



1050 North Watery Lane  
Brigham City, UT 84302

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**STRUCTURAL DESIGN CALCULATIONS**

**FOR**

**Commercial Service Unlimited**

3220 S 1700 W  
Ogden, UT 84401

**PROJECT**

**Kimberly Clark - Opt C**

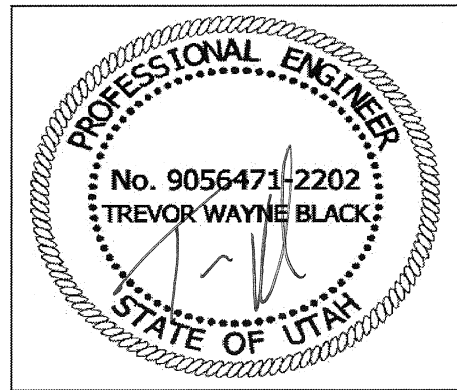
2010 Rulon White Blvd  
Ogden, UT 84404

NBS Project No. U18G0576A  
Design Engineer = Louis Lo  
Stamping Engineer = Trevor Black, PE

**PROJECT DATA**

Structural Design Calculations - Pages 1 to 64

Name: Trevor Black, PE  
Title: Professional Engineer  
Affiliation: Nucor Building Systems  
Date: June 14, 2018



JUN 20 2018

Professional Seal

The Professional Engineer whose seal appears on these Structural Design Calculations is employed by Nucor Buildings Group, a Member of MBMA, and does not serve as or represent the Engineer of Record for this project and shall not be construed as such.



*Excellence from the ground up*



## Utah Ground Snow Load Calculator

$$P_0 := 43 \text{ psf}$$

$$S := 63 \frac{\text{psf}}{\text{ft}}$$

(Table NO 1608.1.2(a))

$$A_0 := 4.5 \text{ ft}$$

$$E := 4287.5 \text{ ft} \quad A := \frac{E}{1000} \quad A = 4.2875 \text{ ft} \left( \frac{\text{Elevation}}{1000} \right)$$

$$P_g := \begin{cases} \text{if } A > A_0 \\ \left( P_0^2 + S^2 \cdot (A - A_0)^2 \right)^{0.5} \\ \text{else} \\ P_0 \end{cases} \quad P_g = 43 \text{ psf}$$

$$C_e \quad e := 1$$

$$C_t \quad t := 1$$

$$I \quad I := 1$$

$$P_f := P_g \cdot .7 \cdot t \cdot e \cdot I \quad P_f = 30.1 \text{ psf}$$

## Utah Ground Snow Load For Seismic

$$A := \frac{E}{1000 \text{ ft}}$$

$$W_s := (0.2 + 0.025 \cdot (A - 5)) \cdot P_f$$

$$W_s = 5.4838 \text{ psf}$$

$$\text{if } W_s < 0.2 \cdot P_f$$

$$\left( \text{Load} := P_f \right)$$

else

$$\text{Load} := \frac{W_s}{.2}$$

$$\text{Load} = 30.1 \text{ psf}$$

INPUT THIS VALUE IN THE SEISMIC SPREADSHEET  
FOR THE ROOF SNOW LOAD

**Alternate Snow Loading on Gable Roofs (ASCE 7-10)**

*(per ASCE 7-10 Section 7.6.1 and Figure 7-5)*

Version: 2012.10.12.1 (Date: 10/12/12) By DJE

**BUILDING NAME:** Storage Shed

**GENERAL INFORMATION:**

Nature of Occupancy:	II - Standard Buildings	
Building Width:	80.0	ft.
Left Distance to Ridge:	40.0	ft.
Right Distance to Ridge:	40.0	ft.
Left Roof Slope:	2.0 : 12	
Right Roof Slope:	2.0 : 12	

**BASIC LOAD INFORMATION:**

Wind Exposure:	<input checked="" type="radio"/> B <input type="radio"/> C <input type="radio"/> D	
Roof Surface:	All Other Surfaces	
Ground Snow Load, $P_g$ :	43.0	psf.
Exposure Factor, $C_e$ :	1.0	
Thermal Factor, $C_t$ :	1.0	
Importance Factor, $I_s$ :	1.0	

**CALCULATIONS:**

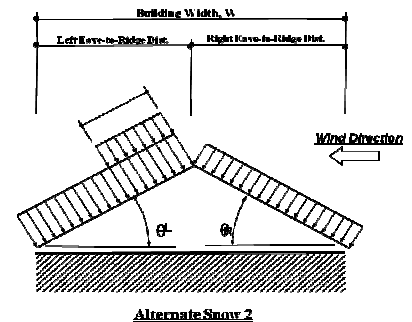
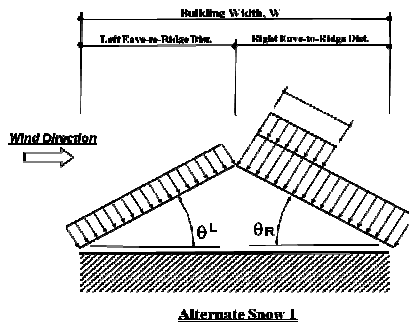
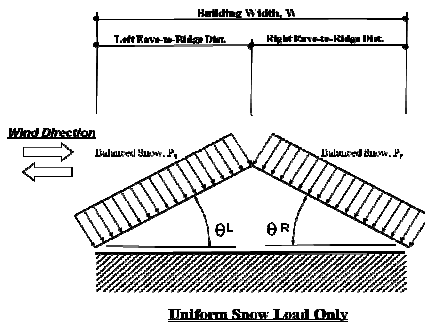
Left Slope Factor, $C_s$ :	1.0	Right Slope Factor, $C_s$ :	1.0		
Left Roof Snow, $P_s$ :	30.1	psf.	Right Roof Snow, $P_s$ :	30.1	psf.
Left Roof Angle, $\theta$ :	9.4623°	Right Roof Angle, $\theta$ :	9.4623°		
Left Angle Limit (Min):	2.3859°	Right Angle Limit (Min):	2.3859°		
Snow Density, $\gamma$ :	19.59	pcf.	Min. Uniform Roof Snow:	30.1	psf.
Min. Uniform Roof Snow:	30.1	psf.			

**WIND DIRECTION TO RIGHT: (ALT. 1)**

Windward Snow Load:	9.03	psf.
Leeward Snow Load:	30.1	psf.
Surcharge Snow Load:	19.737	psf.
Surcharge Snow Length:	16.1201	ft.
<b>Total Surcharge Load:</b>	<b>49.837</b>	<b>psf.</b>

**WIND DIRECTION TO LEFT: (ALT. 2)**

Windward Snow Load:	9.03	psf.
Leeward Snow Load:	30.1	psf.
Surcharge Snow Load:	19.737	psf.
Surcharge Snow Length:	16.1201	ft.
<b>Total Surcharge Load:</b>	<b>49.837</b>	<b>psf.</b>



**Wind Loading per ASCE 7-10**

**Geometry**

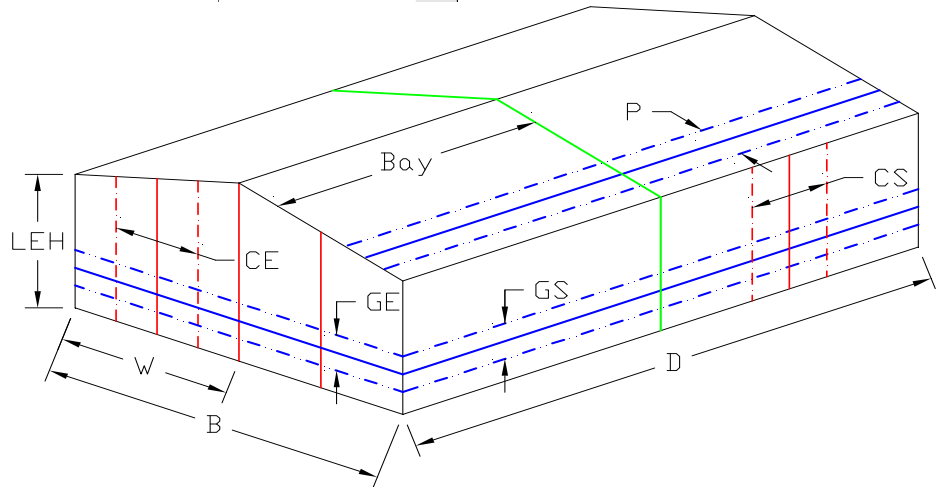
*(with AISI 2007 Specification and 2010 Supplement to the 2006 MBMA Manual.)*

Version: 2018.02.07 (Date: 02/07/18) By NBS-GS

Building Name: Storage Shed Building Type: Gable Roof: Nucor CFR™

- Bldg. Width [B]: 80.0000'
- Dist. To Ridge [W]: 40.0000'
- Bldg. Length [D]: 250.0000'
- Left Eave Ht. [LEH]: 19.5000'
- Right Eave Ht. [REH]: 19.5000'
- Left Roof Slope: 2.00:12
- Right Roof Slope: 2.00:12
- Bay Width [Bay]: 13.0000'
- Purlin Trib. Width [P]: 3.0000'
- EW Girt Trib. Ht. [GE]: 6.0000'
- SW Girt Trib. Ht. [GS]: 6.0000'
- EW Girt Length: 15.0000'
- SW Girt Length: 25.0000'

NBG Brand: NBS  Super Tall Clips



EW Col. Trib. Width [CE]: 19.3333' Left SW Top-of-Parapet:  Right SW Top-of-Parapet:   
 SW Col. Trib. Width [CS]: 13.0000' Opening Area:  EW Top-of-Parapet:

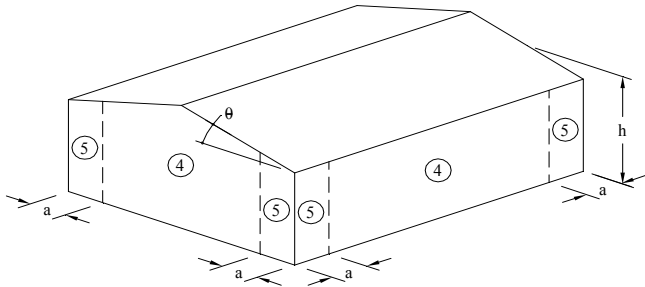
**Loading Information**

Building Code: IBC 2015  
 Wind Speed: 115 mph Building Porosity: Enclosed  
 Wind Exposure: B Interior Partition Walls? No

**General Loading Calculations**

h: 19.5000'  $K_d$ : 0.85  $K_{zt}$ : 1.00  $R_f$ : 1.00  $q_h$ : 20.16 psf  
 $K_z$  or  $K_h$ : 0.70  $G$ : 0.85  $GC_{pi}$ : ± 0.18

**Components and Cladding, Walls**



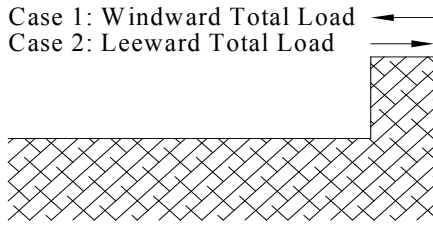
**a = 7.80 ft.**

Item	Tributary Area (ft <sup>2</sup> )	Pressure Zones 4,5 (psf)	Suction Zone 4 (psf)	Suction Zone 5 (psf)
Sidewall Wind Column	254	17.28	-19.09	-20.04
Endwall Wind Column	377	16.72	-18.54	-18.93
Sidewall Girt	208	17.55	-19.36	-20.58
Endwall Girt	90	18.72	-20.53	-22.92
Wall Panel	12	21.52	-23.34	-28.52

Note: Value of  $GC_{pi}$  in results above reduced by 10% per Note 5 of Figure 30.4-1 since slope angle is  $\leq 10^\circ$ .

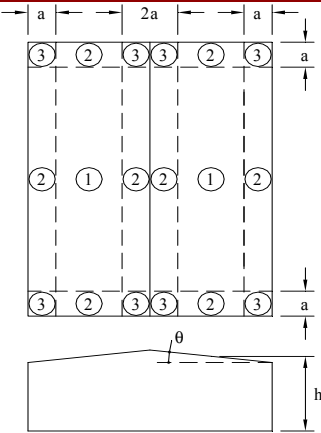
# Wind Loading Continued...

## Wall Parapet Structural



Item	Maximum Projection (ft)	$K_{h\_par}$	$q_p$ (psf)	Windward Total Load (psf)	Leeward Total Load (psf)
FSW Parapet	---	---	---	---	---
BSW Parapet	---	---	---	---	---
EW Parapet	---	---	---	---	---

## Components and Cladding, Roofs

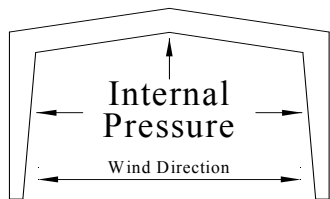
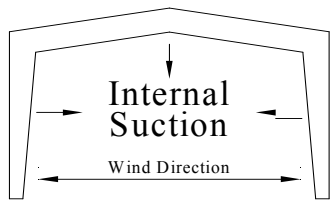


Applicable Roof Slope Angle = 9.46 deg  
a = 7.80 ft.

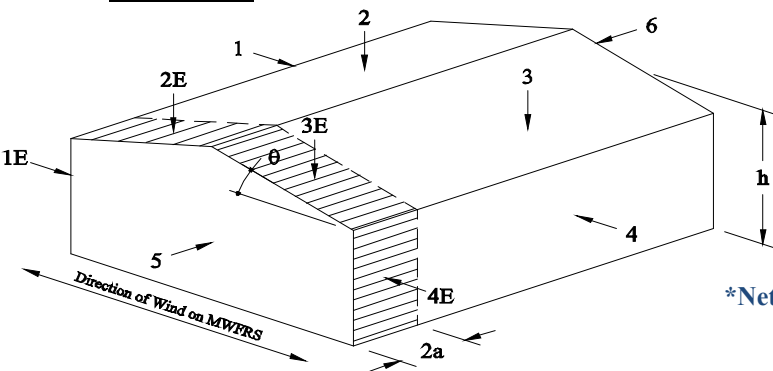
Item	Tributary Area (ft <sup>2</sup> )	Pressure All (psf)	Suction in Zones				
			1 (psf)	2 (psf)	2' (psf)	3 (psf)	3' (psf)
Purlin/Joist	56	16.00	-20.26	-30.34	---	-46.97	---
Panel	6	16.00	-21.77	-37.90	---	-56.05	---
Fastener	6	16.00	-21.77	-37.90	---	-56.05	---
<i>Values Below are for Overhang Portion of Roof</i>							
Purlin/Joist	56	---	---	-44.35	---	-56.43	---
Panel	6	---	---	-44.35	---	-74.60	---
Fastener	6	---	---	-44.35	---	-74.60	---

## Main Wind Force Resisting Systems (Transverse Wind Direction)

Applicable Roof Slope Angle = 9.46 deg  
a = 7.80 ft.



Item	Transverse Wind Direction							
	W1R	W1L	W2R	W2L	W3R	W3L	W4R	W4L
C1:	0.62	-0.15	0.26	-0.51	---	---	---	---
Load, (psf)	12.47	-3.06	5.22	-10.32	---	---	---	---
C2:	-0.51	-0.22	-0.87	-0.58	---	---	---	---
Load, (psf)	-10.28	-4.49	-17.54	-11.75	---	---	---	---
C3:	-0.22	-0.51	-0.58	-0.87	---	---	---	---
Load, (psf)	-4.49	-10.28	-11.75	-17.54	---	---	---	---
C4:	-0.15	0.62	-0.51	0.26	---	---	---	---
Load, (psf)	-3.06	12.47	-10.32	5.22	---	---	---	---
C5:	-0.27	-0.27	-0.63	-0.63	---	---	---	---
Load, (psf)	-5.44	-5.44	-12.70	-12.70	---	---	---	---
C6:	-0.27	-0.27	-0.63	-0.63	---	---	---	---
Load, (psf)	-5.44	-5.44	-12.70	-12.70	---	---	---	---
Net* (psf)	5.12	5.12	5.12	5.12	---	---	---	---



### Edge Zone Pressure Coefficients

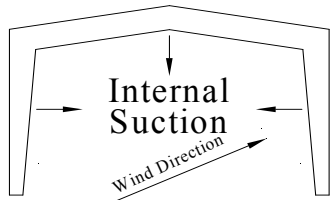
Item	Edge Zone Pressure Coefficients			
	W1R & W3R	W1L & W3L	W2R & W4R	W2L & W4L
C1E:	0.85	-0.31	0.49	-0.67
Load, (psf)	17.07	-6.30	9.81	-13.56
C2E:	-0.89	-0.40	-1.25	-0.76
Load, (psf)	-17.94	-8.02	-25.20	-15.27
C3E:	-0.40	-0.89	-0.76	-1.25
Load, (psf)	-8.02	-17.94	-15.27	-25.20
C4E:	-0.31	0.85	-0.67	0.49
Load, (psf)	-6.30	17.07	-13.56	9.81

\*Net Lat < 16 psf. Add additional pressure to windward wall.

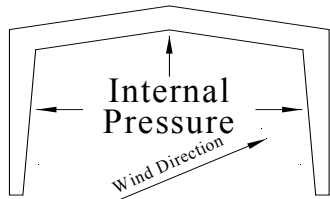
Wind Loading Continued...

Main Wind Force Resisting Systems (Longitudinal Wind Direction)

Applicable Roof Slope Angle = 9.46 deg  
a = 7.80 ft.

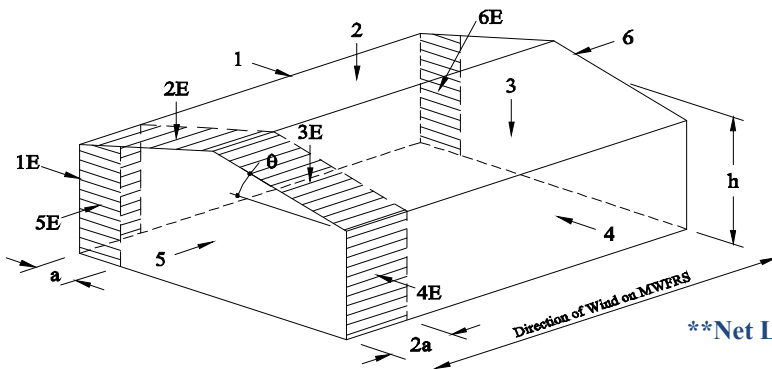


**WIND W5B W5F  
W7B W7F**



**WIND W6B W6F  
W8B W8F**

Item	Longitudinal Wind Direction							
	W5B	W5F	W6B	W6F	W7B	W7F	W8B	W8F
C1:	-0.27	-0.27	-0.63	-0.63	---	---	---	---
Load, (psf)	-5.44	-5.44	-12.70	-12.70	---	---	---	---
C2:	-0.51	-0.19	-0.87	-0.55	---	---	---	---
Load, (psf)	-10.28	-3.83	-17.54	-11.09	---	---	---	---
C3:	-0.19	-0.51	-0.55	-0.87	---	---	---	---
Load, (psf)	-3.83	-10.28	-11.09	-17.54	---	---	---	---
C4:	-0.27	-0.27	-0.63	-0.63	---	---	---	---
Load, (psf)	-5.44	-5.44	-12.70	-12.70	---	---	---	---
C1E:	-0.30	-0.30	-0.66	-0.66	---	---	---	---
Load, (psf)	-6.05	-6.05	-13.31	-13.31	---	---	---	---
C2E:	-0.89	-0.35	-1.25	-0.71	---	---	---	---
Load, (psf)	-17.94	-7.06	-25.20	-14.31	---	---	---	---
C3E:	-0.35	-0.89	-0.71	-1.25	---	---	---	---
Load, (psf)	-7.06	-17.94	-14.31	-25.20	---	---	---	---
C4E:	-0.30	-0.30	-0.66	-0.66	---	---	---	---
Load, (psf)	-6.05	-6.05	-13.31	-13.31	---	---	---	---



Item	End-Wall Pressure Coefficients			
	W5B & W7B	W5F & W7F	W6B & W8B	W6F & W8F
C5:	0.58	-0.11	0.22	-0.47
Load, (psf)	11.69	-2.22	4.44	-9.48
C6:	-0.11	0.58	-0.47	0.22
Load, (psf)	-2.22	11.69	-9.48	4.44
C5E:	0.79	-0.25	0.43	-0.61
Load, (psf)	15.93	-5.04	8.67	-12.30
C6E:	-0.25	0.79	-0.61	0.43
Load, (psf)	-5.04	15.93	-12.30	8.67
<b>Net** (psf)</b>	<b>0.84</b>	<b>0.84</b>	<b>0.84</b>	<b>0.84</b>

\*\*Net Long. < 16 psf. Add additional pressure to windward wall.

Wind Uplift for Bracing Input: -17.54 psf  
 Longitudinal Force Resisted by Bracing: 14.61 kip

Total Longitudinal Net Pressure Applied to Building: 16.00 psf  
 Total Longitudinal Force Applied to Building: 29.23 kip

Project No. : U18G0576A  
 Description : Kimberly Clark - Opt C  
 Engineer : LL  
 Date : 6/13/2018

**Wind Loading per ASCE 7-10**

**Wall Sheeting Spans**

*(with AISI 2007 Specification and 2010 Supplement to the 2006 MBMA Manual.)*

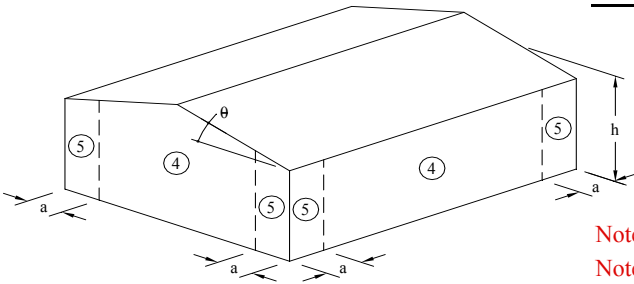
Version: 2018.02.07 (Date: 02/07/18) By NBS-GS

Building Name: Storage Shed

Wall Panel Selection: Classic "CW" Wall Panel 26 Gage A653 Grade 80 with Fy = 80 ksi, Fu = 82 ksi

Deflection Limit: L/60

Min. Girt Thickness for Fastener Checks: 0.060



**a = 7.80 ft.**

Item	Tributary Area (ft <sup>2</sup> )	Pressure Zones 4,5 (psf)	Suction Zone 4 (psf)	Suction Zone 5 (psf)
Wall Panel	12	12.91	-14.00	-17.11
Simple Span	(ft) →	7.50	7.50	7.50
2 Equal Spans	(ft) →	7.50	7.50	7.50
3 Equal Spans	(ft) →	7.50	7.50	7.50
Fasteners	(ft) →	---	7.50	7.50

Note: These Panel Spans are Based on Values Found In the EDM for each brand

Note: The wind loads determined in this sheet are multiplied by 0.6

Note: 50 Year-Wind deflection check

**Roof Sheeting Spans**

Self Weight (psf): 1.42 Collateral Load (psf): 0.00 Max Live/Snow Load (psf): 49.84

Roof Panel Selection: Nucor CFR™

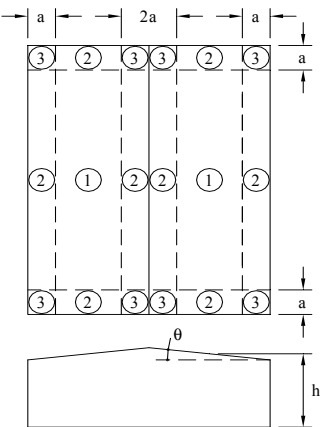
Deflection Limit: L/60

Minimum Purlin Thickness for Fastener: N/A

Seaming Option for Interior Zone, (Zone 1): Nucor Roll Lock - Std. Clip (2) Fasteners

Seaming Option for Edge Zone, (Zone 2): Nucor Roll Lock - Std. Clip (2) Fasteners

Seaming Option for Corner Zone, (Zone 3): Nucor Roll Lock - Std. Clip (2) Fasteners



**a = 7.80 ft.**

Item	Pressure All (ft.)	Suction in Zones				
		1 (ft.)	2 (ft.)	2' (ft.)	3 (ft.)	3' (ft.)
Roof Panel, (psf) →	51.26	-12.21	-21.89	----	-32.78	----
Simple Span	6.00					
2 Equal Spans	6.00					
3 Equal Spans	6.00					
Seaming / Fasteners		6.00	6.00		6.00	

Note: These Panel Spans are Based on Values Found In the EDM for each brand

Note: The wind loads determined in this sheet are multiplied by 0.6

Note: Use MODIFIED Roll Lock Seam (Vise Lock seam crimp at mid-span)

Note: 12" Vice Lock 360 Clips with (3) Fasteners, require a minimum purlin thickness of 0.067".

Note: 50 Year-Wind deflection check

**IBC 2015 Seismic Considerations:**

Equivalent Lateral Force Procedure (per ASCE 7, Section 12.8)

Spreadsheet Revision Number : 2016.03.14  
Latest Revision Date : 3/14/2016

**Building Data Input:**

Storage Shed
Standard Buildings
Gable
80.00 feet
250.00 feet
40.00 feet
2.00 : 12
19.50 feet
19.50 feet
22.83 feet

Project No.:	U18G0576A
Description:	Kimberly Clark - Opt C
Engineer:	LL
Date:	6/14/2018

Nature of Occupancy  
Gable/Single Slope  
Building Width  
Building Length  
Distance to Ridge (from BSW)  
Roof Slope, s:12 (slope to BSW)  
Low Eave Height (Front SW)  
High Eave Height (Back SW)  
Mean Roof Height

Roof Level Diaphragm Flexible \*  
Mezzanine Level Diaphragm None \*

\*Note: ASCE 7 states "Where diaphragms are not flexible, the design shall include the torsion moment plus the accidental torsional moments caused by an assumed 5% displacement in either direction of the building masses. Due to the configuration of rigid frame metal buildings, accidental torsion is NOT required in the lateral seismic calculations. Thus accidental torsion due to diaphragm rigidity shall only be applied to the longitudinal seismic calcs.

**Seismic Data Input:**

Short period response acceleration,  $S_s$  Ss = 1.433  
1-second period response acceleration,  $S_1$  S1 = 0.596  
Site Classification D \*\*

\*\*Note: ASCE 7 Section 11.4.2, states "Where the soil properties are not known in sufficient detail to determine the site class, Site Class D shall be used unless the authority having jurisdiction or geotechnical data determines Site Class E or F soils are present at the site." As a result, Site Class D will be used on nearly all buildings.

**Roof Loading:**

Lateral Frame Self weight (SW) 2.55 psf  
Roof Dead Load (RDL) 4.25 psf  
Roof Collateral Load (CDL) 5.00 psf  
Roof Self Weight (Bracing, Beams etc.) 0.25 psf  
Roof Snow (Pf) 30.10 psf \*\*\*

\*\*\*Note: 20% of flat roof snow load used in seismic dead load calculations per NBS standards when flat roof snow load is greater than 30 psf. DO NOT include snow drift loads in seismic dead load.

\*\*\*\*Note: Full Height Hardwall is applied at mean roof height (mrh) at Endwalls. Enter the height required to account for the full dead load of the wall.

**Exterior Wall #1 (Left EW) Loads:**

Full Height Wall  Full Height Wall w/ Parapet  
 Partial Height Hardwall  Partial Height Hardwall w/ Parapet  
 Exclude Wall in Lateral Seismic Calculations. (Shear Wall Supports Self Weight)  
Wall Length 80.00 feet  
Top Elevation 22.83 feet \*\*\*\*  
Wall Weight 2.50 psf

**Exterior Wall #3 (Right EW) Loads:**

Full Height Wall  Full Height Wall w/ Parapet  
 Partial Height Hardwall  Partial Height Hardwall w/ Parapet  
 Exclude Wall in Lateral Seismic Calculations. (Shear Wall Supports Self Weight)  
Wall Length 80.00 feet  
Top Elevation 22.83 feet \*\*\*\*  
Wall Weight 2.50 psf

**Exterior Wall #2 (Front SW) Loads:**

Full Height Wall  Full Height Wall w/ Parapet  
 Partial Height Hardwall  Partial Height Hardwall w/ Parapet  
 Exclude Wall in Longitudinal Seismic Calculations. (Shear Wall Supports Self Weight)  
Top Elevation 19.50 feet  
Wall Weight 2.50 psf

**Exterior Wall #4 (Back SW) Loads:**

Full Height Wall  Full Height Wall w/ Parapet  
 Partial Height Hardwall  Partial Height Hardwall w/ Parapet  
 Exclude Wall in Longitudinal Seismic Calculations. (Shear Wall Supports Self Weight)  
Top Elevation 19.50 feet  
Wall Weight 2.50 psf

**Interior Wall #5 (Partition) Loads:**

Full Height Wall  Full Height Wall w/ Parapet  
 Partial Height Hardwall  Partial Height Hardwall w/ Parapet  
 Exclude Wall in Lateral Seismic Calculations. (Shear Wall Supports Self Weight)  
Top Elevation 22.83 feet \*\*\*\*  
Wall Weight 2.50 psf

Note: The weight of a concrete or masonry wall may be excluded from the seismic load calculations for lateral / longitudinal seismic force resisting systems, provided that details permit unrestrained movement of the seismic force resisting system relative to the wall. (This exclusion does not apply to metal panel walls, wood, EIFS, or other flexible wall systems that are attached to the building framing at several points.) Per MBMA "Seismic Design Guide for Metal Building Systems.



**IBC 2015 Seismic Considerations: (Continued)**

Equivalent Lateral Force Procedure (per ASCE 7 Section 12.8)

Spreadsheet Revision Number : 2016.03.14  
Latest Revision Date : 3/14/2016

Project No.: U18G0576A  
Description: Kimberly Clark - Opt C  
Engineer: LL  
Date: 6/14/2018

**Mezzanine #1 Loads:**

Floor Dead	
Floor Collateral	
Estimated Joist weight	
Floor Live	****
<input checked="" type="checkbox"/> Storage <input type="checkbox"/> Partition loading	
Partition load	
Elevation	

\*\*\*\*Note: 1) 25% percent of Floor Live Load used when mezzanine is designed for Storage. (Typical storage loads are 125 psf or greater.)  
Put in full live load!

**Mezzanine #2 Loads:**

Floor Dead	
Floor Collateral	
Estimated Joist weight	
Floor Live	
<input checked="" type="checkbox"/> Storage <input type="checkbox"/> Partition loading	
Partition load	
Elevation	

**Crane Loads : Aisle #1**

Number of Aisles with this crane info.	
Crane Type: (TR / UH / Mono)	TRDG
Crane Beam+Channel	
Independent Crane Column	
Rail Wt	
	0.00 plf
Bridge Wt.	
Hoist & Trolley	
Elevation	

**Crane Loads : Aisle #2**

Number of Aisles with this crane info.	
Crane Type: (TR / UH / Mono)	TRDG
Crane Beam+Channel	
Independent Crane Column	
Rail Wt	
	0.00 plf
Bridge Wt.	
Hoist & Trolley	
Elevation	

**Crane Loads : Aisle #3**

Number of Aisles with this crane info.	
Crane Type: (TR / UH / Mono)	TRDG
Crane Beam+Channel	
Independent Crane Column	
Rail Wt	
	0.00 plf
Bridge Wt.	
Hoist & Trolley	
Elevation	

**IBC 2015 Lateral Seismic Calculations:**

Lateral Calcs. (1)

Equivalent Lateral Force Procedure (per ASCE 7, Section 12.8)

Spreadsheet Revision Number : 2016.03.14

Latest Revision Date : 3/14/2016

Frame Description / Location: **FRAME LINE 1 & 11**

**Building Data Input Echo:**

Storage Shed

Occupancy Category: II

Seismic Force Resisting System: **Post & Beam**

Gable/Single Slope: Gable

Width: 80.00 feet

Length: 250.00 feet

Distance to Ridge: 40.00 feet

Roof Slope, s:12: 2.00 : 12

Low Eave Height: 19.50 feet

High Eave Height: 19.50 feet

Mean Roof Height: 22.83 feet

Bay Width: **13.00 feet**

Project No.: U18G0576A

Description: Kimberly Clark - Opt C

Engineer: LL

Date: 6/14/2018

Frame Located at Bay:

Left Endwall     Interior Frame

Right Endwall     Int. Frame w/ Partition

**Hardwall (SW) Information:**

Wall Length Exterior Wall #2 (Front SW): **13.00 feet**

Wall Length Exterior Wall #4 (Back SW): **13.00 feet**

**Roof Concentrated Load Information:**

Roof concentrated loads:

**Crane Information:**

Quantity of Cranes / Bay - Aisle #1:  \*

Length of Runway - Aisle #1:  \*\*

Quantity of Cranes / Bay - Aisle #2:  \*

Length of Runway - Aisle #2:  \*\*

Quantity of Cranes / Bay - Aisle #3:  \*

Length of Runway - Aisle #3:  \*\*

**Mezzanine Information:**

Is Mez #1 or #2 Considered a Story?

Loading Area - Mezzanine #1:

Concentrated Loads - Mezzanine #1:

Loading Area - Mezzanine #2:

Concentrated Loads - Mezzanine #2:

**Seismic Data Input Echo:**

Short period response acceleration, Ss = 1.433

1-second period response acceleration, S1 = 0.596

\*Note: Enter quantity of cranes for one aisle only, DO NOT increase the crane quantities when crane information is used for more than one aisle.

**Seismic Data Output:**

Occupancy Importance Factor, Ie = 1.00

Site Coefficient Fa: Fa = 1.00

Site Coefficient Fv: Fv = 1.50

Max spectral response for short periods (Eq 11.4-1): Sms = 1.433

Max spectral response for 1-second period (Eq 11.4-2): Sm1 = 0.894

Design spectral response for short periods (Eq 11.4-3): Sds = 0.955

Design spectral response for 1-second periods (Eq 11.4-4): Sd1 = 0.596

Seismic Design Category: D

Response Modification Coefficient, R: 3.25 \*\*\*

System Overstrength Factor, Ω<sub>o</sub>: 2 \*\*\*

Deflection Modification Factor, C<sub>d</sub>: 3.25 \*\*\*

Building Period Coefficient, Ct: 0.02

Approximate Fundamental Period, Ta (Eq 12.8-7): 0.209

\*\*Note: Enter runway length, DO NOT double runway length as other seismic sheets have asked you to do previously.

\*\*\*Note: ASCE 7 - Sections 12.2.3, 12.2.3.1 through 12.2.3.3 states, "Where different seismic force-resisting systems are used in combination to resist seismic forces in the same direction of structural response, other than those combinations considered as dual systems, the more stringent system limitation contained in Table 12.2-1 shall apply." The value of the response modification coefficient, R, used for design in the direction under consideration shall not be greater than the least value of R for any of the systems utilized in that direction. The deflection amplification factor, C<sub>d</sub>, and the over-strength factor, Ω<sub>o</sub>, shall be consistent with R required in that direction; excluding buildings with a risk category of I or II, and flexible diaphragms. In which case, resisting elements are permitted to be designed for the least value of R for each independent line of reference.

**Seismic Load Output:**

Seismic Base Shear, V (Eq 12.8-1) **6.45 kips**

Seismic Response Coefficient, Cs (Eq 12.8-1 to 12.8-6) 0.294

Distribution Exponent, k 0.00

**Multistory Distribution**

Seismic Considerations	Eff. Seismic Weight W <sub>x</sub>	Elevation h <sub>x</sub>	Vertical Dist. Factor, C <sub>vx</sub>	Seismic Force F <sub>x</sub>	Seismic Base Moment M	Alt. Roof Weight:	Alt. Panel Load:
						20.97 psf	0.080 kips/ft
Frame Uniform Loads							
						Roof Weight:	Panel Load:
						20.45 psf	0.078 kips/ft
Frame Concentrated Loads							
						Load	Elevation
						0.100 kips	18.17 feet
						0.100 kips	18.17 feet
						--	--
						--	--
						--	--
						--	--
						--	--
						--	--
Totals	24800 lbs	--	24800	7.29 kips	146.36 ft-kips	Frame Base Shear:	6.451 kips

**IBC 2015 Lateral Seismic Calculations:**

Lateral Calcs. (2)

Equivalent Lateral Force Procedure (per ASCE 7, Section 12.8)

Spreadsheet Revision Number : 2016.03.14

Latest Revision Date : 3/14/2016

Frame Description / Location:

FRAME LINE 2-10

**Building Data Input Echo:**

Occupancy Category  
Seismic Force Resisting System

II  
Rigid Frame

Gable/Single Slope

Gable

Width

80.00 feet

Length

250.00 feet

Distance to Ridge

40.00 feet

Roof Slope, s:12

2.00 : 12

Low Eave Height

19.50 feet

High Eave Height

19.50 feet

Mean Roof Height

22.83 feet

Bay Width

25.00 feet

Frame Located at Bay:

- Left Endwall
- Interior Frame
- Right Endwall
- Int. Frame w/ Partition

Project No.: U18G0576A  
Description: Kimberly Clark - Opt C  
Engineer: LL  
Date: 6/14/2018

**Roof Concentrated Load Information:**

Roof concentrated loads:

**Hardwall (SW) Information:**

Wall Length Exterior Wall #2 (Front SW): 25.00 feet  
Wall Length Exterior Wall #4 (Back SW): 25.00 feet

**Mezzanine Information:**

Is Mez #1 or #2 Considered a Story?

Loading Area - Mezzanine #1:

Concentrated Loads - Mezzanine #1:

Loading Area - Mezzanine #2:

Concentrated Loads - Mezzanine #2:

**Crane Information:**

Quantity of Cranes / Bay - Aisle #1: \*  
Length of Runway - Aisle #1: \*\*  
Quantity of Cranes / Bay - Aisle #2: \*  
Length of Runway - Aisle #2: \*\*  
Quantity of Cranes / Bay - Aisle #3: \*  
Length of Runway - Aisle #3: \*\*

**Seismic Data Input Echo:**

Short period response acceleration, Ss

Ss = 1.433

1-second period response acceleration, S1

S1 = 0.596

\*Note: Enter quantity of cranes for one aisle only, DO NOT increase the crane quantities when crane information is used for more than one aisle.

**Seismic Data Output:**

Occupancy Importance Factor, Ie

1.00

Site Coefficient Fa:

Fa = 1.00

Site Coefficient Fv:

Fv = 1.50

Max spectral response for short periods (Eq 11.4-1):

Sms = 1.433

Max spectral response for 1-second period (Eq 11.4-2):

Sm1 = 0.894

Design spectral response for short periods (Eq 11.4-3):

Sds = 0.955

Design spectral response for 1-second periods (Eq 11.4-4):

Sd1 = 0.596

Seismic Design Category:

D

Response Modification Coefficient, R:

3.5 \*\*\*

System Overstrength Factor, Ω<sub>o</sub>:

2.5 \*\*\*

Deflection Modification Factor, C<sub>d</sub>:

3 \*\*\*

Building Period Coefficient, Ct:

0.028

Approximate Fundamental Period, Ta (Eq 12.8-7):

0.342

\*\*Note: Enter runway length, DO NOT double runway length as other seismic sheets have asked you to do previously.

\*\*\*Note: ASCE 7 - Sections 12.2.3, 12.2.3.1 through 12.2.3.3 states, "Where different seismic force-resisting systems are used in combination to resist seismic forces in the same direction of structural response, other than those combinations considered as dual systems, the more stringent system limitation contained in Table 12.2-1 shall apply." The value of the response modification coefficient, R, used for design in the direction under consideration shall not be greater than the least value of R for any of the systems utilized in that direction. The deflection amplification factor, C<sub>d</sub>, and the over-strength factor, Ω<sub>o</sub>, shall be consistent with R required in that direction; excluding buildings with a risk category of I or II, and flexible diaphragms. In which case, resisting elements are permitted to be designed for the least value of R for each independent line of reference.

**Seismic Load Output:**

Seismic Base Shear, V (Eq 12.8-1)

10.31 kips

Seismic Response Coefficient, Cs (Eq 12.8-1 to 12.8-6)

0.273

Distribution Exponent, k

0.00

**Multistory Distribution**

Seismic Considerations	Eff. Seismic Weight W <sub>x</sub>	Elevation h <sub>x</sub>	Vertical Dist. Factor, C <sub>vx</sub>	Seismic Force F <sub>x</sub>	Seismic Base Moment M	Alt. Roof Weight:	Alt. Panel Load:
						18.76 psf	0.128 kips/ft
						Frame Uniform Loads	
						Roof Weight:	Panel Load:
						18.24 psf	0.124 kips/ft
						Frame Concentrated Loads	
						Load	Elevation
Roof Loads	36472 lbs	22.83 feet	36472	9.96 kips	227.31 ft-kips		
Interior Wall #5 (Partition) Loads	0 lbs	--	--	--	--		
Exterior Wall #2 (Front SW) Loads	1219 lbs	9.75 feet	1219	0.33 kips	3.24 ft-kips	0.179 kips	18.17 feet
Exterior Wall #4 (Back SW) Loads	1219 lbs	9.75 feet	1219	0.33 kips	3.24 ft-kips	0.179 kips	18.17 feet
Crane Aisle #1	0 lbs	--	--	--	--	--	--
Crane Aisle #2	0 lbs	--	--	--	--	--	--
Crane Aisle #3	0 lbs	--	--	--	--	--	--
Mezzanine #1	0 lbs	--	--	--	--	--	--
Mezzanine #2	0 lbs	--	--	--	--	--	--
<b>Totals</b>	<b>38910 lbs</b>	--	<b>38910</b>	<b>10.62 kips</b>	<b>233.80 ft-kips</b>	<b>Frame Base Shear:</b>	<b>10.312 kips</b>

**IBC 2015 Longitudinal Seismic Calculations:**  
Equivalent Lateral Force Procedure (per ASCE 7, Section 12.8)

Longitudinal Calcs.

Spreadsheet Revision Number : 2016.03.14  
Latest Revision Date : 3/14/2016

<b>Building Data Input Echo:</b>	Storage Shed
Occupancy Category	II
Low SW Force Resisting System	X-Bracing
High SW Force Resisting System	X-Bracing
Gable/Single Slope	Gable
Width	80.00 feet
Length	250.00 feet
Distance to Ridge	40.00 feet
Roof Slope, s:12	2.00 : 12
Low Eave Height	19.50 feet
High Eave Height	19.50 feet
Mean Roof Height	22.83 feet

Project No.:	U18G0576A
Description:	Kimberly Clark - Opt C
Engineer :	LL
Date :	6/14/2018

**Roof Concentrated Load Information:**

Roof concentrated loads:

Qty. =

**Hardwall Information:**

Wall Length Exterior Wall #2 (Front SW):	250.00 feet
Wall Length Exterior Wall #4 (Back SW):	250.00 feet
Wall Length Interior Wall #5 (Partition):	80.00 feet

**Mezzanine Information:**

Is Mez #1 or #2 Considered a Story?	<input type="text"/>
Loading Area - Mezzanine #1:	<input type="text"/>
Concentrated Loads - Mezzanine #1:	<input type="text"/>
Loading Area - Mezzanine #2:	<input type="text"/>
Concentrated Loads - Mezzanine #2:	<input type="text"/>

**Crane Information:**

Quantity of Cranes - Aisle #1:	<input type="text"/>	*
Length of Runway - Aisle #1:	<input type="text"/>	
Quantity of Ind. Crane Columns - Aisle #1:	<input type="text"/>	
Quantity of Cranes - Aisle #2:	<input type="text"/>	*
Length of Runway - Aisle #2:	<input type="text"/>	
Quantity of Ind. Crane Columns - Aisle #2:	<input type="text"/>	
Quantity of Cranes - Aisle #3:	<input type="text"/>	*
Length of Runway - Aisle #3:	<input type="text"/>	
Quantity of Ind. Crane Columns - Aisle #3:	<input type="text"/>	

**Seismic Data Input Echo:**

Short period response acceleration, Ss = 1.433  
1-second period response acceleration, S1 = 0.596

**Seismic Data Output:**

Occupancy Importance Factor, Ie	1.00
Site Coefficient Fa:	Fa = 1.00
Site Coefficient Fv:	Fv = 1.50
Max spectral response for short periods (Eq 11.4-1):	Sms = 1.433
Max spectral response for 1-second period (Eq 11.4-2):	Sm1 = 0.894
Design spectral response for short periods (Eq 11.4-3):	Sds = 0.955
Design spectral response for 1-second periods (Eq 11.4-4):	Sd1 = 0.596
Seismic Design Category:	D
Response Modification Coefficient, R:	3.25 **
System Overstrength Factor, Ω <sub>o</sub> :	2 **
Deflection Modification Factor, C <sub>d</sub> :	3.25 **
Building Period Coefficient, Ct:	0.02
Approximate Fundamental Period, T <sub>a</sub> (Eq 12.8-7):	0.209

\*Note: Enter quantity of cranes for one aisle only, DO NOT increase the crane quantities when crane information is used for more than one aisle.

\*\*Note: ASCE 7 - Sections 12.2.3, 12.2.3.1 through 12.2.3.3 states, "Where different seismic force-resisting systems are used in combination to resist seismic forces in the same direction of structural response, other than those combinations considered as dual systems, the more stringent system limitation contained in Table 12.2-1 shall apply." The value of the response modification coefficient, R, used for design in the direction under consideration shall not be greater than the least value of R for any of the systems utilized in that direction. The deflection amplification factor, C<sub>d</sub>, and the over-strength factor, Ω<sub>o</sub>, shall be consistent with R required in that direction; excluding buildings with a risk category of I or II, and flexible diaphragms. In which case, resisting elements are permitted to be designed for the least value of R for each independent line of reference.

**Seismic Load Output:**

Seismic Base Shear, V (Eq 12.8-1) **112.14 kips**  
Seismic Response Coefficient, Cs (Eq 12.8-1 to 12.8-6) 0.294 Distribution Exponent, k 0.00

<b>Multistory Distribution</b>						
Seismic Considerations	Eff. Seismic Weight W <sub>x</sub>	Elevation h <sub>x</sub>	Vertical Dist. Factor, C <sub>vx</sub>	Seismic Force F <sub>x</sub>	Seismic Base Moment M	
Roof Loads	364724 lbs	22.83 feet	364724	107.21 kips	2447.97 ft-kips	<b>Bracing Uniform Loads</b>
Exterior Wall #1 (Left EW) Loads	4567 lbs	11.50 feet	4567	1.34 kips	15.43 ft-kips	Roof Snow: 30.10 psf
Exterior Wall #3 (Right EW) Loads	4567 lbs	11.50 feet	4567	1.34 kips	15.43 ft-kips	Seismic Dead W: 12.45 psf
Interior Wall #5 (Partition) Loads	0 lbs	11.50 feet	--	--	--	<b>Total Seismic W: 18.47 psf</b>
Exterior Wall #2 (Front SW) Loads	12188 lbs	9.75 feet	12188	3.58 kips	34.93 ft-kips	<b>Seismic Factor: 0.294</b>
Exterior Wall #4 (Back SW) Loads	12188 lbs	9.75 feet	12188	3.58 kips	34.93 ft-kips	<b>Bracing Concentrated Loads</b>
Crane Aisle #1	0 lbs	--	--	--	--	<b>Load</b>
Crane Aisle #2	0 lbs	--	--	--	--	<b>Elevation</b>
Crane Aisle #3	0 lbs	--	--	--	--	1.791 kips 19.50 feet
Mezzanine #1	0 lbs	--	--	--	--	1.791 kips 19.50 feet
Mezzanine #2	0 lbs	--	--	--	--	
<b>Totals</b>	<b>398233 lbs</b>	--	<b>398233</b>	<b>117.06 kips</b>	<b>2548.69 ft-kips</b>	<b>Bracing Base Shear: 112.145 kips</b>



Detailed Roll-Force Output

Frame Line or Bay	Total Required Anchorage Load (lb.)	Anchor Strength			Anchor Stiffness			Diaphragm Stiffness		
		Maximum Force (lb.)	Maximum Unity Check	Add'l Req'd Tot. Load (lb.)	Maximum Displacement (in.)	Maximum Unity Check	Add'l Req'd Tot. Load (lb.)	Mid-Span Deflection (in.)	Unity Check	Add'l Req'd Load (lb.)
1	-679	-145	0.07	0	0.08	0.34	0	0.27	0.16	0.00
2	-3149	-738	0.31	0	0.22	0.86	0	0.24	0.14	0.00
3	-2476	-581	0.24	0	0.17	0.68	0	0.24	0.14	0.00
4	-2476	-581	0.24	0	0.17	0.68	0	0.24	0.14	0.00
5	-2476	-581	0.24	0	0.17	0.68	0	0.24	0.14	0.00
6	-2476	-581	0.24	0	0.17	0.68	0	0.24	0.14	0.00
7	-2476	-581	0.24	0	0.17	0.68	0	0.24	0.14	0.00
8	-2476	-581	0.24	0	0.17	0.68	0	0.24	0.14	0.00
9	-2476	-581	0.24	0	0.17	0.68	0	0.24	0.14	0.00
10	-3149	-738	0.31	0	0.22	0.86	0	0.27	0.16	0.00
11	-679	-145	0.07	0	0.08	0.34	0	0.00	0.00	0.00
12	0	0	0.00	0	0.00	0.00	0	0.00	0.00	0.00
13	0	0	0.00	0	0.00	0.00	0	0.00	0.00	0.00
14	0	0	0.00	0	0.00	0.00	0	0.00	0.00	0.00
15	0	0	0.00	0	0.00	0.00	0	0.00	0.00	0.00
16	0	0	0.00	0	0.00	0.00	0	0.00	0.00	0.00
17	0	0	0.00	0	0.00	0.00	0	0.00	0.00	0.00
18	0	0	0.00	0	0.00	0.00	0	0.00	0.00	0.00
19	0	0	0.00	0	0.00	0.00	0	0.00	0.00	0.00
20	0	0	0.00	0	0.00	0.00	0	0.00	0.00	0.00
21	0	0	0.00	0	0.00	0.00	0	0.00	0.00	0.00
22	0	0	0.00	0	0.00	0.00	0	0.00	0.00	0.00
23	0	0	0.00	0	0.00	0.00	0	0.00	0.00	0.00
24	0	0	0.00	0	0.00	0.00	0	0.00	0.00	0.00
25	0	0	0.00	0	0.00	0.00	0	0.00	0.00	0.00
26	0	0	0.00	0	0.00	0.00	0	0.00	0.00	0.00
27	0	0	0.00	0	0.00	0.00	0	0.00	0.00	0.00
28	0	0	0.00	0	0.00	0.00	0	0.00	0.00	0.00
29	0	0	0.00	0	0.00	0.00	0	0.00	0.00	0.00
30	0	0	0.00	0	0.00	0.00	0	0.00	0.00	0.00
31	0	0	0.00	0	0.00	0.00	0	0.00	0.00	0.00
32	0	0	0.00	0	0.00	0.00	0	0.00	0.00	0.00
33	0	0	0.00	0	0.00	0.00	0	0.00	0.00	0.00
34	0	0	0.00	0	0.00	0.00	0	0.00	0.00	0.00
35	0	0	0.00	0	0.00	0.00	0	0.00	0.00	0.00
36	0	0	0.00	0	0.00	0.00	0	0.00	0.00	0.00
37	0	0	0.00	0	0.00	0.00	0	0.00	0.00	0.00
38	0	0	0.00	0	0.00	0.00	0	0.00	0.00	0.00
39	0	0	0.00	0	0.00	0.00	0	0.00	0.00	0.00
40	0	0	0.00	0	0.00	0.00	0	0.00	0.00	0.00

**Bracing Components (AISC 14th Edition)**

*per MBMA Research Project 506 (© 1992) & AISC Steel Construction Manual (14th Edition)*

Version: 2017.10.16 (Date: 10/16/17) By NBS-GS

**GENERAL INFORMATION:**

Select Brace Type:

Design Method, (ASD/LRFD/LSD):

**ASD**

APPLIED LOADS:		Height (ft.)	Load Magnitude (kip) by Load Case				
Load Location:	WL		EQ	CR	CS		
Tier Height, $h$ :	23.2500	2.770	6.500				

LOAD COMBINATIONS:				Load Case					
Combination Name:	Comb. #	Active	ASR	WL	EQ	CR	CS		
0.6 WL	1	Y	1.00	0.600					
0.7 $\rho$ EQ (ABC, $\rho=1.0$ )	2	Y	1.00		0.700				
0.7 $\rho$ EQ (DEF, $\rho=1.3$ )	3	Y	1.00		0.910				
0.7 $\Omega$ EQ (CDEF Special)	4	Y	1.20		1.400				
0.5 (0.6 WL) + CR	5	N	1.00	0.300		1.000			
CS	6	N	1.50				1.000		
	7	N	1.00						
	8	N	1.00						

**Case Reactions:**

Load Case	Horiz. (+ = Right)	Vert. (+ = Up)
WL	-2.770	-2.807
EQ	-6.500	-6.587
CR		
CS		











**SIDEWALL BRACING**

Project No. : U18G0576A  
 Description : Kimberly Clark - Opt C  
 Engineer : LL  
 Date : 6/14/2018

**Bracing Components (AISC 14th Edition)**

*per MBMA Research Project 506 (© 1992) & AISC Steel Construction Manual (14th Edition)*

Version: 2017.10.16 (Date: 10/16/17) By NBS-GS

**GENERAL INFORMATION:**

Select Brace Type:

Design Method, (ASD/LRFD/LSD): **ASD**

APPLIED LOADS:		Height (ft.)	Load Magnitude (kip) by Load Case				
Load Location:	WL		EQ	CR	CS		
Tier Height, <i>h</i> :	19.5000	7.500	56.000				

LOAD COMBINATIONS:				Load Case					
Combination Name:	Comb. #	Active	ASR	WL	EQ	CR	CS		
0.6 WL	1	Y	1.00	0.600					
0.7 ρ EQ (ABC, ρ=1.0)	2	Y	1.00		0.700				
0.7 ρ EQ (DEF, ρ=1.3)	3	Y	1.00		0.910				
0.7 Ω EQ (CDEF Special)	4	Y	1.20		1.400				
0.5 (0.6 WL) + CR	5	N	1.00	0.300		1.000			
CS	6	N	1.50				1.000		
	7	N	1.00						
	8	N	1.00						

**Case Reactions:**

Load Case	Horiz. (+ = Right)	Vert. (+ = Up)
WL	-2.500	-1.950
EQ	-18.667	-14.560
CR		
CS		



**SIDEWALL BRACING**

Project No. : U18G0576A  
 Description : Kimberly Clark - Opt C  
 Engineer : LL  
 Date : 6/14/2018

**Bracing Components (AISC 14th Edition)**

*per MBMA Research Project 506 (© 1992) & AISC Steel Construction Manual (14th Edition)*

Version: 2017.10.16 (Date: 10/16/17) By NBS-GS

**GENERAL INFORMATION:**

Non-Standard Gusset Plate!

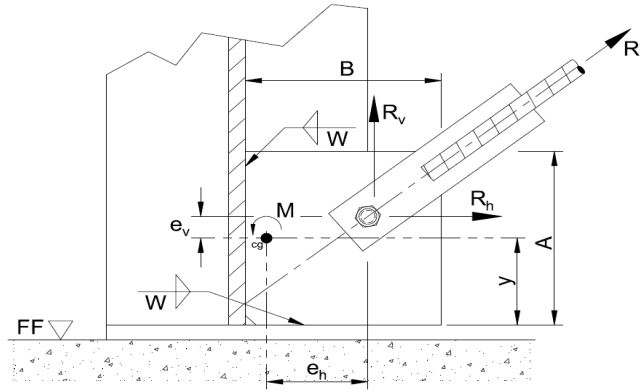
Gusset Plate Height, A: 8.00 in.  
 Gusset Plate Width, B: 8.00 in.  
 Gusset Plate Thickness,  $t_g$ : 1/1 in.  
 Gusset Plate Material: A572 Gr. 50  
 Gusset Plate Weld, W: 5/16 in.  
 Bolt Diameter,  $d_b$ : 1 1/4"Ø  
 Bolt Material: A325

**Frame Geometry:**

Base-Plate Located B.F.F.

Base Plate Thickness,  $t_{base}$ : 1/2 in.  
 Top Stiffener Thickness,  $t_{top}$ : 1/2 in.  
 Base Plate Width,  $b_{base}$ : 8 in.  
 Top Stiffener Width,  $b_{top}$ : 2.5 in.

Required Tensile Strength, R: 32.998 kips  
 Vert. Component Strength,  $R_v$ : 20.147 kips  
 Horiz. Component Strength,  $R_h$ : 26.133 kips  
 Vertical Eccentricity,  $e_v$ : 0.395 in.  
 Horizontal Eccentricity,  $e_h$ : 3.434 in.  
 Minimum Web Thickness,  $t_w$ : 0.143 in.



**WELD INFORMATION:**

Moment,  $M = R_v (e_h) - R_h (e_v) =$  58.87 in.-k      Vertical Force,  $f_v = \frac{R_v}{2L_{weld}} =$  1.06 k / in.  
 Moment of Inertia,  $I_p = I_x + I_y =$  67.90 in.<sup>3</sup>      Horizontal Force,  $f_h = \frac{R_h}{2L_{weld}} =$  1.38 k / in.  
 \* Section Modulus,  $S_x = \frac{I_p}{c_y} =$  14.62 in.<sup>2</sup>      \* Section Modulus,  $S_y = \frac{I_p}{c_x} =$  215.00 in.<sup>2</sup>  
 \* Flexure Force,  $f_{bh} = \frac{M}{2S_x} =$  2.01 k / in.      \* Flexure Force,  $f_{bv} = \frac{M}{2S_y} =$  0.14 k / in.  
 Resultant Force,  $f_r = \sqrt{(f_{bh} + f_h)^2 + (f_{bv} + f_v)^2} =$  3.59 k / in.

**Gusset Plate Results:**

			<b>OK</b>	<b>Remarks</b>
<b>ASD</b> Allowable Strength Ratio			<b>0.489</b>	See AISC Section J4
<b>ASD</b> Allowable Strength			<b>0.646</b>	$R_n = 0.6 F_{exx} (\sin \theta) (S_{weld})$
Nominal Weld Strength (Gusset)	$R_n/\Omega$	k / in.	5.568	$\phi = 0.75$ (LRFD), $\Omega = 2.00$ (ASD)
Nominal Flexural Strength (Gusset)	$M_n/\Omega$	in-kips	570.928	$M_n =$ Per AISC Section F11
Nominal Tensile Yielding Strength (Gusset)	$R_n/\Omega$	kips	254.172	$R_n = F_y A_g$
				$\phi = 0.90$ (LRFD), $\Omega = 1.67$ (ASD)
Nominal Shear Yielding Strength (Gusset)	$R_n/\Omega$	kips	314.465	$R_n = 0.6 F_y A_g$ ; Where $\phi = 1.00$ , $\Omega = 1.50$
Nominal Shear Rupture Strength (Gusset)	$R_n/\Omega$	kips	253.906	$R_n = 0.6 F_u A_{nv}$
Nominal Rupture Strength at Bolt (Gusset)	$R_n/\Omega$	kips	172.464	$R_n = \min(2 t b_{eff} F_u, 0.6 F_u A_{3d})$
Nominal Bearing Strength (Gusset)	$R_n/\Omega$	kips	67.500	$R_n = 1.2 L_c t F_u \leq 1.8 A_{pb} F_y$
Nominal Bolt Shear Strength (Gusset)	$R_n/\Omega$	kips	79.522	$R_n = F_{nv} A_b$
				$\phi = 0.75$ (LRFD), $\Omega = 2.00$ (ASD)
<b>ASD</b> Weld Strength Ratio	$R_n/\Omega$	kips	67.500	Minimum from above.

NUCOR BUILDINGS GROUP

Job # : U18G0576A  
 Job Name : KIMBERLY CLARK - OPT C  
 Frame : FRAME LINE 1 & 11  
 Date : 6/13/2018  
 Designer : BG\louis.lo  
 File : E01.nfr  
 App Version : 2018.3.26.8

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 F R A M E D E S C R I P T I O N  
 -----

Frame type : EMG  
 Frame width : 80.00 Ft.  
 Bay width : 13.00 Ft.

	LEFT	RIGHT	
Dim to ridge :	40.00 Ft.	40.00 Ft.	
Roof slope :	2.00/12	-2.00/12	
Eave height :	19.50 Ft.	19.50 Ft.	
Girt offset :	8.00 In.	8.00 In.	Typ. Girt spacing : 7.50 Ft.
Purlin offset :	10.00 In.	10.00 In.	Typ. Purlin spacing: 5.00 Ft.

Col. spacing : 15.0000,2@25.0000,15.0000

Supports / Spring Constants

COL01 - Bottom V H  
 COL02 - Bottom V H  
 COL03 - Bottom V H  
 COL04 - Bottom V H  
 COL05 - Top H Bottom V H

Column Bracing:

WP1	Girt Brace	:	Y	Y	N
	Flange Brace	:	2	2	0
	Location (ft):		7.5	15.0	19.0
WP2	Girt Brace	:	Y	Y	N
	Flange Brace	:	2	2	0
	Location (ft):		7.5	15.0	21.3
WP3	Girt Brace	:	Y	Y	Y
	Flange Brace	:	2	2	2
	Location (ft):		7.5	15.0	22.5
WP4	Girt Brace	:	Y	Y	N
	Flange Brace	:	2	2	0
	Location (ft):		7.5	15.0	21.3
WP5	Girt Brace	:	Y	Y	N
	Flange Brace	:	2	2	0
	Location (ft):		7.5	15.0	19.0

Other Braces:

Column :  
 Left Brace :  
 Right Brace :  
 Location (ft):

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 L O A D I N G C O N D I T I O N S  
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Building Code & Year : IBC2015  
 Risk Category : II-Standard Buildings  
 AISC Specification : 2010 ASD

L O A D S (Psf)

Roof Dead load : 4.50  
 Roof Coll load : 5.00  
 Roof Live load : 20.00  
 Roof Snow load : 30.10  
 Floor dead load : 0.00  
 Floor live load : 0.00  
 Ground Snow load: 43.00 Ce = 1.00  
 Ss = 1.433 S1 = 0.596 Seismic Design Category = D Site Class = D  
 R = 3.25 Cd = 3.25 Sds = 0.955 Sd1 = 0.596 rho = 1.30 omega = 2.000

Wind speed : 115.00 Mph Exp. : B  
 Wind pressure : 20.16 Psf

Building is Enclosed

Wind pressure coefficients

	C1	C2E	C2	C3	C3E	C4
W1R	0.847	0.000	-0.890	-0.398	0.000	-0.312
W1L	-0.312	0.000	-0.398	-0.890	0.000	0.847
W2R	0.487	0.000	-1.250	-0.758	0.000	-0.672
W2L	-0.672	0.000	-0.758	-1.250	0.000	0.487
W5B	-0.300	0.000	-0.890	-0.350	0.000	-0.300
W5F	-0.300	0.000	-0.350	-0.890	0.000	-0.300
W6B	-0.660	0.000	-1.250	-0.710	0.000	-0.660
W6F	-0.660	0.000	-0.710	-1.250	0.000	-0.660

Wind Loads for Endwall Column

Column Id	Pressure (PSF)	Suction (PSF)
COL01	17.91	-21.30
COL02	16.56	-18.37
COL03	16.33	-18.15
COL04	16.56	-18.37
COL05	17.91	-21.30

Wind Loads for Endwall Rafter

Interior Zone

Pressure	10.00	16.00
Suction	10.00	-21.77
Pressure	100.00	16.00
Suction	100.00	-19.76

Edge Zone

Pressure	10.00	16.00
Suction	10.00	-37.90
Pressure	100.00	16.00
Suction	100.00	-27.82

Tributary Widths

Panel Trib. Width (ft)

WP1	8.17
WP2	19.33
WP3	25.00
WP4	19.33
WP5	8.17
RP1	13.00
RP2	13.00

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P R O G R A M - A P P L I E D L O A D S  
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Load Case	On Panel	Start Load Klf	End Load Klf	Start Loc Ft.	End Loc Ft.
RDL	RP1	-0.058	-0.058	0.000	40.000
RDL	RP2	-0.058	-0.058	40.000	80.000
COL	RP1	-0.065	-0.065	0.000	40.000
COL	RP2	-0.065	-0.065	40.000	80.000
SL	RP1	-0.391	-0.391	0.000	40.000
SR	RP2	-0.391	-0.391	40.000	80.000
RLL	RP1	-0.260	-0.260	0.000	40.000
RLR	RP2	-0.260	-0.260	40.000	80.000
W1R	RP1	-0.233	-0.233	0.000	40.000
W1R	RP2	-0.104	-0.104	40.000	80.000
W1L	RP1	-0.104	-0.104	0.000	40.000
W1L	RP2	-0.233	-0.233	40.000	80.000
W2R	RP1	-0.328	-0.328	0.000	40.000
W2R	RP2	-0.199	-0.199	40.000	80.000
W2L	RP1	-0.199	-0.199	0.000	40.000
W2L	RP2	-0.328	-0.328	40.000	80.000
W5B	RP1	-0.362	-0.362	0.000	40.000
W5B	RP2	-0.362	-0.362	40.000	80.000
W5B	WP1	0.146	0.146	0.000	19.722
W5B	WP2	0.320	0.320	0.000	22.000
W5B	WP3	0.408	0.408	0.000	26.167
W5B	WP4	0.320	0.320	0.000	22.000
W5B	WP5	0.146	0.146	0.000	19.722
W5F	RP1	-0.362	-0.362	0.000	40.000
W5F	RP2	-0.362	-0.362	40.000	80.000
W5F	WP1	-0.174	-0.174	0.000	19.722
W5F	WP2	-0.355	-0.355	0.000	22.000
W5F	WP3	-0.454	-0.454	0.000	26.167
W5F	WP4	-0.355	-0.355	0.000	22.000
W5F	WP5	-0.174	-0.174	0.000	19.722
EQR	RP1	0.084	0.084	0.000	40.000
EQR	RP2	0.084	0.084	40.000	80.000
EQL	RP1	-0.084	-0.084	0.000	40.000
EQL	RP2	-0.084	-0.084	40.000	80.000
RL1	RP1	-0.156	-0.156	0.000	15.000
RL2	RP1	-0.156	-0.156	15.000	40.000
RL3	RP2	-0.156	-0.156	40.000	65.000
RL4	RP2	-0.156	-0.156	65.000	80.000
LRD	RP1	-0.391	-0.391	0.000	40.000
LRD	RP1	-0.257	-0.257	23.880	40.000
LRD	RP2	-0.117	-0.117	40.000	80.000
RRD	RP1	-0.117	-0.117	0.000	40.000
RRD	RP2	-0.391	-0.391	40.000	80.000
RRD	RP2	-0.257	-0.257	40.000	56.120

Load Case	On Mem	Hor. Kips	Vert. Kips	Moment K-Ft.	Loc Ft.
W1R	COL03	2.332	1.879	0.000	0.000
W1R	COL04	0.000	-1.879	0.000	20.141
W1R	SPAN1	2.361	0.000	0.000	1.333
W1R	SPAN3	-2.332	0.000	0.000	65.000
W1R	SPAN4	0.872	0.000	0.000	78.667
W1L	COL03	0.000	-2.269	0.000	24.322
W1L	COL04	-2.332	2.269	0.000	0.000
W1L	SPAN1	-0.872	0.000	0.000	1.333
W1L	SPAN2	2.332	0.000	0.000	40.000
W1L	SPAN4	-2.361	0.000	0.000	78.667
W2R	COL03	2.332	1.879	0.000	0.000
W2R	COL04	0.000	-1.879	0.000	20.141
W2R	SPAN1	1.357	0.000	0.000	1.333
W2R	SPAN3	-2.332	0.000	0.000	65.000

W2R	SPAN4	1.876	0.000	0.000	78.667
W2L	COL03	0.000	-2.269	0.000	24.322
W2L	COL04	-2.332	2.269	0.000	0.000
W2L	SPAN1	-1.876	0.000	0.000	1.333
W2L	SPAN2	2.332	0.000	0.000	40.000
W2L	SPAN4	-1.357	0.000	0.000	78.667
EQR	COL03	6.820	5.494	0.000	0.000
EQR	COL04	0.000	-5.494	0.000	20.141
EQR	SPAN3	-6.820	0.000	0.000	65.000
EQL	COL03	0.000	-6.635	0.000	24.322
EQL	COL04	-6.820	6.635	0.000	0.000
EQL	SPAN2	6.820	0.000	0.000	40.000

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L O A D C O M B I N A T I O N S  
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ASR Cases

- 1) 1.00 SW+RDL+COL+NLL
- 2) 1.00 SW+RDL+COL+NLR
- 3) 1.00 SW+RDL+COL+SL+SR+NLL
- 4) 1.00 SW+RDL+COL+SL+SR+NLR
- 5) 1.00 SW+RDL+COL+RLL+RLR+NLL
- 6) 1.00 SW+RDL+COL+RLL+RLR+NLR
- 7) 1.00 SW+RDL+0.60W1L
- 8) 1.00 SW+RDL+0.60W2L
- 9) 1.00 SW+RDL+0.60W1R
- 10) 1.00 SW+RDL+0.60W2R
- 11) 1.00 0.60SW+0.60RDL+0.60W1L
- 12) 1.00 0.60SW+0.60RDL+0.60W2L
- 13) 1.00 0.60SW+0.60RDL+0.60W1R
- 14) 1.00 0.60SW+0.60RDL+0.60W2R
- 15) 1.00 SW+RDL+COL+0.75SL+0.75SR+0.45W1L
- 16) 1.00 SW+RDL+COL+0.75SL+0.75SR+0.45W2L
- 17) 1.00 SW+RDL+COL+0.75SL+0.75SR+0.45W1R
- 18) 1.00 SW+RDL+COL+0.75SL+0.75SR+0.45W2R
- 19) 1.00 SW+RDL+COL+0.75RLL+0.75RLR+0.45W1L
- 20) 1.00 SW+RDL+COL+0.75RLL+0.75RLR+0.45W2L
- 21) 1.00 SW+RDL+COL+0.75RLL+0.75RLR+0.45W1R
- 22) 1.00 SW+RDL+COL+0.75RLL+0.75RLR+0.45W2R
- 23) 1.00 SW+RDL+0.60W5B
- 24) 1.00 SW+RDL+0.60W5F
- 25) 1.00 0.60SW+0.60RDL+0.60W5B
- 26) 1.00 0.60SW+0.60RDL+0.60W5F
- 27) 1.00 SW+RDL+COL+0.75SL+0.75SR+0.45W5B
- 28) 1.00 SW+RDL+COL+0.75SL+0.75SR+0.45W5F
- 29) 1.00 SW+RDL+COL+0.75RLL+0.75RLR+0.45W5B
- 30) 1.00 SW+RDL+COL+0.75RLL+0.75RLR+0.45W5F
- 31) 1.00 SW+RDL+COL+RL1+RL3+NLL
- 32) 1.00 SW+RDL+COL+RL1+RL3+NLR
- 33) 1.00 SW+RDL+COL+RL2+RL4+NLL
- 34) 1.00 SW+RDL+COL+RL2+RL4+NLR
- 35) 1.00 SW+RDL+COL+RL1+RL2+NLL
- 36) 1.00 SW+RDL+COL+RL1+RL2+NLR
- 37) 1.00 SW+RDL+COL+RL2+RL3+NLL
- 38) 1.00 SW+RDL+COL+RL2+RL3+NLR
- 39) 1.00 SW+RDL+COL+RL3+RL4+NLL
- 40) 1.00 SW+RDL+COL+RL3+RL4+NLR
- 41) 1.00 SW+RDL+COL+LRD+NLL
- 42) 1.00 SW+RDL+COL+LRD+NLR
- 43) 1.00 SW+RDL+COL+RRD+NLL
- 44) 1.00 SW+RDL+COL+RRD+NLR
- 45) 1.00 1.13SW+1.13RDL+1.13COL+0.91EQL
- 46) 1.00 1.13SW+1.13RDL+1.13COL+0.91EQR
- 47) 1.00 1.10SW+1.10RDL+1.10COL+0.15SL+0.15SR+0.68EQL
- 48) 1.00 1.10SW+1.10RDL+1.10COL+0.15SL+0.15SR+0.68EQR
- 49) 1.00 0.46SW+0.46RDL+0.66EQL
- 50) 1.00 0.46SW+0.46RDL+0.66EQR



\*\*\* DESIGN SUMMARY REPORT \*\*\*

Wide Flange Members

Shipping Length	Mat'l Code	ID	Fy	Load Comb	Loc	Axial Kips	Axial Ratio	Moment Ft-kip	Bend Ratio	Max Ratio	Load Comb	Loc	Shear Kips	Shear Ratio
RAF01	WF1214	W12x 14	50.0	42	6	-1.5	0.02	-29.6	0.70	0.78	42	6	8.82	0.21
RAF02	WF1226	W12x 26	50.0	41	12b	0.5	0.00	44.5	0.49	0.49	41	16	-8.32	0.25
RAF03	WF1226	W12x 26	50.0	43	20a	0.5	0.00	44.4	0.48	0.49	43	17	8.33	0.25
RAF04	WF1214	W12x 14	50.0	44	26	-1.5	0.02	-29.5	0.70	0.78	44	26	-8.81	0.21
COL01	WF818	W 8x 18	50.0	25	35a	0.8	0.01	3.6	0.09	0.11	24	39b	0.81	0.04
COL02	WF818	W 8x 18	50.0	25	43a	4.1	0.03	9.4	0.23	0.28	24	47b	1.64	0.07
COL03	WF818	W 8x 18	50.0	23	55a	2.3	0.01	16.9	0.46	0.49	24	57b	3.20	0.14
COL04	WF818	W 8x 18	50.0	25	61a	4.1	0.03	9.4	0.23	0.28	24	65b	1.64	0.07
COL05	WF818	W 8x 18	50.0	25	70a	0.8	0.01	3.6	0.09	0.11	24	74b	0.81	0.04

Frame Weight (lbs) = 3390

Deflections (in):

10 yr Wind dx = 0.00 = H/ 374 WIND CASE 1 TO RIGHT  
 Seismic dx = 0.01 = H/ 9999 SEISMIC TO RIGHT  
 Story Drift = 0.04 = 0.000H SEISMIC TO RIGHT  
 Drift Index = 0.00 1.10SW+1.10RDL+1.10COL+0.15SL+0.15SR+0.68EQR  
 Maximum dx = 0.01 = H/ 9999 1.13SW+1.13RDL+1.13COL+0.91EQR  
 Maximum dy = -0.80 = L/ 376 @ MOD 3, SW+RDL+COL+RRD  
 Max. Live dy = -0.64 = L/ 471 @ MOD 3, LIVE ON LEFT AND RIGHT  
 E/W col dx = 1.09 = L/ 268 @ COL03, SW+RDL+COL+0.75SL+0.75SR+0.45W5B



F8.38 4-0.750 FWS3 FWS3 FWS3 0.59 0.05 0.06 0.09 0.10 0.06 F1554 Gr.36

| width thick length Fy |

Base Plate | 8.00 0.375 8.14 55.0 |

Base Plate - COL05

Base Plate Matl	Bolt Qty/Size	T/L Flange Weld	B/R Flange Weld	Web Weld	tp(req)/tp Ratio	Axial Check	WELD Web Shear & Uplift	Flg Shear & Uplift	ft/Ft Ratio	BOLT fv/Fv Ratio	ASTM Design
F8.38	4-0.750	FWS3	FWS3	FWS3	0.26	0.01	0.02	0.02	0.02	0.02	F1554 Gr.36

| width thick length Fy |

Base Plate | 8.00 0.375 8.14 55.0 |

Splice Load Combinations:

- | No. | ASR  | Cases  |
|-----|------|--|
| 1   | 1.00 | SW + RDL + COL   |
| 2   | 1.00 | SW + RDL + COL + SL + SR                               |
| 3   | 1.00 | SW + RDL + COL + RLL + RLR                             |
| 4   | 1.00 | SW + RDL + 0.60W1L                                     |
| 5   | 1.00 | SW + RDL + 0.60W2L                                     |
| 6   | 1.00 | SW + RDL + 0.60W1R                                     |
| 7   | 1.00 | SW + RDL + 0.60W2R                                     |
| 8   | 1.00 | 0.60SW + 0.60RDL + 0.60W1L                             |
| 9   | 1.00 | 0.60SW + 0.60RDL + 0.60W2L                             |
| 10  | 1.00 | 0.60SW + 0.60RDL + 0.60W1R                             |
| 11  | 1.00 | 0.60SW + 0.60RDL + 0.60W2R                             |
| 12  | 1.00 | SW + RDL + COL + 0.75SL + 0.75SR + 0.45W1L             |
| 13  | 1.00 | SW + RDL + COL + 0.75SL + 0.75SR + 0.45W2L             |
| 14  | 1.00 | SW + RDL + COL + 0.75SL + 0.75SR + 0.45W1R             |
| 15  | 1.00 | SW + RDL + COL + 0.75SL + 0.75SR + 0.45W2R             |
| 16  | 1.00 | SW + RDL + COL + 0.75RLL + 0.75RLR + 0.45W1L           |
| 17  | 1.00 | SW + RDL + COL + 0.75RLL + 0.75RLR + 0.45W2L           |
| 18  | 1.00 | SW + RDL + COL + 0.75RLL + 0.75RLR + 0.45W1R           |
| 19  | 1.00 | SW + RDL + COL + 0.75RLL + 0.75RLR + 0.45W2R           |
| 20  | 1.00 | SW + RDL + 0.60W5B                                     |
| 21  | 1.00 | SW + RDL + 0.60W5F                                     |
| 22  | 1.00 | 0.60SW + 0.60RDL + 0.60W5B                             |
| 23  | 1.00 | 0.60SW + 0.60RDL + 0.60W5F                             |
| 24  | 1.00 | SW + RDL + COL + 0.75SL + 0.75SR + 0.45W5B             |
| 25  | 1.00 | SW + RDL + COL + 0.75SL + 0.75SR + 0.45W5F             |
| 26  | 1.00 | SW + RDL + COL + 0.75RLL + 0.75RLR + 0.45W5B           |
| 27  | 1.00 | SW + RDL + COL + 0.75RLL + 0.75RLR + 0.45W5F           |
| 28  | 1.00 | SW + RDL + COL + RL1 + RL3                             |
| 29  | 1.00 | SW + RDL + COL + RL2 + RL4                             |
| 30  | 1.00 | SW + RDL + COL + RL1 + RL2                             |
| 31  | 1.00 | SW + RDL + COL + RL2 + RL3                             |
| 32  | 1.00 | SW + RDL + COL + RL3 + RL4                             |
| 33  | 1.00 | SW + RDL + COL + LRD                                   |
| 34  | 1.00 | SW + RDL + COL + RRD                                   |
| 35  | 1.00 | 1.13SW + 1.13RDL + 1.13COL + 0.91EQL                   |
| 36  | 1.00 | 1.13SW + 1.13RDL + 1.13COL + 0.91EQR                   |
| 37  | 1.00 | 1.10SW + 1.10RDL + 1.10COL + 0.15SL + 0.15SR + 0.68EQL |
| 38  | 1.00 | 1.10SW + 1.10RDL + 1.10COL + 0.15SL + 0.15SR + 0.68EQR |
| 39  | 1.00 | 0.46SW + 0.46RDL + 0.66EQL                             |
| 40  | 1.00 | 0.46SW + 0.46RDL + 0.66EQR                             |

Job # : U18G0576A  
 File : E01.nfr  
 App Version : 2018.3.26.8

Job Name : KIMBERLY CLARK - OPT C  
 Designer : BG\louis.lo  
 Date : 6/13/2018

Frame : FRAME LINE 1 & 11

**BOLTED END-PLATES (BEP) SUMMARY**

**PLATE SIZE: (in)**

Splice ID	Left Type	Right Type	Members Joined	Web Loc	Web Depth	Left Plate				Right Plate			
						Width	Thick	Length	Fy(ksi)	Width	Thick	Length	Fy(ksi)
1	2F	2F	RAF01 To RAF02	Top	11.46	6.00	0.50	13.22	55.0	8.00	0.38	13.22	55.0
1	2F	2F	RAF01 To RAF02	Bot	11.46	6.00	0.50	13.22	55.0	8.00	0.38	13.22	55.0
2	2F	2F	RAF03 To RAF04	Top	11.46	8.00	0.38	13.22	55.0	6.00	0.50	13.22	55.0
2	2F	2F	RAF03 To RAF04	Bot	11.46	8.00	0.38	13.22	55.0	6.00	0.50	13.22	55.0

**PLATE DESIGN**

Splice ID	Left Type	Right Type	Tension Location	Load Comb	Max Moment			Max Shear				Left Plate Ratio	Right Plate Ratio
					Axial (kip)	Shear (kip)	Moment (ft-kip)	Load Comb	Axial (kip)	Shear (kip)	Moment (ft-kip)		
1	2F	2F	Top	22	1.00	-1.50	-4.37	33	-1.07	6.22	18.32	0.16	0.22
1	2F	2F	Bot	33	-1.07	6.22	18.32	22	1.00	-1.50	-4.37	0.60	0.80
2	2F	2F	Top	23	1.00	1.50	-4.37	34	-1.08	-6.21	18.28	0.22	0.16
2	2F	2F	Bot	34	-1.08	-6.21	18.28	22	1.00	1.50	-4.37	0.80	0.60

**BOLT RUPTURE DESIGN**

Splice ID	Left Type	Right Type	Bolt Loc	Pre-Tension	Dia	Gage	Gage 2	Pfi	Pfo	Pf	Pb	de	Load Comb	Axial (kip)	Moment (ft-kip)	Left Bolt Ratio	Right Bolt Ratio
1	2F	2F	Bot	A325	Yes	0.63	3.50	--	1.19	--	--	--	33	-1.07	18.32	0.74	0.74
2	2F	2F	Top	A325	Yes	0.63	3.50	--	1.19	--	--	--	23	1.00	-4.37	0.20	0.20
2	2F	2F	Bot	A325	Yes	0.63	3.50	--	1.19	--	--	--	34	-1.08	18.28	0.74	0.74

**COMBINED BOLT BEARING SHEAR DESIGN**

Splice ID	Left Type	Right Type	Bolt Loc	Pre-Tension	Dia	Gage	Gage 2	Pfi	Pfo	Pf	Pb	de	Load Comb	Shear (kip)	Left Bolt Ratio	Right Bolt Ratio
1	2F	2F	Bot	A325	Yes	0.63	3.50	--	1.19	--	--	--	22	-1.50	0.09	0.09
2	2F	2F	Top	A325	Yes	0.63	3.50	--	1.19	--	--	--	34	-6.21	0.37	0.37
2	2F	2F	Bot	A325	Yes	0.63	3.50	--	1.19	--	--	--	22	1.50	0.09	0.09

**WELD DESIGN**

Splice ID	Loc	Left						Right							
		Welds			Checks			Welds			Checks				
		Flg	Web	Stf	Load Comb	Tensile Rupture	Load Comb	Shear Rupture	Flg	Web	Stf	Load Comb	Tensile Rupture	Load Comb	Shear Rupture
1	Top	FWD3	WP13		22	0.11	33	0.28	FWD3	WP13		22	0.07	33	0.24
1	Bot	FWD3	WP13		33	0.42	22	0.07	FWD3	WP13		33	0.24	22	0.06
2	Top	FWD3	WP13		23	0.07	34	0.24	FWD3	WP13		23	0.11	34	0.28
2	Bot	FWD3	WP13		34	0.24	22	0.06	FWD3	WP13		34	0.42	22	0.07

**LOAD COMBINATIONS:**

No	ASR	Combination
1	1.00	SW+RDL+COL

\*Indicates a Special Seismic Load Combination

## LOAD COMBINATIONS:

U18G0576A

LL

A29 of 64

No	ASR	Combination
2	1.00	SW+RDL+COL+SL+SR
3	1.00	SW+RDL+COL+RLL+RLR
4	1.00	SW+RDL+0.60W1L
5	1.00	SW+RDL+0.60W2L
6	1.00	SW+RDL+0.60W1R
7	1.00	SW+RDL+0.60W2R
8	1.00	0.60SW+0.60RDL+0.60W1L
9	1.00	0.60SW+0.60RDL+0.60W2L
10	1.00	0.60SW+0.60RDL+0.60W1R
11	1.00	0.60SW+0.60RDL+0.60W2R
12	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W1L
13	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W2L
14	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W1R
15	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W2R
16	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W1L
17	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W2L
18	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W1R
19	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W2R
20	1.00	SW+RDL+0.60W5B
21	1.00	SW+RDL+0.60W5F
22	1.00	0.60SW+0.60RDL+0.60W5B
23	1.00	0.60SW+0.60RDL+0.60W5F
24	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W5B
25	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W5F
26	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W5B
27	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W5F
28	1.00	SW+RDL+COL+RL1+RL3
29	1.00	SW+RDL+COL+RL2+RL4
30	1.00	SW+RDL+COL+RL1+RL2
31	1.00	SW+RDL+COL+RL2+RL3
32	1.00	SW+RDL+COL+RL3+RL4
33	1.00	SW+RDL+COL+LRD
34	1.00	SW+RDL+COL+RRD
35	1.00	1.13SW+1.13RDL+1.13COL+0.91EQL
36	1.00	1.13SW+1.13RDL+1.13COL+0.91EQR
37	1.00	1.10SW+1.10RDL+1.10COL+0.15SL+0.15SR+0.68EQL
38	1.00	1.10SW+1.10RDL+1.10COL+0.15SL+0.15SR+0.68EQR
39	1.00	0.46SW+0.46RDL+0.66EQL
40	1.00	0.46SW+0.46RDL+0.66EQR

\*Indicates a Special Seismic Load Combination

NUCOR BUILDINGS GROUP

Job # : U18G0576A  
 Job Name : KIMBERLY CLARK - OPT C  
 Frame : FRAME LINE 2 - 10  
 Date : 6/14/2018  
 Designer : BG\louis.lo  
 File : F01.nfr  
 App Version : 2018.3.26.8

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 F R A M E D E S C R I P T I O N  
 -----

Frame type : RCG  
 Frame width : 80.00 Ft.  
 Bay width : 25.00 Ft.

	LEFT	RIGHT		
Dim to ridge :	40.00 Ft.	40.00 Ft.		
Roof slope :	2.00/12	-2.00/12		
Eave height :	19.50 Ft.	19.50 Ft.		
Girt offset :	8.00 In.	8.00 In.	Typ. Girt spacing :	7.50 Ft.
Purlin offset :	10.00 In.	10.00 In.	Typ. Purlin spacing:	5.00 Ft.

Col. spacing : 80.0000

Supports / Spring Constants

COL01 - Bottom V H  
 COL02 - Bottom V H

Column Bracing:

WP1	Girt Brace	:	Y	Y
	Flange Brace	:	1	2
	Location (ft):	:	7.5	15.0
WP2	Girt Brace	:	Y	Y
	Flange Brace	:	1	2
	Location (ft):	:	7.5	15.0

Other Braces:

Column :  
 Left Brace :  
 Right Brace :  
 Location (ft):

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 L O A D I N G C O N D I T I O N S  
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Building Code & Year : IBC2015  
 Risk Category : II-Standard Buildings  
 AISC Specification : 2010 ASD

L O A D S (Psf)

Roof Dead load : 4.50  
 Roof Coll load : 5.00  
 Roof Live load : 12.00  
 Roof Snow load : 30.10  
 Floor dead load : 0.00  
 Floor live load : 0.00  
 Ground Snow load: 43.00 Ce = 1.00  
 Ss = 1.433 S1 = 0.596 Seismic Design Category = D Site Class = D  
 R = 3.50 Cd = 3.00 Sds = 0.955 Sd1 = 0.596 rho = 1.30 omega = 3.000

Wind speed : 115.00 Mph Exp. : B  
 Wind pressure : 20.16 Psf

Building is Enclosed

Wind pressure coefficients

	C1	C2E	C2	C3	C3E	C4
W1R	0.619	0.000	-0.510	-0.223	0.000	-0.152
W1L	-0.152	0.000	-0.223	-0.510	0.000	0.619
W2R	0.259	0.000	-0.870	-0.583	0.000	-0.512
W2L	-0.512	0.000	-0.583	-0.870	0.000	0.259
W5B	-0.270	0.000	-0.510	-0.190	0.000	-0.270
W5F	-0.270	0.000	-0.190	-0.510	0.000	-0.270
W6B	-0.630	0.000	-0.870	-0.550	0.000	-0.630
W6F	-0.630	0.000	-0.550	-0.870	0.000	-0.630

Tributary Widths

Panel Trib. Width (ft)

WP1 25.00  
 WP2 25.00  
 RP1 25.00  
 RP2 25.00

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 P R O G R A M - A P P L I E D L O A D S  
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Load On	Start	End	Start	End
Case Panel	Load	Load	Loc	Loc
	Klf	Klf	Ft.	Ft.

RDL	RP1	-0.112	-0.112	0.000	40.000
RDL	RP2	-0.112	-0.112	40.000	80.000
COL	RP1	-0.125	-0.125	0.000	40.000
COL	RP2	-0.125	-0.125	40.000	80.000
SL	RP1	-0.752	-0.752	0.000	40.000
SR	RP2	-0.752	-0.752	40.000	80.000
RLL	RP1	-0.300	-0.300	0.000	40.000
RLR	RP2	-0.300	-0.300	40.000	80.000
W1R	RP1	-0.257	-0.257	0.000	40.000
W1R	RP2	-0.112	-0.112	40.000	80.000
W1R	WP1	0.312	0.312	0.000	19.500
W1R	WP2	0.076	0.076	0.000	19.500
W1L	RP1	-0.112	-0.112	0.000	40.000
W1L	RP2	-0.257	-0.257	40.000	80.000
W1L	WP1	-0.076	-0.076	0.000	19.500
W1L	WP2	-0.312	-0.312	0.000	19.500
W2R	RP1	-0.439	-0.439	0.000	40.000
W2R	RP2	-0.294	-0.294	40.000	80.000
W2R	WP1	0.130	0.130	0.000	19.500
W2R	WP2	0.258	0.258	0.000	19.500
W2L	RP1	-0.294	-0.294	0.000	40.000
W2L	RP2	-0.439	-0.439	40.000	80.000
W2L	WP1	-0.258	-0.258	0.000	19.500
W2L	WP2	-0.130	-0.130	0.000	19.500
W5B	RP1	-0.257	-0.257	0.000	40.000
W5B	RP2	-0.096	-0.096	40.000	80.000
W5B	WP1	-0.136	-0.136	0.000	19.500
W5B	WP2	0.136	0.136	0.000	19.500
W5F	RP1	-0.096	-0.096	0.000	40.000
W5F	RP2	-0.257	-0.257	40.000	80.000
W5F	WP1	-0.136	-0.136	0.000	19.500
W5F	WP2	0.136	0.136	0.000	19.500
W6B	RP1	-0.439	-0.439	0.000	40.000
W6B	RP2	-0.277	-0.277	40.000	80.000
W6B	WP1	-0.318	-0.318	0.000	19.500
W6B	WP2	0.318	0.318	0.000	19.500
W6F	RP1	-0.277	-0.277	0.000	40.000
W6F	RP2	-0.439	-0.439	40.000	80.000
W6F	WP1	-0.318	-0.318	0.000	19.500
W6F	WP2	0.318	0.318	0.000	19.500
EQR	RP1	0.130	0.130	0.000	40.000
EQR	RP2	0.130	0.130	40.000	80.000
EQL	RP1	-0.130	-0.130	0.000	40.000
EQL	RP2	-0.130	-0.130	40.000	80.000
LRD	RP1	-0.752	-0.752	0.000	40.000
LRD	RP1	-0.493	-0.493	23.880	40.000
LRD	RP2	-0.226	-0.226	40.000	80.000
RRD	RP1	-0.226	-0.226	0.000	40.000
RRD	RP2	-0.752	-0.752	40.000	80.000
RRD	RP2	-0.493	-0.493	40.000	56.120

Load Case	On Mem	Hor. Kips	Vert. Kips	Moment K-Ft.	Loc Ft.
W1R	COL01	1.264	0.000	0.000	19.500
W1R	COL02	1.264	0.000	0.000	19.500
W1L	COL01	-1.264	0.000	0.000	19.500
W1L	COL02	-1.264	0.000	0.000	19.500
W2R	COL01	1.264	0.000	0.000	19.500
W2R	COL02	1.264	0.000	0.000	19.500
W2L	COL01	-1.264	0.000	0.000	19.500
W2L	COL02	-1.264	0.000	0.000	19.500

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 L O A D C O M B I N A T I O N S  
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ASR Cases

- 1) 1.00 SW+RDL+COL+NLL
- 2) 1.00 SW+RDL+COL+NLR
- 3) 1.00 SW+RDL+COL+SL+SR+NLL
- 4) 1.00 SW+RDL+COL+SL+SR+NLR
- 5) 1.00 SW+RDL+COL+RLL+RLR+NLL
- 6) 1.00 SW+RDL+COL+RLL+RLR+NLR
- 7) 1.00 SW+RDL+0.60W1L
- 8) 1.00 SW+RDL+0.60W2L
- 9) 1.00 SW+RDL+0.60W1R
- 10) 1.00 SW+RDL+0.60W2R
- 11) 1.00 0.60SW+0.60RDL+0.60W1L
- 12) 1.00 0.60SW+0.60RDL+0.60W2L
- 13) 1.00 0.60SW+0.60RDL+0.60W1R
- 14) 1.00 0.60SW+0.60RDL+0.60W2R
- 15) 1.00 SW+RDL+COL+0.75SL+0.75SR+0.45W1L
- 16) 1.00 SW+RDL+COL+0.75SL+0.75SR+0.45W2L
- 17) 1.00 SW+RDL+COL+0.75SL+0.75SR+0.45W1R
- 18) 1.00 SW+RDL+COL+0.75SL+0.75SR+0.45W2R
- 19) 1.00 SW+RDL+COL+0.75RLL+0.75RLR+0.45W1L
- 20) 1.00 SW+RDL+COL+0.75RLL+0.75RLR+0.45W2L
- 21) 1.00 SW+RDL+COL+0.75RLL+0.75RLR+0.45W1R
- 22) 1.00 SW+RDL+COL+0.75RLL+0.75RLR+0.45W2R
- 23) 1.00 SW+RDL+0.60W5B
- 24) 1.00 SW+RDL+0.60W6B
- 25) 1.00 SW+RDL+0.60W5F
- 26) 1.00 SW+RDL+0.60W6F
- 27) 1.00 0.60SW+0.60RDL+0.60W5B
- 28) 1.00 0.60SW+0.60RDL+0.60W6B
- 29) 1.00 0.60SW+0.60RDL+0.60W5F
- 30) 1.00 0.60SW+0.60RDL+0.60W6F
- 31) 1.00 SW+RDL+COL+0.75SL+0.75SR+0.45W5B
- 32) 1.00 SW+RDL+COL+0.75SL+0.75SR+0.45W6B
- 33) 1.00 SW+RDL+COL+0.75SL+0.75SR+0.45W5F
- 34) 1.00 SW+RDL+COL+0.75SL+0.75SR+0.45W6F
- 35) 1.00 SW+RDL+COL+0.75RLL+0.75RLR+0.45W5B
- 36) 1.00 SW+RDL+COL+0.75RLL+0.75RLR+0.45W6B

37) 1.00 SW+RDL+COL+0.75RLL+0.75RLR+0.45W5F  
38) 1.00 SW+RDL+COL+0.75RLL+0.75RLR+0.45W6F  
39) 1.00 SW+RDL+COL+LRD+NLL  
40) 1.00 SW+RDL+COL+LRD+NLR  
41) 1.00 SW+RDL+COL+RRD+NLL  
42) 1.00 SW+RDL+COL+RRD+NLR  
43) 1.00 1.13SW+1.13RDL+1.13COL+0.91EQL  
44) 1.00 1.13SW+1.13RDL+1.13COL+0.91EQR  
45) 1.00 1.10SW+1.10RDL+1.10COL+0.15SL+0.15SR+0.68EQL  
46) 1.00 1.10SW+1.10RDL+1.10COL+0.15SL+0.15SR+0.68EQR  
47) 1.00 0.46SW+0.46RDL+0.62EQL  
48) 1.00 0.46SW+0.46RDL+0.62EQR



\*\*\* DESIGN SUMMARY REPORT \*\*\*

Built Up Rafter - RAF01

Section	T/L Mat'l	B/R Flange Mat'l	Flange Mat'l	Web Mat'l	Load Comb	Loc	Axial Kips	Axial Ratio	Moment Ft-kip	T/L Bend Ratio	B/R Bend Ratio	Max Unity Check	Load		SHEAR		Flow (k/in)	
													Comb	Loc	Force Kips	Shear Ratio	T/L	B/R
1	F6.25	F6.50		W220	3	1	-33.5	0.18	-358.3	1.13	0.92	1.01	39	3a	24.11	0.81	0.45	0.68
2	F6.38	F6.25		W188	40	9	-24.7	0.19	181.3	0.87	1.00	0.97	40	12	-11.83	0.71	0.59	0.48

Chkpt 1 5 6 12  
 Depth 37.54 22.19 32.25  
 Section | 1 | 2 |

	width	thick	Fy	width	thick	Fy
T/L Flg	6.0	0.2500	55.00	6.0	0.3750	55.00
Web		0.2200	55.00		0.1875	55.00
B/R Flg	6.0	0.5000	55.00	6.0	0.2500	55.00

Built Up Rafter - RAF02

Section	T/L Mat'l	B/R Flange Mat'l	Flange Mat'l	Web Mat'l	Load Comb	Loc	Axial Kips	Axial Ratio	Moment Ft-kip	T/L Bend Ratio	B/R Bend Ratio	Max Unity Check	Load		SHEAR		Flow (k/in)	
													Comb	Loc	Force Kips	Shear Ratio	T/L	B/R
1	F6.38	F6.25		W188	41	16	-24.7	0.19	181.1	0.87	1.00	0.97	41	13	11.81	0.71	0.59	0.48
2	F6.25	F6.50		W220	4	24	-33.5	0.18	-358.2	1.13	0.92	1.01	42	22b	-24.11	0.81	0.45	0.68

Chkpt 13 19 20 24  
 Depth 32.25 22.19 37.54  
 Section | 1 | 2 |

	width	thick	Fy	width	thick	Fy
T/L Flg	6.0	0.3750	55.00	6.0	0.2500	55.00
Web		0.1875	55.00		0.2200	55.00
B/R Flg	6.0	0.2500	55.00	6.0	0.5000	55.00

Built Up Column - COL01

Section	T/L Mat'l	B/R Flange Mat'l	Flange Mat'l	Web Mat'l	Load Comb	Loc	Axial Kips	Axial Ratio	Moment Ft-kip	T/L Bend Ratio	B/R Bend Ratio	Max Unity Check	Load		SHEAR		Flow (k/in)	
													Comb	Loc	Force Kips	Shear Ratio	T/L	B/R
1	F8.31	F8.38		W250	3	30	-43.2	0.20	-354.0	0.74	0.80	0.91	3	31	-23.35	0.80	1.55	1.66

Chkpt 25 31  
 Depth 12.69 43.69  
 Section | 1 |

	width	thick	Fy
T/L Flg	8.0	0.3125	55.00
Web		0.2500	55.00
B/R Flg	8.0	0.3750	55.00

Built Up Column - COL02

Section	T/L Mat'l	B/R Flange Mat'l	Flange Mat'l	Web Mat'l	Load Comb	Loc	Axial Kips	Axial Ratio	Moment Ft-kip	T/L Bend Ratio	B/R Bend Ratio	Max Unity Check	Load		SHEAR		Flow (k/in)	
													Comb	Loc	Force Kips	Shear Ratio	T/L	B/R
1	F8.38	F8.31		W250	4	37	-43.2	0.20	354.0	0.80	0.74	0.91	4	38	23.35	0.80	1.66	1.55

Chkpt 32 38  
 Depth 12.69 43.69  
 Section | 1 |

	width	thick	Fy
T/L Flg	8.0	0.3750	55.00
Web		0.2500	55.00
B/R Flg	8.0	0.3125	55.00

Frame Weight (lbs) = 3778

Deflections (in):

10 yr Wind dx = -0.27 = H/ 724 WIND CASE 2 TO LEFT  
 Seismic dx = 1.09 = H/ 178 SEISMIC TO RIGHT  
 Story Drift = 3.26 = 0.017H SEISMIC TO RIGHT  
 Drift Index = 0.02 1.10SW+1.10RDL+1.10COL+0.15SL+0.15SR+0.68EQL  
 Maximum dx = 1.31 = H/ 148 SW+RDL+COL+LRD  
 Maximum dy = -3.04 = L/ 295 @ MOD 1, SW+RDL+COL+LRD  
 Max. Live dy = -2.35 = L/ 383 @ MOD 1, LIVE ON LEFT AND RIGHT

NUCOR BUILDINGS GROUP

Job # : U18G0576A  
 Job Name : KIMBERLY CLARK - OPT C  
 Frame : FRAME LINE 2 - 10  
 Date : 6/14/2018  
 Designer : BG\louis.lo  
 File : F01.nfr  
 App Version : 2018.3.26.8

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 C O N N E C T I O N S U M M A R Y  
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Knee Connection - COL01

Roof Slope	Web Matl	Web fv/Fv Ratio	Weld W1	Weld W2	Weld W3	Areq/A Ratio	req/(W1+W2) Ratio	W3req/W3 Ratio	Weld W4	Areq/A Ratio	W4req/W4 Ratio	Stiff. Matl	No. Stiff.	Theta Degrees	Axial Ratio
2.00:12	W313	0.87	FWS3		FWS3	0.50	0.00	0.84	FWS3	0.72	0.54		0		
			width	thick	Fy	height	depth	length		width	thick	length	Fy		
Top Plate		8.0	0.3750	55.0			43.59	Stiffener							
Web			0.3125	55.0	30.34	43.00									
Bot Plate		4.0	0.3750	50.0			43.00								

Knee Connection - COL02

Roof Slope	Web Matl	Web fv/Fv Ratio	Weld W1	Weld W2	Weld W3	Areq/A Ratio	req/(W1+W2) Ratio	W3req/W3 Ratio	Weld W4	Areq/A Ratio	W4req/W4 Ratio	Stiff. Matl	No. Stiff.	Theta Degrees	Axial Ratio
-2.00:12	W313	0.87	FWS3		FWS3	0.50	0.00	0.84	FWS3	0.72	0.54		0		
			width	thick	Fy	height	depth	length		width	thick	length	Fy		
Top Plate		8.0	0.3750	55.0			43.59	Stiffener							
Web			0.3125	55.0	30.34	43.00									
Bot Plate		4.0	0.3750	50.0			43.00								

Base Plate - COL01

Base Plate Matl	Bolt Qty/Size	T/L Flange Weld	B/R Flange Weld	Web Weld	tp(req)/tp Ratio	Axial Check	Web Shear & Uplift	WELD Shear & Uplift	Flg Shear & Uplift	ft/Ft Ratio	BOLT fv/Fv Ratio	ASTM Design
F8.50	4-1.000	FWS3	FWS3	FWS3	0.48	0.05	0.14	0.11	0.10	0.65	F1554	Gr.36
		width	thick	length	Fy							
Base Plate		8.00	0.500	12.69	55.0							

Base Plate - COL02

Base Plate Matl	Bolt Qty/Size	T/L Flange Weld	B/R Flange Weld	Web Weld	tp(req)/tp Ratio	Axial Check	Web Shear & Uplift	WELD Shear & Uplift	Flg Shear & Uplift	ft/Ft Ratio	BOLT fv/Fv Ratio	ASTM Design
F8.50	4-1.000	FWS3	FWS3	FWS3	0.48	0.05	0.14	0.11	0.10	0.65	F1554	Gr.36
		width	thick	length	Fy							
Base Plate		8.00	0.500	12.69	55.0							

Splice Load Combinations:

No.	ASR	Cases
1	1.00	SW + RDL + COL
2	1.00	SW + RDL + COL + SL + SR
3	1.00	SW + RDL + COL + RLL + RLR
4	1.00	SW + RDL + 0.60W1L
5	1.00	SW + RDL + 0.60W2L
6	1.00	SW + RDL + 0.60W1R
7	1.00	SW + RDL + 0.60W2R
8	1.00	0.60SW + 0.60RDL + 0.60W1L
9	1.00	0.60SW + 0.60RDL + 0.60W2L
10	1.00	0.60SW + 0.60RDL + 0.60W1R
11	1.00	0.60SW + 0.60RDL + 0.60W2R
12	1.00	SW + RDL + COL + 0.75SL + 0.75SR + 0.45W1L
13	1.00	SW + RDL + COL + 0.75SL + 0.75SR + 0.45W2L
14	1.00	SW + RDL + COL + 0.75SL + 0.75SR + 0.45W1R
15	1.00	SW + RDL + COL + 0.75SL + 0.75SR + 0.45W2R
16	1.00	SW + RDL + COL + 0.75RLL + 0.75RLR + 0.45W1L
17	1.00	SW + RDL + COL + 0.75RLL + 0.75RLR + 0.45W2L
18	1.00	SW + RDL + COL + 0.75RLL + 0.75RLR + 0.45W1R
19	1.00	SW + RDL + COL + 0.75RLL + 0.75RLR + 0.45W2R
20	1.00	SW + RDL + 0.60W5B
21	1.00	SW + RDL + 0.60W6B
22	1.00	SW + RDL + 0.60W5F
23	1.00	SW + RDL + 0.60W6F
24	1.00	0.60SW + 0.60RDL + 0.60W5B
25	1.00	0.60SW + 0.60RDL + 0.60W6B
26	1.00	0.60SW + 0.60RDL + 0.60W5F
27	1.00	0.60SW + 0.60RDL + 0.60W6F
28	1.00	SW + RDL + COL + 0.75SL + 0.75SR + 0.45W5B
29	1.00	SW + RDL + COL + 0.75SL + 0.75SR + 0.45W6B
30	1.00	SW + RDL + COL + 0.75SL + 0.75SR + 0.45W5F
31	1.00	SW + RDL + COL + 0.75SL + 0.75SR + 0.45W6F

32 1.00 SW + RDL + COL + 0.75RLL + 0.75RLR + 0.45W5B  
33 1.00 SW + RDL + COL + 0.75RLL + 0.75RLR + 0.45W6B  
34 1.00 SW + RDL + COL + 0.75RLL + 0.75RLR + 0.45W5F  
35 1.00 SW + RDL + COL + 0.75RLL + 0.75RLR + 0.45W6F  
36 1.00 SW + RDL + COL + LRD  
37 1.00 SW + RDL + COL + RRD  
38 1.00 1.13SW + 1.13RDL + 1.13COL + 0.91EQL  
39 1.00 1.13SW + 1.13RDL + 1.13COL + 0.91EQR  
40 1.00 1.10SW + 1.10RDL + 1.10COL + 0.15SL + 0.15SR + 0.68EQL  
41 1.00 1.10SW + 1.10RDL + 1.10COL + 0.15SL + 0.15SR + 0.68EQR  
42 1.00 0.46SW + 0.46RDL + 0.62EQL  
43 1.00 0.46SW + 0.46RDL + 0.62EQR  
44 1.20 Special Seismic  
45 1.20 Special Seismic  
46 1.20 Special Seismic  
47 1.20 Special Seismic  
48 1.20 Special Seismic  
49 1.20 Special Seismic  
50 1.20 Special Seismic  
51 1.20 Special Seismic

**NUCOR BUILDINGS GROUP**

LL

A36 of 64

Job # : U18G0576A  
 File : F01.nfr  
 App Version : 2018.3.26.8

Job Name : KIMBERLY CLARK - OPT C  
 Designer : BG\louis.lo  
 Date : 6/14/2018

Frame : FRAME LINE 2 - 10

**BOLTED END-PLATES (BEP) SUMMARY**

**PLATE SIZE: (in)**

Splice ID	Left Type	Right Type	Members Joined	Web Loc	Web Depth	Left Plate				Right Plate			
						Width	Thick	Length	Fy(ksi)	Width	Thick	Length	Fy(ksi)
1	8E	8E	COL01 To RAF01	Top	37.00	8.00	0.63	43.89	55.0	6.00	0.63	43.89	55.0
1	8E	8E	COL01 To RAF01	Bot	37.00	8.00	0.63	43.89	55.0	6.00	0.63	43.89	55.0
2	6E	6E	RAF01 To RAF02	Top	31.50	6.00	0.50	38.18	55.0	6.00	0.50	38.18	55.0
2	6E	6E	RAF01 To RAF02	Bot	31.50	6.00	0.50	38.18	55.0	6.00	0.50	38.18	55.0
3	8E	8E	RAF02 To COL02	Top	37.00	6.00	0.63	43.89	55.0	8.00	0.63	43.89	55.0
3	8E	8E	RAF02 To COL02	Bot	37.00	6.00	0.63	43.89	55.0	8.00	0.63	43.89	55.0

**PLATE DESIGN**

Splice ID	Left Type	Right Type	Tension Location	Load Comb	Max Moment			Max Shear				Left Plate Ratio	Right Plate Ratio
					Axial (kip)	Shear (kip)	Moment (ft-kip)	Load Comb	Axial (kip)	Shear (kip)	Moment (ft-kip)		
1	8E	8E	Top	2	-26.69	35.36	-358.28	11	3.60	-5.91	68.91	0.72	0.85
1	8E	8E	Bot	-51	4.72	-1.65	97.11	2	-26.69	35.36	-358.28	0.20	0.23
2	6E	6E	Top	9	5.10	-0.05	-13.69	36	-23.67	-8.32	133.32	0.11	0.11
2	6E	6E	Bot	37	-23.65	8.31	133.39	25	6.32	1.10	-8.90	0.56	0.56
3	8E	8E	Top	2	-26.71	-35.39	-358.19	9	3.60	5.91	68.87	0.85	0.72
3	8E	8E	Bot	-47	4.69	1.65	97.14	2	-26.71	-35.39	-358.19	0.23	0.20

**BOLT RUPTURE DESIGN**

Splice ID	Left Type	Right Type	Bolt Loc	Pre-Tension	Dia	Gage	Gage 2	Pfi	Pfo	Pf	Pb	de	Load Comb	Axial (kip)	Moment (ft-kip)	Left Bolt Ratio	Right Bolt Ratio	
																		1
1	8E	8E	Bot	A325	Yes	0.75	3.50	--	1.69	1.56	3.63	2.25	1.25	-51	4.72	97.11	0.19	0.19
2	6E	6E	Top	A325	Yes	0.75	3.50	--	1.63	1.58	3.50	2.25	1.25	9	5.10	-13.69	0.07	0.07
2	6E	6E	Bot	A325	Yes	0.75	3.50	--	1.63	1.56	3.50	2.25	1.25	37	-23.65	133.39	0.33	0.33
3	8E	8E	Top	A325	Yes	0.75	3.50	--	1.69	1.58	3.63	2.25	1.25	2	-26.71	-358.19	0.68	0.67
3	8E	8E	Bot	A325	Yes	0.75	3.50	--	1.69	1.58	3.63	2.25	1.25	-47	4.69	97.14	0.19	0.19

**COMBINED BOLT BEARING SHEAR DESIGN**

Splice ID	Left Type	Right Type	Bolt Loc	Pre-Tension	Dia	Gage	Gage 2	Pfi	Pfo	Pf	Pb	de	Load Comb	Shear (kip)	Left Bolt Ratio	Right Bolt Ratio	
																	1
1	8E	8E	Bot	A325	Yes	0.75	3.50	--	1.69	1.56	3.63	2.25	1.25	2	35.36	0.37	0.37
2	6E	6E	Top	A325	Yes	0.75	3.50	--	1.63	1.58	3.50	2.25	1.25	36	-8.32	0.12	0.12
2	6E	6E	Bot	A325	Yes	0.75	3.50	--	1.63	1.56	3.50	2.25	1.25	25	1.10	0.02	0.02
3	8E	8E	Top	A325	Yes	0.75	3.50	--	1.69	1.58	3.63	2.25	1.25	9	5.91	0.06	0.06
3	8E	8E	Bot	A325	Yes	0.75	3.50	--	1.69	1.58	3.63	2.25	1.25	2	-35.39	0.37	0.37

**WELD DESIGN**

Splice ID	Loc	Left						Right							
		Welds			Checks			Welds			Checks				
		Flg	Web	Stf	Load Comb	Tensile Rupture	Load Comb	Shear Rupture	Flg	Web	Stf	Load Comb	Tensile Rupture	Load Comb	Shear Rupture
1	Top	FWD3	WP13		2	0.77	11	0.08	FWD3	WP13		2	0.96	11	0.08
1	Bot	FWD3	WP13		-51	0.21	2	0.46	FWD3	WP13		-51	0.27	2	0.47
2	Top	FWD3	WP13		9	0.09	36	0.14	FWD3	WP13		9	0.09	36	0.14
2	Bot	FWD3	WP13		37	0.45	25	0.02	FWD3	WP13		37	0.45	25	0.02

Splice ID	Loc	Left						Right							
		Welds			Checks			Welds			Checks				
		Flg	Web	Stf	Load Comb	Tensile Rupture	Load Comb	Shear Rupture	Flg	Web	Stf	Load Comb	Tensile Rupture	Load Comb	Shear Rupture
3	Top	FWD3	WP13		2	0.96	9	0.08	FWD3	WP13		2	0.77	9	0.08
3	Bot	FWD3	WP13		-47	0.27	2	0.47	FWD3	WP13		-47	0.21	2	0.46

**LOAD COMBINATIONS:**

No	ASR	Combination
1	1.00	SW+RDL+COL
2	1.00	SW+RDL+COL+SL+SR
3	1.00	SW+RDL+COL+RLL+RLR
4	1.00	SW+RDL+0.60W1L
5	1.00	SW+RDL+0.60W2L
6	1.00	SW+RDL+0.60W1R
7	1.00	SW+RDL+0.60W2R
8	1.00	0.60SW+0.60RDL+0.60W1L
9	1.00	0.60SW+0.60RDL+0.60W2L
10	1.00	0.60SW+0.60RDL+0.60W1R
11	1.00	0.60SW+0.60RDL+0.60W2R
12	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W1L
13	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W2L
14	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W1R
15	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W2R
16	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W1L
17	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W2L
18	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W1R
19	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W2R
20	1.00	SW+RDL+0.60W5B
21	1.00	SW+RDL+0.60W6B
22	1.00	SW+RDL+0.60W5F
23	1.00	SW+RDL+0.60W6F
24	1.00	0.60SW+0.60RDL+0.60W5B
25	1.00	0.60SW+0.60RDL+0.60W6B
26	1.00	0.60SW+0.60RDL+0.60W5F
27	1.00	0.60SW+0.60RDL+0.60W6F
28	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W5B
29	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W6B
30	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W5F
31	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W6F
32	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W5B
33	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W6B
34	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W5F
35	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W6F
36	1.00	SW+RDL+COL+LRD
37	1.00	SW+RDL+COL+RRD
38	1.00	1.13SW+1.13RDL+1.13COL+0.91EQL
39	1.00	1.13SW+1.13RDL+1.13COL+0.91EQR
40	1.00	1.10SW+1.10RDL+1.10COL+0.15SL+0.15SR+0.68EQL
41	1.00	1.10SW+1.10RDL+1.10COL+0.15SL+0.15SR+0.68EQR
42	1.00	0.46SW+0.46RDL+0.62EQL
43	1.00	0.46SW+0.46RDL+0.62EQR
44*	1.20	Special Seismic
45*	1.20	Special Seismic
46*	1.20	Special Seismic
47*	1.20	Special Seismic
48*	1.20	Special Seismic
49*	1.20	Special Seismic
50*	1.20	Special Seismic
51*	1.20	Special Seismic

\*Indicates a Special Seismic Load Combination

**WIND COMBINATION**

NUCOR BUILDINGS GROUP 'Base Plate Design' Report per:  
'Design of Lightly Loaded Steel Column Base Plates'  
By T. Murray, AISC Journal 4th Qtr., 1983 pp 143-152

-----  
BASE PLATE DESIGN - BU - COL01                      Design Results - Successful

DESIGN LOADS -	Load Comb. - 2	Load Comb. - 11
Axial force -	-41.65 Kips	6.55 Kips
Shear force -	-26.24 Kips	5.30 Kips
Load Factor -	1.00	1.00

BASE PLATE INFORMATION

Plate Width = 8.00 In.	Length = 12.63 In.
Plate Thick = 0.375 In.	Plate Thk (reqd) = 0.242 In.
Plate Yield = 55.0 Ksi	f'c = 3.0 Ksi

BOLTS INFORMATION

F1554 Gr.36	No of Bolts = 4
Diameter = 1.000 In.	Bolt Shear Ratio = 0.640
Bolt Tensile Ratio = 0.096	

WELD INFORMATION

Left flange weld size = 0.1875 In.	Right flange weld size = 0.1875 In.
Web weld size = 0.1875 In.	Axial check = 0.050
Web Shear and Uplift = 0.136	Flange Shear and Uplift = 0.113

-----  
BASE PLATE DESIGN - BU - COL02                      Design Results - Successful

DESIGN LOADS -	Load Comb. - 2	Load Comb. - 9
Axial force -	-41.76 Kips	6.55 Kips
Shear force -	26.39 Kips	-5.29 Kips
Load Factor -	1.00	1.00

BASE PLATE INFORMATION

Plate Width = 8.00 In.	Length = 12.63 In.
Plate Thick = 0.375 In.	Plate Thk (reqd) = 0.243 In.
Plate Yield = 55.0 Ksi	f'c = 3.0 Ksi

BOLTS INFORMATION

F1554 Gr.36	No of Bolts = 4
Diameter = 1.000 In.	Bolt Shear Ratio = 0.644
Bolt Tensile Ratio = 0.096	

WELD INFORMATION

Left flange weld size = 0.1875 In.	Right flange weld size = 0.1875 In.
Web weld size = 0.1875 In.	Axial check = 0.050
Web Shear and Uplift = 0.136	Flange Shear and Uplift = 0.113

Project No. : U18G0576A  
 Description : WIND CHECK  
 Engineer : LL  
 Date : 6/14/2018

### Anchor Bolt Checks (AISC 14th Edition)

per AISC Steel Construction Manual (14th Edition)

Version: 2015.01.26 (Date: 01/26/15) By NBG-GS

#### GENERAL INFORMATION:

Design Method, (ASD / LRFD): AISC (ASD)  
 Allowable Stress Ratio, ASR: 1.000

#### Frame Reactions: (Lateral Combinations)

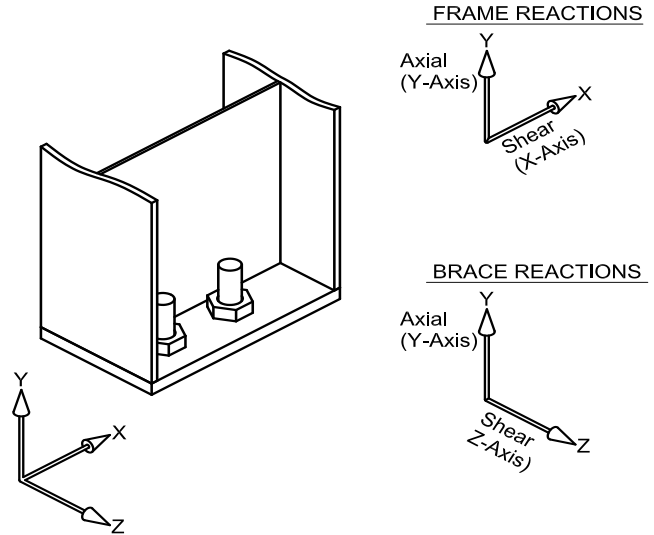
Tensile Reaction, (y-axis): 6.550 kips.  
 Shear Reaction, (x-axis): 26.390 kips.

#### Bracing Reactions: (Longitudinal Combinations)

Tensile Reaction, (y-axis): 1.002 kips.  
 Shear Reaction, (z-axis): 1.452 kips.

#### ANCHOR BOLT INFORMATION:

Anchor Bolt Material: F1554 Gr.36  
 Anchor Bolt Size,  $d_b$ : 1"Ø  
 No. of Anchor Bolts,  $n$ : 4



#### APPLIED LOADS:

Required Tensile Strength,  $f_t$ : 7.552 kips.  
 Required Shear Strength,  $f_v$ : 26.430 kips.

#### DESIGN RESULTS:

##### Tension Only Results:

			OK	Remarks
Tensile Strength Ratio (y-axis)	$f_t / F_t$		0.133	$R_{nt} = F_{nt} A_b$
ASD Allowable Tensile Strength, $R_{nt}/\Omega$	$F_t$	kips	56.584	$\Omega = 2.00$ (ASD) $\phi = 0.75$ (LRFD)

##### Shear Only Results:

			OK	Remarks
Shear Strength Ratio (xz-axis)	$f_v / F_v$		0.778	$R_{nv} = F_{nv} A_b$
ASD Allowable Shear Strength, $R_{nv}/\Omega$	$F_v$	kips	33.950	$\Omega = 2.00$ (ASD) $\phi = 0.75$ (LRFD)

##### Combined Tension & Shear Results:

			OK	Remarks
Combined Tensile Strength Ratio	$f_t / F'_t$		0.213	$R_n = F'_n A_b$
Combined Shear Strength Ratio	$f_v / F'_v$		0.786	$\Omega = 2.00$ (ASD) $\phi = 0.75$ (LRFD)
ASD Available Tensile Strength, $R_{nt}/\Omega$	$F'_t$	kips	35.515	$F'_{nt} = F_{nt} [1 - (\Omega f_v / F_{nv})^2]^{1/2} \leq F_{nt}$ (ASD)*
ASD Available Shear Strength, $R_{nv}/\Omega$	$F'_v$	kips	33.647	$F'_{nv} = F_{nv} [1 - (\Omega f_t / F_{nt})^2]^{1/2} \leq F_{nv}$ (ASD)*

\* User Note: The elliptical relationship for *combined strength* has been adopted per the AISC commentary. (Eq. C-J3-8a & C-J3-8b)

**SEISMIC COMBINATION**

NUCOR BUILDINGS GROUP 'Base Plate Design' Report per:  
'Design of Lightly Loaded Steel Column Base Plates'  
By T. Murray, AISC Journal 4th Qtr., 1983 pp 143-152

-----  
BASE PLATE DESIGN - BU - COL01                      Design Results - Successful

DESIGN LOADS -	Load Comb. - 2	Load Comb. - 18
Axial force -	-41.65 Kips	1.03 Kips
Shear force -	-26.24 Kips	5.79 Kips
Load Factor -	1.00	1.20

BASE PLATE INFORMATION

Plate Width = 8.00 In.	Length = 12.63 In.
Plate Thick = 0.375 In.	Plate Thk (reqd) = 0.242 In.
Plate Yield = 55.0 Ksi	f'c = 3.0 Ksi

BOLTS INFORMATION

F1554 Gr.36	
Diameter = 1.000 In.	No of Bolts = 4
Bolt Tensile Ratio = 0.013	Bolt Shear Ratio = 0.640

WELD INFORMATION

Left flange weld size = 0.1875 In.	Right flange weld size = 0.1875 In.
Web weld size = 0.1875 In.	Axial check = 0.007
Web Shear and Uplift = 0.113	Flange Shear and Uplift = 0.015

-----  
BASE PLATE DESIGN - BU - COL02                      Design Results - Successful

DESIGN LOADS -	Load Comb. - 2	Load Comb. - 14
Axial force -	-41.76 Kips	1.02 Kips
Shear force -	26.39 Kips	-5.78 Kips
Load Factor -	1.00	1.20

BASE PLATE INFORMATION

Plate Width = 8.00 In.	Length = 12.63 In.
Plate Thick = 0.375 In.	Plate Thk (reqd) = 0.243 In.
Plate Yield = 55.0 Ksi	f'c = 3.0 Ksi

BOLTS INFORMATION

F1554 Gr.36	
Diameter = 1.000 In.	No of Bolts = 4
Bolt Tensile Ratio = 0.012	Bolt Shear Ratio = 0.644

WELD INFORMATION

Left flange weld size = 0.1875 In.	Right flange weld size = 0.1875 In.
Web weld size = 0.1875 In.	Axial check = 0.007
Web Shear and Uplift = 0.113	Flange Shear and Uplift = 0.015



Project No. : U18G0576A  
 Description : SEISMIC CHECK  
 Engineer : LL  
 Date : 6/14/2018

### Anchor Bolt Checks (AISC 14th Edition)

per AISC Steel Construction Manual (14th Edition)

Version: 2015.01.26 (Date: 01/26/15) By NBG-GS

#### GENERAL INFORMATION:

Design Method, (ASD / LRFD): AISC (ASD)  
 Allowable Stress Ratio, ASR: 1.200

#### Frame Reactions: (Lateral Combinations)

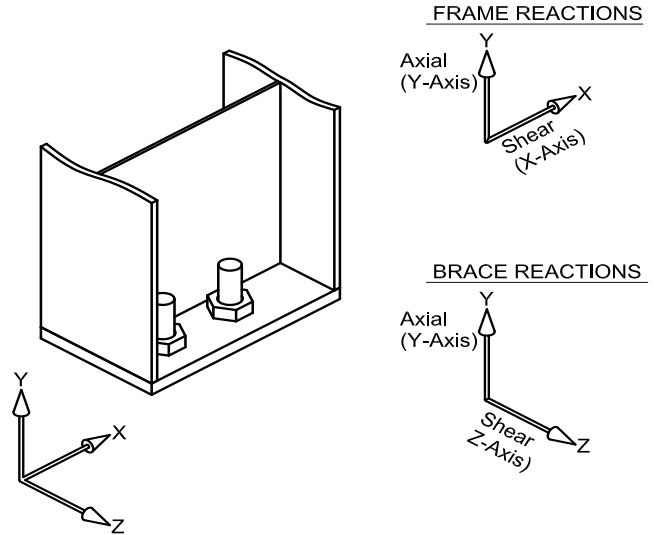
Tensile Reaction, (y-axis): 1.030 kips.  
 Shear Reaction, (x-axis): 26.390 kips.

#### Bracing Reactions: (Longitudinal Combinations)

Tensile Reaction, (y-axis): 19.138 kips.  
 Shear Reaction, (z-axis): 27.594 kips.

#### ANCHOR BOLT INFORMATION:

Anchor Bolt Material: F1554 Gr.36  
 Anchor Bolt Size,  $d_b$ : 1"Ø  
 No. of Anchor Bolts,  $n$ : 4



#### APPLIED LOADS:

Required Tensile Strength,  $f_t$ : 20.168 kips.  
 Required Shear Strength,  $f_v$ : 38.182 kips.

#### DESIGN RESULTS:

##### Tension Only Results:

			OK	Remarks
Tensile Strength Ratio (y-axis)	$f_t / F_t$		0.297	$R_{nt} = F_{nt} A_b$
ASD Allowable Tensile Strength, $R_{nt}/\Omega$	$F_t$	kips	67.901	$\Omega = 2.00$ (ASD) $\phi = 0.75$ (LRFD)

##### Shear Only Results:

			OK	Remarks
Shear Strength Ratio (xz-axis)	$f_v / F_v$		0.937	$R_{nv} = F_{nv} A_b$
ASD Allowable Shear Strength, $R_{nv}/\Omega$	$F_v$	kips	40.740	$\Omega = 2.00$ (ASD) $\phi = 0.75$ (LRFD)

##### Combined Tension & Shear Results:

			OK	Remarks
Combined Tensile Strength Ratio	$f_t / F'_t$		0.852	$R_n = F'_n A_b$
Combined Shear Strength Ratio	$f_v / F'_v$		0.981	$\Omega = 2.00$ (ASD) $\phi = 0.75$ (LRFD)
ASD Available Tensile Strength, $R_{nt}/\Omega$	$F'_t$	kips	23.683	$F'_{nt} = F_{nt} [1 - (\Omega f_v / F_{nv})^2]^{1/2} \leq F_{nt}$ (ASD)*
ASD Available Shear Strength, $R_{nv}/\Omega$	$F'_v$	kips	38.902	$F'_{nv} = F_{nv} [1 - (\Omega f_t / F_{nt})^2]^{1/2} \leq F_{nv}$ (ASD)*

\* User Note: The elliptical relationship for *combined strength* has been adopted per the AISC commentary. (Eq. C-J3-8a & C-J3-8b)

Nucor Building Systems  
P.O. Box 907 1050 North Watery Lane  
Brigham City, UT 84302

STRUCTURAL DESIGN CALCULATIONS  
FOR  
Commercial Service Unlimited  
3220 S 1700 W  
Ogden, UT 84401

Kimberly Clark - Opt C  
2010 Rulon White Blvd  
Ogden, UT 84404  
U18G0576A

#### BUILDING LAYOUT

Width (ft)= 80.0  
Length (ft)= 250.0  
Eave Height (ft)= 19.5/ 19.5  
Roof Slope (rise/12 )= 2.00/ 2.00

#### BUILDING LOADS

Roof Dead Load (psf )= 4.3  
Wall Dead Load  
Left Endwall (psf )= 3.0  
Right Endwall (psf )= 3.0  
Front Sidewall(psf )= 3.0  
Back Sidewall(psf )= 3.0  
Roof Live Load (psf )= 20.0  
Frame Live Load (psf )= 12.0  
Collateral Load (psf )= 5.0  
Snow Load (psf )= 30.1  
Wind Speed (mph )= 115.0  
Wind Code = IBC 15  
Closed/Open = C  
Exposure = B  
Internal Wind Coeff = -0.18, +0.18  
Importance - Wind = 1.00  
Importance - Seismic = 1.00  
Seismic Design Category= D  
Seismic Coeff (Fa\*Ss) = 1.43

-----  
 Designer : LL

6/14/18

♀

=====  
 U18G0576A                      Design Loads For Building Components:    6/14/18            9:12am  
 =====

FRONT SIDEWALL:  
 -----

BASIC LOADS:

			-----Edge_Strip_Ratio-----			
Basic	Wind_Load_Ratio		Zone			Col/
Wind	Deflect	Factor	Width	Girt	Panel	Jamb
20.1	0.44	0.60	7.80	1.11	1.23	1.11

WIND PRESSURE/SUCTION:

Wind	Wind	Wind	
Press	Suct	Long	
17.6	-19.4		.. Girt/Header
21.8	-23.6		.. Panel
17.6	-19.4		.. Jamb
0.0	0.0		.. Parapet

BACK SIDEWALL:  
 -----

BASIC LOADS:

			-----Edge_Strip_Ratio-----			
Basic	Wind_Load_Ratio		Zone			Col/
Wind	Deflect	Factor	Width	Girt	Panel	Jamb
20.1	0.44	0.60	7.80	1.11	1.23	1.11

WIND PRESSURE/SUCTION:

Wind	Wind	Wind	
Press	Suct	Long	
17.6	-19.4		.. Girt/Header
21.8	-23.6		.. Panel
17.6	-19.4		.. Jamb
0.0	0.0		.. Parapet

LEFT ENDWALL:  
 -----

BASIC LOADS:

										-----Edge_Strip_Ratio-----			
Dead	Coll	Live	Snow	Rain	Basic	Wind_Load_Ratio				Zone			Col/
Load	Load	Load	Load	Load	Wind	Deflect	Factor			Width	Girt	Panel	Jamb

4.3 5.0 20.0 30.1 0.0 20.1 0.44 0.60 7.80 1.11 1.23 1.11

BASIC LOADS AT EAVE:

Seis	Seis	Seis	---Torsion---	
Dead	Girt	Load	Wind	Seismic
3.00	0.00	8.45	0.00	0.00

WIND PRESSURE/SUCTION:

Wind	Wind	
Press	Suct	
17.6	-19.4	.. Column
17.6	-19.4	.. Girt/Header
17.6	-19.4	.. Jamb
21.8	-23.6	.. Panel
38.2	-29.8	.. Parapet
30.2	-20.1	.. Transverse bracing, Facia/Parapet

WIND COEFFICIENTS:

Surf	---Wind_1--		---Wind_2--		Long	Surface
Id	Left	Right	Left	Right	Wind	Friction
1	0.57	-0.81	0.81	-0.29	-0.66	0.00
2	-1.20	-0.73	-0.84	-0.37	-1.20	0.00
3	-0.73	-1.20	-0.37	-0.84	-0.69	0.00
4	-0.81	0.57	-0.29	0.81	-0.66	0.00

COLUMN, RAFTER & BRACING DESIGN LOADS:

Load	---Live---				--Add_Snow-			Wind_1	Wind_2	Long_Wind					
Column_Wind	Long	Tran	Aux_Load												
No. Id	Dead	Coll	Roof	Floor	Snow	Drift	Slide	Rain	Left	Right	Left	Right	1	2	Press
Suct	Seis	Seis	Id	Coef											
102	1	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0	0.00											
	2	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0	0.00											
	3	1.00	1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0	0.00											
	4	1.00	1.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	1	1.00											
	5	1.00	1.00	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0	0.00											
	6	1.00	1.00	0.00	0.00	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0	0.00											
	7	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.00	0.60
0.00	0.00	0.00	0	0.00											
	8	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.00	0.00
0.60	0.00	0.00	0	0.00											
	9	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.60
0.00	0.00	0.00	0	0.00											
	10	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.00
0.60	0.00	0.00	0	0.00											
	11	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.60
0.00	0.00	0.00	0	0.00											
	12	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00
0.60	0.00	0.00	0	0.00											
	13	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.60



41	1.00	1.00	0.00	0.00	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.00
0.45	0.00	0.00	0	0.00												
42	1.00	1.00	0.00	0.00	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.00
0.45	0.00	0.00	0	0.00												
43	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.60
0.00	0.00	0.00	0	0.00												
44	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.60	0.00	0.00	0	0.00												
45	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.00	0.60
0.00	0.00	0.00	0	0.00												
46	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.00	0.00
0.60	0.00	0.00	0	0.00												
47	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.60
0.00	0.00	0.00	0	0.00												
48	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.00
0.60	0.00	0.00	0	0.00												
49	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.60
0.00	0.00	0.00	0	0.00												
50	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.00
0.60	0.00	0.00	0	0.00												
51	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.60
0.00	0.00	0.00	0	0.00												
52	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.60
0.00	0.00	0.00	0	0.00												
53	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00
0.60	0.00	0.00	0	0.00												
54	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00
0.60	0.00	0.00	0	0.00												
55	1.13	1.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.70	0	0.00												
56	1.13	1.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	-0.70	0	0.00												
57	1.10	1.10	0.00	0.00	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.52	0	0.00												
58	1.10	1.10	0.00	0.00	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	-0.52	0	0.00												
59	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.70	0	0.00												
60	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	-0.70	0	0.00												
61	1.00	1.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	2	1.00												
62	1.00	1.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	2	0.75												
63	1.00	1.00	0.00	0.00	0.01	0.00	0.00	0.00	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.45	0.00	0.00	2	0.75												
64	1.00	1.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.45	0.00	0.00	0.00	0.00	0.00	0.00
0.45	0.00	0.00	2	0.75												
65	1.00	1.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.00	0.00	0.00	0.00
0.45	0.00	0.00	2	0.75												
66	1.00	1.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.00	0.00	0.00
0.45	0.00	0.00	2	0.75												
67	1.00	1.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	3	1.00												
68	1.00	1.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00



96	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.00
0.60	0.00	0.00	0	0.00												
97	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.60
0.00	0.00	0.00	0	0.00												
98	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.60
0.00	0.00	0.00	0	0.00												
99	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00
0.60	0.00	0.00	0	0.00												
100	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00
0.60	0.00	0.00	0	0.00												
101	1.10	1.10	0.00	0.00	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.52	0	0.00												
102	1.10	1.10	0.00	0.00	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	-0.52	0	0.00												

AUXILIARY LOADS:

No.	Aux	Aux	No.	Add_Load
Aux	Id	Name	Load	Id Coeff
3	1	MIN_SNOW	2	1 1.00
				2 1.00
	2	E1UNB_SL_L	3	3 0.30
				4 1.00
				5 0.66
	3	E1UNB_SL_R	3	4 0.30
				3 1.00
				6 0.66

ADDITIONAL LOADS:

No.	Add	Loc	Basic	Load	Fx	Fy	Mom	X	Y	.. Conc
Add	Id	Id	Load	Type	W1	W2	Co	D11	D12	.. Dist
6	1	2	U_SNOW	D	-0.25	-0.25	0.17	0.00	40.55	
	2	3	U_SNOW	D	-0.25	-0.25	-0.17	0.00	40.55	
	3	3	U_SNOW	D	-0.37	-0.37	-0.17	0.00	40.55	
	4	2	U_SNOW	D	-0.37	-0.37	0.17	0.00	40.55	
	5	2	U_SNOW	D	-0.37	-0.37	0.17	24.43	40.55	
	6	3	U_SNOW	D	-0.37	-0.37	-0.17	0.00	16.12	

STEPPED LOAD COEFFICIENTS:

No.	Basic	Location	No.	-----	-----	-----				
No.	Load	Use	Id	Step	Locate	Coef	Locate	Coef	Locate	Coef
	WINDL1	-	2	2	40.00	1.00	40.55	0.61		
	WINDR1	-	3	2	0.55	0.61	40.55	1.00		
	WINDL2	R	2	2	40.00	1.00	40.55	0.44		
	WINDR2	R	3	2	0.55	0.44	40.55	1.00		
	WINDL2	C	2	2	40.00	1.00	40.55	0.61		
	WINDR2	C	3	2	0.55	0.61	40.55	1.00		

RIGHT ENDWALL:

BASIC LOADS:

Dead	Coll	Live	Snow	Rain	Basic	Wind_Load_Ratio	-----Edge_Strip_Ratio-----
Load	Load	Load	Load	Load	Wind	Deflect	Zone
4.3	5.0	20.0	30.1	0.0	20.1	0.44	Width
						0.60	Girt
							Panel
							Jamb
							1.11
							1.23
							1.11



BASIC LOADS AT EAVE:

Seis	Seis	Seis	---Torsion---	
Dead	Girt	Load	Wind	Seismic
3.00	0.00	8.45	0.00	0.00

WIND PRESSURE/SUCTION:

Wind	Wind	
Press	Suct	
17.6	-19.4	.. Column
17.6	-19.4	.. Girt/Header
17.6	-19.4	.. Jamb
21.8	-23.6	.. Panel
38.2	-29.8	.. Parapet
30.2	-20.1	.. Transverse bracing, Facia/Parapet

WIND COEFFICIENTS:

Surf	---Wind_1--		---Wind_2--		Long	Surface
Id	Left	Right	Left	Right	Wind	Friction
1	0.57	-0.81	0.81	-0.29	-0.66	0.00
2	-1.20	-0.73	-0.84	-0.37	-1.20	0.00
3	-0.73	-1.20	-0.37	-0.84	-0.69	0.00
4	-0.81	0.57	-0.29	0.81	-0.66	0.00

COLUMN, RAFTER & BRACING DESIGN LOADS:

Load	---Live---			--Add_Snow-			Wind_1		Wind_2		Long_Wind				
Column_Wind	Long	Tran	Aux_Load				Left	Right	Left	Right	1	2	Press		
No. Id	Dead	Coll	Roof	Floor	Snow	Drift	Slide	Rain	Left	Right	Left	Right	1	2	Press
Suct	Seis	Seis	Id	Coef											
102 1	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0	0.00											
2	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0	0.00											
3	1.00	1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0	0.00											
4	1.00	1.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	1	1.00											
5	1.00	1.00	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0	0.00											
6	1.00	1.00	0.00	0.00	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0	0.00											
7	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.00	0.60
0.00	0.00	0.00	0	0.00											
8	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.00	0.00
0.60	0.00	0.00	0	0.00											
9	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.60
0.00	0.00	0.00	0	0.00											
10	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.00
0.60	0.00	0.00	0	0.00											
11	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.60
0.00	0.00	0.00	0	0.00											
12	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00
0.60	0.00	0.00	0	0.00											
13	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.60
0.00	0.00	0.00	0	0.00											





69	1.00	1.00	0.00	0.00	0.01	0.00	0.00	0.00	0.45	0.00	0.00	0.00	0.00	0.00	0.00
0.45	0.00	0.00	3	0.75											
70	1.00	1.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.45	0.00	0.00	0.00	0.00	0.00
0.45	0.00	0.00	3	0.75											
71	1.00	1.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.00	0.00	0.00
0.45	0.00	0.00	3	0.75											
72	1.00	1.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.00	0.00
0.45	0.00	0.00	3	0.75											
73	1.00	1.00	0.75	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0	0.00											
74	1.00	1.00	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0	0.00											
75	1.00	1.00	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0	0.00											
76	1.00	1.00	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.00	0.00
0.00	0.00	0.00	0	0.00											
77	1.00	1.00	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.00
0.00	0.00	0.00	0	0.00											
78	1.00	1.00	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.00
0.00	0.00	0.00	0	0.00											
79	1.00	1.00	0.00	0.00	0.75	0.00	0.00	0.00	0.45	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0	0.00											
80	1.00	1.00	0.00	0.00	0.75	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0	0.00											
81	1.00	1.00	0.00	0.00	0.75	0.00	0.00	0.00	0.00	0.45	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0	0.00											
82	1.00	1.00	0.00	0.00	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.00	0.00
0.00	0.00	0.00	0	0.00											
83	1.00	1.00	0.00	0.00	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.00
0.00	0.00	0.00	0	0.00											
84	1.00	1.00	0.00	0.00	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.00
0.00	0.00	0.00	0	0.00											
85	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0	0.00											
86	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0	0.00											
87	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0	0.00											
88	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.00
0.00	0.00	0.00	0	0.00											
89	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00
0.00	0.00	0.00	0	0.00											
90	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00
0.00	0.00	0.00	0	0.00											
91	1.00	1.00	0.00	0.75	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	2	0.75											
92	1.00	1.00	0.00	0.75	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	3	0.75											
93	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.60
0.00	0.00	0.00	0	0.00											
94	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00
0.60	0.00	0.00	0	0.00											
95	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.60
0.00	0.00	0.00	0	0.00											
96	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.00

0.60	0.00	0.00	0	0.00												
97	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.60
0.00	0.00	0.00	0	0.00												
98	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.60
0.00	0.00	0.00	0	0.00												
99	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00
0.60	0.00	0.00	0	0.00												
100	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00
0.60	0.00	0.00	0	0.00												
101	1.10	1.10	0.00	0.00	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.52	0	0.00												
102	1.10	1.10	0.00	0.00	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	-0.52	0	0.00												

AUXILIARY LOADS:

No.	Aux	Aux	No.	Add_Load	
Aux	Id	Name	Load	Id	Coeff
3	1	MIN_SNOW	2	1	1.00
				2	1.00
	2	E2UNB_SL_L	3	3	0.30
				4	1.00
				5	0.66
	3	E2UNB_SL_R	3	4	0.30
				3	1.00
				6	0.66

ADDITIONAL LOADS:

No.	Add	Loc	Basic	Load	Fx	Fy	Mom	X	Y	.. Conc
Add	Id	Id	Load	Type	W1	W2	Co	D11	D12	.. Dist
6	1	2	U_SNOW	D	-0.25	-0.25	0.17	0.00	40.55	
	2	3	U_SNOW	D	-0.25	-0.25	-0.17	0.00	40.55	
	3	3	U_SNOW	D	-0.37	-0.37	-0.17	0.00	40.55	
	4	2	U_SNOW	D	-0.37	-0.37	0.17	0.00	40.55	
	5	2	U_SNOW	D	-0.37	-0.37	0.17	24.43	40.55	
	6	3	U_SNOW	D	-0.37	-0.37	-0.17	0.00	16.12	

STEPPED LOAD COEFFICIENTS:

No.	Basic	Location	No.	-----	-----	-----	-----	-----	-----	
No.	Load	Use	Id	Step	Locate	Coef	Locate	Coef	Locate	Coef
	WINDL1	-	2	2	40.00	1.00	40.55	0.61		
	WINDR1	-	3	2	0.55	0.61	40.55	1.00		
	WINDL2	R	2	2	40.00	1.00	40.55	0.44		
	WINDR2	R	3	2	0.55	0.44	40.55	1.00		
	WINDL2	C	2	2	40.00	1.00	40.55	0.61		
	WINDR2	C	3	2	0.55	0.61	40.55	1.00		

ROOFDES:

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BASIC LOADS:

Dead	Coll	Live	Snow	Rain	Basic	Wind_Load_Ratio	Surface	Seis	%	
Load	Load	Load	Load	Load	Wind	Deflect	Factor	Factor	Snow	
4.3	5.0	20.0	30.1	0.0	20.1	0.44	0.60	0.00	1.020	0.20

WIND PRESSURE/SUCTION:

Wind Press	Wind Suct	Wind Suct_Roof	
16.0	-19.7		.. Purlins
16.0	-21.8		.. Panels
11.7	-2.2	-13.9	.. Long Bracing, Building
15.9	-5.0		.. Long Bracing, Wall Edge Zone
30.2	-20.1	16.1	.. Long Bracing, Facia/Parapet

EDGE & CORNER ZONE WIND:

Wind Surf Id	Surf Id	No. Zone	Zone Id	Width	Length	--Purlin---		---Panel---	
						Press	Suct	Press	Suct
1	2	9	1	0.00	0.00	1.00	1.00	1.00	1.00
			3	0.00	7.80	1.00	1.41	1.00	1.74
			4	7.80	0.00	1.00	1.41	1.00	1.74
			5	0.00	7.80	1.00	1.41	1.00	1.74
			6	7.80	0.00	1.00	1.41	1.00	1.74
			7	7.80	7.80	1.00	2.22	1.00	2.58
			8	7.80	7.80	1.00	2.22	1.00	2.58
			9	7.80	7.80	1.00	2.22	1.00	2.58
			10	7.80	7.80	1.00	2.22	1.00	2.58
	3	9	1	0.00	0.00	1.00	1.00	1.00	1.00
			3	0.00	7.80	1.00	1.41	1.00	1.74
			4	7.80	0.00	1.00	1.41	1.00	1.74
			5	0.00	7.80	1.00	1.41	1.00	1.74
			6	7.80	0.00	1.00	1.41	1.00	1.74
			7	7.80	7.80	1.00	2.22	1.00	2.58
			8	7.80	7.80	1.00	2.22	1.00	2.58
			9	7.80	7.80	1.00	2.22	1.00	2.58
			10	7.80	7.80	1.00	2.22	1.00	2.58

EDGE & CORNER ZONE WIND: LONGITUDINAL

Wind Surf Id	Surf Id	No. Zone	Zone Id	Width	Length	Purlin Suct
1	2	1	1	0.00	0.00	1.00
	3	1	1	0.00	0.00	1.00
2	2	1	1	0.00	0.00	1.00
	3	1	1	0.00	0.00	1.00

PURLIN DESIGN LOADS:

Surf Id	--Load-- No.	Id	Dead	Coll	Live	Snow	--Add_Snow--			Wind Press	Wind Suct	Aux_Load	
							Drift	Slide	Rain			Id	Coef
2	27	1	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
		2	1.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0	0.00
		3	1.00	1.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	1	1.00
		4	1.00	1.00	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
		5	1.00	1.00	0.00	0.75	0.00	0.00	0.00	0.00	0.00	0	0.00
		6	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0	0.00
		7	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0	0.00
		8	1.00	1.00	0.75	0.00	0.00	0.00	0.00	0.45	0.00	0	0.00
		9	1.00	1.00	0.00	0.75	0.00	0.00	0.00	0.45	0.00	0	0.00
		10	1.00	1.00	0.75	0.00	0.00	0.00	0.00	0.00	0.45	0	0.00
		11	1.00	1.00	0.00	0.75	0.00	0.00	0.00	0.00	0.45	0	0.00
		12	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0	0.00
		13	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0	0.00
		14	1.00	1.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	4	1.00

	15	1.00	1.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	5	1.00
	16	1.00	1.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	6	1.00
	17	1.00	1.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	7	1.00
	18	1.00	1.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	8	1.00
	19	1.00	1.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	9	1.00
	20	1.00	1.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	10	1.00
	21	1.00	1.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	11	1.00
	22	1.00	1.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	12	1.00
	23	1.00	1.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	2	1.00
	24	1.00	1.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	3	1.00
	25	1.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	2	-1.00
	26	1.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	3	-1.00
	27	1.00	1.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	13	1.00
3	27	1	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0	0.00
		2	1.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0	0.00
		3	1.00	1.00	0.00	0.01	0.00	0.00	0.00	0.00	1	1.00
		4	1.00	1.00	0.75	0.00	0.00	0.00	0.00	0.00	0	0.00
		5	1.00	1.00	0.00	0.75	0.00	0.00	0.00	0.00	0	0.00
		6	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0	0.00
		7	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0	0.00
		8	1.00	1.00	0.75	0.00	0.00	0.00	0.00	0.45	0	0.00
		9	1.00	1.00	0.00	0.75	0.00	0.00	0.00	0.45	0	0.00
		10	1.00	1.00	0.75	0.00	0.00	0.00	0.00	0.45	0	0.00
		11	1.00	1.00	0.00	0.75	0.00	0.00	0.00	0.45	0	0.00
		12	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0	0.00
		13	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0	0.00
		14	1.00	1.00	0.00	0.50	0.00	0.00	0.00	0.00	4	1.00
		15	1.00	1.00	0.00	0.50	0.00	0.00	0.00	0.00	5	1.00
		16	1.00	1.00	0.00	0.50	0.00	0.00	0.00	0.00	6	1.00
		17	1.00	1.00	0.00	0.50	0.00	0.00	0.00	0.00	7	1.00
		18	1.00	1.00	0.00	0.50	0.00	0.00	0.00	0.00	8	1.00
		19	1.00	1.00	0.00	0.50	0.00	0.00	0.00	0.00	9	1.00
		20	1.00	1.00	0.00	0.50	0.00	0.00	0.00	0.00	10	1.00
		21	1.00	1.00	0.00	0.50	0.00	0.00	0.00	0.00	11	1.00
		22	1.00	1.00	0.00	0.50	0.00	0.00	0.00	0.00	12	1.00
		23	1.00	1.00	0.00	0.50	0.00	0.00	0.00	0.00	2	1.00
		24	1.00	1.00	0.00	0.50	0.00	0.00	0.00	0.00	3	1.00
		25	1.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	2	-1.00
		26	1.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	3	-1.00
		27	1.00	1.00	0.00	0.01	0.00	0.00	0.00	0.00	13	1.00

BRACING DESIGN LOADS:

--Load-				--Add_Snow-				Wind	Wind	Seis	Aux_Load		
No.	Id	Dead	Coll	Live	Snow	Drift	Slide	Rain	Press	Suct	Load	Id	Coef
14	1	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0	0.00
	2	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
	3	1.00	1.00	0.75	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0	0.00
	4	1.00	1.00	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
	5	1.00	1.00	0.00	0.75	0.00	0.00	0.00	0.00	0.45	0.00	0	0.00
	6	1.00	1.00	0.00	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
	7	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0	0.00
	8	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
	9	1.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70	0	0.00
	10	1.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.70	0	0.00
	11	1.10	1.10	0.00	0.15	0.00	0.00	0.00	0.00	0.00	0.52	0	0.00

12	1.10	1.10	0.00	0.75	0.00	0.00	0.00	0.00	0.00	0.00	-0.52	0	0.00
13	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70	0	0.00
14	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.70	0	0.00

AUXILIARY LOADS:

No.	Aux	Aux	No.	Add_Load
Aux	Id	Name	Load	Id Coef
13	1	MIN_SNOW	2	1 1.00
				2 1.00
	2	PAT_SL_1	1	3 0.50
	3	PAT_SL_2	1	12 0.50
	4	PAT_SL_3	2	3 0.50
				4 0.50
	5	PAT_SL_4	2	4 0.50
				5 0.50
	6	PAT_SL_5	2	5 0.50
				6 0.50
	7	PAT_SL_6	2	6 0.50
				7 0.50
	8	PAT_SL_7	2	7 0.50
				8 0.50
	9	PAT_SL_8	2	8 0.50
				9 0.50
10	PAT_SL_9		2	9 0.50
				10 0.50
11	PAT_SL10		2	10 0.50
				11 0.50
12	PAT_SL11		2	11 0.50
				12 0.50
13	UNB_SL		4	13 1.00
				14 0.66
				15 1.00
				16 0.66

ADDITIONAL LOADS:

No.	Add	Surf	Basic	Load	Fy	Dx	.. Conc
Add	Id	Id	Load	Type	W1	W2	.. Dist
						Dx1	Dx2
16	1	2	U_SNOW	D	-20.0	-20.0	0.0 40.6
	2	3	U_SNOW	D	-20.0	-20.0	0.0 40.6
	3	0	U_SNOW	D	-30.1	-30.1	0.0 25.0
	4	0	U_SNOW	D	-30.1	-30.1	25.0 50.0
	5	0	U_SNOW	D	-30.1	-30.1	50.0 75.0
	6	0	U_SNOW	D	-30.1	-30.1	75.0 100.0
	7	0	U_SNOW	D	-30.1	-30.1	100.0 125.0
	8	0	U_SNOW	D	-30.1	-30.1	125.0 150.0
	9	0	U_SNOW	D	-30.1	-30.1	150.0 175.0
	10	0	U_SNOW	D	-30.1	-30.1	175.0 200.0
	11	0	U_SNOW	D	-30.1	-30.1	200.0 225.0
	12	0	U_SNOW	D	-30.1	-30.1	225.0 250.0
	13	2	U_SNOW	D	-30.1	-30.1	0.0 40.6
	14	2	U_SNOW	D	-30.1	-30.1	24.4 40.6
	15	3	U_SNOW	D	-30.1	-30.1	0.0 40.6
	16	3	U_SNOW	D	-30.1	-30.1	0.0 16.1



### Building Data

```

-----
Code           = IBC 15
Length        = 250.00
Width         = 80.00
Left Eave Height = 19.50
Right Eave Height = 19.50

```

### Seismic Formula

```

-----
Base Shear, V = 0.667*Ie*Fa*Ss*W/R

              Vmin = 0.044*Sds*Ie*W
              Vmax = Sd1*Ie*W/(T*R)

T(Moment_Frame) = 0.342
Shear Force, E = Rho*V
(Rigid frame, endwall frame, wind bent, wind column & base reactions)

T(Braced_Frame) = 0.209
Shear Force, Em = Omega*V
(Wall diagonal bracing, splice at rigid frame & wind bent knee)

```

Note: Applied load is seismic force multiplied by load combination

```

Fa*Ss          = 1.433
Zone/Design Category = D
Ie             = 1.000
S1            = 0.596
Sd1           = 0.596
Sds           = 0.955

```

### Seismic Dead Load, W

```

-----
Frame Dead      = 2.50 (psf )
Roof Dead       = 4.25 (psf )
Collateral      (**%) = 5.00 (psf )
Snow            (20%) = 6.02 (psf )
Roof Total      = 17.77 (psf ) , Weight= 355.40 (k )
L_EW Dead       = 3.00 (psf ) , Weight= 2.74 (k )
F_SW Dead       = 3.00 (psf ) , Weight= 7.31 (k )
R_EW Dead       = 3.00 (psf ) , Weight= 2.74 (k )
B_SW Dead       = 3.00 (psf ) , Weight= 7.31 (k )
-----
Total = 375.51 (k )

```

### Seismic Forces

#### Roof Bracing

R = 3.25, Rho= 1.30

$C_s = 0.2941$   
 $W = 360.88 \text{ (k)}$   
 Force,  $V = 106.13 \text{ (k)}$   
 Force,  $E = 137.96 \text{ (k)}$

## Sidewall Bracing

Front  $R = 3.25, \text{ Rho} = 1.30, \text{ Omega} = 2.00$   
 $C_s = 0.2941$   
 $W = 191.51 \text{ (k)}$   
 Force,  $V = 56.32 \text{ (k)}$   
 Force,  $E_m = 112.64 \text{ (k)}$   
 Force,  $E = 73.21 \text{ (k)}$   
 Back  $R = 3.25, \text{ Rho} = 1.30, \text{ Omega} = 2.00$   
 $C_s = 0.2941$   
 $W = 191.51 \text{ (k)}$   
 Force,  $V = 56.32 \text{ (k)}$   
 Force,  $E_m = 112.64 \text{ (k)}$   
 Force,  $E = 73.21 \text{ (k)}$

## Endwall Bracing

Left  $R = 3.25, \text{ Rho} = 1.30, \text{ Omega} = 2.00$   
 $C_s = 0.2941$   
 $W = 22.10 \text{ (k)}$   
 Force,  $V = 6.50 \text{ (k)}$   
 Force,  $E_m = 13.00 \text{ (k)}$   
 Force,  $E = 8.45 \text{ (k)}$   
 Right  $R = 3.25, \text{ Rho} = 1.30, \text{ Omega} = 2.00$   
 $C_s = 0.2941$   
 $W = 22.10 \text{ (k)}$   
 Force,  $V = 6.50 \text{ (k)}$   
 Force,  $E_m = 13.00 \text{ (k)}$   
 Force,  $E = 8.45 \text{ (k)}$

## Rigid Frames

$R = 3.50, \text{ Rho} = 1.30$   
 $C_s = 0.2731$   
 Frame 1  $W = 37.01 \text{ (k)}$   
 Force,  $V = 10.11 \text{ (k)}$   
 Force,  $E = 13.14 \text{ (k)}$

## End Plates

Frame  $R = 3.50, \text{ Omega} = 3.00$

## Total Base Shear

Longitudinal  
 Force,  $V = 112.64 \text{ (k)}$   
 Transverse  
 Force,  $V = 103.98 \text{ (k)}$

## Purlin &amp; Bracing Results --- RoofDes.out

U18G0576A

Purlin Layout(Surface= 2)

6/14/18 9:09am

PURLIN SYSTEM COMBINATIONS:

System Id	Depth	Purlin Row	Weight	Added_Purlin Row	Weight	Total Weight	Show Report	Max_UC Purlin	Panel Table
1	10.0	9	11435.9	0	0.0	11435.9	Y	1.03	0.37

SURFACE LAYOUT:

Surface Id	Length	No. Row	Peak Space
2	40.552	9	1.333

PURLIN LOCATION:

Purlin Id	Surf Offset	Space	Load Width	Dead Load	Show Report	Max_Load Id	UC	Report	Notes
1	3.218	3.218	4.109	1.24	Y	20	0.77	Mom+Shr	
2	8.218	5.000	5.000	1.02	Y	20	0.94	Mom+Shr	
3	13.218	5.000	5.000	1.02	Y	20	0.94	Mom+Shr	
4	18.218	5.000	5.000	1.02	Y	20	0.94	Mom+Shr	
5	23.218	5.000	4.500	1.13	Y	20	0.84	Mom+Shr	
6	27.218	4.000	4.000	1.27	Y	27	1.03	Mom+Shr	
7	31.218	4.000	4.000	1.27	Y	27	1.03	Mom+Shr	
8	35.218	4.000	4.000	1.27	Y	27	1.03	Mom+Shr	
9	39.218	4.000	3.333	1.52	Y	27	0.86	Mom+Shr	
	40.552	1.333							
				Average=	1.17				

LAYOUT:

Bay Id	Part	Design Length	Lap(ft)		No. Strap	Unit Weight	Total Weight
LExt	10Z089	1.00			0	5.0	44.8
1	10Z089	24.00		3.50	2	136.8	1231.1
2	10Z075	25.00	3.50	3.50	2	134.1	1207.3
3	10Z067	25.00	3.50	3.50	2	119.8	1078.3
4	10Z067	25.00	3.50	3.50	2	119.8	1078.3
5	10Z067	25.00	3.50	3.50	2	119.8	1078.3
6	10Z067	25.00	3.50	3.50	2	119.8	1078.3
7	10Z067	25.00	3.50	3.50	2	119.8	1078.3
8	10Z067	25.00	3.50	3.50	2	119.8	1078.3
9	10Z075	25.00	3.50	3.50	2	134.1	1207.3
10	10Z089	24.00	3.50		2	136.8	1231.1
RExt	10Z089	1.00			0	5.0	44.8
						Total(lb)=	1270.7 11435.9

LOAD COMBINATIONS:

20 - Dead+Collateral+Snow/2+PAT\_SL\_9

27 - Dead+Collateral+UNB\_SL

=====

U18G0576A                      Purlin Layout(Surface= 3)                      6/14/18 9:09am

=====

PURLIN SYSTEM COMBINATIONS:

System	-----Purlin-----			Added_Purlin		Total	Show	-----Max_UC-----	
Id	Depth	Row	Weight	Row	Weight	Weight	Report	Purlin	Panel Table
1	10.0	9	11435.9	0	0.0	11435.9	Y	1.03	0.37
2(a)	10.0	9	10848.1	8	774.0	11622.1		1.15	0.37

(a)Purlin Warnings Occurred

SURFACE LAYOUT:

Surface	No.	Peak
Id	Length	Row Space
3	40.552	9 1.333

PURLIN LOCATION:

Purlin	Surf	Load	Dead	Show	-----Max_Load-----			Notes
Id	Offset	Space	Width	Load	Report	Id	UC	Report
1	1.333	1.333	3.333	1.52	Y	27	0.86	Mom+Shr
2	5.333	4.000	4.000	1.27	Y	27	1.03	Mom+Shr
3	9.333	4.000	4.000	1.27	Y	27	1.03	Mom+Shr
4	13.333	4.000	4.000	1.27	Y	27	1.03	Mom+Shr
5	17.333	4.000	4.500	1.13	Y	20	0.84	Mom+Shr
6	22.333	5.000	5.000	1.02	Y	20	0.94	Mom+Shr
7	27.333	5.000	5.000	1.02	Y	20	0.94	Mom+Shr
8	32.333	5.000	5.000	1.02	Y	20	0.94	Mom+Shr
9	37.333	5.000	4.109	1.24	Y	20	0.77	Mom+Shr
	40.552	3.218						

-----  
Average= 1.17

LAYOUT:

Bay	Design	---Lap(ft)--		No.	Unit	Total
Id	Part	Length	Left	Right	Strap	Weight
LExt	10Z089	1.00			0	44.8
1	10Z089	24.00		3.50	2	1231.1
2	10Z075	25.00	3.50	3.50	2	1207.3
3	10Z067	25.00	3.50	3.50	2	1078.3
4	10Z067	25.00	3.50	3.50	2	1078.3
5	10Z067	25.00	3.50	3.50	2	1078.3
6	10Z067	25.00	3.50	3.50	2	1078.3
7	10Z067	25.00	3.50	3.50	2	1078.3
8	10Z067	25.00	3.50	3.50	2	1078.3
9	10Z075	25.00	3.50	3.50	2	1207.3

U18G0576A				LL		
10 10Z089	24.00	3.50		2	136.8	1231.1
RExt 10Z089	1.00			0	5.0	44.8
					-----	-----
			Total(lb)=		1270.7	11435.9

LOAD COMBINATIONS:

- 20 - Dead+Collateral+Snow/2+PAT\_SL\_9
- 27 - Dead+Collateral+UNB\_SL

```
=====
U18G0576A          Roof Diagonal Bracing          6/14/18  9:09am
=====
```

PANEL SHEAR:

Limit = 0.0  
 Calc  
 Wind = 12.8  
 Seismic =184.8

DIAGONAL BRACING:

Bay Id	Brace_Locate		-----Diag_Brace-----			Brace_Tension(k )				Max UC	KL/R
	Start	End	Type	Size	Part	Wind Calc	Wind Limit	Seismic Calc	Seismic Limit		
2	0.00	15.00	R	0.875	RDD-	1.57	14.97	11.71	14.97	0.78	
	15.00	40.00	R	0.625	RDB-	0.78	7.34	5.49	7.34	0.75	
	40.00	65.00	R	0.625	RDB-	0.78	7.34	5.49	7.34	0.75	
	65.00	80.00	R	0.875	RDD-	1.57	14.97	11.71	14.97	0.78	
4	0.00	15.00	R	0.875	RDD-	1.57	14.97	11.71	14.97	0.78	
	15.00	40.00	R	0.625	RDB-	0.78	7.34	5.49	7.34	0.75	
	40.00	65.00	R	0.625	RDB-	0.78	7.34	5.49	7.34	0.75	
	65.00	80.00	R	0.875	RDD-	1.57	14.97	11.71	14.97	0.78	
7	0.00	15.00	R	0.875	RDD-	1.57	14.97	11.71	14.97	0.78	
	15.00	40.00	R	0.625	RDB-	0.78	7.34	5.49	7.34	0.75	
	40.00	65.00	R	0.625	RDB-	0.78	7.34	5.49	7.34	0.75	
	65.00	80.00	R	0.875	RDD-	1.57	14.97	11.71	14.97	0.78	
9	0.00	15.00	R	0.875	RDD-	1.57	14.97	11.71	14.97	0.78	
	15.00	40.00	R	0.625	RDB-	0.78	7.34	5.49	7.34	0.75	
	40.00	65.00	R	0.625	RDB-	0.78	7.34	5.49	7.34	0.75	
	65.00	80.00	R	0.875	RDD-	1.57	14.97	11.71	14.97	0.78	

```
=====
U18G0576A          Sidewall Diagonal Bracing          6/14/18  9:09am
=====
```

PANEL SHEAR:

Wall Id	Base Length	Wind Calc	Seismic Calc	Limit
2	232.7	17.8	254.1	72.8
4	236.7	17.5	249.9	72.8

DIAGONAL BRACING:

Wall Id	Bay Id	Brace_Locate		Diag_Brace			Brace_Tension(k )		Max UC	KL/R		
		Bot	Top	Type	Size	Part	Wind Calc	Wind Limit			Seismic Calc	Seismic Limit
2	2	0.0	19.5	R	1.250	RDG-	1.68	31.22	31.98	37.47	0.85	
2	4	0.0	19.5	R	1.250	RDG-	1.68	31.22	31.98	37.47	0.85	
2	7	0.0	19.5	R	1.250	RDG-	1.68	31.22	31.98	37.47	0.85	
4	4	0.0	19.5	R	1.250	RDG-	1.68	31.22	31.98	37.47	0.85	
4	7	0.0	19.5	R	1.250	RDG-	1.68	31.22	31.98	37.47	0.85	
4	9	0.0	19.5	R	1.250	RDG-	1.68	31.22	31.98	37.47	0.85	

Front Sidewall Results --- SwDes-F.out

```

=====
U18G0576A                Wall 2 - Bypass Girt Layout                6/13/18  4:07pm
=====
    
```

GIRT LAYOUT:

Locate	Des Id	Bay Id	Part	Bay_Offset		Design Length	---Extend---		Weight	---Max_Load---			Rot	
				Start	End		Left	Right		Id	UC	Report		
7.50	1		1 08Z067	0.00	25.00	24.67	0.00	1.25	85.2	WS	1.02	Moment	D	
			2 08Z060	0.00	25.00	25.00	1.25	1.25	81.0	WP	0.99	Moment	D	
			3 08Z054	0.00	25.00	25.00	1.25	1.25	72.9	WS	1.02	Mom+Shr	D	
			4 08Z054	0.00	25.00	25.00	1.25	1.25	72.9	WS	1.02	Mom+Shr	D	
			5 08Z054	0.00	5.50	5.17	1.25	0.00	17.0	WS	0.73	Mom+Shr	D	
	2			5 08Z054	19.50	25.00	5.17	0.00	1.25	17.0	WS	0.73	Mom+Shr	D
				6 08Z054	0.00	25.00	25.00	1.25	1.25	72.9	WS	1.00	Mom+Shr	D
				7 08Z054	0.00	25.00	25.00	1.25	1.25	72.9	WS	1.00	Mom+Shr	D
				8 08Z054	0.00	25.00	25.00	1.25	1.25	72.9	WS	0.95	Mom+Shr	D
				9 08Z060	0.00	25.00	25.00	1.25	1.25	81.0	WP	0.99	Moment	D
			10 08Z067	0.00	25.00	24.67	1.25	0.00	85.2	WS	1.01	Moment	D	
15.00	3		1 08Z060	0.00	25.00	24.67	0.00	1.25	76.3	WS	0.90	Moment	D	
			2 08Z054	0.00	25.00	25.00	1.25	1.25	72.9	WS	0.94	Mom+Shr	D	
			3 08Z054	0.00	25.00	25.00	1.25	1.25	72.9	WS	0.76	Mom+Shr	D	
			4 08Z054	0.00	25.00	25.00	1.25	1.25	72.9	WS	0.76	Mom+Shr	D	
			5 08Z054	0.00	25.00	25.00	1.25	1.25	72.9	WS	0.77	Mom+Shr	D	
			6 08Z054	0.00	25.00	25.00	1.25	1.25	72.9	WS	0.76	Mom+Shr	D	
			7 08Z054	0.00	25.00	25.00	1.25	1.25	72.9	WS	0.76	Mom+Shr	D	
			8 08Z054	0.00	25.00	25.00	1.25	1.25	72.9	WS	0.76	Mom+Shr	D	
			9 08Z054	0.00	25.00	25.00	1.25	1.25	72.9	WS	0.94	Mom+Shr	D	
			10 08Z060	0.00	25.00	24.67	1.25	0.00	76.3	WS	0.90	Moment	D	

WP - 0.6Wind\_Pressure

Back Sidewall Results --- SwDes-B.out

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=====
U18G0576A           Wall 4 - Bypass Girt Layout           6/13/18  4:07pm
=====
```

GIRT LAYOUT:

Locate	Des Id	Bay Id	Part	Bay_Offset Start	Bay_Offset End	Design Length	---Extend-- Left	---Extend-- Right	Weight	----Max_Load--- Id	UC Report	Rot
7.50	1	1	08Z067	0.00	25.00	24.67	0.00	1.25	85.2	WS 1.02	Moment	D
		2	08Z060	0.00	25.00	25.00	1.25	1.25	81.0	WP 0.99	Moment	D
	2	3	08Z054	0.00	25.00	25.00	1.25	1.25	72.9	WS 0.95	Mom+Shr	D
		4	08Z054	0.00	25.00	25.00	1.25	1.25	72.9	WS 0.99	Mom+Shr	D
		5	08Z054	0.00	25.00	25.00	1.25	1.25	72.9	WS 0.99	Mom+Shr	D
		6	08Z054	0.00	7.50	7.17	1.25	0.00	22.3	WS 0.76	Mom+Shr	D
		6	08Z054	17.50	25.00	7.17	0.00	1.25	22.3	WS 0.76	Mom+Shr	D
		7	08Z054	0.00	25.00	25.00	1.25	1.25	72.9	WS 1.02	Mom+Shr	D
		8	08Z054	0.00	25.00	25.00	1.25	1.25	72.9	WS 1.01	Mom+Shr	D
		9	08Z060	0.00	25.00	25.00	1.25	1.25	81.0	WP 0.99	Moment	D
10	08Z067	0.00	25.00	24.67	1.25	0.00	85.2	WS 1.01	Moment	D		
15.00	3	1	08Z060	0.00	25.00	24.67	0.00	1.25	76.3	WS 0.90	Moment	D
		2	08Z054	0.00	25.00	25.00	1.25	1.25	72.9	WS 0.94	Mom+Shr	D
		3	08Z054	0.00	25.00	25.00	1.25	1.25	72.9	WS 0.78	Mom+Shr	D
		4	08Z054	0.00	25.00	25.00	1.25	1.25	72.9	WS 0.78	Mom+Shr	D
		5	08Z054	0.00	25.00	25.00	1.25	1.25	72.9	WS 0.92	Mom+Shr	D
		6	08Z054	0.00	25.00	25.00	1.25	1.25	72.9	WS 0.93	Mom+Shr	D
		7	08Z054	0.00	25.00	25.00	1.25	1.25	72.9	WS 0.91	Mom+Shr	D
		8	08Z054	0.00	25.00	25.00	1.25	1.25	72.9	WS 0.71	Mom+Shr	D
		9	08Z054	0.00	25.00	25.00	1.25	1.25	72.9	WS 0.94	Mom+Shr	D
		10	08Z060	0.00	25.00	24.67	1.25	0.00	76.3	WS 0.90	Moment	D

WP - 0.6Wind\_Pressure  
WS - 0.6Wind\_Suction

Left Endwall Results --- EwDes-L.out

```
=====
U18G0576A           Wall 1 - Bypass Girt Layout           6/14/18  8:31am
=====
```

GIRT LAYOUT:

Locate	Des Id	Bay Id	Part	Bay_Offset Start	Bay_Offset End	Design Length	---Extend-- Left	---Extend-- Right	Weight	----Max_Load--- Id	UC Report	Rot
7.50	1	1	08Z054	0.00	15.00	14.67	0.00	1.81	43.7	WS 0.69	Mom+Shr	D
		2	08Z054	0.00	25.00	25.00	1.81	1.81	75.9	WS 0.93	Mom+Shr	D
		3	08Z054	0.00	25.00	25.00	1.81	1.81	75.9	WS 0.93	Mom+Shr	D
		4	08Z054	0.00	15.00	14.67	1.81	0.00	43.7	WS 0.69	Mom+Shr	D

U18G0576A				LL		A64 of 64							
15.00	2	1	08Z054	0.00	15.00	14.67	0.00	1.81	43.7	WS	0.68	Mom+Shr	D
		2	08Z054	0.00	25.00	25.00	1.81	1.81	75.9	WS	0.94	Mom+Shr	D
		3	08Z054	0.00	25.00	25.00	1.81	1.81	75.9	WS	0.94	Mom+Shr	D
		4	08Z054	0.00	15.00	14.67	1.81	0.00	43.7	WS	0.68	Mom+Shr	D
-----													
22.50	3	2	08Z054	8.17	25.00	16.83	0.00	1.81	49.4	WS	0.45	Mom+Shr	D
		3	08Z054	0.00	16.83	16.83	1.81	0.00	49.4	WS	0.45	Mom+Shr	D

WS - 0.6Wind\_Suction

Right Endwall Results --- EwDes-R.out

=====

U18G0576A                      Wall 3 - Bypass Girt Layout                      6/14/18 8:31am

=====

GIRT LAYOUT:

Locate	Des Id	Bay Id	Part	Bay_Offset Start	Design End	Length	---Extend-- Left	Right	Weight	----Max_Load---- Id	UC Report	Rot	
7.50	1	1	08Z054	0.00	15.00	14.67	0.00	1.81	43.7	WS	0.69	Mom+Shr	D
		2	08Z054	0.00	25.00	25.00	1.81	1.81	75.9	WS	0.93	Mom+Shr	D
		3	08Z054	0.00	25.00	25.00	1.81	1.81	75.9	WS	0.93	Mom+Shr	D
		4	08Z054	0.00	15.00	14.67	1.81	0.00	43.7	WS	0.69	Mom+Shr	D
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15.00	2	1	08Z054	0.00	15.00	14.67	0.00	1.81	43.7	WS	0.68	Mom+Shr	D
		2	08Z054	0.00	25.00	25.00	1.81	1.81	75.9	WS	0.94	Mom+Shr	D
		3	08Z054	0.00	25.00	25.00	1.81	1.81	75.9	WS	0.94	Mom+Shr	D
		4	08Z054	0.00	15.00	14.67	1.81	0.00	43.7	WS	0.68	Mom+Shr	D
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22.50	3	2	08Z054	8.17	25.00	16.83	0.00	1.81	49.4	WS	0.45	Mom+Shr	D
		3	08Z054	0.00	16.83	16.83	1.81	0.00	49.4	WS	0.45	Mom+Shr	D

WS - 0.6Wind\_Suction