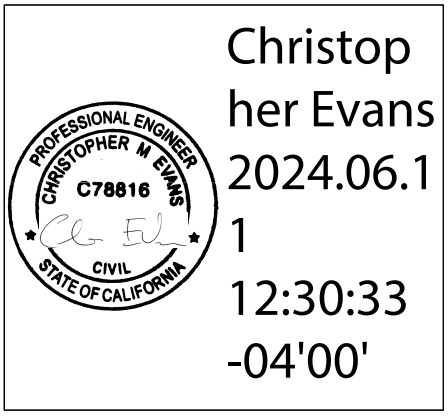
CALCULATIONS FOR:

POLIGON Walkway 15X56
MULTI RIB
2022 CALIFORNIA BUILDING CODE



PREPARED UNDER THE CONTROL AND SUPERVISION OF THE DESIGN PROFESSIONAL ABOVE. THE SEAL APPLIES ONLY TO BUILDING COMPONENTS DETAILED WITHIN THESE CALCULATIONS AND SUPPLIED BY PORTER CORP AS WELL AS THE FOUNDATION DESIGN, IF APPLICABLE.

TABLE OF CONTENTS

DESIGN CRITERIA

GENERAL

Building Code:	See Cover Sheet	Roof Slope (°):	9.46		*2:12 Pitch*
Design Code:	ASCE 7-16				
Risk Category:	II	Equivalent Roof Height:	15.00	ft	

DEAD LOAD

Weight of Roofing System	2.0	psf	
Frame Dead Load	Frame Self-Weight		*(See RISA Analysis Report)*

LIVE LOAD

Roof Live Load, L_r	20.0	psf	*ASCE 7 Table 4-1*

SNOW LOAD

Ground Snow Load, p_g	0.0	psf	
Importance Factor, I (Snow Loads)	1.00		*ASCE 7 Table 1.5-2*
Slope Factor, C_s	1.0		*ASCE 7 Figure 7.4-1*
Thermal Factor, C_t	1.2		*ASCE 7 Table 7.3-2*
Exposure Factor, C_e	1.0		*ASCE 7 Table 7.3-1*
Flat Roof Snow Load, p_f	0.0	psf	*ASCE 7 Section 7.3*
Leeward Unbalanced Snow Load	0.0	psf	*ASCE 7 Section 7.6.1*
Drift Surcharge Load, p_d	0.0	psf	*ASCE 7 Section 7.7*
Width of Snow Drift, w	0.0	ft	*ASCE 7 Section 7.7*
Sliding Snow Load	0.0	psf	*ASCE 7 Section 7.9*

WIND LOAD

Basic Wind Speed, V	V_{ult}	95	mph	V_{asd}	74 mph		*ASCE 7 Section 26.5*
Exposure Category		C		V_T	mph		*ASCE 7 Section 26.7*
Ground Elevation Factor, Ke		1.00					*ASCE 7 Table 26.9-1*
Gust Effect Factor, G		0.85					*ASCE 7 Section 26.11.1*
Velocity Pressure Exposure Coefficient, K_z		0.85					*ASCE 7 Table 26.10-1*
Wind Directionality Factor, K_d		0.85		K_{zT}	0.80		*ASCE 7 Table 26.6-1*
Topographic Factor, K_{zt}		1.00					*ASCE 7 Section 26.8.2*
Velocity Pressure, q_z		16.69	psf	q_{zi}	0.00	psf	*ASCE 7 Section 26.10.2*

Main Wind-Force Resisting System *ASCE 7 Section 27.3*

Open Building, Clear Wind Flow (Cn from ASCE 7 Fig. 27.3-4 - 27.3-7)

	Upper Surface		*Lower Surface*	
Load Case	A	B	A	B
γ = 0				
Windward Cp =	-0.68	-1.53	-1.08	0.00
p (psf):	-9.63	-21.72	-15.30	0.00
γ = 180				
Leeward Cp=	1.53	0.38	1.00	1.65
p (psf):	21.65	5.37	14.25	23.44
γ = 90				
Sideward Cp=	-0.80	0.80	-0.80	0.80
p (psf):	-11.35	11.35	-11.35	11.35

Component and Cladding Elements *ASCE 7 Section 30.7.2*

Open Building, Clear Wind Flow (Cn from ASCE 7 Fig. 30.7-1 - 30.7-3)

	Wind Direction	*Toward Roof*	*Away From Roof*
Zone 3	Cn:	3.30	-4.10
	p (psf):	46.89	-58.11
Zone 2	Cn:	2.48	-2.31
	p (psf):	35.17	-32.77
Zone 1	Cn:	1.65	-1.53
	p (psf):	23.44	-21.72

SEISMIC LOAD

Analysis Procedure	Equivalent Lateral Force Procedure		*ASCE 7 Section 12.8*
Seismic Site Class	D		*ASCE 7 Section 11.4.2*
Basic Seismic Force Resisting System	Steel Ordinary Cantilever Column Systems		*ASCE 7 Table 12.2-1*
Short Spectral Response Parameter, S_s	0.57		
1-Sec Spectral Response Parameter, S_1	0.22		
Seismic Design Category	D		*ASCE 7 Section 11.6*
Importance Factor, I	1.00		*ASCE 7 Table 11.5-1*
Response Modification Coefficient, R	1.25		*ASCE 7 Table 12.2-1*
Redundancy Factor, ρ	1.30		*ASCE 7 Table 12.2-1*
Overstrength Factor, Ω_o	1.25		*ASCE 7 Table 12.2-1*
Design Short Spectral Response Parameter, S_{DS}	0.51		*ASCE 7 Section 11.4.4*
1-Sec Design Spectral Response Parameter, S_{D1}	0.48		*ASCE 7 Section 11.4.4*
Seismic Response Coefficient, C_s	0.41		*ASCE 7 Section 12.8.1.1*
Effective Seismic Weight, W	2.00	psf	*ASCE 7 Section 12.7.2*
Seismic Base Shear, V	0.82	psf	*ASCE 7 Section 12.8.1*
Seismic Load, E	1.07	psf	*ASCE 7 Section 12.4*
Seismic Load with Overstrength Factor, E_m	1.03	psf	*ASCE 7 Section 12.4*

STRUCTURAL ENGINEERING NOTES

GENERAL NOTES

Loads applied to the structure may be greater than required for the project location.

Actual structure dimensions may be smaller than shown in this document.

The engineering seal for the structure designed in these calculations is only valid if Porter Corp fabricates the steel components. Fabricating the steel components elsewhere voids the engineering provided by Porter Corp.

STRUCTURAL ANALYSIS NOTES

RISA-3D structural analysis software was used to model the 3-D space frame.

To reduce the amount of computer printout, the analysis results only show each member's controlling load case.

Unless noted otherwise in the 'RISA Analysis Report', the roof deck was not utilized in the structural analysis to provide lateral support to the members.

From the analysis, all member deflections and structural drift are within allowable limits.

STRUCTURAL DESIGN NOTES

End plates were designed by applying beam end forced to the edges of the plate and calculating the resulting prying moment at the edge of the bolt holes. In determining the prying moment it was assumed that the area of the plate between bolts was fixed.

Light gage members were designed in accordance with the latest edition of the AISC specifications and the AISI Cold-Formed Steel Design Manual.

STRUCTURAL CONNECTION NOTES

Bolt threads were assumed to not be excluded from the connections.

LOAD COMBINATIONS

Key

Abbreviation	Description
DL	Dead Load
Lr	Roof Live Load
S	Snow Load
Su	Unbalanced Snow Load
Ssliding	Sliding Snow
Sdrift	Snow Drift
Wx	Wind Load (X-Direction)
Wz	Wind Load (Z-Direction)
Wx (Min.)	16 psf Minimum Wind Load (X-Direction)
Wz (Min.)	16 psf Minimum Wind Load (Z-Direction)
Ex	Seismic Load (X-Direction)
Ez	Seismic Load (Z-Direction)
Emx	Seismic Load (X-Direction) with Overstrength Factor
Emz	Seismic Load (Z-Direction) with Overstrength Factor
Ev	Vertical Seismic Load Effect
LC	Load Case

Service (Unfactored)

Number	Description
1	SERVICE D
2	SERVICE Lr
3	SERVICE S
4	SERVICE Su
5	SERVICE Ssliding
6	SERVICE Sdrift
7	SERVICE Wx (LC A; y = 0°)
8	SERVICE Wx (LC B; y = 0°)
9	SERVICE Wx (LC A; y = 180°)
10	SERVICE Wx (LC B; y = 180°)
11	SERVICE Wz (LC A; y = 90°)
12	SERVICE Wz (LC B; y = 90°)
13	SERVICE Ex
14	SERVICE Ez
15	SERVICE Ev

Allowable Stress Design (Factored)

Number	Description
17	D
18	D + Lr
19	D + S
20	D + Su
21	D+Ssliding
22	D+Sdrift
23	D + 0.6Wx (LC A; y = 0°)
24	D + 0.6Wx (LC B; y = 0°)
25	D + 0.6Wx (LC A; y = 180°)
26	D + 0.6Wx (LC B; y = 180°)
27	D + 0.6Wz (LC A; y = 90°)
28	D + 0.6Wz (LC B; y = 90°)
29	D + 0.6Wx (Min.)
30	D + 0.6Wz (Min.)
31	D + 0.6(0.75Wx (LC A; y = 0°) + 0.75Wz (LC A; y = 90°))
32	D + 0.6(0.75Wx (LC A; y = 180°) + 0.75Wz (LC A; y = 90°))
33	D + 0.6(0.75Wx (LC B; y = 0°) + 0.75Wz (LC B; y = 90°))
34	D + 0.6(0.75Wx (LC B; y = 180°) + 0.75Wz (LC B; y = 90°))
35	D + 0.6(0.75Wx (Min.) + 0.75Wx (Min.))
36	D + 0.75(0.6Wx (LC A; y = 0°)) + 0.75Lr
37	D + 0.75(0.6Wx (LC B; y = 0°)) + 0.75Lr
38	D + 0.75(0.6Wx (LC A; y = 180°)) + 0.75Lr
39	D + 0.75(0.6Wx (LC B; y = 180°)) + 0.75Lr
40	D + 0.75(0.6Wz (LC A; y = 90°)) + 0.75Lr
41	D + 0.75(0.6Wz (LC B; y = 90°)) + 0.75Lr
42	D + 0.75(0.6Wx (Min.)) + 0.75Lr
43	D + 0.75(0.6Wz (Min.)) + 0.75Lr
44	D + 0.75(0.6(0.75Wx (LC A; y=0°) + 0.75Wz (LC A; y=90°))) + 0.75Lr
45	D + 0.75(0.6(0.75Wx (LC A; y=180°) + 0.75Wz (LC A; y=90°))) + 0.75Lr
46	D + 0.75(0.6(0.75Wx (LC B; y=0°) + 0.75Wz (LC B; y=90°))) + 0.75Lr
47	D + 0.75(0.6(0.75Wx (LC B; y=180°) + 0.75Wz (LC B; y=90°))) + 0.75Lr
48	D + 0.75(0.6(0.75Wx (Min.) + 0.75Wz (Min.))) + 0.75Lr
49	D + 0.75(0.6Wx (LC A; y = 0°)) + 0.75S
50	D + 0.75(0.6Wx (LC B; y = 0°)) + 0.75S
51	D + 0.75(0.6Wx (LC A; y = 180°)) + 0.75S
52	D + 0.75(0.6Wx (LC B; y = 180°)) + 0.75S
53	D + 0.75(0.6Wz (LC A; y = 90°)) + 0.75S
54	D + 0.75(0.6Wz (LC B; y = 90°)) + 0.75S
55	D + 0.75(0.6Wx (Min.)) + 0.75S
56	D + 0.75(0.6Wz (Min.)) + 0.75S
57	D + 0.75(0.6(0.75Wx (LC A; y = 0°) + 0.75Wz (LC A; y = 90°))) + 0.75S
58	D + 0.75(0.6(0.75Wx (LC A; y = 180°) + 0.75Wz (LC A; y = 90°))) + 0.75S
59	D + 0.75(0.6(0.75Wx (LC B; y = 0°) + 0.75Wz (LC B; y = 90°))) + 0.75S
60	D + 0.75(0.6(0.75Wx (LC B; y = 180°) + 0.75Wz (LC B; y = 90°))) + 0.75S
61	D + 0.75(0.6(0.75Wx (Min.) + 0.75Wz (Min.))) + 0.75S
62	0.6D + 0.6Wx (LC A; y = 0°)
63	0.6D + 0.6Wx (LC B; y = 0°)
64	0.6D + 0.6Wx (LC A; y = 180°)
65	0.6D + 0.6Wx (LC B; y = 180°)
66	0.6D + 0.6Wz (LC A; y = 90°)
67	0.6D + 0.6Wz (LC B; y = 90°)
68	0.6D + 0.6Wx (Min.)
69	0.6D + 0.6Wz (Min.)
70	0.6 + 0.6(0.75Wx (LC A; y = 0°) + 0.75Wz (LC A; y = 90°))
71	0.6D + 0.6(0.75Wx (LC A; y = 180°) + 0.75Wz (LC A; y = 90°))
72	0.6D + 0.6(0.75Wx (LC B; y = 0°) + 0.75Wz (LC B; y = 90°))
73	0.6D + 0.6(0.75Wx (LC B; y = 180°) + 0.75Wz (LC B; y = 90°))
74	0.6D + 0.6(0.75Wx (Min.) + 0.75Wz (Min.))
75	1.0D+0.7Ev+0.7Ehx
76	1.0D+0.525Ev+0.525Ehx+0.75S
77	0.6D-0.7Ev+0.7Ehx
78	1.0D+0.7Ev+0.7Ehz
79	1.0D+0.525Ev+0.525Ehz+0.75S
80	0.6D-0.7Ev+0.7Ehz
81	1.0D+0.7Ev+0.7Ehx+0.21Ehz
82	1.0D+0.525Ev+0.525Ehx+0.1575Ehz+0.75S
83	0.6D-0.7Ev+0.7Ehx+0.21Ehz
84	1.0D+0.7Ev+0.7Ehz+0.21Ehx
85	1.0D+0.525Ev+0.525Ehz+0.1575Ehx+0.75S
86	0.6D-0.7Ev+0.7Ehz+0.21Ehx

Notes:

1. Load combinations are effective in all states that have adopted IBC as a base code.
2. See "RISA Analysis Report" for the load combinations that are not listed above.

LOAD COMBINATIONS

Strength Design (Factored)

Number	Description
92	1.4D
93	1.2D + 0.5Lr
94	1.2D + 0.5S
95	1.2D + 1.6Lr + 0.5Wx (LC A; y = 0°)
96	1.2D + 1.6Lr + 0.5Wx (LC B; y = 0°)
97	1.2D + 1.6Lr + 0.5Wx (LC A; y = 180°)
98	1.2D + 1.6Lr + 0.5Wx (LC B; y = 180°)
99	1.2D + 1.6Lr + 0.5Wz (LC A; y = 90°)
100	1.2D + 1.6Lr + 0.5Wz (LC B; y = 90°)
101	1.2D + 1.6Lr + 0.5Wx (Min.)
102	1.2D + 1.6Lr + 0.5Wz (Min.)
103	1.2D + 1.6Lr + 0.5(0.75Wx (LC A; y = 0°) + 0.75Wz (LC A; y = 90°))
104	1.2D + 1.6Lr + 0.5(0.75Wx (LC A; y = 180°) + 0.75Wz (LC A; y = 90°))
105	1.2D + 1.6Lr + 0.5(0.75Wx (LC B; y = 0°) + 0.75Wz (LC B; y = 90°))
106	1.2D + 1.6Lr + 0.5(0.75Wx (LC B; y = 180°) + 0.75Wz (LC B; y = 90°))
107	1.2D + 1.6Lr + 0.5(0.75Wx (Min.) + 0.75Wz (Min.))
108	1.2D + 1.6S + 0.5Wx (LC A; y = 0°)
109	1.2D + 1.6S + 0.5Wx (LC B; y = 0°)
110	1.2D + 1.6S + 0.5Wx (LC A; y = 180°)
111	1.2D + 1.6S + 0.5Wx (LC B; y = 180°)
112	1.2D + 1.6S + 0.5Wz (LC A; y = 90°)
113	1.2D + 1.6S + 0.5Wz (LC B; y = 90°)
114	1.2D + 1.6S + 0.5Wx (Min.)
115	1.2D + 1.6S + 0.5Wz (Min.)
116	1.2D + 1.6S + 0.5(0.75Wx (LC A; y = 0°) + 0.75Wz (LC A; y = 90°))
117	1.2D + 1.6S + 0.5(0.75Wx (LC A; y = 180°) + 0.75Wz (LC A; y = 90°))
118	1.2D + 1.6S + 0.5(0.75Wx (LC B; y = 0°) + 0.75Wz (LC B; y = 90°))
119	1.2D + 1.6S + 0.5(0.75Wx (LC B; y = 180°) + 0.75Wz (LC B; y = 90°))
120	1.2D + 1.6S + 0.5(0.75Wx (Min.) + 0.75Wz (Min.))
121	1.2D + 1.6Su + 0.5Wx (LC A; y = 0°)
122	1.2D + 1.6Su + 0.5Wx (LC B; y = 0°)
123	1.2D + 1.6Su + 0.5Wx (LC A; y = 180°)
124	1.2D + 1.6Su + 0.5Wx (LC B; y = 180°)
125	1.2D + 1.6Su + 0.5Wz (LC A; y = 90°)
126	1.2D + 1.6Su + 0.5Wz (LC B; y = 90°)
127	1.2D + 1.6Su + 0.5Wx (Min.)
128	1.2D + 1.6Su + 0.5Wz (Min.)
129	1.2D + 1.6Su + 0.5(0.75Wx (LC A; y = 0°) + 0.75Wz (LC A; y = 90°))
130	1.2D + 1.6Su + 0.5(0.75Wx (LC A; y = 180°) + 0.75Wz (LC A; y = 90°))
131	1.2D + 1.6Su + 0.5(0.75Wx (LC B; y = 0°) + 0.75Wz (LC B; y = 90°))
132	1.2D + 1.6Su + 0.5(0.75Wx (LC B; y = 180°) + 0.75Wz (LC B; y = 90°))
133	1.2D + 1.6Su + 0.5(0.75Wx (Min.) + 0.75Wz (Min.))
134	1.2D + 1.6Ssliding + 0.5Wx (LC A; y = 0°)
135	1.2D + 1.6Ssliding + 0.5Wx (LC B; y = 0°)
136	1.2D + 1.6Ssliding + 0.5Wx (LC A; y = 180°)
137	1.2D + 1.6Ssliding + 0.5Wx (LC B; y = 180°)
138	1.2D + 1.6Ssliding + 0.5Wz (LC A; y = 90°)
139	1.2D + 1.6Ssliding + 0.5Wz (LC B; y = 90°)
140	1.2D + 1.6Ssliding + 0.5Wx (Min.)
141	1.2D + 1.6Ssliding + 0.5Wz (Min.)
142	1.2D + 1.6Ssliding + 0.5(0.75Wx (LC A; y = 0°) + 0.75Wz (LC A; y = 90°))
143	1.2D + 1.6Ssliding + 0.5(0.75Wx (LC A; y = 180°) + 0.75Wz (LC A; y = 90°))
144	1.2D + 1.6Ssliding + 0.5(0.75Wx (LC B; y = 0°) + 0.75Wz (LC B; y = 90°))
145	1.2D + 1.6Ssliding + 0.5(0.75Wx (LC B; y = 180°) + 0.75Wz (LC B; y = 90°))
146	1.2D + 1.6Ssliding + 0.5(0.75Wx (Min.) + 0.75Wz (Min.))
147	1.2D + 1.6Sdrift + 0.5Wx (LC A; y = 0°)
148	1.2D + 1.6Sdrift + 0.5Wx (LC B; y = 0°)
149	1.2D + 1.6Sdrift + 0.5Wx (LC A; y = 180°)
150	1.2D + 1.6Sdrift + 0.5Wx (LC B; y = 180°)
151	1.2D + 1.6Sdrift + 0.5Wz (LC A; y = 90°)
152	1.2D + 1.6Sdrift + 0.5Wz (LC B; y = 90°)
153	1.2D + 1.6Sdrift + 0.5Wx (Min.)
154	1.2D + 1.6Sdrift + 0.5Wz (Min.)
155	1.2D + 1.6Sdrift + 0.5(0.75Wx (LC A; y = 0°) + 0.75Wz (LC A; y = 90°))
156	1.2D + 1.6Sdrift + 0.5(0.75Wx (LC A; y = 180°) + 0.75Wz (LC A; y = 90°)
157	1.2D + 1.6Sdrift + 0.5(0.75Wx (LC B; y = 0°) + 0.75Wz (LC B; y = 90°))
158	1.2D + 1.6Sdrift + 0.5(0.75Wx (LC B; y = 180°) + 0.75Wz (LC B; y = 90°)
159	1.2D + 1.6Sdrift + 0.5(0.75Wx (Min.) + 0.75Wz (Min.))
160	1.2D + 1.0Wx (LC A; y = 0°) + 0.5Lr
161	1.2D + 1.0Wx (LC B; y = 0°) + 0.5Lr
162	1.2D + 1.0Wx (LC A; y = 180°) + 0.5Lr
163	1.2D + 1.0Wx (LC B; y = 180°) + 0.5Lr
164	1.2D + 1.0Wz (LC A; y = 90°) + 0.5Lr
165	1.2D + 1.0Wz (LC B; y = 90°) + 0.5Lr
166	1.2D + 1.0Wx (Min.) + 0.5Lr
167	1.2D + 1.0Wz (Min.) + 0.5Lr
168	1.2D + 1.0(0.75Wx (LC A; y = 0°) + 0.75Wz (LC A; y = 90°)) + 0.5Lr
169	1.2D + 1.0(0.75Wx (LC A; y = 180°) + 0.75Wz (LC A; y = 90°)) + 0.5Lr
170	1.2D + 1.0(0.75Wx (LC B; y = 0°) + 0.75Wz (LC B; y = 90°)) + 0.5Lr
171	1.2D + 1.0(0.75Wx (LC B; y = 180°) + 0.75Wz (LC B; y = 90°)) + 0.5Lr
172	1.2D + 1.0(0.75Wx (Min.) + 0.75Wz (Min.)) +0.5Lr
173	1.2D + 1.0Wx (LC A; y = 0°) + 0.5S
174	1.2D + 1.0Wx (LC B; y = 0°) + 0.5S
175	1.2D + 1.0Wx (LC A; y = 180°) + 0.5S
176	1.2D + 1.0Wx (LC B; y = 180°) + 0.5S
177	1.2D + 1.0Wz (LC A; y = 90°) + 0.5S
178	1.2D + 1.0Wz (LC B; y = 90°) + 0.5S
179	1.2D + 1.0Wx (Min.) + 0.5S
180	1.2D + 1.0Wz (Min.) + 0.5S
181	1.2D + 1.0(0.75Wx (LC A; y = 0°) + 0.75Wz (LC A; y = 90°)) + 0.5S
182	1.2D + 1.0(0.75Wx (LC A; y = 180°) + 0.75Wz (LC A; y = 90°)) + 0.5S
183	1.2D + 1.0(0.75Wx (LC B; y = 0°) + 0.75Wz (LC B; y = 90°)) + 0.5S
184	1.2D + 1.0(0.75Wx (LC B; y = 180°) + 0.75Wz (LC B; y = 90°)) + 0.5S
185	1.2D + 1.0(0.75Wx (Min.) + 0.75Wz (Min.)) +0.5S
186	0.9D + 1.0Wx (LC A; y = 0°)
187	0.9D + 1.0Wx (LC B; y = 0°)
188	0.9D + 1.0Wx (LC A; y = 180°)
189	0.9D + 1.0Wx (LC B; y = 180°)
190	0.9D + 1.0Wz (LC A; y = 90°)
191	0.9D + 1.0Wz (LC B; y = 90°)
192	0.9D + 1.0Wx (Min.)
193	0.9D + 1.0Wz (Min.)
194	0.9D + 1.0(0.75Wx (LC A; y = 0°) + 0.75Wz (LC A; y = 90°))
195	0.9D + 1.0(0.75Wx (LC A; y = 180°) + 0.75Wz (LC A; y = 90°))
196	0.9D + 1.0(0.75Wx (LC B; y = 0°) + 0.75Wz (LC B; y = 90°))
197	0.9D + 1.0(0.75Wx (LC B; y = 180°) + 0.75Wz (LC B; y = 90°))
198	0.9D + 1.0(0.75Wx (Min.) + 0.75Wz (Min.))
199	1.2D+Ev+Ehx+0.2S
200	0.9D-Ev+Ehx
201	1.2D+Ev+Ehz+0.2S
202	0.9D-Ev+Ehz
203	1.2D+Ev+Ehx+0.3Ehz+0.2S

Notes:

1. Load combinations are effective in all states that have adopted IBC as a base code.
2. See "RISA Analysis Report" for the load combinations that are not listed above.

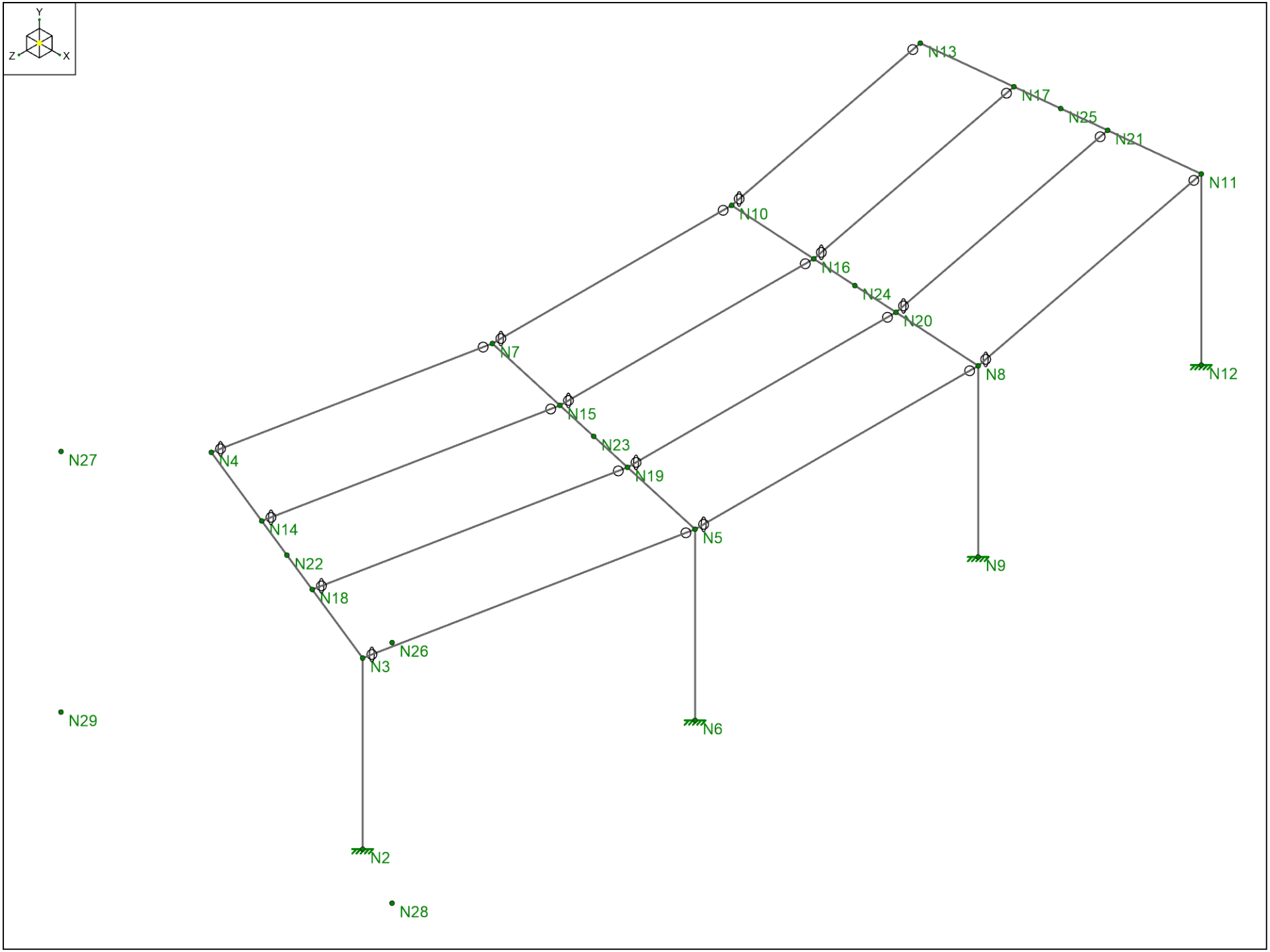
MATERIALS

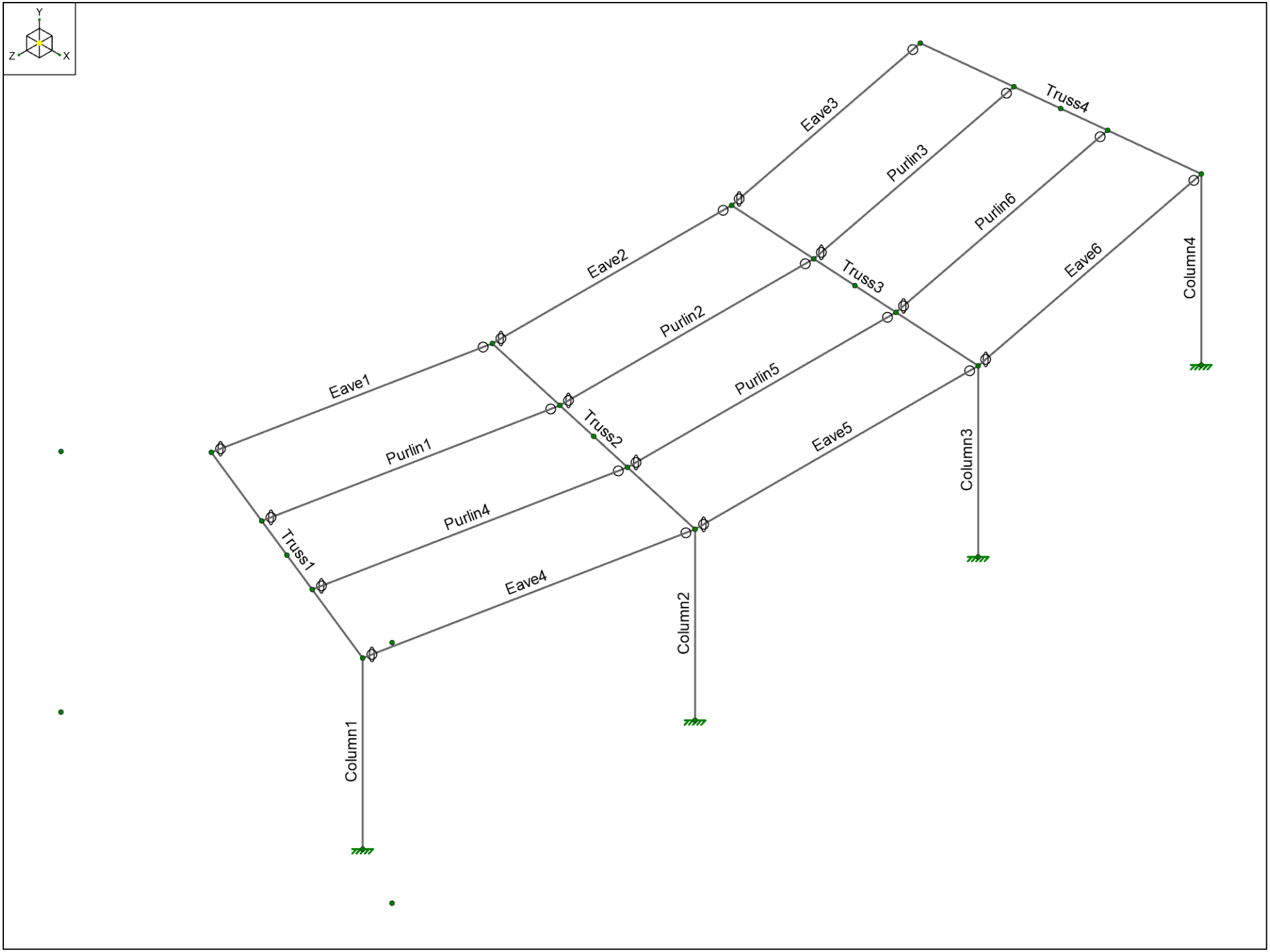
Column	HSS16x8x3/8
Truss	HSS12x8x1/4
Eave	HSS6x4x1/8
Purlin	HSS6x4x1/8

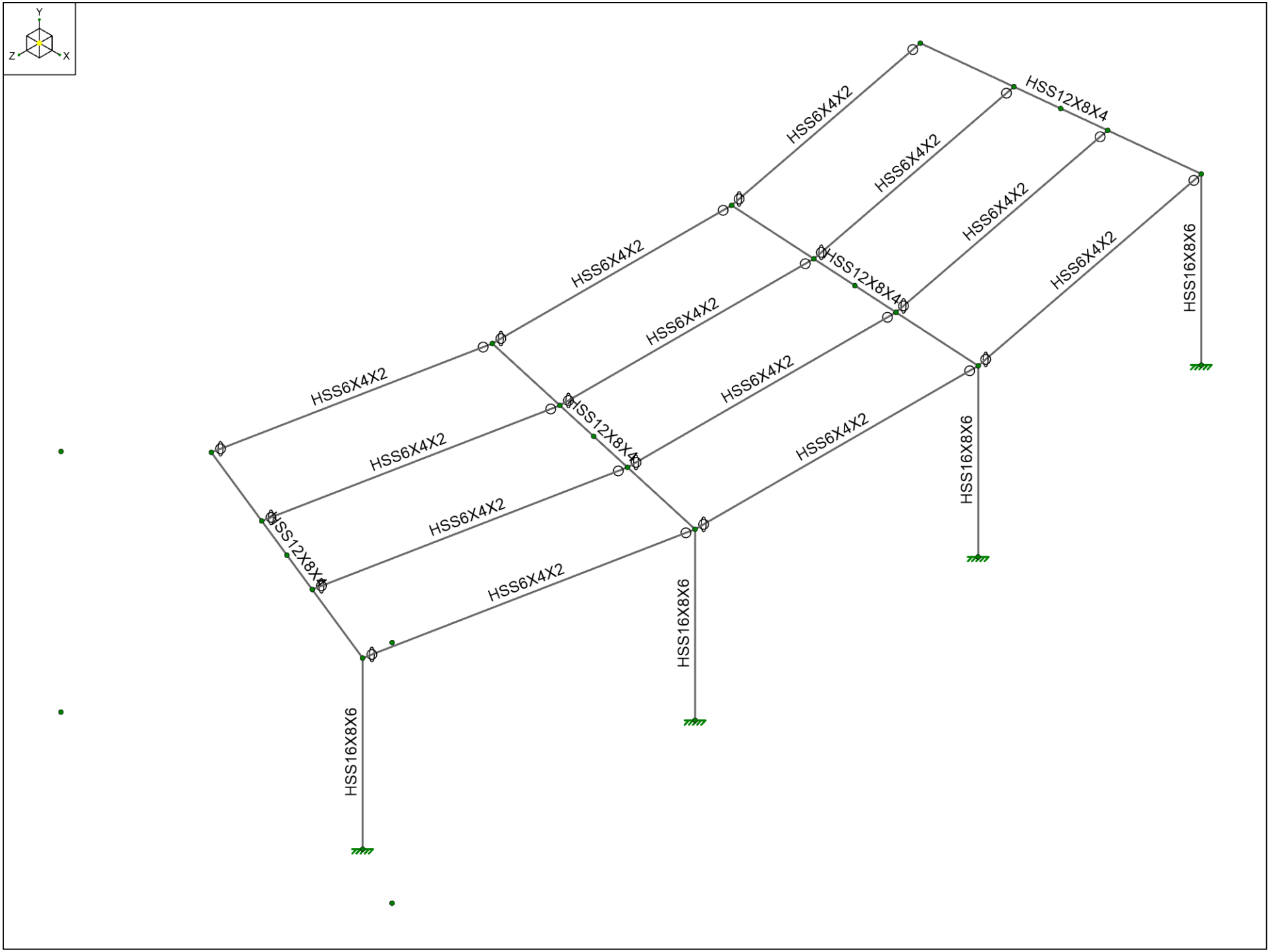
HSS Sections:	ASTM A500 Gr. C
Pipe Sections:	ASTM A53 Gr. B
RMT Sections:	ASTM A519
Channel & Angle Sections:	ASTM A36
Connection Plates:	ASTM A36
Connections Bolts	ASTM A325
Welding Process:	Gas Metal Arc Welding
Welding Electrode:	E70xx

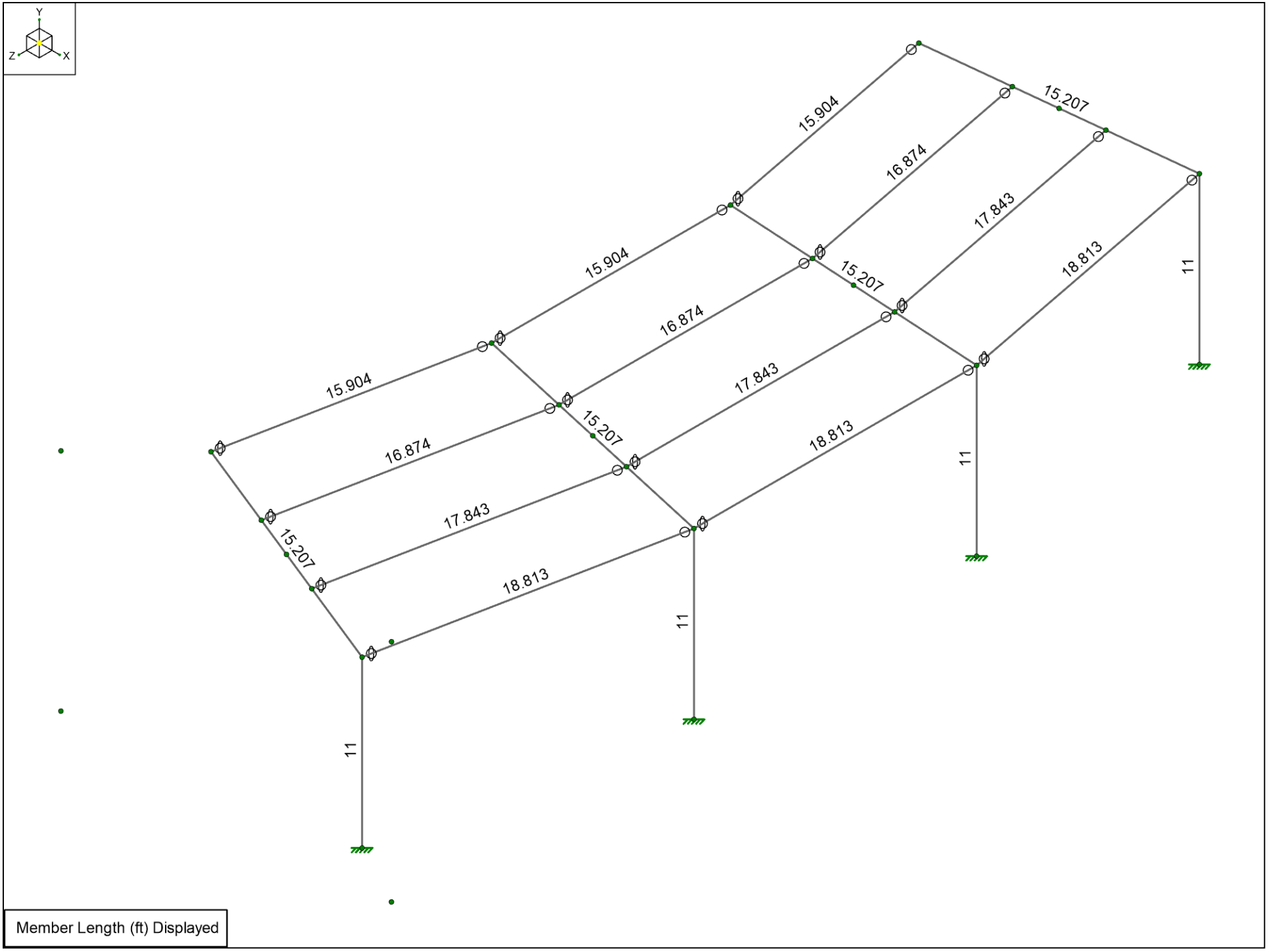
RISA MODEL VIEWS

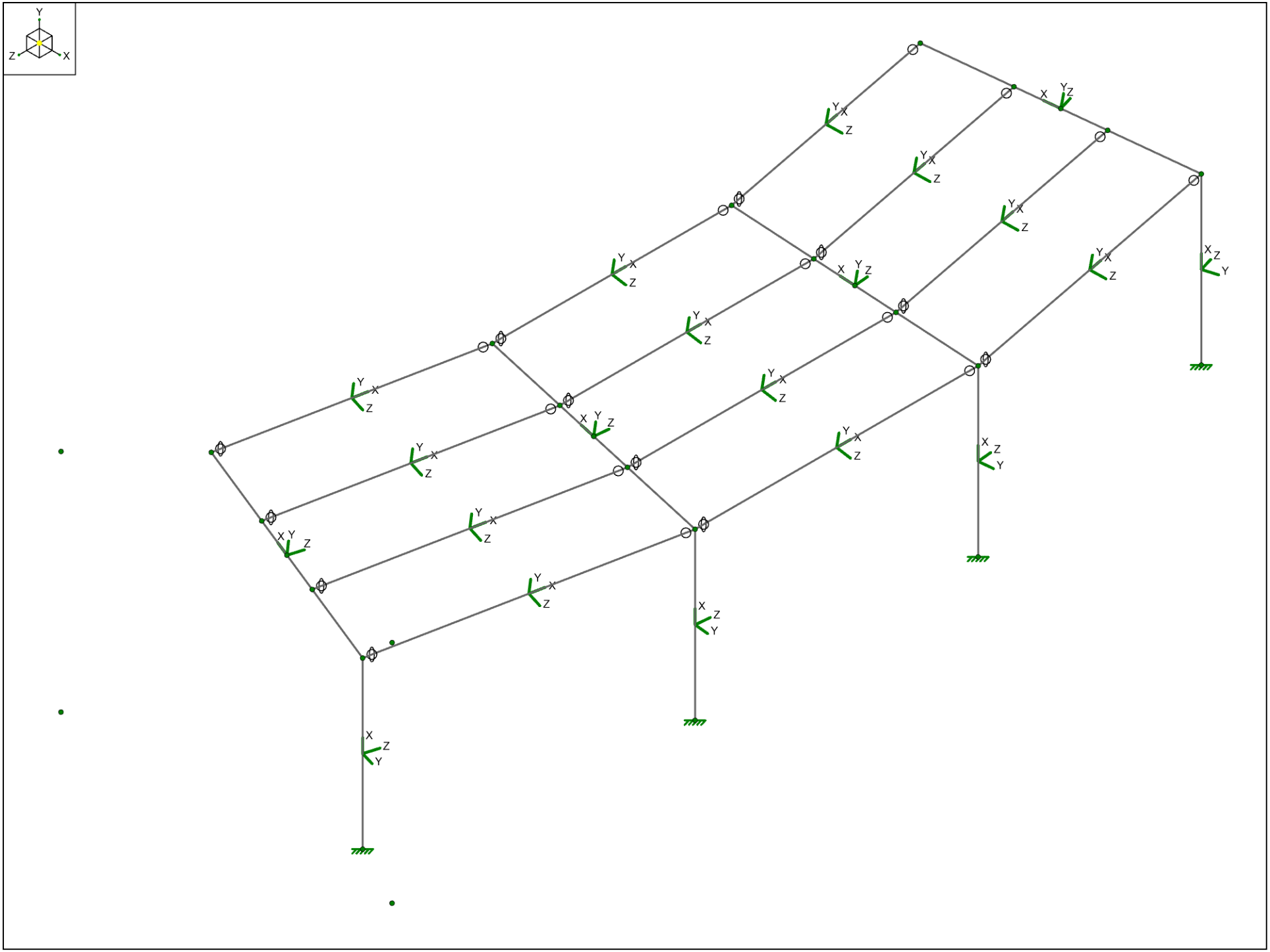
Joint Labels
Member Labels
Member Shapes
Member Lengths
Member Local Axis


Y
Z
X
N13
N17
N25
N21
N11
N10
N16
N24
N20
N7
N8
N12
N15
N23
N27
N4
N19
N14
N5
N22
N9
N18
N26
N3
N29
N6
N2
N28


Y
Z
X
Eave3
Truss4
Purlin3
Purlin6
Eave2
Truss3
Eave6
Column4
Purlin2
Purlin5
Eave1
Truss2
Eave5
Purlin1
Column3
Purlin4
Truss1
Eave4
Column2
Column1


Y
Z
X
HSS6X4X2
HSS12X8X4
HSS16X8X6

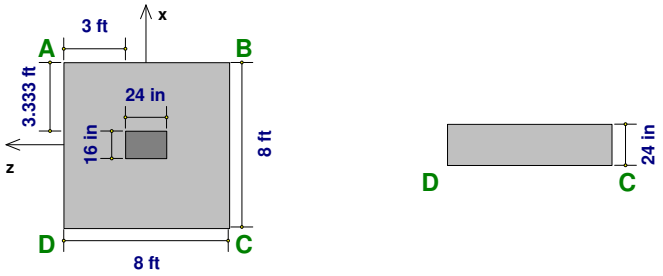

Y
Z
X
15.904
15.207
16.874
17.843
18.813
11
Member Length (ft) Displayed


Y
Z
X

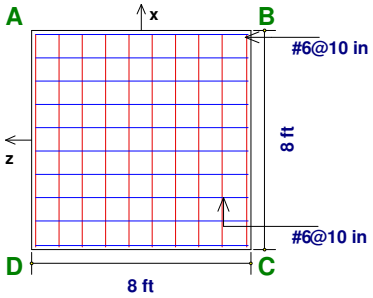
FOUNDATION DESIGN

The foundation design contained herein is site specific, and is based on Geotechnical Investigation for the Fourth Street Community Center and Park, Southeast corner of N. 4th Street & E. Henderson Avenue, Porterville, Tulare County, California, by Soils Engineering, Inc.. Dated January 13, 2023. Report No. 22-18633. Proper care must be taken to ensure any and all recommendations of the above mentioned report for site preparation, soil performance, and foundation design are met. If conditions are present that do not allow for these recommendations to be met, the geotechnical engineer must be contacted.

Sketch



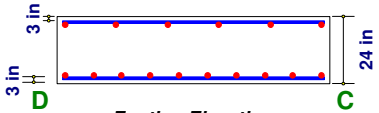
Details



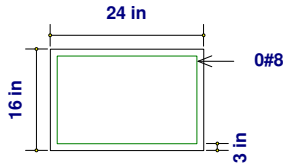
x Dir. Steel: 4.42 in^2 (10 #6)

z Dir. Steel: 4.42 in^2 (10 #6)

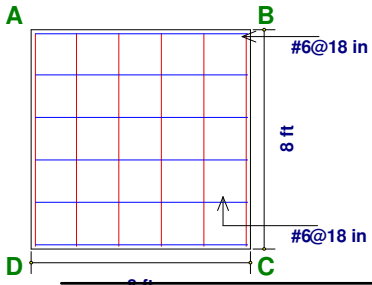
Bottom Rebar Plan



Footing Elevation



Pedestal Rebar Plan



x Dir. Steel: 2.65 in^2 (6 #6)

z Dir. Steel: 2.65 in^2 (6 #6)

Company :
Designer :
Job Number :

June 3, 2024

Footing 1 - N1

Checked By:_____

Geometry, Materials and Criteria

Length:	8 ft	eX:	0 in	Net Allowable Bearing:	2500 psf (net)	Steel fy:	60 ksi
Width:	8 ft	eZ:	0 in	Concrete Weight:	145 lb/ft^3	Minimum Steel:	.0018
Thickness:	24 in	pX:	16 in	Concrete f'c:	4.5 ksi	Maximum Steel:	.0075
Height:	0 in	pZ:	24 in	Design Code:	ACI 318-19		
Rot. Angle:	0 deg						

Footing Top Bar Cover:	3 in	Overturning / Sliding SF:	1.5	Φ for Flexure:	0.9
Footing Bottom Bar Cover:	3 in	Coefficient of Friction:	0.4	Φ for Shear:	0.75
Pedestal Longitudinal Bar Cover:	3 in	Passive Resistance of Soil:	0 k	Φ for Bearing:	0.65

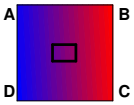
Loads

	P (k)	Vx (k)	Vz (k)	Mx (k-in)	Mz (k-in)	Overburden (psf)
DL	2.24			136	6.4	0
RLL	5.18	0.16	0.07	445.33	21.05	
ELX		0.06	-1.21	150.21	5.5	
ELY	0.23	0.01		13.94	0.66	
ELZ		-1.04	-0.13	16.43	-124.28	
WL+X	-1.96	-0.1	0.3	-191.2	-8.4	
WL+Z	2.77	0.11	-0.41	331.9	14.78	
WL-X	-1.62	-0.09	0.22	-260.38	-11.78	
WL-Z	2.3	0.06	-0.36	181.31	7.83	
OL1	-1.77	-0.06	0.26	-192.66	-8.54	
OL2	1.77	0.1	-0.3	193.4	8.6	

Soil Bearing

Description	Categories and Factors	Gross Allow.(psf)	Max Bearing (psf)	Max/Allowable Ratio
D	1DL	2790	464.062 (B)	0.166
D + Lr	1DL+1RLL	2790	1049.921 (B)	0.376
D + S	1DL+1SL	2790	464.062 (B)	0.166
D + Su	1DL+1OL3	2790	464.062 (B)	0.166
D+Ssliding	1DL+1OL4	2790	464.062 (B)	0.166
D+Sdrift	1DL+1OL5	2790	464.062 (B)	0.166
D + 0.6Wx (LC..	1DL+1WL+X	2790	359.609 (D)	0.129
D + 0.6Wx (LC..	1DL+1WL-X	2790	433.672 (D)	0.155
D + 0.6Wx (LC..	1DL+1WL+Z	2790	877.094 (B)	0.314
D + 0.6Wx (LC..	1DL+1WL-Z	2790	694.551 (B)	0.249
D + 0.6Wz (LC..	1DL+1OL1	2790	362.266 (D)	0.13
D + 0.6Wz (LC..	1DL+1OL2	2790	698.359 (B)	0.25
D + 0.6Wx (Mi..	1DL	2790	464.062 (B)	0.166
D + 0.6Wz (Mi..	1DL	2790	464.062 (B)	0.166
D + 0.6(0.75W..	1DL+0.75WL+X+0.75OL1	2790	448.437 (D)	0.161
D + 0.6(0.75W..	1DL+0.75WL+Z+0.75OL1	2790	585.85 (B)	0.21
D + 0.6(0.75W..	1DL+0.75WL-X+0.75OL2	2790	416.016 (B)	0.149
D + 0.6(0.75W..	1DL+0.75WL-Z+0.75OL2	2790	817.316 (B)	0.293
D + 0.6(0.75W..	1DL	2790	464.062 (B)	0.166
D + 0.75(0.6W..	1DL+0.75WL+X+0.75RLL	2790	691.743 (B)	0.248
D + 0.75(0.6W..	1DL+0.75WL-X+0.75RLL	2790	644.165 (B)	0.231
D + 0.75(0.6W..	1DL+0.75WL+Z+0.75RLL	2790	1337.911 (B)	0.48
D + 0.75(0.6W..	1DL+0.75WL-Z+0.75RLL	2790	1103.268 (B)	0.395
D + 0.75(0.6W..	1DL+0.75OL1+0.75RLL	2790	694.204 (B)	0.249
D + 0.75(0.6W..	1DL+0.75OL2+0.75RLL	2790	1118.7 (B)	0.401
D + 0.75(0.6W..	1DL+0.75RLL	2790	878.183 (B)	0.315
D + 0.75(0.6W..	1DL+0.75RLL	2790	878.183 (B)	0.315
D + 0.75(0.6(..	1DL+0.5625WL+X+0.5625O..	2790	605.493 (B)	0.217
D + 0.75(0.6(..	1DL+0.5625WL+Z+0.5625O..	2790	997.012 (B)	0.357
D + 0.75(0.6(..	1DL+0.5625WL-X+0.5625O..	2790	834.888 (B)	0.299
D + 0.75(0.6(..	1DL+0.5625WL-Z+0.5625O..	2790	1251.473 (B)	0.449
D + 0.75(0.6(..	1DL+0.75RLL	2790	878.183 (B)	0.315
D + 0.75(0.6W..	1DL+0.75WL+X+0.75SL	2790	316.191 (D)	0.113
D + 0.75(0.6W..	1DL+0.75WL-X+0.75SL	2790	371.738 (D)	0.133
D + 0.75(0.6W..	1DL+0.75WL+Z+0.75SL	2790	761.426 (B)	0.273
D + 0.75(0.6W..	1DL+0.75WL-Z+0.75SL	2790	636.929 (B)	0.228
D + 0.75(0.6W..	1DL+0.75OL1+0.75SL	2790	318.184 (D)	0.114
D + 0.75(0.6W..	1DL+0.75OL2+0.75SL	2790	639.785 (B)	0.229
D + 0.75(0.6W..	1DL+0.75SL	2790	464.062 (B)	0.166
D + 0.75(0.6W..	1DL+0.75SL	2790	464.062 (B)	0.166
D + 0.75(0.6(..	1DL+0.5625WL+X+0.5625O..	2790	382.812 (D)	0.137
D + 0.75(0.6(..	1DL+0.5625WL+Z+0.5625O..	2790	555.403 (B)	0.199
D + 0.75(0.6(..	1DL+0.5625WL-X+0.5625O..	2790	428.027 (B)	0.153
D + 0.75(0.6(..	1DL+0.5625WL-Z+0.5625O..	2790	725.506 (B)	0.26
D + 0.75(0.6(..	1DL+0.75SL	2790	464.062 (B)	0.166
0.6D + 0.6Wx ..	0.6DL+1WL+X	2790	285.234 (D)	0.102

0.6D + 0.6Wx ..	0.6DL+1WL-X	2790	360.01 (D)	0.129
0.6D + 0.6Wx ..	0.6DL+1WL+Z	2790	786.801 (B)	0.282
0.6D + 0.6Wx ..	0.6DL+1WL-Z	2790	512.829 (B)	0.184
0.6D + 0.6Wz ..	0.6DL+1OL1	2790	287.891 (D)	0.103
0.6D + 0.6Wz ..	0.6DL+1OL2	2790	522.019 (B)	0.187
0.6D + 0.6Wx ..	0.6DL	2790	278.438 (B)	0.1
0.6D + 0.6Wz ..	0.6DL	2790	278.438 (B)	0.1
0.6 + 0.6(0.7..	0.6DL+0.75WL+X+0.75OL1	2790	391.943 (D)	0.14
0.6D + 0.6(0...	0.6DL+0.75WL+Z+0.75OL1	2790	400.225 (B)	0.143
0.6D + 0.6(0...	0.6DL+0.75WL-X+0.75OL2	2790	230.391 (B)	0.083
0.6D + 0.6(0...	0.6DL+0.75WL-Z+0.75OL2	2790	675.462 (B)	0.242
0.6D + 0.6(0...	0.6DL	2790	278.438 (B)	0.1
1.0D+0.7Ev+0...	1DL+0.7ELY+0.7ELX	2790	604.001 (B)	0.216
1.0D+0.525Ev+..	1DL+0.525ELY+0.525ELX+..	2790	569.016 (B)	0.204
0.6D-0.7Ev+0...	0.6DL+-0.7ELY+0.7ELX	2790	393.118 (B)	0.141
1.0D+0.7Ev+0...	1DL+0.7ELY+0.7ELZ	2790	578.376 (C)	0.207
1.0D+0.525Ev+..	1DL+0.525ELY+0.525ELZ+..	2790	546.673 (C)	0.196
0.6D-0.7Ev+0...	0.6DL+-0.7ELY+0.7ELZ	2790	374.892 (C)	0.134
1.0D+0.7Ev+0...	1DL+0.7ELY+0.7ELX+0.21..	2790	615.397 (C)	0.221
1.0D+0.525Ev+..	1DL+0.525ELY+0.525ELX+..	2790	574.439 (C)	0.206
0.6D-0.7Ev+0...	0.6DL+-0.7ELY+0.7ELX+0..	2790	412.724 (C)	0.148
1.0D+0.7Ev+0...	1DL+0.7ELY+0.7ELZ+0.21..	2790	613.713 (C)	0.22
1.0D+0.525Ev+..	1DL+0.525ELY+0.525ELZ+..	2790	573.175 (C)	0.205
0.6D-0.7Ev+0...	0.6DL+-0.7ELY+0.7ELZ+0..	2790	410.506 (C)	0.147



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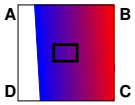
QC: 451.563 psf
QD: 185.937 psf
NAZ: 167.718 in
NAX: 3564 in



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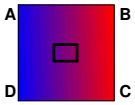

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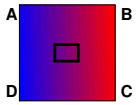

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QC: 451.563 psf
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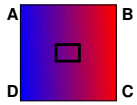
NAX: 3564 in



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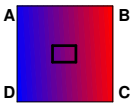

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QC: 451.563 psf
QD: 185.937 psf
NAZ: 167.718 in
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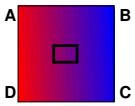

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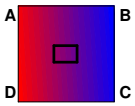

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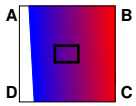

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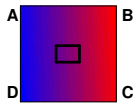

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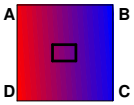

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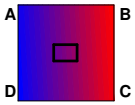

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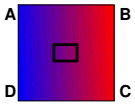

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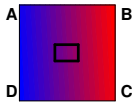

1DL
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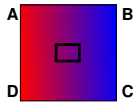
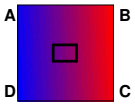
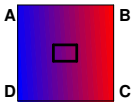
NAZ: 167.718 in
NAX: 3564 in



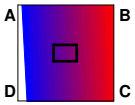
1DL+0.75WL+X+..
QA: 430.498 psf
QB: 114.141 psf
QC: 132.08 psf
QD: 448.437 psf
NAZ: 136.08 in
NAX: 2399.739 in



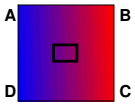
1DL+0.75WL+Z+..
QA: 110.986 psf
QB: 585.85 psf
QC: 562.451 psf
QD: 87.588 psf
NAZ: 118.437 in
NAX: 2403.646 in



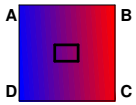
1DL+0.75WL-X+..
QA: 245.693 psf
QB: 416.016 psf
QC: 407.822 psf
QD: 237.5 psf
NAZ: 234.482 in
NAX: 4874.374 in



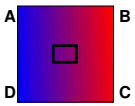
1DL+0.75WL-Z+..
QA: 0 psf
QB: 817.316 psf
QC: 772.314 psf
QD: 0 psf
NAZ: 92.554 in
NAX: 1743.529 in



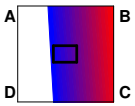
1DL
QA: 198.437 psf
QB: 464.062 psf
QC: 451.563 psf
QD: 185.937 psf
NAZ: 167.718 in
NAX: 3564 in



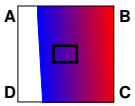
1DL+0.75WL+X+..
QA: 66.865 psf
QB: 691.743 psf
QC: 658.604 psf
QD: 33.726 psf
NAZ: 106.273 in
NAX: 2003.864 in



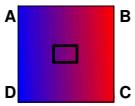
1DL+0.75WL-X+..
QA: 117.813 psf
QB: 644.165 psf
QC: 615.625 psf
QD: 89.272 psf
NAZ: 117.487 in
NAX: 2166.775 in



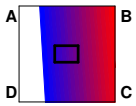
1DL+0.75WL+Z+..
QA: 0 psf
QB: 1337.911 psf
QC: 1223.772 psf
QD: 0 psf
NAZ: 65.433 in
NAX: 1125.297 in



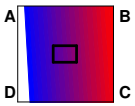
1DL+0.75WL-Z+..
QA: 0 psf
QB: 1103.268 psf
QC: 1022.681 psf
QD: 0 psf
NAZ: 77.324 in
NAX: 1314.282 in



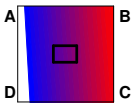
1DL+0.75OL1+0..
QA: 70.059 psf
QB: 694.204 psf
QC: 659.863 psf
QD: 35.718 psf
NAZ: 106.776 in
NAX: 1940.652 in



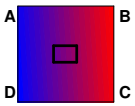
1DL+0.75OL2+0..
QA: 0 psf
QB: 1118.7 psf
QC: 1032.548 psf
QD: 0 psf
NAZ: 75.416 in
NAX: 1246.585 in



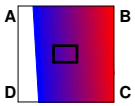
1DL+0.75RLL
QA: 0 psf
QB: 878.183 psf
QC: 824.143 psf
QD: 0 psf
NAZ: 89.736 in
NAX: 1560.055 in



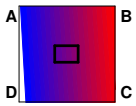
1DL+0.75RLL
QA: 0 psf
QB: 878.183 psf
QC: 824.143 psf
QD: 0 psf
NAZ: 89.736 in
NAX: 1560.055 in



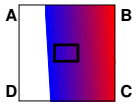
1DL+0.5625WL+..
QA: 126.477 psf
QB: 605.493 psf
QC: 579.363 psf
QD: 100.347 psf
NAZ: 121.347 in
NAX: 2224.513 in



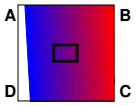
1DL+0.5625WL+..
QA: 0 psf
QB: 997.012 psf
QC: 927.307 psf
QD: 0 psf
NAZ: 81.537 in
NAX: 1373.125 in



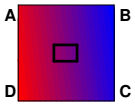
1DL+0.5625WL-..
QA: 0 psf
QB: 834.888 psf
QC: 786.965 psf
QD: 0 psf
NAZ: 94.314 in
NAX: 1672.46 in



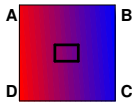
1DL+0.5625WL-..
QA: 0 psf
QB: 1251.473 psf
QC: 1149.952 psf
QD: 0 psf
NAZ: 70.203 in
NAX: 1183.418 in



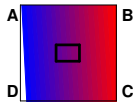
1DL+0.75RLL
QA: 0 psf
QB: 878.183 psf
QC: 824.143 psf
QD: 0 psf
NAZ: 89.736 in
NAX: 1560.055 in



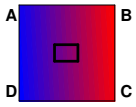
1DL+0.75WL+X+..
QA: 312.871 psf
QB: 287.871 psf
QC: 291.191 psf
QD: 316.191 psf
NAZ: 1214.175 in
NAX: 9142.024 in



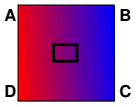
1DL+0.75WL-X+..
QA: 363.818 psf
QB: 240.293 psf
QC: 248.213 psf
QD: 371.738 psf
NAZ: 288.903 in
NAX: 4505.963 in



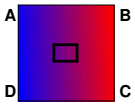
1DL+0.75WL+Z+..
QA: 0 psf
QB: 761.426 psf
QC: 721.975 psf
QD: 0 psf
NAZ: 94.973 in
NAX: 1852.858 in



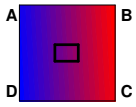
1DL+0.75WL-Z+..
QA: 93.057 psf
QB: 636.929 psf
QC: 610.85 psf
QD: 66.978 psf
NAZ: 112.426 in
NAX: 2344.604 in



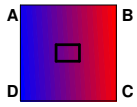
1DL+0.75OL1+0..
QA: 316.064 psf
QB: 290.332 psf
QC: 292.451 psf
QD: 318.184 psf
NAZ: 1187.048 in
NAX: 14414.157 in



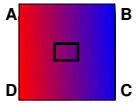
1DL+0.75OL2+0..
QA: 80.313 psf
QB: 639.785 psf
QC: 611.172 psf
QD: 51.699 psf
NAZ: 109.781 in
NAX: 2146.534 in



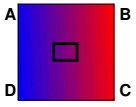
1DL+0.75SL
QA: 198.437 psf
QB: 464.062 psf
QC: 451.563 psf
QD: 185.937 psf
NAZ: 167.718 in
NAX: 3564 in



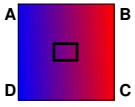
1DL+0.75SL
QA: 198.437 psf
QB: 464.062 psf
QC: 451.563 psf
QD: 185.937 psf
NAZ: 167.718 in
NAX: 3564 in



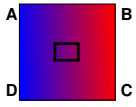
1DL+0.5625WL+..
QA: 372.483 psf
QB: 201.621 psf
QC: 211.951 psf
QD: 382.812 psf
NAZ: 215.086 in
NAX: 3557.74 in



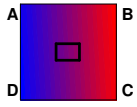
1DL+0.5625WL+..
QA: 132.849 psf
QB: 555.403 psf
QC: 534.729 psf
QD: 112.175 psf
NAZ: 126.182 in
NAX: 2579.042 in



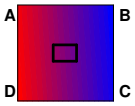
1DL+0.5625WL-..
QA: 233.879 psf
QB: 428.027 psf
QC: 418.757 psf
QD: 224.609 psf
NAZ: 211.646 in
NAX: 4432.636 in



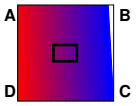
1DL+0.5625WL-..
QA: 30.808 psf
QB: 725.506 psf
QC: 690.735 psf
QD: 0 psf
NAZ: 100.257 in
NAX: 2003.024 in



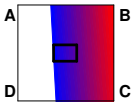
1DL+0.75SL
QA: 198.437 psf
QB: 464.062 psf
QC: 451.563 psf
QD: 185.937 psf
NAZ: 167.718 in
NAX: 3564 in



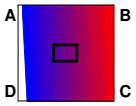
0.6DL+1WL+X
QA: 271.641 psf
QB: 43.516 psf
QC: 57.109 psf
QD: 285.234 psf
NAZ: 120.033 in
NAX: 2014.345 in



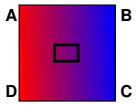
0.6DL+1WL-X
QA: 339.669 psf
QB: 0 psf
QC: 0 psf
QD: 360.01 psf
NAZ: 95.809 in
NAX: 1699.115 in



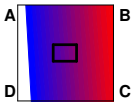
0.6DL+1WL+Z
QA: 0 psf
QB: 786.801 psf
QC: 721.068 psf
QD: 0 psf
NAZ: 63.287 in
NAX: 1149.09 in



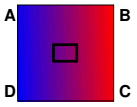
0.6DL+1WL-Z
QA: 0 psf
QB: 512.829 psf
QC: 485.158 psf
QD: 0 psf
NAZ: 91.299 in
NAX: 1779.218 in



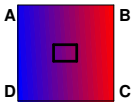
0.6DL+1OL1
QA: 275.898 psf
QB: 46.797 psf
QC: 58.789 psf
QD: 287.891 psf
NAZ: 120.634 in
NAX: 2304.625 in



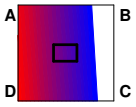
0.6DL+1OL2
QA: 0 psf
QB: 522.019 psf
QC: 489.102 psf
QD: 0 psf
NAZ: 87.282 in
NAX: 1522.412 in



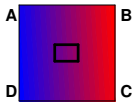
0.6DL
QA: 119.063 psf
QB: 278.438 psf
QC: 270.937 psf
QD: 111.562 psf
NAZ: 167.718 in
NAX: 3564 in



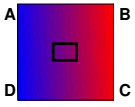
0.6DL
QA: 119.063 psf
QB: 278.438 psf
QC: 270.937 psf
QD: 111.562 psf
NAZ: 167.718 in
NAX: 3564 in



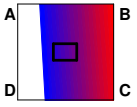
0.6DL+0.75WL+..
QA: 363.301 psf
QB: 0 psf
QC: 0 psf
QD: 391.943 psf
NAZ: 79.801 in
NAX: 1313.661 in



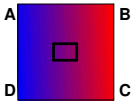
0.6DL+0.75WL+..
QA: 31.611 psf
QB: 400.225 psf
QC: 381.826 psf
QD: 13.213 psf
NAZ: 104.233 in
NAX: 2088.306 in



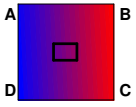
0.6DL+0.75WL-..
QA: 166.318 psf
QB: 230.391 psf
QC: 227.197 psf
QD: 163.125 psf
NAZ: 345.196 in
NAX: 6926.092 in



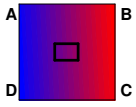
0.6DL+0.75WL-..
QA: 0 psf
QB: 675.462 psf
QC: 625.592 psf
QD: 0 psf
NAZ: 74.34 in
NAX: 1300.264 in



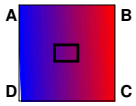
0.6DL
QA: 119.063 psf
QB: 278.438 psf
QC: 270.937 psf
QD: 111.562 psf
NAZ: 167.718 in
NAX: 3564 in



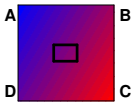
1DL+0.7ELY+0...
QA: 74.249 psf
QB: 604.001 psf
QC: 580.782 psf
QD: 51.03 psf
NAZ: 109.455 in
NAX: 2497.296 in



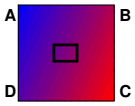
1DL+0.525ELY+..
QA: 105.296 psf
QB: 569.016 psf
QC: 548.477 psf
QD: 84.757 psf
NAZ: 117.799 in
NAX: 2659.594 in



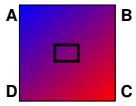
0.6DL+-0.7ELY..
QA: 7.645 psf
QB: 393.118 psf
QC: 377.294 psf
QD: 0 psf
NAZ: 97.904 in
NAX: 2384.893 in



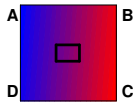
1DL+0.7ELY+0...
QA: 76.655 psf
QB: 388.067 psf
QC: 578.376 psf
QD: 266.964 psf
NAZ: 178.298 in
NAX: 291.758 in



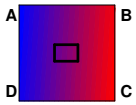
1DL+0.525ELY+..
QA: 107.101 psf
QB: 407.066 psf
QC: 546.673 psf
QD: 246.707 psf
NAZ: 174.955 in
NAX: 375.918 in



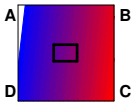
0.6DL+-0.7ELY..
QA: 10.077 psf
QB: 177.122 psf
QC: 374.892 psf
QD: 207.847 psf
NAZ: 215.449 in
NAX: 181.977 in



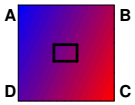
1DL+0.7ELY+0...
QA: 39.634 psf
QB: 577.404 psf
QC: 615.397 psf
QD: 77.627 psf
NAZ: 109.858 in
NAX: 1554.976 in



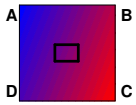
1DL+0.525ELY+..
QA: 79.335 psf
QB: 549.069 psf
QC: 574.439 psf
QD: 104.705 psf
NAZ: 117.399 in
NAX: 2173.697 in



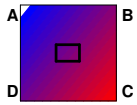
0.6DL+-0.7ELY..
QA: 0 psf
QB: 366.419 psf
QC: 412.724 psf
QD: 18.142 psf
NAZ: 100.414 in
NAX: 855.67 in



1DL+0.7ELY+0...
QA: 41.318 psf
QB: 426.251 psf
QC: 613.713 psf
QD: 228.78 psf
NAZ: 153.057 in
NAX: 314.285 in



1DL+0.525ELY+..
QA: 80.598 psf
QB: 435.704 psf
QC: 573.175 psf
QD: 218.07 psf
NAZ: 154.953 in
NAX: 400.263 in



0.6DL+-0.7ELY..
QA: 0 psf
QB: 215.248 psf
QC: 410.506 psf
QD: 169.601 psf
NAZ: 163.585 in
NAX: 201.828 in

Footing Flexure Design (Bottom Bars)

As-min x-dir (Top Flexure): **0 in^2**
As-min z-dir (Top Flexure): **0 in^2**
As-min x-dir (Bot Flexure): **4.147 in^2**
As-min z-dir (Bot Flexure): **4.147 in^2**
As-min x-dir (T & S): **4.147 in^2**
As-min z-dir (T & S): **4.147 in^2**

Description	Categories and Factors	Mu-xx UC Max	Mu-xx (k-in)	z-Dir As Required (in^2)	z-Dir As Provided (in^2)	Mu-zz UC Max	Mu-zz (k-in)	x-Dir As Required (in^2)	x-Dir As Provided (in^2)
1.4D	1.4DL	0.01716	81.41	0.074	4.418	0.00622	29.5	0.027	4.418
1.2D + 0.5L..	1.2DL+0.5RLL	0.03318	157.45	0.144	4.418	0.01087	51.55	0.047	4.418
1.2D + 0.5S	1.2DL+0.5SL	0.01471	69.78	0.064	4.418	0.00533	25.29	0.023	4.418
1.2D + 1.6L..	1.2DL+1.6RLL+0.8..	0.06317	299.73	0.274	4.418	0.01948	92.43	0.085	4.418
1.2D + 1.6L..	1.2DL+1.6RLL+0.8..	0.05839	277.07	0.254	4.418	0.01977	93.79	0.086	4.418
1.2D + 1.6L..	1.2DL+1.6RLL+0.8..	0.12373	587.09	0.538	4.418	0.02829	134.23	0.123	4.418
1.2D + 1.6L..	1.2DL+1.6RLL+0.8..	0.1031	489.2	0.448	4.418	0.02706	128.37	0.117	4.418
1.2D + 1.6L..	1.2DL+1.6RLL+0.8..	0.06327	300.2	0.275	4.418	0.01981	94	0.086	4.418
1.2D + 1.6L..	1.2DL+1.6RLL+0.8..	0.10474	496.97	0.455	4.418	0.0264	125.25	0.115	4.418
1.2D + 1.6L..	1.2DL+1.6RLL	0.08197	388.95	0.356	4.418	0.02307	109.46	0.1	4.418
1.2D + 1.6L..	1.2DL+1.6RLL	0.08197	388.95	0.356	4.418	0.02307	109.46	0.1	4.418
1.2D + 1.6L..	1.2DL+1.6RLL+0.6..	0.05504	261.16	0.239	4.418	0.01793	85.09	0.078	4.418
1.2D + 1.6L..	1.2DL+1.6RLL+0.6..	0.09364	444.32	0.407	4.418	0.02454	116.44	0.107	4.418
1.2D + 1.6L..	1.2DL+1.6RLL+0.6..	0.07725	366.56	0.336	4.418	0.02309	109.54	0.1	4.418
1.2D + 1.6L..	1.2DL+1.6RLL+0.6..	0.11623	551.48	0.505	4.418	0.02855	135.49	0.124	4.418
1.2D + 1.6L..	1.2DL+1.6RLL	0.08197	388.95	0.356	4.418	0.02307	109.46	0.1	4.418
1.2D + 1.6S..	1.2DL+1.6SL+0.83..	0.00164	7.79	0.007	4.418	0.00196	9.29	0.008	4.418
1.2D + 1.6S..	1.2DL+1.6SL+0.83..	0.00578	27.44	0.025	4.418	0.00266	12.63	0.012	4.418
1.2D + 1.6S..	1.2DL+1.6SL+0.83..	0.037	175.56	0.161	4.418	0.01054	50.02	0.046	4.418
1.2D + 1.6S..	1.2DL+1.6SL+0.83..	0.02799	132.8	0.122	4.418	0.00931	44.17	0.04	4.418
1.2D + 1.6S..	1.2DL+1.6SL+0.83..	0.0019	8.99	0.008	4.418	0.00218	10.35	0.009	4.418
1.2D + 1.6S..	1.2DL+1.6SL+0.83..	0.02795	132.63	0.121	4.418	0.00865	41.03	0.038	4.418
1.2D + 1.6S..	1.2DL+1.6SL	0.01471	69.78	0.064	4.418	0.00533	25.29	0.023	4.418
1.2D + 1.6S..	1.2DL+1.6SL	0.01471	69.78	0.064	4.418	0.00533	25.29	0.023	4.418
1.2D + 1.6S..	1.2DL+1.6SL+0.62..	0.00618	29.34	0.027	4.418	0.00105	4.97	0.005	4.418
1.2D + 1.6S..	1.2DL+1.6SL+0.62..	0.02155	102.25	0.094	4.418	0.0068	32.25	0.029	4.418
1.2D + 1.6S..	1.2DL+1.6SL+0.62..	0.01213	57.55	0.053	4.418	0.00535	25.38	0.023	4.418
1.2D + 1.6S..	1.2DL+1.6SL+0.62..	0.0346	164.18	0.15	4.418	0.0108	51.25	0.047	4.418
1.2D + 1.6S..	1.2DL+1.6SL	0.01471	69.78	0.064	4.418	0.00533	25.29	0.023	4.418
1.2D + 1.6S..	1.2DL+1.6OL3+0.8..	0.00164	7.79	0.007	4.418	0.00196	9.29	0.008	4.418
1.2D + 1.6S..	1.2DL+1.6OL3+0.8..	0.00578	27.44	0.025	4.418	0.00266	12.63	0.012	4.418
1.2D + 1.6S..	1.2DL+1.6OL3+0.8..	0.037	175.56	0.161	4.418	0.01054	50.02	0.046	4.418
1.2D + 1.6S..	1.2DL+1.6OL3+0.8..	0.02799	132.8	0.122	4.418	0.00931	44.17	0.04	4.418
1.2D + 1.6S..	1.2DL+1.6OL3+0.8..	0.0019	8.99	0.008	4.418	0.00218	10.35	0.009	4.418
1.2D + 1.6S..	1.2DL+1.6OL3+0.8..	0.02795	132.63	0.121	4.418	0.00865	41.03	0.038	4.418
1.2D + 1.6S..	1.2DL+1.6OL3	0.01471	69.78	0.064	4.418	0.00533	25.29	0.023	4.418
1.2D + 1.6S..	1.2DL+1.6OL3	0.01471	69.78	0.064	4.418	0.00533	25.29	0.023	4.418
1.2D + 1.6S..	1.2DL+1.6OL3+0.6..	0.00618	29.34	0.027	4.418	0.00105	4.97	0.005	4.418
1.2D + 1.6S..	1.2DL+1.6OL3+0.6..	0.02155	102.25	0.094	4.418	0.0068	32.25	0.029	4.418
1.2D + 1.6S..	1.2DL+1.6OL3+0.6..	0.01213	57.55	0.053	4.418	0.00535	25.38	0.023	4.418

1.2D + 1.6S..	1.2DL+1.6OL3+0.6..	0.0346	164.18	0.15	4.418	0.0108	51.25	0.047	4.418
1.2D + 1.6S..	1.2DL+1.6OL3	0.01471	69.78	0.064	4.418	0.00533	25.29	0.023	4.418
1.2D + 1.6S..	1.2DL+1.6OL4+0.8..	0.00164	7.79	0.007	4.418	0.00196	9.29	0.008	4.418
1.2D + 1.6S..	1.2DL+1.6OL4+0.8..	0.00578	27.44	0.025	4.418	0.00266	12.63	0.012	4.418
1.2D + 1.6S..	1.2DL+1.6OL4+0.8..	0.037	175.56	0.161	4.418	0.01054	50.02	0.046	4.418
1.2D + 1.6S..	1.2DL+1.6OL4+0.8..	0.02799	132.8	0.122	4.418	0.00931	44.17	0.04	4.418
1.2D + 1.6S..	1.2DL+1.6OL4+0.8..	0.0019	8.99	0.008	4.418	0.00218	10.35	0.009	4.418
1.2D + 1.6S..	1.2DL+1.6OL4+0.8..	0.02795	132.63	0.121	4.418	0.00865	41.03	0.038	4.418
1.2D + 1.6S..	1.2DL+1.6OL4	0.01471	69.78	0.064	4.418	0.00533	25.29	0.023	4.418
1.2D + 1.6S..	1.2DL+1.6OL4	0.01471	69.78	0.064	4.418	0.00533	25.29	0.023	4.418
1.2D + 1.6S..	1.2DL+1.6OL4+0.6..	0.00618	29.34	0.027	4.418	0.00105	4.97	0.005	4.418
1.2D + 1.6S..	1.2DL+1.6OL4+0.6..	0.02155	102.25	0.094	4.418	0.0068	32.25	0.029	4.418
1.2D + 1.6S..	1.2DL+1.6OL4+0.6..	0.01213	57.55	0.053	4.418	0.00535	25.38	0.023	4.418
1.2D + 1.6S..	1.2DL+1.6OL4+0.6..	0.0346	164.18	0.15	4.418	0.0108	51.25	0.047	4.418
1.2D + 1.6S..	1.2DL+1.6OL4	0.01471	69.78	0.064	4.418	0.00533	25.29	0.023	4.418
1.2D + 1.6S..	1.2DL+1.6OL5+0.8..	0.00164	7.79	0.007	4.418	0.00196	9.29	0.008	4.418
1.2D + 1.6S..	1.2DL+1.6OL5+0.8..	0.00578	27.44	0.025	4.418	0.00266	12.63	0.012	4.418
1.2D + 1.6S..	1.2DL+1.6OL5+0.8..	0.037	175.56	0.161	4.418	0.01054	50.02	0.046	4.418
1.2D + 1.6S..	1.2DL+1.6OL5+0.8..	0.02799	132.8	0.122	4.418	0.00931	44.17	0.04	4.418
1.2D + 1.6S..	1.2DL+1.6OL5+0.8..	0.0019	8.99	0.008	4.418	0.00218	10.35	0.009	4.418
1.2D + 1.6S..	1.2DL+1.6OL5+0.8..	0.02795	132.63	0.121	4.418	0.00865	41.03	0.038	4.418
1.2D + 1.6S..	1.2DL+1.6OL5	0.01471	69.78	0.064	4.418	0.00533	25.29	0.023	4.418
1.2D + 1.6S..	1.2DL+1.6OL5	0.01471	69.78	0.064	4.418	0.00533	25.29	0.023	4.418
1.2D + 1.6S..	1.2DL+1.6OL5+0.6..	0.00618	29.34	0.027	4.418	0.00105	4.97	0.005	4.418
1.2D + 1.6S..	1.2DL+1.6OL5+0.6..	0.02155	102.25	0.094	4.418	0.0068	32.25	0.029	4.418
1.2D + 1.6S..	1.2DL+1.6OL5+0.6..	0.01213	57.55	0.053	4.418	0.00535	25.38	0.023	4.418
1.2D + 1.6S..	1.2DL+1.6OL5+0.6..	0.0346	164.18	0.15	4.418	0.0108	51.25	0.047	4.418
1.2D + 1.6S..	1.2DL+1.6OL5	0.01471	69.78	0.064	4.418	0.00533	25.29	0.023	4.418
1.2D + 1.0W..	1.2DL+1.66667WL+..	0.00649	30.78	0.028	4.418	0.0037	17.56	0.016	4.418
1.2D + 1.0W..	1.2DL+1.66667WL-..	0.00752	35.67	0.033	4.418	0.00477	22.65	0.021	4.418
1.2D + 1.0W..	1.2DL+1.66667WL+..	0.0933	442.68	0.405	4.418	0.0213	101.09	0.092	4.418
1.2D + 1.0W..	1.2DL+1.66667WL-..	0.06238	296	0.271	4.418	0.01884	89.38	0.082	4.418
1.2D + 1.0W..	1.2DL+1.66667OL1..	0.00688	32.65	0.03	4.418	0.00437	20.71	0.019	4.418
1.2D + 1.0W..	1.2DL+1.66667OL2..	0.06345	301.07	0.276	4.418	0.01752	83.12	0.076	4.418
1.2D + 1.0W..	1.2DL+0.5RLL	0.03318	157.45	0.144	4.418	0.01087	51.55	0.047	4.418
1.2D + 1.0W..	1.2DL+0.5RLL	0.03318	157.45	0.144	4.418	0.01087	51.55	0.047	4.418
1.2D + 1.0(..	1.2DL+1.25WL+X+1..	0.00832	39.47	0.036	4.418	0.00154	7.33	0.007	4.418
1.2D + 1.0(..	1.2DL+1.25WL+Z+1..	0.04759	225.78	0.207	4.418	0.01381	65.52	0.06	4.418
1.2D + 1.0(..	1.2DL+1.25WL-X+1..	0.02803	132.98	0.122	4.418	0.0109	51.73	0.047	4.418
1.2D + 1.0(..	1.2DL+1.25WL-Z+1..	0.08189	388.55	0.356	4.418	0.02183	103.6	0.095	4.418
1.2D + 1.0(..	1.2DL+0.5RLL	0.03318	157.45	0.144	4.418	0.01087	51.55	0.047	4.418
1.2D + 1.0W..	1.2DL+1.66667WL+..	0.01034	49.08	0.045	4.418	0	0	0	4.418
1.2D + 1.0W..	1.2DL+1.66667WL-..	0.01863	88.38	0.081	4.418	0.00121	5.75	0.005	4.418
1.2D + 1.0W..	1.2DL+1.66667WL+..	0.06432	305.19	0.279	4.418	0.01576	74.77	0.068	4.418
1.2D + 1.0W..	1.2DL+1.66667WL-..	0.0413	195.98	0.179	4.418	0.01329	63.08	0.058	4.418
1.2D + 1.0W..	1.2DL+1.66667OL1..	0.01085	51.48	0.047	4.418	0.00025	1.18	0.001	4.418
1.2D + 1.0W..	1.2DL+1.66667OL2..	0.04138	196.35	0.18	4.418	0.01197	56.81	0.052	4.418
1.2D + 1.0W..	1.2DL+0.5SL	0.01471	69.78	0.064	4.418	0.00533	25.29	0.023	4.418
1.2D + 1.0W..	1.2DL+0.5SL	0.01471	69.78	0.064	4.418	0.00533	25.29	0.023	4.418

1.2D + 1.0(..	1.2DL+1.25WL+X+1..	0.01944	92.24	0.084	4.418	0	0	0	4.418
1.2D + 1.0(..	1.2DL+1.25WL+Z+1..	0.02839	134.71	0.123	4.418	0.00826	39.2	0.036	4.418
1.2D + 1.0(..	1.2DL+1.25WL-X+1..	0.00955	45.32	0.041	4.418	0.00537	25.47	0.023	4.418
1.2D + 1.0(..	1.2DL+1.25WL-Z+1..	0.05648	267.98	0.245	4.418	0.01629	77.28	0.071	4.418
1.2D + 1.0(..	1.2DL+0.5SL	0.01471	69.78	0.064	4.418	0.00533	25.29	0.023	4.418
0.9D + 1.0W..	0.9DL+1.66667WL+X	0.01211	57.45	0.053	4.418	0	0	0	4.418
0.9D + 1.0W..	0.9DL+1.66667WL-X	0.0209	99.15	0.091	4.418	0.00019	0.91	0.001	4.418
0.9D + 1.0W..	0.9DL+1.66667WL+Z	0.06682	317.05	0.29	4.418	0.01443	68.46	0.063	4.418
0.9D + 1.0W..	0.9DL+1.66667WL-Z	0.03812	180.88	0.166	4.418	0.01196	56.76	0.052	4.418
0.9D + 1.0W..	0.9DL+1.66667OL1	0.01262	59.86	0.055	4.418	0	0	0	4.418
0.9D + 1.0W..	0.9DL+1.66667OL2	0.03865	183.37	0.168	4.418	0.01064	50.5	0.046	4.418
0.9D + 1.0W..	0.9DL	0.01103	52.34	0.048	4.418	0.004	18.97	0.017	4.418
0.9D + 1.0W..	0.9DL	0.01103	52.34	0.048	4.418	0.004	18.97	0.017	4.418
0.9D + 1.0(..	0.9DL+1.25WL+X+1..	0.02492	118.24	0.108	4.418	0	0	0	4.418
0.9D + 1.0(..	0.9DL+1.25WL+Z+1..	0.02471	117.27	0.107	4.418	0.00693	32.88	0.03	4.418
0.9D + 1.0(..	0.9DL+1.25WL-X+1..	0.00587	27.87	0.025	4.418	0.00404	19.15	0.018	4.418
0.9D + 1.0(..	0.9DL+1.25WL-Z+1..	0.05588	265.14	0.243	4.418	0.01496	70.97	0.065	4.418
0.9D + 1.0(..	0.9DL	0.01103	52.34	0.048	4.418	0.004	18.97	0.017	4.418
1.2D+Ev+Ehx..	1.2DL+1ELY+1ELX+..	0.02792	132.46	0.121	4.418	0.00636	30.15	0.028	4.418
0.9D-Ev+Ehx	0.9DL+-1ELY+1ELX	0.02173	103.09	0.094	4.418	0.00407	19.32	0.018	4.418
1.2D+Ev+Ehz..	1.2DL+1ELY+1ELZ+..	0.01727	81.93	0.075	4.418	0.01628	77.23	0.071	4.418
0.9D-Ev+Ehz	0.9DL+-1ELY+1ELZ	0.01108	52.56	0.048	4.418	0.01458	69.19	0.063	4.418
1.2D+Ev+Ehx..	1.2DL+1ELY+1ELX+..	0.02831	134.32	0.123	4.418	0.00744	35.32	0.032	4.418
0.9D-Ev+Ehx..	0.9DL+-1ELY+1ELX..	0.02213	105.01	0.096	4.418	0.00576	27.33	0.025	4.418
1.2D+Ev+Ehz..	1.2DL+1ELY+1ELZ+..	0.02085	98.95	0.091	4.418	0.01611	76.44	0.07	4.418
0.9D-Ev+Ehz..	0.9DL+-1ELY+1ELZ..	0.01467	69.59	0.064	4.418	0.01442	68.43	0.063	4.418

Footing Flexure Design (Top Bars)

Description	Categories and Factors	Mu-xx (k-in)	z Dir As (in^2)	Mu-zz (k-in)	x Dir As (in^2)
SW+OB	**1SW+1OB-(1.2D + 1..,0.9D-Ev+..)**	**125.28**	**0.115**	**54.893**	**0.05**

Moment Capacity of Plain Concrete Section Along xx and zz= 1558.45k-in,1558.45k-in Per Chapter 22 of ACI 318.

Footing Shear Check

Two Way (Punching) Vc: **711.327 k** One Way (x Dir. Cut) Vc: **137.161 k** One Way (z Dir. Cut) Vc: **137.161 k**

		Punching		x Dir. Cut		z Dir. Cut	
Description	Categories and Factors	Vu(k)	Vu/(ϕVc)	Vu(k)	Vu/(ϕVc)	Vu(k)	Vu/(ϕVc)
1.4D	1.4DL	2.59	0.005	2.147	0.021	0.737	0.007
1.2D + 0.5Lr	1.2DL+0.5RLL	4.359	0.008	4.166	0.04	1.291	0.013
1.2D + 0.5S	1.2DL+0.5SL	2.22	0.004	1.84	0.018	0.631	0.006
1.2D + 1.6Lr ..	1.2DL+1.6RLL+0.833333W..	8.064	0.015	7.982	0.078	2.318	0.023
1.2D + 1.6Lr ..	1.2DL+1.6RLL+0.833333W..	8.098	0.015	7.341	0.071	2.349	0.023
1.2D + 1.6Lr ..	1.2DL+1.6RLL+0.833333W..	14.56	0.027	16.43	0.16	3.373	0.033
1.2D + 1.6Lr ..	1.2DL+1.6RLL+0.833333W..	12.937	0.024	13.35	0.13	3.222	0.031
1.2D + 1.6Lr ..	1.2DL+1.6RLL+0.833333OL1	8.18	0.015	7.99	0.078	2.358	0.023
1.2D + 1.6Lr ..	1.2DL+1.6RLL+0.833333OL2	12.768	0.024	13.623	0.132	3.146	0.031
1.2D + 1.6Lr ..	1.2DL+1.6RLL	10.293	0.019	10.471	0.102	2.747	0.027
1.2D + 1.6Lr ..	1.2DL+1.6RLL	10.293	0.019	10.471	0.102	2.747	0.027
1.2D + 1.6Lr ..	1.2DL+1.6RLL+0.625WL+X..	7.267	0.014	6.926	0.067	2.133	0.021
1.2D + 1.6Lr ..	1.2DL+1.6RLL+0.625WL+Z..	11.482	0.022	12.077	0.117	2.924	0.028
1.2D + 1.6Lr ..	1.2DL+1.6RLL+0.625WL-X..	10.028	0.019	9.818	0.095	2.748	0.027
1.2D + 1.6Lr ..	1.2DL+1.6RLL+0.625WL-Z..	14.214	0.027	15.242	0.148	3.402	0.033
1.2D + 1.6Lr ..	1.2DL+1.6RLL	10.293	0.019	10.471	0.102	2.747	0.027
1.2D + 1.6S +..	1.2DL+1.6SL+0.833333WL+X	0.871	0.002	0.191	0.002	0.23	0.002
1.2D + 1.6S +..	1.2DL+1.6SL+0.833333WL-X	1.105	0.002	0.718	0.007	0.315	0.003
1.2D + 1.6S +..	1.2DL+1.6SL+0.833333WL+Z	4.129	0.008	4.662	0.045	1.256	0.012
1.2D + 1.6S +..	1.2DL+1.6SL+0.833333WL-Z	3.803	0.007	3.511	0.034	1.105	0.011
1.2D + 1.6S +..	1.2DL+1.6SL+0.833333OL1	1.002	0.002	0.221	0.002	0.256	0.002
1.2D + 1.6S +..	1.2DL+1.6SL+0.833333OL2	3.438	0.006	3.515	0.034	1.029	0.01
1.2D + 1.6S +..	1.2DL+1.6SL	2.22	0.004	1.84	0.018	0.631	0.006
1.2D + 1.6S +..	1.2DL+1.6SL	2.22	0.004	1.84	0.018	0.631	0.006
1.2D + 1.6S +..	1.2DL+1.6SL+0.625WL+X+..	0.295	0	0.788	0.008	0.128	0.001
1.2D + 1.6S +..	1.2DL+1.6SL+0.625WL+Z+..	2.736	0.005	2.708	0.026	0.808	0.008
1.2D + 1.6S +..	1.2DL+1.6SL+0.625WL-X+..	2.298	0.004	1.507	0.015	0.632	0.006
1.2D + 1.6S +..	1.2DL+1.6SL+0.625WL-Z+..	4.321	0.008	4.35	0.042	1.284	0.012
1.2D + 1.6S +..	1.2DL+1.6SL	2.22	0.004	1.84	0.018	0.631	0.006
1.2D + 1.6Su ..	1.2DL+1.6OL3+0.833333W..	0.871	0.002	0.191	0.002	0.23	0.002
1.2D + 1.6Su ..	1.2DL+1.6OL3+0.833333W..	1.105	0.002	0.718	0.007	0.315	0.003
1.2D + 1.6Su ..	1.2DL+1.6OL3+0.833333W..	4.129	0.008	4.662	0.045	1.256	0.012
1.2D + 1.6Su ..	1.2DL+1.6OL3+0.833333W..	3.803	0.007	3.511	0.034	1.105	0.011
1.2D + 1.6Su ..	1.2DL+1.6OL3+0.833333OL1	1.002	0.002	0.221	0.002	0.256	0.002
1.2D + 1.6Su ..	1.2DL+1.6OL3+0.833333OL2	3.438	0.006	3.515	0.034	1.029	0.01
1.2D + 1.6Su ..	1.2DL+1.6OL3	2.22	0.004	1.84	0.018	0.631	0.006
1.2D + 1.6Su ..	1.2DL+1.6OL3	2.22	0.004	1.84	0.018	0.631	0.006
1.2D + 1.6Su ..	1.2DL+1.6OL3+0.625WL+X..	0.295	0	0.788	0.008	0.128	0.001
1.2D + 1.6Su ..	1.2DL+1.6OL3+0.625WL+Z..	2.736	0.005	2.708	0.026	0.808	0.008
1.2D + 1.6Su ..	1.2DL+1.6OL3+0.625WL-X..	2.298	0.004	1.507	0.015	0.632	0.006
1.2D + 1.6Su ..	1.2DL+1.6OL3+0.625WL-Z..	4.321	0.008	4.35	0.042	1.284	0.012
1.2D + 1.6Su ..	1.2DL+1.6OL3	2.22	0.004	1.84	0.018	0.631	0.006
1.2D + 1.6Ssl..	1.2DL+1.6OL4+0.833333W..	0.871	0.002	0.191	0.002	0.23	0.002

1.2D + 1.6Ssl..	1.2DL+1.6OL4+0.833333W..	1.105	0.002	0.718	0.007	0.315	0.003
1.2D + 1.6Ssl..	1.2DL+1.6OL4+0.833333W..	4.129	0.008	4.662	0.045	1.256	0.012
1.2D + 1.6Ssl..	1.2DL+1.6OL4+0.833333W..	3.803	0.007	3.511	0.034	1.105	0.011
1.2D + 1.6Ssl..	1.2DL+1.6OL4+0.833333OL1	1.002	0.002	0.221	0.002	0.256	0.002
1.2D + 1.6Ssl..	1.2DL+1.6OL4+0.833333OL2	3.438	0.006	3.515	0.034	1.029	0.01
1.2D + 1.6Ssl..	1.2DL+1.6OL4	2.22	0.004	1.84	0.018	0.631	0.006
1.2D + 1.6Ssl..	1.2DL+1.6OL4	2.22	0.004	1.84	0.018	0.631	0.006
1.2D + 1.6Ssl..	1.2DL+1.6OL4+0.625WL+X..	0.295	0	0.788	0.008	0.128	0.001
1.2D + 1.6Ssl..	1.2DL+1.6OL4+0.625WL+Z..	2.736	0.005	2.708	0.026	0.808	0.008
1.2D + 1.6Ssl..	1.2DL+1.6OL4+0.625WL-X..	2.298	0.004	1.507	0.015	0.632	0.006
1.2D + 1.6Ssl..	1.2DL+1.6OL4+0.625WL-Z..	4.321	0.008	4.35	0.042	1.284	0.012
1.2D + 1.6Ssl..	1.2DL+1.6OL4	2.22	0.004	1.84	0.018	0.631	0.006
1.2D + 1.6Sdr..	1.2DL+1.6OL5+0.833333W..	0.871	0.002	0.191	0.002	0.23	0.002
1.2D + 1.6Sdr..	1.2DL+1.6OL5+0.833333W..	1.105	0.002	0.718	0.007	0.315	0.003
1.2D + 1.6Sdr..	1.2DL+1.6OL5+0.833333W..	4.129	0.008	4.662	0.045	1.256	0.012
1.2D + 1.6Sdr..	1.2DL+1.6OL5+0.833333W..	3.803	0.007	3.511	0.034	1.105	0.011
1.2D + 1.6Sdr..	1.2DL+1.6OL5+0.833333OL1	1.002	0.002	0.221	0.002	0.256	0.002
1.2D + 1.6Sdr..	1.2DL+1.6OL5+0.833333OL2	3.438	0.006	3.515	0.034	1.029	0.01
1.2D + 1.6Sdr..	1.2DL+1.6OL5	2.22	0.004	1.84	0.018	0.631	0.006
1.2D + 1.6Sdr..	1.2DL+1.6OL5	2.22	0.004	1.84	0.018	0.631	0.006
1.2D + 1.6Sdr..	1.2DL+1.6OL5+0.625WL+X..	0.295	0	0.788	0.008	0.128	0.001
1.2D + 1.6Sdr..	1.2DL+1.6OL5+0.625WL+Z..	2.736	0.005	2.708	0.026	0.808	0.008
1.2D + 1.6Sdr..	1.2DL+1.6OL5+0.625WL-X..	2.298	0.004	1.507	0.015	0.632	0.006
1.2D + 1.6Sdr..	1.2DL+1.6OL5+0.625WL-Z..	4.321	0.008	4.35	0.042	1.284	0.012
1.2D + 1.6Sdr..	1.2DL+1.6OL5	2.22	0.004	1.84	0.018	0.631	0.006
1.2D + 1.0Wx ..	1.2DL+1.66667WL+X+0.5RLL	1.661	0.003	0.796	0.008	0.435	0.004
1.2D + 1.0Wx ..	1.2DL+1.66667WL-X+0.5RLL	2.129	0.004	0.918	0.009	0.562	0.005
1.2D + 1.0Wx ..	1.2DL+1.66667WL+Z+0.5RLL	10.379	0.019	12.146	0.118	2.542	0.025
1.2D + 1.0Wx ..	1.2DL+1.66667WL-Z+0.5RLL	7.866	0.015	7.884	0.077	2.24	0.022
1.2D + 1.0Wz ..	1.2DL+1.66667OL1+0.5RLL	1.923	0.004	0.841	0.008	0.515	0.005
1.2D + 1.0Wz ..	1.2DL+1.66667OL2+0.5RLL	7.315	0.014	8.057	0.078	2.089	0.02
1.2D + 1.0Wx ..	1.2DL+0.5RLL	4.359	0.008	4.166	0.04	1.291	0.013
1.2D + 1.0Wz ..	1.2DL+0.5RLL	4.359	0.008	4.166	0.04	1.291	0.013
1.2D + 1.0(0...	1.2DL+1.25WL+X+1.25OL1..	0.508	0	1.058	0.01	0.186	0.002
1.2D + 1.0(0...	1.2DL+1.25WL+Z+1.25OL1..	5.473	0.01	6.003	0.058	1.645	0.016
1.2D + 1.0(0...	1.2DL+1.25WL-X+1.25OL2..	4.514	0.008	3.5	0.034	1.292	0.013
1.2D + 1.0(0...	1.2DL+1.25WL-Z+1.25OL2..	9.902	0.019	10.49	0.102	2.601	0.025
1.2D + 1.0(0...	1.2DL+0.5RLL	4.359	0.008	4.166	0.04	1.291	0.013
1.2D + 1.0Wx ..	1.2DL+1.66667WL+X+0.5SL	NA	NA	1.53	0.015	0.224	0.002
1.2D + 1.0Wx ..	1.2DL+1.66667WL-X+0.5SL	NA	NA	2.398	0.023	0.161	0.002
1.2D + 1.0Wx ..	1.2DL+1.66667WL+Z+0.5SL	6.774	0.013	8.211	0.08	1.881	0.018
1.2D + 1.0Wx ..	1.2DL+1.66667WL-Z+0.5SL	5.39	0.01	5.187	0.05	1.579	0.015
1.2D + 1.0Wz ..	1.2DL+1.66667OL1+0.5SL	NA	NA	1.486	0.014	0.145	0.001
1.2D + 1.0Wz ..	1.2DL+1.66667OL2+0.5SL	4.676	0.009	5.215	0.051	1.427	0.014
1.2D + 1.0Wx ..	1.2DL+0.5SL	2.22	0.004	1.84	0.018	0.631	0.006
1.2D + 1.0Wz ..	1.2DL+0.5SL	2.22	0.004	1.84	0.018	0.631	0.006
1.2D + 1.0(0...	1.2DL+1.25WL+X+1.25OL1..	NA	NA	3.178	0.031	0.592	0.006
1.2D + 1.0(0...	1.2DL+1.25WL+Z+1.25OL1..	3.253	0.006	3.575	0.035	0.984	0.01
1.2D + 1.0(0...	1.2DL+1.25WL-X+1.25OL2..	2.375	0.004	1.174	0.011	0.632	0.006

1.2D + 1.0(0...	1.2DL+1.25WL-Z+1.25OL2..	6.67	0.013	7.14	0.069	1.939	0.019
1.2D + 1.0(0...	1.2DL+0.5SL	2.22	0.004	1.84	0.018	0.631	0.006
0.9D + 1.0Wx ..	0.9DL+1.66667WL+X	NA	NA	1.99	0.019	0.382	0.004
0.9D + 1.0Wx ..	0.9DL+1.66667WL-X	NA	NA	2.705	0.026	0.318	0.003
0.9D + 1.0Wx ..	0.9DL+1.66667WL+Z	7.073	0.013	8.709	0.085	1.723	0.017
0.9D + 1.0Wx ..	0.9DL+1.66667WL-Z	4.891	0.009	4.797	0.047	1.421	0.014
0.9D + 1.0Wz ..	0.9DL+1.66667OL1	NA	NA	1.946	0.019	0.303	0.003
0.9D + 1.0Wz ..	0.9DL+1.66667OL2	4.239	0.008	4.889	0.048	1.269	0.012
0.9D + 1.0Wx ..	0.9DL	1.665	0.003	1.38	0.013	0.474	0.005
0.9D + 1.0Wz ..	0.9DL	1.665	0.003	1.38	0.013	0.474	0.005
0.9D + 1.0(0...	0.9DL+1.25WL+X+1.25OL1	NA	NA	3.319	0.032	0.749	0.007
0.9D + 1.0(0...	0.9DL+1.25WL+Z+1.25OL1	2.698	0.005	3.115	0.03	0.826	0.008
0.9D + 1.0(0...	0.9DL+1.25WL-X+1.25OL2	1.82	0.003	0.714	0.007	0.475	0.005
0.9D + 1.0(0...	0.9DL+1.25WL-Z+1.25OL2	6.626	0.012	7.133	0.069	1.782	0.017
0.9D + 1.0(0...	0.9DL	1.665	0.003	1.38	0.013	0.474	0.005
1.2D+Ev+Ehx+0..	1.2DL+1ELY+1ELX+0.2SL	2.41	0.005	3.534	0.034	0.759	0.007
0.9D-Ev+Ehx	0.9DL+-1ELY+1ELX	1.475	0.003	2.759	0.027	0.488	0.005
1.2D+Ev+Ehz+0..	1.2DL+1ELY+1ELZ+0.2SL	2.41	0.005	2.165	0.021	2.037	0.02
0.9D-Ev+Ehz	0.9DL+-1ELY+1ELZ	1.475	0.003	1.39	0.014	1.842	0.018
1.2D+Ev+Ehx+0..	1.2DL+1ELY+1ELX+0.3ELZ..	2.41	0.005	3.584	0.035	0.899	0.009
0.9D-Ev+Ehx+0..	0.9DL+-1ELY+1ELX+0.3ELZ	1.477	0.003	2.811	0.027	0.706	0.007
1.2D+Ev+Ehz+0..	1.2DL+1ELY+1ELZ+0.3ELX..	2.41	0.005	2.626	0.026	2.016	0.02
0.9D-Ev+Ehz+0..	0.9DL+-1ELY+1ELZ+0.3ELX	1.476	0.003	1.852	0.018	1.821	0.018

Concrete Bearing Check (Vertical Loads Only)

Bearing Bc : **2937.6 k**

Description	Categories and Factors	Bearing Bu (k)	Bearing Bu/⌀Bc
1.4D	1.4DL	3.136	0.002
1.2D + 0.5Lr	1.2DL+0.5RLL	5.278	0.003
1.2D + 0.5S	1.2DL+0.5SL	2.688	0.001
1.2D + 1.6Lr ..	1.2DL+1.6RLL+0.833333W..	9.343	0.005
1.2D + 1.6Lr ..	1.2DL+1.6RLL+0.833333W..	9.626	0.005
1.2D + 1.6Lr ..	1.2DL+1.6RLL+0.833333W..	13.284	0.007
1.2D + 1.6Lr ..	1.2DL+1.6RLL+0.833333W..	12.893	0.007
1.2D + 1.6Lr ..	1.2DL+1.6RLL+0.833333OL1	9.501	0.005
1.2D + 1.6Lr ..	1.2DL+1.6RLL+0.833333OL2	12.451	0.007
1.2D + 1.6Lr ..	1.2DL+1.6RLL	10.976	0.006
1.2D + 1.6Lr ..	1.2DL+1.6RLL	10.976	0.006
1.2D + 1.6Lr ..	1.2DL+1.6RLL+0.625WL+X..	8.645	0.005
1.2D + 1.6Lr ..	1.2DL+1.6RLL+0.625WL+Z..	11.601	0.006
1.2D + 1.6Lr ..	1.2DL+1.6RLL+0.625WL-X..	11.07	0.006
1.2D + 1.6Lr ..	1.2DL+1.6RLL+0.625WL-Z..	13.52	0.007
1.2D + 1.6Lr ..	1.2DL+1.6RLL	10.976	0.006
1.2D + 1.6S +..	1.2DL+1.6SL+0.833333WL+X	1.055	0
1.2D + 1.6S +..	1.2DL+1.6SL+0.833333WL-X	1.338	0
1.2D + 1.6S +..	1.2DL+1.6SL+0.833333WL+Z	4.996	0.003
1.2D + 1.6S +..	1.2DL+1.6SL+0.833333WL-Z	4.605	0.002
1.2D + 1.6S +..	1.2DL+1.6SL+0.833333OL1	1.213	0
1.2D + 1.6S +..	1.2DL+1.6SL+0.833333OL2	4.163	0.002
1.2D + 1.6S +..	1.2DL+1.6SL	2.688	0.001
1.2D + 1.6S +..	1.2DL+1.6SL	2.688	0.001
1.2D + 1.6S +..	1.2DL+1.6SL+0.625WL+X+..	0.357	0
1.2D + 1.6S +..	1.2DL+1.6SL+0.625WL+Z+..	3.313	0.002
1.2D + 1.6S +..	1.2DL+1.6SL+0.625WL-X+..	2.782	0.001
1.2D + 1.6S +..	1.2DL+1.6SL+0.625WL-Z+..	5.232	0.003
1.2D + 1.6S +..	1.2DL+1.6SL	2.688	0.001
1.2D + 1.6Su ..	1.2DL+1.6OL3+0.833333W..	1.055	0
1.2D + 1.6Su ..	1.2DL+1.6OL3+0.833333W..	1.338	0
1.2D + 1.6Su ..	1.2DL+1.6OL3+0.833333W..	4.996	0.003
1.2D + 1.6Su ..	1.2DL+1.6OL3+0.833333W..	4.605	0.002
1.2D + 1.6Su ..	1.2DL+1.6OL3+0.833333OL1	1.213	0
1.2D + 1.6Su ..	1.2DL+1.6OL3+0.833333OL2	4.163	0.002
1.2D + 1.6Su ..	1.2DL+1.6OL3	2.688	0.001
1.2D + 1.6Su ..	1.2DL+1.6OL3	2.688	0.001
1.2D + 1.6Su ..	1.2DL+1.6OL3+0.625WL+X..	0.357	0
1.2D + 1.6Su ..	1.2DL+1.6OL3+0.625WL+Z..	3.313	0.002
1.2D + 1.6Su ..	1.2DL+1.6OL3+0.625WL-X..	2.782	0.001
1.2D + 1.6Su ..	1.2DL+1.6OL3+0.625WL-Z..	5.232	0.003
1.2D + 1.6Su ..	1.2DL+1.6OL3	2.688	0.001
1.2D + 1.6Ssl..	1.2DL+1.6OL4+0.833333W..	1.055	0
1.2D + 1.6Ssl..	1.2DL+1.6OL4+0.833333W..	1.338	0

1.2D + 1.6Ssl..	1.2DL+1.6OL4+0.833333W..	4.996	0.003
1.2D + 1.6Ssl..	1.2DL+1.6OL4+0.833333W..	4.605	0.002
1.2D + 1.6Ssl..	1.2DL+1.6OL4+0.833333OL1	1.213	0
1.2D + 1.6Ssl..	1.2DL+1.6OL4+0.833333OL2	4.163	0.002
1.2D + 1.6Ssl..	1.2DL+1.6OL4	2.688	0.001
1.2D + 1.6Ssl..	1.2DL+1.6OL4	2.688	0.001
1.2D + 1.6Ssl..	1.2DL+1.6OL4+0.625WL+X..	0.357	0
1.2D + 1.6Ssl..	1.2DL+1.6OL4+0.625WL+Z..	3.313	0.002
1.2D + 1.6Ssl..	1.2DL+1.6OL4+0.625WL-X..	2.782	0.001
1.2D + 1.6Ssl..	1.2DL+1.6OL4+0.625WL-Z..	5.232	0.003
1.2D + 1.6Ssl..	1.2DL+1.6OL4	2.688	0.001
1.2D + 1.6Sdr..	1.2DL+1.6OL5+0.833333W..	1.055	0
1.2D + 1.6Sdr..	1.2DL+1.6OL5+0.833333W..	1.338	0
1.2D + 1.6Sdr..	1.2DL+1.6OL5+0.833333W..	4.996	0.003
1.2D + 1.6Sdr..	1.2DL+1.6OL5+0.833333W..	4.605	0.002
1.2D + 1.6Sdr..	1.2DL+1.6OL5+0.833333OL1	1.213	0
1.2D + 1.6Sdr..	1.2DL+1.6OL5+0.833333OL2	4.163	0.002
1.2D + 1.6Sdr..	1.2DL+1.6OL5	2.688	0.001
1.2D + 1.6Sdr..	1.2DL+1.6OL5	2.688	0.001
1.2D + 1.6Sdr..	1.2DL+1.6OL5+0.625WL+X..	0.357	0
1.2D + 1.6Sdr..	1.2DL+1.6OL5+0.625WL+Z..	3.313	0.002
1.2D + 1.6Sdr..	1.2DL+1.6OL5+0.625WL-X..	2.782	0.001
1.2D + 1.6Sdr..	1.2DL+1.6OL5+0.625WL-Z..	5.232	0.003
1.2D + 1.6Sdr..	1.2DL+1.6OL5	2.688	0.001
1.2D + 1.0Wx ..	1.2DL+1.66667WL+X+0.5RLL	2.011	0.001
1.2D + 1.0Wx ..	1.2DL+1.66667WL-X+0.5RLL	2.578	0.001
1.2D + 1.0Wx ..	1.2DL+1.66667WL+Z+0.5RLL	9.895	0.005
1.2D + 1.0Wx ..	1.2DL+1.66667WL-Z+0.5RLL	9.111	0.005
1.2D + 1.0Wz ..	1.2DL+1.66667OL1+0.5RLL	2.328	0.001
1.2D + 1.0Wz ..	1.2DL+1.66667OL2+0.5RLL	8.228	0.004
1.2D + 1.0Wx ..	1.2DL+0.5RLL	5.278	0.003
1.2D + 1.0Wz ..	1.2DL+0.5RLL	5.278	0.003
1.2D + 1.0(0...	1.2DL+1.25WL+X+1.25OL1..	0.616	0
1.2D + 1.0(0...	1.2DL+1.25WL+Z+1.25OL1..	6.528	0.003
1.2D + 1.0(0...	1.2DL+1.25WL-X+1.25OL2..	5.465	0.003
1.2D + 1.0(0...	1.2DL+1.25WL-Z+1.25OL2..	10.366	0.005
1.2D + 1.0(0...	1.2DL+0.5RLL	5.278	0.003
1.2D + 1.0Wx ..	1.2DL+1.66667WL+X+0.5SL	0	0
1.2D + 1.0Wx ..	1.2DL+1.66667WL-X+0.5SL	0	0
1.2D + 1.0Wx ..	1.2DL+1.66667WL+Z+0.5SL	7.305	0.004
1.2D + 1.0Wx ..	1.2DL+1.66667WL-Z+0.5SL	6.521	0.003
1.2D + 1.0Wz ..	1.2DL+1.66667OL1+0.5SL	0	0
1.2D + 1.0Wz ..	1.2DL+1.66667OL2+0.5SL	5.638	0.003
1.2D + 1.0Wx ..	1.2DL+0.5SL	2.688	0.001
1.2D + 1.0Wz ..	1.2DL+0.5SL	2.688	0.001
1.2D + 1.0(0...	1.2DL+1.25WL+X+1.25OL1..	0	0
1.2D + 1.0(0...	1.2DL+1.25WL+Z+1.25OL1..	3.938	0.002
1.2D + 1.0(0...	1.2DL+1.25WL-X+1.25OL2..	2.875	0.002
1.2D + 1.0(0...	1.2DL+1.25WL-Z+1.25OL2..	7.776	0.004

1.2D + 1.0(0...	1.2DL+0.5SL	2.688	0.001
0.9D + 1.0Wx ..	0.9DL+1.66667WL+X	0	0
0.9D + 1.0Wx ..	0.9DL+1.66667WL-X	0	0
0.9D + 1.0Wx ..	0.9DL+1.66667WL+Z	6.633	0.003
0.9D + 1.0Wx ..	0.9DL+1.66667WL-Z	5.849	0.003
0.9D + 1.0Wz ..	0.9DL+1.66667OL1	0	0
0.9D + 1.0Wz ..	0.9DL+1.66667OL2	4.966	0.003
0.9D + 1.0Wx ..	0.9DL	2.016	0.001
0.9D + 1.0Wz ..	0.9DL	2.016	0.001
0.9D + 1.0(0...	0.9DL+1.25WL+X+1.25OL1	0	0
0.9D + 1.0(0...	0.9DL+1.25WL+Z+1.25OL1	3.266	0.002
0.9D + 1.0(0...	0.9DL+1.25WL-X+1.25OL2	2.203	0.001
0.9D + 1.0(0...	0.9DL+1.25WL-Z+1.25OL2	7.104	0.004
0.9D + 1.0(0...	0.9DL	2.016	0.001
1.2D+Ev+Ehx+0..	1.2DL+1ELY+1ELX+0.2SL	2.918	0.002
0.9D-Ev+Ehx	0.9DL+-1ELY+1ELX	1.786	0
1.2D+Ev+Ehz+0..	1.2DL+1ELY+1ELZ+0.2SL	2.918	0.002
0.9D-Ev+Ehz	0.9DL+-1ELY+1ELZ	1.786	0
1.2D+Ev+Ehx+0..	1.2DL+1ELY+1ELX+0.3ELZ..	2.918	0.002
0.9D-Ev+Ehx+0..	0.9DL+-1ELY+1ELX+0.3ELZ	1.786	0
1.2D+Ev+Ehz+0..	1.2DL+1ELY+1ELZ+0.3ELX..	2.918	0.002
0.9D-Ev+Ehz+0..	0.9DL+-1ELY+1ELZ+0.3ELX	1.786	0

Overturning Check (Service)

Description	Categories and Factors	Mo-xx (k-in)	Ms-xx (k-in)	Mo-zz (k-in)	Ms-zz (k-in)	OSF-xx	OSF-zz
D	1DL	136	998.4	6.4	998.4	7.341	156
D + Lr	1DL+1RLL	581.33	1248.72	31.29	1247.04	2.148	39.854
D + S	1DL+1SL	136	998.4	6.4	998.4	7.341	156
D + Su	1DL+1OL3	136	998.4	6.4	998.4	7.341	156
D+Ssliding	1DL+1OL4	136	998.4	6.4	998.4	7.341	156
D+Sdrift	1DL+1OL5	136	998.4	6.4	998.4	7.341	156
D + 0.6Wx (LC..	1DL+1WL+X	292.48	1134.4	104.88	1004.8	3.879	9.58
D + 0.6Wx (LC..	1DL+1WL-X	343.42	1134.4	91.7	1004.8	3.303	10.957
D + 0.6Wx (LC..	1DL+1WL+Z	477.74	1131.36	23.82	1131.36	2.368	47.496
D + 0.6Wx (LC..	1DL+1WL-Z	325.95	1108.8	15.67	1108.8	3.402	70.759
D + 0.6Wz (LC..	1DL+1OL1	283.86	1134.4	94.94	1004.8	3.996	10.584
D + 0.6Wz (LC..	1DL+1OL2	336.6	1083.36	17.4	1083.36	3.219	62.262
D + 0.6Wx (Mi..	1DL	136	998.4	6.4	998.4	7.341	156
D + 0.6Wz (Mi..	1DL	136	998.4	6.4	998.4	7.341	156
D + 0.6(0.75W..	1DL+0.75WL+X+0.7..	432.255	1134.4	149.865	1004.8	2.624	6.705
D + 0.6(0.75W..	1DL+0.75WL+Z+0.7..	456.025	1247.295	83.185	1105.605	2.735	13.291
D + 0.6(0.75W..	1DL+0.75WL-X+0.7..	344.77	1261.365	72.97	1072.575	3.659	14.699
D + 0.6(0.75W..	1DL+0.75WL-Z+0.7..	428.912	1144.92	21.603	1144.92	2.669	52.999
D + 0.6(0.75W..	1DL	136	998.4	6.4	998.4	7.341	156
D + 0.75(0.6W..	1DL+0.75WL+X+0.7..	540.558	1334.94	95.627	1192.98	2.47	12.475
D + 0.75(0.6W..	1DL+0.75WL-X+0.7..	528.317	1385.385	83.388	1195.335	2.622	14.335
D + 0.75(0.6W..	1DL+0.75WL+Z+0.7..	726.303	1285.86	38.132	1284.6	1.77	33.688
D + 0.75(0.6W..	1DL+0.75WL-Z+0.7..	612.46	1268.94	32.02	1267.68	2.072	39.59
D + 0.75(0.6W..	1DL+0.75OL1+0.75..	533.717	1335.315	88.788	1192.365	2.502	13.429
D + 0.75(0.6W..	1DL+0.75OL2+0.75..	620.447	1249.86	33.318	1248.6	2.014	37.476
D + 0.75(0.6W..	1DL+0.75RLL	469.998	1186.14	25.067	1184.88	2.524	47.268
D + 0.75(0.6W..	1DL+0.75RLL	469.998	1186.14	25.067	1184.88	2.524	47.268
D + 0.75(0.6(..	1DL+0.5625WL+X+0..	570.707	1409.621	125.778	1196.569	2.47	9.513
D + 0.75(0.6(..	1DL+0.5625WL+Z+0..	710.016	1372.811	82.656	1265.284	1.933	15.308
D + 0.75(0.6(..	1DL+0.5625WL-X+0..	626.575	1383.364	74.995	1240.511	2.208	16.541
D + 0.75(0.6(..	1DL+0.5625WL-Z+0..	689.682	1296.03	36.469	1294.77	1.879	35.503
D + 0.75(0.6(..	1DL+0.75RLL	469.998	1186.14	25.067	1184.88	2.524	47.268
D + 0.75(0.6W..	1DL+0.75WL+X+0.7..	219.36	1134.4	78.66	1004.8	5.171	12.774
D + 0.75(0.6W..	1DL+0.75WL-X+0.7..	257.565	1134.4	68.775	1004.8	4.404	14.61
D + 0.75(0.6W..	1DL+0.75WL+Z+0.7..	392.305	1098.12	19.465	1098.12	2.799	56.415
D + 0.75(0.6W..	1DL+0.75WL-Z+0.7..	278.462	1081.2	13.353	1081.2	3.883	80.974
D + 0.75(0.6W..	1DL+0.75OL1+0.75SL	212.895	1134.4	71.205	1004.8	5.328	14.111
D + 0.75(0.6W..	1DL+0.75OL2+0.75SL	286.45	1062.12	14.65	1062.12	3.708	72.5
D + 0.75(0.6W..	1DL+0.75SL	136	998.4	6.4	998.4	7.341	156
D + 0.75(0.6W..	1DL+0.75SL	136	998.4	6.4	998.4	7.341	156
D + 0.75(0.6(..	1DL+0.5625WL+X+0..	324.191	1134.4	112.399	1004.8	3.499	8.94
D + 0.75(0.6(..	1DL+0.5625WL+Z+0..	376.019	1185.071	63.989	1078.804	3.152	16.859
D + 0.75(0.6(..	1DL+0.5625WL-X+0..	292.578	1195.624	56.328	1054.031	4.087	18.713
D + 0.75(0.6(..	1DL+0.5625WL-Z+0..	355.684	1108.29	17.802	1108.29	3.116	62.257
D + 0.75(0.6(..	1DL+0.75SL	136	998.4	6.4	998.4	7.341	156
0.6D + 0.6Wx ..	0.6DL+1WL+X	292.48	680.64	104.88	602.88	2.327	5.748

0.6D + 0.6Wx ..	0.6DL+1WL-X	343.42	680.64	91.7	602.88	1.982	6.574
0.6D + 0.6Wx ..	0.6DL+1WL+Z	423.34	732	21.26	732	1.729	34.431
0.6D + 0.6Wx ..	0.6DL+1WL-Z	271.55	709.44	13.11	709.44	2.613	54.114
0.6D + 0.6Wz ..	0.6DL+1OL1	283.86	680.64	94.94	602.88	2.398	6.35
0.6D + 0.6Wz ..	0.6DL+1OL2	282.2	684	14.84	684	2.424	46.092
0.6D + 0.6Wx ..	0.6DL	81.6	599.04	3.84	599.04	7.341	156
0.6D + 0.6Wz ..	0.6DL	81.6	599.04	3.84	599.04	7.341	156
0.6 + 0.6(0.7..	0.6DL+0.75WL+X+0..	432.255	680.64	149.865	602.88	1.575	4.023
0.6D + 0.6(0...	0.6DL+0.75WL+Z+0..	401.625	847.935	80.625	706.245	2.111	8.76
0.6D + 0.6(0...	0.6DL+0.75WL-X+0..	290.37	862.005	70.41	673.215	2.969	9.561
0.6D + 0.6(0...	0.6DL+0.75WL-Z+0..	374.513	745.56	19.043	745.56	1.991	39.152
0.6D + 0.6(0...	0.6DL	81.6	599.04	3.84	599.04	7.341	156
1.0D+0.7Ev+0...	1DL+0.7ELY+0.7ELX	271.233	1006.128	11.888	1006.128	3.709	84.634
1.0D+0.525Ev+..	1DL+0.525ELY+0.5..	237.425	1004.196	10.516	1004.196	4.23	95.492
0.6D-0.7Ev+0...	0.6DL+-0.7ELY+0...	214.803	608.798	16.426	599.67	2.834	36.507
1.0D+0.7Ev+0...	1DL+0.7ELY+0.7ELZ	159.443	1006.128	104.468	1013.158	6.31	9.698
1.0D+0.525Ev+..	1DL+0.525ELY+0.5..	153.582	1004.196	78.351	1011.068	6.538	12.904
0.6D-0.7Ev+0...	0.6DL+-0.7ELY+0...	103.013	608.798	112.826	602.88	5.91	5.343
1.0D+0.7Ev+0...	1DL+0.7ELY+0.7EL..	275.339	1006.128	31.34	1018.016	3.654	32.483
1.0D+0.525Ev+..	1DL+0.525ELY+0.5..	240.504	1004.196	23.505	1014.712	4.175	43.169
0.6D-0.7Ev+0...	0.6DL+-0.7ELY+0...	218.909	608.798	39.698	607.738	2.781	15.309
1.0D+0.7Ev+0...	1DL+0.7ELY+0.7EL..	197.085	1006.128	104.468	1014.615	5.105	9.712
1.0D+0.525Ev+..	1DL+0.525ELY+0.5..	181.814	1004.196	78.351	1012.162	5.523	12.918
0.6D-0.7Ev+0...	0.6DL+-0.7ELY+0...	140.655	608.798	112.826	604.337	4.328	5.356

Mo-xx: Governing Overturning Moment about AD or BC
Ms-xx: Governing Stablizing Moment about AD or BC
OSF-xx: Ratio of Ms-xx to Mo-xx

Sliding Check (Service)

Description	Categories and Factors	Va-xx (k)	Vr-xx (k)	Va-zz (k)	Vr-zz (k)	SR-xx	SR-zz
D	1DL	0	8.32	0	8.32	NA	NA
D + Lr	1DL+1RLL	0.16	10.392	0.07	10.392	64.95	148.457
D + S	1DL+1SL	0	8.32	0	8.32	NA	NA
D + Su	1DL+1OL3	0	8.32	0	8.32	NA	NA
D+Ssliding	1DL+1OL4	0	8.32	0	8.32	NA	NA
D+Sdrift	1DL+1OL5	0	8.32	0	8.32	NA	NA
D + 0.6Wx (LC..	1DL+1WL+X	0.1	7.536	0.3	7.536	75.36	25.12
D + 0.6Wx (LC..	1DL+1WL-X	0.09	7.672	0.22	7.672	85.244	34.873
D + 0.6Wx (LC..	1DL+1WL+Z	0.11	9.428	0.41	9.428	85.709	22.995
D + 0.6Wx (LC..	1DL+1WL-Z	0.06	9.24	0.36	9.24	154	25.667
D + 0.6Wz (LC..	1DL+1OL1	0.06	7.612	0.26	7.612	126.867	29.277
D + 0.6Wz (LC..	1DL+1OL2	0.1	9.028	0.3	9.028	90.28	30.093
D + 0.6Wx (Mi..	1DL	0	8.32	0	8.32	NA	NA
D + 0.6Wz (Mi..	1DL	0	8.32	0	8.32	NA	NA
D + 0.6(0.75W..	1DL+0.75WL+X+0.7..	0.12	7.201	0.42	7.201	60.008	17.145
D + 0.6(0.75W..	1DL+0.75WL+Z+0.7..	0.038	8.62	0.112	8.62	229.867	76.622
D + 0.6(0.75W..	1DL+0.75WL-X+0.7..	0.008	8.365	0.06	8.365	1115.333	139.417
D + 0.6(0.75W..	1DL+0.75WL-Z+0.7..	0.12	9.541	0.495	9.541	79.508	19.275
D + 0.6(0.75W..	1DL	0	8.32	0	8.32	NA	NA
D + 0.75(0.6W..	1DL+0.75WL+X+0.7..	0.045	9.286	0.277	9.286	206.356	33.463
D + 0.75(0.6W..	1DL+0.75WL-X+0.7..	0.052	9.388	0.218	9.388	178.819	43.163
D + 0.75(0.6W..	1DL+0.75WL+Z+0.7..	0.203	10.705	0.255	10.705	52.864	41.98
D + 0.75(0.6W..	1DL+0.75WL-Z+0.7..	0.165	10.564	0.218	10.564	64.024	48.57
D + 0.75(0.6W..	1DL+0.75OL1+0.75..	0.075	9.343	0.248	9.343	124.573	37.749
D + 0.75(0.6W..	1DL+0.75OL2+0.75..	0.195	10.405	0.172	10.405	53.359	60.319
D + 0.75(0.6W..	1DL+0.75RLL	0.12	9.874	0.053	9.874	82.283	188.076
D + 0.75(0.6W..	1DL+0.75RLL	0.12	9.874	0.053	9.874	82.283	188.076
D + 0.75(0.6(..	1DL+0.5625WL+X+0..	0.03	9.035	0.367	9.035	301.158	24.584
D + 0.75(0.6(..	1DL+0.5625WL+Z+0..	0.148	10.099	0.032	10.099	68.179	316.831
D + 0.75(0.6(..	1DL+0.5625WL-X+0..	0.126	9.908	0.008	9.908	78.868	1321.033
D + 0.75(0.6(..	1DL+0.5625WL-Z+0..	0.21	10.79	0.319	10.79	51.38	33.85
D + 0.75(0.6(..	1DL+0.75RLL	0.12	9.874	0.053	9.874	82.283	188.076
D + 0.75(0.6W..	1DL+0.75WL+X+0.7..	0.075	7.732	0.225	7.732	103.093	34.364
D + 0.75(0.6W..	1DL+0.75WL-X+0.7..	0.068	7.834	0.165	7.834	116.059	47.479
D + 0.75(0.6W..	1DL+0.75WL+Z+0.7..	0.083	9.151	0.307	9.151	110.921	29.759
D + 0.75(0.6W..	1DL+0.75WL-Z+0.7..	0.045	9.01	0.27	9.01	200.222	33.37
D + 0.75(0.6W..	1DL+0.75OL1+0.75SL	0.045	7.789	0.195	7.789	173.089	39.944
D + 0.75(0.6W..	1DL+0.75OL2+0.75SL	0.075	8.851	0.225	8.851	118.013	39.338
D + 0.75(0.6W..	1DL+0.75SL	0	8.32	0	8.32	NA	NA
D + 0.75(0.6W..	1DL+0.75SL	0	8.32	0	8.32	NA	NA
D + 0.75(0.6(..	1DL+0.5625WL+X+0..	0.09	7.481	0.315	7.481	83.119	23.748
D + 0.75(0.6(..	1DL+0.5625WL+Z+0..	0.028	8.545	0.084	8.545	303.822	101.274
D + 0.75(0.6(..	1DL+0.5625WL-X+0..	0.006	8.354	0.045	8.354	1485.111	185.639
D + 0.75(0.6(..	1DL+0.5625WL-Z+0..	0.09	9.236	0.371	9.236	102.619	24.877
D + 0.75(0.6(..	1DL+0.75SL	0	8.32	0	8.32	NA	NA
0.6D + 0.6Wx ..	0.6DL+1WL+X	0.1	4.208	0.3	4.208	42.08	14.027

0.6D + 0.6Wx ..	0.6DL+1WL-X	0.09	4.344	0.22	4.344	48.267	19.745
0.6D + 0.6Wx ..	0.6DL+1WL+Z	0.11	6.1	0.41	6.1	55.455	14.878
0.6D + 0.6Wx ..	0.6DL+1WL-Z	0.06	5.912	0.36	5.912	98.533	16.422
0.6D + 0.6Wz ..	0.6DL+1OL1	0.06	4.284	0.26	4.284	71.4	16.477
0.6D + 0.6Wz ..	0.6DL+1OL2	0.1	5.7	0.3	5.7	57	19
0.6D + 0.6Wx ..	0.6DL	0	4.992	0	4.992	NA	NA
0.6D + 0.6Wz ..	0.6DL	0	4.992	0	4.992	NA	NA
0.6 + 0.6(0.7..	0.6DL+0.75WL+X+0..	0.12	3.873	0.42	3.873	32.275	9.221
0.6D + 0.6(0...	0.6DL+0.75WL+Z+0..	0.038	5.292	0.112	5.292	141.12	47.04
0.6D + 0.6(0...	0.6DL+0.75WL-X+0..	0.008	5.037	0.06	5.037	671.6	83.95
0.6D + 0.6(0...	0.6DL+0.75WL-Z+0..	0.12	6.213	0.495	6.213	51.775	12.552
0.6D + 0.6(0...	0.6DL	0	4.992	0	4.992	NA	NA
1.0D+0.7Ev+0...	1DL+0.7ELY+0.7ELX	0.049	8.384	0.847	8.384	171.11	9.899
1.0D+0.525Ev+..	1DL+0.525ELY+0.5..	0.037	8.368	0.635	8.368	227.709	13.173
0.6D-0.7Ev+0...	0.6DL+-0.7ELY+0...	0.035	4.928	0.847	4.928	140.789	5.818
1.0D+0.7Ev+0...	1DL+0.7ELY+0.7ELZ	0.721	8.384	0.091	8.384	11.629	92.136
1.0D+0.525Ev+..	1DL+0.525ELY+0.5..	0.541	8.368	0.068	8.368	15.475	122.612
0.6D-0.7Ev+0...	0.6DL+-0.7ELY+0...	0.735	4.928	0.091	4.928	6.704	54.149
1.0D+0.7Ev+0...	1DL+0.7ELY+0.7EL..	0.169	8.384	0.874	8.384	49.495	9.59
1.0D+0.525Ev+..	1DL+0.525ELY+0.5..	0.127	8.368	0.656	8.368	65.866	12.762
0.6D-0.7Ev+0...	0.6DL+-0.7ELY+0...	0.183	4.928	0.874	4.928	26.868	5.636
1.0D+0.7Ev+0...	1DL+0.7ELY+0.7EL..	0.708	8.384	0.345	8.384	11.836	24.296
1.0D+0.525Ev+..	1DL+0.525ELY+0.5..	0.531	8.368	0.259	8.368	15.751	32.332
0.6D-0.7Ev+0...	0.6DL+-0.7ELY+0...	0.722	4.928	0.345	4.928	6.821	14.279

Va-xx: Applied Lateral Force to Cause Sliding Along xx Axis
Vr-xx: Resisting Lateral Force Against Sliding Along xx Axis
SR-xx: Ratio of Vr-xx to Va-xx

SERVICE LOAD COLUMN BASE REACTION SUMMARY

Refer to RISA model views for column local axis

Wind values are based on Vasd and should be factored accordingly for LRFD analysis

Negative axial values represent uplift

Service Loads (Unfactored)

LC	Member Label	Sec	Axial [k]	y Shear [k]	z Shear [k]	Torque [k-in]	y-y Moment [k-in]	z-z Moment [k-in]	LC Description
1	Column1	1	1.689	-0.011	0.128	-1.730	-17.171	90.689	SERVICE D
1	Column2	1	2.235	-0.027	0.048	-0.665	-6.423	135.958	SERVICE D
1	Column3	1	2.235	-0.027	-0.048	0.665	6.422	135.958	SERVICE D
1	Column4	1	1.689	-0.011	-0.128	1.730	17.171	90.723	SERVICE D
2	Column1	1	2.591	-0.033	0.392	-5.304	-52.658	222.437	SERVICE Lr
2	Column2	1	5.183	-0.071	0.157	-2.139	-21.050	445.326	SERVICE Lr
2	Column3	1	5.183	-0.071	-0.157	2.138	21.042	445.325	SERVICE Lr
2	Column4	1	2.592	-0.033	-0.392	5.305	52.666	222.767	SERVICE Lr
3	Column1	1	0.000	0.000	0.000	0.000	0.000	0.000	SERVICE S
3	Column2	1	0.000	0.000	0.000	0.000	0.000	0.000	SERVICE S
3	Column3	1	0.000	0.000	0.000	0.000	0.000	0.000	SERVICE S
3	Column4	1	0.000	0.000	0.000	0.000	0.000	0.000	SERVICE S
4	Column1	1	0.000	0.000	0.000	0.000	0.000	0.000	SERVICE Su
4	Column2	1	0.000	0.000	0.000	0.000	0.000	0.000	SERVICE Su
4	Column3	1	0.000	0.000	0.000	0.000	0.000	0.000	SERVICE Su
4	Column4	1	0.000	0.000	0.000	0.000	0.000	0.000	SERVICE Su
5	Column1	1	0.000	0.000	0.000	0.000	0.000	0.000	SERVICE Ssliding
5	Column2	1	0.000	0.000	0.000	0.000	0.000	0.000	SERVICE Ssliding
5	Column3	1	0.000	0.000	0.000	0.000	0.000	0.000	SERVICE Ssliding
5	Column4	1	0.000	0.000	0.000	0.000	0.000	0.000	SERVICE Ssliding
6	Column1	1	0.000	0.000	0.000	0.000	0.000	0.000	SERVICE Sdrift
6	Column2	1	0.000	0.000	0.000	0.000	0.000	0.000	SERVICE Sdrift
6	Column3	1	0.000	0.000	0.000	0.000	0.000	0.000	SERVICE Sdrift
6	Column4	1	0.000	0.000	0.000	0.000	0.000	0.000	SERVICE Sdrift
7	Column1	1	-0.978	-0.149	-0.157	1.861	21.076	-96.111	SERVICE Wx (LC A; y = 0°)
7	Column2	1	-1.957	-0.289	-0.063	0.750	8.413	-191.167	SERVICE Wx (LC A; y = 0°)
7	Column3	1	-1.957	-0.289	0.063	-0.750	-8.413	-191.167	SERVICE Wx (LC A; y = 0°)
7	Column4	1	-0.978	-0.149	0.157	-1.861	-21.076	-96.106	SERVICE Wx (LC A; y = 0°)
8	Column1	1	-0.809	-0.114	-0.220	2.862	29.500	-130.920	SERVICE Wx (LC B; y = 0°)
8	Column2	1	-1.618	-0.217	-0.088	1.155	11.777	-260.378	SERVICE Wx (LC B; y = 0°)
8	Column3	1	-1.618	-0.217	0.088	-1.155	-11.777	-260.378	SERVICE Wx (LC B; y = 0°)
8	Column4	1	-0.809	-0.114	0.220	-2.862	-29.500	-130.908	SERVICE Wx (LC B; y = 0°)
9	Column1	1	1.384	0.208	0.276	-3.404	-36.997	166.380	SERVICE Wx (LC A; y = 180°)
9	Column2	1	2.768	0.409	0.110	-1.372	-14.777	331.904	SERVICE Wx (LC A; y = 180°)
9	Column3	1	2.768	0.409	-0.110	1.372	14.777	331.904	SERVICE Wx (LC A; y = 180°)
9	Column4	1	1.384	0.208	-0.276	3.403	36.997	166.368	SERVICE Wx (LC A; y = 180°)
10	Column1	1	1.150	0.180	0.147	-1.614	-19.617	90.915	SERVICE Wx (LC B; y = 180°)
10	Column2	1	2.299	0.356	0.059	-0.649	-7.834	181.306	SERVICE Wx (LC B; y = 180°)
10	Column3	1	2.299	0.356	-0.059	0.649	7.834	181.306	SERVICE Wx (LC B; y = 180°)
10	Column4	1	1.150	0.180	-0.147	1.614	19.617	90.912	SERVICE Wx (LC B; y = 180°)
11	Column1	1	-0.882	-0.132	-0.160	1.938	21.395	-96.796	SERVICE Wz (LC A; y = 90°)
11	Column2	1	-1.765	-0.257	-0.064	0.781	8.543	-192.663	SERVICE Wz (LC A; y = 90°)
11	Column3	1	-1.765	-0.257	0.064	-0.783	-8.541	-192.663	SERVICE Wz (LC A; y = 90°)
11	Column4	1	-0.883	-0.132	0.160	-1.941	-21.399	-96.915	SERVICE Wz (LC A; y = 90°)
12	Column1	1	0.882	0.134	0.160	-1.937	-21.452	96.961	SERVICE Wz (LC B; y = 90°)
12	Column2	1	1.765	0.262	0.064	-0.780	-8.569	193.422	SERVICE Wz (LC B; y = 90°)
12	Column3	1	1.765	0.262	-0.064	0.783	8.567	193.422	SERVICE Wz (LC B; y = 90°)
12	Column4	1	0.883	0.134	-0.160	1.940	21.456	97.080	SERVICE Wz (LC B; y = 90°)
13	Column1	1	0.000	0.873	0.161	-0.440	-14.822	101.561	SERVICE Ex
13	Column2	1	0.000	1.212	0.058	-0.172	-5.503	150.211	SERVICE Ex
13	Column3	1	0.000	1.212	-0.058	0.174	5.504	150.211	SERVICE Ex
13	Column4	1	0.000	0.873	-0.161	0.443	14.823	101.568	SERVICE Ex
14	Column1	1	0.000	0.274	-1.015	60.609	122.367	32.205	SERVICE Ez
14	Column2	1	0.000	0.130	-1.036	60.657	124.280	16.434	SERVICE Ez
14	Column3	1	0.000	-0.131	-1.036	60.659	124.277	-16.452	SERVICE Ez
14	Column4	1	0.000	-0.274	-1.015	60.613	122.361	-32.187	SERVICE Ez
15	Column1	1	0.174	-0.001	0.013	-0.178	-1.762	9.313	SERVICE Ev
15	Column2	1	0.230	-0.003	0.005	-0.068	-0.659	13.943	SERVICE Ev
15	Column3	1	0.230	-0.003	-0.005	0.068	0.659	13.943	SERVICE Ev
15	Column4	1	0.174	-0.001	-0.013	0.178	1.762	9.316	SERVICE Ev

CONNECTION DESIGN

Company:		Page:	1
Address:		Specifier:	chreva
Phone I Fax:	|	E-Mail:	
Design:	P17795	Date:	5/30/2024
Fastening point:			

Specifier's comments:

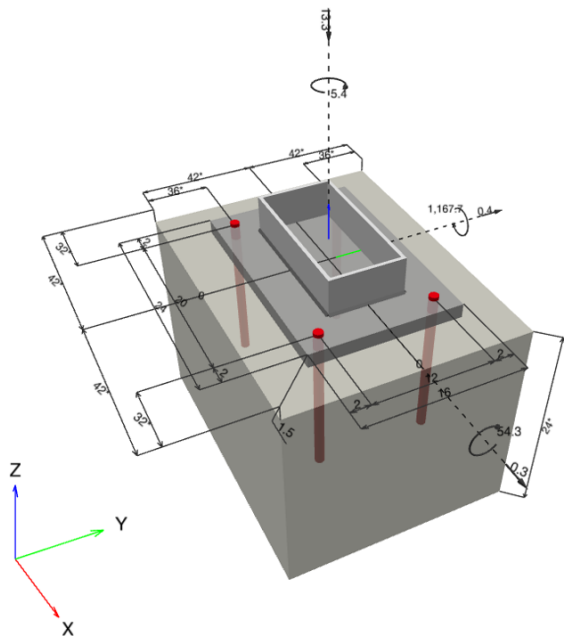
1 Anchor Design

1.1 Input data

Anchor type and diameter:	**Heavy Hex Head ASTM F 1554 GR. 55 1**
Item number:	not available
Effective embedment depth:	h_{ef} = 15.000 in.
Material:	ASTM F 1554
Evaluation Service Report:	Hilti Technical Data
Issued I Valid:	- | -
Proof:	Design Method ACI 318-19 / CIP
Stand-off installation:	e_b = 0.000 in. (no stand-off); t = 1.500 in.
Anchor plate[CBFEM] :	l_x x l_y x t = 24.000 in. x 16.000 in. x 1.500 in.;
Profile:	Rectangular HSS (AISC), HSS16X8X.375; (L x W x T) = 16.000 in. x 8.000 in. x 0.375 in.
Base material:	cracked concrete, Custom, f_c' = 4,500 psi; h = 24.000 in.
Reinforcement:	tension: not present, shear: not present;
	edge reinforcement: none or < No. 4 bar

[CBFEM] - The anchor calculation is based on a component-based Finite Element Method (CBFEM)

Geometry [in.] & Loading [kip, in.kip]



Company:		Page:	2
Address:		Specifier:	chreva
Phone I Fax:	|	E-Mail:	
Design:	P17795	Date:	5/30/2024
Fastening point:			

1.1.1 Load combination and design results

Case	Description	Forces [kip] / Moments [in.kip]	Seismic	Max. Util. Anchor [%]
1	1.2D + 1.6Lr + 0.5Wx (LC A; y = 180°)	N = -13.300; V_x = 0.300; V_y = 0.400; M_x = -54.300000; M_y = 1,167.700000; M_z = -5.400000;	no	90
2	1.2D + 1.6Lr + 0.5(0.75Wx (LC B; y = 180°) + 0.75Wz (LC B; y = 90°))	N = -13.500; V_x = 0.300; V_y = 0.400; M_x = -52.200000; M_y = 1,126.100000; M_z = -5.100000;	no	86
3	1.2D + 1.6Lr + 0.5Wz (LC B; y = 90°)	N = -12.400; V_x = 0.100; V_y = 0.400; M_x = -49.000000; M_y = 1,049.600000; M_z = -4.900000;	no	80
4	1.2D + 1.6Lr + 0.5Wx (LC B; y = 180°)	N = -12.900; V_x = 0.200; V_y = 0.400; M_x = -48.400000; M_y = 1,039.700000; M_z = -4.800000;	no	79
5	1.2D + 1.6Lr + 0.5(0.75Wx (LC A; y = 180°) + 0.75Wz (LC A; y = 90°))	N = -11.600; V_x = 0.000; V_y = 0.300; M_x = -45.600000; M_y = 971.700000; M_z = -4.600000;	no	74
6	1.2D + 1.6Lr + 0.5(0.75Wx (Min.) + 0.75Wz (Min.))	N = -11.000; V_x = 0.100; V_y = -0.500; M_x = 65.800000; M_y = 920.100000; M_z = 14.200000;	no	72
7	1.2D + 1.0Wx (LC A; y = 180°) + 0.5Lr	N = -9.900; V_x = 0.700; V_y = 0.300; M_x = -43.200000; M_y = 947.200000; M_z = -4.200000;	no	73
8	1.2D + 1.6Lr + 0.5Wx (Min.)	N = -11.000; V_x = 0.300; V_y = 0.300; M_x = -43.400000; M_y = 935.000000; M_z = -4.300000;	no	71
9	1.2D + 1.6Lr + 0.5Wz (Min.)	N = -11.000; V_x = -0.100; V_y = -0.600; M_x = 72.200000; M_y = 881.400000; M_z = 17.500000;	no	69
10	1.2D + 1.6Lr + 0.5(0.75Wx (Min.) + 0.75Wz (Min.))	N = -11.000; V_x = 0.200; V_y = 0.100; M_x = -20.200000; M_y = 924.600000; M_z = 5.700000;	no	68
11	1.2D + 1.6Lr + 0.5Wz (Min.)	N = -11.000; V_x = -0.100; V_y = 0.000; M_x = -11.300000; M_y = 887.400000; M_z = 9.000000;	no	65
12	1.2D + 1.0(0.75Wx (LC B; y = 180°) + 0.75Wz (LC B; y = 90°)) + 0.5Lr	N = -10.400; V_x = 0.800; V_y = 0.300; M_x = -39.000000; M_y = 862.100000; M_z = -3.700000;	no	65
13	1.2D + 1.6Lr + 0.5(0.75Wx (LC B; y = 0°) + 0.75Wz (LC B; y = 90°))	N = -11.100; V_x = -0.100; V_y = 0.300; M_x = -39.700000; M_y = 842.300000; M_z = -4.000000;	no	63
14	1.2D + 1.0Wx (LC A; y = 180°) + 0.5S	N = -7.300; V_x = 0.700; V_y = 0.200; M_x = -32.500000; M_y = 720.500000; M_z = -3.100000;	no	55
15	1.2D + 1.0Wz (LC B; y = 90°) + 0.5Lr	N = -8.200; V_x = 0.400; V_y = 0.200; M_x = -32.700000; M_y = 713.100000; M_z = -3.200000;	no	54
16	1.2D + 1.6Lr + 0.5Wx (LC A; y = 0°)	N = -9.300; V_x = -0.400; V_y = 0.300; M_x = -34.600000; M_y = 720.900000; M_z = -3.600000;	no	54
17	1.2D + 1.6Lr + 0.5Wz (LC A; y = 90°)	N = -9.500; V_x = -0.300; V_y = 0.300; M_x = -34.400000; M_y = 719.700000; M_z = -3.600000;	no	54

Company:		Page:	3
Address:		Specifier:	chreva
Phone I Fax:	|	E-Mail:	
Design:	P17795	Date:	5/30/2024
Fastening point:			

Case	Description	Forces [kip] / Moments [in.kip]	Seismic	Max. Util. Anchor [%]
18	0.9D + 1.0Wx (LC A; y = 180°)	N = -6.600; V_x = 0.700; V_y = 0.200; M_x = -30.500000; M_y = 678.900000; M_z = -2.900000;	no	52
19	1.2D + 1.0Wx (LC B; y = 180°) + 0.5Lr	N = -9.100; V_x = 0.600; V_y = 0.200; M_x = -31.500000; M_y = 693.100000; M_z = -3.000000;	no	52
20	1.2D + 1.6Lr + 0.5Wx (LC B; y = 0°)	N = -9.600; V_x = -0.300; V_y = 0.200; M_x = -31.700000; M_y = 662.300000; M_z = -3.300000;	no	49

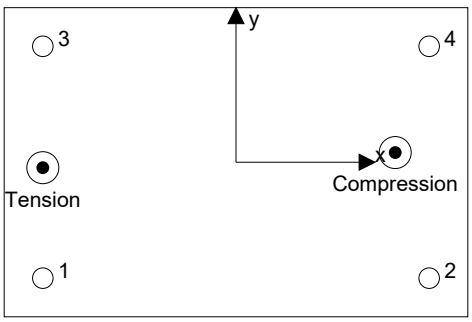
1.2 Load case/Resulting anchor forces

Controlling load case: 1 1.2D + 1.6Lr + 0.5Wx (LC A; y = 180°)

Anchor reactions [kip]

Tension force: (+Tension, -Compression)

Anchor	Tension force	Shear force	Shear force x	Shear force y
1	30.362	0.294	0.040	0.292
2	-0.002	0.033	-0.011	-0.031
3	27.628	0.184	0.150	0.106
4	-0.002	0.125	0.121	0.034



resulting tension force in (x/y)=(-10.000/-0.283): 57.986 [kip]
resulting compression force in (x/y)=(8.243/0.501): 72.552 [kip]

Anchor forces are calculated based on a component-based Finite Element Method (CBFEM)

1.3 Tension load

	Load N_{ua} [kip]	Capacity ϕ N_n [kip]	Utilization $\beta_N = N_{ua}/\phi$ N_n	Status
Steel Strength*	30.362	34.087	90	OK
Pullout Strength*	30.362	37.825	81	OK
Concrete Breakout Failure**	57.990	85.746	68	OK
Concrete Side-Face Blowout, direction **	N/A	N/A	N/A	N/A

* highest loaded anchor **anchor group (anchors in tension)

Company:		Page:	4
Address:		Specifier:	chreva
Phone I Fax:	|	E-Mail:	
Design:	P17795	Date:	5/30/2024
Fastening point:			

1.3.1 Steel Strength

$N_{sa} = A_{se,N} f_{uta}$ ACI 318-19 Eq. (17.6.1.2)
$\phi N_{sa} \geq N_{ua}$ ACI 318-19 Table 17.5.2

Variables

$A_{se,N}$ [in.^{2}]	f_{uta} [psi]
0.61	75,000

Calculations

N_{sa} [kip]
45.450

Results

N_{sa} [kip]	ϕ_{steel}	ϕN_{sa} [kip]	N_{ua} [kip]
45.450	0.750	34.087	30.362

1.3.2 Pullout Strength

$N_{pN} = \psi_{c,p} N_p$ ACI 318-19 Eq. (17.6.3.1)
$N_p = 8 A_{brg} f'_c$ ACI 318-19 Eq. (17.6.3.2.2a)
$\phi N_{pN} \geq N_{ua}$ ACI 318-19 Table 17.5.2

Variables

$\psi_{c,p}$	A_{brg} [in.^{2}]	λ_a	f'_c [psi]
1.000	1.50	1.000	4,500

Calculations

N_p [kip]
54.036

Results

N_{pn} [kip]	$\phi_{concrete}$	ϕN_{pn} [kip]	N_{ua} [kip]
54.036	0.700	37.825	30.362

Company:		Page:	5
Address:		Specifier:	chreva
Phone I Fax:	|	E-Mail:	
Design:	P17795	Date:	5/30/2024
Fastening point:			

1.3.3 Concrete Breakout Failure

$N_{cbg} = \left(\frac{A_{Nc}}{A_{Nc0}}\right) \psi_{ec,N}\ \psi_{ed,N}\ \psi_{c,N}\ \psi_{cp,N}\ N_b$ — ACI 318-19 Eq. (17.6.2.1b)

$\phi\ N_{cbg} \geq N_{ua}$ — ACI 318-19 Table 17.5.2

A_{Nc} see ACI 318-19, Section 17.6.2.1, Fig. R 17.6.2.1(b)

$A_{Nc0} = 9\ h_{ef}^2$ — ACI 318-19 Eq. (17.6.2.1.4)

$\psi_{ec,N} = \left(\frac{1}{1 + \frac{2\ e'_N}{3\ h_{ef}}}\right) \leq 1.0$ — ACI 318-19 Eq. (17.6.2.3.1)

$\psi_{ed,N} = 0.7 + 0.3 \left(\frac{c_{a,min}}{1.5 h_{ef}}\right) \leq 1.0$ — ACI 318-19 Eq. (17.6.2.4.1b)

$\psi_{cp,N} = \text{MAX}\left(\frac{c_{a,min}}{c_{ac}}, \frac{1.5 h_{ef}}{c_{ac}}\right) \leq 1.0$ — ACI 318-19 Eq. (17.6.2.6.1b)

$N_b = 16\ \lambda_a\ \sqrt{f'_c}\ h_{ef}^{5/3}$ — ACI 318-19 Eq. (17.6.2.2.3)

Variables

h_{ef} [in.]	$e_{c1,N}$ [in.]	$e_{c2,N}$ [in.]	$c_{a,min}$ [in.]	$\psi_{c,N}$
15.000	0.000	0.283	32.000	1.000

c_{ac} [in.]	k_c	λ_a	f'_c [psi]
-	16	1.000	4,500

Calculations

A_{Nc} [in.^{2}]	A_{Nc0} [in.^{2}]	$\psi_{ec1,N}$	$\psi_{ec2,N}$	$\psi_{ed,N}$	$\psi_{cp,N}$	N_b [kip]
2,565.00	2,025.00	1.000	0.988	1.000	1.000	97.922

Results

N_{cbg} [kip]	$\phi_{concrete}$	$\phi\ N_{cbg}$ [kip]	N_{ua} [kip]
122.494	0.700	85.746	57.990

Company:		Page:	6
Address:		Specifier:	chreva
Phone I Fax:	|	E-Mail:	
Design:	P17795	Date:	5/30/2024
Fastening point:			

1.4 Shear load

	Load V_{ua} [kip]	Capacity ϕ V_n [kip]	Utilization $\beta_V = V_{ua}/\phi$ V_n	Status
Steel Strength*	0.294	17.725	2	OK
Steel failure (with lever arm)*	N/A	N/A	N/A	N/A
Pryout Strength*	0.294	62.706	1	OK
Concrete edge failure in direction y+**	0.531	38.994	2	OK

* highest loaded anchor **anchor group (relevant anchors)

1.4.1 Steel Strength

$V_{sa} = 0.6\ A_{se,V}\ f_{uta}$ ACI 318-19 Eq. (17.7.1.2b)
$\phi\ V_{steel} \geq V_{ua}$ ACI 318-19 Table 17.5.2

Variables

$A_{se,V}$ [in.^{2}]	f_{uta} [psi]
0.61	75,000

Calculations

V_{sa} [kip]
27.270

Results

V_{sa} [kip]	ϕ_{steel}	$\phi\ V_{sa}$ [kip]	V_{ua} [kip]
27.270	0.650	17.725	0.294

Company:		Page:	7
Address:		Specifier:	chreva
Phone I Fax:	|	E-Mail:	
Design:	P17795	Date:	5/30/2024
Fastening point:			

1.4.2 Pryout Strength

$V_{cp} = k_{cp} \left[\left(\frac{A_{Nc}}{A_{Nc0}} \right) \psi_{ed,N} \psi_{c,N} \psi_{cp,N} N_b \right]$ ACI 318-19 Eq. (17.7.3.1a)

$\phi V_{cp} \geq V_{ua}$ ACI 318-19 Table 17.5.2

A_{Nc} see ACI 318-19, Section 17.6.2.1, Fig. R 17.6.2.1(b)

$A_{Nc0} = 9 h_{ef}^2$ ACI 318-19 Eq. (17.6.2.1.4)

$\psi_{ec,N} = \left(\frac{1}{1 + \frac{2 e'_N}{3 h_{ef}}} \right) \leq 1.0$ ACI 318-19 Eq. (17.6.2.3.1)

$\psi_{ed,N} = 0.7 + 0.3 \left(\frac{c_{a,min}}{1.5 h_{ef}} \right) \leq 1.0$ ACI 318-19 Eq. (17.6.2.4.1b)

$\psi_{cp,N} = \text{MAX}\left(\frac{c_{a,min}}{c_{ac}}, \frac{1.5 h_{ef}}{c_{ac}} \right) \leq 1.0$ ACI 318-19 Eq. (17.6.2.6.1b)

$N_b = 16 \lambda_a \sqrt{f'_c} h_{ef}^{5/3}$ ACI 318-19 Eq. (17.6.2.2.3)

Variables

k_{cp}	h_{ef} [in.]	$e_{c1,N}$ [in.]	$e_{c2,N}$ [in.]	$c_{a,min}$ [in.]
2	15.000	0.000	0.000	32.000

$\psi_{c,N}$	c_{ac} [in.]	k_c	λ_a	f'_c [psi]
1.000	∞	16	1.000	4,500

Calculations

A_{Nc} [in.^{2}]	A_{Nc0} [in.^{2}]	$\psi_{ec1,N}$	$\psi_{ec2,N}$	$\psi_{ed,N}$	$\psi_{cp,N}$	N_b [kip]
926.25	2,025.00	1.000	1.000	1.000	1.000	97.922

Results

V_{cp} [kip]	$\phi_{concrete}$	ϕV_{cp} [kip]	V_{ua} [kip]
89.580	0.700	62.706	0.294

Company:		Page:	8
Address:		Specifier:	chreva
Phone I Fax:	|	E-Mail:	
Design:	P17795	Date:	5/30/2024
Fastening point:			

1.4.3 Concrete edge failure in direction y+

$V_{cbg} = \left(\frac{A_{Vc}}{A_{Vc0}}\right) \psi_{ec,V} \psi_{ed,V} \psi_{c,V} \psi_{h,V} \psi_{parallel,V} V_b$ — ACI 318-19 Eq. (17.7.2.1b)

$\phi V_{cbg} \geq V_{ua}$ — ACI 318-19 Table 17.5.2

A_{Vc} see ACI 318-19, Section 17.7.2.1, Fig. R 17.7.2.1(b)

$A_{Vc0} = 4.5 c_{a1}^2$ — ACI 318-19 Eq. (17.7.2.1.3)

$\psi_{ec,V} = \left(\frac{1}{1 + \frac{e'_v}{1.5c_{a1}}}\right) \leq 1.0$ — ACI 318-19 Eq. (17.7.2.3.1)

$\psi_{ed,V} = 0.7 + 0.3\left(\frac{c_{a2}}{1.5c_{a1}}\right) \leq 1.0$ — ACI 318-19 Eq. (17.7.2.4.1b)

$\psi_{h,V} = \sqrt{\frac{1.5c_{a1}}{h_a}} \geq 1.0$ — ACI 318-19 Eq. (17.7.2.6.1)

$V_b = 9 \lambda_a \sqrt{f'_c} c_{a1}^{1.5}$ — ACI 318-19 Eq. (17.7.2.2.1b)

Variables

c_{a1} [in.]	c_{a2} [in.]	e_{cV} [in.]	$\psi_{c,V}$	h_a [in.]
21.333	32.000	6.844	1.000	24.000

l_e [in.]	λ_a	d_a [in.]	f'_c [psi]	$\psi_{parallel,V}$
8.000	1.000	1.000	4,500	1.000

Calculations

A_{Vc} [in.^{2}]	A_{Vc0} [in.^{2}]	$\psi_{ec,V}$	$\psi_{ed,V}$	$\psi_{h,V}$	V_b [kip]
2,016.00	2,048.00	0.824	1.000	1.155	59.489

Results

V_{cbg} [kip]	$\phi_{concrete}$	ϕV_{cbg} [kip]	V_{ua} [kip]
55.706	0.700	38.994	0.531

1.5 Combined tension and shear loads, per ACI 318-19 section 17.8

β_N	β_V	ζ	Utilization $\beta_{N,V}$ [%]	Status
0.891	0.017	1.000	76	OK

$\beta_{NV} = (\beta_N + \beta_V) / 1.2 <= 1$

Company:		Page:	9
Address:		Specifier:	chreva
Phone I Fax:	|	E-Mail:	
Design:	P17795	Date:	5/30/2024
Fastening point:			

1.6 Warnings

- The anchor design methods in PROFIS Engineering require rigid anchor plates as per current regulations (ETAG 001/Annex C, EOTA TR029, etc.). This means load re-distribution on the anchors due to elastic deformations of the anchor plate are not considered - the anchor plate is assumed to be sufficiently stiff, in order not to be deformed when subjected to the design loading. PROFIS Engineering calculates the minimum required anchor plate thickness with CBFEM to limit the stress of the anchor plate based on the assumptions explained above. The proof if the rigid base plate assumption is valid is not carried out by PROFIS Engineering. Input data and results must be checked for agreement with the existing conditions and for plausibility!
- Condition A applies where the potential concrete failure surfaces are crossed by supplementary reinforcement proportioned to tie the potential concrete failure prism into the structural member. Condition B applies where such supplementary reinforcement is not provided, or where pullout or pryout strength governs.
- For additional information about ACI 318 strength design provisions, please go to https://submittals.us.hilti.com/PROFISAnchorDesignGuide/
- Attention! In case of compressive anchor forces a buckling check as well as the proof of the local load transfer into and within the base material (incl. punching) has to be done separately.
- The anchor design methods in PROFIS Engineering require rigid anchor plates, as per current regulations (AS 5216:2021, ETAG 001/Annex C, EOTA TR029 etc.). This means that the anchor plate should be sufficiently rigid to prevent load re-distribution to the anchors due to elastic/plastic displacements. The user accepts that the anchor plate is considered close to rigid by engineering judgment."

Company:		Page:	10
Address:		Specifier:	chreva
Phone I Fax:	|	E-Mail:	
Design:	P17795	Date:	5/30/2024
Fastening point:			

1.7 Installation data

Profile: Rectangular HSS (AISC), HSS16X8X.375; (L x W x T) = 16.000 in. x 8.000 in. x 0.375 in.

Hole diameter in the fixture: d_f = 1.062 in.

Plate thickness (input): 1.500 in.

Anchor type and diameter: Heavy Hex Head ASTM F 1554 GR. 55 1

Item number: not available

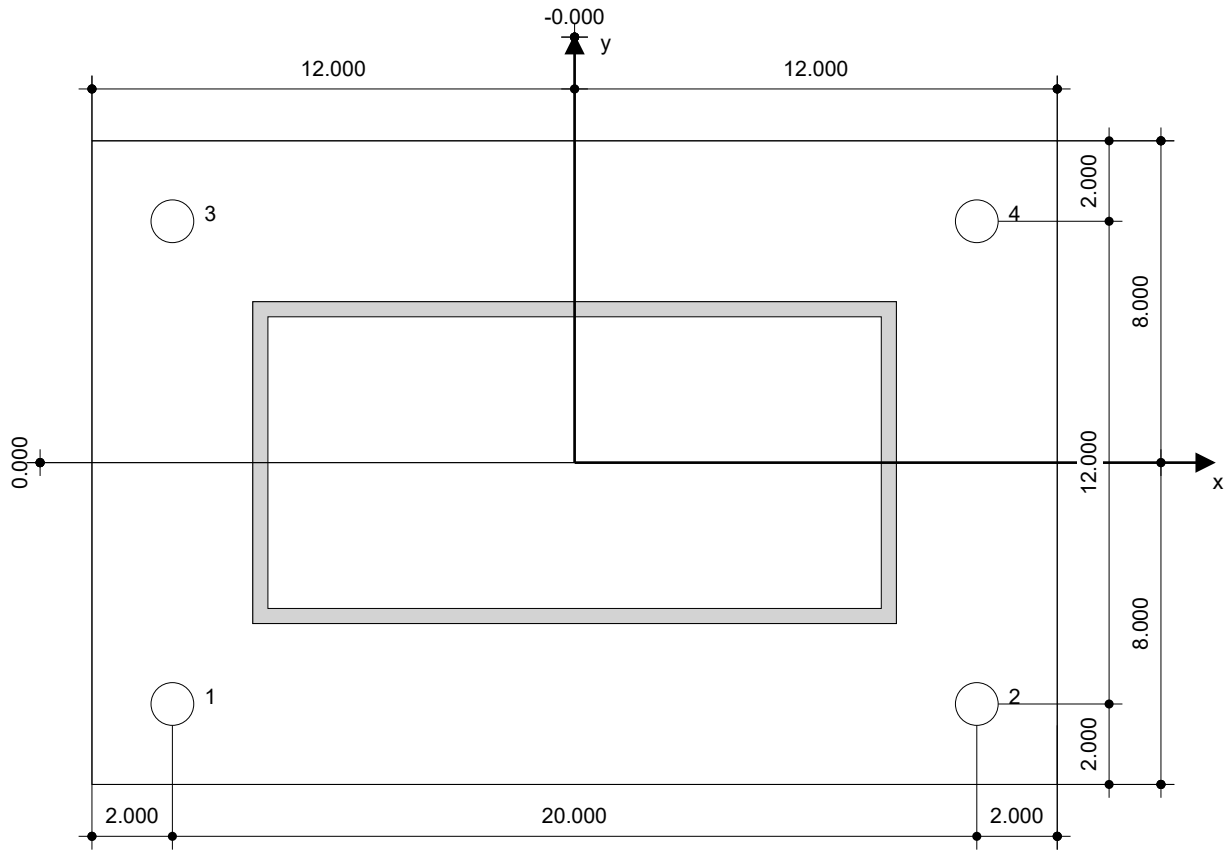
Maximum installation torque: -

Hole diameter in the base material: - in.

Hole depth in the base material: 15.000 in.

Minimum thickness of the base material: 16.172 in.

Hilti Heavy Hex Head headed stud anchor with 15 in embedment, 1, Steel galvanized, installation per instruction for use



Coordinates Anchor [in.]

Anchor	x	y	c_{-x}	c_{+x}	c_{-y}	c_{+y}
1	-10.000	-6.000	32.000	52.000	36.000	48.000
2	10.000	-6.000	52.000	32.000	36.000	48.000
3	-10.000	6.000	32.000	52.000	48.000	36.000
4	10.000	6.000	52.000	32.000	48.000	36.000

Company:		Page:	11
Address:		Specifier:	chreva
Phone I Fax:	|	E-Mail:	
Design:	P17795	Date:	5/30/2024
Fastening point:			

2 Anchor plate design

2.1 Input data

Anchor plate:	Shape: Rectangular l_x x l_y x t = 24.000 in x 16.000 in x 1.500 in Calculation: CBFEM Material: ASTM A36; F_y = 36,000 psi; ε_{lim} = 5.00%
Anchor type and size:	Heavy Hex Head ASTM F 1554 GR. 55 1, h_{ef} = 15.000 in
Anchor stiffness:	The anchor is modeled considering stiffness values determined from load displacement curves tested in an independent laboratory. Please note that no simple replacement of the anchor is possible as the anchor stiffness has a major impact on the load distribution results.
Design method:	AISC and LRFD-based design using component-based FEM
Stand-off installation:	e_b = 0.000 in (No stand-off); t = 1.500 in
Profile:	HSS16X8X.375; (L x W x T x FT) = 16.000 in x 8.000 in x 0.375 in x - Material: ASTM A500 Gr.C Rect; F_y = 50,000 psi; ε_{lim} = 5.00% Eccentricity x: -0.000 in Eccentricity y: 0.000 in
Base material:	Cracked concrete; Custom; $f_{c,cyl}$ = 4,500 psi; h = 24.000 in; E = 3,823,676 psi; G = 1,662,467 psi; v = 0.15; D = 145.00 lb/ft³
Welds (profile to anchor plate):	Type of redistribution: Plastic Material: E70xx
Mesh size:	Number of elements on edge: 8 Min. size of element: 0.394 in Max. size of element: 1.969 in

2.2 Summary

	Description	Profile		Anchor plate			Welds [%]	Concrete [%]
		σ_{Ed} [psi]	ε_{Pl} [%]	σ_{Ed} [psi]	ε_{Pl} [%]	Hole bearing [%]		
1	**1.2D + 1.6Lr + 0.5Wx (LC A; y = 180°)**	**21,986**	**0.00**	**25,417**	**0.00**	**1**	**85**	**12**
2	1.2D + 1.6Lr + 0.5(0.75Wx (LC B; y = 180°) + 0.75Wz (LC B; y = 90°))	21,331	0.00	24,075	0.00	1	84	12
3	1.2D + 1.6Lr + 0.5Wz (LC B; y = 90°)	20,096	0.00	21,944	0.00	1	82	11
4	1.2D + 1.6Lr + 0.5Wx (LC B; y = 180°)	19,982	0.00	21,588	0.00	1	82	11
5	1.2D + 1.6Lr + 0.5(0.75Wx (LC A; y = 180°) + 0.75Wz (LC A; y = 90°))	19,135	0.00	20,154	0.00	1	81	10
6	1.2D + 1.6Lr + 0.5(0.75Wx (Min.) + 0.75Wz (Min.))	18,920	0.00	19,597	0.00	1	80	10
7	1.2D + 1.0Wx (LC A; y = 180°) + 0.5Lr	18,761	0.00	19,802	0.00	1	81	10

8	1.2D + 1.6Lr + 0.5Wx (Min.)	18,702	0.00	19,346	0.00	1	80	10
9	1.2D + 1.6Lr + 0.5Wz (Min.)	18,626	0.00	18,870	0.00	1	80	9
10	1.2D + 1.6Lr + 0.5(0.75Wx (Min.) + 0.75Wz (Min.))	18,132	0.00	18,631	0.00	1	80	10
11	1.2D + 1.6Lr + 0.5Wz (Min.)	17,523	0.00	17,628	0.00	1	79	9
12	1.2D + 1.0(0.75Wx (LC B; y = 180°) + 0.75Wz (LC B; y = 90°)) + 0.5Lr	17,738	0.00	17,599	0.00	1	79	9
13	1.2D + 1.6Lr + 0.5(0.75Wx (LC B; y = 0°) + 0.75Wz (LC B; y = 90°))	17,553	0.00	17,056	0.00	1	79	9
14	1.2D + 1.0Wx (LC A; y = 180°) + 0.5S	15,480	0.00	14,882	0.00	1	78	8
15	1.2D + 1.0Wz (LC B; y = 90°) + 0.5Lr	15,312	0.00	14,591	0.00	1	78	8
16	1.2D + 1.6Lr + 0.5Wx (LC A; y = 0°)	15,362	0.00	14,637	0.00	1	78	8
17	1.2D + 1.6Lr + 0.5Wz (LC A; y = 90°)	15,324	0.00	14,575	0.00	1	78	8
18	0.9D + 1.0Wx (LC A; y = 180°)	14,965	0.00	14,055	0.00	1	78	7
19	1.2D + 1.0Wx (LC B; y = 180°) + 0.5Lr	14,949	0.00	13,993	0.00	1	77	7
20	1.2D + 1.6Lr + 0.5Wx (LC B; y = 0°)	14,526	0.00	13,276	0.00	1	77	7

2.3 Anchor plate classification

Results below are displayed for the decisive load combinations: 1.2D + 1.6Lr + 0.5Wx (LC A; y = 180°)

Anchor tension forces	Equivalent rigid anchor plate (CBFEM)	Component-based Finite Element Method (CBFEM) anchor plate design
Anchor 1	29.659 kip	30.361 kip
Anchor 2	-0.002 kip	-0.002 kip
Anchor 3	26.490 kip	27.628 kip
Anchor 4	-0.003 kip	-0.002 kip

User accepted to consider the selected anchor plate as rigid by his/her engineering judgement. This means the anchor design guidelines can be applied.

2.4 Profile/Stiffeners/Plate

Profile and stiffeners are verified at the level of the steel to concrete connection. The connection design does not replace the steel design for critical cross sections, which should be performed outside of PROFIS Engineering.

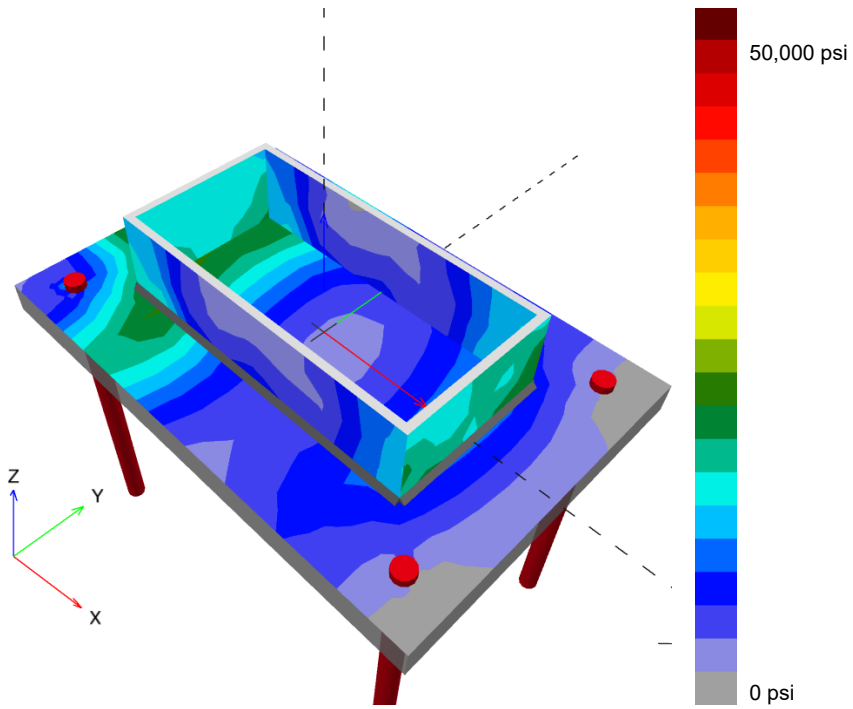
2.4.1 Equivalent stress and plastic strain

Company:		Page:	13
Address:		Specifier:	chreva
Phone I Fax:	|	E-Mail:	
Design:	P17795	Date:	5/30/2024
Fastening point:			

Part	Load combination	Material	f_y [psi]	ε_{lim} [%]	σ_{Ed} [psi]	ε_{Pl} [%]	Status
Plate	1.2D + 1.6Lr + 0.5Wx (LC A; y = 180°)	ASTM A36	36,000	5.00	25,417	0.00	OK
Profile	1.2D + 1.6Lr + 0.5Wx (LC A; y = 180°)	ASTM A500 Gr.C Rect	50,000	5.00	20,290	0.00	OK
Profile	1.2D + 1.6Lr + 0.5Wx (LC A; y = 180°)	ASTM A500 Gr.C Rect	50,000	5.00	21,986	0.00	OK
Profile	1.2D + 1.6Lr + 0.5Wx (LC A; y = 180°)	ASTM A500 Gr.C Rect	50,000	5.00	14,755	0.00	OK
Profile	1.2D + 1.6Lr + 0.5Wx (LC A; y = 180°)	ASTM A500 Gr.C Rect	50,000	5.00	15,215	0.00	OK

2.4.1.1 Equivalent stress

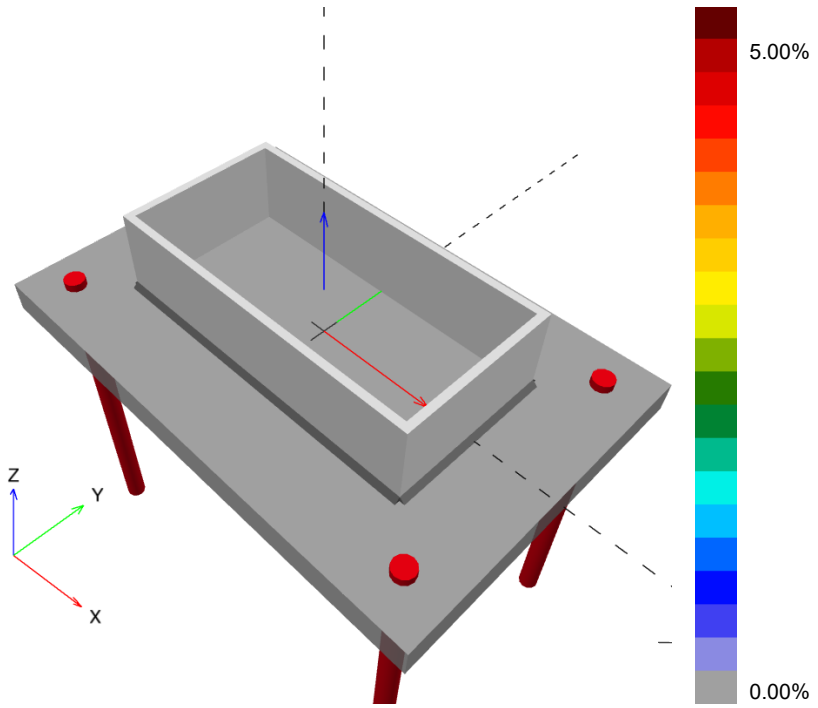
Results below are displayed for the decisive load combination: 1 - 1.2D + 1.6Lr + 0.5Wx (LC A; y = 180°)



Company:		Page:	14
Address:		Specifier:	chreva
Phone I Fax:	|	E-Mail:	
Design:	P17795	Date:	5/30/2024
Fastening point:			

2.4.1.2 Plastic strain

Results below are displayed for the decisive load combination: 1 - 1.2D + 1.6Lr + 0.5Wx (LC A; y = 180°)



2.4.2 Plate hole bearing resistance, AISC 360-16 Section J3

Decisive load combination: 1 - 1.2D + 1.6Lr + 0.5Wx (LC A; y = 180°)

Equations

$R_n = \min(1.2\, l_c\, t\, F_u\, ,\ 2.4\, d\, t\, F_u)$ (AISC 360-16 J3-6a, c)

$\Phi R_n = 0.75\, R_n$

$V \leq \Phi R_n$

Variables

	l_c [in]	t [in]	F_u [psi]	d [in]	R_n [kip]
Anchor 1	1.487	1.500	58,000	1.000	155.283
Anchor 2	5.468	1.500	58,000	1.000	208.800
Anchor 3	1.915	1.500	58,000	1.000	199.968
Anchor 4	22.307	1.500	58,000	1.000	208.800

Results

	V [kip]	ΦR_n [kip]	Utilization [%]	Status
Anchor 1	0.294	116.462	1	OK
Anchor 2	0.033	156.600	1	OK
Anchor 3	0.184	149.976	1	OK

Company:		Page:	15
Address:		Specifier:	chreva
Phone I Fax:	|	E-Mail:	
Design:	P17795	Date:	5/30/2024
Fastening point:			

	V [kip]	ΦR_n [kip]	Utilization [%]	Status
Anchor 4	0.125	156.600	1	OK

2.5 Welds

Profiles are modeled without taking the corner radius into account. Special rules for welding (e.g. for cold-formed profiles ...) are not taken into account by the software.

2.5.1 Anchor plate to profile

Decisive load combination: 1 - 1.2D + 1.6Lr + 0.5Wx (LC A; y = 180°)

Equations

$F_{nw} = 0.6\, F_{EXX}\, (1.0 + 0.5\sin^{1.5}\Theta)$

$\Phi R_n = \Phi\, F_{nw}\, A_w$

$\text{Utilization} = \frac{F_n}{\Phi\, R_n}$

Variables

Edge	X_u	T_h [in]	L_s [in]	L [in]	L_c [in]	F_{EXX} [psi]	Θ [°]	A_w [in²]
Member 1-tfl 1	E70xx	◢0.176	0.249	7.990	1.598	70,000	72.6	0.28
Member 1-bfl 1	E70xx	0.176◣	0.249	7.990	1.598	70,000	80.0	0.28
Member 1-w 1	E70xx	◢0.176	0.249	15.230	1.523	70,000	74.2	0.27
Member 1-w 2	E70xx	0.176◣	0.249	15.230	1.523	70,000	72.5	0.27

Results

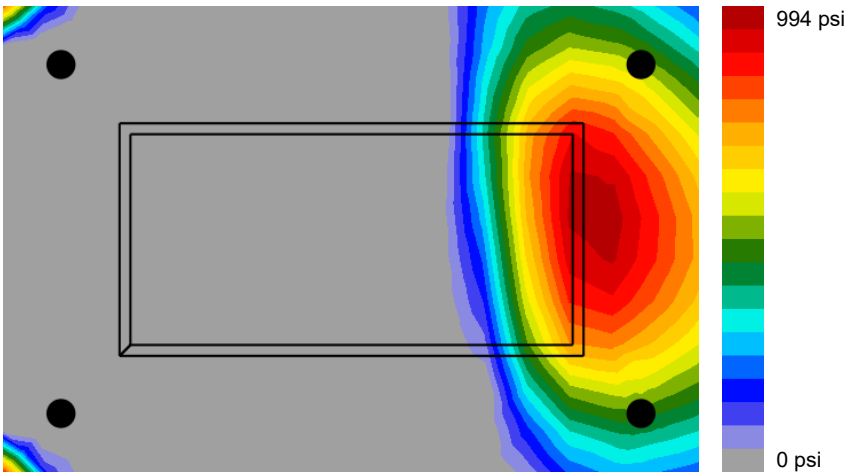
Edge	F_n [kip]	ΦR_n [kip]	Utilization [%]	Status
Member 1-tfl 1	10.912	12.988	85	OK
Member 1-bfl 1	10.599	13.189	81	OK
Member 1-w 1	10.271	12.428	83	OK
Member 1-w 2	9.981	12.375	81	OK

2.6 Concrete

Decisive load combination: 1 - 1.2D + 1.6Lr + 0.5Wx (LC A; y = 180°)

Company:		Page:	16
Address:		Specifier:	chreva
Phone I Fax:	|	E-Mail:	
Design:	P17795	Date:	5/30/2024
Fastening point:			

2.6.1 Compression in concrete under the anchor plate



2.6.2 Concrete block compressive strength resistance check, AISC 360-16 Section J8

Equations

$$F_p = \Phi f_{p,max}$$

$$f_{p,max} = 0.85 f_c' \sqrt{\left(\frac{A_2}{A_1}\right)} \le 1.7 f_c;\ \sqrt{\left(\frac{A_2}{A_1}\right)} \le 2$$

$$\sigma = \frac{N}{A_1}$$

$$\text{Utilization} = \frac{\sigma}{F_p}$$

Variables

N [kip]	f_c' [psi]	Φ	A_1 [in²]	A_2 [in²]
72.552	4,500	0.65	127.57	4,472.73

Results

Load combination	F_p [psi]	σ [psi]	Utilization [%]	Status
1.2D + 1.6Lr + 0.5Wx (LC A; y = 180°)	4,973	569	12	OK

2.7 Symbol explanation

A_1	Loaded area of concrete
A_2	Supporting area
A_w	Effective area of weld critical element
d	Nominal diameter of the bolt
ε_{lim}	Limit plastic strain
ε_{Pl}	Plastic strain from CBFEM results
f_c	Concrete compressive strength
f_c'	Concrete compressive strength
F_{EXX}	Electrode classification number, i.e. minimum specified tensile strength
F_u	Specified minimum tensile strength of the connected material
F_n	Force in weld critical element
F_{nw}	Nominal stress of the weld material
F_p	Concrete block design bearing strength
$f_{p,max}$	Concrete block design bearing strength maximum
f_y	Yield strength
l_c	Clear distance, in the direction of the force, between the edge of the hole and the edge of the adjacent hole or edge of the material
L	Length of weld
L_c	Length of weld critical element
L_s	Leg size of weld
N	Resulting compression force
σ	Average stress in concrete
σ_{Ed}	Equivalent stress
Φ	Resistance factor
ΦR_n	Factored resistance
R_n	Resistance
t	Thickness of the anchor plate
Θ	Angle of loading measured from the weld longitudinal axis
T_h	Throat thickness of weld
V	Resultant of shear forces Vy, Vz in bolt.
X_u	Filler metal tensile strength

2.8 Warnings

- By using the CBFEM calculation functionality of PROFIS Engineering you may act outside the applicable design codes and your specified anchor plate may not behave rigid. Please, validate the results with a professional designer and/or structural engineer to ensure suitability and adequacy for your specific jurisdiction and project requirements.
- The anchor is modeled considering stiffness values determined from load displacement curves tested in an independent laboratory. Please note that no simple replacement of the anchor is possible as the anchor stiffness has a major impact on the load distribution results.

Company:		Page:	18
Address:		Specifier:	chreva
Phone I Fax:	|	E-Mail:	
Design:	P17795	Date:	5/30/2024
Fastening point:			

3 Summary of results

Design of the anchor plate, anchors, welds and other elements are based on CBFEM (component based finite element method) and AISC.

	Load combination	Max. utilization	Status
Anchors	1.2D + 1.6Lr + 0.5Wx (LC A; y = 180°)	90%	OK
Anchor plate	1.2D + 1.6Lr + 0.5Wx (LC A; y = 180°)	71%	OK
Welds	1.2D + 1.6Lr + 0.5Wx (LC A; y = 180°)	85%	OK
Concrete	1.2D + 1.6Lr + 0.5Wx (LC A; y = 180°)	12%	OK
Profile	1.2D + 1.6Lr + 0.5Wx (LC A; y = 180°)	44%	OK

Fastening meets the design criteria!

Company:		Page:	19
Address:		Specifier:	chreva
Phone I Fax:	|	E-Mail:	
Design:	P17795	Date:	5/30/2024
Fastening point:			

4 Remarks; Your Cooperation Duties

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STRENGTH DESIGN COLUMN BASE REACTIONS

Strength Design Reactions (Factored)

LC	Load Combination Description	N [k]	Vx [k]	Vy [k]	Mz [in-kip]	Mx [in-kip]	*strong axis* My [in-kip]	Column*
92	1.4D	-3.1	0.0	0.1	-0.9	-9.0	190.6	Column2
93	1.2D + 0.5Lr	-5.3	-0.1	0.1	-1.9	-18.3	386.5	Column2
94	1.2D + 0.5S	-2.7	0.0	0.1	-0.8	-7.7	163.2	Column2
95	1.2D + 1.6Lr + 0.5Wx (LC A; y = 0°)	-9.3	-0.4	0.3	-3.6	-34.6	720.9	Column2
96	1.2D + 1.6Lr + 0.5Wx (LC B; y = 0°)	-9.6	-0.3	0.2	-3.3	-31.7	662.3	Column2
97	1.2D + 1.6Lr + 0.5Wx (LC A; y = 180°)	-13.3	0.3	0.4	-5.4	-54.3	1167.7	Column2
98	1.2D + 1.6Lr + 0.5Wx (LC B; y = 180°)	-12.9	0.2	0.4	-4.8	-48.4	1039.7	Column2
99	1.2D + 1.6Lr + 0.5Wz (LC A; y = 90°)	-9.5	-0.3	0.3	-3.6	-34.4	719.7	Column2
100	1.2D + 1.6Lr + 0.5Wz (LC B; y = 90°)	-12.4	0.1	0.4	-4.9	-49.0	1049.6	Column2
101	1.2D + 1.6Lr + 0.5Wx (Min.)	-11.0	0.3	0.3	-4.3	-43.4	935.0	Column2
102	1.2D + 1.6Lr + 0.5Wz (Min.)	-11.0	-0.1	-0.6	17.5	72.2	881.4	Column3
103	1.2D + 1.6Lr + 0.5(0.75Wx (LC A; y = 0°) + 0.75Wz (LC A; y =	-8.6	-0.5	0.2	-3.3	-30.9	637.4	Column2
104	1.2D + 1.6Lr + 0.5(0.75Wx (LC A; y = 180°) + 0.75Wz (LC A;	-11.6	0.0	0.3	-4.6	-45.6	971.7	Column2
105	1.2D + 1.6Lr + 0.5(0.75Wx (LC B; y = 0°) + 0.75Wz (LC B; y =	-11.1	-0.1	0.3	-4.0	-39.7	842.3	Column2
106	1.2D + 1.6Lr + 0.5(0.75Wx (LC B; y = 180°) + 0.75Wz (LC B;	-13.5	0.3	0.4	-5.1	-52.2	1126.1	Column2
107	1.2D + 1.6Lr + 0.5(0.75Wx (Min.) + 0.75Wz (Min.))	-11.0	0.1	-0.5	14.2	65.8	920.1	Column3
108	1.2D + 1.6S + 0.5Wx (LC A; y = 0°)	-1.2	-0.1	0.0	-0.5	-3.0	28.5	Column1
109	1.2D + 1.6S + 0.5Wx (LC B; y = 0°)	-1.3	-0.2	0.0	0.2	2.1	-54.7	Column2
110	1.2D + 1.6S + 0.5Wx (LC A; y = 180°)	-5.0	0.3	0.2	-1.9	-20.1	441.0	Column2
111	1.2D + 1.6S + 0.5Wx (LC B; y = 180°)	-4.6	0.3	0.1	-1.3	-14.3	315.1	Column2
112	1.2D + 1.6S + 0.5Wz (LC A; y = 90°)	-1.3	-0.1	0.0	-0.5	-2.7	28.0	Column1
113	1.2D + 1.6S + 0.5Wz (LC B; y = 90°)	-4.2	0.2	0.1	-1.4	-14.9	325.1	Column2
114	1.2D + 1.6S + 0.5Wx (Min.)	-2.7	0.3	0.1	-0.9	-9.4	214.2	Column2
115	1.2D + 1.6S + 0.5Wz (Min.)	-2.7	-0.1	-0.3	14.0	37.7	160.3	Column3
116	1.2D + 1.6S + 0.5(0.75Wx (LC A; y = 0°) + 0.75Wz (LC A; y =	-0.3	-0.4	0.0	0.2	3.0	-78.7	Column2
117	1.2D + 1.6S + 0.5(0.75Wx (LC A; y = 180°) + 0.75Wz (LC A; y	-3.3	0.1	0.1	-1.2	-11.6	248.9	Column2
118	1.2D + 1.6S + 0.5(0.75Wx (LC B; y = 0°) + 0.75Wz (LC B; y =	-2.8	0.0	0.0	-0.6	-5.7	121.7	Column2
119	1.2D + 1.6S + 0.5(0.75Wx (LC B; y = 180°) + 0.75Wz (LC B; y	-5.2	0.4	0.1	-1.7	-18.1	399.8	Column2
120	1.2D + 1.6S + 0.5(0.75Wx (Min.) + 0.75Wz (Min.))	-2.7	0.2	-0.3	10.7	31.5	199.2	Column3
121	1.2D + 1.6Su + 0.5Wx (LC A; y = 0°)	-1.2	-0.1	0.0	-0.5	-3.0	28.5	Column1
122	1.2D + 1.6Su + 0.5Wx (LC B; y = 0°)	-1.3	-0.2	0.0	0.2	2.1	-54.7	Column2
123	1.2D + 1.6Su + 0.5Wx (LC A; y = 180°)	-5.0	0.3	0.2	-1.9	-20.1	441.0	Column2
124	1.2D + 1.6Su + 0.5Wx (LC B; y = 180°)	-4.6	0.3	0.1	-1.3	-14.3	315.1	Column2
125	1.2D + 1.6Su + 0.5Wz (LC A; y = 90°)	-1.3	-0.1	0.0	-0.5	-2.7	28.0	Column1
126	1.2D + 1.6Su + 0.5Wz (LC B; y = 90°)	-4.2	0.2	0.1	-1.4	-14.9	325.1	Column2
127	1.2D + 1.6Su + 0.5Wx (Min.)	-2.7	0.3	0.1	-0.9	-9.4	214.2	Column2
128	1.2D + 1.6Su + 0.5Wz (Min.)	-2.7	-0.1	-0.3	14.0	37.7	160.3	Column3
129	1.2D + 1.6Su + 0.5(0.75Wx (LC A; y = 0°) + 0.75Wz (LC A; y	-0.3	-0.4	0.0	0.2	3.0	-78.7	Column2
130	1.2D + 1.6Su + 0.5(0.75Wx (LC A; y = 180°) + 0.75Wz (LC A;	-3.3	0.1	0.1	-1.2	-11.6	248.9	Column2
131	1.2D + 1.6Su + 0.5(0.75Wx (LC B; y = 0°) + 0.75Wz (LC B; y	-2.8	0.0	0.0	-0.6	-5.7	121.7	Column2
132	1.2D + 1.6Su + 0.5(0.75Wx (LC B; y = 180°) + 0.75Wz (LC B;	-5.2	0.4	0.1	-1.7	-18.1	399.8	Column2
133	1.2D + 1.6Su + 0.5(0.75Wx (Min.) + 0.75Wz (Min.))	-2.7	0.2	-0.3	10.7	31.5	199.2	Column3
134	1.2D + 1.6Ssliding + 0.5Wx (LC A; y = 0°)	-1.2	-0.1	0.0	-0.5	-3.0	28.5	Column1
135	1.2D + 1.6Ssliding + 0.5Wx (LC B; y = 0°)	-1.3	-0.2	0.0	0.2	2.1	-54.7	Column2
136	1.2D + 1.6Ssliding + 0.5Wx (LC A; y = 180°)	-5.0	0.3	0.2	-1.9	-20.1	441.0	Column2
137	1.2D + 1.6Ssliding + 0.5Wx (LC B; y = 180°)	-4.6	0.3	0.1	-1.3	-14.3	315.1	Column2
138	1.2D + 1.6Ssliding + 0.5Wz (LC A; y = 90°)	-1.3	-0.1	0.0	-0.5	-2.7	28.0	Column1
139	1.2D + 1.6Ssliding + 0.5Wz (LC B; y = 90°)	-4.2	0.2	0.1	-1.4	-14.9	325.1	Column2
140	1.2D + 1.6Ssliding + 0.5Wx (Min.)	-2.7	0.3	0.1	-0.9	-9.4	214.2	Column2
141	1.2D + 1.6Ssliding + 0.5Wz (Min.)	-2.7	-0.1	-0.3	14.0	37.7	160.3	Column3
142	1.2D + 1.6Ssliding + 0.5(0.75Wx (LC A; y = 0°) + 0.75Wz (LC	-0.3	-0.4	0.0	0.2	3.0	-78.7	Column2
143	1.2D + 1.6Ssliding + 0.5(0.75Wx (LC A; y = 180°) + 0.75Wz (	-3.3	0.1	0.1	-1.2	-11.6	248.9	Column2
144	1.2D + 1.6Ssliding + 0.5(0.75Wx (LC B; y = 0°) + 0.75Wz (LC	-2.8	0.0	0.0	-0.6	-5.7	121.7	Column2
145	1.2D + 1.6Ssliding + 0.5(0.75Wx (LC B; y = 180°) + 0.75Wz (	-5.2	0.4	0.1	-1.7	-18.1	399.8	Column2
146	1.2D + 1.6Ssliding + 0.5(0.75Wx (Min.) + 0.75Wz (Min.))	-2.7	0.2	-0.3	10.7	31.5	199.2	Column3
147	1.2D + 1.6Sdrift + 0.5Wx (LC A; y = 0°)	-1.2	-0.1	0.0	-0.5	-3.0	28.5	Column1
148	1.2D + 1.6Sdrift + 0.5Wx (LC B; y = 0°)	-1.3	-0.2	0.0	0.2	2.1	-54.7	Column2
149	1.2D + 1.6Sdrift + 0.5Wx (LC A; y = 180°)	-5.0	0.3	0.2	-1.9	-20.1	441.0	Column2
150	1.2D + 1.6Sdrift + 0.5Wx (LC B; y = 180°)	-4.6	0.3	0.1	-1.3	-14.3	315.1	Column2
151	1.2D + 1.6Sdrift + 0.5Wz (LC A; y = 90°)	-1.3	-0.1	0.0	-0.5	-2.7	28.0	Column1
152	1.2D + 1.6Sdrift + 0.5Wz (LC B; y = 90°)	-4.2	0.2	0.1	-1.4	-14.9	325.1	Column2
153	1.2D + 1.6Sdrift + 0.5Wx (Min.)	-2.7	0.3	0.1	-0.9	-9.4	214.2	Column2
154	1.2D + 1.6Sdrift + 0.5Wz (Min.)	-2.7	-0.1	-0.3	14.0	37.7	160.3	Column3
155	1.2D + 1.6Sdrift + 0.5(0.75Wx (LC A; y = 0°) + 0.75Wz (LC A;	-0.3	-0.4	0.0	0.2	3.0	-78.7	Column2
156	1.2D + 1.6Sdrift + 0.5(0.75Wx (LC A; y = 180°) + 0.75Wz (LC	-3.3	0.1	0.1	-1.2	-11.6	248.9	Column2
157	1.2D + 1.6Sdrift + 0.5(0.75Wx (LC B; y = 0°) + 0.75Wz (LC B;	-2.8	0.0	0.0	-0.6	-5.7	121.7	Column2

Strength Design Reactions (Factored)

							strong axis	
		N	**Vx**	**Vy**	**Mz**	**Mx**	**My**	**Column***
158	1.2D + 1.6Sdrift + 0.5(0.75Wx (LC B; y = 180°) + 0.75Wz (LC	-5.2	0.4	0.1	-1.7	-18.1	399.8	Column2
159	1.2D + 1.6Sdrift + 0.5(0.75Wx (Min.) + 0.75Wz (Min.))	-2.7	0.2	-0.3	10.7	31.5	199.2	Column3
160	1.2D + 1.0Wx (LC A; y = 0°) + 0.5Lr	-1.7	-0.3	-0.1	1.6	11.6	59.5	Column4
161	1.2D + 1.0Wx (LC B; y = 0°) + 0.5Lr	-2.6	-0.5	0.0	0.1	1.5	-51.6	Column2
162	1.2D + 1.0Wx (LC A; y = 180°) + 0.5Lr	-9.9	0.7	0.3	-4.2	-43.2	947.2	Column2
163	1.2D + 1.0Wx (LC B; y = 180°) + 0.5Lr	-9.1	0.6	0.2	-3.0	-31.5	693.1	Column2
164	1.2D + 1.0Wz (LC A; y = 90°) + 0.5Lr	-1.9	-0.3	0.1	-1.5	-11.1	58.1	Column1
165	1.2D + 1.0Wz (LC B; y = 90°) + 0.5Lr	-8.2	0.4	0.2	-3.2	-32.7	713.1	Column2
166	1.2D + 1.0Wx (Min.) + 0.5Lr	-5.3	0.6	0.2	-2.0	-21.7	488.2	Column2
167	1.2D + 1.0Wz (Min.) + 0.5Lr	-5.3	-0.1	-0.7	28.2	78.6	380.5	Column3
168	1.2D + 1.0(0.75Wx (LC A; y = 0°) + 0.75Wz (LC A; y = 90°)) +	-1.0	-0.4	0.0	0.0	6.4	-21.9	Column1
169	1.2D + 1.0(0.75Wx (LC A; y = 180°) + 0.75Wz (LC A; y = 90°)	-6.5	0.1	0.2	-2.6	-26.1	560.9	Column2
170	1.2D + 1.0(0.75Wx (LC B; y = 0°) + 0.75Wz (LC B; y = 90°)) +	-5.5	0.0	0.1	-1.4	-14.2	301.0	Column2
171	1.2D + 1.0(0.75Wx (LC B; y = 180°) + 0.75Wz (LC B; y = 90°)	-10.4	0.8	0.3	-3.7	-39.0	862.1	Column2
172	1.2D + 1.0(0.75Wx (Min.) + 0.75Wz (Min.)) +0.5Lr	-5.3	0.4	-0.6	21.7	66.1	458.3	Column3
173	1.2D + 1.0Wx (LC A; y = 0°) + 0.5S	0.6	-0.5	0.0	0.5	6.4	-156.6	Column2
174	1.2D + 1.0Wx (LC B; y = 0°) + 0.5S	0.0	-0.4	-0.1	1.1	12.0	-272.3	Column2
175	1.2D + 1.0Wx (LC A; y = 180°) + 0.5S	-7.3	0.7	0.2	-3.1	-32.5	720.5	Column2
176	1.2D + 1.0Wx (LC B; y = 180°) + 0.5S	-6.5	0.6	0.2	-1.9	-20.8	467.7	Column2
177	1.2D + 1.0Wz (LC A; y = 90°) + 0.5S	0.3	-0.5	0.0	0.5	6.6	-159.1	Column2
178	1.2D + 1.0Wz (LC B; y = 90°) + 0.5S	-5.6	0.4	0.2	-2.1	-22.1	487.8	Column2
179	1.2D + 1.0Wx (Min.) + 0.5S	-2.7	0.7	0.1	-0.9	-11.2	265.2	Column2
180	1.2D + 1.0Wz (Min.) + 0.5S	-2.7	-0.1	-0.6	27.1	67.8	157.3	Column3
181	1.2D + 1.0(0.75Wx (LC A; y = 0°) + 0.75Wz (LC A; y = 90°)) +	2.0	-0.7	-0.1	1.1	13.5	-317.5	Column2
182	1.2D + 1.0(0.75Wx (LC A; y = 180°) + 0.75Wz (LC A; y = 90°)	-3.9	0.2	0.1	-1.5	-15.5	336.6	Column2
183	1.2D + 1.0(0.75Wx (LC B; y = 0°) + 0.75Wz (LC B; y = 90°)) +	-2.1	0.0	0.1	-0.9	-10.4	66.1	Column1
184	1.2D + 1.0(0.75Wx (LC B; y = 180°) + 0.75Wz (LC B; y = 90°)	-7.8	0.8	0.2	-2.6	-28.4	635.8	Column2
185	1.2D + 1.0(0.75Wx (Min.) + 0.75Wz (Min.)) +0.5S	-2.7	0.5	-0.5	20.6	55.4	235.2	Column3
186	0.9D + 1.0Wx (LC A; y = 0°)	1.3	-0.5	-0.1	0.7	8.3	-197.2	Column2
187	0.9D + 1.0Wx (LC B; y = 0°)	0.7	-0.4	-0.1	1.3	13.9	-312.7	Column2
188	0.9D + 1.0Wx (LC A; y = 180°)	-6.6	0.7	0.2	-2.9	-30.5	678.9	Column2
189	0.9D + 1.0Wx (LC B; y = 180°)	-5.8	0.6	0.1	-1.7	-18.9	426.3	Column2
190	0.9D + 1.0Wz (LC A; y = 90°)	0.9	-0.5	-0.1	0.7	8.5	-199.7	Column2
191	0.9D + 1.0Wz (LC B; y = 90°)	-5.0	0.4	0.2	-1.9	-20.1	446.4	Column2
192	0.9D + 1.0Wx (Min.)	-2.0	0.7	0.1	-0.7	-9.2	224.3	Column2
193	0.9D + 1.0Wz (Min.)	-2.0	-0.1	-0.6	26.9	65.8	116.4	Column3
194	0.9D + 1.0(0.75Wx (LC A; y = 0°) + 0.75Wz (LC A; y = 90°))	2.6	-0.7	-0.1	1.3	15.4	-357.8	Column2
195	0.9D + 1.0(0.75Wx (LC A; y = 180°) + 0.75Wz (LC A; y = 90°)	-3.3	0.2	0.1	-1.3	-13.5	295.5	Column2
196	0.9D + 1.0(0.75Wx (LC B; y = 0°) + 0.75Wz (LC B; y = 90°))	-1.6	0.0	0.0	0.4	5.3	39.1	Column4
197	0.9D + 1.0(0.75Wx (LC B; y = 180°) + 0.75Wz (LC B; y = 90°)	-7.1	0.8	0.2	-2.4	-26.4	594.2	Column2
198	0.9D + 1.0(0.75Wx (Min.) + 0.75Wz (Min.))	-2.0	0.5	-0.5	20.4	53.4	194.3	Column3
199	1.2D+Ev+Ehx+0.2S	-2.9	1.2	0.1	-1.0	-13.9	327.4	Column2
200	0.9D-Ev+Ehx	-1.8	1.2	0.1	-0.7	-10.6	258.5	Column2
201	1.2D+Ev+Ehz+0.2S	-2.9	0.1	-1.0	59.9	116.5	193.7	Column2
202	0.9D-Ev+Ehz	-1.8	0.1	-1.0	60.2	119.5	124.7	Column2
203	1.2D+Ev+Ehx+0.3Ehz+0.2S	-2.9	1.1	-0.4	19.2	51.3	322.5	Column3
204	0.9D-Ev+Ehx+0.3Ehz	-1.8	1.2	-0.2	17.4	26.8	263.4	Column2
205	1.2D+Ev+Ehz+0.3Ehx+0.2S	-2.9	0.2	-1.1	61.6	134.9	205.9	Column3
206	0.9D-Ev+Ehz+0.3Ehx	-1.8	0.5	-1.0	60.1	117.9	169.8	Column2

*Columns identified are determined from expected peak anchor stress for the given load combination

FLYOVER TRUSS

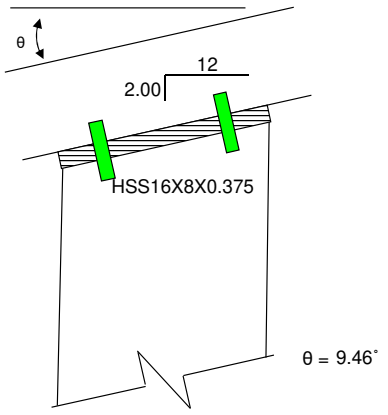
4 BOLTS

Bolt Check: (4) 1" Diameter, A325 Bolts				Allowable	Actual	Load Combination / Member	
1	Shear	AISC (J3-1)	R_N/Ω	21.2 kip	1.8 kip	84 / Column4	**OK**
2	Tension	AISC (J3-1)	R_N/Ω	35.3 kip	23.1 kip	38 / Column2	**OK**
3	Bearing	AISC (J3-6b,d)	R_N/Ω	53.0 kip	1.8 kip	84 / Column4	**OK**

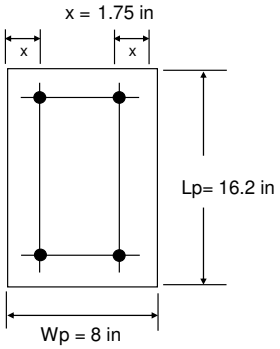
End Plate Check: 1" Thick				Allowable	Actual	Load Combination / Member	
4	Shear Yielding	AISC (J4-3)	R_N/Ω	233.6 kip	1.6 kip	47 / Column2	**OK**
5	Shear Rupture	AISC (J4-4)	R_N/Ω	245.3 kip	1.6 kip	47 / Column2	**OK**
6	Weld Check *w = 0.25"*	AISC (J2-3)	R_N/Ω	3.7 kip/in	3.2 kip/in	38 / Column2	**OK**
7	Plate Thickness (t_P)		$\sqrt{\frac{4M_{PL}}{22W_P}}$	0.83 in	1.00 in	38 / Column2	**OK**

Design Forces / Moments

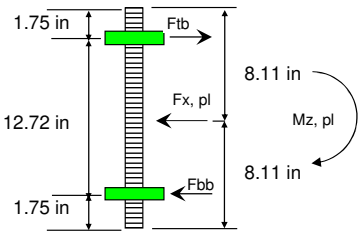
Check	Load Combination	Member	Fx (Axial) [k]	Fy [k]	Fz [k]	Mx [k-in]	My [k-in]	Mz [k-in]
1	84	Column4	1.1	0.0	-0.6	44.4	7.4	98.8
2	38	Column2	7.6	0.3	0.2	-3.3	-0.6	689.9
3	84	Column4	1.1	0.0	-0.6	44.4	7.4	98.8
4	47	Column2	7.8	0.3	0.2	-3.1	-0.5	646.3
5	47	Column2	7.8	0.3	0.2	-3.1	-0.5	646.3
6	38	Column2	7.6	0.3	0.2	-3.3	-0.6	689.9
7	38	Column2	7.6	0.3	0.2	-3.3	-0.6	689.9



Connection Elevation



End Plate Elevation



End Plate Section

Member Height (in):	16	Number of Bolts:	4
Member Width (in):	8	Bolt Diameter (in):	1.000
Member Thickness (in):	0.375	End Plate Thickness (in):	1.000
End Plate Weld Size (in):	0.250	Flange Plate Thickness (in):	1.000
	UNIQUE WELD SIZE		

PURLIN CONNECTION

ONE-SIDED

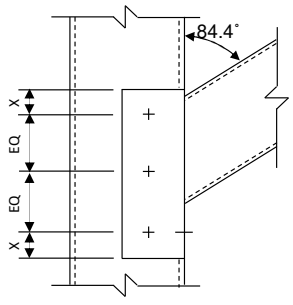
Top Flange Checks: (3) 12-24 Screws				**Allowable**	**Actual**	**Load Combination / Member**	
1	Shear (3 of the screws)			2420 lb	788 lb	38 / Eave5	**OK**
2	Tension (none of the screws)			0 lb	0 lb	n/a	**OK**
3	Shear Yielding (plate)	AISC (J4-3)	R_N/Ω	11657 lb	788 lb	38 / Eave5	**OK**
4	Shear Rupture (plate)	AISC (J4-4)	R_N/Ω	12331 lb	788 lb	38 / Eave5	**OK**

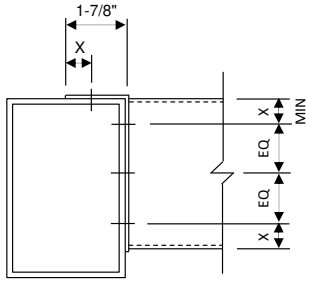
Side Flange Checks: (3) 12-24 Screws				**Allowable**	**Actual**	**Load Combination / Member**	
5	Shear (3 of the screws)			2420 lb	1477 lb	47 / Purlin5	**OK**
6	Tension (none of the screws)			0 lb	0 lb	n/a	**OK**
7	Shear Yielding (plate)	AISC (J4-3)	R_N/Ω	11621 lb	1477 lb	47 / Purlin5	**OK**
8	Shear Rupture (plate)	AISC (J4-4)	R_N/Ω	12287 lb	1477 lb	47 / Purlin5	**OK**

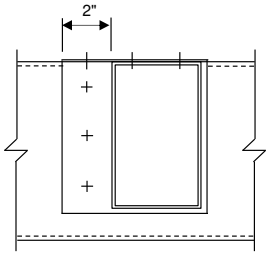
Weld Check: 0.125" Fillet Weld				**Allowable**	**Actual**	**Load Combination / Member**	
9	Weld Check	AISC (J2-3)	R_N/Ω	1.94 kip/in	0.08 kip/in	47 / Eave5	**OK**

Design Forces / Moments

Check	Load Combination	Member	Fx (Axial) [k]	Fy [k]	Fz [k]	Mx [k-in]	My [k-in]	Mz [k-in]
1	38	Eave5	0.8	0.6	-0.1	0.0	0.0	0.0
2	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
3	38	Eave5	0.8	0.6	-0.1	0.0	0.0	0.0
4	38	Eave5	0.8	0.6	-0.1	0.0	0.0	0.0
5	47	Purlin5	0.0	1.3	-0.1	0.0	0.0	0.0
6	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
7	47	Purlin5	0.0	1.3	-0.1	0.0	0.0	0.0
8	47	Purlin5	0.0	1.3	-0.1	0.0	0.0	0.0
9	47	Eave5	0.7	0.7	-0.1	0.0	0.0	0.0







x = 3/4"

** Purlin on opposite side of truss not shown for clarity*

** Screw quantity in sketches above may not reflect actual requirements*

Plan View | Connection Elevation | End Plate Elevation

Member Height (in):	6	Sheet Metal Thickness:	10 gage *0.1345 in*
Member Width (in):	4	Screw Size:	12-24 *# 1P2905*
Member Thickness (in):	0.125	Screw Quantity (Top):	3
End Plate Weld Size (in):	1/8	Screw Quantity (Side):	3

RISA ANALYSIS REPORT

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Distributed	Area(Member)
1	FRAMEWEIGHT	DL		-1			
2	DL	DL					3
3	LL	LL					3
4	SL	SL					
5	SLU	SL					
6	SLsliding	SL					
7	SLdrift	SL					
8	UPPER SURFACE	WL					9
9	LOWER SURFACE	WL					9
10	NA	WL					
11	NA	WL					
12	NA	WL					
13	NA	WL					
14	X10MINWIND	WL					3
15	NA	WL					
16	NA	WL					
17	SIDE WIND	WL					9
18	NA	WL					
19	NA	WL					
20	NA	WL					
21	Z10MINWIND	WL					1
22	EX FRAME	EL	-1				
23	EX ROOF	EL					3
24	EZ FRAME	EL			-1		
25	EZ ROOF	EL					3
26	BLC 2 Transient Area Loads	None				96	
27	BLC 3 Transient Area Loads	None				96	
28	BLC 8 Transient Area Loads	None				120	
29	BLC 9 Transient Area Loads	None				136	
30	BLC 14 Transient Area Loads	None				96	
31	BLC 17 Transient Area Loads	None				256	
32	BLC 21 Transient Area Loads	None				16	
33	BLC 23 Transient Area Loads	None				96	
34	BLC 25 Transient Area Loads	None				96	

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	SERVICE D			1	1	2	2						
2	SERVICE Lr			3	20								
3	SERVICE S			4									
4	SERVICE Su			5									
5	SERVICE Ssliding			6									
6	SERVICE Sdrift			7									
7	SERVICE Wx (LC A; y = 0°)			8	-5.776	9	-9.181						
8	SERVICE Wx (LC B; y = 0°)			8	-13.03	9							
9	SERVICE Wx (LC A; y = 180°)			8	12.993	9	8.553						
10	SERVICE Wx (LC B; y = 180°)			8	3.222	9	14.067						
11	SERVICE Wz (LC A; y = 90°)			17	-6.811								
12	SERVICE Wz (LC B; y = 90°)			17	6.811								
13	SERVICE Ex			22	0.534	23	1.067						
14	SERVICE Ez			24	0.534	25	1.067						
15	SERVICE Ev			1	0.103	2	0.205						
16													
17	D	Yes	Y	L1	1								
18	D + Lr	Yes	Y	L1	1	L2	1						
19	D + S	Yes	Y	L1	1	L3	1						
20	D + Su	Yes	Y	L1	1	L4	1						
21	D+Ssliding	Yes	Y	L1	1	L5	1						
22	D+Sdrift	Yes	Y	L1	1	L6	1						
23	D + 0.6Wx (LC A; y = 0°)	Yes	Y	L1	1	L7	1						
24	D + 0.6Wx (LC B; y = 0°)	Yes	Y	L1	1	L8	1						
25	D + 0.6Wx (LC A; y = 180°)	Yes	Y	L1	1	L9	1						
26	D + 0.6Wx (LC B; y = 180°)	Yes	Y	L1	1	L10	1						
27	D + 0.6Wz (LC A; y = 90°)	Yes	Y	L1	1	L11	1						
28	D + 0.6Wz (LC B; y = 90°)	Yes	Y	L1	1	L12	1						
29	D + 0.6Wx (Min.)	Yes	Y	L1	1	14	9.6						
30	D + 0.6Wz (Min.)	Yes	Y	L1	1	21	9.6						

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
31	D + 0.6(0.75Wx (LC A; y = 0°) + 0.75Wz (LC A; y = 90°))	Yes	Y	L1	1	L7	0.75	L11	0.75				
32	D + 0.6(0.75Wx (LC A; y = 180°) + 0.75Wz (LC A; y = 90°))	Yes	Y	L1	1	L9	0.75	L11	0.75				
33	D + 0.6(0.75Wx (LC B; y = 0°) + 0.75Wz (LC B; y = 90°))	Yes	Y	L1	1	L8	0.75	L12	0.75				
34	D + 0.6(0.75Wx (LC B; y = 180°) + 0.75Wz (LC B; y = 90°))	Yes	Y	L1	1	L10	0.75	L12	0.75				
35	D + 0.6(0.75Wx (Min.) + 0.75Wx (Min.))	Yes	Y	L1	1	14	7.2	21	7.2				
36	D + 0.75(0.6Wx (LC A; y = 0°)) + 0.75Lr	Yes	Y	L1	1	L7	0.75	L2	0.75				
37	D + 0.75(0.6Wx (LC B; y = 0°)) + 0.75Lr	Yes	Y	L1	1	L8	0.75	L2	0.75				
38	D + 0.75(0.6Wx (LC A; y = 180°)) + 0.75Lr	Yes	Y	L1	1	L9	0.75	L2	0.75				
39	D + 0.75(0.6Wx (LC B; y = 180°)) + 0.75Lr	Yes	Y	L1	1	L10	0.75	L2	0.75				
40	D + 0.75(0.6Wz (LC A; y = 90°)) + 0.75Lr	Yes	Y	L1	1	L11	0.75	L2	0.75				
41	D + 0.75(0.6Wz (LC B; y = 90°)) + 0.75Lr	Yes	Y	L1	1	L12	0.75	L2	0.75				
42	D + 0.75(0.6Wx (Min.)) + 0.75Lr	Yes	Y	L1	1	14	7.2	L2	0.75				
43	D + 0.75(0.6Wz (Min.)) + 0.75Lr	Yes	Y	L1	1	21	7.2	L2	0.75				
44	D + 0.75(0.6(0.75Wx (LC A; y=0°) + 0.75Wz (LC A; y=90°))) + 0.75Lr	Yes	Y	L1	1	L7	0.563	L11	0.563	L2	0.75		
45	D + 0.75(0.6(0.75Wx (LC A; y=180°) + 0.75Wz (LC A; y=90°))) + 0.75Lr	Yes	Y	L1	1	L9	0.563	L11	0.563	L2	0.75		
46	D + 0.75(0.6(0.75Wx (LC B; y=0°) + 0.75Wz (LC B; y=90°))) + 0.75Lr	Yes	Y	L1	1	L8	0.563	L12	0.563	L2	0.75		
47	D + 0.75(0.6(0.75Wx (LC B; y=180°) + 0.75Wz (LC B; y=90°))) + 0.75Lr	Yes	Y	L1	1	L10	0.563	L12	0.563	L2	0.75		
48	D + 0.75(0.6(0.75Wx (Min.) + 0.75Wz (Min.))) + 0.75Lr	Yes	Y	L1	1	14	5.4	21	5.4	L2	0.75		
49	D + 0.75(0.6Wx (LC A; y = 0°)) + 0.75S	Yes	Y	L1	1	L7	0.75	L3	0.75				
50	D + 0.75(0.6Wx (LC B; y = 0°)) + 0.75S	Yes	Y	L1	1	L8	0.75	L3	0.75				
51	D + 0.75(0.6Wx (LC A; y = 180°)) + 0.75S	Yes	Y	L1	1	L9	0.75	L3	0.75				
52	D + 0.75(0.6Wx (LC B; y = 180°)) + 0.75S	Yes	Y	L1	1	L10	0.75	L3	0.75				
53	D + 0.75(0.6Wz (LC A; y = 90°)) + 0.75S	Yes	Y	L1	1	L11	0.75	L3	0.75				
54	D + 0.75(0.6Wz (LC B; y = 90°)) + 0.75S	Yes	Y	L1	1	L12	0.75	L3	0.75				
55	D + 0.75(0.6Wx (Min.)) + 0.75S	Yes	Y	L1	1	14	7.2	L3	0.75				
56	D + 0.75(0.6Wz (Min.)) + 0.75S	Yes	Y	L1	1	21	7.2	L3	0.75				
57	D + 0.75(0.6(0.75Wx (LC A; y = 0°) + 0.75Wz (LC A; y = 90°))) + 0.75S	Yes	Y	L1	1	L7	0.563	L11	0.563	L3	0.75		
58	D + 0.75(0.6(0.75Wx (LC A; y = 180°) + 0.75Wz (LC A; y = 90°))) + 0.75S	Yes	Y	L1	1	L9	0.563	L11	0.563	L3	0.75		
59	D + 0.75(0.6(0.75Wx (LC B; y = 0°) + 0.75Wz (LC B; y = 90°))) + 0.75S	Yes	Y	L1	1	L8	0.563	L12	0.563	L3	0.75		
60	D + 0.75(0.6(0.75Wx (LC B; y = 180°) + 0.75Wz (LC B; y = 90°))) + 0.75S	Yes	Y	L1	1	L10	0.563	L12	0.563	L3	0.75		
61	D + 0.75(0.6(0.75Wx (Min.) + 0.75Wz (Min.))) + 0.75S	Yes	Y	L1	1	14	5.4	21	5.4	L3	0.75		
62	0.6D + 0.6Wx (LC A; y = 0°)	Yes	Y	L1	0.6	L7	1						
63	0.6D + 0.6Wx (LC B; y = 0°)	Yes	Y	L1	0.6	L8	1						
64	0.6D + 0.6Wx (LC A; y = 180°)	Yes	Y	L1	0.6	L9	1						
65	0.6D + 0.6Wx (LC B; y = 180°)	Yes	Y	L1	0.6	L10	1						
66	0.6D + 0.6Wz (LC A; y = 90°)	Yes	Y	L1	0.6	L11	1						
67	0.6D + 0.6Wz (LC B; y = 90°)	Yes	Y	L1	0.6	L12	1						
68	0.6D + 0.6Wx (Min.)	Yes	Y	L1	0.6	14	9.6						
69	0.6D + 0.6Wz (Min.)	Yes	Y	L1	0.6	21	9.6						
70	0.6 + 0.6(0.75Wx (LC A; y = 0°) + 0.75Wz (LC A; y = 90°))	Yes	Y	L1	0.6	L7	0.75	L11	0.75				
71	0.6D + 0.6(0.75Wx (LC A; y = 180°) + 0.75Wz (LC A; y = 90°))	Yes	Y	L1	0.6	L9	0.75	L11	0.75				
72	0.6D + 0.6(0.75Wx (LC B; y = 0°) + 0.75Wz (LC B; y = 90°))	Yes	Y	L1	0.6	L8	0.75	L12	0.75				
73	0.6D + 0.6(0.75Wx (LC B; y = 180°) + 0.75Wz (LC B; y = 90°))	Yes	Y	L1	0.6	L10	0.75	L12	0.75				
74	0.6D + 0.6(0.75Wx (Min.) + 0.75Wz (Min.))	Yes	Y	L1	0.6	14	7.2	21	7.2				
75	1.0D+0.7Ev+0.7Ehx	Yes	Y	L1	1	L15	0.7	L13	0.7				
76	1.0D+0.525Ev+0.525Ehx+0.75S	Yes	Y	L1	1	L15	0.525	L13	0.525	L3	0.75		
77	0.6D-0.7Ev+0.7Ehx	Yes	Y	L1	0.6	L15	-0.7	L13	0.7				
78	1.0D+0.7Ev+0.7Ehz	Yes	Y	L1	1	L15	0.7	L14	0.7				
79	1.0D+0.525Ev+0.525Ehz+0.75S	Yes	Y	L1	1	L15	0.525	L14	0.525	L3	0.75		
80	0.6D-0.7Ev+0.7Ehz	Yes	Y	L1	0.6	L15	-0.7	L14	0.7				
81	1.0D+0.7Ev+0.7Ehx+0.21Ehz	Yes	Y	L1	1	L15	0.7	L13	0.7	L14	0.21		
82	1.0D+0.525Ev+0.525Ehx+0.1575Ehz+0.75S	Yes	Y	L1	1	L15	0.525	L13	0.525	L14	0.16	L3	0.75
83	0.6D-0.7Ev+0.7Ehx+0.21Ehz	Yes	Y	L1	0.6	L15	-0.7	L13	0.7	L14	0.21		
84	1.0D+0.7Ev+0.7Ehz+0.21Ehx	Yes	Y	L1	1	L15	0.7	L14	0.7	L13	0.21		
85	1.0D+0.525Ev+0.525Ehz+0.1575Ehx+0.75S	Yes	Y	L1	1	L15	0.525	L14	0.525	L13	0.16	L3	0.75
86	0.6D-0.7Ev+0.7Ehz+0.21Ehx	Yes	Y	L1	0.6	L15	-0.7	L14	0.7	L13	0.21		
87													
88													
89													
90													
91													
92	1.4D			L1	1.4								
93	1.2D + 0.5Lr			L1	1.2	L2	0.5						
94	1.2D + 0.5S			L1	1.2	L3	0.5						
95	1.2D + 1.6Lr + 0.5Wx (LC A; y = 0°)			L1	1.2	L2	1.6	L7	0.833				
96	1.2D + 1.6Lr + 0.5Wx (LC B; y = 0°)			L1	1.2	L2	1.6	L8	0.833				
97	1.2D + 1.6Lr + 0.5Wx (LC A; y = 180°)			L1	1.2	L2	1.6	L9	0.833				
98	1.2D + 1.6Lr + 0.5Wx (LC B; y = 180°)			L1	1.2	L2	1.6	L10	0.833				

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
99	1.2D + 1.6Lr + 0.5Wz (LC A; y = 90°)			L1	1.2	L2	1.6	L11	0.833				
100	1.2D + 1.6Lr + 0.5Wz (LC B; y = 90°)			L1	1.2	L2	1.6	L12	0.833				
101	1.2D + 1.6Lr + 0.5Wx (Min.)			L1	1.2	L2	1.6	14	8				
102	1.2D + 1.6Lr + 0.5Wz (Min.)			L1	1.2	L2	1.6	21	8				
103	1.2D + 1.6Lr + 0.5(0.75Wx (LC A; y = 0°) + 0.75Wz (LC A; y = 90°))			L1	1.2	L2	1.6	L7	0.625	L11	0.63		
104	1.2D + 1.6Lr + 0.5(0.75Wx (LC A; y = 180°) + 0.75Wz (LC A; y = 90°))			L1	1.2	L2	1.6	L9	0.625	L11	0.63		
105	1.2D + 1.6Lr + 0.5(0.75Wx (LC B; y = 0°) + 0.75Wz (LC B; y = 90°))			L1	1.2	L2	1.6	L8	0.625	L12	0.63		
106	1.2D + 1.6Lr + 0.5(0.75Wx (LC B; y = 180°) + 0.75Wz (LC B; y = 90°))			L1	1.2	L2	1.6	L10	0.625	L12	0.63		
107	1.2D + 1.6Lr + 0.5(0.75Wx (Min.) + 0.75Wz (Min.))			L1	1.2	L2	1.6	14	6	21	6		
108	1.2D + 1.6S + 0.5Wx (LC A; y = 0°)			L1	1.2	L3	1.6	L7	0.833				
109	1.2D + 1.6S + 0.5Wx (LC B; y = 0°)			L1	1.2	L3	1.6	L8	0.833				
110	1.2D + 1.6S + 0.5Wx (LC A; y = 180°)			L1	1.2	L3	1.6	L9	0.833				
111	1.2D + 1.6S + 0.5Wx (LC B; y = 180°)			L1	1.2	L3	1.6	L10	0.833				
112	1.2D + 1.6S + 0.5Wz (LC A; y = 90°)			L1	1.2	L3	1.6	L11	0.833				
113	1.2D + 1.6S + 0.5Wz (LC B; y = 90°)			L1	1.2	L3	1.6	L12	0.833				
114	1.2D + 1.6S + 0.5Wx (Min.)			L1	1.2	L3	1.6	14	8				
115	1.2D + 1.6S + 0.5Wz (Min.)			L1	1.2	L3	1.6	21	8				
116	1.2D + 1.6S + 0.5(0.75Wx (LC A; y = 0°) + 0.75Wz (LC A; y = 90°))			L1	1.2	L3	1.6	L7	0.625	L11	0.63		
117	1.2D + 1.6S + 0.5(0.75Wx (LC A; y = 180°) + 0.75Wz (LC A; y = 90°))			L1	1.2	L3	1.6	L9	0.625	L11	0.63		
118	1.2D + 1.6S + 0.5(0.75Wx (LC B; y = 0°) + 0.75Wz (LC B; y = 90°))			L1	1.2	L3	1.6	L8	0.625	L12	0.63		
119	1.2D + 1.6S + 0.5(0.75Wx (LC B; y = 180°) + 0.75Wz (LC B; y = 90°))			L1	1.2	L3	1.6	L10	0.625	L12	0.63		
120	1.2D + 1.6S + 0.5(0.75Wx (Min.) + 0.75Wz (Min.))			L1	1.2	L3	1.6	14	6	21	6		
121	1.2D + 1.6Su + 0.5Wx (LC A; y = 0°)			L1	1.2	L4	1.6	L7	0.833				
122	1.2D + 1.6Su + 0.5Wx (LC B; y = 0°)			L1	1.2	L4	1.6	L8	0.833				
123	1.2D + 1.6Su + 0.5Wx (LC A; y = 180°)			L1	1.2	L4	1.6	L9	0.833				
124	1.2D + 1.6Su + 0.5Wx (LC B; y = 180°)			L1	1.2	L4	1.6	L10	0.833				
125	1.2D + 1.6Su + 0.5Wz (LC A; y = 90°)			L1	1.2	L4	1.6	L11	0.833				
126	1.2D + 1.6Su + 0.5Wz (LC B; y = 90°)			L1	1.2	L4	1.6	L12	0.833				
127	1.2D + 1.6Su + 0.5Wx (Min.)			L1	1.2	L4	1.6	14	8				
128	1.2D + 1.6Su + 0.5Wz (Min.)			L1	1.2	L4	1.6	21	8				
129	1.2D + 1.6Su + 0.5(0.75Wx (LC A; y = 0°) + 0.75Wz (LC A; y = 90°))			L1	1.2	L4	1.6	L7	0.625	L11	0.63		
130	1.2D + 1.6Su + 0.5(0.75Wx (LC A; y = 180°) + 0.75Wz (LC A; y = 90°))			L1	1.2	L4	1.6	L9	0.625	L11	0.63		
131	1.2D + 1.6Su + 0.5(0.75Wx (LC B; y = 0°) + 0.75Wz (LC B; y = 90°))			L1	1.2	L4	1.6	L8	0.625	L12	0.63		
132	1.2D + 1.6Su + 0.5(0.75Wx (LC B; y = 180°) + 0.75Wz (LC B; y = 90°))			L1	1.2	L4	1.6	L10	0.625	L12	0.63		
133	1.2D + 1.6Su + 0.5(0.75Wx (Min.) + 0.75Wz (Min.))			L1	1.2	L4	1.6	14	6	21	6		
134	1.2D + 1.6Ssliding + 0.5Wx (LC A; y = 0°)			L1	1.2	L5	1.6	L7	0.833				
135	1.2D + 1.6Ssliding + 0.5Wx (LC B; y = 0°)			L1	1.2	L5	1.6	L8	0.833				
136	1.2D + 1.6Ssliding + 0.5Wx (LC A; y = 180°)			L1	1.2	L5	1.6	L9	0.833				
137	1.2D + 1.6Ssliding + 0.5Wx (LC B; y = 180°)			L1	1.2	L5	1.6	L10	0.833				
138	1.2D + 1.6Ssliding + 0.5Wz (LC A; y = 90°)			L1	1.2	L5	1.6	L11	0.833				
139	1.2D + 1.6Ssliding + 0.5Wz (LC B; y = 90°)			L1	1.2	L5	1.6	L12	0.833				
140	1.2D + 1.6Ssliding + 0.5Wx (Min.)			L1	1.2	L5	1.6	14	8				
141	1.2D + 1.6Ssliding + 0.5Wz (Min.)			L1	1.2	L5	1.6	21	8				
142	1.2D + 1.6Ssliding + 0.5(0.75Wx (LC A; y = 0°) + 0.75Wz (LC A; y = 90°))			L1	1.2	L5	1.6	L7	0.625	L11	0.63		
143	1.2D + 1.6Ssliding + 0.5(0.75Wx (LC A; y = 180°) + 0.75Wz (LC A; y = 90°))			L1	1.2	L5	1.6	L9	0.625	L11	0.63		
144	1.2D + 1.6Ssliding + 0.5(0.75Wx (LC B; y = 0°) + 0.75Wz (LC B; y = 90°))			L1	1.2	L5	1.6	L8	0.625	L12	0.63		
145	1.2D + 1.6Ssliding + 0.5(0.75Wx (LC B; y = 180°) + 0.75Wz (LC B; y = 90°))			L1	1.2	L5	1.6	L10	0.625	L12	0.63		
146	1.2D + 1.6Ssliding + 0.5(0.75Wx (Min.) + 0.75Wz (Min.))			L1	1.2	L5	1.6	14	6	21	6		
147	1.2D + 1.6Sdrift + 0.5Wx (LC A; y = 0°)			L1	1.2	L6	1.6	L7	0.833				
148	1.2D + 1.6Sdrift + 0.5Wx (LC B; y = 0°)			L1	1.2	L6	1.6	L8	0.833				
149	1.2D + 1.6Sdrift + 0.5Wx (LC A; y = 180°)			L1	1.2	L6	1.6	L9	0.833				
150	1.2D + 1.6Sdrift + 0.5Wx (LC B; y = 180°)			L1	1.2	L6	1.6	L10	0.833				
151	1.2D + 1.6Sdrift + 0.5Wz (LC A; y = 90°)			L1	1.2	L6	1.6	L11	0.833				
152	1.2D + 1.6Sdrift + 0.5Wz (LC B; y = 90°)			L1	1.2	L6	1.6	L12	0.833				
153	1.2D + 1.6Sdrift + 0.5Wx (Min.)			L1	1.2	L6	1.6	14	8				
154	1.2D + 1.6Sdrift + 0.5Wz (Min.)			L1	1.2	L6	1.6	21	8				
155	1.2D + 1.6Sdrift + 0.5(0.75Wx (LC A; y = 0°) + 0.75Wz (LC A; y = 90°))			L1	1.2	L6	1.6	L7	0.625	L11	0.63		
156	1.2D + 1.6Sdrift + 0.5(0.75Wx (LC A; y = 180°) + 0.75Wz (LC A; y = 90°))			L1	1.2	L6	1.6	L9	0.625	L11	0.63		
157	1.2D + 1.6Sdrift + 0.5(0.75Wx (LC B; y = 0°) + 0.75Wz (LC B; y = 90°))			L1	1.2	L6	1.6	L8	0.625	L12	0.63		
158	1.2D + 1.6Sdrift + 0.5(0.75Wx (LC B; y = 180°) + 0.75Wz (LC B; y = 90°))			L1	1.2	L6	1.6	L10	0.625	L12	0.63		
159	1.2D + 1.6Sdrift + 0.5(0.75Wx (Min.) + 0.75Wz (Min.))			L1	1.2	L6	1.6	14	6	21	6		
160	1.2D + 1.0Wx (LC A; y = 0°) + 0.5Lr			L1	1.2	L7	1.667	L2	0.5				
161	1.2D + 1.0Wx (LC B; y = 0°) + 0.5Lr			L1	1.2	L8	1.667	L2	0.5				
162	1.2D + 1.0Wx (LC A; y = 180°) + 0.5Lr			L1	1.2	L9	1.667	L2	0.5				
163	1.2D + 1.0Wx (LC B; y = 180°) + 0.5Lr			L1	1.2	L10	1.667	L2	0.5				
164	1.2D + 1.0Wz (LC A; y = 90°) + 0.5Lr			L1	1.2	L11	1.667	L2	0.5				
165	1.2D + 1.0Wz (LC B; y = 90°) + 0.5Lr			L1	1.2	L12	1.667	L2	0.5				
166	1.2D + 1.0Wx (Min.) + 0.5Lr			L1	1.2	14	16	L2	0.5				

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
167	1.2D + 1.0Wz (Min.) + 0.5Lr			L1	1.2	21	16	L2	0.5				
168	1.2D + 1.0(0.75Wx (LC A; y = 0°) + 0.75Wz (LC A; y = 90°)) + 0.5Lr			L1	1.2	L7	1.25	L11	1.25	L2	0.5		
169	1.2D + 1.0(0.75Wx (LC A; y = 180°) + 0.75Wz (LC A; y = 90°)) + 0.5Lr			L1	1.2	L9	1.25	L11	1.25	L2	0.5		
170	1.2D + 1.0(0.75Wx (LC B; y = 0°) + 0.75Wz (LC B; y = 90°)) + 0.5Lr			L1	1.2	L8	1.25	L12	1.25	L2	0.5		
171	1.2D + 1.0(0.75Wx (LC B; y = 180°) + 0.75Wz (LC B; y = 90°)) + 0.5Lr			L1	1.2	L10	1.25	L12	1.25	L2	0.5		
172	1.2D + 1.0(0.75Wx (Min.) + 0.75Wz (Min.)) +0.5Lr			L1	1.2	14	12	21	12	L2	0.5		
173	1.2D + 1.0Wx (LC A; y = 0°) + 0.5S			L1	1.2	L7	1.667	L3	0.5				
174	1.2D + 1.0Wx (LC B; y = 0°) + 0.5S			L1	1.2	L8	1.667	L3	0.5				
175	1.2D + 1.0Wx (LC A; y = 180°) + 0.5S			L1	1.2	L9	1.667	L3	0.5				
176	1.2D + 1.0Wx (LC B; y = 180°) + 0.5S			L1	1.2	L10	1.667	L3	0.5				
177	1.2D + 1.0Wz (LC A; y = 90°) + 0.5S			L1	1.2	L11	1.667	L3	0.5				
178	1.2D + 1.0Wz (LC B; y = 90°) + 0.5S			L1	1.2	L12	1.667	L3	0.5				
179	1.2D + 1.0Wx (Min.) + 0.5S			L1	1.2	14	16	L3	0.5				
180	1.2D + 1.0Wz (Min.) + 0.5S			L1	1.2	21	16	L3	0.5				
181	1.2D + 1.0(0.75Wx (LC A; y = 0°) + 0.75Wz (LC A; y = 90°)) + 0.5S			L1	1.2	L7	1.25	L11	1.25	L3	0.5		
182	1.2D + 1.0(0.75Wx (LC A; y = 180°) + 0.75Wz (LC A; y = 90°)) + 0.5S			L1	1.2	L9	1.25	L11	1.25	L3	0.5		
183	1.2D + 1.0(0.75Wx (LC B; y = 0°) + 0.75Wz (LC B; y = 90°)) + 0.5S			L1	1.2	L8	1.25	L12	1.25	L3	0.5		
184	1.2D + 1.0(0.75Wx (LC B; y = 180°) + 0.75Wz (LC B; y = 90°)) + 0.5S			L1	1.2	L10	1.25	L12	1.25	L3	0.5		
185	1.2D + 1.0(0.75Wx (Min.) + 0.75Wz (Min.)) +0.5S			L1	1.2	14	12	21	12	L3	0.5		
186	0.9D + 1.0Wx (LC A; y = 0°)			L1	0.9	L7	1.667						
187	0.9D + 1.0Wx (LC B; y = 0°)			L1	0.9	L8	1.667						
188	0.9D + 1.0Wx (LC A; y = 180°)			L1	0.9	L9	1.667						
189	0.9D + 1.0Wx (LC B; y = 180°)			L1	0.9	L10	1.667						
190	0.9D + 1.0Wz (LC A; y = 90°)			L1	0.9	L11	1.667						
191	0.9D + 1.0Wz (LC B; y = 90°)			L1	0.9	L12	1.667						
192	0.9D + 1.0Wx (Min.)			L1	0.9	14	16						
193	0.9D + 1.0Wz (Min.)			L1	0.9	21	16						
194	0.9D + 1.0(0.75Wx (LC A; y = 0°) + 0.75Wz (LC A; y = 90°))			L1	0.9	L7	1.25	L11	1.25				
195	0.9D + 1.0(0.75Wx (LC A; y = 180°) + 0.75Wz (LC A; y = 90°))			L1	0.9	L9	1.25	L11	1.25				
196	0.9D + 1.0(0.75Wx (LC B; y = 0°) + 0.75Wz (LC B; y = 90°))			L1	0.9	L8	1.25	L12	1.25				
197	0.9D + 1.0(0.75Wx (LC B; y = 180°) + 0.75Wz (LC B; y = 90°))			L1	0.9	L10	1.25	L12	1.25				
198	0.9D + 1.0(0.75Wx (Min.) + 0.75Wz (Min.))			L1	0.9	14	12	21	12				
199	1.2D+Ev+Ehx+0.2S			L1	1.2	L15	1	L13	1	L3	0.2		
200	0.9D-Ev+Ehx			L1	0.9	L15	-1	L13	1				
201	1.2D+Ev+Ehz+0.2S			L1	1.2	L15	1	L14	1	L3	0.2		
202	0.9D-Ev+Ehz			L1	0.9	L15	-1	L14	1				
203	1.2D+Ev+Ehx+0.3Ehz+0.2S			L1	1.2	L15	1	L13	1	L14	0.3	L3	0.2
204	0.9D-Ev+Ehx+0.3Ehz			L1	0.9	L15	-1	L13	1	L14	0.3		
205	1.2D+Ev+Ehz+0.3Ehx+0.2S			L1	1.2	L15	1	L14	1	L13	0.3	L3	0.2
206	0.9D-Ev+Ehz+0.3Ehx			L1	0.9	L15	-1	L14	1	L13	0.3		
207													
208	SERVICE Emx			22	0.513	23	1.026						
209	SERVICE Emz			24	0.513	25	1.026						
210													
211	1.0D+0.7Ev+0.7Emhx			L1	1	L13	0.7	L208	0.7				
212	1.0D+0.525Ev+0.525Emhx+0.75S			L1	1	L13	0.525	L208	0.525	L3	0.75		
213	0.6D-0.7Ev+0.7Emhx			L1	0.6	L13	-0.7	L208	0.7				
214	1.0D+0.7Ev+0.7Emhz			L1	1	L13	0.7	L209	0.7				
215	1.0D+0.525Ev+0.525Emhz+0.75S			L1	1	L13	0.525	L209	0.525	L3	0.75		
216	0.6D-0.7Ev+0.7Emhz			L1	0.6	L13	-0.7	L209	0.7				
217													
218													
219													
220													
221	1.2D+Ev+Emhx+0.2S			L1	1.2	L13	1	L208	1	L3	0.2		
222	0.9D-Ev+Emhx			L1	0.9	L13	-1	L208	1				
223	1.2D+Ev+Emhx+0.2S			L1	1.2	L13	1	L209	1	L3	0.2		
224	0.9D-Ev+Emhz			L1	0.9	L13	-1	L209	1				
225													
226													
227													
228													
229													
230													
231													
232													
233													
234													

Load Combinations (Continued)

	Description	Solve P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
235												
236												
237												
238												
239												
240												
241												
242												
243												
244												
245												
246												
247												
248												
249												
250												

Node Boundary Conditions

	Node Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot [k-ft/rad]	Y Rot [k-ft/rad]	Z Rot [k-ft/rad]
1	N2	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N6	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N9	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
4	N12	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in²]	Iyy [in⁴]	Izz [in⁴]	J [in⁴]
1	Column	HSS16X8X6	Column	Tube	A500 Gr.C RECT	Typical	16	181	531	436
2	Truss	HSS12X8X4	Beam	Tube	A500 Gr.C RECT	Typical	8.96	98.8	184	202
3	Eave	HSS6X4X2	Beam	Tube	A500 Gr.C RECT	Typical	2.23	6.15	11.4	12.6
4	Purlin	HSS6X4X2	Beam	Tube	A500 Gr.C RECT	Typical	2.23	6.15	11.4	12.6

Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	Column1	N2	N3	163.305	Column	Column	Tube	A500 Gr.C RECT	Typical
2	Column2	N6	N5	174.435	Column	Column	Tube	A500 Gr.C RECT	Typical
3	Column3	N9	N8	185.565	Column	Column	Tube	A500 Gr.C RECT	Typical
4	Column4	N12	N11	196.695	Column	Column	Tube	A500 Gr.C RECT	Typical
5	Eave1	N4	N7	9.46	Eave	Beam	Tube	A500 Gr.C RECT	Typical
6	Eave2	N7	N10	9.46	Eave	Beam	Tube	A500 Gr.C RECT	Typical
7	Eave3	N10	N13	9.46	Eave	Beam	Tube	A500 Gr.C RECT	Typical
8	Eave4	N3	N5	9.46	Eave	Beam	Tube	A500 Gr.C RECT	Typical
9	Eave5	N5	N8	9.46	Eave	Beam	Tube	A500 Gr.C RECT	Typical
10	Eave6	N8	N11	9.46	Eave	Beam	Tube	A500 Gr.C RECT	Typical
11	Purlin1	N14	N15	9.46	Purlin	Beam	Tube	A500 Gr.C RECT	Typical
12	Purlin2	N15	N16	9.46	Purlin	Beam	Tube	A500 Gr.C RECT	Typical
13	Purlin3	N16	N17	9.46	Purlin	Beam	Tube	A500 Gr.C RECT	Typical
14	Purlin4	N18	N19	9.46	Purlin	Beam	Tube	A500 Gr.C RECT	Typical
15	Purlin5	N19	N20	9.46	Purlin	Beam	Tube	A500 Gr.C RECT	Typical
16	Purlin6	N20	N21	9.46	Purlin	Beam	Tube	A500 Gr.C RECT	Typical
17	Truss1	N3	N4		Truss	Beam	Tube	A500 Gr.C RECT	Typical
18	Truss2	N5	N7		Truss	Beam	Tube	A500 Gr.C RECT	Typical
19	Truss3	N8	N10		Truss	Beam	Tube	A500 Gr.C RECT	Typical
20	Truss4	N11	N13		Truss	Beam	Tube	A500 Gr.C RECT	Typical

Member Advanced Data

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
1	Column1			Yes	** NA **	None
2	Column2			Yes	** NA **	None
3	Column3			Yes	** NA **	None
4	Column4			Yes	** NA **	None
5	Eave1	AllPIN	BenPIN	Yes	Default	None
6	Eave2	AllPIN	BenPIN	Yes	Default	None
7	Eave3	AllPIN	BenPIN	Yes	Default	None

Member Advanced Data (Continued)

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
8	Eave4	AllPIN	BenPIN	Yes	Default	None
9	Eave5	AllPIN	BenPIN	Yes	Default	None
10	Eave6	AllPIN	BenPIN	Yes	Default	None
11	Purlin1	AllPIN	BenPIN	Yes	Default	None
12	Purlin2	AllPIN	BenPIN	Yes	Default	None
13	Purlin3	AllPIN	BenPIN	Yes	Default	None
14	Purlin4	AllPIN	BenPIN	Yes	Default	None
15	Purlin5	AllPIN	BenPIN	Yes	Default	None
16	Purlin6	AllPIN	BenPIN	Yes	Default	None
17	Truss1			Yes	Default	None
18	Truss2			Yes	Default	None
19	Truss3			Yes	Default	None
20	Truss4			Yes	Default	None

Hot Rolled Steel Design Parameters

	Label	Shape	Length [ft]	Lb y-y [ft]	K y-y	K z-z	Channel Conn.	a [ft]	Function
1	Column1	Column	11		2	2	N/A	N/A	Lateral
2	Column2	Column	11		2	2	N/A	N/A	Lateral
3	Column3	Column	11		2	2	N/A	N/A	Lateral
4	Column4	Column	11		2	2	N/A	N/A	Lateral
5	Eave1	Eave	15.904		1	1	N/A	N/A	Lateral
6	Eave2	Eave	15.904		1	1	N/A	N/A	Lateral
7	Eave3	Eave	15.904		1	1	N/A	N/A	Lateral
8	Eave4	Eave	18.813		1	1	N/A	N/A	Lateral
9	Eave5	Eave	18.813		1	1	N/A	N/A	Lateral
10	Eave6	Eave	18.813		1	1	N/A	N/A	Lateral
11	Purlin1	Purlin	16.874		1	1	N/A	N/A	Lateral
12	Purlin2	Purlin	16.874		1	1	N/A	N/A	Lateral
13	Purlin3	Purlin	16.874		1	1	N/A	N/A	Lateral
14	Purlin4	Purlin	17.843		1	1	N/A	N/A	Lateral
15	Purlin5	Purlin	17.843		1	1	N/A	N/A	Lateral
16	Purlin6	Purlin	17.843		1	1	N/A	N/A	Lateral
17	Truss1	Truss	15.207	Segment	0.65	0.65	N/A	N/A	Lateral
18	Truss2	Truss	15.207	Segment	0.65	0.65	N/A	N/A	Lateral
19	Truss3	Truss	15.207	Segment	0.65	0.65	N/A	N/A	Lateral
20	Truss4	Truss	15.207	Segment	0.65	0.65	N/A	N/A	Lateral

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e^{5}°F^{-1}]	Density [lb/ft^{3}]	Yield [ksi]	Ry	Fu [ksi]	Rt
1	A992	29000	11154	0.3	0.65	490	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	0.3	0.65	490	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	0.3	0.65	490	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	0.3	0.65	527	42	1.4	58	1.3
5	A500 Gr.B RECT	29000	11154	0.3	0.65	527	46	1.4	58	1.3
6	A500 Gr.C RND	29000	11154	0.3	0.65	527	46	1.4	62	1.3
7	A500 Gr.C RECT	29000	11154	0.3	0.65	527	50	1.4	62	1.3
8	A53 Gr.B	29000	11154	0.3	0.65	490	35	1.6	60	1.2
9	A1085	29000	11154	0.3	0.65	490	50	1.4	65	1.3
10	A913 Gr.65	29000	11154	0.3	0.65	490	65	1.1	80	1.1

Envelope AISC 15TH (360-16): ASD Member Steel Code Checks

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	Pnc/om [k]	Pnt/om [k]	Mnyy/om [k-in]	Mnzz/om [k-in]	Cb	Eqn
0	Column1	HSS16X8X6	0.234	0	38	0.035	0	z	80	303.534	479.042	1208.263	2458.084	1.018	H1-1b
1	Column2	HSS16X8X6	0.335	0	38	0.036	0	z	80	303.534	479.042	1208.263	2458.084	1.019	H1-1b
2	Column3	HSS16X8X6	0.335	0	38	0.038	0	z	84	303.534	479.042	1208.263	2458.084	1.019	H1-1b
3	Column4	HSS16X8X6	0.234	0	38	0.04	0	z	84	303.534	479.042	1208.263	2458.084	1.018	H1-1b
4	Eave1	HSS6X4X2	0.279	7.952	38	0.025	15.904	y	38	25.38	66.766	78.098	121.352	1.129	H1-1b
5	Eave2	HSS6X4X2	0.279	7.952	38	0.025	15.904	y	38	25.38	66.766	78.098	121.352	1.129	H1-1b
6	Eave3	HSS6X4X2	0.279	7.952	38	0.025	15.904	y	38	25.38	66.766	78.098	121.352	1.129	H1-1b
7	Eave4	HSS6X4X2	0.414	9.407	47	0.031	18.813	y	47	18.137	66.766	78.098	121.352	1.136	H1-1b
8	Eave5	HSS6X4X2	0.42	9.407	47	0.031	18.813	y	47	18.137	66.766	78.098	121.352	1.136	H1-1b
9	Eave6	HSS6X4X2	0.414	9.407	47	0.031	18.813	y	47	18.137	66.766	78.098	121.352	1.136	H1-1b
10	Purlin1	HSS6X4X2	0.589	8.437	38	0.051	16.874	y	38	22.546	66.766	78.098	121.352	1.138	H1-1b
11	Purlin2	HSS6X4X2	0.589	8.437	38	0.051	16.874	y	38	22.546	66.766	78.098	121.352	1.138	H1-1b
12	Purlin3	HSS6X4X2	0.589	8.437	38	0.051	16.874	y	38	22.546	66.766	78.098	121.352	1.138	H1-1b

Envelope AISC 15TH (360-16): ASD Member Steel Code Checks (Continued)

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	Pnc/om [k]	Pnt/om [k]	Mnyy/om [k-in]	Mnzz/om [k-in]	Cb	Eqn
13	Purlin4	HSS6X4X2	0.688	8.922	47	0.057	0	y	47	20.162	66.766	78.098	121.352	1.132	H1-1b
14	Purlin5	HSS6X4X2	0.688	8.922	47	0.057	0	y	47	20.162	66.766	78.098	121.352	1.132	H1-1b
15	Purlin6	HSS6X4X2	0.688	8.922	47	0.057	0	y	47	20.162	66.766	78.098	121.352	1.132	H1-1b
16	Truss1	HSS12X8X4	0.388	0	38	0.036	0	y	38	223.81	268.263	628.638	981.237	2.212	H1-1b
17	Truss2	HSS12X8X4	0.71	0	38	0.067	0	y	38	223.81	268.263	628.638	981.237	2.205	H1-1b
18	Truss3	HSS12X8X4	0.71	0	38	0.067	0	y	38	223.81	268.263	628.638	981.237	2.205	H1-1b
19	Truss4	HSS12X8X4	0.388	0	38	0.036	0	y	38	223.81	268.263	628.638	981.237	2.211	H1-1b

Material Take-Off

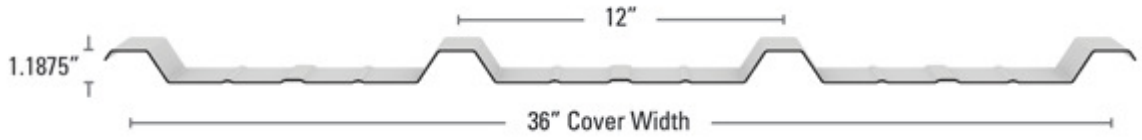
	Material	Size	Pieces	Length[ft]	Weight[LB]
0	Hot Rolled Steel				
1	A500 Gr.C RECT	HSS12X8X4	4	60.8	1994.606
2	A500 Gr.C RECT	HSS16X8X6	4	44	2576.446
3	A500 Gr.C RECT	HSS6X4X2	12	208.3	1699.992
4	Total HR Steel		20	313.1	6271.044

PANEL DATA

Multi-Rib

Bare Galvalume & Painted Galvalume

a product of McElroy Metal



Section Properties						Top in Compression			Bottom in Compression		
Gauge	F_y (ksi)	Weight (psf)	Va (kip/ft)	P_{a_end} (lbs/ft)	P_{a_int} (lbs/ft)	I_x (in^4/ft)	S_e (in^3/ft)	M_a (kip-in/ft)	I_x (in^4/ft)	S_e (in^3/ft)	M_a (kip-in/ft)
24	63.7	1.10	0.7727	235.0	280.7	0.05	0.055	1.375	0.029	0.046	1.148

1. Yield strength measured per ASTM A370.
2. Remainder of section properties are calculated in accordance with AISI S100-16.
3. V_a is the allowable shear
4. P_a is the allowable load for web crippling on end & interior supports.
5. I_x is for deflection determination.
6. S_e is for bending.
7. M_a is the allowable bending moment.
8. All values are for one foot of panel width.

Allowable Uniform Loads (PSF)													
	Span Length (ft)												
Load Type	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0
+	355.1	288.9	222.8	156.6	90.5	86.3	82.1	58.2	34.4	21	18	16	14
-	246	162	148.5	134.9	121.4	94.6	67.9	50.7	33.5	18	15	13	11

Notes:

1. Allowable uniform loads are based upon equal span lengths.
2. Highlighted values measured per ASTM A1592 and include a factor of safety of 2.0.
3. Remaining values calculated from section properties or straight-line interpolation.
4. Calculated values are limited to combined shear & bending using Eq. H2-1 of AISI S100-16.
5. Calculated values are limited by web crippling using a bearing length of 2".
6. Web crippling values are determined using a ratio of the uniform load **actually** supported by the top flanges of the section.
7. The weight of the panel has **NOT** been deducted from the allowable loads.

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