



RIGID FRAME: MAXIMUM REACTIONS, ANCHOR BOLTS, & BASE PLATES

Frm Line	Col Line	Load ID	Column Reactions (k)			Anc. Bolt Qty Dia	Base Plate (in)			Base EL. (in)			
			Hmax	V	Hmin		Width	Length	Thick				
4	K	4	6.2	18.6	5	-3.3	-5.7	4	0.750	6.000	12.000	0.375	0.0
4	G	1	5.5	23.1	1	-5.5	37.8	4	0.750	8.000	10.500	0.375	0.0
		6	3.2	-5.8	1	-0.2	0.6						
		1	-5.5	37.8	10	0.6	-6.3						

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			Hmax	V	Hmin		Width	Length	Thick				
5*	K	4	6.6	19.7	12	-4.4	-6.3	4	0.750	6.000	12.000	0.375	0.0
5*	G	12	4.1	-0.4	11	-5.9	15.8	4	0.750	8.000	10.500	0.375	0.0
		1	-5.9	32.6	10	3.4	-7.3						

5\* Frame lines 5 6

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Frm Line	Col Line	Load ID	Column Reactions (k)			Anc. Bolt Qty Dia	Base Plate (in)			Base EL. (in)			
			Hmax	V	Hmin		Width	Length	Thick				
7	K	3	1.8	4.8	7	-1.5	-1.1	4	0.750	6.000	9.500	0.375	0.0
7	G	13	0.5	6.1	5	-1.4	-1.8	4	0.750	6.000	9.500	0.375	0.0
7	I	8	1.5	-0.5	2	-1.2	5.6	4	0.750	6.000	9.500	0.375	0.0
		1	-0.7	8.1	10	-0.2	-1.4						
		9	0.0	-2.6	9	0.0	-2.6	4	0.750	6.000	8.000	0.375	0.0
		1	0.0	13.4									

RIGID FRAME: BASIC COLUMN REACTIONS (k)

Frame Line	Column Line	---Dead---		---Collateral---		---Live---		---Snow---		---Snow Drift---		---Wind Left1---	
		Horiz	Vert	Horiz	Vert	Horiz	Vert	Horiz	Vert	Horiz	Vert	Horiz	Vert
4	K	0.6	2.9	0.3	1.2	2.0	8.2	4.6	18.9	0.0	0.0	-3.6	-7.4
4	G	-0.6	5.7	-0.3	1.8	-2.0	11.6	-4.6	27.4	0.0	2.9	-0.7	-7.3
4	K	2.3	-2.2	-3.4	-4.9	2.5	0.4	-0.7	-0.5	-0.5	-1.6	-1.0	-1.0
4	G	3.3	-9.1	-0.9	-4.7	3.3	-6.5	0.8	-6.6	0.6	-3.6	-1.6	1.0
4	K	1.6	1.0	2.2	9.1	0.0	-1.0	0.0	-0.1	0.0	-1.0	0.0	-0.1
4	G	1.5	-1.0	-2.3	9.2	0.1	-0.1	0.1	-1.0	0.1	-0.1	0.1	-1.0
5*	K	0.6	3.0	0.3	1.3	2.1	8.7	4.9	20.0	0.0	0.0	-3.9	-7.9
5*	G	-0.6	4.7	-0.3	1.4	-2.1	9.6	-4.9	23.1	0.0	3.4	-0.7	-6.3
5*	K	2.4	-2.4	-3.6	-5.1	2.6	0.4	-3.7	-11.7	2.4	-5.2	-1.7	-1.0
5*	G	3.8	-6.7	-1.0	-3.3	3.6	-3.7	-1.8	-5.4	3.4	-6.1	-1.6	1.0
5*	K	1.7	1.0	-6.8	-11.3	2.3	9.5	0.0	-1.1	0.0	-0.1	0.0	-1.1
5*	G	1.6	-1.0	-6.4	4.3	-2.4	9.7	0.1	-0.1	0.1	-1.1	0.1	-0.1
5*	K	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5*	G	0.1	-1.1										
7	K	0.1	0.9	0.0	0.3	0.3	2.1	0.6	4.8	0.0	0.0	-1.4	-2.3
7	G	-0.1	1.4	0.0	0.3	-0.3	2.2	-0.6	5.5	0.0	1.0	-0.9	-1.3
7	I	0.0	1.6	0.0	0.7	0.0	4.8	0.0	11.0	0.0	0.0	0.0	-3.4
7	K	1.7	0.0	-1.6	-1.6	1.6	0.7	0.2	-1.7	0.1	-0.9	-1.0	-0.7
7	G	1.4	-2.0	-0.8	-0.5	1.6	-1.3	-0.2	-1.7	0.0	-1.0	-0.8	0.5
7	I	0.0	-2.5	0.0	-2.0	0.0	-1.1	0.0	-3.5	0.0	-2.1	0.0	0.2
7	K	1.0	0.7	0.3	2.3	0.0	-0.5	0.0	0.0	0.0	-0.5	0.0	0.0
7	G	0.8	-0.5	-0.3	2.3	0.0	0.0	0.0	-0.5	0.0	0.0	0.0	-0.5
7	I	0.0	-0.2	0.0	5.2	0.0	-0.1	0.0	-0.1	0.0	0.0	0.0	-0.1
7	K	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	G	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	I	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	K	0.1	2.5	0.2	2.5	0.2	2.5	0.2	2.5	0.2	2.5	0.2	2.5
7	G	-0.1	-0.2	-0.2	2.6	-0.2	2.6	-0.2	2.6	-0.2	2.6	-0.2	2.6
7	I	0.0	2.8	0.0	2.7	0.0	2.7	0.0	2.7	0.0	2.7	0.0	2.7

5\* Frame lines: 5 6

ENDWALL COLUMN: BASIC COLUMN REACTIONS (k)

Frm Line	Col Line	Wind Press	Wind Suct	-MIN_SNOW-		E2PAT_SL_1-		E2PAT_SL_2-		-LWIND1_L--		-LWIND1_R--	
				Horz	Vert	Horz	Vert	Horz	Vert	Horz	Vert	Horz	Vert
7	I	-2.5	2.7	0.0	6.0	0.0	3.1	0.0	3.1	0.0	-0.2	0.0	-0.2
7	I			-LWIND2_L--		-LWIND2_R--							
				0.0	-0.2	0.0	-0.2						

ENDWALL COLUMN: MAXIMUM REACTIONS, ANCHOR BOLTS, & BASE PLATES

Frm Line	Col Line	Load ID	Column Reactions (k)			Anc. Bolt Qty Dia	Base Plate (in)			Base EL. (in)		
			Hmax	V	Hmin		Width	Length	Thick			
7	I	14	2.7	-4.6	15	-2.5	-3.1	4				
		1	0.0	15.2	14	2.7	-4.6					

\*See Rigid Frame Interior Column Reactions

BUILDING BRACING REACTIONS

Loc	Wall Col Line	± Reactions (k)				Panel Shear (lb/Ft)	Note
		Wind Horiz	Wind Vert	Seismic Horiz	Seismic Vert		
L_EV	4					(h)	
F_SW	G	Torsional Bracing Used					(h)
R_EV	7						
B_SW	K	6.5	4.9	3.2	8.2	5.4	

(h) Rigid frame at endwall

ANCHOR BOLT SUMMARY

Qty	Locate	Dia (in)	Type	Proj (in)
16	Jamb	1/2"	A307	1.50
4	Endwall	3/4"	A307	2.00
32	Frame	3/4"	A307	2.00

NOTES FOR REACTIONS

- The following Design Data is per Package Steel Systems, Inc.'s standard design practices and established procedures and recommendations of the following Organizations and/or Specifications:
- American Institute of Steel Construction (AISC 2005)
  - American Welding Society Structural Welding Code (AWS D1.1)
  - North American United States (NAUS07)
- For maximum reactions tables, all loading conditions are examined and only the maximum/minimum horizontal or vertical reactions along with the corresponding horizontal or vertical for those load IDs are reported.
  - Positive reactions are shown in the sketch. Foundation loads are in the opposite directions.
  - Bracing reactions are in the plane of the brace with the horizontal pointing away from the braced bay. The vertical reaction can be downward or upward.
  - Reactions given are based on the design data below. Reactions are not furnished for loads not listed.
  - The endwall column reactions do NOT include wind and seismic reactions from endwall bracing. Reactions given in the bracing reactions table should be combined with the appropriate basic column reactions as necessary to determine the maximum reactions for foundation design.
  - The rigid frame maximum reactions include wind and seismic reactions from sidewall bracing. Reactions given in the bracing reactions table should not be combined with the appropriate basic column reactions as necessary to determine the maximum reactions for foundation design.
  - Foundation construction and design is not the responsibility of Package Steel Systems, Inc. The embedment of the anchor bolts in concrete is the responsibility of the foundation designer.
  - Suggested anchor rod diameter, quantity, minimum projection and placement are shown. All anchor rods are assumed to be ASTM F1554 Grade 36 or equal. Anchor rods (not by PSS) shall be set to a tolerance of +/-1/8" in both elevation and location.
  - Column base plates are designed not to exceed a bearing pressure of 1050 pounds per sq. inch (0.35F<sub>c</sub> where F<sub>c</sub> = 3000 psi) unless noted otherwise.
  - Basic design wind pressure is furnished. For components and cladding not specifically designed and/or furnished by PSS, the design pressures and suctions shall be increased based on tributary area and location. Confirmation of the design loads and adequacy to resist such loads shall be the responsibility of a licensed design professional by others.

Building Reactions are based on the following information:  
 Building Code/Edition: IBC 09

Building Size:		Snow Loads:	
Width (ft.)	44	Ground Snow (Pg)	60.00 psf
Length (ft.)	58	Flat Roof Snow (P <sub>f</sub> )	46.20 psf
Back Side Eave Height (ft.)	14.53	Snow Exposure Factor (Ce)	1.00
Front Side Eave Height (ft.)	16.01	Snow Thermal Factor (Ct)	1.00
Back Side Roof Slope	0.40:12	Snow Importance Factor (Is)	1.10
Front Side Roof Slope		Sloped Roof Factor (Cs)	1.00
		Snow Drift at Parapet	32.70 psf
Roof Dead, Collateral, & Live Loads:		Seismic Loads:	
Dead Load	5.00 psf	Seismic Importance (I <sub>e</sub> )	1.25
Collateral Load	3.00 psf	Seismic Design Category (A/B/C/D)	B
Live Load	20.00 psf	Site Class-Type	D
Live Load Reduction Taken	No	Seismic Response Coeff. (S <sub>ds</sub> )	0.329
		Seismic Response Coeff. (S <sub>d1</sub> )	0.124
Wind Loads:		Response Modification (MF)	3.00
Basic Wind Speed (3 Second Gust)	100 mph	Response Modification (RF)	3.00
Wind Exposure	B	Design Base Shear (V) = Longit.	8.22 kips
Building Enclosure (D/C/P)	Closed	Design Base Shear (V) = Transv.	9.73 kips
Wind Importance Factor (I <sub>w</sub> )	1.15	Analysis Procedure: Equivalent Lateral Force	
Internal Pressure Coeff. (GCp)	0.18	Auxiliary Load(s):	
		(3) 400# Unit Heaters Suspended off Purlins	

- Acronyms:
- AUXx = Auxiliary Load - Case x
  - C = Closed
  - CL = Collateral Load
  - DL = Dead Load
  - FxUNB\_LL = Unbalanced Live Load for Frame IDx
  - LL = Max. of (Live or Snow)
  - LLR = Live Load Unbalanced
  - LnWnL = Longitudinal Wind Load - Left
  - LnWnR = Longitudinal Wind Load - Right
  - mph = miles per hour
  - D = Open
  - BF = Braced Frame
  - MF = Moment Frame
  - P = Partially Enclosed
  - psf = pounds per square foot
  - SEIS = Seismic
  - WLx = Wind Left - Case x
  - WP = Wind Pressure
  - WRx = Wind Right - Case x
  - WS = Wind Suction

- Loading Conditions are as follows:
- 1 Dead+Collateral+Snow+Snow Drift
  - 2 Dead+Collateral+0.75Snow+0.75Wind\_Left1+0.75Snow\_Drift
  - 3 Dead+Collateral+0.75Snow+0.75Wind\_Right1+0.75Snow\_Drift
  - 4 Dead+Collateral+0.75Snow+0.75Wind\_Right2+0.75Snow\_Drift
  - 5 0.6Dead+Wind\_Left1
  - 6 0.6Dead+Wind\_Right1
  - 7 0.6Dead+Wind\_Left2
  - 8 0.6Dead+Wind\_Right2
  - 9 0.6Dead+Wind\_Long1+LWIND1\_LL2E
  - 10 0.6Dead+Wind\_Long1+LWIND1\_R2E
  - 11 1.03Dead+1.03Collateral+0.75Live+0.52Seismic\_Long
  - 12 0.55Dead+0.75Seismic\_Long
  - 13 Dead+Collateral+Snow+2\*F3PAT\_SL\_1
  - 14 0.6Dead+Wind\_Right2+Wind\_Suction
  - 15 0.6Dead+Wind\_Pressure+Wind\_Long1



REV.	DESCRIPTION	DATE	DRAFT	ENG.
3				
2				
1				
INITIAL DRAWING RELEASED FOR CONSTRUCTION				CURRENT REVISION: 0
PACKAGE STEEL SYSTEMS, INC.		Biskup Construction Inc.		
PROJECT	Academy for Active Learners	ANCHOR BOLT REACTIONS (SECTION B)		
ID	1603-009	DESIGN: ZRM	DESIGN CHECK: ZRM	
PROJECT	134 Warren Ave	DRAFT: TMZ	DRAFT CHECK: TMZ	
ADDRESS	Portland, ME 04103	DATE: 3/29/16	DRAWING: ABLT-3	