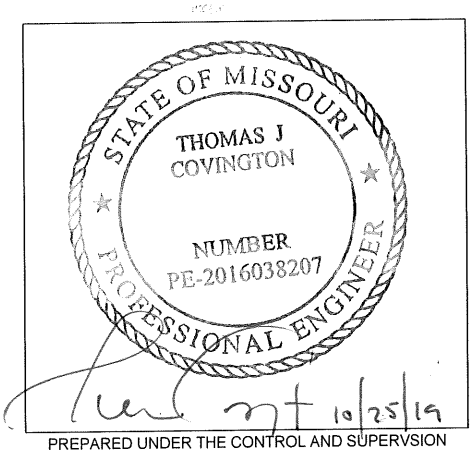
poligon®

CALCULATIONS FOR:

POLIGON CHE 20X28
MULTI RIB OVER STAINED TONGUE AND GROOVE
2018 INTERNATIONAL BUILDING CODE



PREPARED UNDER THE CONTROL AND SUPERVSION
OF THE DESIGN PROFESSIONAL ABOVE

PORTER CORP
A PLYCORE Company

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DESIGN CRITERIA

GENERAL

Building Code:	See Cover Sheet	Lower Roof Slope (°):	18.43		*4:12 Pitch*
Design Code:	ASCE 7-16	Upper Roof Slope (°):	18.43		*4:12 Pitch*
Risk Category:	II	Equivalent Roof Height:	15.00	ft	

DEAD LOAD

Weight of Roofing System	6	psf	
Frame Dead Load	Frame Self-Weight		*(See RISA Analysis Report)*

LIVE LOAD

Roof Live Load, L_r	20	psf	*ASCE 7 Table 4.3-1*

SNOW LOAD

Ground Snow Load, p_g	20.0	psf	
Importance Factor, *I (Snow Loads)*	1.0		*ASCE 7 Table 7.4-1*
Slope Factor, C_s	1.0		*ASCE 7 Figure 7-2*
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	20.0	psf	*ASCE 7 Section 7.3*
Leeward Unbalanced Snow Load	20.0	psf	*ASCE 7 Section 7.6.1*

WIND LOAD

Basic Wind Speed,	V_{ult}	110	mph	V_{asd}	90 mph	*ASCE 7 Section 26.5*
Exposure Category		C				*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 27.3.1*
Wind Directionality Factor, K_d		0.85				*ASCE 7 Table 26.6-1*
Topographic Factor, K_{zt}		1.00				*ASCE 7 Section 26.8.2*
Velocity Pressure, q_z		22.38	psf			*ASCE 7 Section 26.10.2*

Main Wind-Force Resisting System — *ASCE 7 Section 6.5.13*

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

	Lower Roof		*Upper Roof*	
Load Case	A	B	A	B
y = 0				
Windward Cp =	1.10	0.01	1.10	0.01
p (psf):	20.93	0.16	20.93	0.16
y = 180				
Leeward Cp=	-0.17	-0.96	-0.17	-0.96
p (psf):	-3.25	-18.31	-3.25	-18.31
y = 90				
Sideward Cp=	0.80	-0.80	0.80	-0.80
p (psf):	15.22	-15.22	15.22	-15.22

Component and Cladding Elements

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

	Wind Direction	*Toward Roof*	*Away From Roof*
Zone 3	Cn:	2.29	-2.11
	p (psf):	43.59	-40.11
Zone 2	Cn:	1.77	-1.63
	p (psf):	33.65	-31.03
Zone 1	Cn:	1.15	-1.05
	p (psf):	21.80	-20.05

SEISMIC LOAD

Analysis Procedure	Equivalent Lateral Force Procedure		*ASCE 7 Section 12.8*
Seismic Site Class	D		*ASCE 7 Section 11.4.3*
Basic Seismic Force Resisting System	Steel Systems Not Specifically Detailed For Seismic Resistance		*ASCE 7 Table 12.2-1*
Short Spectral Response Parameter, S_s	0.55		
1-Sec Spectral Response Parameter, S_1	0.13		
Seismic Design Category	C		*ASCE 7 Section 11.6*
Importance Factor, *I*	1.00		*ASCE 7 Table 11.5*
Response Modification Coefficient, *R*	3.00		*ASCE 7 Table 12.2-1*
Redundancy Factor, ρ	1.00		*ASCE 7 Table 12.2-1*
Overstrength Factor, Ω_o	3.00		*ASCE 7 Section 12.3.4*
Design Short Spectral Response Parameter, S_{DS}	0.50		*ASCE 7 Section 11.4.5*
1-Sec Design Spectral Response Parameter, S_{D1}	0.20		*ASCE 7 Section 11.4.5*
Seismic Response Coefficient, C_s	0.17		*ASCE 7 Section 12.8.1.1*
Effective Seismic Weight, *W*	6.00	psf	*ASCE 7 Section 12.7.2*
Seismic Base Shear, *V*	1.00	psf	*ASCE 7 Section 12.8.1*
Seismic Load, *E*	1.00	psf	*ASCE 7 Section 12.4*
Seismic Load with Overstrength Factor, E_m	3.00	psf	*ASCE 7 Section 12.4.3*

STRUCTURAL ENGINEERING NOTES

GENERAL NOTES

All field connections must be made with A325 High Strength bolts using the "Turn-of-Nut Pretensioning" method of tightening as described in the latest AISC Manual.

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.

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
Wx	Wind Load (X-Direction)
Wz	Wind Load (Z-Direction)
Wx (Minimum)	10 psf Minimum Wind Load (X-Direction)
Wz (Minimum)	10 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
Sds	Design Spectral Acceleration Parameter

Service (Unfactored)

Number	Description
1	SERVICE D
2	SERVICE Lr
3	SERVICE S
4	SERVICE Su
5	SERVICE Wx (Load Case A)
6	SERVICE Wx (Load Case B)
7	SERVICE Wz (Load Case A)
8	SERVICE Wz (Load Case B)
9	SERVICE Ex
10	SERVICE Ez
11	SERVICE Ey

Allowable Stress Design (Factored)

Number	Description
14	D
15	D + Lr
16	D + S
17	D + Su
18	D + 0.6Wx (Load Case A)
19	D + 0.6Wx (Load Case B)
20	D + (0.6Wx (Minimum))
21	D + 0.75(0.6Wx (Load Case A)) + 0.75Lr
22	D + 0.75(0.6Wx (Minimum)) + 0.75Lr
23	D + 0.75(0.6Wx (Load Case A)) + 0.75S
24	D + 0.75(0.6Wx (Minimum)) + 0.75S
25	0.6D + 0.6Wx (Load Case A)
26	0.6D + 0.6Wx (Load Case B)
27	0.6D + (0.6Wx (Minimum))
28	D + 0.6Wz (Load Case A)
29	D + 0.6Wz (Load Case B)
30	D + (0.6Wz (Minimum))
31	D + 0.75(0.6Wz (Load Case A)) + 0.75Lr
32	D + 0.75(0.6Wz (Minimum)) + 0.75Lr
33	D + 0.75(0.6Wz (Load Case A)) + 0.75S
34	D + 0.75(0.6Wz (Minimum)) + 0.75S
35	0.6D + 0.6Wz (Load Case A)
36	0.6D + 0.6Wz (Load Case B)
37	0.6D + (0.6Wz (Minimum))
38	1.0D+0.7Ev+0.7Ehx
39	1.0D+0.525Ev+0.525Ehx+0.75S
40	0.6D-0.7Ev+0.7Ehx
41	1.0D+0.7Ev+0.7Ehz
42	1.0D+0.525Ev+0.525Ehz+0.75S
43	0.6D-0.7Ev+0.7Ehz

Strength Design (Factored)

Number	Description
54	1.4D
55	1.2D + 0.5Lr
56	1.2D + 0.5S
57	1.2D + 0.5Su
58	1.2D + 1.6Lr + 0.5Wx (Load Case A)
59	1.2D + 1.6Lr + 0.5Wx (Minimum)
60	1.2D + 1.6S + 0.5Wx (Load Case A)
61	1.2D + 1.6S + 0.5Wx (Minimum)
62	1.2D + 1.0Wx (Load Case A) + 0.5Lr
63	1.2D + 1.0Wx (Load Case B) + 0.5Lr
64	1.2D + 1.0Wx (Minimum) + 0.5Lr
65	1.2D + 1.0Wx (Load Case A) + 0.5S
66	1.2D + 1.0Wx (Load Case B) + 0.5S
67	1.2D + 1.0Wx (Minimum) + 0.5S
68	0.9D + 1.0Wx (Load Case A)
69	0.9D + 1.0Wx (Load Case B)
70	0.9D + 1.0Wx (Minimum)
71	1.2D + 1.6Lr + 0.5Wz (Load Case A)
72	1.2D + 1.6Lr + 0.5Wz (Minimum)
73	1.2D + 1.6S + 0.5Wz (Load Case A)
74	1.2D + 1.6S + 0.5Wz (Minimum)
75	1.2D + 1.0Wz (Load Case A) + 0.5Lr
76	1.2D + 1.0Wz (Load Case B) + 0.5Lr
77	1.2D + 1.0Wz (Minimum) + 0.5Lr
78	1.2D + 1.0Wz (Load Case A) + 0.5S
79	1.2D + 1.0Wz (Load Case B) + 0.5S
80	1.2D + 1.0Wz (Minimum) + 0.5S
81	0.9D + 1.0Wz (Load Case A)
82	0.9D + 1.0Wz (Load Case B)
83	0.9D + 1.0Wz (Minimum)
84	1.2D+Ev+Ehx+0.2S
85	0.9D-Ev+Ehx
86	1.2D+Ev+Ehz+0.2S
87	0.9D-Ev+Ehz

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.

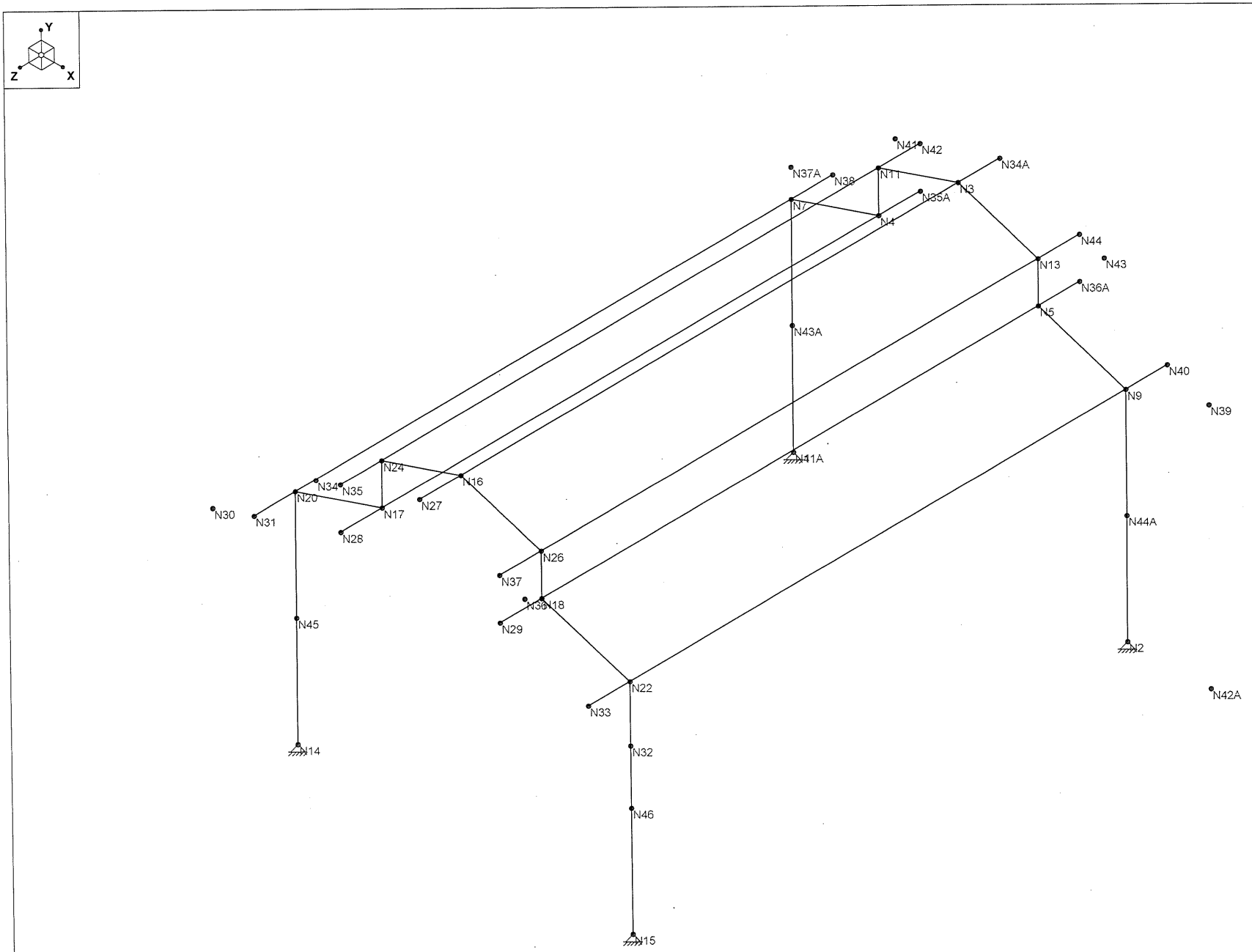
MATERIALS

Column	HSS6X6X3/16
Wooster Column	HSS8X8X3/16
Lower Truss	HSS8X6X3/16
Tension Member	HSS6X4X3/16
Ridge Beam	HSS6X4X3/16
Juncture Column	HSS8X8X5/8
Clerestory	HSS6X4X1/8
Upper Truss	HSS8X6X3/16
Ridge Tail	HSS6X4X3/16
Clerestory Tail	HSS6X4X1/8
Tension Tail	HSS6X4X3/16
Compression Tube	HSS8x8x5/8

HSS Sections:	ASTM A500 Gr. B
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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N11A
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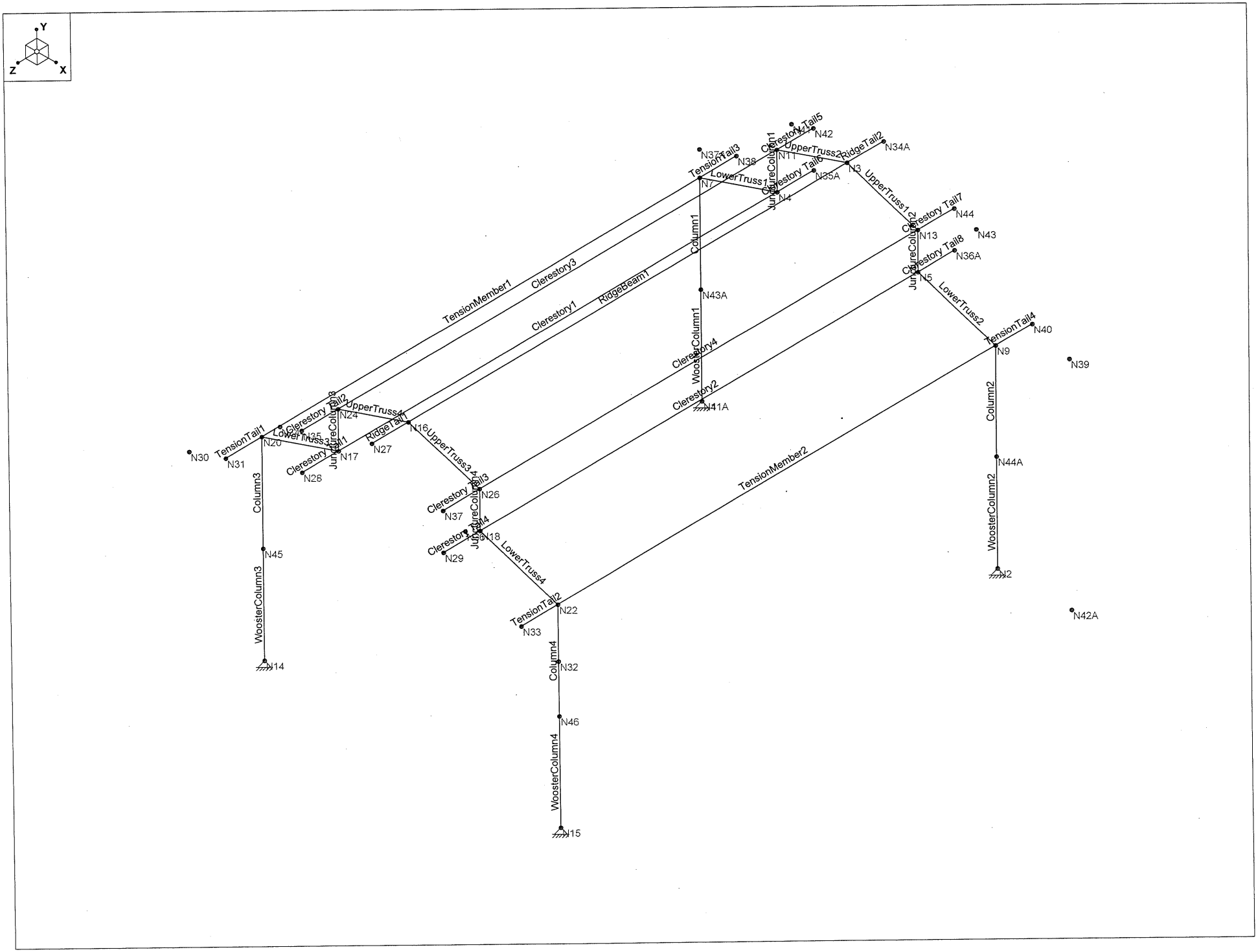
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Clerestory Tail5
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N7
LowerTruss1
Clerestory Tail6
N35A
N3
UpperTruss1
JunctureColumn1
N4
Clerestory Tail7
N44
Clerestory Column2
N13
N43
Clerestory Tail8
N36A
Juncture Column2
N5
LowerTruss2
TensionTail4
N40
N9
N39
TensionMember1
Clerestory3
Clerestory1
RidgeBeam1
Column1
N43A
WoosterColumn1
Clerestory4
Clerestory2
N41A
Column2
N44A
WoosterColumn2
N2
TensionMember2
N30
TensionTail1
N31
Clerestory Tail3
N24
UpperTruss4
N20
LowerTruss3
N35
JunctureColumn3
Clerestory Tail1
N17
RidgeTail1
N16
N27
N28
UpperTruss3
Clerestory Tail2
N26
Clerestory Tail4
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JunctureColumn4
N18
N29
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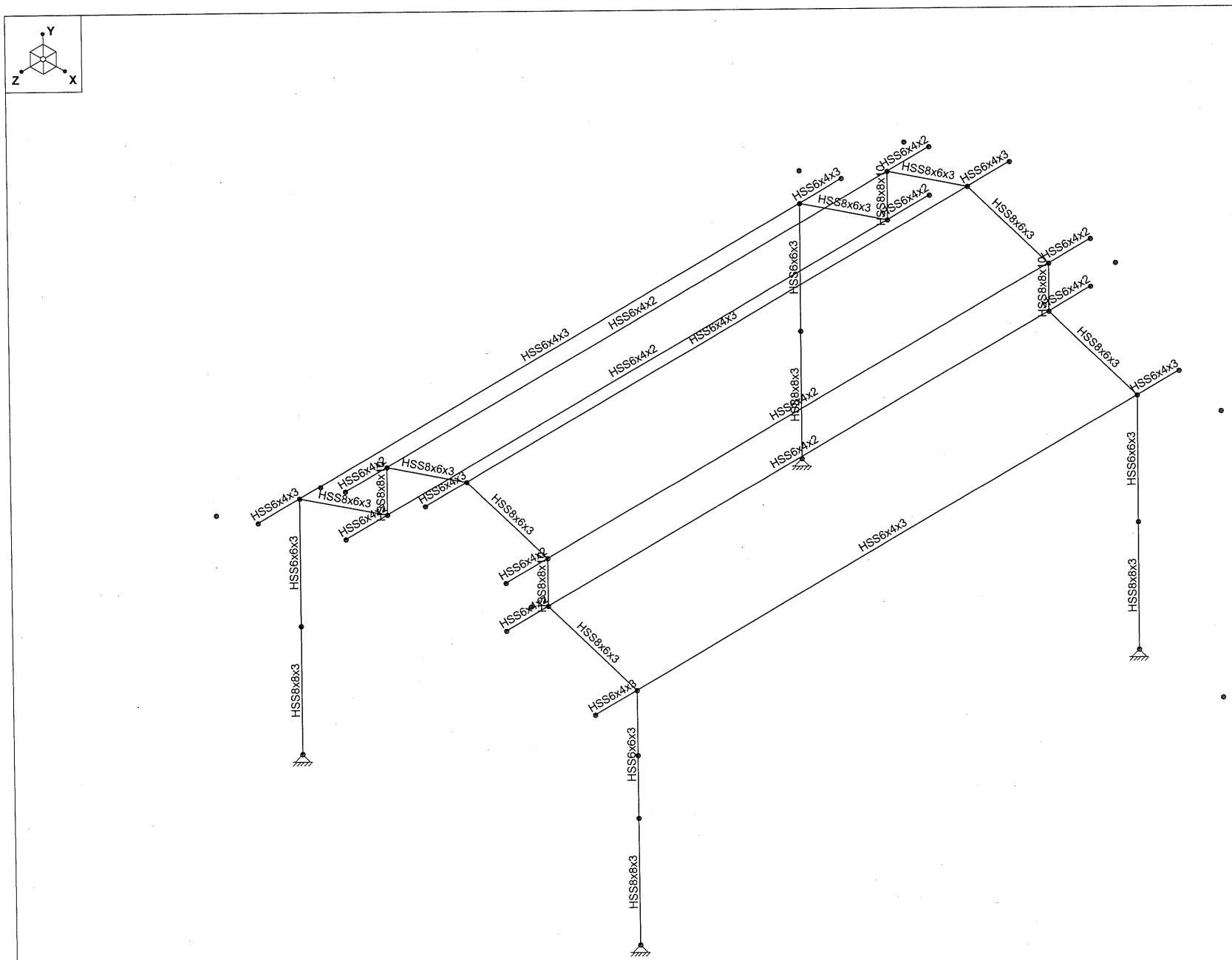
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HSS6x4x2
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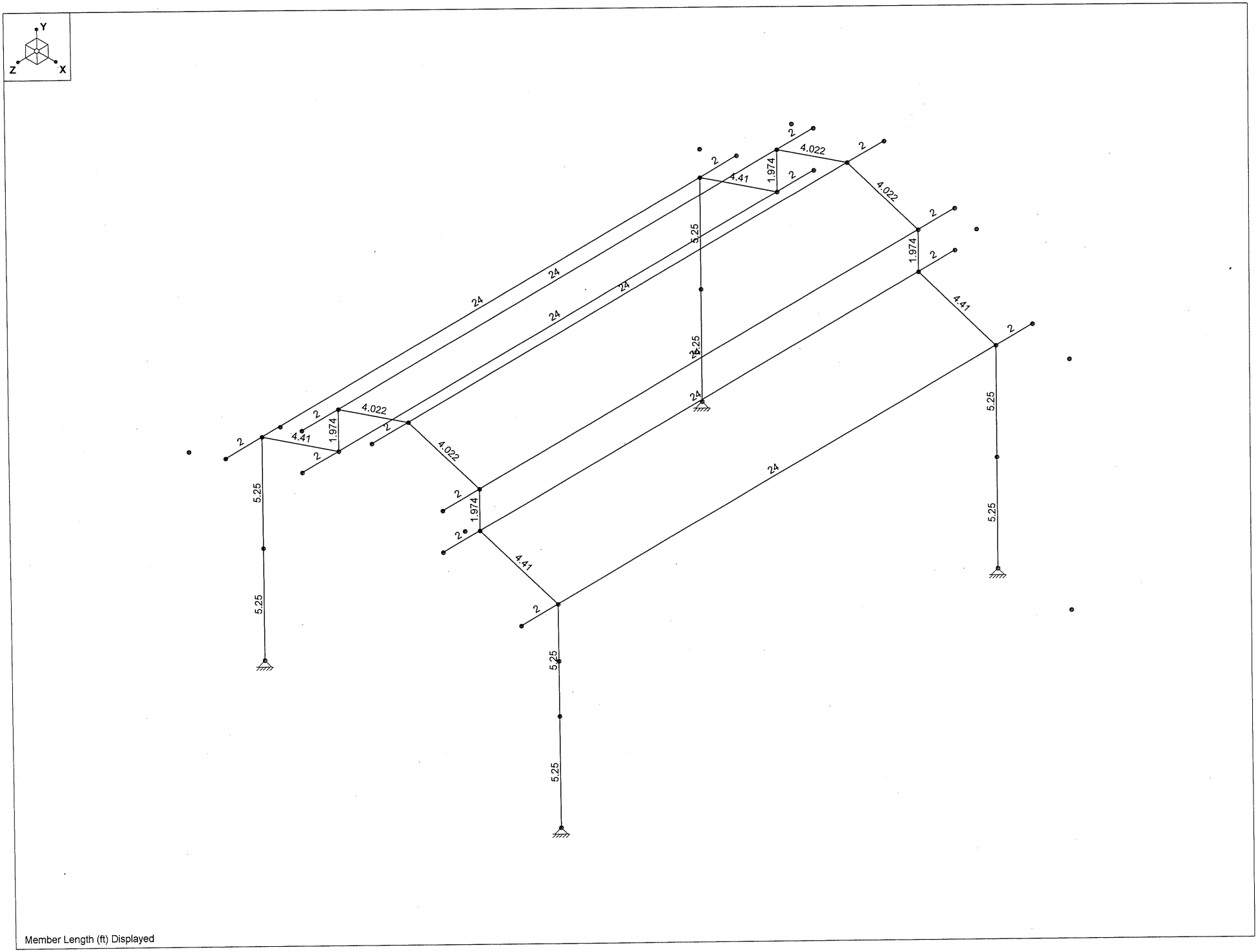
HSS8x8x3
HSS6x6x3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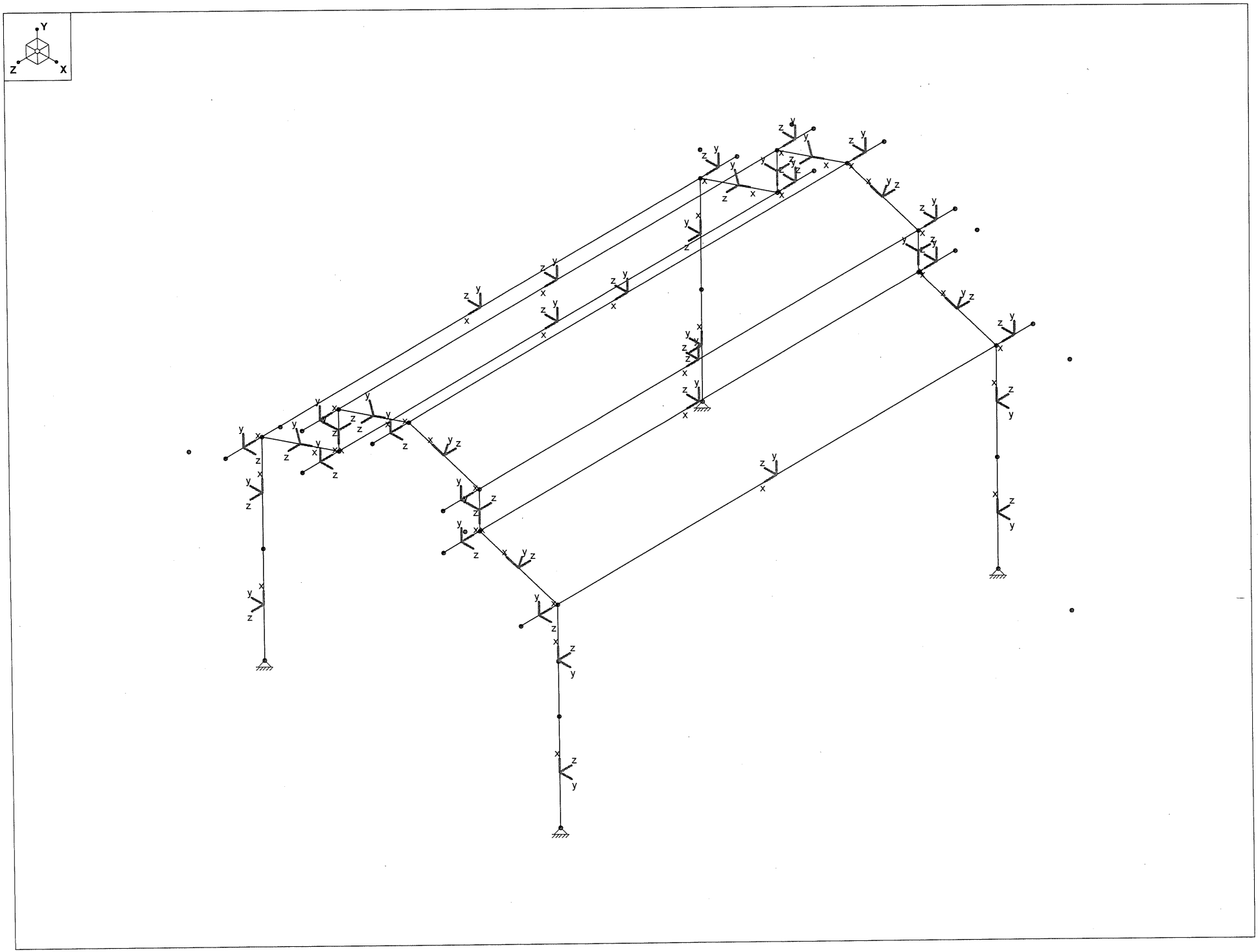

Y
Z
X

FOUNDATION DESIGN

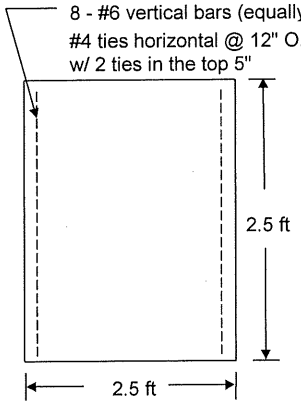
FOUNDATION DESIGN

DRILLED PIER

Drilled Pier			Allowable	Actual	Load Combination / Member	
1	Bearing Pressure	(Chapter 18 of the Building Code)	1500 psf	1110 psf	31 / Column3	OK
2	Uplift Check	*SF = 3.77*	1068 lbs	283 lbs	36 / Column1	OK
3	Sliding Check	*SF = 2.34*	2127 lbs	911 lbs	21 / Column2	OK
4	Area of Reinforcement	(ACI Chapter 10)	0.01 in^2	3.53 in^2	82 / Column1	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	31	Column3	5.45	-0.64	-0.48	0.00	0.00	0.00
2	36	Column1	-0.28	0.01	-0.05	0.00	0.00	0.00
3	21	Column2	4.88	-0.91	-0.24	0.00	0.00	0.00
4	82	Column1	-0.66	0.04	-0.09	0.00	0.00	0.00



Drilled Pier Option

The foundation design contained herein is not site specific, but is based on the presumptive allowable foundation pressures in Chapter 18 of the Building Code (Class 5 soil). The building official in the jurisdiction in which this structure is located may require a site specific geotechnical report or letter from a qualified local professional engineer attesting to whether the actual site conditions meet the assumptions identified above.

Drilled Pier Diameter (ft): 2.5

Drilled Pier Depth (ft): 2.5

f'c (psi): 4500

Concrete Unit Weight (lb/ft^3): 145

CONNECTION DESIGN

COLUMN BASE PLATE CONNECTION

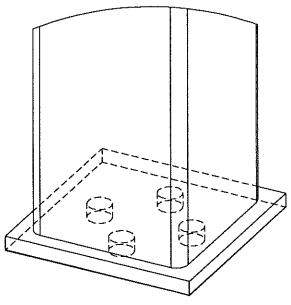
PINNED CONNECTION

Base Plate Check: 9"x9"x1/2"			Allowable	Actual	Load Combination / Member	
1	Plate Size	(AISC J8-1)	1.9 in^2	81.0 in^2	31 / WoosterColumn3	OK
2	Plate Thickness	(AISC PART 14)	0.08 in	0.50 in	36 / WoosterColumn1	OK
3	Concrete Bearing	(AISC J8-1)	1530 psi	67 psi	31 / WoosterColumn3	OK
4	Weld Check	(AISC J2-3)	2.78 k/in	0.06 k/in	21 / WoosterColumn2	OK

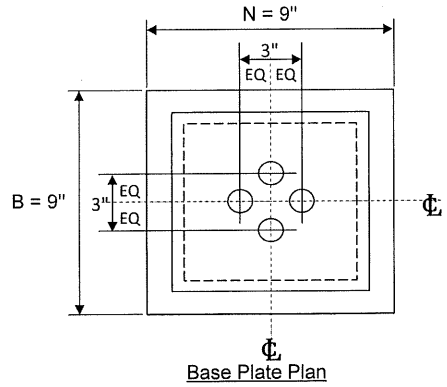
Anchor Bolt Check: (4) 1/2" A307 Anchors			Allowable	Actual	Load Combination / Member	
5	Tension	(ACI D5.1)	24.7 kip	0.7 kip	82 / WoosterColumn1	OK
6	Concrete Breakout	(ACI D5.2)	32.3 kip	0.7 kip	82 / WoosterColumn1	OK
7	Concrete Pullout	(ACI D5.3)	54.0 kip	0.7 kip	82 / WoosterColumn1	OK
8	Sideface Blowout	(ACI D5.4)	N/A	N/A	Not Considered Per RD5.4	OK
9	Shear	(ACI D6.1)	10.6 kip	1.5 kip	58 / WoosterColumn2	OK
10	Shear Breakout	(ACI D6.2)	14.8 kip	1.5 kip	58 / WoosterColumn2	OK
11	Shear Pryout	(ACI D6.3)	45.2 kip	1.5 kip	58 / WoosterColumn2	OK
12	Interaction	(ACI RD.7)	1.0	0.04	58 / WoosterColumn2	OK

Design Forces / Moments

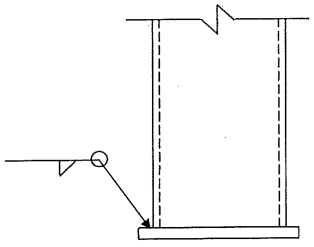
Check	Load Combination	Member	Fx (Axial) [k]	Fy [k]	Fz [k]	Mx [k-in]	My [k-in]	Mz [k-in]
1	31	WoosterColumn3	5.45	-0.64	-0.48	0.00	0.00	0.00
2	36	WoosterColumn1	-0.28	0.01	-0.05	0.00	0.00	0.00
3	31	WoosterColumn3	5.45	-0.64	-0.48	0.00	0.00	0.00
4	21	WoosterColumn2	4.88	-0.91	-0.24	0.00	0.00	0.00
5	82	WoosterColumn1	-0.66	0.04	-0.09	0.00	0.00	0.00
6	82	WoosterColumn1	-0.66	0.04	-0.09	0.00	0.00	0.00
7	82	WoosterColumn1	-0.66	0.04	-0.09	0.00	0.00	0.00
8	x	x	x	x	x	x	x	x
9	58	WoosterColumn2	8.04	-1.39	-0.44	0.00	0.00	0.00
10	58	WoosterColumn2	8.04	-1.39	-0.44	0.00	0.00	0.00
11	58	WoosterColumn2	8.04	-1.39	-0.44	0.00	0.00	0.00
12	58	WoosterColumn2	8.04	-1.39	-0.44	0.00	0.00	0.00



Base Plate Isometric



Base Plate Plan



Base Plate Elevation

Anchor Bolt Diameter (in):	1/2
Min. Embedment Depth (in):	8.0
Concrete Cover From ℄ of Bolt (in):	13.5
f'c (psi):	4500

Column Size:	HSS8X8X3
Min. Base Plate Size:	9"x9"x1/2"
Weld Size (in):	0.188

STUB COLUMN BASE WELD AND PLATE CHECK

Weld Properties of Column Base

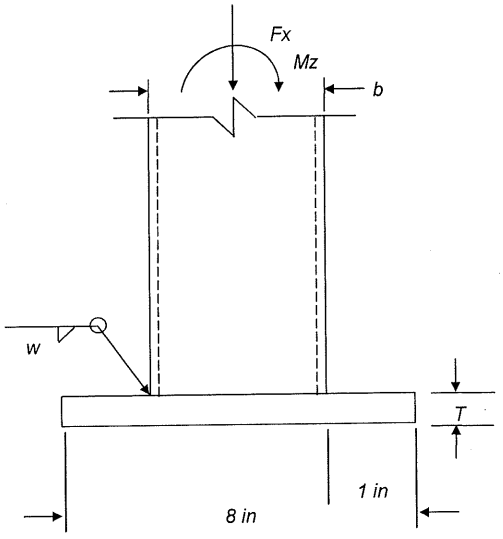
Width, b =	6.0 in	Aw =	24.0 in	2*(b+d)	Sy =	48.0 in^2	(b*d)+(d^2/3)
Depth, d =	6.0 in	Vz =	12.0 in	2*b	Sz =	48.0 in^2	(b*d)+(b^2/3)
		Vy =	12.0 in	2*d	Iw =	288.0 in^3	[(b+d)^3]/6

Weld Check: w = 0.1875"		**Allowable (k/in)**	**Actual (k/in)**	**Load Combination / Member**	
1	Tension (Fx/Aw + My/Sy + Mz/Sz)	2.78	1.31	21 / Column2	OK
2	Shear Y (Fy/Vy + (Mx*(b/2))/Iw)	2.78	0.02	26 / Column1	OK
3	Shear Z (Fz/Vz + (Mx*(d/2))/Iw)	2.78	0.04	42 / Column1	OK
4	Combined $\sqrt{Tension^2 + Shear_y^2 + Shear_z^2}$	2.78	1.31	21 / Column2	OK

Plate Bending Check		**Allowable (in)**	**Actual (in)**	**Load Combination / Member**	
5	Plate Thickness (t_p)	0.35	0.38	21 / 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	21	Column2	4.78	-0.87	-0.23	0.00	-15.06	57.39
2	26	Column1	0.28	0.24	0.06	0.00	3.52	-15.38
3	42	Column1	4.44	-0.52	0.43	0.00	28.35	34.43
4	21	Column2	4.78	-0.87	-0.23	0.00	-15.06	57.39
5	21	Column2	4.78	-0.87	-0.23	0.00	-15.06	57.39



Stub Column Size: HSS6x6x3/16
Weld Size, *w* (in): 3/16

Base Column Size: HSS8x8x3/16
Stub Plate Thickness, T (in): 0.375

STUB COLUMN BASE WELD AND PLATE CHECK **OK**

TENSION MEMBER TO COLUMN

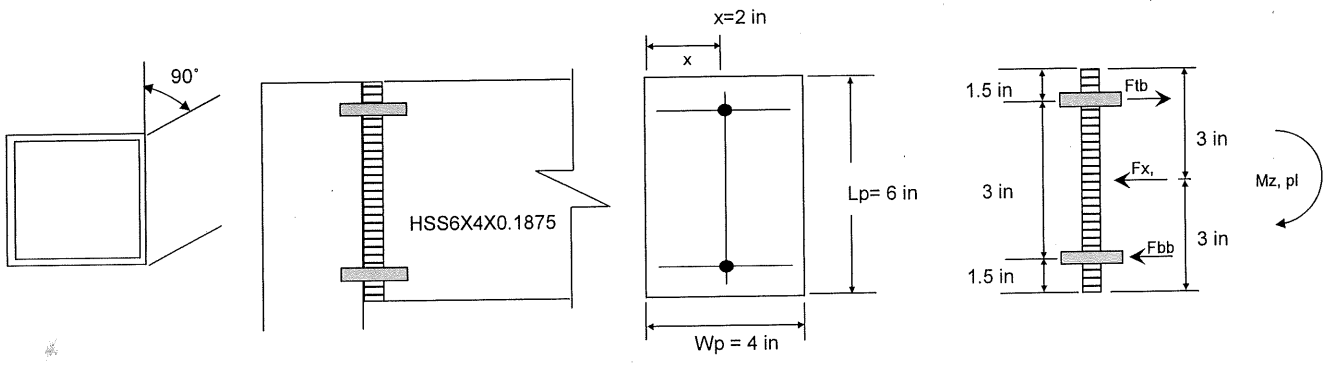
2 BOLTS

Bolt Check: (2) 1" Diameter, A325 Bolts				Allowable	Actual	Load Combination / Member	
1	Shear		AISC (J3-1)	R_N/Ω 21.2 kip	0.8 kip	21 / TensionMember1	OK
2	Tension		AISC (J3-1)	R_N/Ω 35.3 kip	18.5 kip	31 / TensionMember1	OK
3	Bearing		AISC (J3-6b)	R_N/Ω 31.6 kip	0.8 kip	21 / TensionMember1	OK

End Plate Check: 0.75" Thick				Allowable	Actual	Load Combination / Member	
4	Shear Yielding		AISC (J4-3)	R_N/Ω 64.8 kip	1.6 kip	21 / TensionMember1	OK
5	Shear Rupture		AISC (J4-4)	R_N/Ω 50.6 kip	1.6 kip	21 / TensionMember1	OK
6	Weld Check	*w = 0.1875"*	AISC (J2-3)	R_N/Ω 2.8 kip/in	2.1 kip/in	31 / TensionMember1	OK
7	Plate Thickness (t_P)			$\sqrt{\frac{4M_{PL}}{22W_P}}$ 0.59 in	0.75 in	31 / TensionMember1	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	21	TensionMember1	0.6	-1.6	-0.2	0.0	-5.4	68.4
2	31	TensionMember1	0.5	-1.5	-0.1	0.1	-3.0	71.9
3	21	TensionMember1	0.6	-1.6	-0.2	0.0	-5.4	68.4
4	21	TensionMember1	0.6	-1.6	-0.2	0.0	-5.4	68.4
5	21	TensionMember1	0.6	-1.6	-0.2	0.0	-5.4	68.4
6	31	TensionMember1	0.5	-1.5	-0.1	0.1	-3.0	71.9
7	31	TensionMember1	0.5	-1.5	-0.1	0.1	-3.0	71.9



Plan View | Connection Elevation | End Plate Elevation | End Plate Section

Member Height (in):	6	Number of Bolts:	2
Member Width (in):	4	Bolt Diameter (in):	1.000
Member Thickness (in):	0.188	End Plate Thickness (in):	0.750
End Plate Weld Size (in):	0.188	Flange Plate Thickness (in):	0.750

LOWER TRUSS TO COLUMN

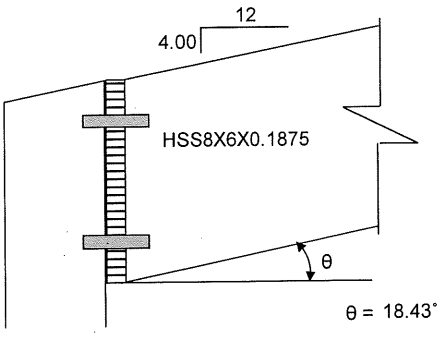
4 BOLTS

Bolt Check: (4) 0.75" Diameter, A325 Bolts				**Allowable**	**Actual**	**Load Combination / Member**	
1	Shear		AISC (J3-1)	R_N/Ω 11.9 kip	3.2 kip	31 / LowerTruss1	OK
2	Tension	*allowable per J3.7*	AISC (J3-2)	R_N/Ω 19.9 kip	8.8 kip	21 / LowerTruss2	OK
3	Bearing		AISC (J3-6b)	R_N/Ω 35.7 kip	3.2 kip	31 / LowerTruss1	OK

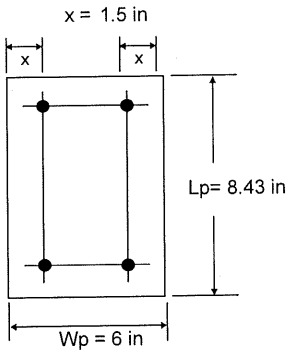
End Plate Check: 0.75" Thick				**Allowable**	**Actual**	**Load Combination / Member**	
4	Shear Yielding		AISC (J4-3)	R_N/Ω 91.1 kip	3.5 kip	31 / LowerTruss3	OK
5	Shear Rupture		AISC (J4-4)	R_N/Ω 88.8 kip	3.5 kip	31 / LowerTruss3	OK
6	Weld Check	*w = 0.1875"*	AISC (J2-3)	R_N/Ω 2.8 kip/in	1.6 kip/in	21 / LowerTruss2	OK
7	Plate Thickness (t_P)			$\sqrt{\frac{4M_{PL}}{22W_P}}$ 0.56 in	0.75 in	21 / LowerTruss2	OK

Design Forces / Moments

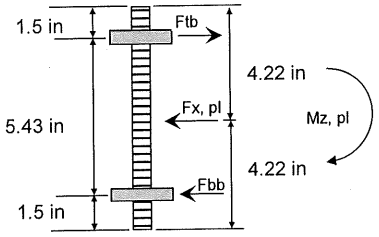
Check	Load Combination	Member	Fx (Axial) [k]	Fy [k]	Fz [k]	Mx [k-in]	My [k-in]	Mz [k-in]
1	31	LowerTruss1	1.8	3.0	-0.3	24.9	-3.9	76.0
2	21	LowerTruss2	1.9	3.0	0.0	-13.5	6.6	112.0
3	31	LowerTruss1	1.8	3.0	-0.3	24.9	-3.9	76.0
4	31	LowerTruss3	1.8	3.1	0.1	-13.9	1.8	78.7
5	31	LowerTruss3	1.8	3.1	0.1	-13.9	1.8	78.7
6	21	LowerTruss2	1.9	3.0	0.0	-13.5	6.6	112.0
7	21	LowerTruss2	1.9	3.0	0.0	-13.5	6.6	112.0



Connection Elevation



End Plate Elevation



End Plate Section

Member Height (in):	8	Number of Bolts:	4
Member Width (in):	6	Bolt Diameter (in):	0.750
Member Thickness (in):	0.188	End Plate Thickness (in):	0.750
End Plate Weld Size (in):	0.188	Flange Plate Thickness (in):	0.750

LOWER TRUSS TO JUNCTURE COLUMN

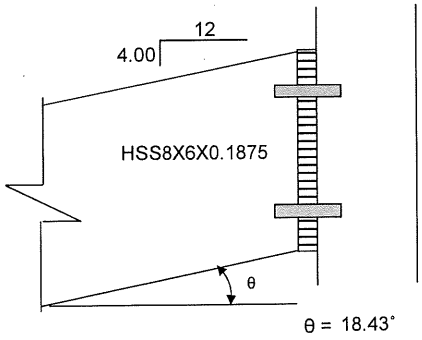
4 BOLTS

Bolt Check: (4) 0.625" Diameter, A325 Bolts				**Allowable**	**Actual**	**Load Combination / Member**	
1	Shear		AISC (J3-1)	R_N/Ω 8.3 kip	3.5 kip	31 / LowerTruss1	**OK**
2	Tension	*allowable per J3.7*	AISC (J3-2)	R_N/Ω 13.0 kip	8.6 kip	21 / LowerTruss1	**OK**
3	Bearing		AISC (J3-6b)	R_N/Ω 31.4 kip	3.5 kip	31 / LowerTruss1	**OK**

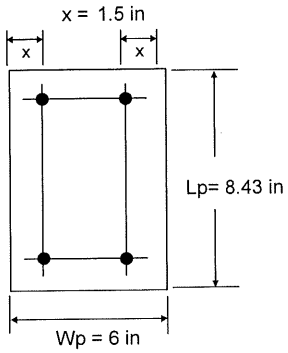
End Plate Check: 0.625" Thick				**Allowable**	**Actual**	**Load Combination / Member**	
4	Shear Yielding		AISC (J4-3)	R_N/Ω 75.9 kip	3.4 kip	31 / LowerTruss3	**OK**
5	Shear Rupture		AISC (J4-4)	R_N/Ω 76.8 kip	3.4 kip	31 / LowerTruss3	**OK**
6	Weld Check	*w = 0.1875"*	AISC (J2-3)	R_N/Ω 2.8 kip/in	1.5 kip/in	21 / LowerTruss1	**OK**
7	Plate Thickness (t_P)			$\sqrt{\frac{4M_{PL}}{22W_P}}$ 0.57 in	0.63 in	21 / LowerTruss1	**OK**

Design Forces / Moments

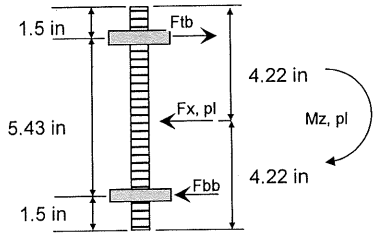
Check	Load Combination	Member	Fx (Axial) [k]	Fy [k]	Fz [k]	Mx [k-in]	My [k-in]	Mz [k-in]
1	31	LowerTruss1	1.7	2.9	-0.2	24.9	-17.7	-79.8
2	21	LowerTruss1	1.3	2.5	-0.2	21.5	-13.7	-101.9
3	31	LowerTruss1	1.7	2.9	-0.2	24.9	-17.7	-79.8
4	31	LowerTruss3	1.8	3.0	0.2	-13.9	9.7	-82.2
5	31	LowerTruss3	1.8	3.0	0.2	-13.9	9.7	-82.2
6	21	LowerTruss1	1.3	2.5	-0.2	21.5	-13.7	-101.9
7	21	LowerTruss1	1.3	2.5	-0.2	21.5	-13.7	-101.9



Connection Elevation



End Plate Elevation



End Plate Section

Member Height (in):	8	Number of Bolts:	4
Member Width (in):	6	Bolt Diameter (in):	0.625
Member Thickness (in):	0.188	End Plate Thickness (in):	0.625
End Plate Weld Size (in):	0.188	Flange Plate Thickness (in):	NONE

CLERESTORY MEMBER TO JUNCTURE COLUMN

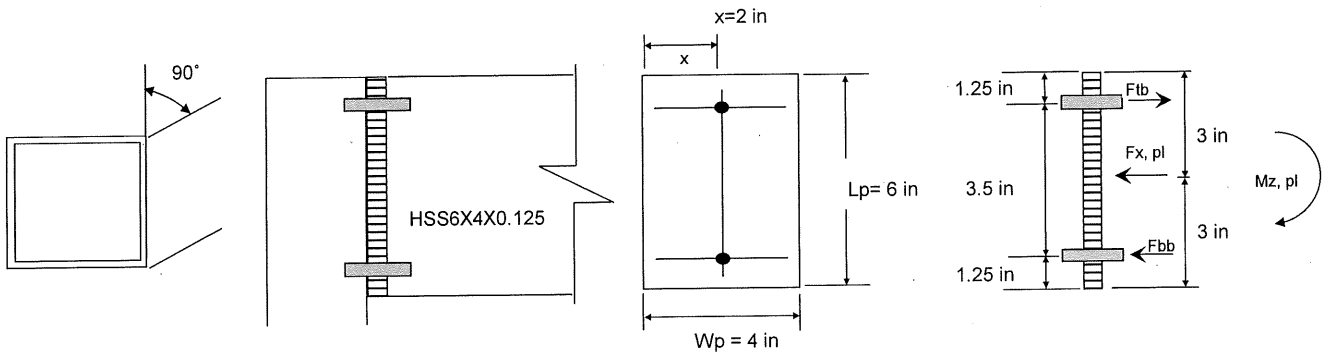
2 BOLTS

Bolt Check: (2) 0.75" Diameter, A325 Bolts				**Allowable**	**Actual**	**Load Combination / Member**	
1	Shear	AISC (J3-1)	R_N/Ω	11.9 kip	0.9 kip	21 / Clerestory1	**OK**
2	Tension	AISC (J3-1)	R_N/Ω	19.9 kip	13.1 kip	21 / Clerestory1	**OK**
3	Bearing	AISC (J3-6b)	R_N/Ω	22.9 kip	0.9 kip	21 / Clerestory1	**OK**

End Plate Check: 0.625" Thick				**Allowable**	**Actual**	**Load Combination / Member**	
4	Shear Yielding	AISC (J4-3)	R_N/Ω	54.0 kip	1.2 kip	21 / Clerestory3	**OK**
5	Shear Rupture	AISC (J4-4)	R_N/Ω	47.6 kip	1.2 kip	21 / Clerestory3	**OK**
6	Weld Check *w = 0.125"*	AISC (J2-3)	R_N/Ω	1.9 kip/in	1.7 kip/in	21 / Clerestory3	**OK**
7	Plate Thickness (t_P)		$\sqrt{\frac{4M_{PL}}{22W_P}}$	0.46 in	0.63 in	21 / Clerestory1	**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	21	Clerestory1	-5.7	0.9	0.1	0.0	-2.8	41.3
2	21	Clerestory1	-5.7	0.9	0.1	0.0	-2.8	41.3
3	21	Clerestory1	-5.7	0.9	0.1	0.0	-2.8	41.3
4	21	Clerestory3	4.8	1.2	0.1	0.0	-4.2	55.3
5	21	Clerestory3	4.8	1.2	0.1	0.0	-4.2	55.3
6	21	Clerestory3	4.8	1.2	0.1	0.0	-4.2	55.3
7	21	Clerestory1	-5.7	0.9	0.1	0.0	-2.8	41.3



Plan View | Connection Elevation | End Plate Elevation | End Plate Section

Member Height (in):	6	Number of Bolts:	2
Member Width (in):	4	Bolt Diameter (in):	0.750
Member Thickness (in):	0.125	End Plate Thickness (in):	0.625
End Plate Weld Size (in):	0.125	Flange Plate Thickness (in):	NONE

UPPER TRUSS TO JUNCTURE COLUMN

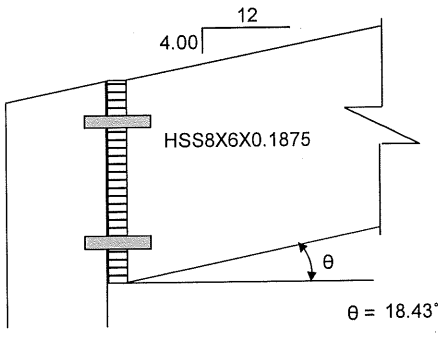
4 BOLTS

Bolt Check: (4) 0.75" Diameter, A325 Bolts				**Allowable**	**Actual**	**Load Combination / Member**	
1	Shear	AISC (J3-1)	R_N/Ω	11.9 kip	2.0 kip	21 / UpperTruss1	**OK**
2	Tension	AISC (J3-1)	R_N/Ω	19.9 kip	6.8 kip	21 / UpperTruss2	**OK**
3	Bearing	AISC (J3-6b)	R_N/Ω	35.7 kip	2.0 kip	21 / UpperTruss1	**OK**

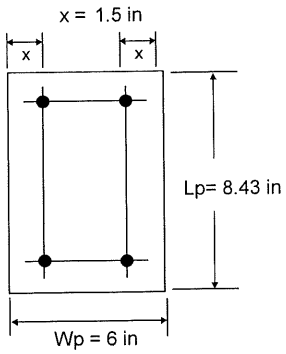
End Plate Check: 0.75" Thick				**Allowable**	**Actual**	**Load Combination / Member**	
4	Shear Yielding	AISC (J4-3)	R_N/Ω	91.1 kip	1.6 kip	21 / UpperTruss1	**OK**
5	Shear Rupture	AISC (J4-4)	R_N/Ω	88.8 kip	1.6 kip	21 / UpperTruss1	**OK**
6	Weld Check *w = 0.1875"*	AISC (J2-3)	R_N/Ω	2.8 kip/in	1.2 kip/in	21 / UpperTruss2	**OK**
7	Plate Thickness (t_P)		$\sqrt{\frac{4M_{PL}}{22W_P}}$	0.50 in	0.75 in	21 / UpperTruss2	**OK**

Design Forces / Moments

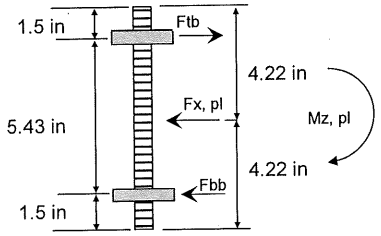
Check	Load Combination	Member	Fx (Axial) [k]	Fy [k]	Fz [k]	Mx [k-in]	My [k-in]	Mz [k-in]
1	21	UpperTruss1	1.2	1.2	-0.9	18.2	1.2	-26.7
2	21	UpperTruss2	0.7	-0.1	0.7	-12.6	4.6	-89.3
3	21	UpperTruss1	1.2	1.2	-0.9	18.2	1.2	-26.7
4	21	UpperTruss1	1.2	1.2	-0.9	18.2	1.2	-26.7
5	21	UpperTruss1	1.2	1.2	-0.9	18.2	1.2	-26.7
6	21	UpperTruss2	0.7	-0.1	0.7	-12.6	4.6	-89.3
7	21	UpperTruss2	0.7	-0.1	0.7	-12.6	4.6	-89.3



Connection Elevation



End Plate Elevation



End Plate Section

Member Height (in):	8	Number of Bolts:	4
Member Width (in):	6	Bolt Diameter (in):	0.750
Member Thickness (in):	0.188	End Plate Thickness (in):	0.750
End Plate Weld Size (in):	0.188	Flange Plate Thickness (in):	NONE

UPPER TRUSS TO COMPRESSION MEMBER

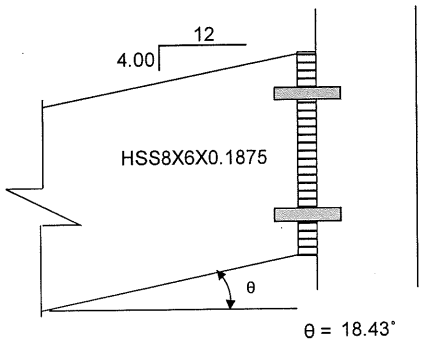
4 BOLTS

Bolt Check: (4) 0.75" Diameter, A325 Bolts				**Allowable**	**Actual**	**Load Combination / Member**	
1	Shear		AISC (J3-1)	R_N/Ω 11.9 kip	3.1 kip	21 / UpperTruss3	**OK**
2	Tension	*allowable per J3.7*	AISC (J3-2)	R_N/Ω 19.9 kip	11.8 kip	31 / UpperTruss4	**OK**
3	Bearing		AISC (J3-6b)	R_N/Ω 35.7 kip	3.1 kip	21 / UpperTruss3	**OK**

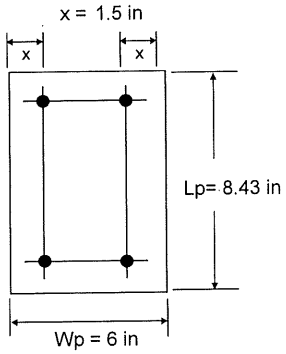
End Plate Check: 0.75" Thick				**Allowable**	**Actual**	**Load Combination / Member**	
4	Shear Yielding		AISC (J4-3)	R_N/Ω 91.1 kip	1.5 kip	21 / UpperTruss1	**OK**
5	Shear Rupture		AISC (J4-4)	R_N/Ω 88.8 kip	1.5 kip	21 / UpperTruss1	**OK**
6	Weld Check	*w = 0.1875"*	AISC (J2-3)	R_N/Ω 2.8 kip/in	1.9 kip/in	31 / UpperTruss4	**OK**
7	Plate Thickness (t_p)			$\sqrt{\frac{4M_{PL}}{22W_P}}$ 0.51 in	0.75 in	15 / UpperTruss1	**OK**

Design Forces / Moments

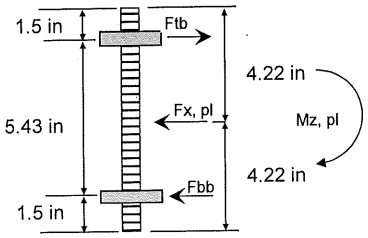
Check	Load Combination	Member	Fx (Axial) [k]	Fy [k]	Fz [k]	Mx [k-in]	My [k-in]	Mz [k-in]
1	21	UpperTruss3	1.2	1.2	0.9	-18.2	43.7	-84.9
2	31	UpperTruss4	1.1	0.6	-0.9	17.8	-47.2	-92.1
3	21	UpperTruss3	1.2	1.2	0.9	-18.2	43.7	-84.9
4	21	UpperTruss1	1.2	1.2	-0.9	18.2	-43.7	-84.9
5	21	UpperTruss1	1.2	1.2	-0.9	18.2	-43.7	-84.9
6	31	UpperTruss4	1.1	0.6	-0.9	17.8	-47.2	-92.1
7	15	UpperTruss1	0.8	0.6	-0.9	16.1	-42.1	-92.1



Connection Elevation



End Plate Elevation



End Plate Section

Member Height (in):	8	Number of Bolts:	4
Member Width (in):	6	Bolt Diameter (in):	0.750
Member Thickness (in):	0.188	End Plate Thickness (in):	0.750
End Plate Weld Size (in):	0.188	Flange Plate Thickness (in):	NONE

RIDGE BEAM TO COMPRESSION TUBE

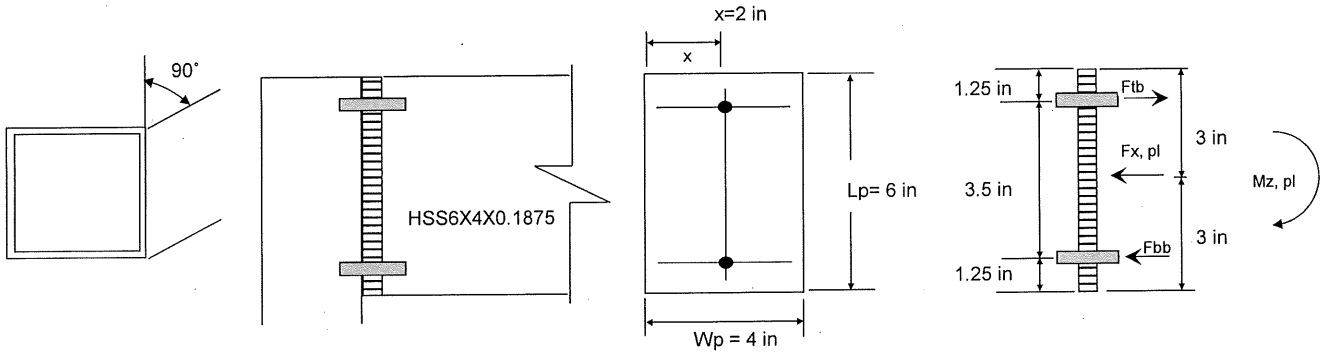
2 BOLTS

Bolt Check: (2) 0.75" Diameter, A325 Bolts			**Allowable**		**Actual**	**Load Combination / Member**	
1	Shear	AISC (J3-1)	R_N/Ω	11.9 kip	0.8 kip	31 / RidgeBeam1	**OK**
2	Tension	AISC (J3-1)	R_N/Ω	19.9 kip	14.5 kip	31 / RidgeBeam1	**OK**
3	Bearing	AISC (J3-6b)	R_N/Ω	22.9 kip	0.8 kip	31 / RidgeBeam1	**OK**

End Plate Check: 0.625" Thick			**Allowable**		**Actual**	**Load Combination / Member**	
4	Shear Yielding	AISC (J4-3)	R_N/Ω	54.0 kip	1.5 kip	31 / RidgeBeam1	**OK**
5	Shear Rupture	AISC (J4-4)	R_N/Ω	47.6 kip	1.5 kip	31 / RidgeBeam1	**OK**
6	Weld Check *w = 0.1875"*	AISC (J2-3)	R_N/Ω	2.8 kip/in	1.9 kip/in	31 / RidgeBeam1	**OK**
7	Plate Thickness (t_p)		$\sqrt{\frac{4M_{PL}}{22W_P}}$	0.53 in	0.63 in	31 / RidgeBeam1	**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	31	RidgeBeam1	1.7	-1.5	0.0	0.0	0.0	66.7
2	31	RidgeBeam1	1.7	-1.5	0.0	0.0	0.0	66.7
3	31	RidgeBeam1	1.7	-1.5	0.0	0.0	0.0	66.7
4	31	RidgeBeam1	1.7	-1.5	0.0	0.0	0.0	66.7
5	31	RidgeBeam1	1.7	-1.5	0.0	0.0	0.0	66.7
6	31	RidgeBeam1	1.7	-1.5	0.0	0.0	0.0	66.7
7	31	RidgeBeam1	1.7	-1.5	0.0	0.0	0.0	66.7



Plan View | Connection Elevation | End Plate Elevation | End Plate Section

Member Height (in):	6	Number of Bolts:	2
Member Width (in):	4	Bolt Diameter (in):	0.750
Member Thickness (in):	0.188	End Plate Thickness (in):	0.625
End Plate Weld Size (in):	0.188	Flange Plate Thickness (in):	NONE

NON-SLOPING TAIL CONNECTION

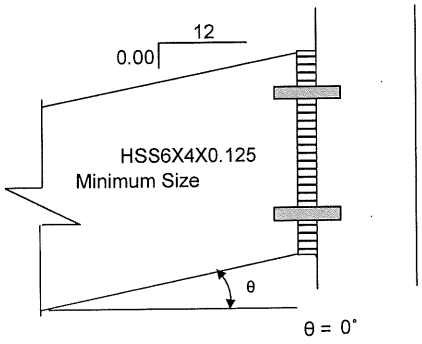
2 BOLTS

Bolt Check: (2) 0.625" Diameter, A325 Bolts				Allowable	Actual	Load Combination / Member	
1	Shear	AISC (J3-1)	R_N/Ω	8.3 kip	0.3 kip	21 / TensionTail3	OK
2	Tension	AISC (J3-1)	R_N/Ω	13.8 kip	0.8 kip	21 / TensionTail1	OK
3	Bearing	AISC (J3-6b)	R_N/Ω	14.8 kip	0.3 kip	21 / TensionTail3	OK

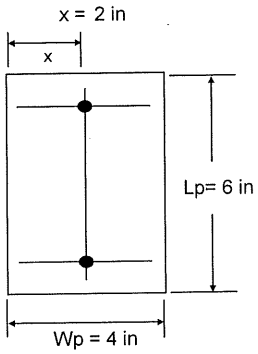
End Plate Check: 0.375" Thick				Allowable	Actual	Load Combination / Member	
4	Shear Yielding	AISC (J4-3)	R_N/Ω	32.4 kip	0.3 kip	21 / TensionTail1	OK
5	Shear Rupture	AISC (J4-4)	R_N/Ω	30.2 kip	0.3 kip	21 / TensionTail1	OK
6	Weld Check *w = 0.125"*	AISC (J2-3)	R_N/Ω	1.9 kip/in	0.1 kip/in	21 / TensionTail1	OK
7	Plate Thickness (t_P)		$\sqrt{\frac{4M_{PL}}{22W_P}}$	0.13 in	0.38 in	21 / TensionTail1	OK

Design Forces / Moments

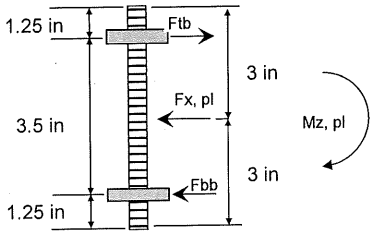
Check	Load Combination	Member	Fx (Axial) [k]	Fy [k]	Fz [k]	Mx [k-in]	My [k-in]	Mz [k-in]
1	21	TensionTail3	0.0	-0.3	0.0	0.0	-0.3	3.2
2	21	TensionTail1	0.0	-0.3	0.0	0.0	0.3	3.2
3	21	TensionTail3	0.0	-0.3	0.0	0.0	-0.3	3.2
4	21	TensionTail1	0.0	-0.3	0.0	0.0	0.3	3.2
5	21	TensionTail1	0.0	-0.3	0.0	0.0	0.3	3.2
6	21	TensionTail1	0.0	-0.3	0.0	0.0	0.3	3.2
7	21	TensionTail1	0.0	-0.3	0.0	0.0	0.3	3.2



Connection Elevation



End Plate Elevation



End Plate Section

Minimum Member Height (in): 6
Minimum Member Width (in): 4
Member Thickness (in): 0.125
End Plate Weld Size (in): 0.125

Number of Bolts: 2
Bolt Diameter (in): 0.625
End Plate Thickness (in): 0.375
Flange Plate Thickness (in): 0.250

RISA ANALYSIS REPORT

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(...
1	FRAMEWEIGHT	DL		-1						
2	DL	DL							4	
3	LL	LL							4	
4	SL	SL							4	
5	SLU	SL							2	
6	X WINDWARD LOW	WL							2	
7	X LEEWARD LOW	WL							2	
8	X SIDEWARD LOW	WL								
9	X WINDWARD UPPER	WL							2	
10	X LEEWARD UPPER	WL							2	
11	X SIDEWARD UPPER	WL								
12	X10MINWIND	WL							2	
13	Z WINDWARD LOW	WL							5	
14	Z LEEWARD LOW	WL								
15	Z SIDEWARD LOW	WL							4	
16	Z WINDWARD UPPER	WL								
17	Z LEEWARD UPPER	WL								
18	Z SIDEWARD UPPPER	WL							4	
19	Z10MINWIND	WL							5	
20	EX FRAME	EL	-1							
21	EX ROOF	EL							4	
22	EZ FRAME	EL			-1					
23	EZ ROOF	EL							4	
26	BLC 2 Transient Area Loads	None						24		
27	EY FRAME	EL		-1						
28	EY ROOF	EL							4	
29	BLC 3 Transient Area Loads	None						24		
30	BLC 4 Transient Area Loads	None						24		
31	BLC 5 Transient Area Loads	None						12		
32	BLC 6 Transient Area Loads	None						12		
33	BLC 7 Transient Area Loads	None						12		
34	BLC 9 Transient Area Loads	None						12		
35	BLC 10 Transient Area Loads	None						12		
36	BLC 12 Transient Area Loads	None						12		
37	BLC 13 Transient Area Loads	None						28		
38	BLC 15 Transient Area Loads	None						24		
39	BLC 18 Transient Area Loads	None						24		
40	BLC 19 Transient Area Loads	None						28		
41	BLC 21 Transient Area Loads	None						24		
42	BLC 23 Transient Area Loads	None						24		

Load Combinations

	Description	Solve	PDelta	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	SERVICE D				1	1	2	6																		
2	SERVICE Lr				3	20																				
3	SERVICE S				4	20																				
4	SERVICE Su				5	20																				
5	SERVICE Wx (Load..				6	12....	7	-1....	8	9.1...	9	12....	10	-1....	11	9.1...										
6	SERVICE Wx (Load..				6	.096	7	-10..	8	-9....	9	.096	10	-10..	11	-9....										
7	SERVICE Wz (Load..				13	12....	14	-1....	15	9.1...	16	12....	17	-1....	18	9.1...										
8	SERVICE Wz (Load..				13	.096	14	-10..	15	-9....	16	.096	17	-10..	18	-9....										
9	SERVICE Ex				20	.167	21	1																		
10	SERVICE Ez				22	.167	23	1																		
11	SERVICE Ey				24	.167	25	1																		

Company :
Designer :
Job Number :
Model Name :

Checked By:____

Load Combinations (Continued)

	Description	Solve	PDelta	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
12																										
13																										
14	D	Yes	Y		L1	1																				
15	D + Lr	Yes	Y		L1	1	L2	1																		
16	D + S	Yes	Y		L1	1	L3	1																		
17	D + Su	Yes	Y		L1	1	L4	1																		
18	D + 0.6Wx (Load Ca...	Yes	Y		L1	1	L5	1																		
19	D + 0.6Wx (Load Ca...	Yes	Y		L1	1	L6	1																		
20	D + (0.6Wx (Minimu...	Yes	Y		L1	1	12	9.6																		
21	D + 0.75(0.6Wx (Lo...	Yes	Y		L1	1	L5	.75	L2	.75																
22	D + 0.75(0.6Wx (Mi...	Yes	Y		L1	1	12	7.2	L2	.75																
23	D + 0.75(0.6Wx (Lo...	Yes	Y		L1	1	L5	.75	L3	.75																
24	D + 0.75(0.6Wx (Mi...	Yes	Y		L1	1	12	7.2	L3	.75																
25	0.6D + 0.6Wx (Load...	Yes	Y		L1	.6	L5	1																		
26	0.6D + 0.6Wx (Load...	Yes	Y		L1	.6	L6	1																		
27	0.6D + (0.6Wx (Mini...	Yes	Y		L1	.6	12	9.6																		
28	D + 0.6Wz (Load Ca...	Yes	Y		L1	1	L7	1																		
29	D + 0.6Wz (Load Ca...	Yes	Y		L1	1	L8	1																		
30	D + (0.6Wz (Minimu...	Yes	Y		L1	1	19	9.6																		
31	D + 0.75(0.6Wz (Lo...	Yes	Y		L1	1	L7	.75	L2	.75																
32	D + 0.75(0.6Wz (Mi...	Yes	Y		L1	1	19	7.2	L2	.75																
33	D + 0.75(0.6Wz (Lo...	Yes	Y		L1	1	L7	.75	L3	.75																
34	D + 0.75(0.6Wz (Mi...	Yes	Y		L1	1	19	7.2	L3	.75																
35	0.6D + 0.6Wz (Load...	Yes	Y		L1	.6	L7	1																		
36	0.6D + 0.6Wz (Load...	Yes	Y		L1	.6	L8	1																		
37	0.6D + (0.6Wz (Mini...	Yes	Y		L1	.6	19	9.6																		
38	1.0D+0.7Ev+0.7Ehx	Yes	Y		L1	1.07	L9	.7							L11	.7										
39	1.0D+0.525Ev+0.52...	Yes	Y		L1	1.0...	L9	.525	L3	.75	L11	.53														
40	0.6D-0.7Ev+0.7Ehx	Yes	Y		L1	.53	L9	.7							L11	.7										
41	1.0D+0.7Ev+0.7Ehz	Yes	Y		L1	1.07	L10	.7							L11	.7										
42	1.0D+0.525Ev+0.52...	Yes	Y		L1	1.0...	L10	.525	L3	.75	L11	.53														
43	0.6D-0.7Ev+0.7Ehz	Yes	Y		L1	.53	L10	.7							L11	.7										
44																										
45																										
46																										
47																										
48																										
49																										
50																										
51																										
52																										
53																										
54	1.4D				L1	1.4																				
55	1.2D + 0.5Lr				L1	1.2	L2	.5																		
56	1.2D + 0.5S				L1	1.2	L3	.5																		
57	1.2D + 0.5Su				L1	1.2	L4	.5																		
58	1.2D + 1.6Lr + 0.5W...				L1	1.2	L2	1.6	L5	.833																
59	1.2D + 1.6Lr + 0.5W...				L1	1.2	L2	1.6	12	8																
60	1.2D + 1.6S + 0.5W...				L1	1.2	L3	1.6	L5	.833																
61	1.2D + 1.6S + 0.5W...				L1	1.2	L3	1.6	12	8																
62	1.2D + 1.0Wx (Load...				L1	1.2	L5	1.6...	L2	.5																
63	1.2D + 1.0Wx (Load...				L1	1.2	L6	1.6...	L2	.5																
64	1.2D + 1.0Wx (Mini...				L1	1.2	12	16	L2	.5																
65	1.2D + 1.0Wx (Load...				L1	1.2	L5	1.6...	L3	.5																
66	1.2D + 1.0Wx (Load...				L1	1.2	L6	1.6...	L3	.5																
67	1.2D + 1.0Wx (Mini...				L1	1.2	12	16	L3	.5																
68	0.9D + 1.0Wx (Load...				L1	.9	L5	1.6...																		

Load Combinations (Continued)

	Description	Solve	PDelta	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
69	0.9D + 1.0Wx (Load...				L1	.9	L6	1.6...																				
70	0.9D + 1.0Wx (Mini...				L1	.9	12	16																				
71	1.2D + 1.6Lr + 0.5W...				L1	1.2	L2	1.6	L7	833																		
72	1.2D + 1.6Lr + 0.5W...				L1	1.2	L2	1.6	19	8																		
73	1.2D + 1.6S + 0.5W...				L1	1.2	L3	1.6	L7	833																		
74	1.2D + 1.6S + 0.5W...				L1	1.2	L3	1.6	19	8																		
75	1.2D + 1.0Wz (Load...				L1	1.2	L7	1.6...	L2	.5																		
76	1.2D + 1.0Wz (Load...				L1	1.2	L8	1.6...	L2	.5																		
77	1.2D + 1.0Wz (Mini...				L1	1.2	19	16	L2	.5																		
78	1.2D + 1.0Wz (Load...				L1	1.2	L7	1.6...	L3	.5																		
79	1.2D + 1.0Wz (Load...				L1	1.2	L8	1.6...	L3	.5																		
80	1.2D + 1.0Wz (Mini...				L1	1.2	19	16	L3	.5																		
81	0.9D + 1.0Wz (Load...				L1	.9	L7	1.6...																				
82	0.9D + 1.0Wz (Load...				L1	.9	L8	1.6...																				
83	0.9D + 1.0Wz (Mini...				L1	.9	19	16																				
84	1.2D+Ev+Ehx+0.2S				L1	1.3	L9	1	L3	.2	L11	1																
85	0.9D-Ev+Ehx				L1	.8	L9	1			L11	1																
86	1.2D+Ev+Ehz+0.2S				L1	1.3	L10	1	L3	.2	L11	1																
87	0.9D-Ev+Ehz				L1	.8	L10	1			L11	1																
88																												
89																												
90																												
91																												
92																												
93																												
94																												
95																												
96																												
97																												
98																												
99																												
100																												
101																												
102																												
103																												
104	SERVICE Emx				20	.5	21	2.9...																				
105	SERVICE Emz				22	.5	23	2.9...																				
106																												
107	1.0D+0.7Ev+0.7Emhx				L1	1.07	L1...	.7																				
108	1.0D+0.525Ev+0.52...				L1	1.0...	L1...	.525	L3	.75																		
109	0.6D-0.7Ev+0.7Emhx				L1	.53	L1...	.7																				
110	1.0D+0.7Ev+0.7Emhz				L1	1.07	L1...	.7																				
111	1.0D+0.525Ev+0.52...				L1	1.0...	L1...	.525	L3	.75																		
112	0.6D-0.7Ev+0.7Emhz				L1	.53	L1...	.7																				
113																												
114																												
115																												
116	1.2D+Ev+Emhx+0.2S				L1	1.3	L1...	1	L3	.2																		
117	0.9D-Ev+Emhx				L1	.8	L1...	1																				
118	1.2D+Ev+Emhz+0.2S				L1	1.3	L1...	1	L3	.2																		
119	0.9D-Ev+Emhz				L1	.8	L1...	1																				
120																												
121																												
122																												
123																												
124																												
125																												

Load Combinations (Continued)

	Description	Solve	PDelta	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
126																												
127																												
128																												
129																												
130																												
131																												
132																												
133																												
134																												
135																												

Joint Boundary Conditions

	Joint 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	N14	Reaction	Reaction	Reaction			
2	N15	Reaction	Reaction	Reaction			
3	N1	Reaction	Reaction	Reaction			
4	N2	Reaction	Reaction	Reaction			

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design ...	Material	Design Rules	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Column	HSS6x6x3	Column	TUBE	A500 Gr.46	DR1	3.98	22.3	22.3	35
2	Wooster Column	HSS8x8x3	Column	TUBE	A500 Gr.46	DR1	5.37	54.4	54.4	84.5
3	Lower Truss	HSS8x6x3	Beam	TUBE	A500 Gr.46	DR1	4.67	28.2	43.7	53.7
4	Tension Member	HSS6x4x3	Beam	TUBE	A500 Gr.46	DR1	3.28	8.76	16.4	18.2
5	Ridge Beam	HSS6x4x3	Beam	TUBE	A500 Gr.46	DR1	3.28	8.76	16.4	18.2
6	Juncture Column	HSS8x8x10	Beam	TUBE	A500 Gr.46	DR1	16.4	146	146	244
7	Clerestory	HSS6x4x2	Beam	TUBE	A500 Gr.46	DR1	2.23	6.15	11.4	12.6
8	Upper Truss	HSS8x6x3	Beam	TUBE	A500 Gr.46	DR1	4.67	28.2	43.7	53.7
9	Ridge Tail	HSS6x4x3	Beam	TUBE	A500 Gr.46	DR1	3.28	8.76	16.4	18.2
10	Clerestory Tail	HSS6x4x2	Beam	TUBE	A500 Gr.46	DR1	2.23	6.15	11.4	12.6
11	Tension Tail	HSS6x4x3	Beam	TUBE	A500 Gr.46	DR1	3.28	8.76	16.4	18.2

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design ...
1	Clerestory Tail1	N28	N17			Clerestory Tail	Beam	TUBE	A500 Gr.46	DR1
2	Clerestory Tail2	N35	N24			Clerestory Tail	Beam	TUBE	A500 Gr.46	DR1
3	Clerestory Tail3	N37	N26			Clerestory Tail	Beam	TUBE	A500 Gr.46	DR1
4	Clerestory Tail4	N29	N18			Clerestory Tail	Beam	TUBE	A500 Gr.46	DR1
5	Clerestory Tail5	N42	N11			Clerestory Tail	Beam	TUBE	A500 Gr.46	DR1
6	Clerestory Tail6	N35A	N4			Clerestory Tail	Beam	TUBE	A500 Gr.46	DR1
7	Clerestory Tail7	N44	N13			Clerestory Tail	Beam	TUBE	A500 Gr.46	DR1
8	Clerestory Tail8	N36A	N5			Clerestory Tail	Beam	TUBE	A500 Gr.46	DR1
9	Clerestory1	N4	N17			Clerestory	Beam	TUBE	A500 Gr.46	DR1
10	Clerestory2	N5	N18			Clerestory	Beam	TUBE	A500 Gr.46	DR1
11	Clerestory3	N11	N24			Clerestory	Beam	TUBE	A500 Gr.46	DR1
12	Clerestory4	N13	N26			Clerestory	Beam	TUBE	A500 Gr.46	DR1
13	WoosterColumn1	N1	N43A			Wooster Column	Column	TUBE	A500 Gr.46	DR1
14	WoosterColumn2	N2	N44A		180	Wooster Column	Column	TUBE	A500 Gr.46	DR1
15	WoosterColumn3	N14	N45			Wooster Column	Column	TUBE	A500 Gr.46	DR1
16	WoosterColumn4	N15	N46		180	Wooster Column	Column	TUBE	A500 Gr.46	DR1
17	JunctureColumn1	N11	N4			Juncture Column	Beam	TUBE	A500 Gr.46	DR1
18	JunctureColumn2	N13	N5			Juncture Column	Beam	TUBE	A500 Gr.46	DR1

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design ...
19	JunctureColumn3	N24	N17			Juncture Column	Beam	TUBE	A500 Gr.46	DR1
20	JunctureColumn4	N26	N18			Juncture Column	Beam	TUBE	A500 Gr.46	DR1
21	LowerTruss1	N7	N4			Lower Truss	Beam	TUBE	A500 Gr.46	DR1
22	LowerTruss2	N9	N5			Lower Truss	Beam	TUBE	A500 Gr.46	DR1
23	LowerTruss3	N20	N17			Lower Truss	Beam	TUBE	A500 Gr.46	DR1
24	LowerTruss4	N22	N18			Lower Truss	Beam	TUBE	A500 Gr.46	DR1
25	RidgeBeam1	N3	N16			Ridge Beam	Beam	TUBE	A500 Gr.46	DR1
26	RidgeTail1	N27	N16			Ridge Tail	Beam	TUBE	A500 Gr.46	DR1
27	RidgeTail2	N34A	N3			Ridge Tail	Beam	TUBE	A500 Gr.46	DR1
28	TensionMember1	N7	N20			Tension Member	Beam	TUBE	A500 Gr.46	DR1
29	TensionMember2	N9	N22			Tension Member	Beam	TUBE	A500 Gr.46	DR1
30	TensionTail1	N31	N20			Tension Tail	Beam	TUBE	A500 Gr.46	DR1
31	TensionTail2	N33	N22			Tension Tail	Beam	TUBE	A500 Gr.46	DR1
32	TensionTail3	N38	N7			Tension Tail	Beam	TUBE	A500 Gr.46	DR1
33	TensionTail4	N40	N9			Tension Tail	Beam	TUBE	A500 Gr.46	DR1
34	UpperTruss1	N13	N3			Upper Truss	Beam	TUBE	A500 Gr.46	DR1
35	UpperTruss2	N11	N3			Upper Truss	Beam	TUBE	A500 Gr.46	DR1
36	UpperTruss3	N26	N16			Upper Truss	Beam	TUBE	A500 Gr.46	DR1
37	UpperTruss4	N24	N16			Upper Truss	Beam	TUBE	A500 Gr.46	DR1
38	Column1	N43A	N7			Column	Column	TUBE	A500 Gr.46	DR1
39	Column2	N44A	N9		180	Column	Column	TUBE	A500 Gr.46	DR1
40	Column3	N45	N20			Column	Column	TUBE	A500 Gr.46	DR1
41	Column4	N46	N22		180	Column	Column	TUBE	A500 Gr.46	DR1

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Analysis...	Inactive	Seismic Design...
1	Clerestory Tail1						Yes			None
2	Clerestory Tail2						Yes			None
3	Clerestory Tail3						Yes			None
4	Clerestory Tail4						Yes			None
5	Clerestory Tail5						Yes			None
6	Clerestory Tail6						Yes			None
7	Clerestory Tail7						Yes			None
8	Clerestory Tail8						Yes			None
9	Clerestory1						Yes			None
10	Clerestory2						Yes			None
11	Clerestory3						Yes			None
12	Clerestory4						Yes			None
13	WoosterColumn1						Yes			None
14	WoosterColumn2						Yes			None
15	WoosterColumn3						Yes			None
16	WoosterColumn4						Yes			None
17	JunctureColumn1						Yes			None
18	JunctureColumn2						Yes			None
19	JunctureColumn3						Yes			None
20	JunctureColumn4						Yes			None
21	LowerTruss1						Yes			None
22	LowerTruss2						Yes			None
23	LowerTruss3						Yes			None
24	LowerTruss4						Yes			None
25	RidgeBeam1						Yes			None
26	RidgeTail1						Yes			None
27	RidgeTail2						Yes			None
28	TensionMember1						Yes			None
29	TensionMember2						Yes			None

RISA
Company :
Designer :
Job Number :
Model Name :
Checked By:_____

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Analysis...	Inactive	Seismic Design...
30	TensionTail1						Yes			None
31	TensionTail2						Yes			None
32	TensionTail3						Yes			None
33	TensionTail4						Yes			None
34	UpperTruss1						Yes			None
35	UpperTruss2						Yes			None
36	UpperTruss3						Yes			None
37	UpperTruss4						Yes			None
38	Column1						Yes			None
39	Column2						Yes			None
40	Column3						Yes			None
41	Column4						Yes			None

Hot Rolled Steel Design Parameters

	Label	Shape	Lengt...	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp b...	L-tor...	Kyy	Kzz	Cb	Function
1	Clerestory Tail1	Clerestor...	2						2.1	2.1		Lateral
2	Clerestory Tail2	Clerestor...	2						2.1	2.1		Lateral
3	Clerestory Tail3	Clerestor...	2						2.1	2.1		Lateral
4	Clerestory Tail4	Clerestor...	2						2.1	2.1		Lateral
5	Clerestory Tail5	Clerestor...	2						2.1	2.1		Lateral
6	Clerestory Tail6	Clerestor...	2						2.1	2.1		Lateral
7	Clerestory Tail7	Clerestor...	2						2.1	2.1		Lateral
8	Clerestory Tail8	Clerestor...	2						2.1	2.1		Lateral
9	Clerestory1	Clerestory	24						.65	.65		Lateral
10	Clerestory2	Clerestory	24						.65	.65		Lateral
11	Clerestory3	Clerestory	24						.65	.65		Lateral
12	Clerestory4	Clerestory	24						.65	.65		Lateral
13	WoosterColumn1	Wooster ...	5.25						2	2		Lateral
14	WoosterColumn2	Wooster ...	5.25						2	2		Lateral
15	WoosterColumn3	Wooster ...	5.25						2	2		Lateral
16	WoosterColumn4	Wooster ...	5.25						2	2		Lateral
17	JunctureColumn1	Juncture...	1.974						.65	.65		Lateral
18	JunctureColumn2	Juncture...	1.974						.65	.65		Lateral
19	JunctureColumn3	Juncture...	1.974						.65	.65		Lateral
20	JunctureColumn4	Juncture...	1.974						.65	.65		Lateral
21	LowerTruss1	Lower Tr...	4.41	Segment					.65	.65		Lateral
22	LowerTruss2	Lower Tr...	4.41	Segment					.65	.65		Lateral
23	LowerTruss3	Lower Tr...	4.41	Segment					.65	.65		Lateral
24	LowerTruss4	Lower Tr...	4.41	Segment					.65	.65		Lateral
25	RidgeBeam1	Ridge B...	24						.65	.65		Lateral
26	RidgeTail1	Ridge Tail	2						2.1	2.1		Lateral
27	RidgeTail2	Ridge Tail	2						2.1	2.1		Lateral
28	TensionMember1	Tension ...	24						.65	.65		Lateral
29	TensionMember2	Tension ...	24						.65	.65		Lateral
30	TensionTail1	Tension ...	2						2.1	2.1		Lateral
31	TensionTail2	Tension ...	2						2.1	2.1		Lateral
32	TensionTail3	Tension ...	2						2.1	2.1		Lateral
33	TensionTail4	Tension ...	2						2.1	2.1		Lateral
34	UpperTruss1	Upper Tr...	4.022	Segment					.65	.65		Lateral
35	UpperTruss2	Upper Tr...	4.022	Segment					.65	.65		Lateral
36	UpperTruss3	Upper Tr...	4.022	Segment					.65	.65		Lateral
37	UpperTruss4	Upper Tr...	4.022	Segment					.65	.65		Lateral
38	Column1	Column	5.25						2	2		Lateral
39	Column2	Column	5.25						2	2		Lateral
40	Column3	Column	5.25						2	2		Lateral

RISA-3D Version 15.0.0 [S:\...\...\...\...\...\...\P10325_CHE20X28STGMR_6_20_20_110_IBC18_C_A_RP_8WO(

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Lengt...	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp b...	L-tor...	Kyy	Kzz	Cb	Function
41	Column4	Column	5.25						2	2		Lateral

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\...	Density[lb/ft^3]	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A36 Gr.36	29000	11154	.3	.65	490	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	.3	.65	490	50	1.1	58	1.2
3	A992	29000	11154	.3	.65	490	50	1.1	58	1.2
4	A500 Gr.42	29000	11154	.3	.65	490	42	1.3	58	1.1
5	A500 Gr.46	29000	11154	.3	.65	527	46	1.2	58	1.1

Envelope AISC 14th(360-10): ASD Steel Code Checks

	Member	Shape	Code Check	Lo...	Sh...	Lo...		Pnc/...	Pnt/...	Mny...	Mnz...	Eqn
1	Clerest...	HSS6x..	.018	2	.007	2	y	51.1...	61.4...	73.1...	115....	H1-..
2	Clerest...	HSS6x..	.024	2	.009	2	y	51.1...	61.4...	73.1...	115....	H1-..
3	Clerest...	HSS6x..	.022	2	.009	2	y	51.1...	61.4...	73.1...	115....	H1-..
4	Clerest...	HSS6x..	.016	2	.006	2	y	51.1...	61.4...	73.1...	115....	H1-..
5	Clerest...	HSS6x..	.024	2	.009	2	y	51.1...	61.4...	73.1...	115....	H1-..
6	Clerest...	HSS6x..	.018	2	.007	2	y	51.1...	61.4...	73.1...	115....	H1-..
7	Clerest...	HSS6x..	.022	2	.009	2	y	51.1...	61.4...	73.1...	115....	H1-..
8	Clerest...	HSS6x..	.016	2	.006	2	y	51.1...	61.4...	73.1...	115....	H1-..
9	Clerest...	HSS6x..	.442	24	.042	0	y	25.4...	61.4...	73.1...	115....	H1-..
10	Clerest...	HSS6x..	.420	24	.041	24	y	25.4...	61.4...	73.1...	115....	H1-..
11	Clerest...	HSS6x..	.630	24	.056	0	y	25.4...	61.4...	73.1...	115....	H1-..
12	Clerest...	HSS6x..	.585	24	.053	24	y	25.4...	61.4...	73.1...	115....	H1-..
13	Woost...	HSS8x..	.200	5.25	.017	0	y	118....	147....	346....	346....	H1-..
14	Woost...	HSS8x..	.229	5.25	.021	0	y	118....	147....	346....	346....	H1-..
15	Woost...	HSS8x..	.224	5.25	.017	0	y	118....	147....	346....	346....	H1-..
16	Woost...	HSS8x..	.229	5.25	.021	0	y	118....	147....	346....	346....	H1-..
17	Junctu...	HSS8x..	.137	1....	.050	0	z	450....	451....	1231..	1231....	H1-..
18	Junctu...	HSS8x..	.118	1....	.050	0	z	450....	451....	1231..	1231....	H1-..
19	Junctu...	HSS8x..	.137	1....	.049	0	z	450....	451....	1231..	1231....	H1-..
20	Junctu...	HSS8x..	.115	1....	.048	1....	z	450....	451....	1231..	1231....	H1-..
21	Lower...	HSS8x..	.371	4.41	.164	0	y	118....	128....	237....	330....	H1-..
22	Lower...	HSS8x..	.374	0	.164	0	y	118....	128....	237....	330....	H1-..
23	Lower...	HSS8x..	.371	4.41	.147	0	y	118....	128....	237....	330....	H1-..
24	Lower...	HSS8x..	.374	0	.147	0	y	118....	128....	237....	330....	H1-..
25	RidgeB...	HSS6x..	.390	24	.048	24	y	37.3...	90.3...	129....	181....	H1-..
26	RidgeT...	HSS6x..	.016	2	.008	2	y	84.7...	90.3...	129....	181....	H1-..
27	RidgeT...	HSS6x..	.016	2	.008	2	y	84.7...	90.3...	129....	181....	H1-..
28	Tensio...	HSS6x..	.426	0	.051	0	y	37.3...	90.3...	129....	181....	H1-..
29	Tensio...	HSS6x..	.426	24	.050	24	y	37.3...	90.3...	129....	181....	H1-..
30	Tensio...	HSS6x..	.020	2	.009	2	y	84.7...	90.3...	129....	181....	H1-..
31	Tensio...	HSS6x..	.018	2	.008	2	y	84.7...	90.3...	129....	181....	H1-..
32	Tensio...	HSS6x..	.020	2	.009	2	y	84.7...	90.3...	129....	181....	H1-..
33	Tensio...	HSS6x..	.018	2	.008	2	y	84.7...	90.3...	129....	181....	H1-..
34	Upper...	HSS8x..	.459	4....	.099	0	z	118....	128....	237....	330....	H1-..
35	Upper...	HSS8x..	.459	4....	.089	0	z	118....	128....	237....	330....	H1-..
36	Upper...	HSS8x..	.482	4....	.099	0	z	118....	128....	237....	330....	H1-..
37	Upper...	HSS8x..	.482	4....	.096	0	z	118....	128....	237....	330....	H1-..
38	Colum...	HSS6x..	.575	5.25	.022	0	y	90.6...	109....	222....	222....	H1-..
39	Colum...	HSS6x..	.663	5.25	.028	0	y	90.6...	109....	222....	222....	H1-..
40	Colum...	HSS6x..	.632	5.25	.022	0	y	90.6...	109....	222....	222....	H1-..
41	Colum...	HSS6x..	.663	5.25	.028	0	y	90.6...	109....	222....	222....	H1-..

Material Takeoff

	Material	Size	Pieces	Length[ft]	Weight[LB]
1	Hot Rolled Steel				
2	A500 Gr.46	HSS6x4x2	12	112	914.1
3	A500 Gr.46	HSS6x4x3	9	84	1008.3
4	A500 Gr.46	HSS6x6x3	4	21	305.9
5	A500 Gr.46	HSS8x6x3	8	33.7	576.5
6	A500 Gr.46	HSS8x8x10	4	7.9	473.9
7	A500 Gr.46	HSS8x8x3	4	21	412.7
8	Total HR Steel		41	279.6	3691.3

PANEL DATA

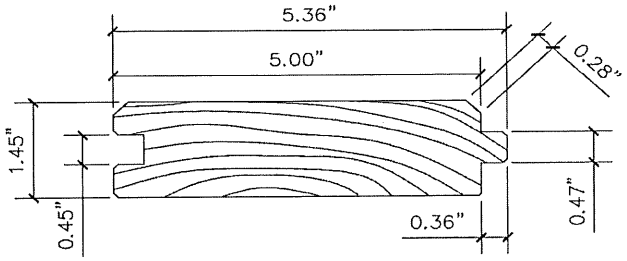
2 x 6 Tongue and Groove Panels

Allowable Loads

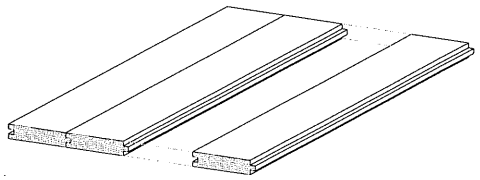
Douglas Hem Fir No. 1

Factory Stained

Section / Isometric View of Panel Cross-Section



Section View of Typical Panel



Isometric View of Panels

Section Properties (Out of Plane Bending)

Member Size	Weight (psf)	F_b (ksi)	I_x (in^4)	S_e (in^3)	M_a (in-kips)
2" X 6"	3.15	0.979	1.251	1.734	1.698

Allowable Loads

Span Type	Span Lengths (ft)	Allowable Load (psf)
Single Span	4	160
	5	102
	6	71
	7	52
	8	40
Two Span	4	160
	5	102
	6	71
	7	52
	8	40
Three Span	4	199
	5	128
	6	89
	7	65
	8	50

Load Duration Factors (C_D)

Typical Design Loads	C_D
Dead Load	0.9
Live Load	1.0
Snow Load	1.15
Wind Load	1.6
Earthquake Load	1.6

Notes

1. All calculations for properties of panels are calculated in accordance with the National Design Specification (NDS) for Wood Construction, 2010 Edition. Allowable loads are based on at least two sections of the tongue and groove decking in place, with tongue and groove in contact.
2. The spans shown assume equal spacing between the multi-span conditions.
3. Weight of panels and roof covering material must be deducted from values to obtain net allowable load.
4. Per NDS 2010 Section 2.3.2, reference design values shall be multiplied by the appropriate load duration factor, C_D.

McELROY METAL
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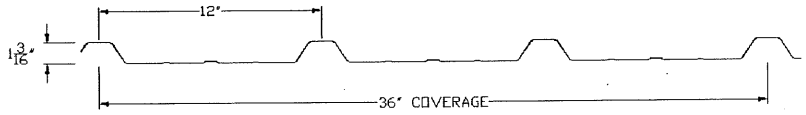
TECHNICAL BULLETIN

Issue Date : June 1, 2006 **No. 07-232-06**

Multi-Rib



SECTION PROPERTIES						TOP IN COMPRESSION			BOTTOM IN COMPRESSION		
GAUGE	FY (KSI)	WEIGHT (PSF)	V_a 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	50.0	1.14	0.9053	223.34	377.49	0.0523	0.0576	1.7233	0.0327	0.0543	1.6267

1. Section properties are calculated in accordance with the 2001 AISI North American Specification for the Design of Cold-Formed Steel Structural Members.
2. Va is the allowable shear.
3. Pa is the allowable load for web crippling on end & interior supports.
4. Ix is for deflection determination.
5. Se is for bending.
6. Ma is the allowable bending moment.
7. All values are for one foot of panel width.

Allowable Uniform Loads (PSF)

		Span in Feet															
Span Type	Load Type	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00
Single	Positive Wind	510	287	183	127	93	71	56	45	37	31	27	23	20	17	15	14
	Negative Wind	481	271	173	120	88	67	53	43	35	30	25	22	19	16	15	13
	Live	510	287	183	127	93	71	56	45	37	31	27	23	20	17	15	14
	Deflection (L/180)	1354	571	292	169	106	71	50	36	27	21	16	13	10	8	7	6
	Deflection (L/240)	1015	428	219	126	79	53	37	27	20	15	12	9	8	6	5	4
2 Span	Positive Wind	431	253	166	116	86	66	52	42	35	29	25	22	19	16	14	13
	Negative Wind	451	266	175	123	91	70	55	45	37	31	26	23	20	17	15	14
	Live	431	253	166	116	86	66	52	42	35	29	25	22	19	16	14	13
	Deflection (L/180)	2651	1118	572	331	208	139	98	71	53	41	32	26	21	17	14	12
	Deflection (L/240)	1988	838	429	248	156	104	73	53	40	31	24	19	15	13	10	9
3 Span	Positive Wind	516	309	204	144	107	82	65	53	44	37	31	27	23	21	18	16
	Negative Wind	538	324	214	152	113	87	69	56	46	39	33	29	25	22	19	17
	Live	516	309	204	144	107	82	65	53	44	37	31	27	23	21	18	16
	Deflection (L/180)	2077	876	448	259	163	109	76	56	42	32	25	20	16	13	11	9
	Deflection (L/240)	1557	657	336	194	122	82	57	42	31	24	19	15	12	10	8	7
4 Span	Positive Wind	489	291	191	135	100	77	61	49	41	34	29	25	22	19	17	15
	Negative Wind	510	305	201	142	105	81	64	52	43	36	31	27	23	20	18	16
	Live	489	291	191	135	100	77	61	49	41	34	29	25	22	19	17	15
	Deflection (L/180)	2204	930	476	275	173	116	81	59	44	34	27	21	17	14	12	10
	Deflection (L/240)	1653	697	357	206	130	87	61	44	33	25	20	16	13	10	9	7

Notes:
1. Allowable uniform loads are based upon equal span lengths.
2. Positive Wind is wind pressure and is **NOT** increased by 33 1/3 %.
3. Negative Wind is wind suction or uplift and is **NOT** increased by 33 1/3%.
4. Live is the allowable live or snow load.
5. Deflection (L/180) is the allowable load that limits the panel's deflection to L/180 while under positive or live load.
6. Deflection (L/240) is the allowable load that limits the panel's deflection to L/240 while under positive or live load.
7. The weight of the panel has **NOT** been deducted from the allowable loads.
8. Positive Wind, Negative Wind, and Live Load values are limited to combined shear & bending using Eq. C3.3.1-1 of the AISI Specification.
9. Positive Wind and Live Load values are limited by web crippling using a bearing length of 2".
10. Web crippling values are determined using a ratio of the uniform load **actually** supported by the top flanges of the section.