building Official

Subject: SMHG-SFD-1500 – Plan Review Comments

Mr. Browne:

West Coast Code Consultants, Inc. (WC³) has completed the first review of the proposed SMHG-SFD-1500 project located in Eden, UT. This review was based upon the following:

1. Structural drawings and calculations dated 7/28/2017 by Dynamic Structures, sealed and signed by Jay D Adams, Professional Structural Engineer.

The 2015 IRC, as adopted by the State of Utah, were used as the basis of our review. Specific comments regarding this project are enclosed with this cover letter. If you have any questions regarding this review please do not hesitate to contact me.

Sincerely,

Mike Molyneux
Attachment: Comments



Plan Review Comments

Project Name: SMHG-SFD-1500

Code Review by: Jason vonWeller

Location(s): 7864 East Horizon Run, Eden, UT

Structural by: Daniel Mooney

Checked By: DeAnn Wilde

SQUARE FOOTAGE SUMMARY:

Main Level	Lower Level	Finished Basement	Unfinished Basement	Covered Deck(s)	Covered Patio(s)	Garage	Carport
1007- ft ²	685- ft ²	-	-	275- ft ²	-	-	-

GENERAL INFORMATION:

The submitted documents for the above-mentioned project, as outlined in the cover letter, have been reviewed. The following comments address areas of concern, non-compliance with the governing code, potential errors, or omissions in the proposed design. The appropriate design professional must address each comment below and submit a written response in addition to revised plans and calculations if necessary. **Please cloud any revisions made to the construction drawings and provide the date of the latest revision on each revised sheet.**

CODE REVIEW COMMENTS:

- A1. A geotechnical report is required for the new construction. Please provide. Each project must be submitted with the geotechnical report.
- A2. General Notes. Please provide on cover sheet:
 - A. Common walkways, stairs, handrails, guards and associated structures and elements for the site shall be by separate permit and engineering application per Weber County policy.
 - B. Any retaining walls exceeding 4-feet in height or a 1:2 slope shall be engineered. A complete design prepared by a Utah-licensed geotechnical engineer is required for the retaining walls throughout the PRUD development.
 - C. Retaining walls that support cut or filled slopes as well as those that may support footings from ascending or descending slopes shall be designed for such loads, per IRC R403.1.7.
 - D. The Weber County Building Official may require an investigation and inspection, at no expense to the jurisdiction, and by approved authorities, to ensure the intent of Section R403.1.7 is met. R109.1.5. Such report shall include the consideration of material, height of slope, slope gradient, load intensity and erosion characteristics.
- A3. Sheets A001, A500 and A510 provide exterior wall assembly details. Please identify on the floor plans which wall type is to be used on each of the exterior walls?
- A4. Sheet A101: The code analysis has been based upon the 2015 IBC. Per IBC 101.2 Exception, single family dwellings shall comply with the International Residential Code. Please make all necessary corrections to the plans to ensure the 2015 IRC and Utah State Amendments have been utilized for the design of the single-family dwelling.

A5. Sheet A700: Please address the following:

- A. Detail 2 shows the ramp leading to the structure. Detail 4/S6.1 also shows the ramp, and yet details have not been provided showing how the ramp is being attached to the structure.



A6. Sheet A200: Please address the following:

- A. While the window sizes are shown on Sheet A900 and are keyed on the elevation drawings, the windows have not been keyed on the floor plans. Identify the windows on the floor plans in order to ensure the requirements of IRC R310.1 for emergency escape and rescue in each bedroom is being met.
- B. Identify the location of any windows which require tempered glazing, per IRC R308.4.
- C. Double doors are shown at Bedroom 1 on the lower floor plan. The elevation drawings do not identify the double doors on the lower level, nor do the door details on Sheet A900 identify the double doors.
- I. Assuming the doors are a part of plans, clearly detail on the elevation drawings how exiting to grade is provided for these doors.

MECHANICAL REVIEW COMMENTS:

There are no mechanical review comments.

PLUMBING REVIEW COMMENTS:

There are no plumbing review comments.

ELECTRICAL REVIEW COMMENTS:

E1. Sheet E302: Please address the following:

- A. Please note that electrical outlets in floors shall not be counted as part of the required number of receptacle outlets except where located within 18" of walls, per IRC E3901.2.3. Please note this information on the plans.
- B. Detail on the plans the location of all required smoke detectors, per IRC R314.
- C. Detail on the plans the location of all required carbon monoxide detectors, per IRC G2407.12.
- D. Detail on the plans outlets for receptacles rated at 125 volts, 15- and 20-amps are required to be tamper-resistant.



ENERGY REVIEW COMMENTS:

- N1. The REScheck identifies the square footage of the structure as 2,542 SF. The plans identify the structure at 1,692 SF. The report needs to accurately reflect the actual square footage of the structure.
- N2. The report identifies compliance at 2.7% better than code. Per the Utah State Amendments, as of January 1, 2017, IECC Section 401.2 #4 requires compliance be demonstrated at 3 percent better than code. Please make necessary corrections.
- N3. Please indicate the U-factor for the windows on the plans. Include a note which clarifies that all U-factors shall be determined by testing in accordance with NFRC 100 and labeled as such by the manufacturer, per Section 102.1.3.
- N4. Please note that a permanent certificate shall be completed and located in an approved location that lists the predominant R-values of the insulation installed in the ceiling/roof, walls, foundation and ducts outside conditioned spaces, and U-factors for fenestration.

STRUCTURAL COMMENTS:

Structural Drawings:

- S1. Please address the following regarding Sheet S0.1:
 - A. Please indicate on the drawings the additional snow load data used in design per IBC §1603.1.3, and earthquake design data per IBC §1603.1.5, including spectral response acceleration parameters, and design wind pressures for exterior component and cladding materials per IBC §1603.1.4.
 - B. Please provide concrete design information per the special inspection table including slump, water/cement ratio, exposure, etc. per IBC Table 1705.3.
- S2. Detail 3/S1.2: Please clarify the design intent of the concrete tie beam. If intended for flexure or compression, then please provide closed-tie hoops and revise drawings as required.
- S3. Please provide collector/strapping detailing to transfer forces from vertically discontinuous shear walls.
- S4. Please address the following regarding details 12/S4.1 & 2/S6.1:
 - A. Please verify whether the steel knife plate connection is designed to transfer lateral load reactions from the bridge, including seismic and wind forces perpendicular to the bridge.
 - B. Please isolate the bridge from the structure by providing a slip connection adequate to allow for the expected cyclical temperature shrinkage and expansion, as well as expected seismic drift of the building relative to the bridge, and please provide shrinkage/expansion and drift calculations.
- S5. Detail 6/S4.3: Please clarify the connection of the single web plate to the double channel column.
- S6. Please address the following regarding Sheet S5.1:
 - A. Details 5 & 8: Please revise the attic floor diaphragm sheathing anchorage to the shear wall detailing to not rely on cross-grain bending of the ledger per ASCE 7-10 §12.11.2.2.3.
 - B. Detail 9: Please clarify whether the attic framing beam is designed to be hung from the roof trusses above or if the beam is designed to span the width of the building. If it is meant to be hung from above, please revise connection to not depend on withdrawal of the nailing as currently shown.



Structural Calculations:

- S7. Page 50 of 85: It appears the equivalent lateral force method based on two levels was used for wood shear walls, but a three-level approach was used for the braced frames. Please address.
- S8. Pages 52-62 of 85: It appears that a redundancy factor of 1.0 was used for the lateral shear wall design. Please provide a calculation or explanation demonstrating how one of the two conditions per ASCE 7-10 §12.3.4.2 is met. Otherwise, please revise calculations as necessary.
- S9. Page 69 of 85: It appears that the ASD overturning moment value of 327 k-ft is calculated by being multiplied by 0.7, presumably to convert it to ASD loads. However, the shear values used in the calculation correspond to values on page 67 which appear to have already been reduced to service level loads (“allowable”) by being multiplied by a factor of 0.71, so that the overturning moment was reduced twice. Please address and revise calculations as necessary.
- S10. Page 70 of 85: Please clarify the difference between the allowable bearing pressure of 2,600 psf shown in the calculations and that shown in the drawings of 1,500 psf, and please provide justification for the values used.
- S11. Please provide OCBF diagonal brace connection calculations satisfying the required strength based on the amplified seismic loads per AISC 341-10 §F1.6a. Please also provide concrete pier calculations accounting for the moment caused by the eccentric placement of the steel column and braces on the pier.
- S12. Please verify whether the elements (beams, bearing walls and studs, etc.) supporting the vertically discontinuous shear walls have been designed to resist the seismic load effects including overstrength factor as required per ASCE 7-10 §12.3.3.3, and please provide calculations of those elements.
- S13. Please verify whether the diaphragm connections to vertical elements and to collectors, as well as collectors and their connections have been designed for a 25% increase in design forces as required per ASCE 7-10 §12.3.3.4, and please provide diaphragm capacity calculations that satisfy the provided diaphragm force calculations, as well as chord and collector calculations.
- S14. Please address the following regarding the pedestrian bridge calculations:
 - A. Please provide loading cases and combinations in the structural model, and verify whether lateral loads were included.
 - B. Please provide corresponding calculations of the bridge-supporting foundation elements as well as bridge connections, including member-to-foundation, and member-to-adjacent structure connections, including lateral as well as vertical reactions.

If you have any questions regarding the above comments, please contact Mike Molyneux at mikem@wc-3.com or by phone at (801) 547-8133.

[END]