



STRUCTURAL ANALYSIS REPORT

Ericsson
(Sprint)

Longview Farm Tank
KC13XC327

November 9, 2018

SSC Inc.

7171 W 95th St, Suite 600, Overland Park, KS 66210

Ph: (913) 438-7700 Fax: (913) 438-7777

serve solve communicate

PROJECT DESCRIPTION

The structure is a 98' tall water tower with the appurtenances located on the catwalk of the water tower at an elevation of 60'. The objective of this project is to analyze the existing and water tower structure for the addition of the proposed Sprint loading configuration.

CODES/REFERENCES

2012 IBC / ASCE 7-10 / 2018 SSC Rev 0 drawings (MIMO Modification) / SSC structural report dated 01-05-18 / SSC Rev 0 drawings dated 03-04-14 (2.5 Modification) / Roy C. Smith structural report dated 10-12-11 / Fullerton Engineering Consultants structural report dated 04-09-14 / SSC site photos dated 12-21-17

ADDRESS

548 SW Tower Park Dr.
Lee's Summit, MO 64081

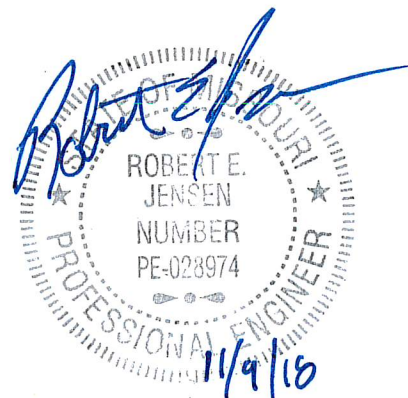
SUMMARY

The conclusion of the following structural analysis is that the Longview Farm Tank (KC13XC327) catwalk/mounts and water tower are adequate for the proposed Sprint final loading configuration for the antenna installation shown by the 2018 SSC Rev 0 drawings.

Appendix A will contain the following information:

Appendix A – RISA 3D Structural Analysis Report

- Frame w/ final Sprint loading configuration



GENERAL CONDITIONS

Please note that SSC makes no warranties, expressed or implied in connection with this report and disclaims any liability arising from original design, material, fabrication and erection deficiencies for this structure.

It is the responsibility of the Client to ensure that information provided by the Client to SSC and used in this analysis is correct. This information is assumed correct unless notified otherwise by the Client.

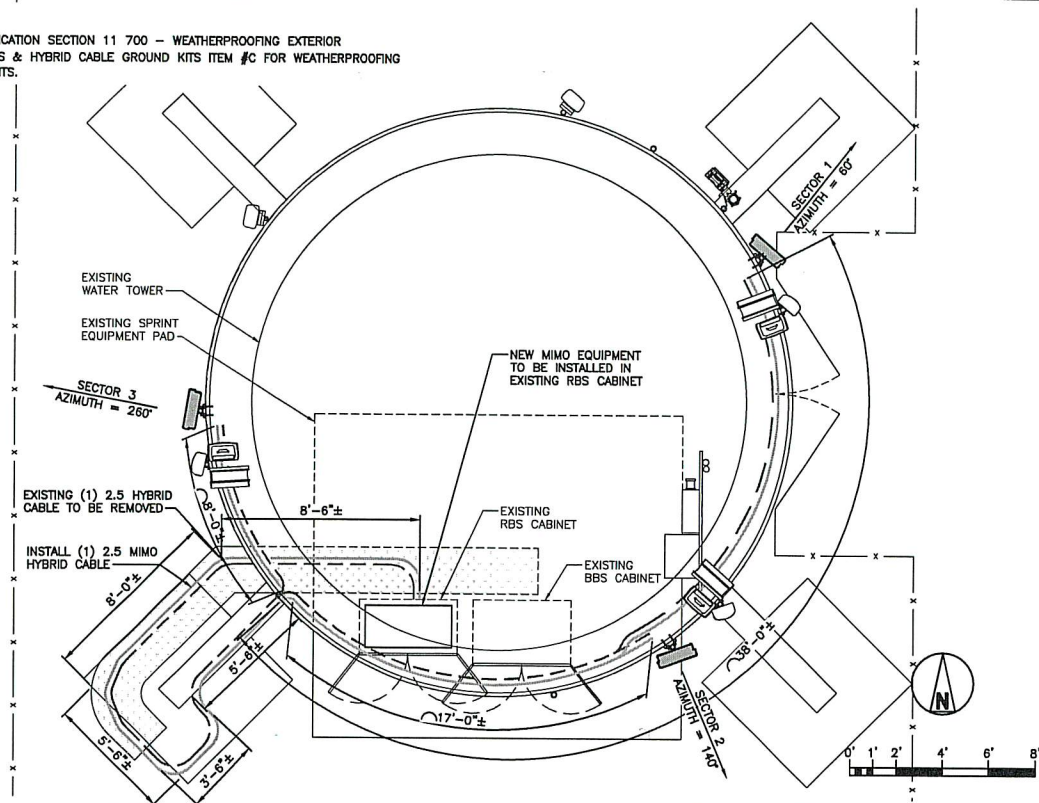
This analysis assumes the structure is in its original state with minimal deterioration. The recommendations, conclusions, and opinions contained in this report pertain only to the analysis of load carrying capacity of the members supporting the proposed installation.

This analysis assumes any suggested modifications are installed as recommended and is not intended to address temporary conditions of the structure as modifications are being performed. It is strongly recommended that the Installer of any modifications thoroughly assess installation procedures and how temporary conditions present at the site while modifications are being performed will influence the structure members. Installer is responsible for sequence of operation and any required temporary bracing or strengthening of structure during modification operations. SSC is not responsible for the conclusions, opinion, or recommendations made by others based on the information we supply.

STRUCTURAL LAYOUT

NOTICE:

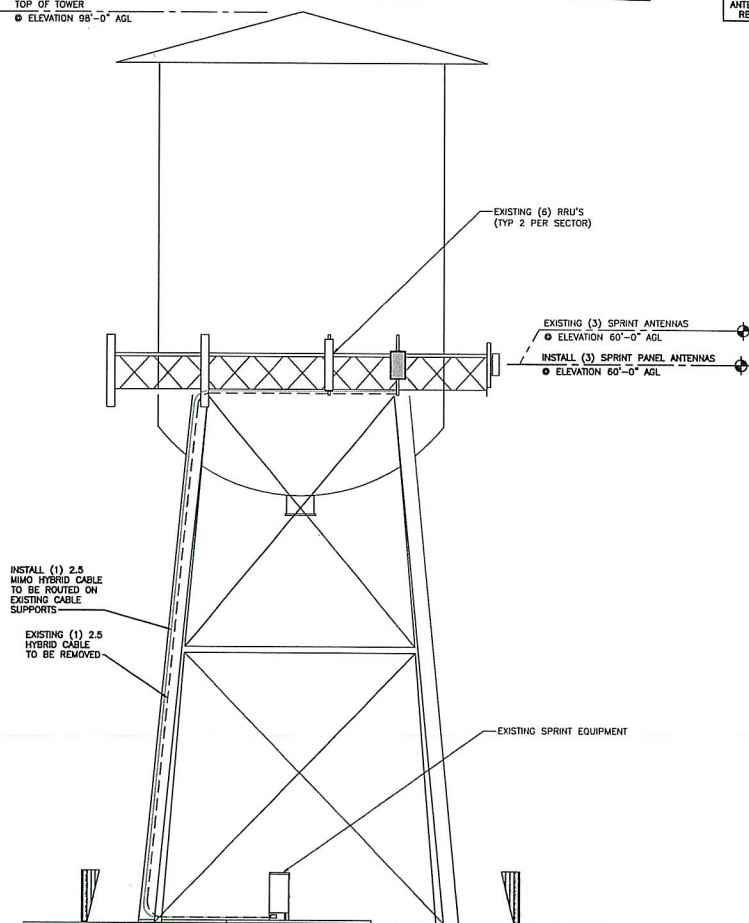
SEE SPECIFICATION SECTION 11 700 - WEATHERPROOFING EXTERIOR CONNECTORS & HYBRID CABLE GROUND KITS ITEM #C FOR WEATHERPROOFING REQUIREMENTS.



STRUCTURE INFORMATION IS SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. STRUCTURAL INTEGRITY OF SUPPORTING STRUCTURE, ANTENNA MOUNTS, AND FOUNDATION SHALL BE VERIFIED AS ACCEPTABLE BY ENGINEER CERTIFIED STRUCTURAL ANALYSIS, UTILIZING THE LOADING REPRESENTED WITHIN THESE DRAWINGS PRIOR TO THE EXECUTION OF EQUIPMENT CHANGES CONTAINED IN THESE DRAWINGS. CONTRACTOR SHALL OBTAIN ALL STRUCTURAL REPORTS AND FOLLOW ALL RECOMMENDATIONS.

TOP OF TOWER
ELEVATION 98'-0" AGL

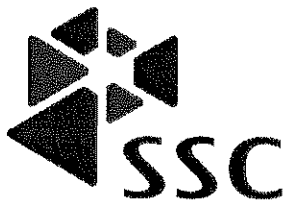
ANTENNAS SHALL BE PAINTED TO MATCH REQUIREMENTS OF THE JURISDICTION



TOWER ELEVATION

NO SCALE

3



CALCULATIONS AND SKETCHES

DATE

CONT. NO. KC13XC327

BY RED

CHK'D

SHEET NO. 1

MISC.

Longwood Farm Tank
Lees Summit, MO

Appurtenance Loading:

(3)(D) Ericsson Air 6448 (38.3" x 20.5" x 7.2", 133.15 #)
(3)(E) RES APXV-VERBIB-C (72.0" x 11.8" x 7.0", 55.0 #)
(1)(E) Unknown Carrier MW Dish (24" ϕ , 25 #)
(1)(E) Unknown Carrier MW Dish (36" ϕ , 53 #)
(3)(E) Unknown Carrier Panel (42" x 12", 50 #)
(1)(E) Fastback 1BR-1360-NA (10.2" x 7.9" x 3.5", 8.8 #)
(3)(E) Ericsson 212US 11 (19.7" x 17.0" x 8.0", 51.0 #)
(3)(E) Ericsson 212US 31 (16.5" x 11.8" x 8.0", 59.5 #)

Wind Load: ASCE 7-10 (Total Load per mount = antenna
+ associated Rod Count)

Sprint NV = $145.50 + 57.32 + 33.30 = 236.3 \#$ — pg 2A

Sprint MIMO = $124.52 \#$ —

Gravity Load:

Sprint NV = $55.0 + 51.0 + 59.5 \# = 165.5 \#$

Sprint 2.5 = $133.15 \#$

Note: Other carrier panels & MW not shown on SSC Rev A drawings. See FCC site visit photos for approximate locations of all unknown appurtenances. Existing MW will be on its own mount and will have no other associated appurtenances per SSC structural analysis dated 01/05/18.

**SELECTIVE SITE CONSULTANTS, INC.**

CALCULATIONS AND SKETCHES

PAGE:	2A
CLIENT	Ericsson
SITE #:	KC13XC327
BY:	KED

WIND FORCE CALCUALTIONS

Exposure Category	C	(Section 26.7.3)
Basic Wind Speed (V_{fm})	89.08 mph	(Figure 26.5-1A)
Height above grade (h)	61.0 ft	
Velocity Pressure Exposure Coefficients (K_z, K_h)	1.13	(ASCE Table 29.3-1)
Wind Directionality Factor (K_d)	0.90	(ASCE Table 26.6-1)
Topographic Factor (K_{zt})	1.00	(ASCE Section 26.8.2)
Gust Effect Factor (G)	0.85	(ASCE Section 26.9.1)
Force Coefficient (C_f)	1.40	(ASCE Figure 29.5-1)
Basic Velocity Pressure (q_z)	$q_z = 0.00256 * K_z * K_{zt} * K_d * V^2$	20.73 psf (ASCE Eq 29.3-1)

Wind Force (RFS APXV-VERR18-C)

Equipment Wind Area	5.90 ft ²	
Force	$F = q_z * G * C_f * A_f$	145.56 lbs (ASCE 29.5-1)

Wind Force (Ericsson RRUS 11)

Equipment Wind Area	2.33 ft ²	
Force	$F = q_z * G * C_f * A$	57.38 lbs (ASCE 29.5-1)

Wind Force (Ericsson RRUS 31)

Equipment Wind Area	1.35 ft ²	
Force	$F = q_z * G * C_f * A$	33.36 lbs (ASCE 29.5-1)

Wind Force (Ericsson Air 6468)

Equipment Wind Area	5.45 ft ²	
Force	$F = q_z * G * C_f * A$	134.52 lbs (ASCE 29.5-1)



SELECTIVE SITE CONSULTANTS, INC.

CALCULATIONS AND SKETCHES

DATE: 2B
CLIENT: Ericsson
SITE #: KC13XC327
BY: KED

WIND FORCE CALCUALTIONS

Exposure Category	C	(Section 26.7.3)
Basic Wind Speed (V_{fm})	89.08 mph	(Figure 26.5-1A)
Height above grade (h)	61.0 ft	
Velocity Pressure Exposure Coefficients (K_z, K_h)	1.13	(ASCE Table 29.3-1)
Wind Directionality Factor (K_d)	0.90	(ASCE Table 26.6-1)
Topographic Factor (K_{zt})	1.00	(ASCE Section 26.8.2)
Gust Effect Factor (G)	0.85	(ASCE Section 26.9.1)
Force Coefficient (C_f)	1.40	(ASCE Figure 29.5-1)
Basic Velocity Pressure (q_z)	$q_z = 0.00256 * K_z * K_{zt} * K_d * V^2$ 20.73 psf	(ASCE Eq 29.3-1)

Wind Force (3'-0" Dia. MW Dish)

Equipment Wind Area	7.07 ft ²	
Force	$F = q_z * G * C_f * A_f$ 174.40 lbs	(ASCE 29.5-1)

Wind Force (2'-0" Dia. MW Dish)

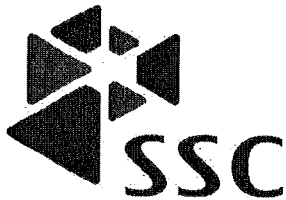
Equipment Wind Area	3.14 ft ²	
Force	$F = q_z * G * C_f * A$ 77.51 lbs	(ASCE 29.5-1)

Wind Force (3'-6" Panel)

Equipment Wind Area	3.50 ft ²	
Force	$F = q_z * G * C_f * A$ 86.35 lbs	(ASCE 29.5-1)

Wind Force (Fastback IBR-1300-NA)

Equipment Wind Area	0.56 ft ²	
Force	$F = q_z * G * C_f * A$ 13.81 lbs	(ASCE 29.5-1)

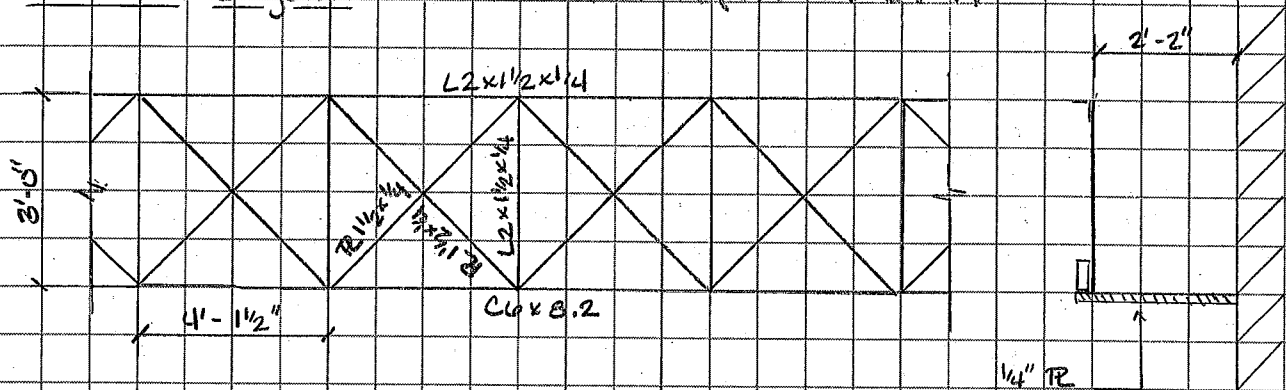


CALCULATIONS AND SKETCHES

DATE _____
 CONT. NO. KC13XC327
 BY KED CHK'D _____
 SHEET NO. 3
 MISC. _____

Longview Farm Tank
 Lees Summit, MO (cont.)

Catwalk Layout: Per Fullerton report 04-09-14



Catwalk Loading: ASCE 7-10

DL: Self wt (Rail & Deck R)

Maintenance wt. (Pg. 1)

LL: 1000 # (ASCE Code) 1/2 to Kick R & 1/2 to tank

SL: Jackson County, MO

$P_g = 20$ psf (code minimum)

UL: $F = qG C_F = 20.73 \text{ psf} (0.85)(1.30) = 22.91 \text{ psf}$ (Pg 1)

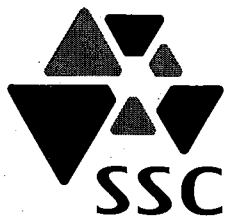
6" member = $22.91 \text{ psf} (6") (ft/12") = 11.46 \text{ lb/ft}$

2" member = $22.91 \text{ psf} (2") (ft/12") = 3.82 \text{ lb/ft}$

1 1/2" member = $22.91 \text{ psf} (1 1/2") (ft/12") = 2.86 \text{ lb/ft}$

Catwalk Analysis: Input loads & Catwalk information into RISA. See Appendix A for analysis results.

The catwalk and rail are adequate for the proposed Sprint loading.



CALCULATIONS AND SKETCHES

DATE

CONT. NO. KC13XC327

BY KED

CHK'D

SHEET NO. 4

MISC.

Longview Tank Farm
Lees Summit, MO (cont.)

Overtopping:

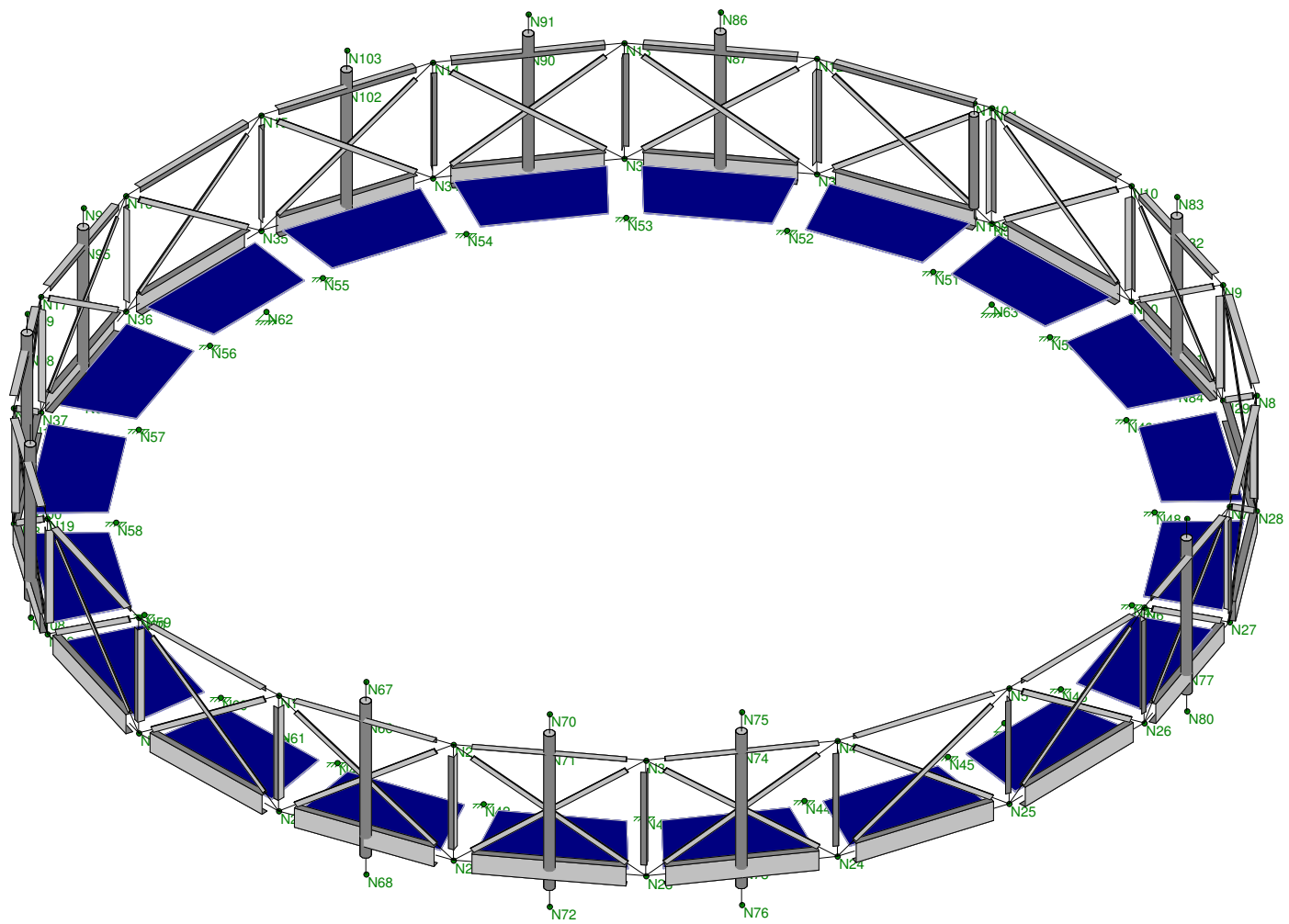
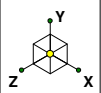
The proposed appurtenances are located on the existing catwalk; therefore, the appurtenances are within the projected wind area of the water tank.

The antennas will not add significant lateral load to the existing tank; therefore, the tank will be adequate to support the lateral load.

The antennas will add insignificant gravity in comparison to the overall gravity loads already on the tank. Therefore, the existing tank will be adequate to support the proposed gravity loads.

Appendix A

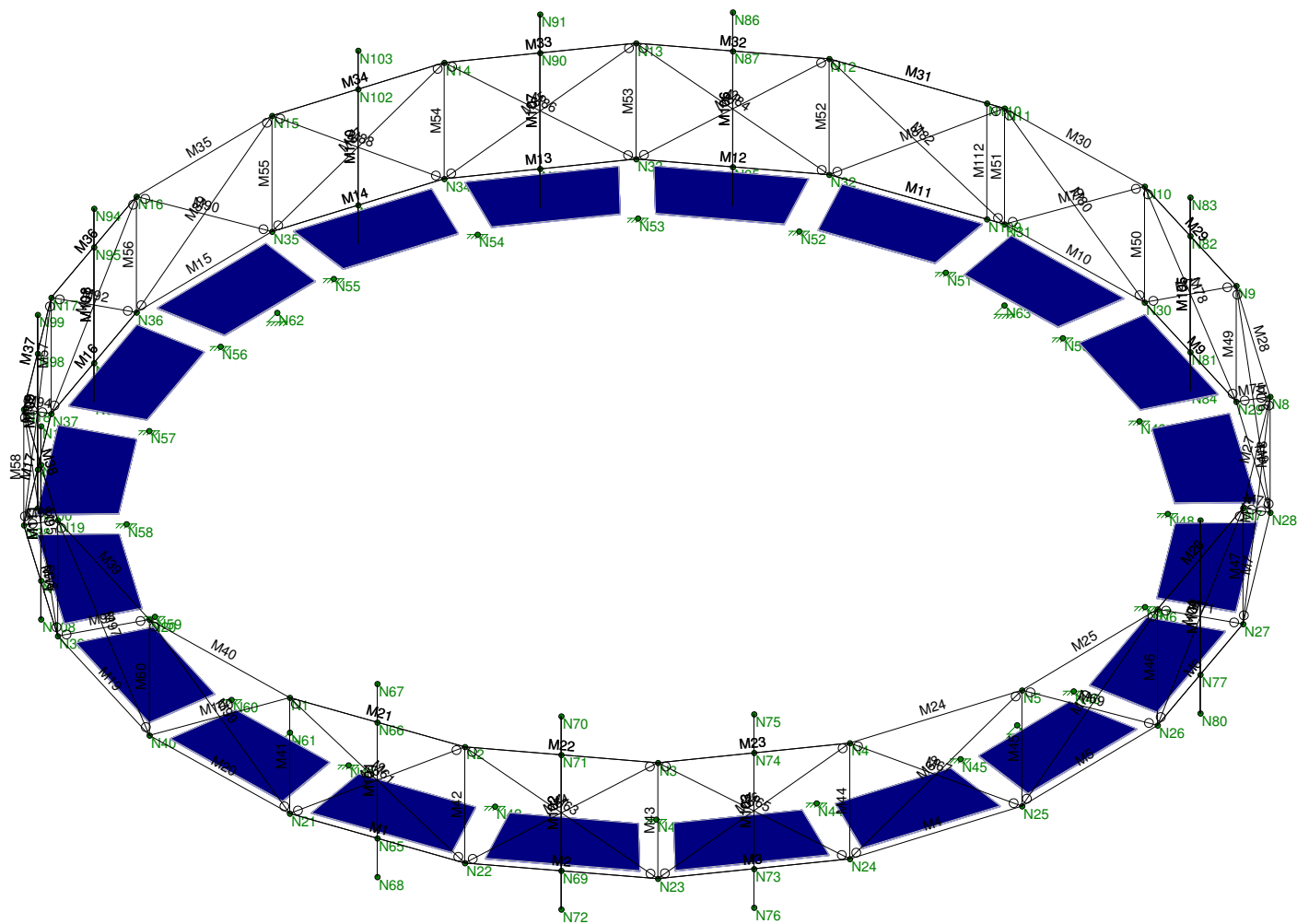
RISA 3D® **Structural Analysis Report**



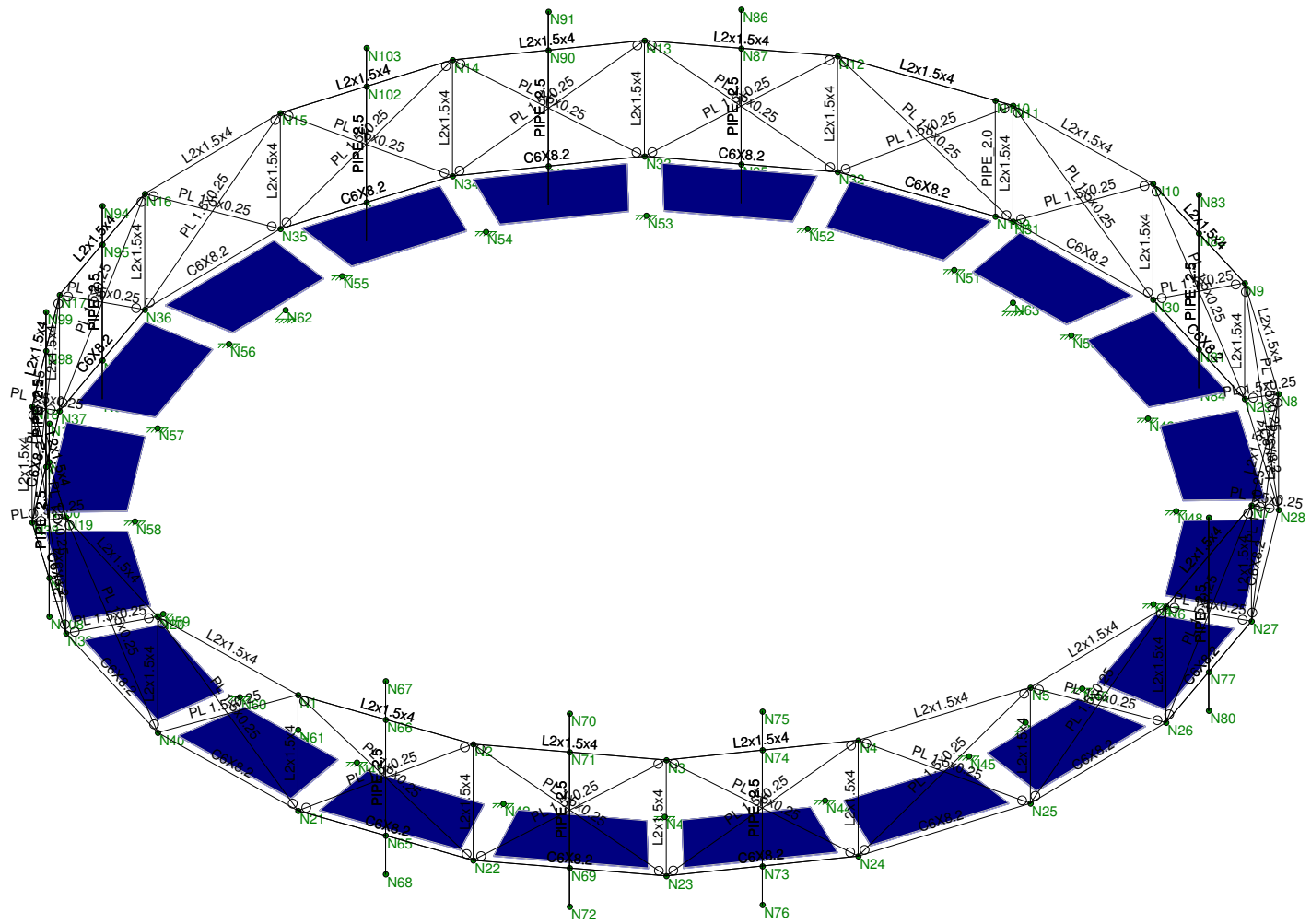
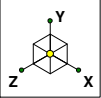
SSC
KED
KC13XC327

Catwalk Rail

Nov 9, 2018 at 8:58 AM
Catwalk Rail.r3d



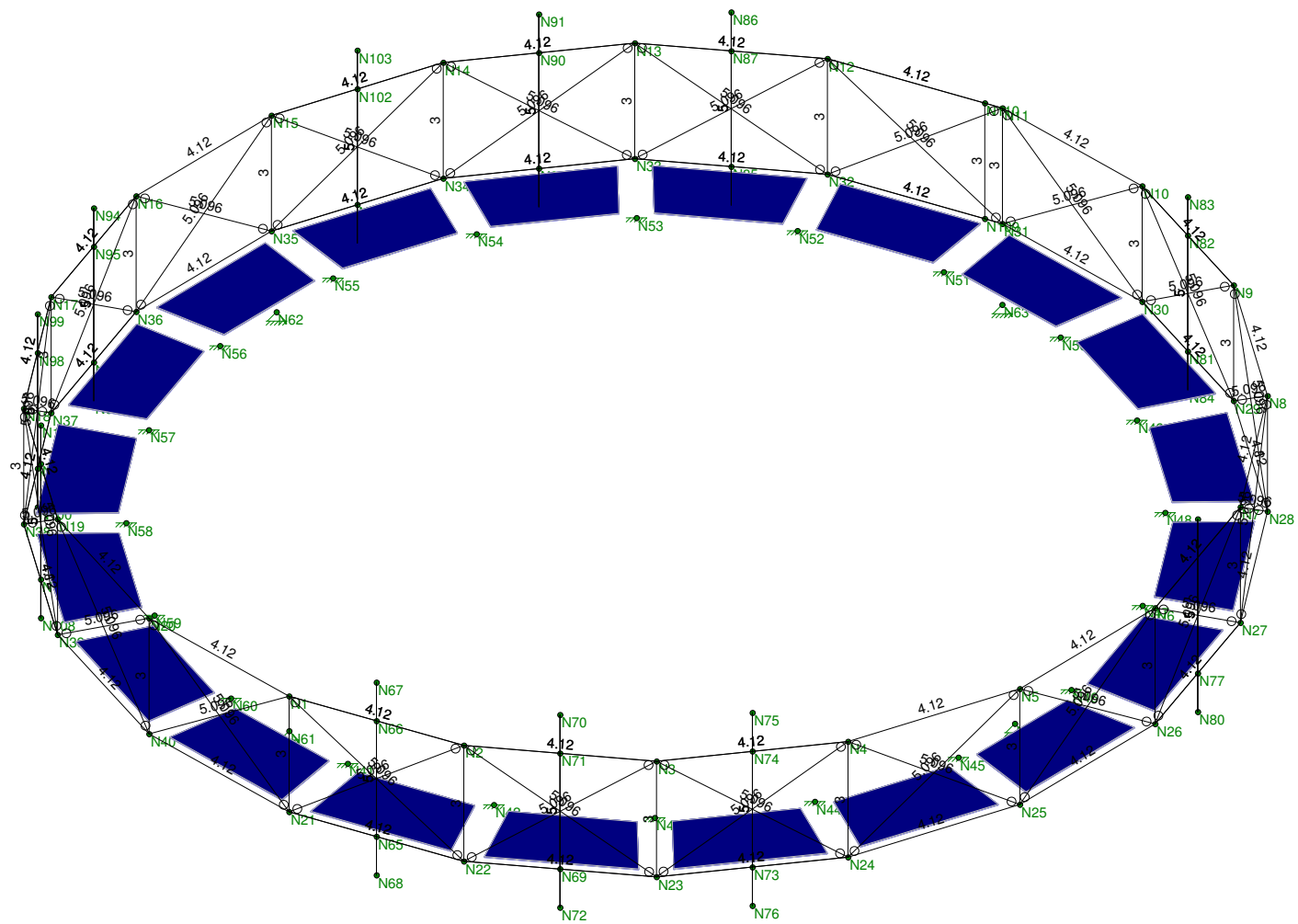
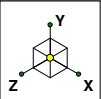
Nov 9, 2018 at 8:58 AM
Catwalk Rail.r3d



SSC
KED
KC13XC327

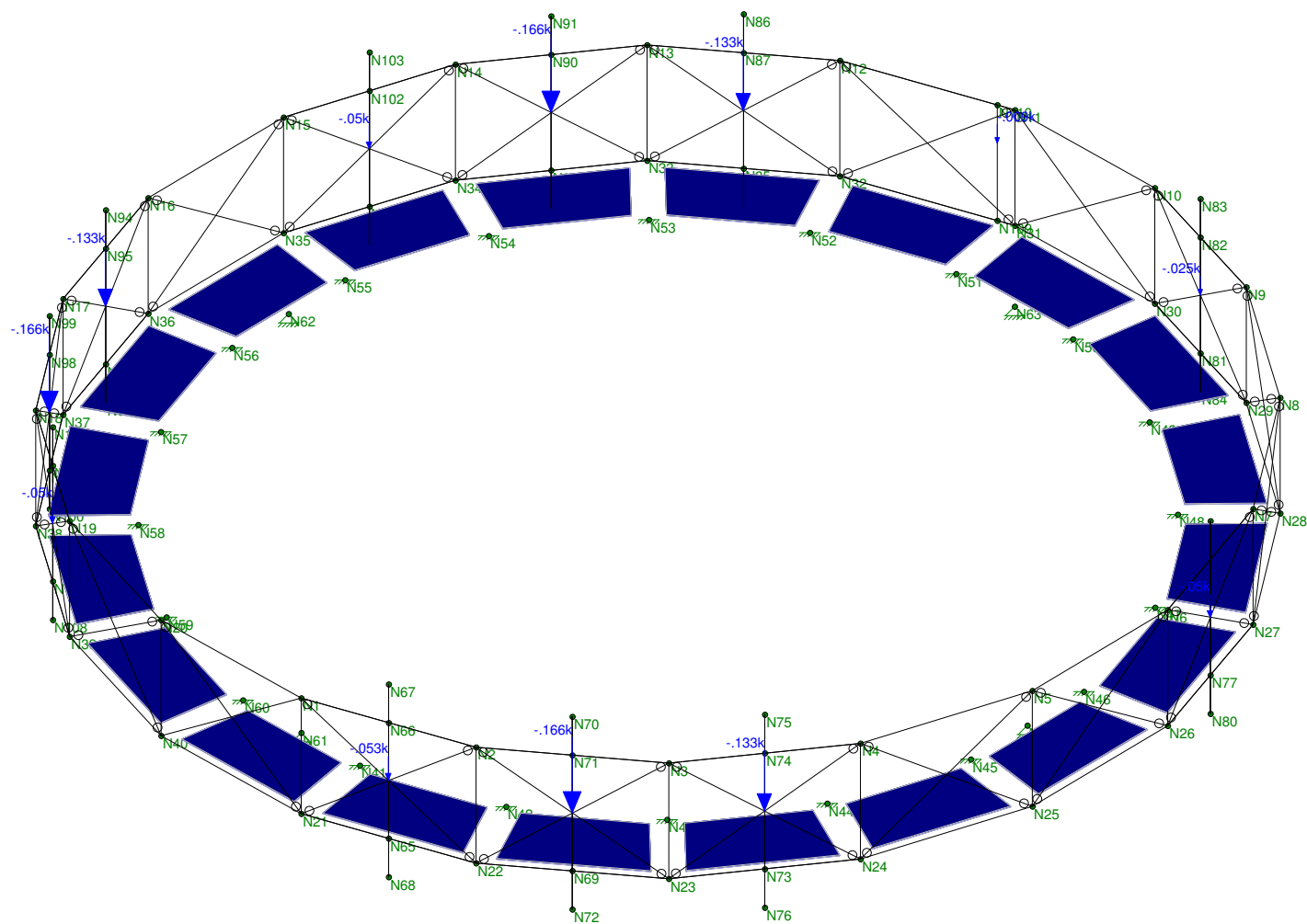
Catwalk Rail

Nov 9, 2018 at 8:58 AM
Catwalk Rail.r3d



Member Length (ft) Displayed

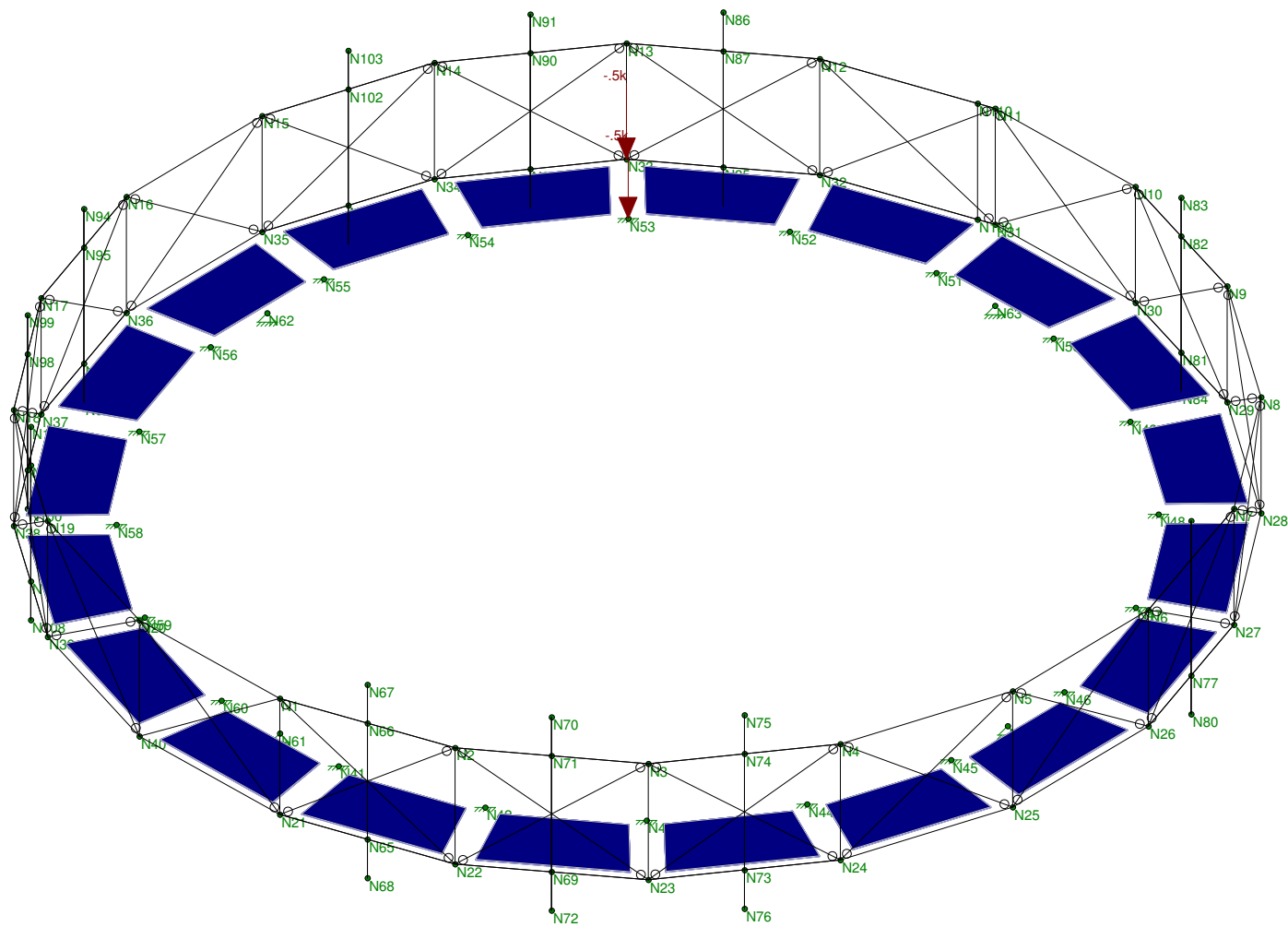
SSC	Catwalk Rail	Nov 9, 2018 at 8:58 AM
KED		Catwalk Rail.r3d
KC13XC327		



SSC
KED
KC13XC327

Catwalk Rail

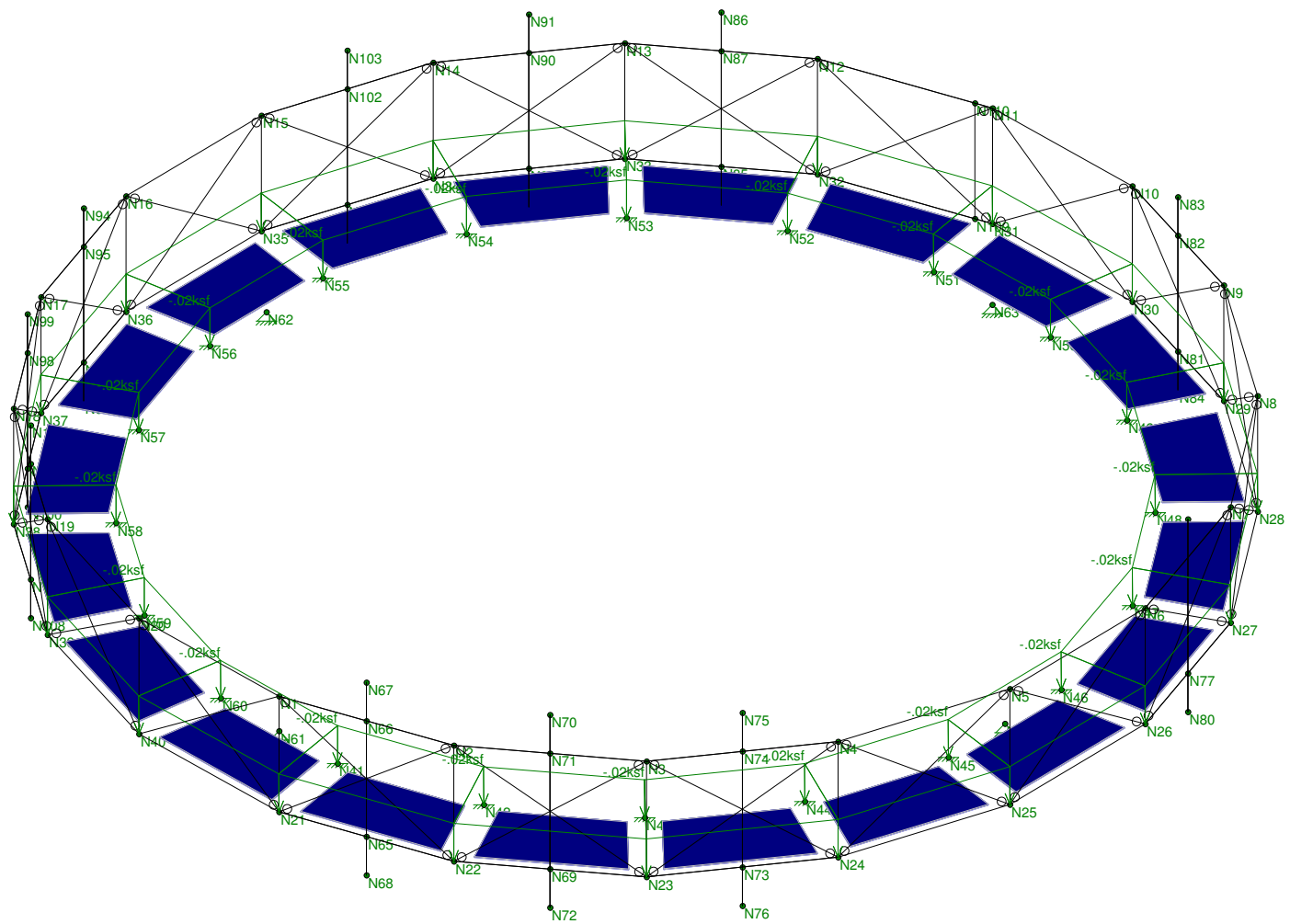
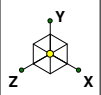
Nov 9, 2018 at 8:59 AM
Catwalk Rail.r3d



SSC
KED
KC13XC327

Catwalk Rail

Nov 9, 2018 at 8:59 AM
Catwalk Rail.r3d

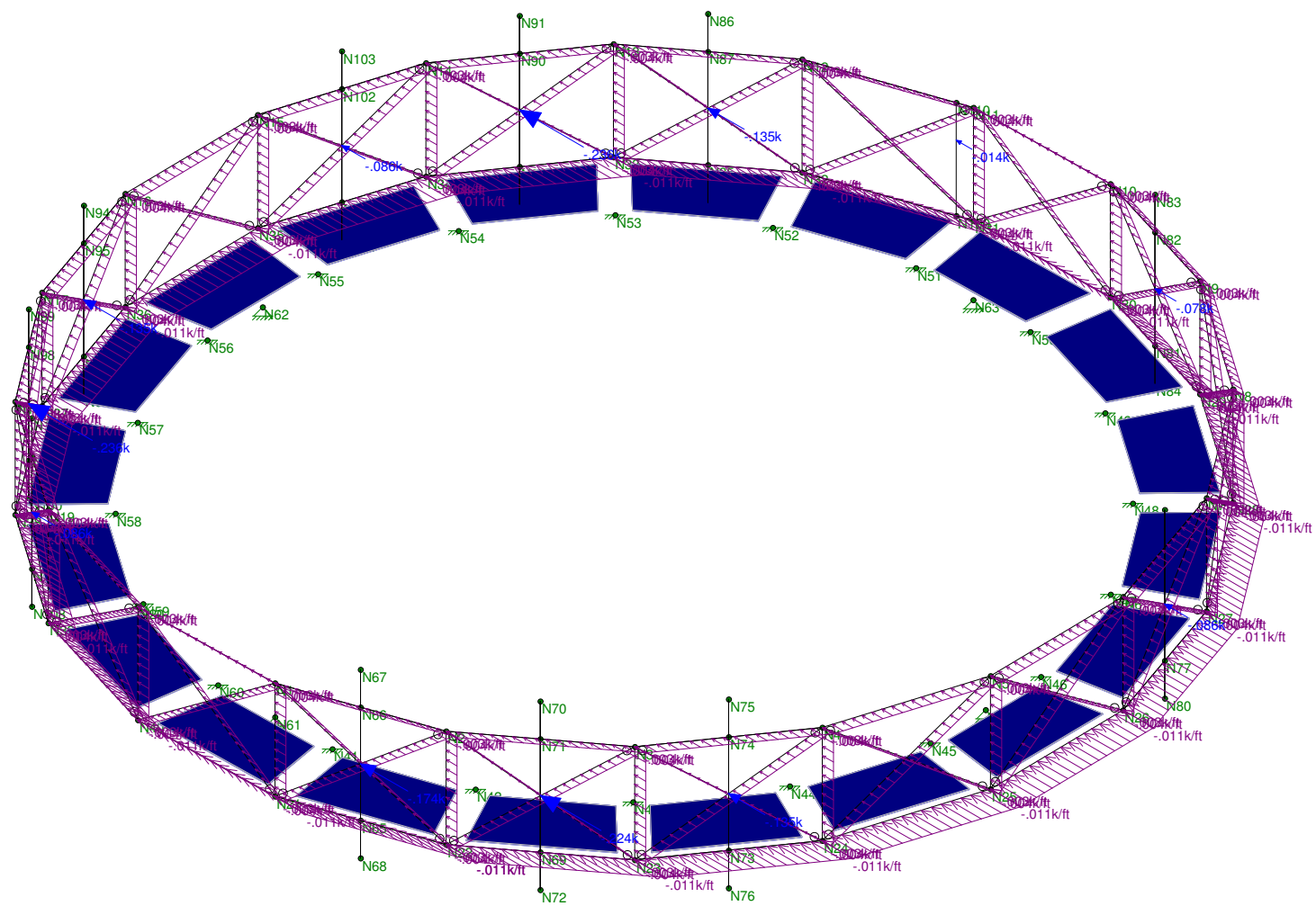


Loads: BLC 4, Snow

SSC
KED
KC13XC327

Catwalk Rail

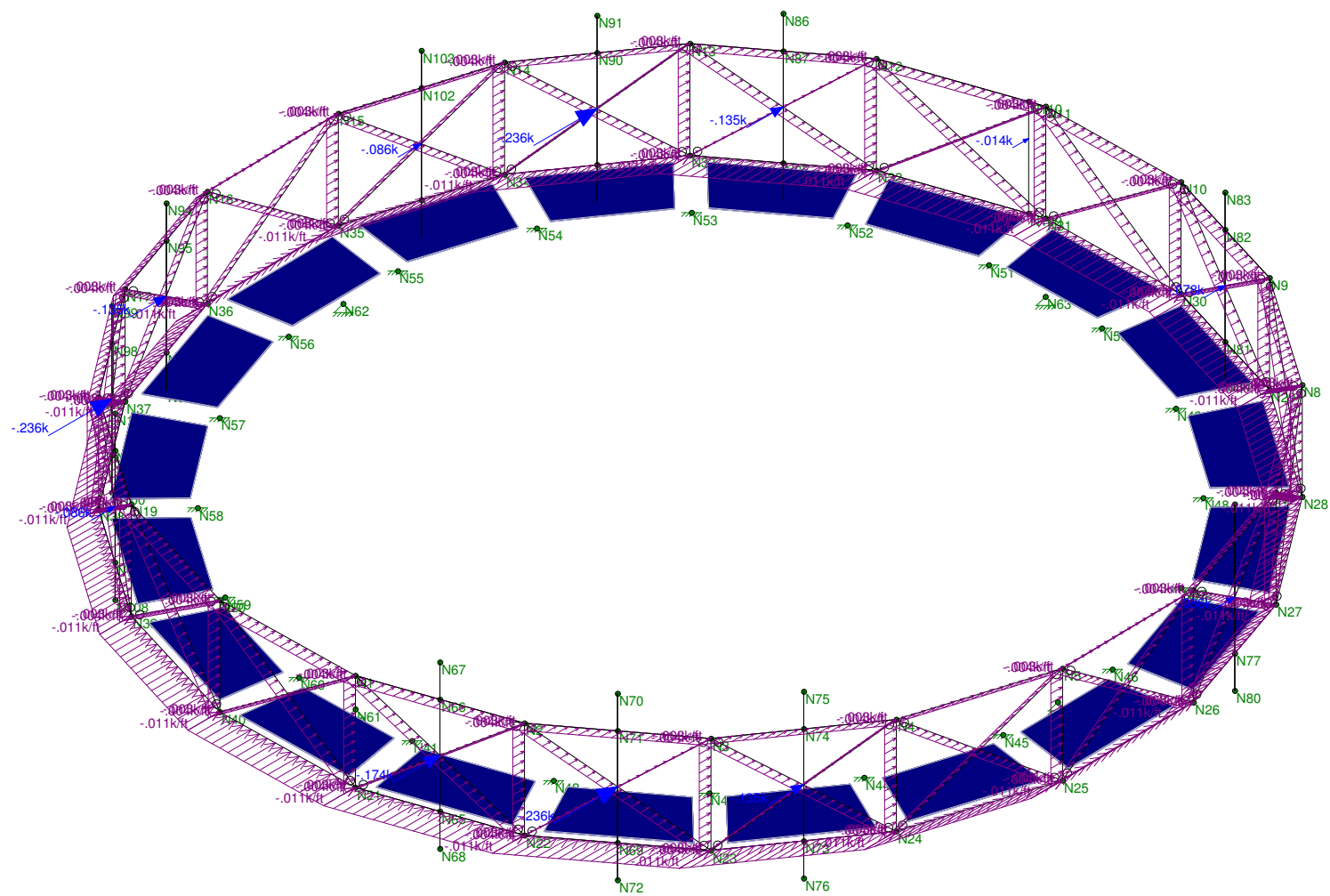
Nov 9, 2018 at 8:59 AM
Catwalk Rail.r3d



SSC
KED
KC13XC327

Catwalk Rail

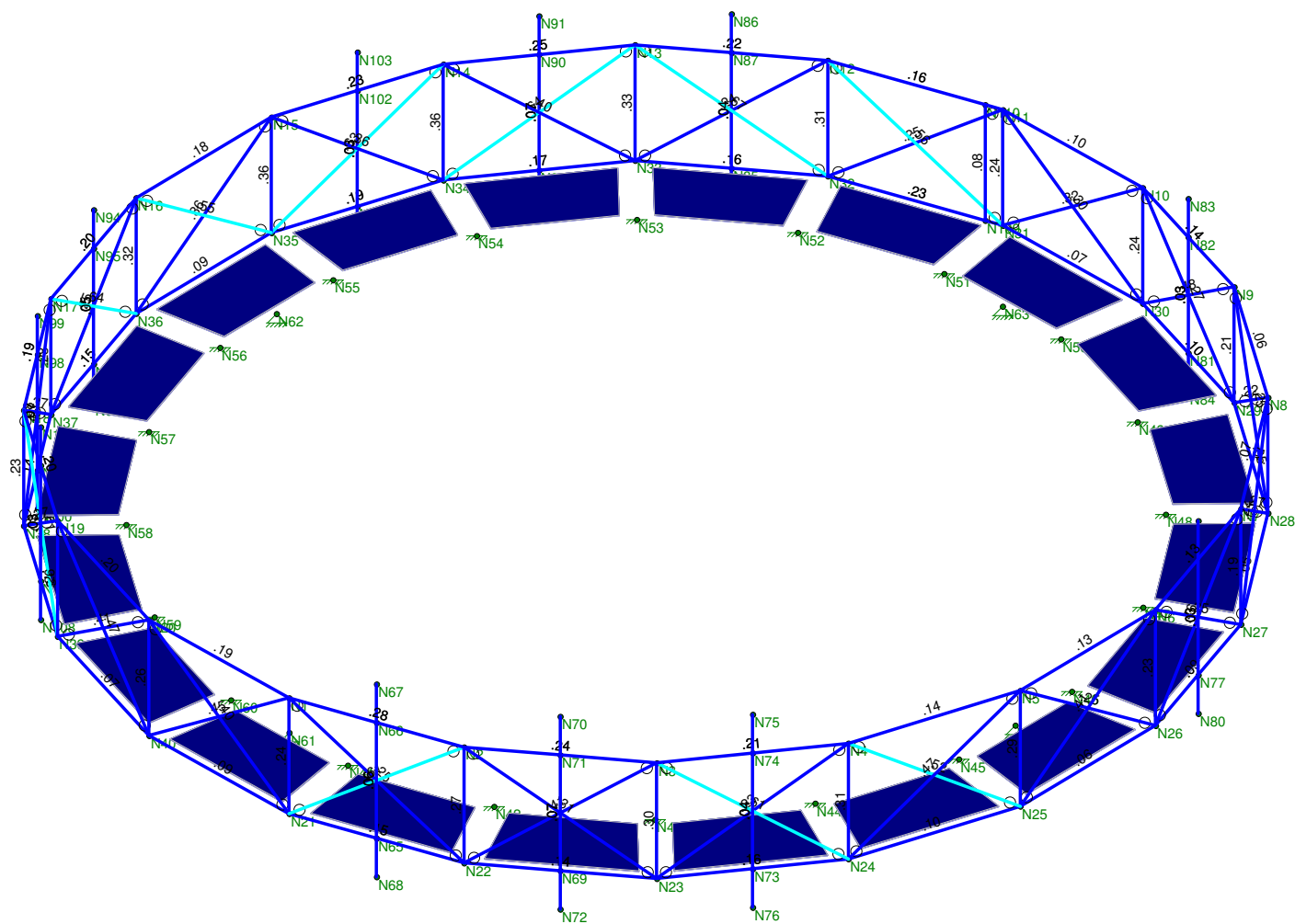
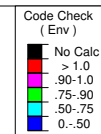
Nov 9, 2018 at 9:00 AM
Catwalk Rail.r3d



SSC
KED
KC13XC327

Catwalk Rail

Nov 9, 2018 at 9:00 AM
Catwalk Rail.r3d

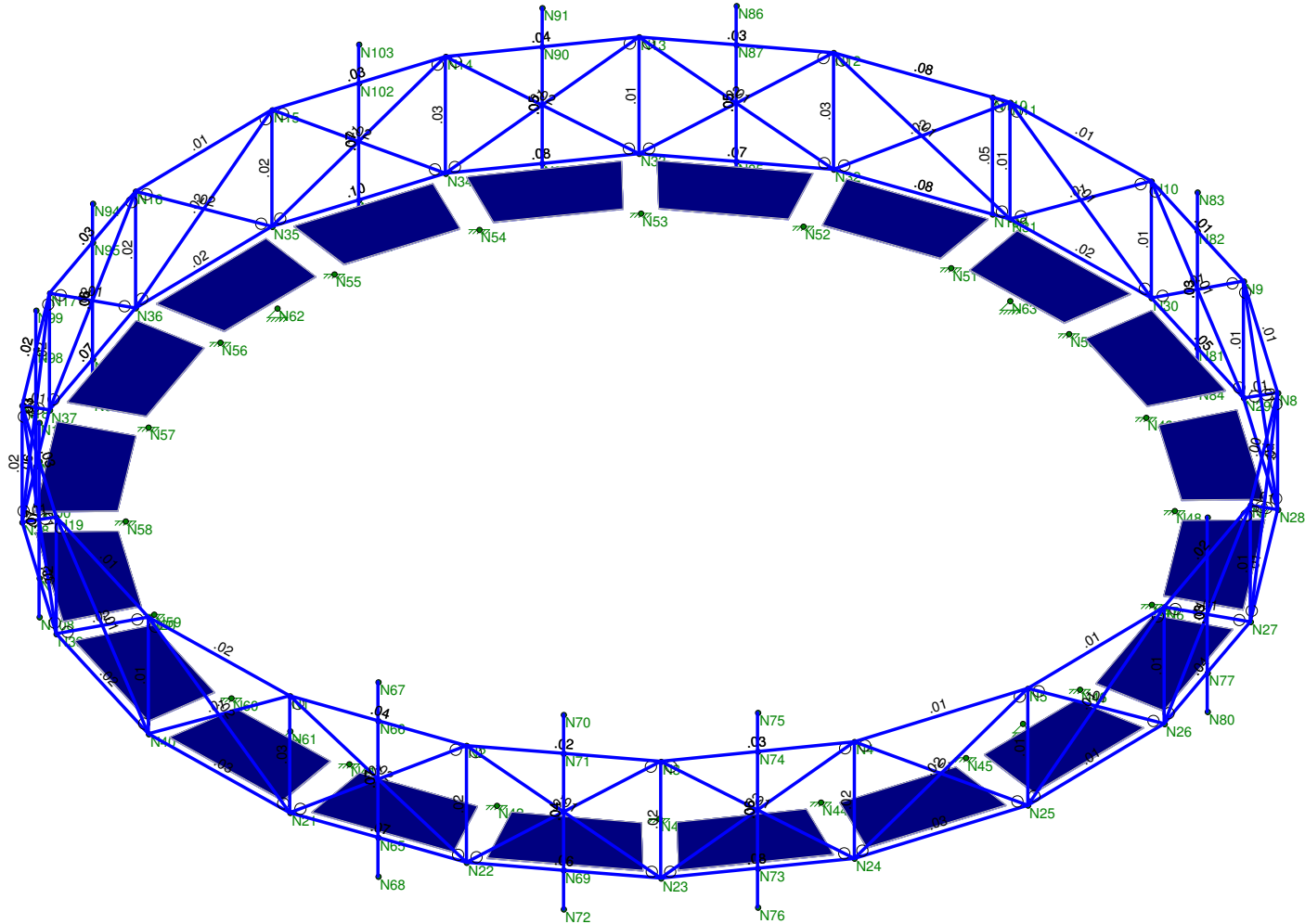
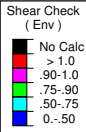
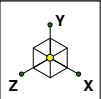


Member Code Checks Displayed (Enveloped)
Envelope Only Solution

SSC
KED
KC13XC327

Catwalk Rail

Nov 9, 2018 at 9:01 AM
Catwalk Rail.r3d



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

SSC	Catwalk Rail	
KED		Nov 9, 2018 at 9:01 AM
KC13XC327		Catwalk Rail.r3d

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (ft/sec^2)	32.2
Wall Mesh Size (in)	12
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)
RISACONNECTION CODE	AISC 14th(360-10): ASD
Cold Formed Steel Code	AISI S100-10: ASD
Wood Code	AWC NDS-12: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-11
Masonry Code	ACI 530-11: ASD
Aluminum Code	AA ADM1-10: ASD - Building
Stainless Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parame Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	No
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR SET ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

(Global) Model Settings, Continued

Seismic Code	ASCE 7-10
Seismic Base Elevation (ft)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	1
Cd X	1
Rho Z	1
Rho X	1

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	58	1.2
3	A992	29000	11154	.3	.65	.49	50	1.1	58	1.2
4	A500 Gr.42	29000	11154	.3	.65	.49	42	1.3	58	1.1
5	A500 Gr.46	29000	11154	.3	.65	.49	46	1.2	58	1.1
6	A53 Gr. B	29000	11154	.3	.65	.49	35	1.5	60	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Ru...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Toe Kick	C6X8.2	Beam	Channel	A36 Gr.36	Typical	2.39	.687	13.1	.074
2	Top Rail	L2x1.5x4	Beam	Single Angle	A36 Gr.36	Typical	.813	.151	.316	.015
3	Vert	L2x1.5x4	Column	Single Angle	A36 Gr.36	Typical	.813	.151	.316	.015
4	Brace	PL 1.5x0.25	VBrace	RECT	A36 Gr.36	Typical	.375	.002	.07	.007
5	Mount #1	PIPE 2.5	Column	Pipe	A53 Gr. B	Typical	1.61	1.45	1.45	2.89
6	Mount #2	PIPE 2.0	Column	Pipe	A53 Gr. B	Typical	1.02	.627	.627	1.25

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design R...
1	M1	N21	N22		180	Toe Kick	Beam	Channel	A36 Gr....	Typical
2	M2	N22	N23		180	Toe Kick	Beam	Channel	A36 Gr....	Typical
3	M3	N23	N24		180	Toe Kick	Beam	Channel	A36 Gr....	Typical
4	M4	N24	N25		180	Toe Kick	Beam	Channel	A36 Gr....	Typical
5	M5	N25	N26		180	Toe Kick	Beam	Channel	A36 Gr....	Typical
6	M6	N26	N27		180	Toe Kick	Beam	Channel	A36 Gr....	Typical
7	M7	N27	N28		180	Toe Kick	Beam	Channel	A36 Gr....	Typical
8	M8	N28	N29		180	Toe Kick	Beam	Channel	A36 Gr....	Typical
9	M9	N29	N30		180	Toe Kick	Beam	Channel	A36 Gr....	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(...)	Section/Shape	Type	Design List	Material	Design R...
10	M10	N30	N31		180	Toe Kick	Beam	Channel	A36 Gr....	Typical
11	M11	N31	N32		180	Toe Kick	Beam	Channel	A36 Gr....	Typical
12	M12	N32	N33		180	Toe Kick	Beam	Channel	A36 Gr....	Typical
13	M13	N33	N34		180	Toe Kick	Beam	Channel	A36 Gr....	Typical
14	M14	N34	N35		180	Toe Kick	Beam	Channel	A36 Gr....	Typical
15	M15	N35	N36		180	Toe Kick	Beam	Channel	A36 Gr....	Typical
16	M16	N36	N37		180	Toe Kick	Beam	Channel	A36 Gr....	Typical
17	M17	N37	N38		180	Toe Kick	Beam	Channel	A36 Gr....	Typical
18	M18	N38	N39		180	Toe Kick	Beam	Channel	A36 Gr....	Typical
19	M19	N39	N40		180	Toe Kick	Beam	Channel	A36 Gr....	Typical
20	M20	N40	N21		180	Toe Kick	Beam	Channel	A36 Gr....	Typical
21	M21	N1	N2		90	Top Rail	Beam	Single Angle	A36 Gr....	Typical
22	M22	N2	N3		90	Top Rail	Beam	Single Angle	A36 Gr....	Typical
23	M23	N3	N4		90	Top Rail	Beam	Single Angle	A36 Gr....	Typical
24	M24	N4	N5		90	Top Rail	Beam	Single Angle	A36 Gr....	Typical
25	M25	N5	N6		90	Top Rail	Beam	Single Angle	A36 Gr....	Typical
26	M26	N6	N7		90	Top Rail	Beam	Single Angle	A36 Gr....	Typical
27	M27	N7	N8		90	Top Rail	Beam	Single Angle	A36 Gr....	Typical
28	M28	N8	N9		90	Top Rail	Beam	Single Angle	A36 Gr....	Typical
29	M29	N9	N10		90	Top Rail	Beam	Single Angle	A36 Gr....	Typical
30	M30	N10	N11		90	Top Rail	Beam	Single Angle	A36 Gr....	Typical
31	M31	N11	N12		90	Top Rail	Beam	Single Angle	A36 Gr....	Typical
32	M32	N12	N13		90	Top Rail	Beam	Single Angle	A36 Gr....	Typical
33	M33	N13	N14		90	Top Rail	Beam	Single Angle	A36 Gr....	Typical
34	M34	N14	N15		90	Top Rail	Beam	Single Angle	A36 Gr....	Typical
35	M35	N15	N16		90	Top Rail	Beam	Single Angle	A36 Gr....	Typical
36	M36	N16	N17		90	Top Rail	Beam	Single Angle	A36 Gr....	Typical
37	M37	N17	N18		90	Top Rail	Beam	Single Angle	A36 Gr....	Typical
38	M38	N18	N19		90	Top Rail	Beam	Single Angle	A36 Gr....	Typical
39	M39	N19	N20		90	Top Rail	Beam	Single Angle	A36 Gr....	Typical
40	M40	N20	N1		90	Top Rail	Beam	Single Angle	A36 Gr....	Typical
41	M41	N21	N1		270	Vert	Column	Single Angle	A36 Gr....	Typical
42	M42	N22	N2		288	Vert	Column	Single Angle	A36 Gr....	Typical
43	M43	N23	N3		306	Vert	Column	Single Angle	A36 Gr....	Typical
44	M44	N24	N4		324	Vert	Column	Single Angle	A36 Gr....	Typical
45	M45	N25	N5		342	Vert	Column	Single Angle	A36 Gr....	Typical
46	M46	N26	N6			Vert	Column	Single Angle	A36 Gr....	Typical
47	M47	N27	N7		18	Vert	Column	Single Angle	A36 Gr....	Typical
48	M48	N28	N8		36	Vert	Column	Single Angle	A36 Gr....	Typical
49	M49	N29	N9		54	Vert	Column	Single Angle	A36 Gr....	Typical
50	M50	N30	N10		72	Vert	Column	Single Angle	A36 Gr....	Typical
51	M51	N31	N11		90	Vert	Column	Single Angle	A36 Gr....	Typical
52	M52	N32	N12		108	Vert	Column	Single Angle	A36 Gr....	Typical
53	M53	N33	N13		126	Vert	Column	Single Angle	A36 Gr....	Typical
54	M54	N34	N14		144	Vert	Column	Single Angle	A36 Gr....	Typical
55	M55	N35	N15		162	Vert	Column	Single Angle	A36 Gr....	Typical
56	M56	N36	N16		180	Vert	Column	Single Angle	A36 Gr....	Typical
57	M57	N37	N17		198	Vert	Column	Single Angle	A36 Gr....	Typical
58	M58	N38	N18		216	Vert	Column	Single Angle	A36 Gr....	Typical
59	M59	N39	N19		234	Vert	Column	Single Angle	A36 Gr....	Typical
60	M60	N40	N20		252	Vert	Column	Single Angle	A36 Gr....	Typical
61	M61	N1	N22			Brace	VBrace	RECT	A36 Gr....	Typical
62	M62	N21	N2			Brace	VBrace	RECT	A36 Gr....	Typical
63	M63	N2	N23			Brace	VBrace	RECT	A36 Gr....	Typical
64	M64	N22	N3			Brace	VBrace	RECT	A36 Gr....	Typical
65	M65	N3	N24			Brace	VBrace	RECT	A36 Gr....	Typical
66	M66	N23	N4			Brace	VBrace	RECT	A36 Gr....	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(...)	Section/Shape	Type	Design List	Material	Design R...
67	M67	N4	N25			Brace	VBrace	RECT	A36 Gr....	Typical
68	M68	N24	N5			Brace	VBrace	RECT	A36 Gr....	Typical
69	M69	N5	N26			Brace	VBrace	RECT	A36 Gr....	Typical
70	M70	N25	N6			Brace	VBrace	RECT	A36 Gr....	Typical
71	M71	N6	N27			Brace	VBrace	RECT	A36 Gr....	Typical
72	M72	N26	N7			Brace	VBrace	RECT	A36 Gr....	Typical
73	M73	N7	N28			Brace	VBrace	RECT	A36 Gr....	Typical
74	M74	N27	N8			Brace	VBrace	RECT	A36 Gr....	Typical
75	M75	N8	N29			Brace	VBrace	RECT	A36 Gr....	Typical
76	M76	N28	N9			Brace	VBrace	RECT	A36 Gr....	Typical
77	M77	N9	N30			Brace	VBrace	RECT	A36 Gr....	Typical
78	M78	N29	N10			Brace	VBrace	RECT	A36 Gr....	Typical
79	M79	N10	N31			Brace	VBrace	RECT	A36 Gr....	Typical
80	M80	N30	N11			Brace	VBrace	RECT	A36 Gr....	Typical
81	M81	N11	N32			Brace	VBrace	RECT	A36 Gr....	Typical
82	M82	N31	N12			Brace	VBrace	RECT	A36 Gr....	Typical
83	M83	N12	N33			Brace	VBrace	RECT	A36 Gr....	Typical
84	M84	N32	N13			Brace	VBrace	RECT	A36 Gr....	Typical
85	M85	N13	N34			Brace	VBrace	RECT	A36 Gr....	Typical
86	M86	N33	N14			Brace	VBrace	RECT	A36 Gr....	Typical
87	M87	N14	N35			Brace	VBrace	RECT	A36 Gr....	Typical
88	M88	N34	N15			Brace	VBrace	RECT	A36 Gr....	Typical
89	M89	N15	N36			Brace	VBrace	RECT	A36 Gr....	Typical
90	M90	N35	N16			Brace	VBrace	RECT	A36 Gr....	Typical
91	M91	N16	N37			Brace	VBrace	RECT	A36 Gr....	Typical
92	M92	N36	N17			Brace	VBrace	RECT	A36 Gr....	Typical
93	M93	N17	N38			Brace	VBrace	RECT	A36 Gr....	Typical
94	M94	N37	N18			Brace	VBrace	RECT	A36 Gr....	Typical
95	M95	N18	N39			Brace	VBrace	RECT	A36 Gr....	Typical
96	M96	N38	N19			Brace	VBrace	RECT	A36 Gr....	Typical
97	M97	N19	N40			Brace	VBrace	RECT	A36 Gr....	Typical
98	M98	N39	N20			Brace	VBrace	RECT	A36 Gr....	Typical
99	M99	N20	N21			Brace	VBrace	RECT	A36 Gr....	Typical
100	M100	N40	N1			Brace	VBrace	RECT	A36 Gr....	Typical
101	M101	N68	N67			Mount #1	Column	Pipe	A53 Gr. B	Typical
102	M102	N72	N70			Mount #1	Column	Pipe	A53 Gr. B	Typical
103	M103	N76	N75			Mount #1	Column	Pipe	A53 Gr. B	Typical
104	M104	N80	N79			Mount #1	Column	Pipe	A53 Gr. B	Typical
105	M105	N84	N83			Mount #1	Column	Pipe	A53 Gr. B	Typical
106	M106	N88	N86			Mount #1	Column	Pipe	A53 Gr. B	Typical
107	M107	N92	N91			Mount #1	Column	Pipe	A53 Gr. B	Typical
108	M108	N96	N94			Mount #1	Column	Pipe	A53 Gr. B	Typical
109	M109	N100	N99			Mount #1	Column	Pipe	A53 Gr. B	Typical
110	M110	N104	N103			Mount #1	Column	Pipe	A53 Gr. B	Typical
111	M111	N108	N107			Mount #1	Column	Pipe	A53 Gr. B	Typical
112	M112	N109	N110			Mount #2	Column	Pipe	A53 Gr. B	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						Yes				None
3	M3						Yes				None
4	M4						Yes				None
5	M5						Yes				None
6	M6						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...
7	M7						Yes				None
8	M8						Yes				None
9	M9						Yes				None
10	M10						Yes				None
11	M11						Yes				None
12	M12						Yes				None
13	M13						Yes				None
14	M14						Yes				None
15	M15						Yes				None
16	M16						Yes				None
17	M17						Yes				None
18	M18						Yes				None
19	M19						Yes				None
20	M20						Yes				None
21	M21						Yes				None
22	M22						Yes				None
23	M23						Yes				None
24	M24						Yes				None
25	M25						Yes				None
26	M26						Yes				None
27	M27						Yes				None
28	M28						Yes				None
29	M29						Yes				None
30	M30						Yes				None
31	M31						Yes				None
32	M32						Yes				None
33	M33						Yes				None
34	M34						Yes				None
35	M35						Yes				None
36	M36						Yes				None
37	M37						Yes				None
38	M38						Yes				None
39	M39						Yes				None
40	M40						Yes				None
41	M41						Yes	** NA **			None
42	M42						Yes	** NA **			None
43	M43						Yes	** NA **			None
44	M44						Yes	** NA **			None
45	M45						Yes	** NA **			None
46	M46						Yes	** NA **			None
47	M47						Yes	** NA **			None
48	M48						Yes	** NA **			None
49	M49						Yes	** NA **			None
50	M50						Yes	** NA **			None
51	M51						Yes	** NA **			None
52	M52						Yes	** NA **			None
53	M53						Yes	** NA **			None
54	M54						Yes	** NA **			None
55	M55						Yes	** NA **			None
56	M56						Yes	** NA **			None
57	M57						Yes	** NA **			None
58	M58						Yes	** NA **			None
59	M59						Yes	** NA **			None
60	M60						Yes	** NA **			None
61	M61	BenPIN	BenPIN				Yes	** NA **			None
62	M62	BenPIN	BenPIN				Yes	** NA **			None
63	M63	BenPIN	BenPIN				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...
64	M64	BenPIN	BenPIN				Yes	** NA **			None
65	M65	BenPIN	BenPIN				Yes	** NA **			None
66	M66	BenPIN	BenPIN				Yes	** NA **			None
67	M67	BenPIN	BenPIN				Yes	** NA **			None
68	M68	BenPIN	BenPIN				Yes	** NA **			None
69	M69	BenPIN	BenPIN				Yes	** NA **			None
70	M70	BenPIN	BenPIN				Yes	** NA **			None
71	M71	BenPIN	BenPIN				Yes	** NA **			None
72	M72	BenPIN	BenPIN				Yes	** NA **			None
73	M73	BenPIN	BenPIN				Yes	** NA **			None
74	M74	BenPIN	BenPIN				Yes	** NA **			None
75	M75	BenPIN	BenPIN				Yes	** NA **			None
76	M76	BenPIN	BenPIN				Yes	** NA **			None
77	M77	BenPIN	BenPIN				Yes	** NA **			None
78	M78	BenPIN	BenPIN				Yes	** NA **			None
79	M79	BenPIN	BenPIN				Yes	** NA **			None
80	M80	BenPIN	BenPIN				Yes	** NA **			None
81	M81	BenPIN	BenPIN				Yes	** NA **			None
82	M82	BenPIN	BenPIN				Yes	** NA **			None
83	M83	BenPIN	BenPIN				Yes	** NA **			None
84	M84	BenPIN	BenPIN				Yes	** NA **			None
85	M85	BenPIN	BenPIN				Yes	** NA **			None
86	M86	BenPIN	BenPIN				Yes	** NA **			None
87	M87	BenPIN	BenPIN				Yes	** NA **			None
88	M88	BenPIN	BenPIN				Yes	** NA **			None
89	M89	BenPIN	BenPIN				Yes	** NA **			None
90	M90	BenPIN	BenPIN				Yes	** NA **			None
91	M91	BenPIN	BenPIN				Yes	** NA **			None
92	M92	BenPIN	BenPIN				Yes	** NA **			None
93	M93	BenPIN	BenPIN				Yes	** NA **			None
94	M94	BenPIN	BenPIN				Yes	** NA **			None
95	M95	BenPIN	BenPIN				Yes	** NA **			None
96	M96	BenPIN	BenPIN				Yes	** NA **			None
97	M97	BenPIN	BenPIN				Yes	** NA **			None
98	M98	BenPIN	BenPIN				Yes	** NA **			None
99	M99	BenPIN	BenPIN				Yes	** NA **			None
100	M100						Yes	** NA **			None
101	M101						Yes	** NA **			None
102	M102						Yes	** NA **			None
103	M103						Yes	** NA **			None
104	M104						Yes	** NA **			None
105	M105						Yes	** NA **			None
106	M106						Yes	** NA **			None
107	M107						Yes	** NA **			None
108	M108						Yes	** NA **			None
109	M109						Yes	** NA **			None
110	M110						Yes	** NA **			None
111	M111						Yes	** NA **			None
112	M112						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	Toe Kick	4.12			Lbyy						Lateral
2	M2	Toe Kick	4.12			Lbyy						Lateral
3	M3	Toe Kick	4.12			Lbyy						Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[ft]	Lbvy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torqu...	Kvy	Kzz	Cb	Function
4	M4	Toe Kick	4.12			Lbyy						Lateral
5	M5	Toe Kick	4.12			Lbyy						Lateral
6	M6	Toe Kick	4.12			Lbyy						Lateral
7	M7	Toe Kick	4.12			Lbyy						Lateral
8	M8	Toe Kick	4.12			Lbyy						Lateral
9	M9	Toe Kick	4.12			Lbyy						Lateral
10	M10	Toe Kick	4.12			Lbyy						Lateral
11	M11	Toe Kick	4.12			Lbyy						Lateral
12	M12	Toe Kick	4.12			Lbyy						Lateral
13	M13	Toe Kick	4.12			Lbyy						Lateral
14	M14	Toe Kick	4.12			Lbyy						Lateral
15	M15	Toe Kick	4.12			Lbyy						Lateral
16	M16	Toe Kick	4.12			Lbyy						Lateral
17	M17	Toe Kick	4.12			Lbyy						Lateral
18	M18	Toe Kick	4.12			Lbyy						Lateral
19	M19	Toe Kick	4.12			Lbyy						Lateral
20	M20	Toe Kick	4.12			Lbyy						Lateral
21	M21	Top Rail	4.12			Lbyy						Lateral
22	M22	Top Rail	4.12			Lbyy						Lateral
23	M23	Top Rail	4.12			Lbyy						Lateral
24	M24	Top Rail	4.12			Lbyy						Lateral
25	M25	Top Rail	4.12			Lbyy						Lateral
26	M26	Top Rail	4.12			Lbyy						Lateral
27	M27	Top Rail	4.12			Lbyy						Lateral
28	M28	Top Rail	4.12			Lbyy						Lateral
29	M29	Top Rail	4.12			Lbyy						Lateral
30	M30	Top Rail	4.12			Lbyy						Lateral
31	M31	Top Rail	4.12			Lbyy						Lateral
32	M32	Top Rail	4.12			Lbyy						Lateral
33	M33	Top Rail	4.12			Lbyy						Lateral
34	M34	Top Rail	4.12			Lbyy						Lateral
35	M35	Top Rail	4.12			Lbyy						Lateral
36	M36	Top Rail	4.12			Lbyy						Lateral
37	M37	Top Rail	4.12			Lbyy						Lateral
38	M38	Top Rail	4.12			Lbyy						Lateral
39	M39	Top Rail	4.12			Lbyy						Lateral
40	M40	Top Rail	4.12			Lbyy						Lateral
41	M41	Vert	3			Lbyy						Lateral
42	M42	Vert	3			Lbyy						Lateral
43	M43	Vert	3			Lbyy						Lateral
44	M44	Vert	3			Lbyy						Lateral
45	M45	Vert	3			Lbyy						Lateral
46	M46	Vert	3			Lbyy						Lateral
47	M47	Vert	3			Lbyy						Lateral
48	M48	Vert	3			Lbyy						Lateral
49	M49	Vert	3			Lbyy						Lateral
50	M50	Vert	3			Lbyy						Lateral
51	M51	Vert	3			Lbyy						Lateral
52	M52	Vert	3			Lbyy						Lateral
53	M53	Vert	3			Lbyy						Lateral
54	M54	Vert	3			Lbyy						Lateral
55	M55	Vert	3			Lbyy						Lateral
56	M56	Vert	3			Lbyy						Lateral
57	M57	Vert	3			Lbyy						Lateral
58	M58	Vert	3			Lbyy						Lateral
59	M59	Vert	3			Lbyy						Lateral
60	M60	Vert	3			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
61	M61	Brace	5.096	2.548	2.548	Lbyy						Lateral
62	M62	Brace	5.096	2.548	2.548	Lbyy						Lateral
63	M63	Brace	5.096	2.548	2.548	Lbyy						Lateral
64	M64	Brace	5.096	2.548	2.548	Lbyy						Lateral
65	M65	Brace	5.096	2.548	2.548	Lbyy						Lateral
66	M66	Brace	5.096	2.548	2.548	Lbyy						Lateral
67	M67	Brace	5.096	2.548	2.548	Lbyy						Lateral
68	M68	Brace	5.096	2.548	2.548	Lbyy						Lateral
69	M69	Brace	5.096	2.548	2.548	Lbyy						Lateral
70	M70	Brace	5.096	2.548	2.548	Lbyy						Lateral
71	M71	Brace	5.096	2.548	2.548	Lbyy						Lateral
72	M72	Brace	5.096	2.548	2.548	Lbyy						Lateral
73	M73	Brace	5.096	2.548	2.548	Lbyy						Lateral
74	M74	Brace	5.096	2.548	2.548	Lbyy						Lateral
75	M75	Brace	5.096	2.548	2.548	Lbyy						Lateral
76	M76	Brace	5.096	2.548	2.548	Lbyy						Lateral
77	M77	Brace	5.096	2.548	2.548	Lbyy						Lateral
78	M78	Brace	5.096	2.548	2.548	Lbyy						Lateral
79	M79	Brace	5.096	2.548	2.548	Lbyy						Lateral
80	M80	Brace	5.096	2.548	2.548	Lbyy						Lateral
81	M81	Brace	5.096	2.548	2.548	Lbyy						Lateral
82	M82	Brace	5.096	2.548	2.548	Lbyy						Lateral
83	M83	Brace	5.096	2.548	2.548	Lbyy						Lateral
84	M84	Brace	5.096	2.548	2.548	Lbyy						Lateral
85	M85	Brace	5.096	2.548	2.548	Lbyy						Lateral
86	M86	Brace	5.096	2.548	2.548	Lbyy						Lateral
87	M87	Brace	5.096	2.548	2.548	Lbyy						Lateral
88	M88	Brace	5.096	2.548	2.548	Lbyy						Lateral
89	M89	Brace	5.096	2.548	2.548	Lbyy						Lateral
90	M90	Brace	5.096	2.548	2.548	Lbyy						Lateral
91	M91	Brace	5.096	2.548	2.548	Lbyy						Lateral
92	M92	Brace	5.096	2.548	2.548	Lbyy						Lateral
93	M93	Brace	5.096	2.548	2.548	Lbyy						Lateral
94	M94	Brace	5.096	2.548	2.548	Lbyy						Lateral
95	M95	Brace	5.096	2.548	2.548	Lbyy						Lateral
96	M96	Brace	5.096	2.548	2.548	Lbyy						Lateral
97	M97	Brace	5.096	2.548	2.548	Lbyy						Lateral
98	M98	Brace	5.096	2.548	2.548	Lbyy						Lateral
99	M99	Brace	5.096	2.548	2.548	Lbyy						Lateral
100	M100	Brace	5.096	2.548	2.548	Lbyy						Lateral
101	M101	Mount #1	5			Lbyy						Lateral
102	M102	Mount #1	5			Lbyy						Lateral
103	M103	Mount #1	5			Lbyy						Lateral
104	M104	Mount #1	5			Lbyy						Lateral
105	M105	Mount #1	5			Lbyy						Lateral
106	M106	Mount #1	5			Lbyy						Lateral
107	M107	Mount #1	5			Lbyy						Lateral
108	M108	Mount #1	5			Lbyy						Lateral
109	M109	Mount #1	5			Lbyy						Lateral
110	M110	Mount #1	5			Lbyy						Lateral
111	M111	Mount #1	5			Lbyy						Lateral
112	M112	Mount #2	3									Lateral

Plate Primary Data

	Label	A Joint	B Joint	C Joint	D Joint	Material	Thickness[in]
1	P1	N41	N42	N22	N21	gen Steel	.25
2	P2	N42	N43	N23	N22	gen Steel	.25
3	P3	N43	N44	N24	N23	gen Steel	.25
4	P4	N44	N45	N25	N24	gen Steel	.25
5	P5	N45	N46	N26	N25	gen Steel	.25
6	P6	N46	N47	N27	N26	gen Steel	.25
7	P7	N47	N48	N28	N27	gen Steel	.25
8	P8	N48	N49	N29	N28	gen Steel	.25
9	P9	N49	N50	N30	N29	gen Steel	.25
10	P10	N50	N51	N31	N30	gen Steel	.25
11	P11	N51	N52	N32	N31	gen Steel	.25
12	P12	N52	N53	N33	N32	gen Steel	.25
13	P13	N53	N54	N34	N33	gen Steel	.25
14	P14	N54	N55	N35	N34	gen Steel	.25
15	P15	N55	N56	N36	N35	gen Steel	.25
16	P16	N56	N57	N37	N36	gen Steel	.25
17	P17	N57	N58	N38	N37	gen Steel	.25
18	P18	N58	N59	N39	N38	gen Steel	.25
19	P19	N59	N60	N40	N39	gen Steel	.25
20	P20	N60	N41	N21	N40	gen Steel	.25

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	N41	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N42	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N43	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
4	N44	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
5	N45	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
6	N46	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
7	N47	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
8	N48	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
9	N49	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
10	N50	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
11	N51	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
12	N52	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
13	N53	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
14	N54	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
15	N55	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
16	N56	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
17	N57	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
18	N58	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
19	N59	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
20	N60	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
21	N61	Reaction	Reaction	Reaction			
22	N62	Reaction	Reaction	Reaction			
23	N63	Reaction	Reaction	Reaction			
24	N64	Reaction	Reaction	Reaction			
25	N65						
26	N69						
27	N73						
28	N77						
29	N81						
30	N85						
31	N89						

Joint Boundary Conditions (Continued)

	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]
32	N93						
33	N97						
34	N101						
35	N105						

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	DistributedArea(Me...Surface(...	
1	Self Wt.	DL		-1					
2	Appurtenance Wt.	DL					12		
3	Live (AWWA)	RLL				2			
4	Snow	SL							20
5	Wind (X-Dir)	WLX					12	100	
6	Wind (Z-Dir)	WLZ					12	100	

Load Combinations

	Description	Solve P...	S...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...
1	ASCE 1	Yes	Y	DL	1														
2	ASCE 3 (a)	Yes	Y	DL	1	SL	1												
3	ASCE 3 (b)	Yes	Y	DL	1	RLL	1												
4	ASCE 5 (a)	Yes	Y	DL	1	W...	1												
5	ASCE 5 (b)	Yes	Y	DL	1	W...	-1												
6	ASCE 5 (c)	Yes	Y	DL	1	W...	1												
7	ASCE 5 (d)	Yes	Y	DL	1	W...	-1												
8	ASCE 6 (a)	Yes	Y	DL	1	W...	.75	RLL	.75										
9	ASCE 6 (b)	Yes	Y	DL	1	W...	-.75	RLL	.75										
10	ASCE 6 (c)	Yes	Y	DL	1	W...	.75	SL	.75										
11	ASCE 6 (d)	Yes	Y	DL	1	W...	-.75	SL	.75										
12	ASCE 6 (e)	Yes	Y	DL	1	W...	.75	RLL	.75										
13	ASCE 6 (f)	Yes	Y	DL	1	W...	-.75	RLL	.75										
14	ASCE 6 (g)	Yes	Y	DL	1	W...	.75	SL	.75										
15	ASCE 6 (h)	Yes	Y	DL	1	W...	-.75	SL	.75										
16	ASCE 7 (a)	Yes	Y	DL	.6	W...	1												
17	ASCE 7 (b)	Yes	Y	DL	.6	W...	-1												
18	ASCE 7 (c)	Yes	Y	DL	.6	W...	1												
19	ASCE 7 (d)	Yes	Y	DL	.6	W...	-1												

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	N41	max	.3709	4	.3433	11	.1019	5	-.0399	16	0	19	.0499	13
2		min	-.3387	17	-.0055	16	-.0414	16	-.2906	11	0	1	-.0371	18
3	N42	max	.3281	4	.4441	2	.1935	6	-.0752	18	0	19	.1328	11
4		min	-.3033	17	.1141	16	-.1672	19	-.3925	15	0	1	-.0132	16
5	N43	max	.2129	4	.5299	15	.2754	6	-.0452	18	0	19	.3023	15
6		min	-.1935	17	.0986	18	-.245	19	-.3414	15	0	1	.0701	18
7	N44	max	.1655	7	.4063	15	.3115	6	-.014	16	0	19	.3294	15
8		min	-.1094	18	.0801	18	-.2653	19	-.1929	11	0	1	.0803	18
9	N45	max	.0708	15	.4856	11	.2866	18	.0712	19	0	19	.3355	11
10		min	-.005	18	.0191	16	-.3029	7	-.0955	12	0	1	.0518	16
11	N46	max	.0961	4	.3744	14	.2246	18	.1037	5	0	19	.2893	14
12		min	-.0633	17	-.0902	19	-.286	7	-.0228	16	0	1	-.0488	19
13	N47	max	.1077	16	.3253	10	.1474	18	.1451	8	0	19	.1991	14
14		min	-.1174	5	.0272	17	-.1776	7	-.0168	17	0	1	.0144	19

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
15	N48	max	.1225	4	.2593	11	.1091	6	.1355	14	0	19	.1643	11
16		min	-.1142	17	-.023	8	-.1029	19	-.0074	19	0	1	-.0065	8
17	N49	max	.2017	4	.3669	15	.1131	12	.2006	15	0	19	.1849	15
18		min	-.1536	17	.0102	18	-.1102	19	.0108	12	0	1	-.0171	18
19	N50	max	.2737	4	.366	11	.061	18	.2735	11	0	19	.1251	12
20		min	-.2244	17	-.0105	16	-.1077	7	.0126	16	0	1	-.0181	19
21	N51	max	.27	16	.4407	14	.0098	17	.3771	12	0	19	.1115	8
22		min	-.2751	5	.0342	19	-.1019	8	.0556	19	0	1	-.0484	17
23	N52	max	.2637	16	.481	3	.1058	17	.4119	12	0	19	-.0006	19
24		min	-.2942	5	.0622	19	-.143	4	.0497	19	0	1	-.1687	12
25	N53	max	.2576	16	.851	3	.2064	18	.3797	12	0	19	-.0385	19
26		min	-.2622	5	.091	19	-.2354	7	.0348	19	0	1	-.2952	12
27	N54	max	.1369	16	.5748	12	.3128	18	.2745	8	0	19	-.0425	19
28		min	-.1713	5	.0417	19	-.3805	7	.0374	17	0	1	-.4408	12
29	N55	max	.0141	19	.511	10	.3586	18	.1342	7	0	19	-.0721	17
30		min	-.1289	12	.0473	17	-.3824	7	-.0437	12	0	1	-.3993	10
31	N56	max	.0449	18	.4901	15	.3899	6	.0451	17	0	19	-.0487	18
32		min	-.1202	7	.0223	18	-.3286	19	-.1143	8	0	1	-.4215	15
33	N57	max	.1733	16	.4904	15	.3448	6	.0086	18	0	19	-.0914	18
34		min	-.1804	5	.091	18	-.2913	19	-.2183	15	0	1	-.3637	15
35	N58	max	.2481	16	.4178	2	.2162	6	-.0774	18	0	19	-.0052	17
36		min	-.2562	5	.1242	17	-.2017	19	-.2665	15	0	1	-.2479	10
37	N59	max	.2639	16	.3472	10	.1561	4	.0089	17	0	19	.0019	17
38		min	-.3147	5	-.0646	17	-.1245	17	-.2535	10	0	1	-.1474	10
39	N60	max	.3202	16	.4503	15	.0794	4	-.0406	18	0	19	.0421	16
40		min	-.3389	5	-.0196	18	-.0278	17	-.2632	15	0	1	-.1189	5
41	N61	max	0	19	0	19	0	19	0	19	0	19	0	19
42		min	0	1	0	1	0	1	0	1	0	1	0	1
43	N62	max	0	19	0	19	0	19	0	19	0	19	0	19
44		min	0	1	0	1	0	1	0	1	0	1	0	1
45	N63	max	0	19	0	19	0	19	0	19	0	19	0	19
46		min	0	1	0	1	0	1	0	1	0	1	0	1
47	N64	max	0	19	0	19	0	19	0	19	0	19	0	19
48		min	0	1	0	1	0	1	0	1	0	1	0	1
49	Totals:	max	3.711	16	7.6587	2	3.7244	18						
50		min	-3.711	5	2.6533	16	-3.7244	7						

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	Pnc/om [k]	Pnt/om [k]	Mnyy/om ..	Mnzz/om...	Cb	Eqn
1	M1	C6X8.2	.150	4.1195	15	.075	2.1027	y	11	32.9314	51.521	1.4024	9.2695	1...	H1-1b
2	M2	C6X8.2	.141	4.1195	11	.064	2.1027	y	14	32.9314	51.521	1.4024	9.2695	1...	H1-1b
3	M3	C6X8.2	.164	0	15	.081	2.0169	y	15	32.9314	51.521	1.4024	9.2695	1...	H1-1b
4	M4	C6X8.2	.097	0	11	.028	2.1027	z	7	32.9314	51.521	1.4024	8.6137	1...	H1-1b
5	M5	C6X8.2	.064	4.1195	11	.006	2.0598	z	13	32.9314	51.521	1.4024	8.7836	1...	H1-1b
6	M6	C6X8.2	.091	4.1195	10	.043	2.1027	y	10	32.9314	51.521	1.4024	9.2695	1...	H1-1b
7	M7	C6X8.2	.049	0	11	.010	1.9739	z	12	32.9314	51.521	1.4024	8.822	1...	H1-1b
8	M8	C6X8.2	.051	4.1195	15	.019	2.0598	z	3	32.9314	51.521	1.4024	8.954	1...	H1-1b
9	M9	C6X8.2	.102	0	15	.046	2.0169	y	15	32.9314	51.521	1.4024	9.2695	1...	H1-1b
10	M10	C6X8.2	.067	4.1195	12	.019	2.0598	z	3	32.9314	51.521	1.4024	9.0803	1...	H1-1b
11	M11	C6X8.2	.226	0	12	.082	.3862	y	14	32.9314	51.521	1.4024	9.2695	1...	H1-1b
12	M12	C6X8.2	.161	4.1195	12	.071	2.1027	y	12	32.9314	51.521	1.4024	9.2695	1...	H1-1b
13	M13	C6X8.2	.171	0	12	.081	2.0169	y	3	32.9314	51.521	1.4024	9.2695	1...	H1-1b
14	M14	C6X8.2	.195	0	8	.100	2.0598	y	12	32.9314	51.521	1.4024	9.2695	1...	H1-1b
15	M15	C6X8.2	.094	4.1195	10	.021	2.0598	z	7	32.9314	51.521	1.4024	8.5221	1...	H1-1b
16	M16	C6X8.2	.151	4.1195	15	.071	2.1027	y	15	32.9314	51.521	1.4024	9.2695	1...	H1-1b

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	Pnc/om [k]	Pnt/om [k]	Mnyy/om ...	Mnzz/om...	Cb	Eqn
17	M17	C6X8.2	.140	0	11	.056	2.0598	y	11	32.9314	51.521	1.4024	9.2695	1...	H1-1b
18	M18	C6X8.2	.131	0	10	.064	2.0169	y	15	32.9314	51.521	1.4024	9.2695	1...	H1-1b
19	M19	C6X8.2	.074	4.1195	15	.016	2.1885	z	7	32.9314	51.521	1.4024	8.8205	1...	H1-1b
20	M20	C6X8.2	.089	4.1195	7	.031	2.1456	z	7	32.9313	51.521	1.4024	8.7858	1...	H1-1b
21	M21	L2x1.5x4	.281	2.0598	7	.037	0	y	7	5.1205	17.5257	.296	.7497	1...	H2-1
22	M22	L2x1.5x4	.244	2.0598	18	.023	0	y	5	5.1205	17.5257	.296	.723	1...	H2-1
23	M23	L2x1.5x4	.215	2.0598	7	.029	4.1195	y	7	5.1205	17.5257	.296	.7479	1...	H2-1
24	M24	L2x1.5x4	.136	4.1195	5	.013	4.1195	y	5	5.1205	17.5257	.296	.72	1...	H2-1
25	M25	L2x1.5x4	.131	0	5	.010	4.1195	z	13	5.1205	17.5257	.296	.7247	1...	H2-1
26	M26	L2x1.5x4	.130	2.0598	5	.018	0	y	9	5.1205	17.5257	.296	.7406	1...	H2-1
27	M27	L2x1.5x4	.066	2.0169	13	.005	4.1195	z	4	5.1205	17.5257	.296	.7176	1...	H2-1
28	M28	L2x1.5x4	.062	0	13	.011	0	z	13	5.1205	17.5257	.296	.7537	2...	H2-1
29	M29	L2x1.5x4	.139	2.0598	13	.014	4.1195	y	12	5.1205	17.5257	.296	.7077	1...	H2-1
30	M30	L2x1.5x4	.096	0	12	.006	0	z	6	5.1205	17.5257	.296	.6923	1...	H2-1
31	M31	L2x1.5x4	.158	.4291	12	.080	.3862	z	12	5.1205	17.5257	.296	.7185	1...	H2-1
32	M32	L2x1.5x4	.221	2.0598	12	.032	0	y	12	5.1205	17.5257	.296	.7377	1...	H2-1
33	M33	L2x1.5x4	.252	2.0598	8	.036	4.1195	y	8	5.1205	17.5257	.296	.7392	1...	H2-1
34	M34	L2x1.5x4	.228	2.0598	8	.033	4.1195	y	8	5.1205	17.5257	.296	.7495	1...	H2-1
35	M35	L2x1.5x4	.182	0	8	.006	0	z	7	5.1205	17.5257	.296	.6921	1...	H2-1
36	M36	L2x1.5x4	.202	2.0598	4	.032	0	y	4	5.1205	17.5257	.296	.7537	1...	H2-1
37	M37	L2x1.5x4	.195	2.0598	4	.018	4.1195	y	4	5.1205	17.5257	.296	.7325	1...	H2-1
38	M38	L2x1.5x4	.203	2.0598	7	.030	4.1195	y	7	5.1205	17.5257	.296	.7488	1...	H2-1
39	M39	L2x1.5x4	.195	4.1195	7	.014	4.1195	y	7	5.1205	17.5257	.296	.713	1...	H2-1
40	M40	L2x1.5x4	.193	0	7	.017	0	y	7	5.1205	17.5257	.296	.7151	1...	H2-1
41	M41	L2x1.5x4	.243	0	11	.027	3	y	7	9.0015	17.5257	.296	.7537	1...	H2-1
42	M42	L2x1.5x4	.266	0	11	.019	3	y	5	9.0015	17.5257	.296	.7537	1...	H2-1
43	M43	L2x1.5x4	.296	0	15	.019	3	y	7	9.0015	17.5257	.296	.7537	1...	H2-1
44	M44	L2x1.5x4	.308	0	15	.022	3	y	7	9.0015	17.5257	.296	.7537	1...	H2-1
45	M45	L2x1.5x4	.289	0	11	.011	3	y	11	9.0015	17.5257	.296	.7537	1...	H2-1
46	M46	L2x1.5x4	.231	0	14	.013	3	y	9	9.0015	17.5257	.296	.7537	1...	H2-1
47	M47	L2x1.5x4	.188	0	14	.009	0	y	10	9.0015	17.5257	.296	.7537	1...	H2-1
48	M48	L2x1.5x4	.168	0	2	.006	3	y	9	9.0015	17.5257	.296	.7537	1...	H2-1
49	M49	L2x1.5x4	.206	0	15	.012	0	y	13	9.0015	17.5257	.296	.7537	1...	H2-1
50	M50	L2x1.5x4	.236	0	11	.009	3	y	14	9.0015	17.5257	.296	.7537	1...	H2-1
51	M51	L2x1.5x4	.238	0	12	.013	0	y	3	9.0015	17.5257	.296	.7537	1...	H2-1
52	M52	L2x1.5x4	.313	0	12	.026	3	y	12	9.0015	17.5257	.296	.7537	1...	H2-1
53	M53	L2x1.5x4	.331	0	12	.013	0	y	9	9.0015	17.5257	.296	.7537	1...	H2-1
54	M54	L2x1.5x4	.356	0	12	.030	3	y	8	9.0015	17.5257	.296	.7537	1...	H2-1
55	M55	L2x1.5x4	.361	0	8	.021	3	y	8	9.0015	17.5257	.296	.7537	1...	H2-1
56	M56	L2x1.5x4	.321	0	15	.021	3	y	4	9.0015	17.5257	.296	.7537	1...	H2-1
57	M57	L2x1.5x4	.276	0	15	.016	3	y	8	9.0015	17.5257	.296	.7537	1...	H2-1
58	M58	L2x1.5x4	.229	0	2	.017	3	y	7	9.0015	17.5257	.296	.7537	1...	H2-1
59	M59	L2x1.5x4	.259	0	10	.023	3	y	7	9.0015	17.5257	.296	.7537	1...	H2-1
60	M60	L2x1.5x4	.259	0	15	.010	0	y	9	9.0015	17.5257	.296	.7537	1...	H2-1
61	M61	PL 1.5x0.25	.250	2.5481	7	.015	5.0961	y	11	.314	8.0838	.0421	.214	1	H1-1b
62	M62	PL 1.5x0.25	.615	2.1234	4	.011	5.0961	y	14	.314	8.0838	.0421	.1954	1...	H1-1a
63	M63	PL 1.5x0.25	.309	4.0875	18	.012	0	y	2	.314	8.0838	.0421	.1954	1...	H1-1a
64	M64	PL 1.5x0.25	.407	2.3357	4	.010	0	y	2	.314	8.0838	.0421	.1954	1...	H1-1a
65	M65	PL 1.5x0.25	.606	2.7604	6	.011	5.0961	y	10	.314	8.0838	.0421	.1954	1...	H1-1a
66	M66	PL 1.5x0.25	.233	2.495	16	.016	5.0961	y	15	.314	8.0838	.0421	.1954	1...	H1-1b
67	M67	PL 1.5x0.25	.525	2.9197	18	.012	0	y	15	.314	8.0838	.0421	.1954	1...	H1-1a
68	M68	PL 1.5x0.25	.470	2.1765	19	.020	5.0961	y	11	.314	8.0838	.0421	.1954	1...	H1-1a
69	M69	PL 1.5x0.25	.252	2.5481	5	.014	5.0961	y	11	.314	8.0838	.0421	.214	1	H1-1b
70	M70	PL 1.5x0.25	.413	.2654	7	.014	5.0961	y	14	.314	8.0838	.0421	.1954	1...	H1-1a
71	M71	PL 1.5x0.25	.249	2.5481	5	.010	5.0961	y	10	.314	8.0838	.0421	.214	1	H1-1b
72	M72	PL 1.5x0.25	.464	2.1234	7	.011	0	y	14	.314	8.0838	.0421	.1954	1...	H1-1a
73	M73	PL 1.5x0.25	.273	2.6012	16	.008	5.0961	y	11	.314	8.0838	.0421	.1954	1...	H1-1b

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	Pnc/om [k]	Pnt/om [k]	Mnvy/om	...Mnzz/om...	Cb	Eqn
74	M74	PL 1.5x0.25	.218	2.5481	4	.010	5.0961	y	14	.314	8.0838	.0421	.214	1	H1-1b
75	M75	PL 1.5x0.25	.221	2.5481	7	.010	5.0961	y	11	.314	8.0838	.0421	.214	1	H1-1b
76	M76	PL 1.5x0.25	.254	2.495	19	.009	0	y	2	.314	8.0838	.0421	.1954	1...	H1-1b
77	M77	PL 1.5x0.25	.476	3.0789	8	.012	0	y	15	.314	8.0838	.0421	.1954	1...	H1-1a
78	M78	PL 1.5x0.25	.268	2.495	19	.011	0	y	15	.314	8.0838	.0421	.214	1	H1-1b
79	M79	PL 1.5x0.25	.321	5.0961	8	.013	0	y	9	.314	8.0838	.0421	.214	1	H1-1a
80	M80	PL 1.5x0.25	.296	2.5481	19	.011	0	y	14	.314	8.0838	.0421	.214	1	H1-1b
81	M81	PL 1.5x0.25	.247	2.5481	6	.023	0	y	12	.314	8.0838	.0421	.214	1	H1-1b
82	M82	PL 1.5x0.25	.558	2.1234	5	.011	0	y	14	.314	8.0838	.0421	.1954	1...	H1-1a
83	M83	PL 1.5x0.25	.241	2.6012	19	.016	5.0961	y	12	.314	8.0838	.0421	.1954	1...	H1-1b
84	M84	PL 1.5x0.25	.666	2.2826	9	.010	5.0961	y	2	.314	8.0838	.0421	.1954	1...	H1-1a
85	M85	PL 1.5x0.25	.642	2.8135	13	.012	0	y	11	.314	8.0838	.0421	.1954	1...	H1-1a
86	M86	PL 1.5x0.25	.396	2.4419	17	.016	5.0961	y	3	.314	8.0838	.0421	.1954	1...	H1-1a
87	M87	PL 1.5x0.25	.630	3.0258	7	.013	5.0961	y	14	.314	8.0838	.0421	.1954	1...	H1-1a
88	M88	PL 1.5x0.25	.359	2.1765	18	.022	5.0961	y	8	.314	8.0838	.0421	.1954	1...	H1-1a
89	M89	PL 1.5x0.25	.361	3.9814	19	.019	5.0961	y	10	.314	8.0838	.0421	.1954	1...	H1-1a
90	M90	PL 1.5x0.25	.548	0	12	.018	0	y	8	.314	8.0838	.0421	.214	1	H1-1a
91	M91	PL 1.5x0.25	.252	2.5481	4	.016	5.0961	y	15	.314	8.0838	.0421	.214	1	H1-1b
92	M92	PL 1.5x0.25	.640	2.1234	6	.012	0	y	15	.314	8.0838	.0421	.1954	1...	H1-1a
93	M93	PL 1.5x0.25	.384	2.6542	17	.011	5.0961	y	14	.314	8.0838	.0421	.1954	1...	H1-1a
94	M94	PL 1.5x0.25	.365	2.3357	6	.012	0	y	11	.314	8.0838	.0421	.1954	1...	H1-1a
95	M95	PL 1.5x0.25	.608	2.7604	5	.010	5.0961	y	14	.314	8.0838	.0421	.1954	1...	H1-1a
96	M96	PL 1.5x0.25	.269	2.495	18	.013	0	y	15	.314	8.0838	.0421	.1954	1...	H1-1b
97	M97	PL 1.5x0.25	.467	2.9197	17	.012	0	y	10	.314	8.0838	.0421	.1954	1...	H1-1a
98	M98	PL 1.5x0.25	.413	2.1765	16	.018	0	y	15	.314	8.0838	.0421	.1954	1...	H1-1a
99	M99	PL 1.5x0.25	.398	3.9814	17	.020	0	y	15	.314	8.0838	.0421	.1954	1...	H1-1a
100	M100	PL 1.5x0.25	.447	0	16	.013	0	y	11	.314	8.0838	.0421	.214	1	H1-1a
101	M101	PIPE 2.5	.056	2.5	7	.073	2.5		7	27.4996	33.7425	2.3927	2.3927	1...	H1-1b
102	M102	PIPE 2.5	.070	2.4479	7	.037	1.0417		6	27.4996	33.7425	2.3927	2.3927	1...	H1-1b
103	M103	PIPE 2.5	.043	2.4479	5	.062	1.0417		7	27.4996	33.7425	2.3927	2.3927	1...	H1-1b
104	M104	PIPE 2.5	.027	2.4479	5	.034	1.0417		13	27.4996	33.7425	2.3927	2.3927	1...	H1-1b
105	M105	PIPE 2.5	.025	2.5	6	.032	1.0417		8	27.4996	33.7425	2.3927	2.3927	1...	H1-1b
106	M106	PIPE 2.5	.042	2.4479	6	.046	1.0417		8	27.4996	33.7425	2.3927	2.3927	1...	H1-1b
107	M107	PIPE 2.5	.069	2.4479	4	.053	2.5		8	27.4996	33.7425	2.3927	2.3927	1...	H1-1b
108	M108	PIPE 2.5	.047	2.4479	4	.060	2.5		8	27.4996	33.7425	2.3927	2.3927	1...	H1-1b
109	M109	PIPE 2.5	.068	2.4479	4	.030	1.0417		12	27.4996	33.7425	2.3927	2.3927	1...	H1-1b
110	M110	PIPE 2.5	.033	2.4479	4	.071	2.5		8	27.4996	33.7425	2.3927	2.3927	1...	H1-1b
111	M111	PIPE 2.5	.026	2.5	4	.068	2.5		7	27.4996	33.7425	2.3927	2.3927	1...	H1-1b
112	M112	PIPE 2.0	.078	0	12	.047	0		3	19.1906	21.3772	1.2453	1.2453	2...	H1-1b