STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
www.ct.gov/csc

VIA ELECTRONIC MAIL

August 19, 2019

G. Scott Shepherd
Senior Property Specialist
SBA Communications
134 Flanders Road, Suite 125
Westborough, MA 01581

RE: **EM-T-MOBILE-137-190806** - T-Mobile notice of intent to modify an existing telecommunications facility located at 107 Wilcox Road, Stonington, Connecticut.

Dear Mr. Shepherd:

The Connecticut Siting Council (Council) is in receipt of your correspondence of August 15, 2019 submitted in response to the Council's August 15, 2019 notification of an incomplete request for exempt modification with regard to the above-referenced matter.

The submission renders the request for exempt modification complete and the Council will process the request in accordance with the Federal Communications Commission 60-day timeframe.

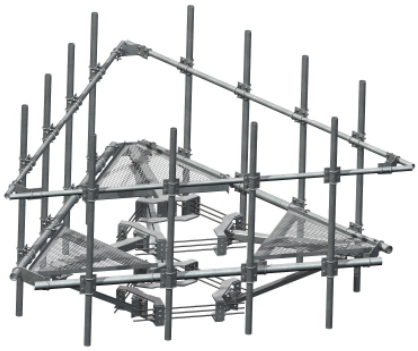
Thank you for your attention and cooperation.

Sincerely,

Melanie A. Bachman
Executive Director

MAB/IN/emr

Antenna Mount Structural Analysis



Source: Sitepro1 Date: 08.01.2019

SBA Site:	**CT13074-A Stonington**
T-Mobile Site Number:	**CTNL071B**
Project:	**L600 Project**
Prepared For:	**T-Mobile**
Mount Description:	**(1) Platform w/ Handrail and Kicker** **Sitepro1 RMQP-4096-HK**
Site Location:	**107 Wilcox Rd, Stonington, CT** **New London County** **41.340913°, -71.940167°**
Design Codes:	**ANSI/TIA-222-G** **IBC 2015 w/ 2018 CT Building Code**
Analysis Load Case:	**T-Mobile Final Configuration**
Analysis Result:	**Adequate @ 64% - Once Replaced** **See Conclusion**

Revision 0
August 1, 2019

GeoStructural ▪ P.O. Box 2621, Boise, ID 83701 ▪ Office: (530) 539-4787
Professional Engineers | Tower Technicians | Climbers | sUAS Mapping

1.0 Introduction

An antenna mount structural analysis has been performed on T-Mobile's replacement mount assembly located at the CT13074-A Stonington communications site in New London County, CT considering the final equipment loading configuration listed in Section 3.0.

2.0 Analysis Criteria

An elastic three-dimensional model of the mount structure has been analyzed pursuant to the following criteria considering wind forces in 30° increments:

- 2018 Connecticut State Building Code.
- IBC 2015 – International Building Code.
- ANSI/TIA-222-G – Structural Standard for Antenna Supporting Structures and Antennas.
- AISC – Steel Construction Manual.
- ANSI/AWS D1.1 – Structural Welding Code.

Wind w/o ice = 136 mph (3-sec gust Ultimate Wind Speed) Wind w/o ice = 105 mph (3-sec gust Basic Wind Speed) Wind w/ ice = 50 mph (3-sec gust Basic) with 3/4" Design Ice, Escalated with Height
Topographic Category 1; Exposure Category C; Structure Class (Risk Category) II Gust Effect Factor = 1.0; Directionality Factor = 0.95 Site Class D "Stiff Soil"; F_a = 1.6; F_v = 2.4; S_{DS} = 0.168
Maintenance Loads**: Lm = 500 lb @ Worst Case Mount Pipe (Concurrent with 30 mph Wind Speed) Lv = 250 lb @ Worst Case Member Location (Center Span or Cantilever) ** *The mount face horizontal boom rails of T-Arm mount assemblies are not rated for rigging, hoisting or maintenance loading.*

The following documents were provided:

- Colo Application
  SBA 600 MHz, App # 117049 v1.
- RFDS
  T-Mobile L600 Project, V3.1, CTNL071B, 5/14/19.

The results of the analysis are illustrated in Section 4.0. If any of the existing or proposed conditions reported in this analysis are not properly represented, please contact our office immediately to request an amended report.

3.0 Appurtenance Information

Table 3.1 – T-Mobile Final Configuration[1,2,3]

COR	(Quantity) Appurtenance Make/Model	Mount Description
96.0'±	(3) ERICSSON AIR21 B2A B4P	*(1) Platform w/ Handrail and Kicker* • *Sitepro1 RMQP-4096-HK*
	(3) RFS APXVAARR24_43-U-NA20	
	(3) ERICSSON AIR21 B4A B12P	
	(3) ERICSSON 4449 B71+B12 RRH	
	(3) ERICSSON KRY 112 144/1 TMA	

1. *Refer to antenna installation Construction Drawings (by others, when applicable) for additional information regarding final antenna and equipment orientations.*
2. *Panel antennas to be installed as follows:*
   - 2.1. *AIR21 panels to be installed on mount pipes in Positions 1 and 4.*
   - 2.2. *AARR panels to be installed on mount pipe in Position 2.*
3. *RRH/TMA units to be installed as follows:*
   - 3.1. *4449 RRHs to be installed on mount pipe behind panels in Position 2.*
   - 3.2. *TMAs (if needed) to be installed on mount pipe behind panels in Position 1.*

4.0 Analysis Results

Table 4.1 – Replacement Mount Capacity

Load Case	Governing Mount Component[1]	% Capacity[2]	Result
Final T-Mobile Configuration	Standoff	30%	**Adequate Once Replaced[3]**
	Bottom Rail	15%	
	Bracing	33%	
	Pipe2.5STD Mount Pipe	36%	
	PRK Double Angles	44%	
	Handrail	64%	
	Connection Plates	37%	

1. *Refer to the Calculations & Software Output portion of this report for mount component and structural information.*
2. *Listed results are expressed as a percentage of available mount member capacity based upon the assumed material strengths listed in Table 4.2. 105% is an acceptable allowable stress percentage for mount components.*
3. *Refer to Conclusion & Recommendations Section for more information regarding mount replacement.*

Table 4.2 – Structural Component Material Strengths

Structural Component	Nominal Strength/Material[1]
Pipe	F_y = 35 ksi (A53, Gr. B)
Tube	F_y = 46 ksi (A500, Gr. B)
Structural Shapes (L, C, W, etc.), Plate / Bar	F_y = 36 ksi (A36)
Uni-Strut	F_y = 33 ksi (A570, Gr. 33)
Connection Bolts	A325
Stainless Steel Bolts	18-8 Stainless, Grade 316/304 F_y = 74 ksi (Yield) & F_u = 29 ksi (Tension)
U-Bolts / Threaded Rod	SAE J429 Grade 2 (Substitution: ASTM A449) F_y = 57 ksi (Yield) & F_u = 74 ksi (Tension)
Welds	E70XX Electrodes

1. *Strengths listed were assumed for this analysis and are based upon ASTM, AISC, RCSC, AWS and ACI preferred specification values. Values and materials are consistent with industry standards. Material strengths were taken from original design documents when available.*

5.0 Conclusion & Recommendations

Based on T-Mobile's final equipment loading configuration, the replacement mount assembly has sufficient capacity to support the loading considered in this analysis pursuant to the listed standards.

- Install Replacement Platform Assembly; attach to monopole shaft per manufacturer's specifications.
  - Sitepro1 RMQP-4096-HK, (1) total.
    - Sitepro1 RMQP + PRK1245 + HRK12.
    - 12'-6" Low Pro-Platform with Twelve 2-7/8" Antenna Mounting Pipes and Handrail.
    - Replacement mount to be installed in accordance with manufacturer's specifications and applicable Construction Drawings.

Installation Requirements:

- Antennas and equipment shall be installed centered vertically between the mount front face rails (limit vertical installation eccentricity) with a maximum vertical eccentricity of 12" for panels and 20" for RRHs. If this assumption is incorrect, the results of this analysis will be inaccurate and not valid. This analysis accounts for vertical eccentricities necessary to install all panel antennas at the same relative top tip elevation.
- Panel antennas to be installed as follows:
  - AIR21 panels to be installed on mount pipes in Positions 1 and 4.
  - AARR panels to be installed on mount pipe in Position 2.
- RRH/TMA units to be installed as follows:
  - 4449 RRHs to be installed on mount pipe behind panels in Position 2.
  - TMAs (if needed) to be installed on mount pipe behind panels in Position 1.

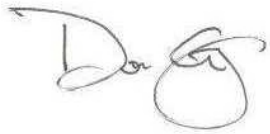
All data required to complete our structural analysis was furnished by our client and provided record data. GeoStructural has not conducted a site visit or independent study, nor have they been provided a mount mapping to verify existing conditions and the results of this analysis are based solely on the information provided.

This analysis only encompasses the antenna mount assembly. The tower, overall mount support structure, foundation, etc. are beyond the scope of this analysis. If any of the existing or proposed conditions (appurtenance loading, member sizes, etc.) reported in this analysis are not properly represented, please contact our office immediately to request an amended report.

Prepared by:

Jesse Drennen, PE, MLE
208.761.7986
jesse.drennen@geostructural.com

Reviewed and Approved by:



Don George, PE, SE, MLSE
208.602.6569
don.george@geostructural.com

6.0 Standard Conditions

- All data required to complete our structural analysis was furnished by our client and provided record data. GeoStructural has not conducted a site visit or independent study to verify existing conditions and the results of this analysis are based solely on the information provided. It has been assumed that the tower, antenna support structure and foundation have been constructed according to the provided existing drawings, previous structural analysis reports, mapping documents, etc.

- The default Structure Classification is Class II in accordance with ANSI/TIA-222-G §A.2.2 & §A.15.3 and has been assumed for this analysis. The owner shall verify this classification conforms with original or desired reliability criteria.

- This analysis assumes that the structure has been properly installed and maintained in accordance with ANSI/TIA-222-G §15.5 and that no physical deterioration has occurred in any of the components of the structure. Damaged, missing, or rusted members were not considered.

- This analysis verifies the adequacy of the main components of the structure. Not all connections, welds, bolts, plates, etc. were individually detailed and analyzed. Where not specifically analyzed, the existing connection plates, welds, bolts, etc. were assumed adequate to develop the full capacity of the main structural members.

- No consideration has been made for unusual or extreme wind events, rime/in-cloud ice loadings, harmonic or nodal vibration, vortex shedding or other similar conditions.

- It is the owner's responsibility to determine the appropriate design wind speed and amount of ice accumulation beyond code minimum values that should be considered in the analysis.

- This analysis report does not constitute a maintenance and condition assessment. No certifications regarding maintenance and condition are expressed or implied. If desired, GeoStructural can provide these services under a subsequent contract.

- This analysis only encompasses the antenna mount assembly. The tower, overall mount support structure, foundation, etc. are beyond the scope of this analysis. If desired, GeoStructural can provide these services under a subsequent contract.

7.0 Calculations & Software Output

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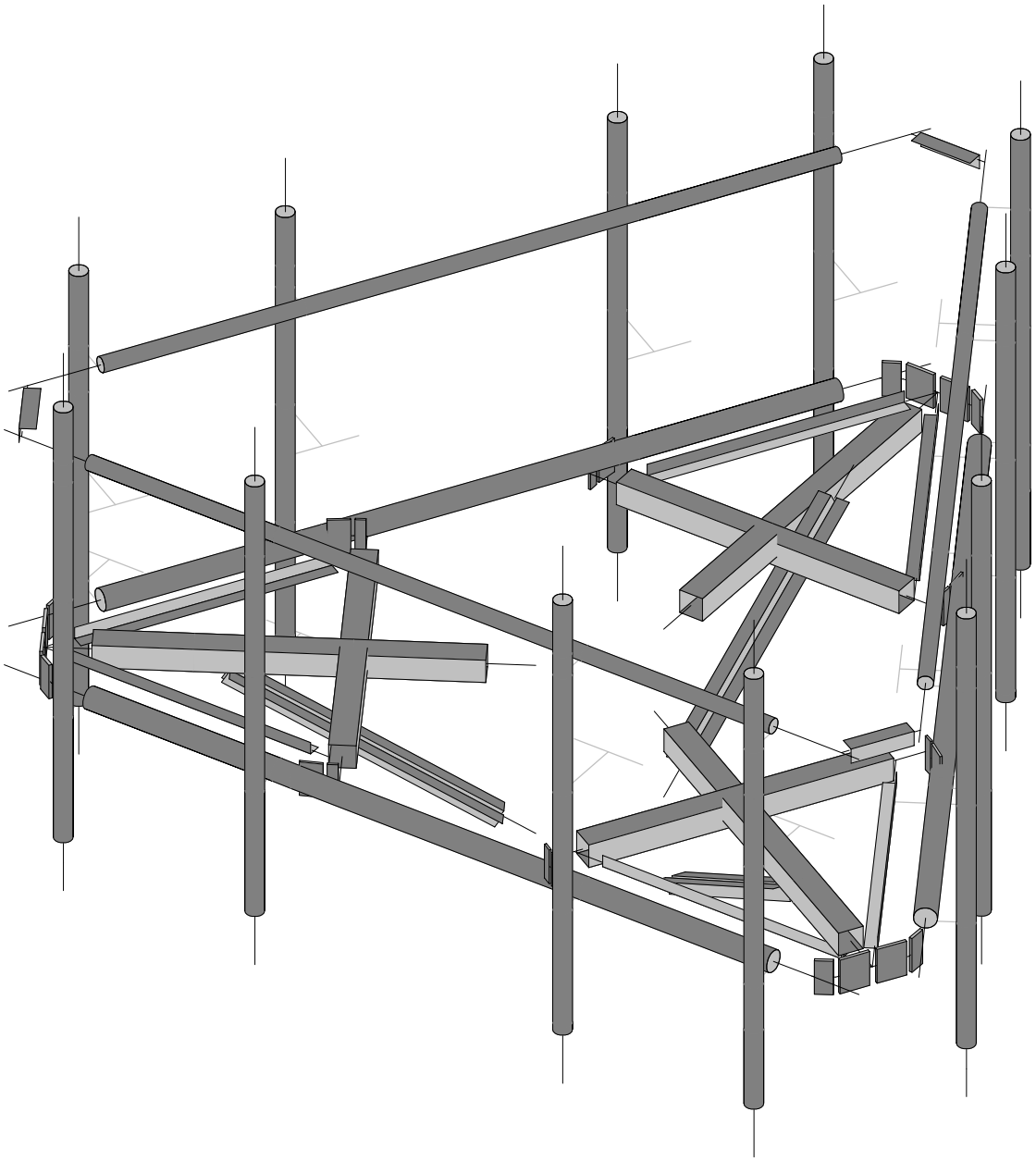

Envelope Only Solution

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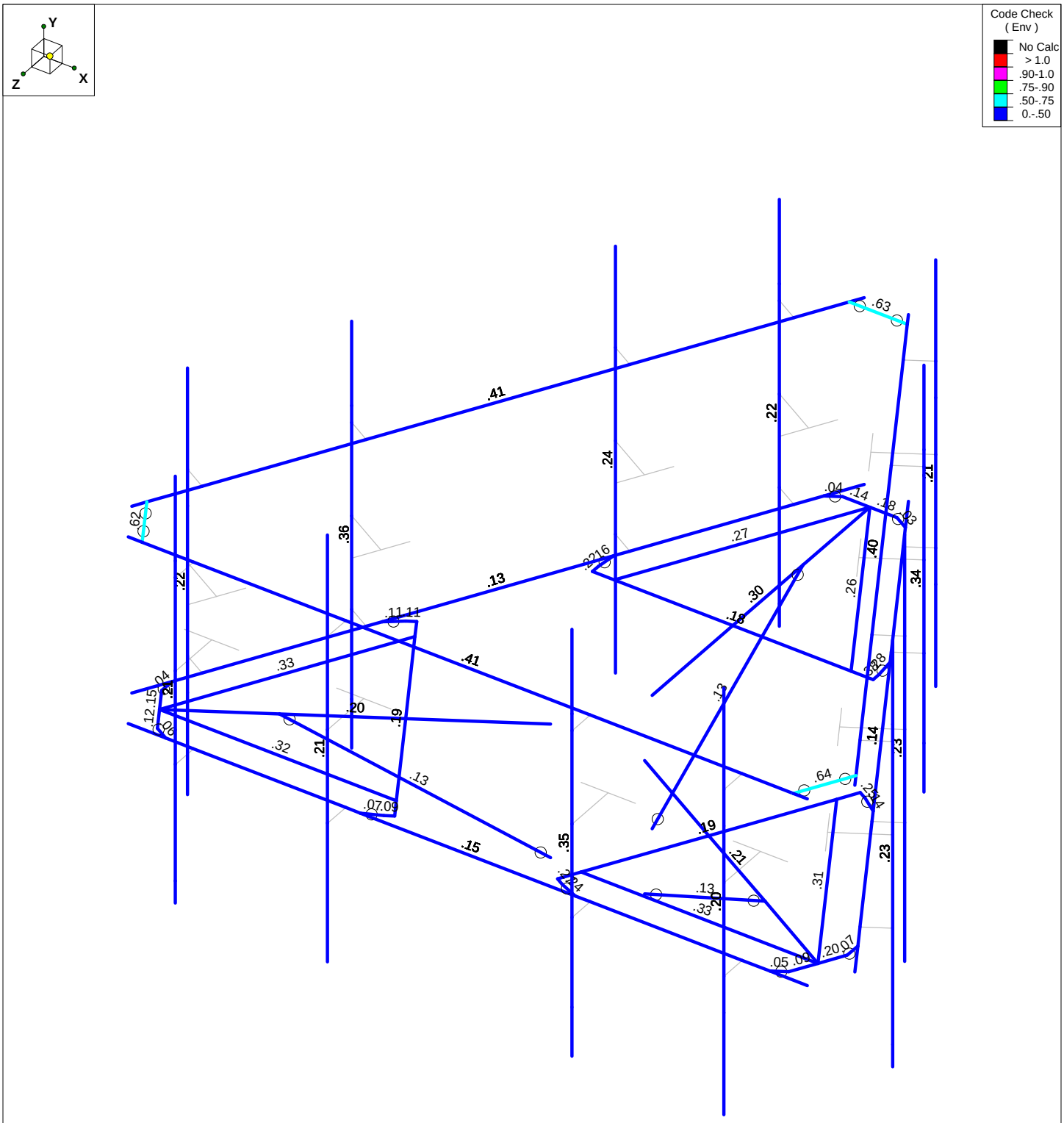

Member Code Checks Displayed (Enveloped)
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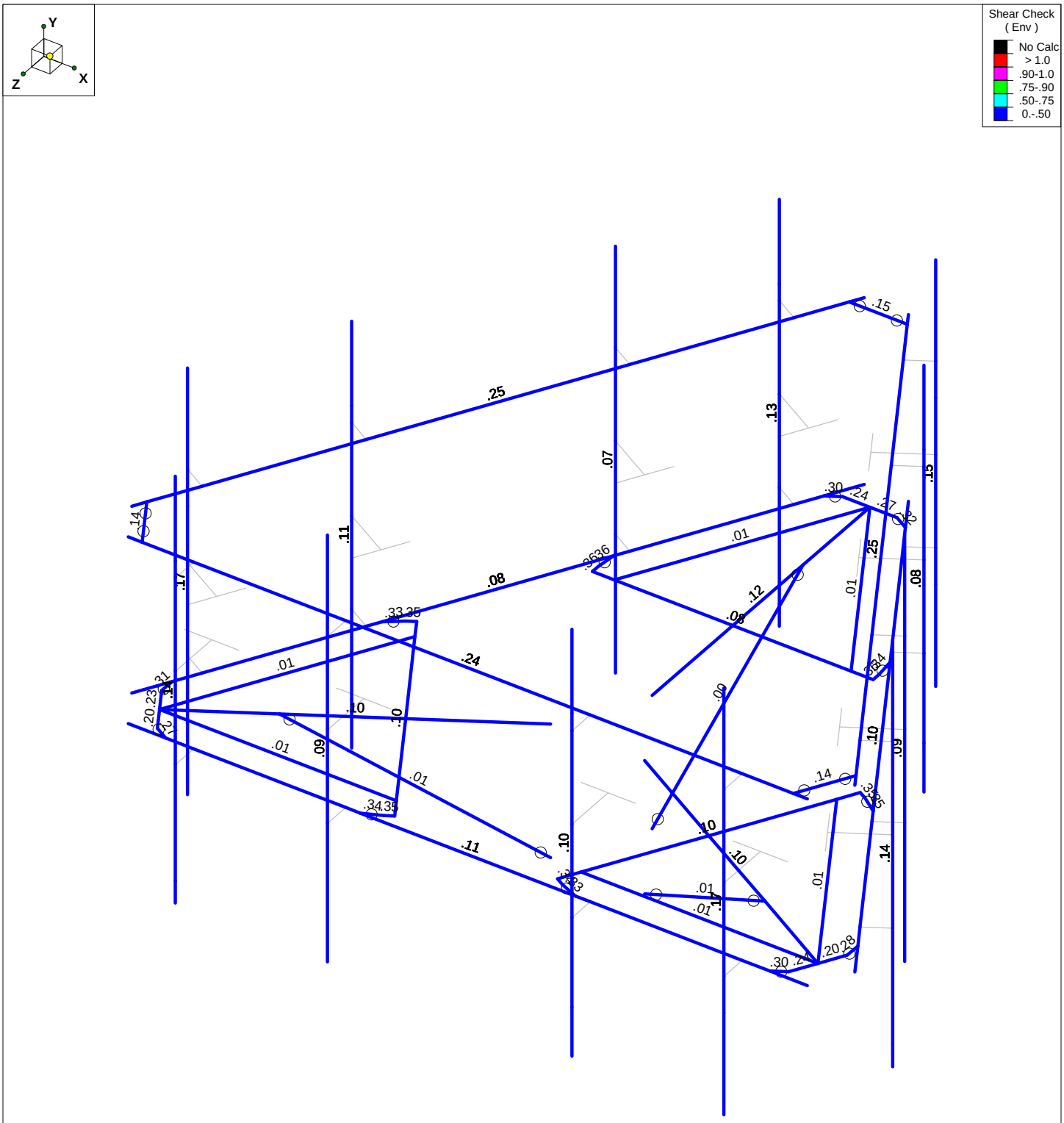

Member Shear Checks Displayed (Enveloped)
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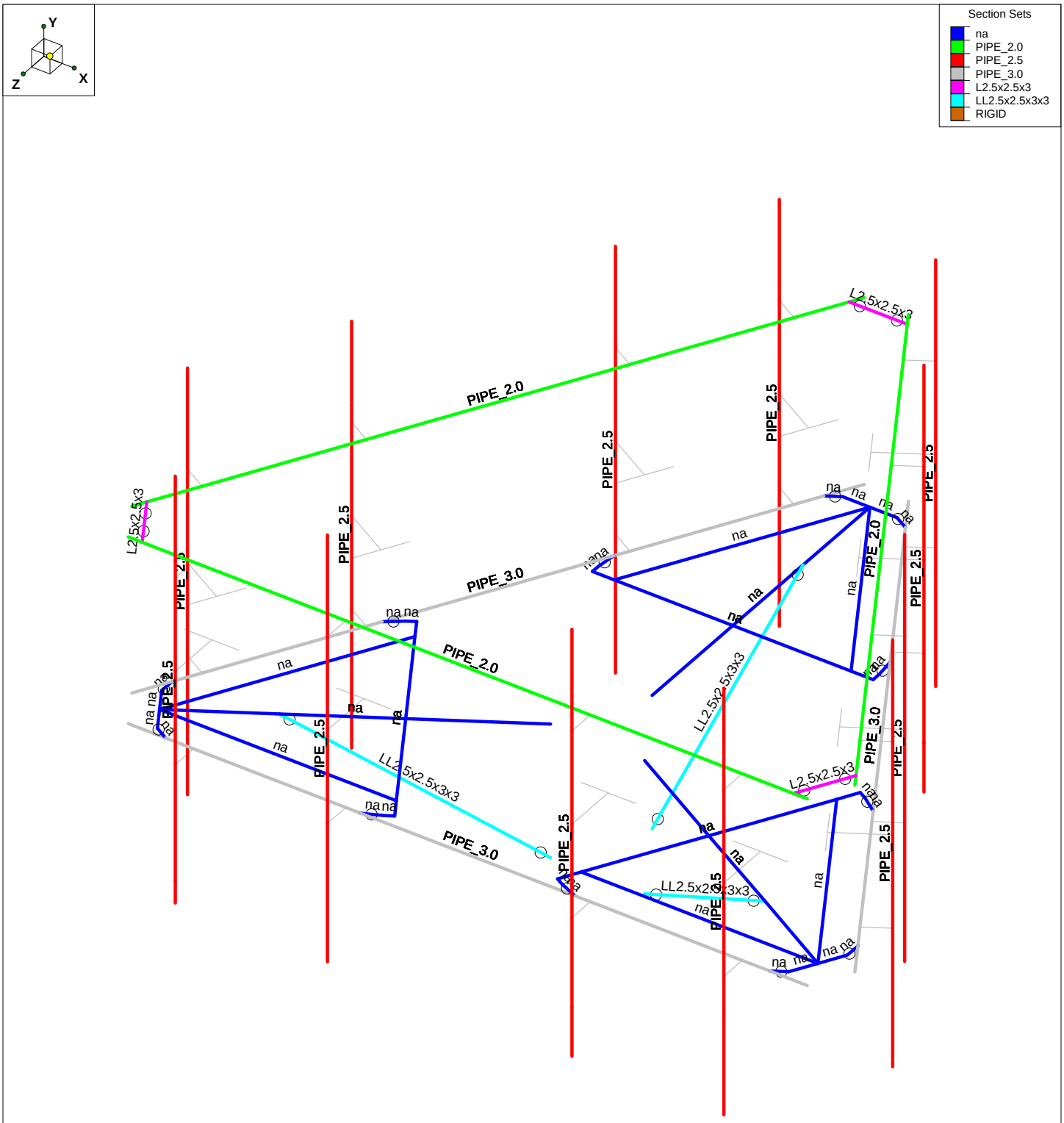

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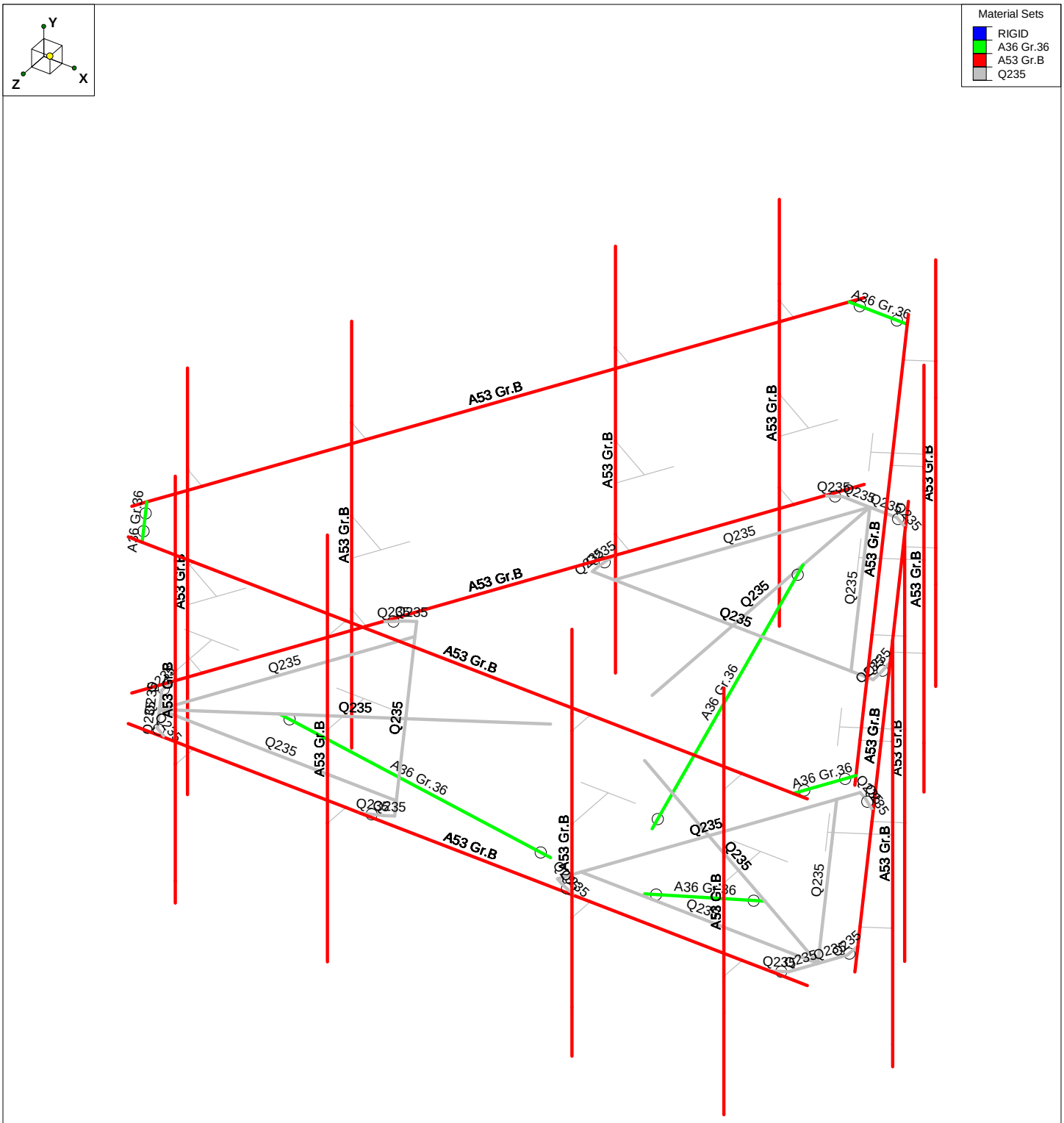

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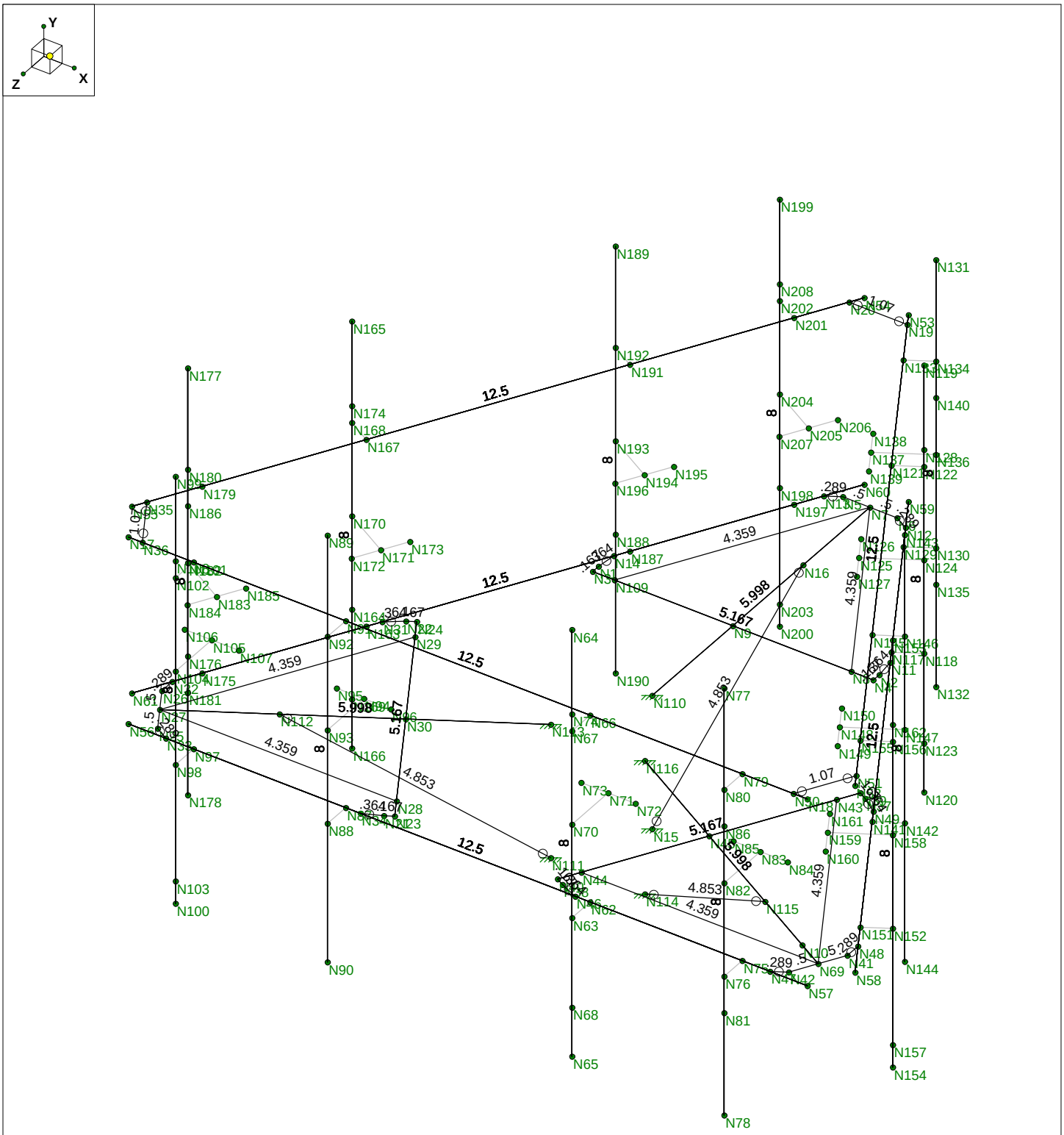

Member Length (ft) Displayed
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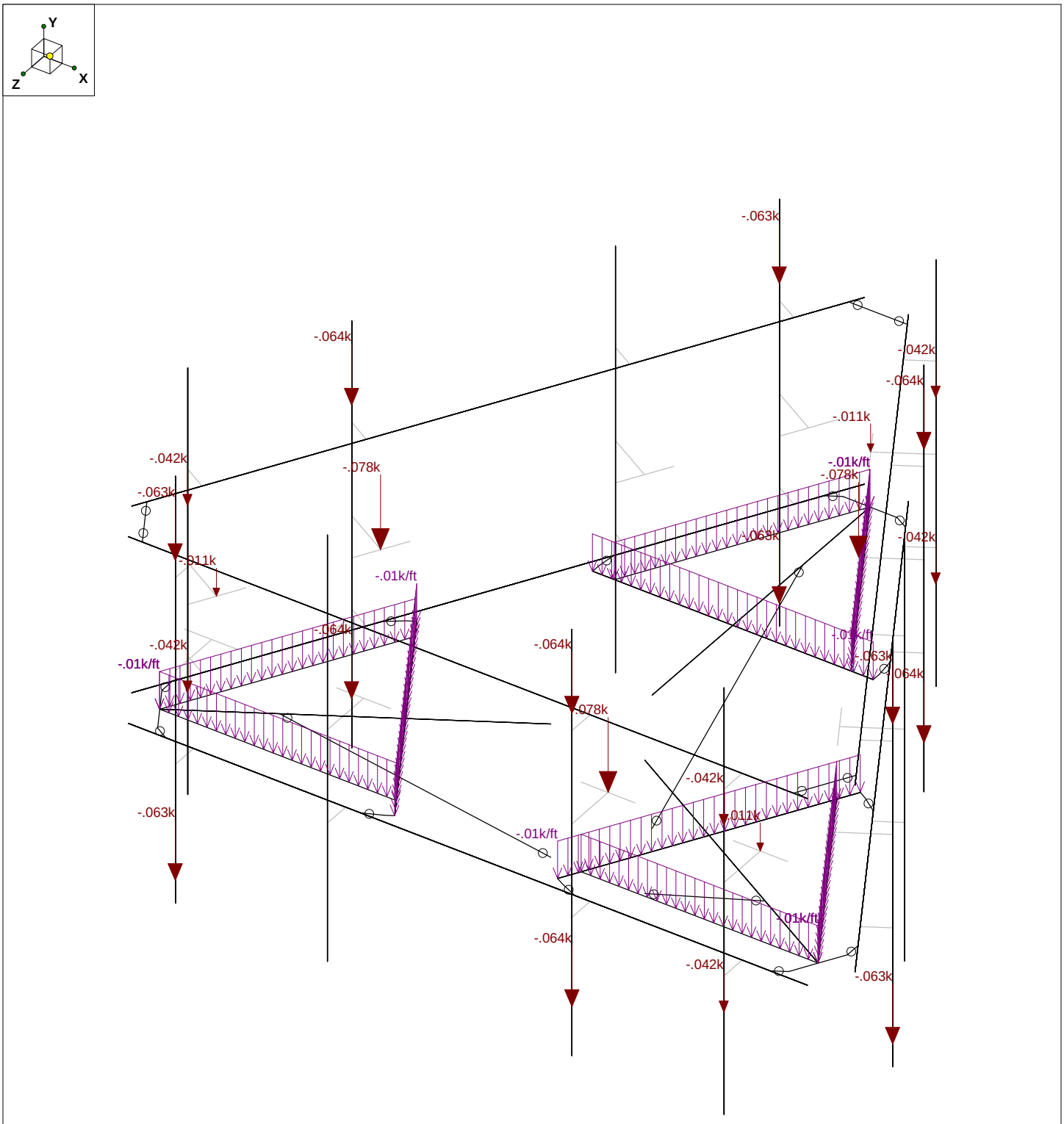

Loads: BLC 1, D
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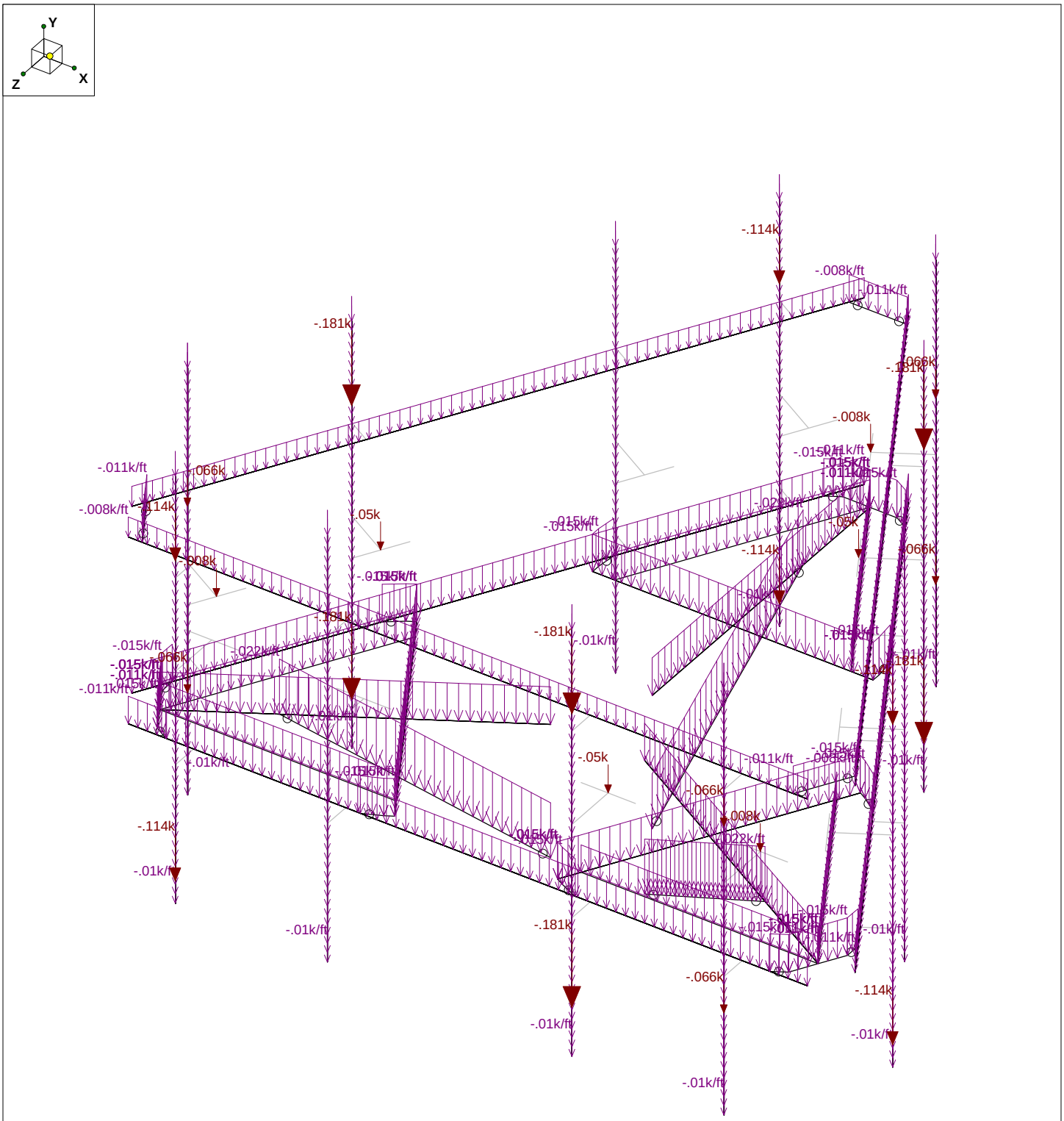

Loads: BLC 2, Di
Envelope Only Solution

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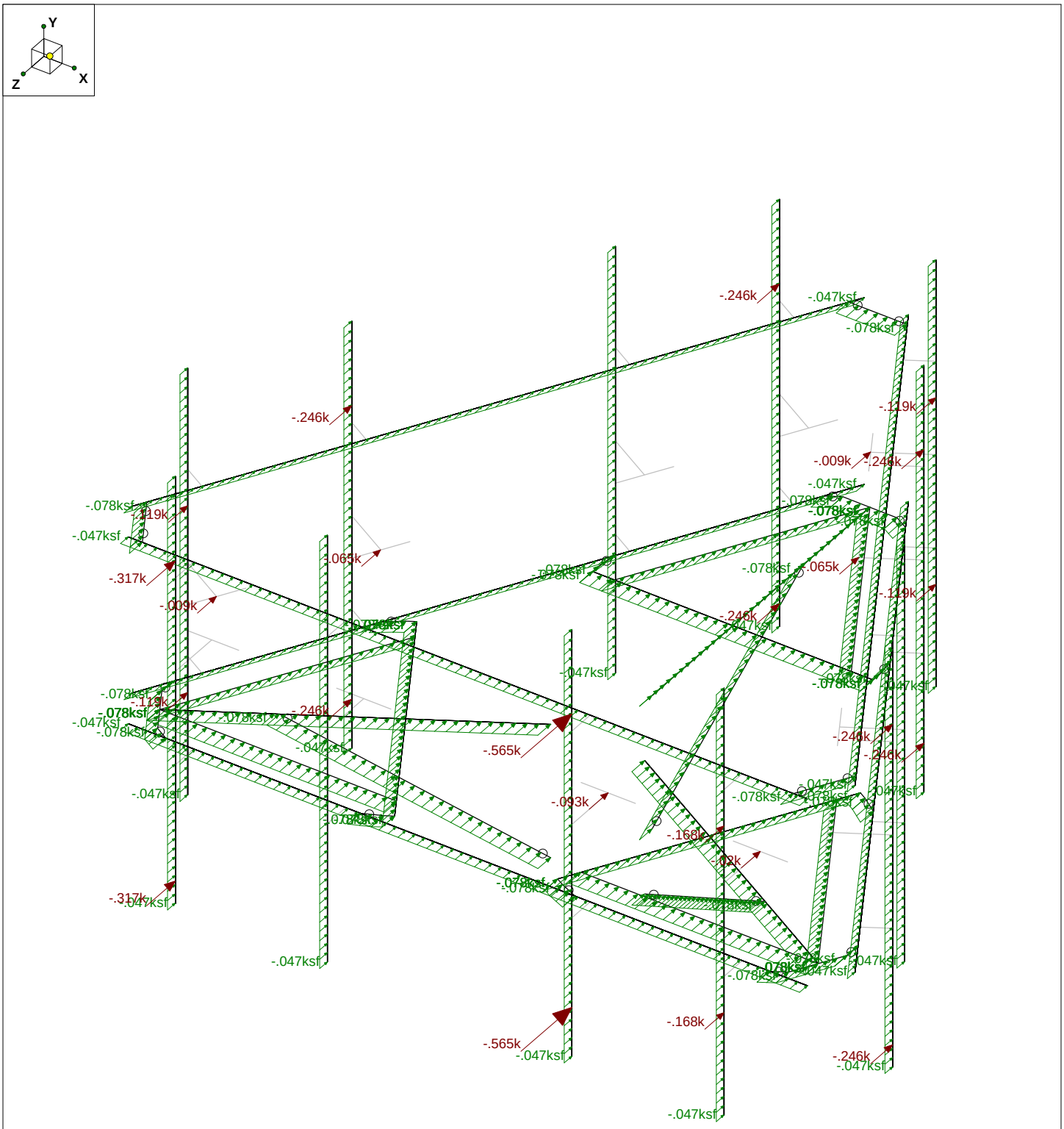

Loads: BLC 5, Woz
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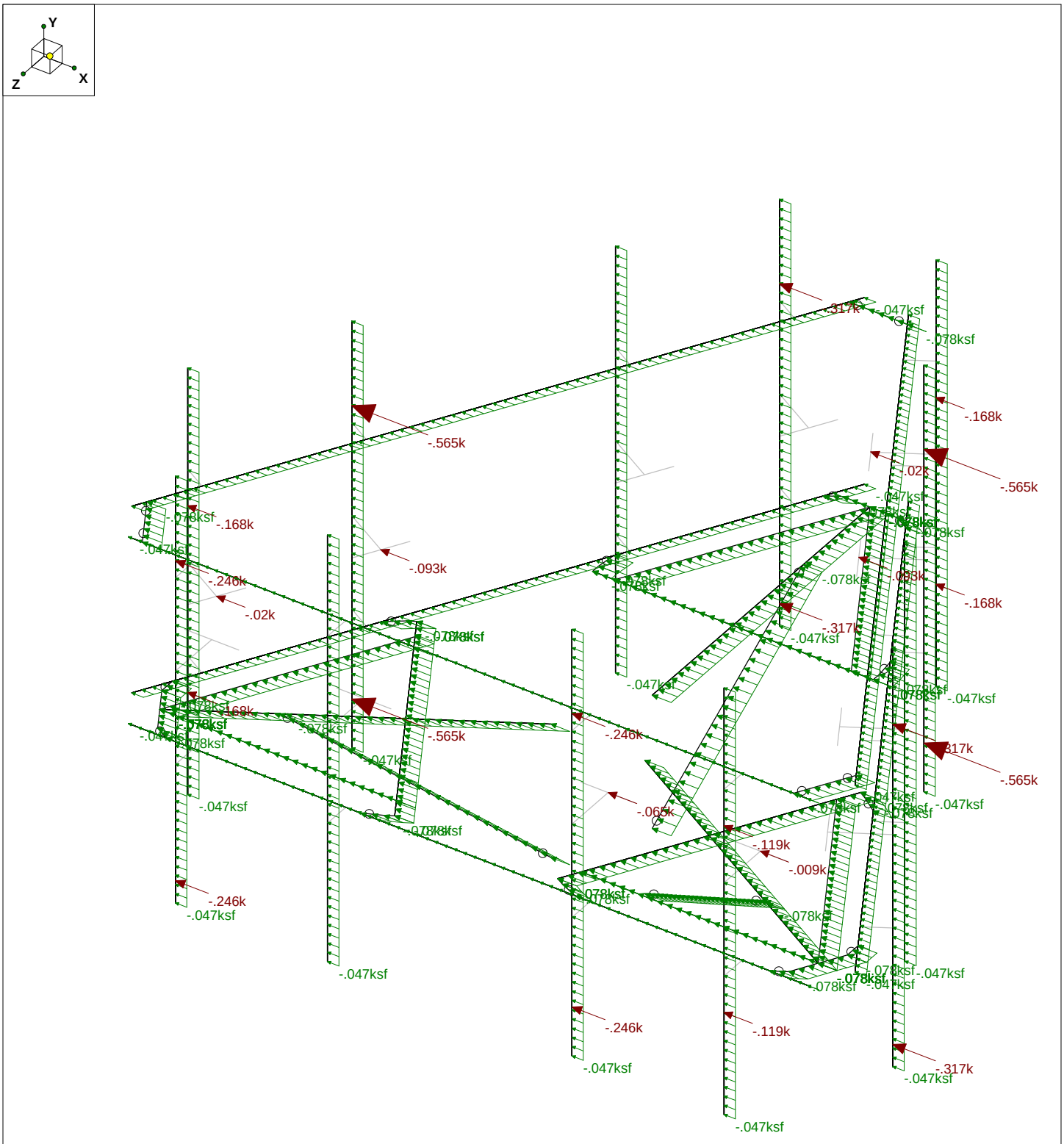

Loads: BLC 6, Wox
Envelope Only Solution

GeoStructural, LLC	CTNL071B	SK - 10
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Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(...
1	D	DL		-1		25		9		
2	Di	SL				25		63		
3	Lm [500]	LL				1				
4	Lv [250]	LL				2				
5	Woz	WL				25		60		
6	Wox	WL				25		60		
7	Wiz	WL				25		60		
8	Wix	WL				25		60		
9	Ez	EL				25				
10	Ex	EL				25				

Load Combination Design

	Description	ASIF	CD	Service	Hot Rol...	Cold Form...	Wood	Concrete	Masonry	Aluminum	Stainless	Connection
1	1) 1.4D				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2	2) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3	2) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4	2) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5	2) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
6	2) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
7	2) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
8	2) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
9	2) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
10	2) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
11	2) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
12	2) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
13	2) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
14	3) 0.9D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
15	3) 0.9D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
16	3) 0.9D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
17	3) 0.9D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
18	3) 0.9D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
19	3) 0.9D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
20	3) 0.9D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
21	3) 0.9D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
22	3) 0.9D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
23	3) 0.9D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
24	3) 0.9D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
25	3) 0.9D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
26	4) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
27	4) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
28	4) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
29	4) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
30	4) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
31	4) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
32	4) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
33	4) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
34	4) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
35	4) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
36	4) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
37	4) 1.2D+1.0...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
38	5) 1.2D+1.5L...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
39	5) 1.2D+1.5L...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
40	5) 1.2D+1.5L...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
41	5) 1.2D+1.5L...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Load Combination Design (Continued)

	Description	ASIF	CD	Service	Hot Rol...	Cold Form...	Wood	Concrete	Masonry	Aluminum	Stainless	Connection
42	5) 1.2D+1.5L...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
43	5) 1.2D+1.5L...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
44	5) 1.2D+1.5L...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
45	5) 1.2D+1.5L...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
46	5) 1.2D+1.5L...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
47	5) 1.2D+1.5L...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
48	5) 1.2D+1.5L...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
49	5) 1.2D+1.5L...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
50	6) 1.2D+1.5Lv				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
51	7) (1.2+0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
52	7) (1.2+0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
53	7) (1.2+0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
54	7) (1.2+0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
55	7) (1.2+0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
56	7) (1.2+0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
57	7) (1.2+0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
58	7) (1.2+0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
59	7) (1.2+0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
60	7) (1.2+0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
61	7) (1.2+0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
62	7) (1.2+0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
63	8) (0.9-0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
64	8) (0.9-0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
65	8) (0.9-0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
66	8) (0.9-0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
67	8) (0.9-0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
68	8) (0.9-0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
69	8) (0.9-0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
70	8) (0.9-0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
71	8) (0.9-0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
72	8) (0.9-0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
73	8) (0.9-0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
74	8) (0.9-0.2Sd...				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
75	Dead Only				Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1...	Density[k/ft^3]	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
3	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.49	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.49	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A500 Gr.B RND_1	29000	11154	.3	.65	.527	42	1.4	58	1.3
8	A500 Gr.B Rect_1	29000	11154	.3	.65	.527	46	1.4	58	1.3
9	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3
10	A500 Gr.42	29000	11154	.3	.65	.49	42	1.3	58	1.1
11	A500 Gr.46	29000	11154	.3	.65	.49	46	1.2	58	1.1
12	Q235	29000	11154	.3	.65	.49	34	1.5	58	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	PIPE_1.5	PIPE_1.5	Beam	None	A53 Gr.B	Typical	.749	.293	.293	.586
2	PIPE_2.0	PIPE_2.0	Beam	None	A53 Gr.B	Typical	1.02	.627	.627	1.25
3	PIPE_2.5	PIPE_2.5	Beam	None	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
4	PIPE_3.0	PIPE_3.0	Beam	None	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
5	PIPE_3.5	PIPE_3.5	Beam	None	A53 Gr.B	Typical	2.5	4.52	4.52	9.04
6	PIPE_4.0	PIPE_4.0	Beam	None	A53 Gr.B	Typical	2.96	6.82	6.82	13.6
7	PIPE_2.0X	PIPE_2.0X	Beam	None	A53 Gr.B	Typical	1.4	.827	.827	1.65
8	HSS2x2x3	HSS2x2x3	Beam	None	A500 Gr.B Rect	Typical	1.19	.641	.641	1.09
9	HSS3x3x3	HSS3x3x3	Beam	None	A500 Gr.B Rect	Typical	1.89	2.46	2.46	4.03
10	HSS4x4x3	HSS4x4x3	Beam	None	A500 Gr.B Rect	Typical	2.58	6.21	6.21	10
11	HSS4x4x4	HSS4x4x4	Beam	None	A500 Gr.B Rect	Typical	3.37	7.8	7.8	12.8
12	HSS5x5x4	HSS5x5x4	Beam	None	A500 Gr.B Rect	Typical	4.3	16	16	25.8
13	C3x3.5	C3x3.5	Beam	None	A36 Gr.36	Typical	1.09	.169	1.57	.023
14	C4x4.5	C4X4.5_HRA	Beam	None	A36 Gr.36	Typical	1.38	.289	3.65	.032
15	C5x6.7	C5x6.7	Beam	None	A36 Gr.36	Typical	1.97	.47	7.48	.055
16	L2.5x2.5x3	L2.5x2.5x3	Beam	None	A36 Gr.36	Typical	.901	.535	.535	.011
17	L2.5x2.5x4	L2.5x2.5x4	Beam	None	A36 Gr.36	Typical	1.19	.692	.692	.026
18	L3x3x3	L3x3x3	Beam	None	A36 Gr.36	Typical	1.09	.948	.948	.014
19	L3x3x4	L3x3x4	Beam	None	A36 Gr.36	Typical	1.44	1.23	1.23	.031
20	L3x3x6	L3x3x6	Beam	None	A36 Gr.36	Typical	2.11	1.75	1.75	.101
21	L3.5x3.5x4	L3.5x3.5x4	Beam	None	A36 Gr.36	Typical	1.7	2	2	.039
22	L4x4x4	L4x4x4	Beam	None	A36 Gr.36	Typical	1.93	3	3	.044
23	LL2.5x2.5x3x3	LL2.5x2.5x3x3	Beam	None	A36 Gr.36	Typical	1.8	2.46	1.07	.023

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	N15	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N16						
3	N110	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
4	N111	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
5	N112						
6	N113	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
7	N114	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
8	N115						
9	N116	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N3	N1		90	3/8x6_HRA	Beam	None	Q235	Typical_APP
2	M2	N1	N14		90	3/8x6_HRA	Beam	None	Q235	Typical_APP
3	M3	N4	N2		90	3/8x6_HRA	Beam	None	Q235	Typical_APP
4	M4	N2	N11		90	3/8x6_HRA	Beam	None	Q235	Typical_APP
5	M5	N4	N3			HSS4x4x4	Beam	None	Q235	Typical_APP
6	M6	N16	N15			LL2.5x2.5x3x3	Beam	None	A36 Gr.36	Typical
7	M7	N17	N18			PIPE_2.0	Beam	None	A53 Gr.B	Typical
8	M8	N27	N25		90	1/2 x 6	Beam	None	Q235	Typical_APP
9	M9	N27	N26		90	1/2 x 6	Beam	None	Q235	Typical_APP
10	M10	N23	N21		90	3/8x6_HRA	Beam	None	Q235	Typical_APP
11	M11	N21	N34		90	3/8x6_HRA	Beam	None	Q235	Typical_APP
12	M12	N24	N22		90	3/8x6_HRA	Beam	None	Q235	Typical_APP
13	M13	N22	N31		90	3/8x6_HRA	Beam	None	Q235	Typical_APP
14	M14	N27	N29			L2x2x4	Beam	None	Q235	Typical_APP
15	M15	N27	N28		270	L2x2x4	Beam	None	Q235	Typical_APP
16	M16	N25	N33		90	1/2 x 6	Beam	None	Q235	Typical_APP

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
17	M17	N26	N32		90	1/2 x 6	Beam	None	Q235	Typical_APP
18	M18	N24	N23			HSS4x4x4	Beam	None	Q235	Typical_APP
19	M19	N39	N37		90	3/8x6_HRA	Beam	None	Q235	Typical_APP
20	M20	N37	N49		90	3/8x6_HRA	Beam	None	Q235	Typical_APP
21	M21	N40	N38		90	3/8x6_HRA	Beam	None	Q235	Typical_APP
22	M22	N38	N46		90	3/8x6_HRA	Beam	None	Q235	Typical_APP
23	M23	N40	N39			HSS4x4x4	Beam	None	Q235	Typical_APP
24	M24	N50	N51		180	L2.5x2.5x3	Beam	None	A36 Gr.36	Typical
25	M25	N52	N53			PIPE_2.0	Beam	None	A53 Gr.B	Typical
26	M26	N54	N55			PIPE_2.0	Beam	None	A53 Gr.B	Typical
27	M27	N56	N57			PIPE_3.0	Beam	None	A53 Gr.B	Typical
28	M28	N58	N59			PIPE_3.0	Beam	None	A53 Gr.B	Typical
29	M29	N60	N61			PIPE_3.0	Beam	None	A53 Gr.B	Typical
30	M30	N62	N63			RIGID	None	None	RIGID	Typical
31	M31	N65	N64			PIPE_2.5	Beam	None	A53 Gr.B	Typical
32	M32	N66	N67			RIGID	None	None	RIGID	Typical
33	M33	N69	N41		90	1/2 x 6	Beam	None	Q235	Typical_APP
34	M34	N69	N42		90	1/2 x 6	Beam	None	Q235	Typical_APP
35	M35	N41	N48		90	1/2 x 6	Beam	None	Q235	Typical_APP
36	M36	N42	N47		90	1/2 x 6	Beam	None	Q235	Typical_APP
37	M37	N7	N5		90	1/2 x 6	Beam	None	Q235	Typical_APP
38	M38	N7	N6		90	1/2 x 6	Beam	None	Q235	Typical_APP
39	M39	N5	N13		90	1/2 x 6	Beam	None	Q235	Typical_APP
40	M40	N6	N12		90	1/2 x 6	Beam	None	Q235	Typical_APP
41	M41	N69	N44			L2x2x4	Beam	None	Q235	Typical_APP
42	M42	N69	N43		270	L2x2x4	Beam	None	Q235	Typical_APP
43	M43	N7	N8			L2x2x4	Beam	None	Q235	Typical_APP
44	M44	N7	N110			HSS4x4x4	Beam	None	Q235	Typical_APP
45	M45	N19	N20		180	L2.5x2.5x3	Beam	None	A36 Gr.36	Typical
46	M46	N35	N36		180	L2.5x2.5x3	Beam	None	A36 Gr.36	Typical
47	M47	N70	N71			RIGID	None	None	RIGID	Typical
48	M48	N73	N72			RIGID	None	None	RIGID	Typical
49	M49	N75	N76			RIGID	None	None	RIGID	Typical
50	M50	N78	N77			PIPE_2.5	Beam	None	A53 Gr.B	Typical
51	M51	N79	N80			RIGID	None	None	RIGID	Typical
52	M52	N82	N83			RIGID	None	None	RIGID	Typical
53	M53	N85	N84			RIGID	None	None	RIGID	Typical
54	M54	N87	N88			RIGID	None	None	RIGID	Typical
55	M55	N90	N89			PIPE_2.5	Beam	None	A53 Gr.B	Typical
56	M56	N91	N92			RIGID	None	None	RIGID	Typical
57	M57	N93	N94			RIGID	None	None	RIGID	Typical
58	M58	N96	N95			RIGID	None	None	RIGID	Typical
59	M59	N97	N98			RIGID	None	None	RIGID	Typical
60	M60	N100	N99			PIPE_2.5	Beam	None	A53 Gr.B	Typical
61	M61	N101	N102			RIGID	None	None	RIGID	Typical
62	M62	N104	N105			RIGID	None	None	RIGID	Typical
63	M63	N107	N106			RIGID	None	None	RIGID	Typical
64	M64	N7	N109		270	L2x2x4	Beam	None	Q235	Typical_APP
65	M65	N112	N111			LL2.5x2.5x3x3	Beam	None	A36 Gr.36	Typical
66	M66	N27	N113			HSS4x4x4	Beam	None	Q235	Typical_APP
67	M67	N115	N114			LL2.5x2.5x3x3	Beam	None	A36 Gr.36	Typical
68	M68	N69	N116			HSS4x4x4	Beam	None	Q235	Typical_APP
69	M69	N117	N118			RIGID	None	None	RIGID	Typical
70	M70	N120	N119			PIPE_2.5	Beam	None	A53 Gr.B	Typical
71	M71	N121	N122			RIGID	None	None	RIGID	Typical
72	M72	N124	N125			RIGID	None	None	RIGID	Typical
73	M73	N127	N126			RIGID	None	None	RIGID	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
74	M74	N129	N130			RIGID	None	None	RIGID	Typical
75	M75	N132	N131			PIPE_2.5	Beam	None	A53 Gr.B	Typical
76	M76	N133	N134			RIGID	None	None	RIGID	Typical
77	M77	N136	N137			RIGID	None	None	RIGID	Typical
78	M78	N139	N138			RIGID	None	None	RIGID	Typical
79	M79	N141	N142			RIGID	None	None	RIGID	Typical
80	M80	N144	N143			PIPE_2.5	Beam	None	A53 Gr.B	Typical
81	M81	N145	N146			RIGID	None	None	RIGID	Typical
82	M82	N147	N148			RIGID	None	None	RIGID	Typical
83	M83	N150	N149			RIGID	None	None	RIGID	Typical
84	M84	N151	N152			RIGID	None	None	RIGID	Typical
85	M85	N154	N153			PIPE_2.5	Beam	None	A53 Gr.B	Typical
86	M86	N155	N156			RIGID	None	None	RIGID	Typical
87	M87	N158	N159			RIGID	None	None	RIGID	Typical
88	M88	N161	N160			RIGID	None	None	RIGID	Typical
89	M89	N163	N164			RIGID	None	None	RIGID	Typical
90	M90	N166	N165			PIPE_2.5	Beam	None	A53 Gr.B	Typical
91	M91	N167	N168			RIGID	None	None	RIGID	Typical
92	M92	N170	N171			RIGID	None	None	RIGID	Typical
93	M93	N173	N172			RIGID	None	None	RIGID	Typical
94	M94	N175	N176			RIGID	None	None	RIGID	Typical
95	M95	N178	N177			PIPE_2.5	Beam	None	A53 Gr.B	Typical
96	M96	N179	N180			RIGID	None	None	RIGID	Typical
97	M97	N182	N183			RIGID	None	None	RIGID	Typical
98	M98	N185	N184			RIGID	None	None	RIGID	Typical
99	M99	N187	N188			RIGID	None	None	RIGID	Typical
100	M100	N190	N189			PIPE_2.5	Beam	None	A53 Gr.B	Typical
101	M101	N191	N192			RIGID	None	None	RIGID	Typical
102	M102	N193	N194			RIGID	None	None	RIGID	Typical
103	M103	N196	N195			RIGID	None	None	RIGID	Typical
104	M104	N197	N198			RIGID	None	None	RIGID	Typical
105	M105	N200	N199			PIPE_2.5	Beam	None	A53 Gr.B	Typical
106	M106	N201	N202			RIGID	None	None	RIGID	Typical
107	M107	N204	N205			RIGID	None	None	RIGID	Typical
108	M108	N207	N206			RIGID	None	None	RIGID	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
1	M1						Yes				None
2	M2		BenPIN				Yes				None
3	M3						Yes				None
4	M4		BenPIN				Yes				None
5	M5						Yes				None
6	M6	BenPIN	BenPIN				Yes				None
7	M7						Yes				None
8	M8						Yes				None
9	M9						Yes				None
10	M10						Yes				None
11	M11		BenPIN				Yes				None
12	M12						Yes				None
13	M13		BenPIN				Yes				None
14	M14						Yes				None
15	M15						Yes				None
16	M16		BenPIN				Yes				None
17	M17		BenPIN				Yes				None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
18	M18						Yes				None
19	M19						Yes				None
20	M20		BenPIN				Yes				None
21	M21						Yes				None
22	M22		BenPIN				Yes				None
23	M23						Yes				None
24	M24	BenPIN	OOOOXX				Yes	Default			None
25	M25						Yes				None
26	M26						Yes				None
27	M27						Yes				None
28	M28						Yes				None
29	M29						Yes				None
30	M30						Yes	** NA **			None
31	M31						Yes				None
32	M32						Yes	** NA **			None
33	M33						Yes				None
34	M34						Yes				None
35	M35		BenPIN				Yes				None
36	M36		BenPIN				Yes				None
37	M37						Yes				None
38	M38						Yes				None
39	M39		BenPIN				Yes				None
40	M40		BenPIN				Yes				None
41	M41						Yes				None
42	M42						Yes				None
43	M43						Yes				None
44	M44						Yes				None
45	M45	BenPIN	OOOOXX				Yes				None
46	M46	BenPIN	OOOOXX				Yes				None
47	M47						Yes	** NA **			None
48	M48						Yes	** NA **			None
49	M49						Yes	** NA **			None
50	M50						Yes				None
51	M51						Yes	** NA **			None
52	M52						Yes	** NA **			None
53	M53						Yes	** NA **			None
54	M54						Yes	** NA **			None
55	M55						Yes				None
56	M56						Yes	** NA **			None
57	M57						Yes	** NA **			None
58	M58						Yes	** NA **			None
59	M59						Yes	** NA **			None
60	M60						Yes				None
61	M61						Yes	** NA **			None
62	M62						Yes	** NA **			None
63	M63						Yes	** NA **			None
64	M64						Yes				None
65	M65	BenPIN	BenPIN				Yes				None
66	M66						Yes				None
67	M67	BenPIN	BenPIN				Yes				None
68	M68						Yes				None
69	M69						Yes	** NA **			None
70	M70						Yes				None
71	M71						Yes	** NA **			None
72	M72						Yes	** NA **			None
73	M73						Yes	** NA **			None
74	M74						Yes	** NA **			None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
75	M75						Yes				None
76	M76						Yes	** NA **			None
77	M77						Yes	** NA **			None
78	M78						Yes	** NA **			None
79	M79						Yes	** NA **			None
80	M80						Yes				None
81	M81						Yes	** NA **			None
82	M82						Yes	** NA **			None
83	M83						Yes	** NA **			None
84	M84						Yes	** NA **			None
85	M85						Yes				None
86	M86						Yes	** NA **			None
87	M87						Yes	** NA **			None
88	M88						Yes	** NA **			None
89	M89						Yes	** NA **			None
90	M90						Yes				None
91	M91						Yes	** NA **			None
92	M92						Yes	** NA **			None
93	M93						Yes	** NA **			None
94	M94						Yes	** NA **			None
95	M95						Yes				None
96	M96						Yes	** NA **			None
97	M97						Yes	** NA **			None
98	M98						Yes	** NA **			None
99	M99						Yes	** NA **			None
100	M100						Yes				None
101	M101						Yes	** NA **			None
102	M102						Yes	** NA **			None
103	M103						Yes	** NA **			None
104	M104						Yes	** NA **			None
105	M105						Yes				None
106	M106						Yes	** NA **			None
107	M107						Yes	** NA **			None
108	M108						Yes	** NA **			None

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torqu...	Kyy	Kzz	Cb	Function
1	M1	3/8x6_HRA	.167			Lbyy						Lateral
2	M2	3/8x6_HRA	.364			Lbyy						Lateral
3	M3	3/8x6_HRA	.167			Lbyy						Lateral
4	M4	3/8x6_HRA	.364			Lbyy						Lateral
5	M5	HSS4x4x4	5.167			Lbyy						Lateral
6	M6	LL2.5x2.5x3...	4.853			Lbyy						Lateral
7	M7	PIPE_2.0	12.5			Lbyy						Lateral
8	M8	1/2 x 6	.5			Lbyy						Lateral
9	M9	1/2 x 6	.5			Lbyy						Lateral
10	M10	3/8x6_HRA	.167			Lbyy						Lateral
11	M11	3/8x6_HRA	.364			Lbyy						Lateral
12	M12	3/8x6_HRA	.167			Lbyy						Lateral
13	M13	3/8x6_HRA	.364			Lbyy						Lateral
14	M14	L2x2x4	4.359			Lbyy						Lateral
15	M15	L2x2x4	4.359			Lbyy						Lateral
16	M16	1/2 x 6	.289			Lbyy						Lateral
17	M17	1/2 x 6	.289			Lbyy						Lateral
18	M18	HSS4x4x4	5.167			Lbyy						Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torqu...	Kyy	Kzz	Cb	Function
19	M19	3/8x6_HRA	.167			Lbyy						Lateral
20	M20	3/8x6_HRA	.364			Lbyy						Lateral
21	M21	3/8x6_HRA	.167			Lbyy						Lateral
22	M22	3/8x6_HRA	.364			Lbyy						Lateral
23	M23	HSS4x4x4	5.167			Lbyy						Lateral
24	M24	L2.5x2.5x3	1.07			Lbyy						Lateral
25	M25	PIPE_2.0	12.5			Lbyy						Lateral
26	M26	PIPE_2.0	12.5			Lbyy						Lateral
27	M27	PIPE_3.0	12.5	4	4	Lbyy						Lateral
28	M28	PIPE_3.0	12.5	4	4	Lbyy						Lateral
29	M29	PIPE_3.0	12.5	4	4	Lbyy						Lateral
30	M31	PIPE_2.5	8			Lbyy						Lateral
31	M33	1/2 x 6	.5			Lbyy						Lateral
32	M34	1/2 x 6	.5			Lbyy						Lateral
33	M35	1/2 x 6	.289			Lbyy						Lateral
34	M36	1/2 x 6	.289			Lbyy						Lateral
35	M37	1/2 x 6	.5			Lbyy						Lateral
36	M38	1/2 x 6	.5			Lbyy						Lateral
37	M39	1/2 x 6	.289			Lbyy						Lateral
38	M40	1/2 x 6	.289			Lbyy						Lateral
39	M41	L2x2x4	4.359			Lbyy						Lateral
40	M42	L2x2x4	4.359			Lbyy						Lateral
41	M43	L2x2x4	4.359			Lbyy						Lateral
42	M44	HSS4x4x4	5.998			Lbyy						Lateral
43	M45	L2.5x2.5x3	1.07			Lbyy						Lateral
44	M46	L2.5x2.5x3	1.07			Lbyy						Lateral
45	M50	PIPE_2.5	8			Lbyy						Lateral
46	M55	PIPE_2.5	8			Lbyy						Lateral
47	M60	PIPE_2.5	8			Lbyy						Lateral
48	M64	L2x2x4	4.359			Lbyy						Lateral
49	M65	LL2.5x2.5x3...	4.853			Lbyy						Lateral
50	M66	HSS4x4x4	5.998			Lbyy						Lateral
51	M67	LL2.5x2.5x3...	4.853			Lbyy						Lateral
52	M68	HSS4x4x4	5.998			Lbyy						Lateral
53	M70	PIPE_2.5	8			Lbyy						Lateral
54	M75	PIPE_2.5	8			Lbyy						Lateral
55	M80	PIPE_2.5	8			Lbyy						Lateral
56	M85	PIPE_2.5	8			Lbyy						Lateral
57	M90	PIPE_2.5	8			Lbyy						Lateral
58	M95	PIPE_2.5	8			Lbyy						Lateral
59	M100	PIPE_2.5	8			Lbyy						Lateral
60	M105	PIPE_2.5	8			Lbyy						Lateral

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N15	max	.037	17	2.904	26	.119	20	0	74	0	18	0	12
2		min	-.037	23	-.083	20	-4.709	26	0	1	0	12	0	18
3	N110	max	1.755	5	.389	8	6.621	2	.626	32	3.14	23	.588	11
4		min	-1.765	11	-.097	14	-3.466	20	.032	14	-3.139	17	-.439	17
5	N111	max	.224	24	2.915	30	2.364	30	0	4	0	22	0	22
6		min	-4.092	30	-.175	24	-.129	24	0	22	0	4	0	4
7	N113	max	6.801	6	.421	12	2.422	25	.393	16	1.087	25	.072	20
8		min	-4.075	24	-.129	18	-4.001	7	-.511	10	-1.086	7	-.679	26
9	N114	max	4.093	34	2.916	34	2.364	34	0	24	0	24	0	24
10		min	-.234	16	-.182	16	-.135	16	0	6	0	6	0	6

Envelope Joint Reactions (Continued)

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
11	N116	max	3.789	16	.43	4	2.882	15	.276	25	1.885	21	.477	2
12		min	-6.501	10	-.137	22	-4.479	9	-.641	7	-1.886	3	-.139	44
13	Totals:	max	8.57	17	9.179	32	7.756	2						
14		min	-8.57	11	2.82	63	-7.756	20						

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

	Member	Shape	Code ...	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y...	phi*Mn z...	Cb	Eqn
1	M24	L2.5x2.5x3	.639	1.07	13	.142	1.07	y	13	27.66	29.192	.873	1.972	1....	H2-1
2	M45	L2.5x2.5x3	.633	1.07	5	.146	1.07	y	5	27.66	29.192	.873	1.972	1....	H2-1
3	M46	L2.5x2.5x3	.619	1.07	9	.137	1.07	y	9	27.66	29.192	.873	1.972	1	H2-1
4	M7	PIPE_2.0	.411	1.172	9	.241	1.172		9	6.295	32.13	1.872	1.872	3....	H1-1b
5	M26	PIPE_2.0	.409	1.172	5	.245	1.172		5	6.295	32.13	1.872	1.872	3....	H1-1b
6	M25	PIPE_2.0	.404	1.172	13	.246	1.172		13	6.295	32.13	1.872	1.872	4....	H1-1b
7	M3	3/8x6_HRA	.376	0	11	.357	0	y	6	67.691	68.85	8.606	.538	1....	H1-1b
8	M90	PIPE_2.5	.362	2.667	11	.109	4.416		5	30.04	50.715	3.596	3.596	1....	H1-1b
9	M31	PIPE_2.5	.347	2.667	2	.097	4.416		9	30.04	50.715	3.596	3.596	2....	H1-1b
10	M70	PIPE_2.5	.343	2.667	5	.080	2.667		12	30.04	50.715	3.596	3.596	1....	H1-1b
11	M14	L2x2x4	.332	4.359	5	.011	0	y	34	11.646	28.886	.653	1.489	2....	H2-1
12	M41	L2x2x4	.331	4.359	9	.011	0	y	26	11.646	28.886	.653	1.489	2....	H2-1
13	M15	L2x2x4	.325	0	6	.013	0	z	28	11.646	28.886	.653	1.489	2....	H2-1
14	M42	L2x2x4	.312	0	10	.013	0	z	31	11.646	28.886	.653	1.489	2....	H2-1
15	M44	HSS4x4x4	.296	5.998	11	.120	5.998	z	11	92.262	103.122	11.96	11.96	2....	H1-1b
16	M4	3/8x6_HRA	.283	0	11	.341	0	y	6	63.5	68.85	8.606	.538	1....	H1-1b
17	M64	L2x2x4	.275	0	3	.013	0	z	35	11.646	28.886	.653	1.489	2....	H2-1
18	M21	3/8x6_HRA	.268	0	9	.344	0	y	2	67.691	68.85	8.606	.538	1....	H1-1b
19	M43	L2x2x4	.261	4.359	13	.011	0	y	30	11.646	28.886	.653	1.489	2....	H2-1
20	M19	3/8x6_HRA	.255	0	4	.353	.167	y	6	67.691	68.85	8.606	.538	1....	H1-1b
21	M100	PIPE_2.5	.240	2.667	12	.071	2.667		4	30.04	50.715	3.596	3.596	2....	H1-1b
22	M22	3/8x6_HRA	.235	0	9	.329	0	y	2	63.5	68.85	8.606	.538	1....	H1-1b
23	M80	PIPE_2.5	.235	2.667	4	.089	2.667		11	30.04	50.715	3.596	3.596	2....	H1-1b
24	M85	PIPE_2.5	.230	2.667	9	.142	2.667		11	30.04	50.715	3.596	3.596	2....	H1-1b
25	M95	PIPE_2.5	.224	2.667	6	.174	6.083		5	30.04	50.715	3.596	3.596	2....	H1-1b
26	M105	PIPE_2.5	.224	2.667	12	.135	2.667		4	30.04	50.715	3.596	3.596	1....	H1-1b
27	M1	3/8x6_HRA	.219	0	6	.358	.167	y	10	67.691	68.85	8.606	.538	1....	H1-1b
28	M68	HSS4x4x4	.214	5.998	3	.102	5.998	z	7	92.262	103.122	11.96	11.96	1....	H1-1b
29	M55	PIPE_2.5	.212	2.667	11	.087	2.667		7	30.04	50.715	3.596	3.596	2....	H1-1b
30	M75	PIPE_2.5	.211	2.667	3	.145	6.083		12	30.04	50.715	3.596	3.596	2....	H1-1b
31	M60	PIPE_2.5	.210	2.667	5	.144	2.667		8	30.04	50.715	3.596	3.596	1....	H1-1b
32	M33	1/2 x 6	.203	0	10	.195	.5	y	7	84.3	91.8	11.475	.956	1....	H1-1b
33	M50	PIPE_2.5	.200	2.667	11	.172	6.083		9	30.04	50.715	3.596	3.596	2....	H1-1b
34	M66	HSS4x4x4	.200	1.874	6	.095	5.998	z	3	92.262	103.122	11.96	11.96	1....	H1-1b
35	M18	HSS4x4x4	.188	2.583	29	.097	.377	z	5	94.949	103.122	11.96	11.96	1....	H1-1b
36	M23	HSS4x4x4	.186	2.583	35	.096	.377	z	9	94.949	103.122	11.96	11.96	1....	H1-1b
37	M5	HSS4x4x4	.183	2.583	37	.079	.377	z	13	94.949	103.122	11.96	11.96	1....	H1-1b
38	M38	1/2 x 6	.181	0	10	.272	0	y	5	84.3	91.8	11.475	.956	1....	H1-1b
39	M2	3/8x6_HRA	.163	0	5	.365	0	y	4	63.5	68.85	8.606	.538	1....	H1-1b
40	M27	PIPE_3.0	.151	4.297	6	.106	3.906		7	59.853	65.205	5.749	5.749	2....	H1-1b
41	M9	1/2 x 6	.146	0	6	.228	.5	y	9	84.3	91.8	11.475	.956	1....	H1-1b
42	M28	PIPE_3.0	.145	4.297	10	.101	3.906		11	59.853	65.205	5.749	5.749	2....	H1-1b
43	M37	1/2 x 6	.144	0	13	.239	0	y	11	84.3	91.8	11.475	.956	1....	H1-1b
44	M20	3/8x6_HRA	.140	0	4	.345	.364	y	12	63.5	68.85	8.606	.538	1....	H1-1b
45	M29	PIPE_3.0	.133	4.167	13	.084	8.333		12	59.853	65.205	5.749	5.749	2....	H1-1b
46	M67	LL2.5x2.5x3x3	.130	4.853	34	.007	4.853	z	6	42.67	58.32	3.954	2.55	1....	H1-1b*
47	M65	LL2.5x2.5x3x3	.130	4.853	30	.008	0	z	4	42.67	58.32	3.954	2.55	1....	H1-1b*
48	M6	LL2.5x2.5x3x3	.130	4.853	26	.005	4.853	y	37	42.67	58.32	3.954	2.55	1	H1-1b*

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

	Member	Shape	Code ...	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y...	phi*Mn z...	Cb	Eqn
49	M8	1/2 x 6	.120	0	7	.195	0	y	3	84.3	91.8	11.475	.956	1....	H1-1b
50	M12	3/8x6_HRA	.107	.167	4	.353	.167	y	10	67.691	68.85	8.606	.538	1....	H1-1b
51	M13	3/8x6_HRA	.105	0	4	.328	0	y	10	63.5	68.85	8.606	.538	1....	H1-1b
52	M34	1/2 x 6	.093	0	7	.238	0	y	13	84.3	91.8	11.475	.956	1....	H1-1b
53	M10	3/8x6_HRA	.090	0	3	.347	.167	y	2	67.691	68.85	8.606	.538	1....	H1-1b
54	M11	3/8x6_HRA	.070	0	6	.339	0	y	8	63.5	68.85	8.606	.538	1....	H1-1b
55	M35	1/2 x 6	.066	0	6	.284	0	y	12	89.215	91.8	11.475	.956	1....	H1-1b
56	M16	1/2 x 6	.064	0	3	.271	0	y	9	89.215	91.8	11.475	.956	1....	H1-1b
57	M36	1/2 x 6	.053	0	11	.304	0	y	8	89.215	91.8	11.475	.956	1....	H1-1b
58	M17	1/2 x 6	.041	0	8	.314	0	y	4	89.215	91.8	11.475	.956	1....	H1-1b
59	M39	1/2 x 6	.040	0	11	.302	0	y	5	89.215	91.8	11.475	.956	1....	H1-1b
60	M40	1/2 x 6	.032	0	28	.316	0	y	12	89.215	91.8	11.475	.956	1....	H1-1b

Envelope Plate/Shell Principal Stresses

Plate	Surf...	Sigma1 [ksi]	LC	Sigma2 [ksi]	LC	Tau Max [ksi]	LC	Angle [rad]	LC	Von Mises [ksi]	LC
No Data to Print ...											