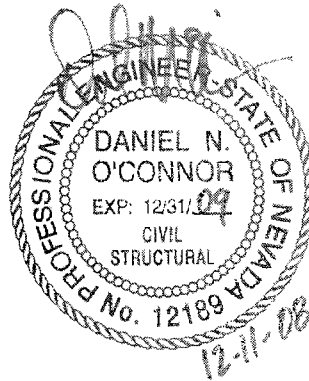
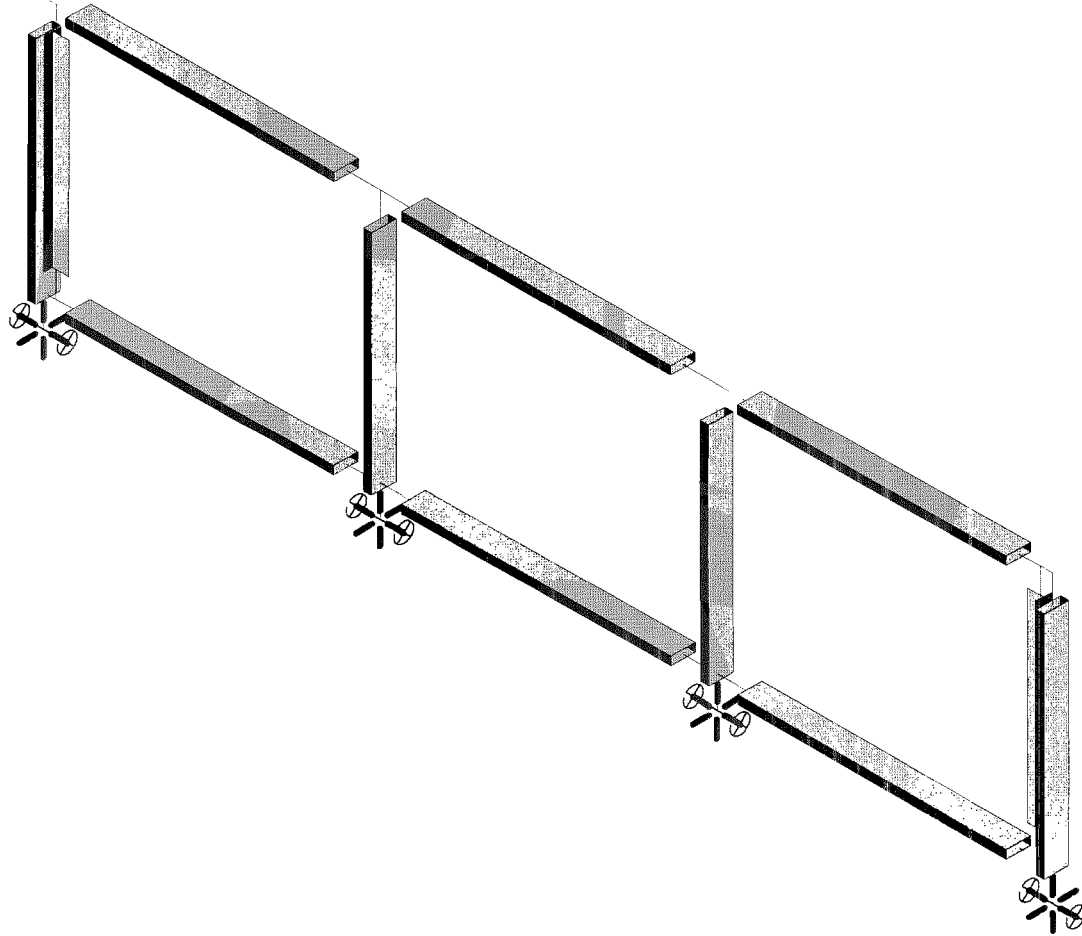
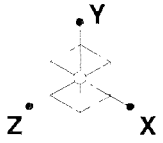


**D10b—3"x1" RECT. TUBE x 36-1/2" HIGH RAIL WITH 2"x1-1/2"x1/4" TEE
FOR USE WITH ADJUST-A-JAW™ AND FIXED JAW HARDWARE,
WITH BOTTOM RAIL**

Building Code:	2006 International Building Code 2007 California Building Code AISC Steel Construction Manual, 13th ed—ASD
Material:	Carbon Steel, A500, Grade B, Fy = 42 ksi (HSS Tube) Carbon Steel, A36, Fy = 36 ksi (Tee) Stainless Steel, A554, Grade MT-304 or MT-316, Fy = 30 ksi
Height:	36.5"
Anchor Post:	Carbon Steel: HSS 3x1x1/8 Tube with 2"x1.5"x 1/4" Tee Stainless Steel: 3"x1"x0.120" Tube with 2"x1.5"x 1/4" Tee
Intermediate Posts:	Carbon Steel: HSS 3x1x1/8 Tube Stainless Steel: 3"x1"x0.120" Tube
Top Rail:	Carbon Steel: HSS 3x1x1/8 Tube Stainless Steel: 3"x1"x0.120" Tube
Bottom Rail:	Carbon Steel: HSS 3x1x1/8 Tube Stainless Steel: 3"x1"x0.120" Tube
Number of Cables:	9
Cable Spacing:	3.10"



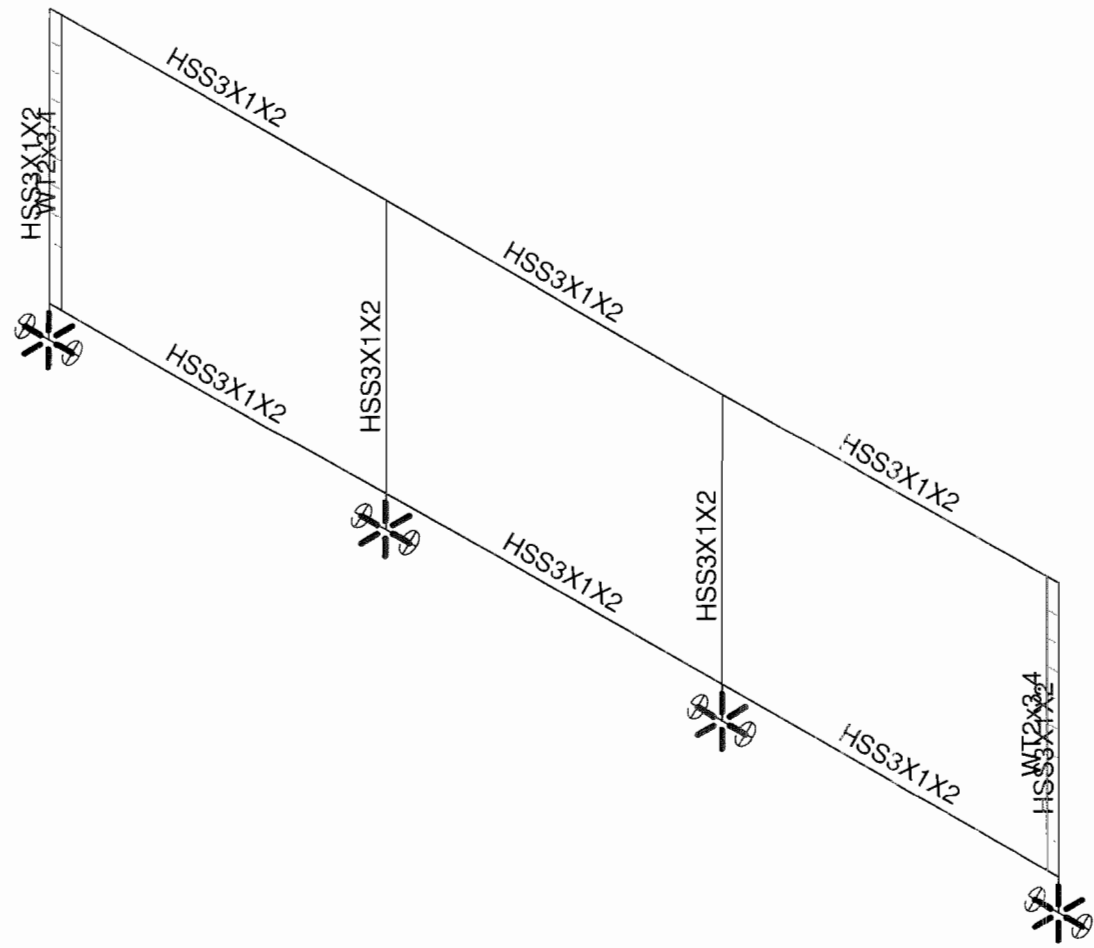
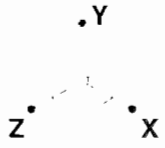
Disclaimer: Analysis and Structural Certification DOES NOT include base plates or anchorage to supporting structure. Where required by the Local Building Official, these shall be reviewed and designed by the project Structural Engineer of Record.



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D10b - 3x1 TUBE x 36-1/2" HIGH RAIL W/ T2x1.5x0.25 W/ BTM RAIL

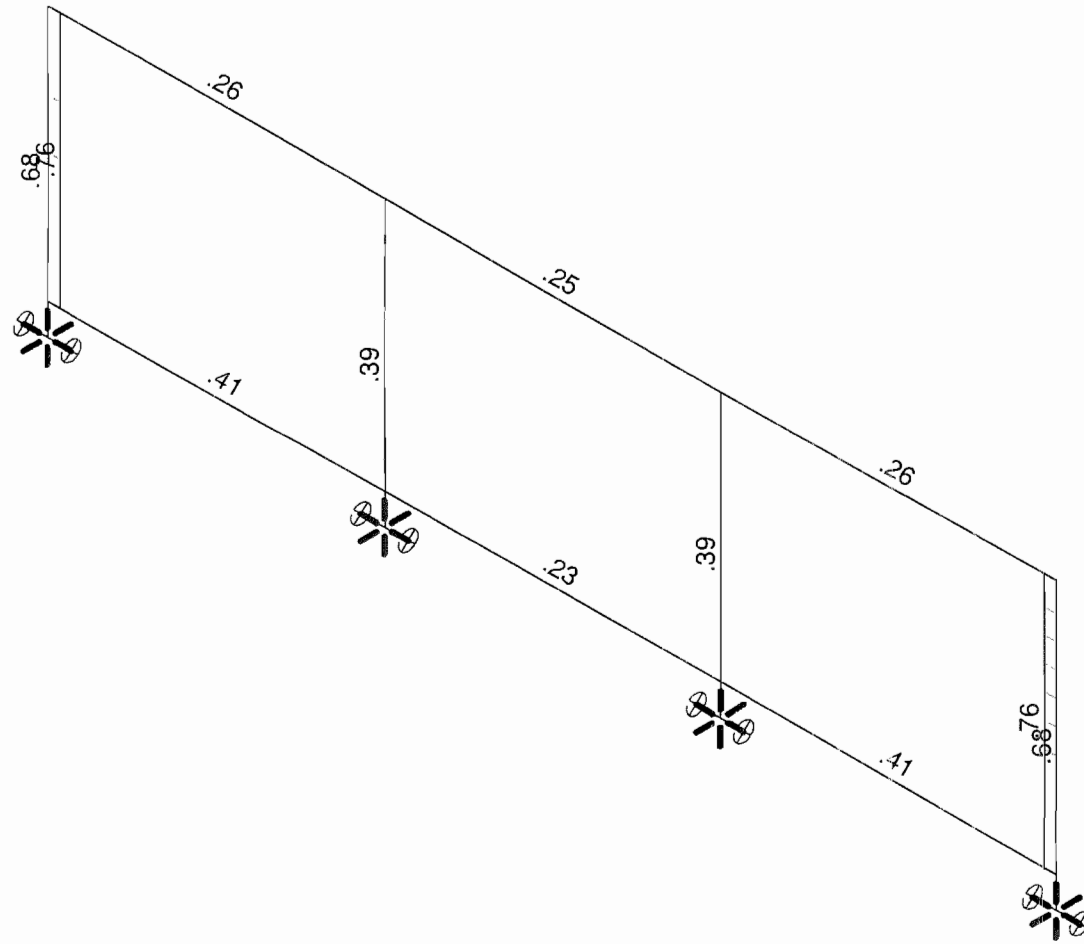
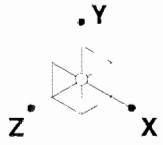
Dec 10, 2008 at 2:33 PM
D10b.R3D



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D10b - 3x1 TUBE x 36-1/2" HIGH RAIL W/ T2x1.5x0.25 W/ BTM RAIL

Dec 10, 2008 at 2:34 PM
 D10b.R3D



Member Code Checks Displayed
Solution: Envelope

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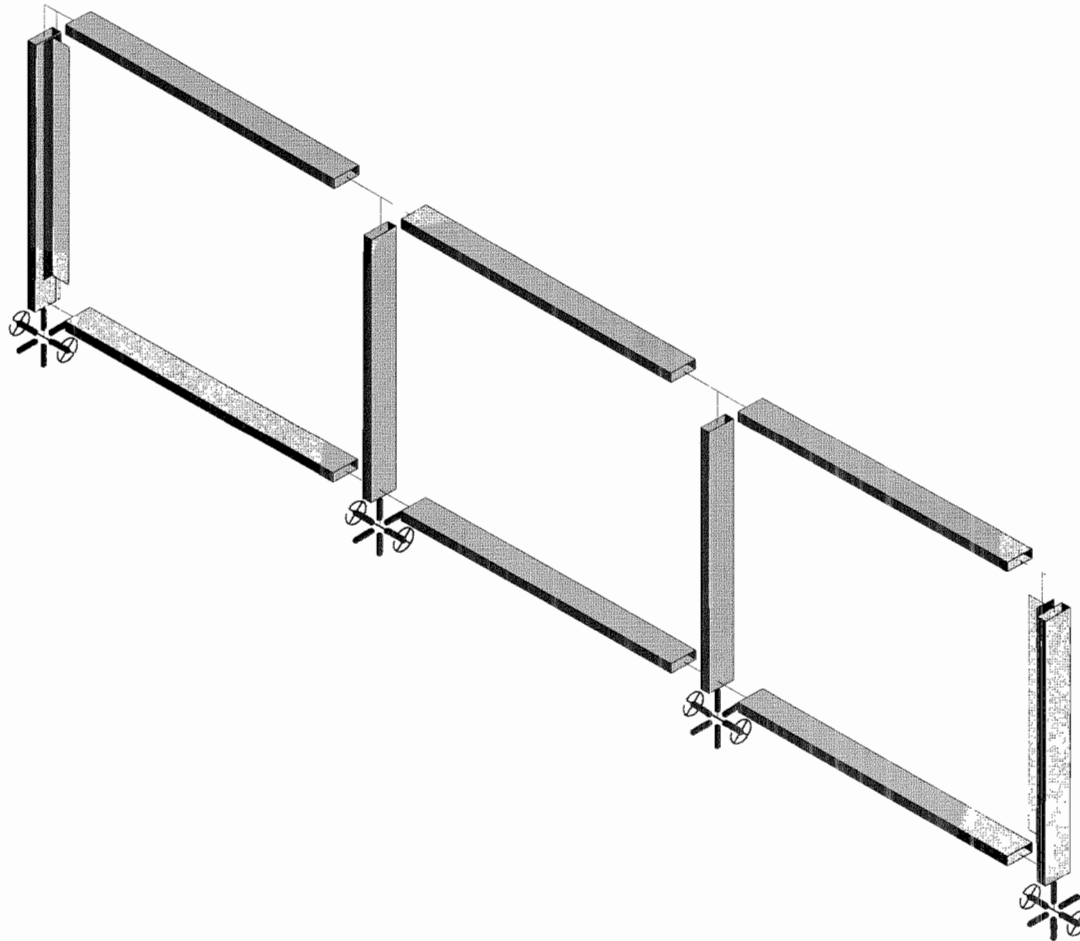
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D10b - 3x1 TUBE x 36-1/2" HIGH RAIL W/ T2x1.5x0.25 W/ BTM RAIL

Dec 10, 2008 at 2:34 PM

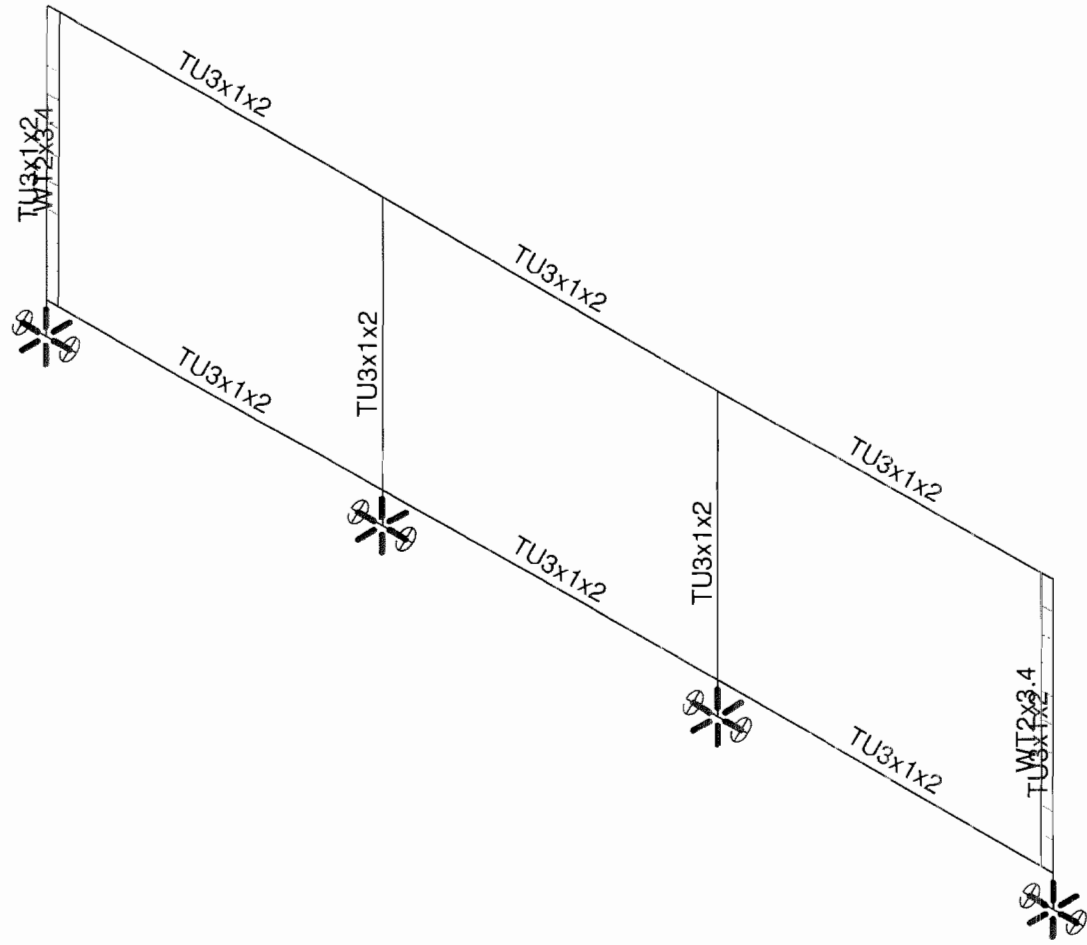
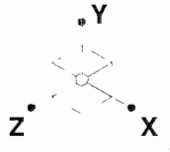
D10b.R3D



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D10b - 3x1 TUBE x 36-1/2" HIGH RAIL W/ T2x1.5x0.25 W/ BTM RAIL

Dec 10, 2008 at 2:37 PM
D10bss.R3D



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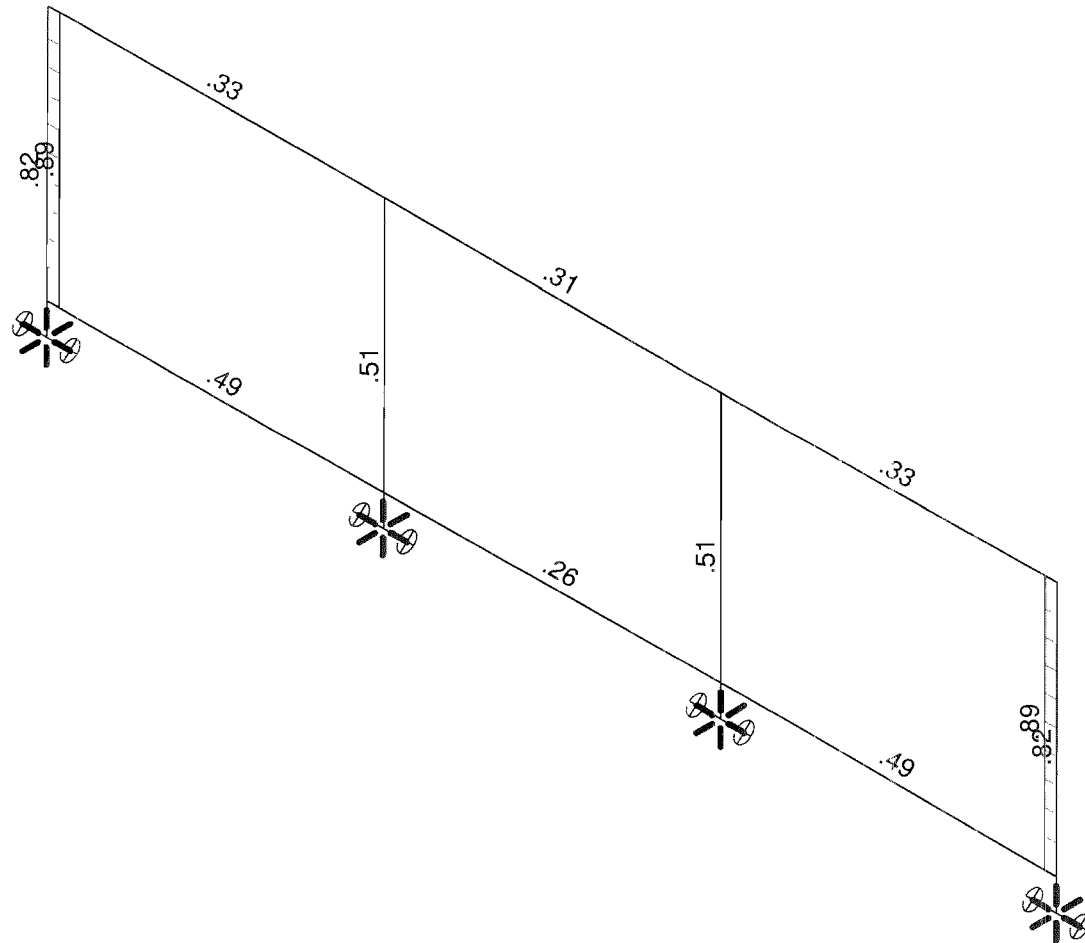
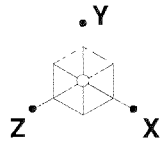
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D10b - 3x1 TUBE x 36-1/2" HIGH RAIL W/ T2x1.5x0.25 W/ BTM RAIL

Dec 10, 2008 at 2:37 PM

D10bss.R3D



Member Code Checks Displayed
 Solution: Envelope
 Reaction units are lb and k-ft

Ferrari Shields & Associates

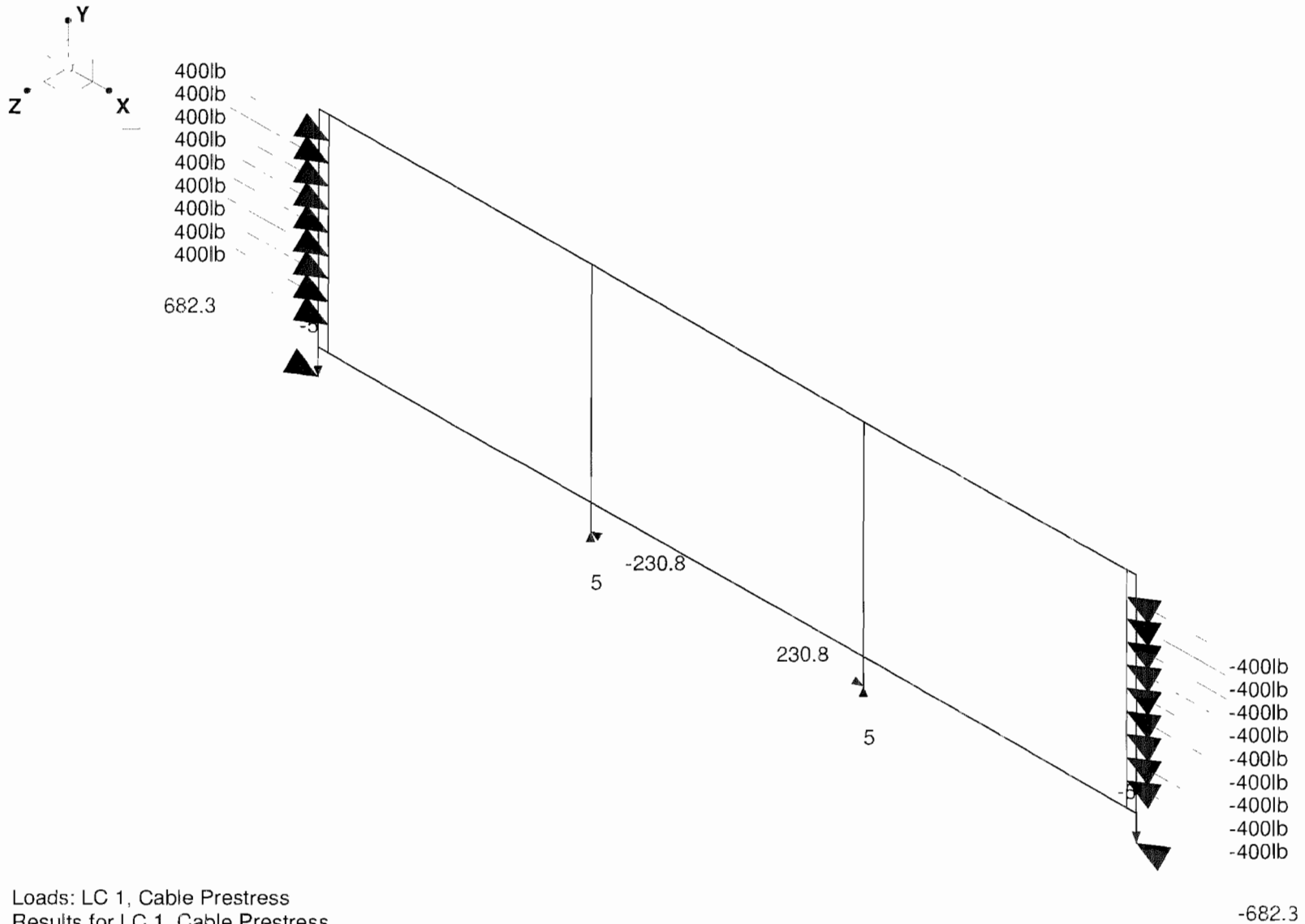
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D10b - 3x1 TUBE x 36-1/2" HIGH RAIL W/ T2x1.5x0.25 W/ BTM RAIL

Dec 10, 2008 at 2:38 PM

D10bss.R3D



Loads: LC 1, Cable Prestress
 Results for LC 1, Cable Prestress
 Reaction units are lb and k-ft

Ferrari Shields & Associates

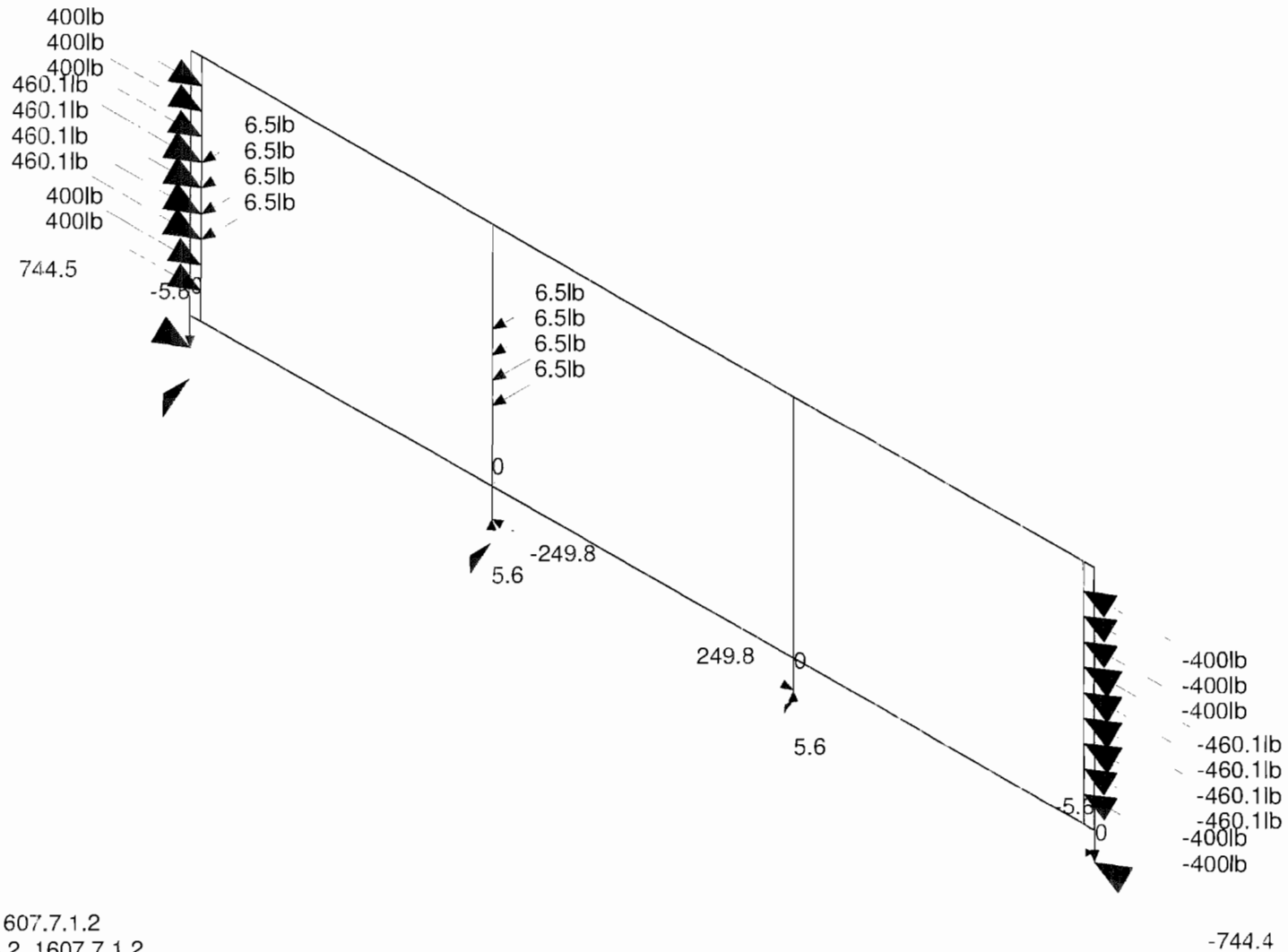
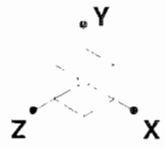
D10b - 3x1 TUBE x 36-1/2" HIGH RAIL W/ T2x1.5x0.25 W/ BTM RAIL

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Dec 10, 2008 at 2:35 PM

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D10b.R3D

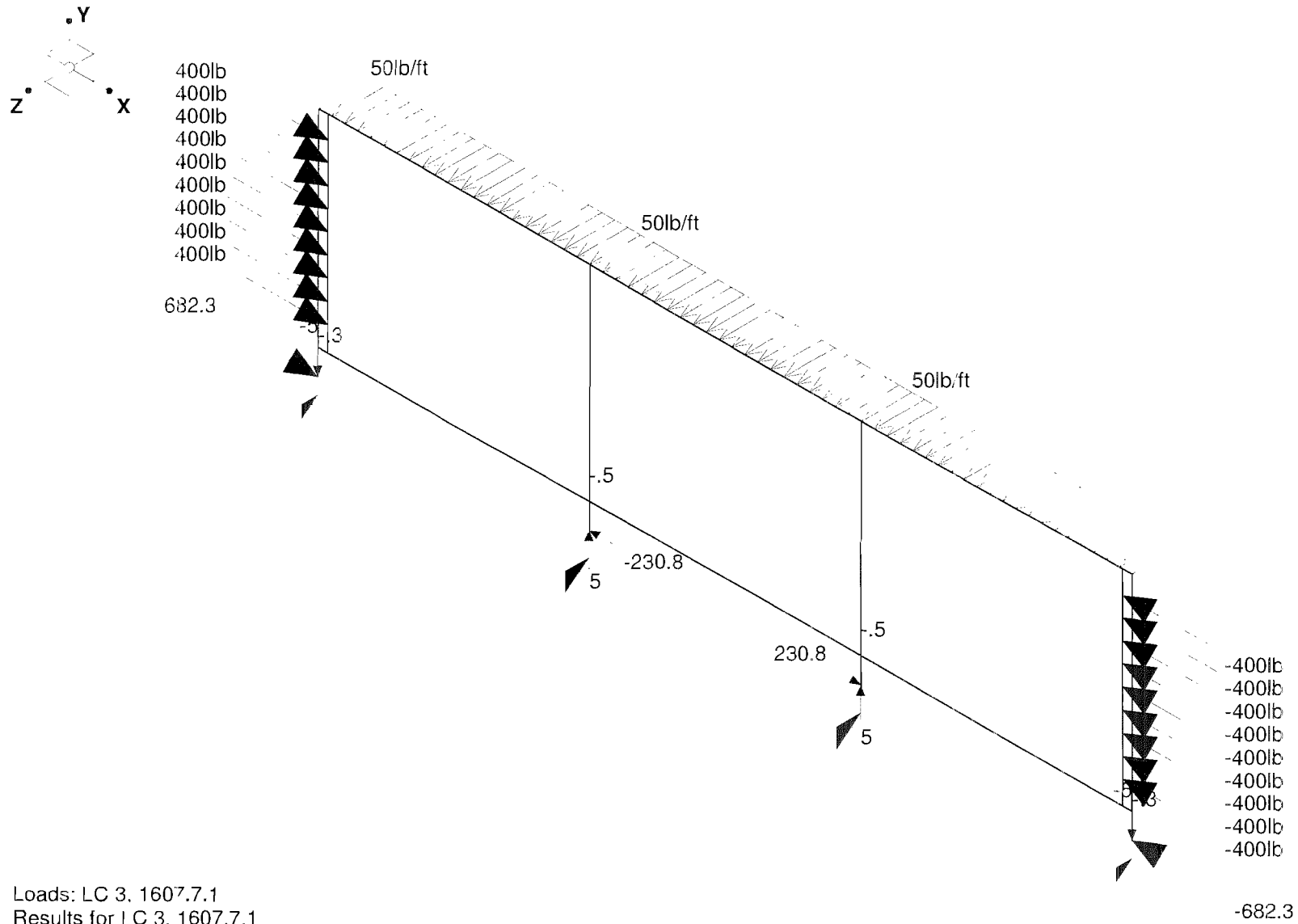


Loads: LC 2, 1607.7.1.2
 Results for LC 2, 1607.7.1.2
 Reaction units are lb and k-ft

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D10b - 3x1 TUBE x 36-1/2" HIGH RAIL W/ T2x1.5x0.25 W/ BTM RAIL

Dec 10, 2008 at 2:35 PM
 D10b.R3D



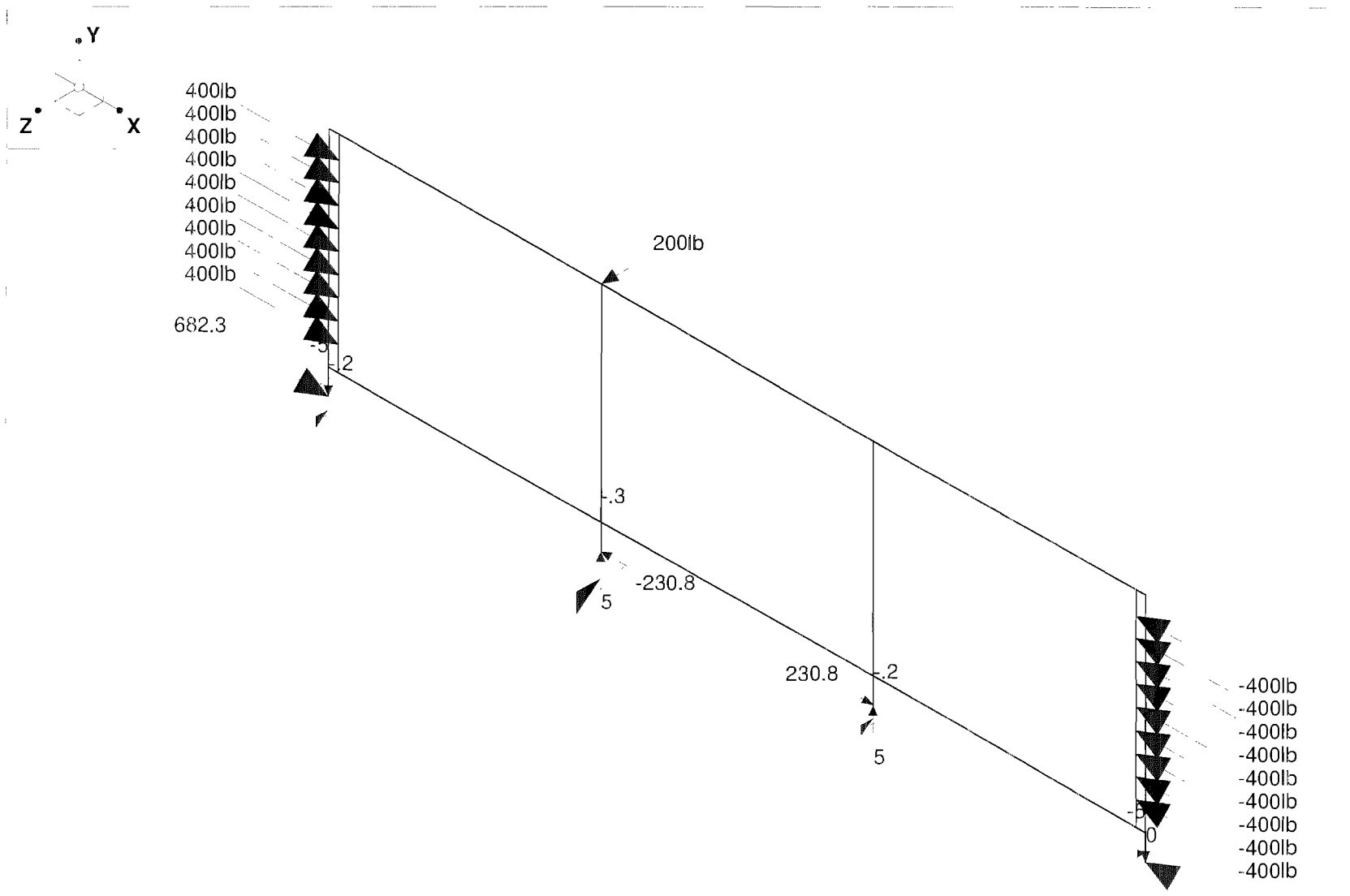
Loads: LC 3, 1607.7.1
 Results for LC 3, 1607.7.1
 Reaction units are lb and k-ft

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D10b - 3x1 TUBE x 36-1/2" HIGH RAIL W/ T2x1.5x0.25 W/ BTM RAIL

Dec 10, 2008 at 2:35 PM

D10b.R3D

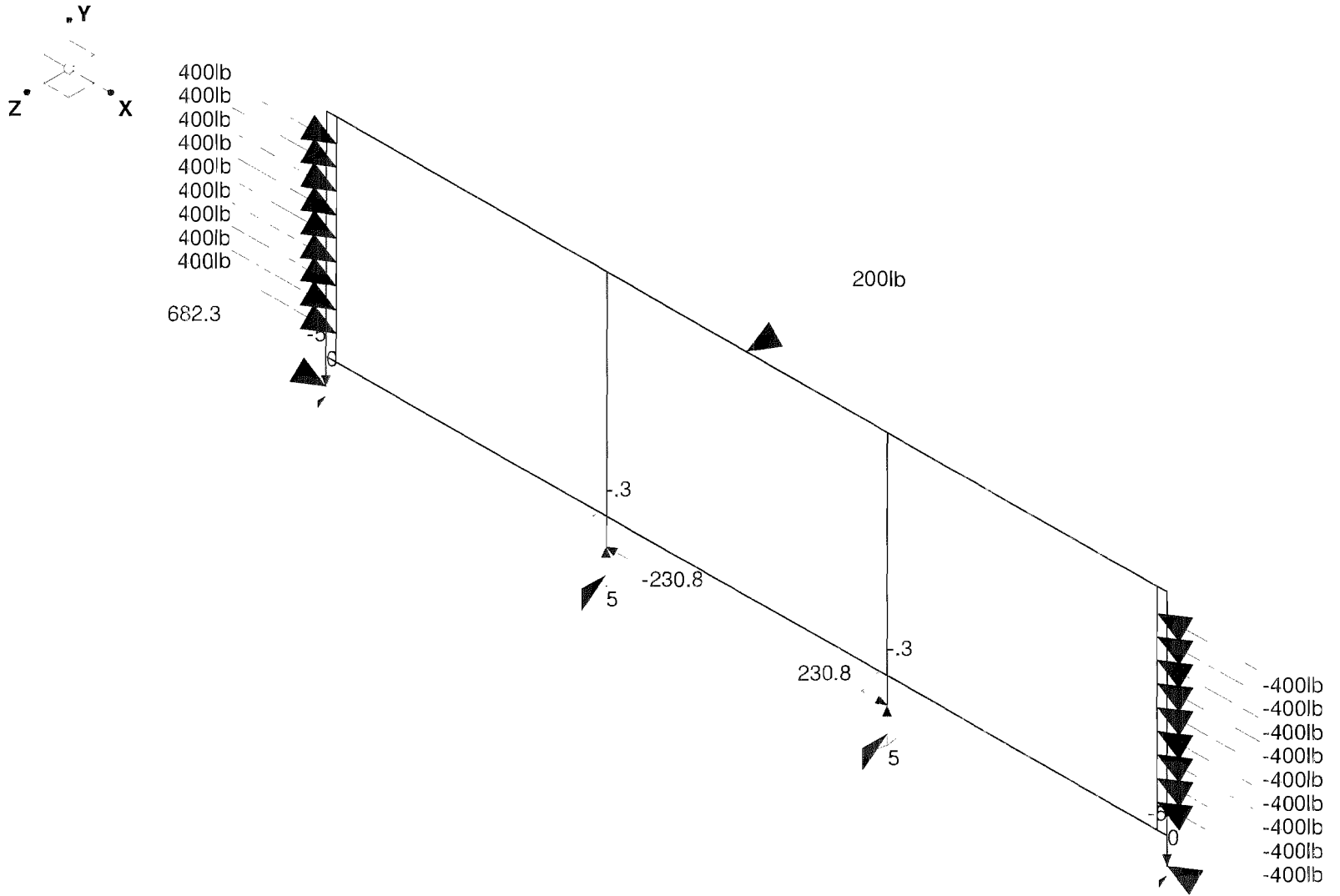


Loads: LC 4, 1607.7.1.1 (1)
 Results for LC 4, 1607.7.1.1 (1)
 Reaction units are lb and k-ft

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D10b - 3x1 TUBE x 36-1/2" HIGH RAIL W/ T2x1.5x0.25 W/ BTM RAIL

Dec 10, 2008 at 2:35 PM
 D10b.R3D

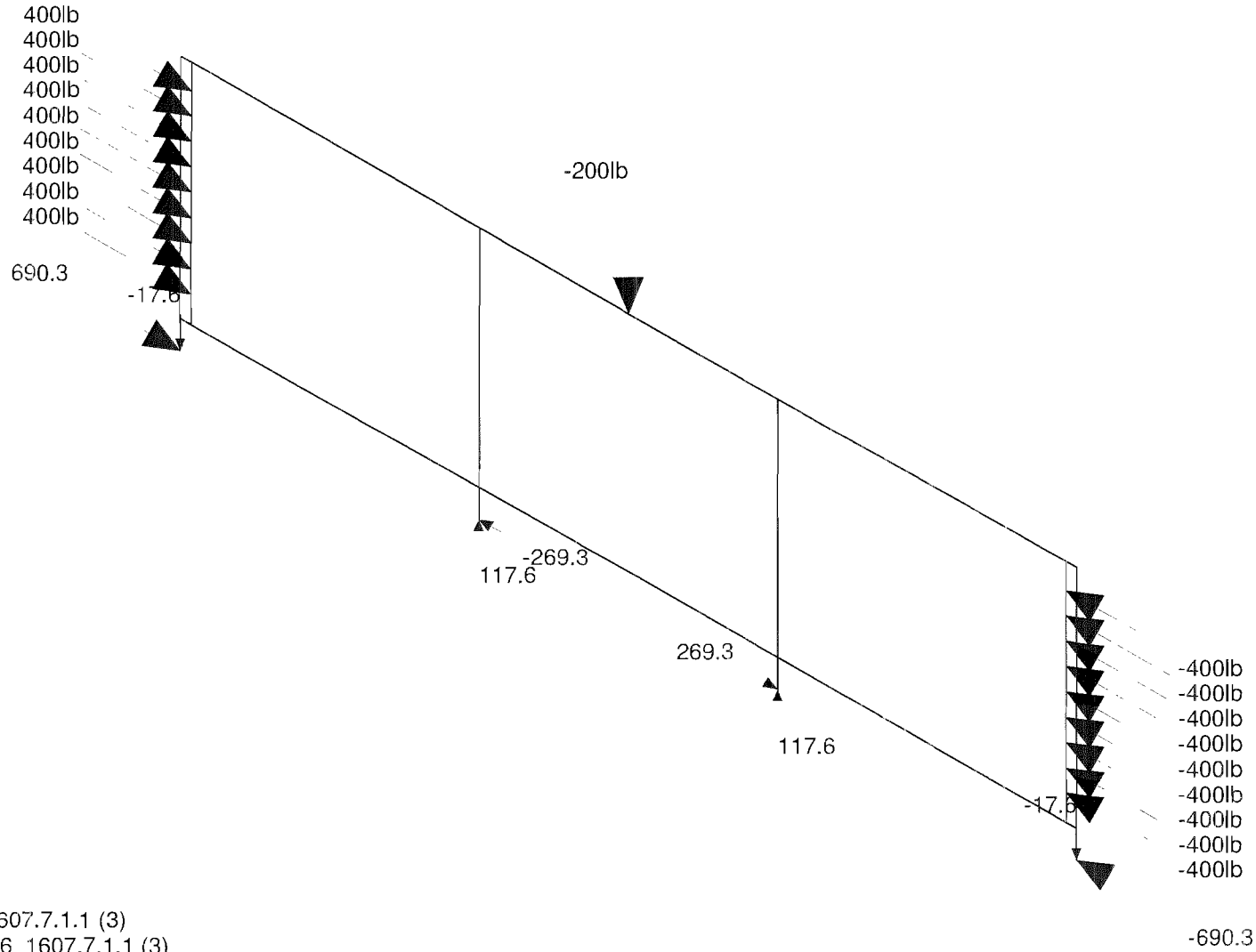
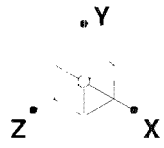


Loads: LC 5, 1607.7.1.1. (2)
 Results for LC 5, 1607.7.1.1. (2)
 Reaction units are lb and k-ft

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D10b - 3x1 TUBE x 36-1/2" HIGH RAIL W/ T2x1.5x0.25 W/ BTM RAIL

Dec 10, 2008 at 2:36 PM
 D10b.R3D



Loads: LC 6, 1607.7.1.1 (3)
 Results for LC 6, 1607.7.1.1 (3)
 Reaction units are lb and k-ft

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D10b - 3x1 TUBE x 36-1/2" HIGH RAIL W/ T2x1.5x0.25 W/ BTM RAIL

Dec 10, 2008 at 2:36 PM
 D10b.R3D

Global

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation	Yes
Include Warping	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Vertical Axis	Y
Hot Rolled Steel Code	AISC : ASD 13th
Cold Formed Steel Code	AISI 01: ASD
Wood Code	NDS 2005: ASD
Wood Temperature	< 100F
Concrete Code	ACI 2005
Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	PCA Load Contour
Parame Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections	Yes
Bad Framing Warnings	No
Unused Force Warnings	Yes

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (1E5 F)	Density[k/ft^3]	Yield[ksi]
1	A500Gr42	29000	11154	.3	.65	.49	42
2	A36	29000	11154	.3	.65	.49	36
3	SS316	28000	11154	.3	.65	.49	30
4	LDX2101	28000	11154	.3	.65	.49	60

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rules	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	RAIL	HSS3X1X2	Beam	Tube	A500Gr42	Typical	.841	.138	.818	.409
2	ERAIL	HSS3X1X2	Beam	Tube	A500Gr42	Typical	.841	.138	.818	.409
3	POST	HSS3X1X2	Column	Tube	A500Gr42	Typical	.841	.138	.818	.409
4	EPOST	HSS3X1X2	Column	Tube	A500Gr42	Typical	.841	.138	.818	.409
5	TEE	WT2x3.4	Column	W_Tee	A36	Typical	.938	.169	.348	.018

General Material Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (1E5 F)	Density[k/ft^3]
1	GEN_RIGID	1e+6		.3	.65	0

General Section Sets

	Label	Shape	Type	Material	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	LINK	ARB_LINK_1	Beam	GEN_RIGID	1e+6	1e+6	1e+6	1

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area (Mem...	Surface (Pl...
1	Cable Prestress	None				18				
2	1607.7.1.2	None				16				
3	1607.7.1	None						3		
4	1607.7.1.1 (1)	None				1				
5	1607.7.1.1 (2)	None					1			
6	1607.7.1.1 (3)	None					1			

Load Combinations

	Description	Solve	PDelta	SR...	BLC Factor	BLC Factor	BLC Factor	BLC Factor	BLC Factor	BLC Factor	BLC Factor	BLC Factor
1	Cable Prestress	Yes	C		1	1						
2	1607.7.1.2	Yes	C		1	1	2	1				
3	1607.7.1	Yes	C		1	1	3	1				
4	1607.7.1.1 (1)	Yes	C		1	1	4	1				
5	1607.7.1.1 (2)	Yes	C		1	1	5	1				
6	1607.7.1.1 (3)	Yes	C		1	1	6	1				

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N1	N2		90	EPOST	Column	Tube	A500Gr42	Typical
2	M2	N3	N4		90	POST	Column	Tube	A500Gr42	Typical
3	M3	N2	N4		90	ERAIL	Beam	Tube	A500Gr42	Typical
4	M4	N4	N8		90	RAIL	Beam	Tube	A500Gr42	Typical
5	M5	N5	N6		90	EPOST	Column	Tube	A500Gr42	Typical
6	M6	N7	N8		90	POST	Column	Tube	A500Gr42	Typical
7	M7	N8	N6		90	ERAIL	Beam	Tube	A500Gr42	Typical
8	M8	N14	N13		180	TEE	Column	W Tee	A36	Typical
9	M9	N12	N11			TEE	Column	W Tee	A36	Typical
10	M10	N15	N17			LINK	Beam	None	GEN_RIGID	Typical
11	M11	N18	N16			LINK	Beam	None	GEN_RIGID	Typical
12	M12	N19	N21			LINK	Beam	None	GEN_RIGID	Typical
13	M13	N22	N20			LINK	Beam	None	GEN_RIGID	Typical
14	M14	N23	N25			LINK	Beam	None	GEN_RIGID	Typical
15	M15	N26	N24			LINK	Beam	None	GEN_RIGID	Typical
16	M16	N27	N29			LINK	Beam	None	GEN_RIGID	Typical
17	M17	N30	N28			LINK	Beam	None	GEN_RIGID	Typical
18	M18	N31	N33			LINK	Beam	None	GEN_RIGID	Typical
19	M19	N34	N32			LINK	Beam	None	GEN_RIGID	Typical
20	M20	N35	N37			LINK	Beam	None	GEN_RIGID	Typical
21	M21	N38	N36			LINK	Beam	None	GEN_RIGID	Typical
22	M22	N39	N41			LINK	Beam	None	GEN_RIGID	Typical
23	M23	N42	N40			LINK	Beam	None	GEN_RIGID	Typical
24	M24	N9	N47		90	ERAIL	Beam	Tube	A500Gr42	Typical
25	M25	N47	N48		90	RAIL	Beam	Tube	A500Gr42	Typical
26	M26	N48	N10		90	ERAIL	Beam	Tube	A500Gr42	Typical
27	M27	N49	N51			LINK	Beam	None	GEN_RIGID	Typical
28	M28	N52	N50			LINK	Beam	None	GEN_RIGID	Typical
29	M29	N53	N55			LINK	Beam	None	GEN_RIGID	Typical
30	M30	N56	N54			LINK	Beam	None	GEN_RIGID	Typical

Envelope Joint Reactions

	Joint		X [lb]	lc	Y [lb]	lc	Z [lb]	lc	MX [k-ft]	lc	MY [k-ft]	lc	MZ [k-ft]	lc
1	N1	max	744.452	2	-5.02	4	.247	5	0	1	0	1	0	1
2		min	682.294	1	-17.588	6	-83.344	3	-.324	3	0	1	0	1
3	N3	max	-230.817	1	117.585	6	0	1	0	1	0	1	0	1
4		min	-269.33	6	5.019	4	-179.154	3	-.494	3	0	1	0	1
5	N5	max	-682.291	1	-5.018	4	11.18	4	.004	4	0	1	0	1
6		min	-744.449	2	-17.588	6	-83.338	3	-.324	3	0	1	0	1
7	N7	max	269.3	6	117.589	6	0	1	0	1	0	1	0	1
8		min	230.815	1	5.018	4	-179.153	3	-.494	3	0	1	0	1
9	Totals:	max	.001	2	199.998	6	0	1						
10		min	.001	6	-.002	2	-524.989	3						

Envelope Member Section Forces

	Member	Sec		Axial[lb]	lc	y Shear[lb]	lc	z Shear[lb]	lc	Torque[k-ft]	lc	y-y Moment[...]	lc	z-z Moment[...]	lc
1	M1	1	max	-5.02	4	.247	5	744.452	2	0	1	0	1	0	1
2			min	-17.588	6	-83.344	3	682.294	1	0	1	0	1	-.324	3
3		2	max	2242.423	2	62.423	5	-431.178	1	.012	3	-.039	6	0	1
4			min	2086.542	6	-16.559	2	-472.008	2	0	1	-.042	2	-.211	3
5		3	max	6101.542	2	60.658	5	-83.936	1	.012	3	-.116	1	0	1
6			min	5556.902	1	-12.847	2	-89.888	2	0	2	-.128	2	-.143	3
7		4	max	4615.3	2	60.58	5	298.831	2	.012	3	-.109	1	0	1
8			min	4310.706	1	-7.631	2	267.108	6	0	2	-.118	2	-.07	3
9		5	max	382.56	6	33.566	5	487.582	2	.016	3	.039	2	0	2
10			min	355.211	4	-11.353	3	461.433	4	-.001	2	.035	6	-.016	3
11	M2	1	max	117.585	6	0	1	-230.821	1	0	1	0	1	0	1
12			min	5.019	4	-179.158	3	-269.422	6	0	1	0	1	-.494	3
13		2	max	67.675	6	0	1	38.253	6	.012	5	-.009	1	0	1
14			min	-49.555	2	-168.885	3	17.081	1	0	2	-.017	6	-.366	3
15		3	max	67.675	6	0	1	38.263	6	.012	5	.012	6	0	1
16			min	-49.555	2	-168.885	3	17.081	1	0	2	.004	1	-.239	3
17		4	max	67.675	6	1.875	2	38.145	6	.012	5	.04	6	.002	2
18			min	-49.555	2	-168.885	3	17.081	1	0	2	.017	1	-.112	3
19		5	max	67.675	6	1.875	2	38.145	6	.012	5	.069	6	.024	4
20			min	-49.555	2	-168.885	3	17.081	1	0	2	.029	1	0	1
21	M3	1	max	484.904	2	33.093	5	-352.519	4	0	2	.039	2	.001	2
22			min	459.057	4	-10.788	3	-379.82	6	-.016	3	.035	6	-.016	3
23		2	max	1814.906	2	0	1	-32.331	6	0	2	.087	2	.037	3
24			min	1707.776	6	-52.497	3	-49.548	2	-.016	5	.077	6	-.01	5
25		3	max	1814.906	2	0	1	-32.331	6	0	2	.048	6	.064	3
26			min	1707.776	6	-43.825	4	-49.548	2	-.016	5	.04	1	0	5
27		4	max	1814.906	2	35.003	3	-32.331	6	0	2	.02	6	.092	4
28			min	1707.776	6	-43.825	4	-49.548	2	-.016	5	0	1	0	1
29		5	max	1814.906	2	78.753	3	-32.331	6	0	2	-.008	6	.131	4
30			min	1707.776	6	-43.825	4	-49.548	2	-.016	5	-.043	2	0	1
31	M4	1	max	1833.351	2	47.299	4	0	2	.012	4	.061	6	.13	4
32			min	1731.427	4	-100	5	-99.995	6	0	1	-.012	2	-.003	3
33		2	max	1833.351	2	47.299	4	0	2	.012	4	-.011	1	.095	5
34			min	1731.427	4	-100	5	-99.995	6	0	1	-.027	6	0	1
35		3	max	1833.351	2	100	5	100.005	6	.012	4	-.011	1	.182	5
36			min	1731.427	4	0	3	0	1	0	1	-.114	6	0	1
37		4	max	1833.351	2	100	5	100.005	6	.012	4	-.011	1	.095	5

Envelope Member Section Forces (Continued)

Member	Sec		Axial[lb]	lc	y Shear[lb]	lc	z Shear[lb]	lc	Torque[k-ft]	lc	y-y Moment[...]	lc	z-z Moment[...]	lc	
38		min	1731.427	4	0	1	0	1	0	1	-.027	6	-.002	2	
39	5	max	1833.351	2	100	5	100.005	6	.012	4	.061	6	.007	5	
40		min	1731.427	4	0	1	0	1	0	1	-.012	2	-.035	4	
41	M5	1	max	-5.018	4	11.18	4	-682.291	1	0	1	0	.004	4	
42		min	-17.588	6	-83.338	3	-744.449	2	0	1	0	1	-.324	3	
43		2	max	2242.439	2	62.425	5	472.007	2	0	1	.042	2	0	4
44		min	2086.561	6	0	1	431.177	1	-.012	3	.039	6	-.211	3	
45		3	max	6101.548	2	60.659	5	89.888	2	0	1	.128	2	0	2
46		min	5556.908	1	0	1	83.935	1	-.012	3	.116	1	-.143	3	
47		4	max	4615.291	2	60.581	5	-267.109	6	0	1	.118	2	0	2
48		min	4310.698	1	0	1	-298.832	2	-.012	3	.109	1	-.07	3	
49		5	max	382.553	6	33.566	5	-461.432	4	0	1	-.035	6	0	1
50		min	355.208	4	-11.351	3	-487.581	2	-.016	3	-.039	2	-.016	3	
51	M6	1	max	117.589	6	0	1	269.392	6	0	1	0	1	0	1
52		min	5.018	4	-179.157	3	230.819	1	0	1	0	1	-.494	3	
53		2	max	67.681	6	0	1	-17.082	1	0	1	.017	6	0	1
54		min	-49.555	2	-168.884	3	-38.211	6	-.012	5	.009	1	-.366	3	
55		3	max	67.681	6	0	1	-17.082	1	0	1	-.004	1	0	1
56		min	-49.555	2	-168.884	3	-38.211	6	-.012	5	-.012	6	-.239	3	
57		4	max	67.681	6	0	1	-17.082	1	0	1	-.017	1	0	1
58		min	-49.555	2	-168.884	3	-38.211	6	-.012	5	-.04	6	-.112	3	
59		5	max	67.681	6	0	1	-17.082	1	0	1	-.029	1	.016	5
60		min	-49.555	2	-168.884	3	-38.211	6	-.012	5	-.069	6	0	2	
61	M7	1	max	1814.905	2	10.995	5	49.549	2	.016	5	-.008	6	.019	5
62		min	1707.776	6	-78.753	3	32.335	6	0	1	-.043	2	-.024	4	
63		2	max	1814.905	2	10.995	5	49.549	2	.016	5	.02	6	.053	3
64		min	1707.776	6	-35.003	3	32.335	6	0	1	0	1	-.021	4	
65		3	max	1814.905	2	10.995	5	49.549	2	.016	5	.048	6	.064	3
66		min	1707.776	6	-3.42	4	32.335	6	0	1	.04	1	-.018	4	
67		4	max	1814.905	2	52.497	3	49.549	2	.016	5	.087	2	.037	3
68		min	1707.776	6	-3.42	4	32.335	6	0	1	.077	6	-.015	4	
69		5	max	484.903	2	10.786	3	379.813	6	.016	3	.039	2	0	1
70		min	459.057	4	-33.093	5	352.515	4	0	1	.035	6	-.016	3	
71	M8	1	max	268.561	2	1306.286	2	44.553	5	0	1	0	2	.198	2
72		min	238.155	1	1217.999	1	0	1	-.001	3	-.039	3	.182	1	
73		2	max	-3716.315	1	886.635	2	117.663	3	0	1	0	2	-.187	1
74		min	-4046.026	2	784.806	1	0	1	0	3	-.042	3	-.203	2	
75		3	max	-5621.515	1	222.222	2	119.598	3	0	1	0	2	-.328	1
76		min	-6148.95	2	207.506	1	0	1	0	3	-.04	3	-.36	2	
77		4	max	-4264.837	1	-660.35	6	119.103	3	0	1	0	2	-.22	1
78		min	-4565.736	2	-738.776	2	0	1	0	3	-.012	3	-.235	2	
79		5	max	-309.346	4	-1245.462	6	83.814	3	0	1	.002	3	.131	2
80		min	-350.229	6	-1330.001	2	0	1	0	3	-.002	4	.113	6	
81	M9	1	max	268.568	2	1306.284	2	0	1	.001	3	.039	3	.198	2
82		min	238.162	1	1217.997	1	-44.552	5	0	1	0	1	.182	1	
83		2	max	-3716.304	1	886.637	2	0	1	0	3	.042	3	-.187	1
84		min	-4046.014	2	784.808	1	-117.661	3	0	1	0	1	-.203	2	
85		3	max	-5621.515	1	222.224	2	0	1	0	3	.04	3	-.328	1
86		min	-6148.949	2	207.508	1	-119.597	3	0	2	0	1	-.36	2	
87		4	max	-4264.845	1	-660.348	6	5.805	2	0	3	.012	3	-.22	1
88		min	-4565.745	2	-738.775	2	-119.101	3	0	2	0	1	-.235	2	
89		5	max	-309.35	4	-1245.46	6	4.167	2	0	3	.002	5	.131	2
90		min	-350.24	6	-1330.002	2	-83.812	3	0	2	-.002	3	.113	6	

Envelope Member Section Forces (Continued)

Member	Sec		Axial[lb]	lc	y Shear[lb]	lc	z Shear[lb]	lc	Torque[k-ft]	lc	y-y Moment[...]	lc	z-z Moment[...]	lc	
91	M24	1	max	1465.365	2	0	1	-194.291	1	0	1	.102	2	.022	3
92			min	1351.338	1	-36.485	4	-221.693	2	-.04	3	.093	1	0	1
93		2	max	2769.907	2	10.225	3	55.717	2	0	2	-.075	6	.019	3
94			min	2567.912	1	0	1	50.403	6	-.003	5	-.081	2	0	1
95		3	max	2769.907	2	10.225	3	55.717	2	0	2	-.03	1	.01	3
96			min	2567.912	1	0	1	50.403	6	-.003	5	-.032	2	0	1
97		4	max	2769.907	2	10.225	3	55.717	2	0	2	.016	2	.002	4
98			min	2567.912	1	0	1	50.403	6	-.003	5	.013	6	-.002	5
99		5	max	2769.907	2	10.225	3	55.717	2	0	2	.065	2	0	2
100			min	2567.912	1	0	1	50.403	6	-.003	5	.057	6	-.01	5
101	M25	1	max	2501.62	2	0	1	0	2	.003	4	0	6	.002	5
102			min	2274.934	6	-2.271	4	-.003	6	0	1	0	2	-.004	4
103		2	max	2501.62	2	0	1	0	2	.003	4	0	6	.002	5
104			min	2274.934	6	-2.271	4	-.003	6	0	1	0	2	-.002	4
105		3	max	2501.62	2	0	1	0	2	.003	4	0	6	.002	5
106			min	2274.934	6	-2.271	4	-.003	6	0	1	0	2	-.002	3
107		4	max	2501.62	2	0	1	0	2	.003	4	0	6	.002	5
108			min	2274.934	6	-2.271	4	-.003	6	0	1	0	2	-.002	3
109		5	max	2501.62	2	0	1	0	2	.003	4	0	6	.004	4
110			min	2274.934	6	-2.271	4	-.003	6	0	1	0	2	-.002	3
111	M26	1	max	2769.907	2	0	1	-50.407	6	.003	5	.065	2	0	1
112			min	2567.911	1	-10.225	3	-55.716	2	0	1	.058	6	-.01	5
113		2	max	2769.907	2	0	1	-50.407	6	.003	5	.016	2	0	3
114			min	2567.911	1	-10.225	3	-55.716	2	0	1	.013	6	-.003	4
115		3	max	2769.907	2	0	1	-50.407	6	.003	5	-.03	1	.01	3
116			min	2567.911	1	-10.225	3	-55.716	2	0	1	-.032	2	0	1
117		4	max	2769.907	2	0	1	-50.407	6	.003	5	-.075	6	.019	3
118			min	2567.911	1	-10.225	3	-55.716	2	0	1	-.081	2	0	1
119		5	max	1465.363	2	36.46	5	221.686	2	.04	3	.102	2	.022	3
120			min	1351.336	1	0	1	194.285	1	0	1	.093	1	0	1

Envelope AISC 13th ASD Steel Code Checks

Member	Shape	Code Check	Loc[in]	lc	Shear ...	Loc[in]	Dir	lc	Pnc/om [lb]	Pnt/om [lb]	Mnyy/om [k-ft]	Mnzz/om ...	Cb	LRFD E...
1	M1	HSS3X1X2	.679	19.875	3	.337	4.125	z	3	13014.498	21154.469	.683	1.528	1.... H1-1a
2	M2	HSS3X1X2	.393	3.75	3	.118	0	z	6	13014.498	21154.469	.683	1.528	1.... H1-1b
3	M3	HSS3X1X2	.264	1.75	2	.188	0	z	3	10920.289	21154.469	.683	1.528	1.... H1-1b
4	M4	HSS3X1X2	.247	21	6	.044	21	z	6	10920.289	21154.469	.683	1.528	1 H1-1b
5	M5	HSS3X1X2	.679	19.875	3	.337	4.125	z	3	13014.498	21154.469	.683	1.528	1.... H1-1a
6	M6	HSS3X1X2	.393	3.75	3	.118	0	z	6	13014.498	21154.469	.683	1.528	1.... H1-1b
7	M7	HSS3X1X2	.264	40.25	2	.188	40.688	z	3	10920.289	21154.469	.683	1.528	1.... H1-1b
8	M8	WT2x3.4	.763	16	3	.206	28.666	y	2	17474.88	20209.581	.486	.709	1 H1-1a
9	M9	WT2x3.4	.763	16	3	.206	28.666	y	2	17474.88	20209.581	.486	.709	1 H1-1a
10	M24	HSS3X1X2	.413	1.75	2	.168	0	z	3	10920.289	21154.469	.683	1.528	1.... H1-1a
11	M25	HSS3X1X2	.230	0	2	.006	0	z	4	10920.289	21154.469	.683	1.528	2.... H1-1a
12	M26	HSS3X1X2	.413	40.25	2	.168	40.688	z	3	10920.289	21154.469	.683	1.528	2.... H1-1a

Global

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation	Yes
Include Warping	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Vertical Axis	Y

Hot Rolled Steel Code	AISC ASD 13th
Cold Formed Steel Code	AISI 01: ASD
Wood Code	NDS 2005: ASD
Wood Temperature	< 100F
Concrete Code	ACI 2005

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	PCA Load Contour
Parame Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections	Yes
Bad Framing Warnings	No
Unused Force Warnings	Yes

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (1E5 F)	Density[k/ft^3]	Yield[ksi]
1	A500Gr42	29000	11154	.3	.65	.49	42
2	A36	29000	11154	.3	.65	.49	36
3	SS316	28000	11154	.3	.65	.49	30
4	LDX2101	28000	11154	.3	.65	.49	60

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rules	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	RAIL	TU3x1x2	Beam	Tube	SS316	Typical	.902	.149	.918	.41
2	ERAIL	TU3x1x2	Beam	Tube	SS316	Typical	.902	.149	.918	.41
3	POST	TU3x1x2	Column	Tube	SS316	Typical	.902	.149	.918	.41
4	EPOST	TU3x1x2	Column	Tube	SS316	Typical	.902	.149	.918	.41
5	TEE	WT2x3.4	Column	W_Tee	SS316	Typical	.938	.169	.348	.018

General Material Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (1E5 F)	Density[k/ft^3]
1	GEN_RIGID	1e+6		.3	.65	0

General Section Sets

	Label	Shape	Type	Material	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	LINK	ARB_LINK_1	Beam	GEN_RIGID	1e+6	1e+6	1e+6	1

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area (Mem...	Surface (Pl...
1	Cable Prestress	None				18				
2	1607.7.1.2	None				16				
3	1607.7.1	None						3		
4	1607.7.1.1 (1)	None				1				
5	1607.7.1.1 (2)	None					1			
6	1607.7.1.1 (3)	None					1			

Load Combinations

	Description	Solve	PDelta	SR...	BLC Factor	BLC Factor	BLC Factor	BLC Factor	BLC Factor	BLC Factor	BLC Factor	BLC Factor
1	Cable Prestress	Yes	C		1	1						
2	1607.7.1.2	Yes	C		1	1	2	1				
3	1607.7.1	Yes	C		1	1	3	1				
4	1607.7.1.1 (1)	Yes	C		1	1	4	1				
5	1607.7.1.1 (2)	Yes	C		1	1	5	1				
6	1607.7.1.1 (3)	Yes	C		1	1	6	1				

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N1	N2		90	EPOST	Column	Tube	SS316	Typical
2	M2	N3	N4		90	POST	Column	Tube	SS316	Typical
3	M3	N2	N4		90	ERAIL	Beam	Tube	SS316	Typical
4	M4	N4	N8		90	RAIL	Beam	Tube	SS316	Typical
5	M5	N5	N6		90	EPOST	Column	Tube	SS316	Typical
6	M6	N7	N8		90	POST	Column	Tube	SS316	Typical
7	M7	N8	N6		90	ERAIL	Beam	Tube	SS316	Typical
8	M8	N14	N13		180	TEE	Column	W Tee	SS316	Typical
9	M9	N12	N11			TEE	Column	W Tee	SS316	Typical
10	M10	N15	N17			LINK	Beam	None	GEN_RIGID	Typical
11	M11	N18	N16			LINK	Beam	None	GEN_RIGID	Typical
12	M12	N19	N21			LINK	Beam	None	GEN_RIGID	Typical
13	M13	N22	N20			LINK	Beam	None	GEN_RIGID	Typical
14	M14	N23	N25			LINK	Beam	None	GEN_RIGID	Typical
15	M15	N26	N24			LINK	Beam	None	GEN_RIGID	Typical
16	M16	N27	N29			LINK	Beam	None	GEN_RIGID	Typical
17	M17	N30	N28			LINK	Beam	None	GEN_RIGID	Typical
18	M18	N31	N33			LINK	Beam	None	GEN_RIGID	Typical
19	M19	N34	N32			LINK	Beam	None	GEN_RIGID	Typical
20	M20	N35	N37			LINK	Beam	None	GEN_RIGID	Typical
21	M21	N38	N36			LINK	Beam	None	GEN_RIGID	Typical
22	M22	N39	N41			LINK	Beam	None	GEN_RIGID	Typical
23	M23	N42	N40			LINK	Beam	None	GEN_RIGID	Typical
24	M24	N9	N47		90	ERAIL	Beam	Tube	SS316	Typical
25	M25	N47	N48		90	RAIL	Beam	Tube	SS316	Typical
26	M26	N48	N10		90	ERAIL	Beam	Tube	SS316	Typical
27	M27	N49	N51			LINK	Beam	None	GEN_RIGID	Typical
28	M28	N52	N50			LINK	Beam	None	GEN_RIGID	Typical
29	M29	N53	N55			LINK	Beam	None	GEN_RIGID	Typical
30	M30	N56	N54			LINK	Beam	None	GEN_RIGID	Typical

Envelope Joint Reactions

	Joint		X [lb]	lc	Y [lb]	lc	Z [lb]	lc	MX [k-ft]	lc	MY [k-ft]	lc	MZ [k-ft]	lc
1	N1	max	779.156	2	-4.734	4	0	1	0	1	0	1	0	1
2		min	714.201	1	-17.28	6	-83.743	3	-.321	3	0	1	0	1
3	N3	max	-237.762	1	117.279	6	0	1	0	1	0	1	0	1
4		min	-276.451	6	4.734	4	-178.765	3	-.495	3	0	1	0	1
5	N5	max	-714.2	1	-4.735	4	10.973	4	.005	4	0	1	0	1
6		min	-779.154	2	-17.282	6	-83.738	3	-.321	3	0	1	0	1
7	N7	max	276.428	6	117.283	6	0	1	0	1	0	1	0	1
8		min	237.765	1	4.734	4	-178.764	3	-.495	3	0	1	0	1
9	Totals:	max	.005	2	199.999	6	0	1						
10		min	.004	1	0	2	-525.009	3						

Envelope Member Section Forces

	Member	Sec		Axial[lb]	lc	y Shear[lb]	lc	z Shear[lb]	lc	Torque[k-ft]	lc	y-y Moment[...]	lc	z-z Moment[...]	lc
1	M1	1	max	-4.734	4	0	1	779.156	2	0	1	0	1	0	1
2			min	-17.28	6	-83.743	3	714.201	1	0	1	0	1	-.321	3
3		2	max	2188.548	2	59.53	5	-455.371	1	.012	3	-.04	6	0	1
4			min	2036.595	6	-16.733	2	-498.478	2	0	1	-.042	2	-.211	3
5		3	max	6081.615	2	57.916	5	-89.533	1	.011	3	-.121	1	0	1
6			min	5538.292	1	-12.842	2	-95.903	2	0	2	-.133	2	-.143	3
7		4	max	4603.222	2	57.843	5	313.689	2	.011	3	-.114	1	0	1
8			min	4299.858	1	-7.536	2	280.361	6	0	2	-.123	2	-.07	3
9		5	max	388.986	6	31.581	5	509.938	2	.016	3	.042	2	0	2
10			min	360.373	4	-15.535	3	482.658	4	-.001	2	.038	6	-.016	3
11	M2	1	max	117.279	6	0	1	-237.765	1	0	1	0	1	0	1
12			min	4.734	4	-178.768	3	-276.541	6	0	1	0	1	-.495	3
13		2	max	65.946	6	0	1	38.949	6	.011	5	-.009	1	0	1
14			min	-51.386	2	-169.033	3	17.753	1	0	2	-.017	6	-.367	3
15		3	max	65.946	6	0	1	38.959	6	.011	5	.012	6	0	1
16			min	-51.386	2	-169.033	3	17.753	1	0	2	.004	1	-.24	3
17		4	max	65.946	6	1.874	2	38.847	6	.011	5	.041	6	.002	2
18			min	-51.386	2	-169.033	3	17.753	1	0	2	.017	1	-.113	3
19		5	max	65.946	6	1.874	2	38.847	6	.011	5	.07	6	.022	4
20			min	-51.386	2	-169.033	3	17.753	1	0	2	.03	1	0	1
21	M3	1	max	507.246	2	31.094	5	-357.57	4	0	2	.042	2	.001	2
22			min	480.266	4	-15.053	3	-386.133	6	-.016	3	.038	6	-.016	3
23		2	max	1811.024	2	0	1	-34.074	6	0	2	.09	2	.038	3
24			min	1704.209	6	-52.172	3	-51.395	2	-.015	5	.08	6	-.009	5
25		3	max	1811.024	2	0	1	-34.074	6	0	2	.05	6	.065	3
26			min	1704.209	6	-43.694	4	-51.395	2	-.015	5	.042	1	0	1
27		4	max	1811.024	2	35.328	3	-34.074	6	0	2	.02	6	.093	4
28			min	1704.209	6	-43.694	4	-51.395	2	-.015	5	0	1	0	1
29		5	max	1811.024	2	79.078	3	-34.074	6	0	2	-.01	6	.131	4
30			min	1704.209	6	-43.694	4	-51.395	2	-.015	5	-.045	2	0	1
31	M4	1	max	1830.196	2	47.334	4	0	1	.011	4	.06	6	.131	4
32			min	1728.539	4	-100	5	-99.995	6	0	1	-.012	2	-.003	3
33		2	max	1830.196	2	47.334	4	0	1	.011	4	-.011	1	.096	5
34			min	1728.539	4	-100	5	-99.995	6	0	1	-.027	6	0	1
35		3	max	1830.196	2	100	5	100.005	6	.011	4	-.011	1	.183	5
36			min	1728.539	4	0	3	0	2	0	1	-.115	6	0	1
37		4	max	1830.196	2	100	5	100.005	6	.011	4	-.011	1	.096	5

Envelope Member Section Forces (Continued)

Member	Sec		Axial[lb]	lc	y Shear[lb]	lc	z Shear[lb]	lc	Torque[k-ft]	lc	y-y Moment[...]	lc	z-z Moment[...]	lc	
38		min	1728.539	4	0	1	0	2	0	1	-.027	6	-.002	2	
39	5	max	1830.196	2	100	5	100.005	6	.011	4	.06	6	.008	5	
40		min	1728.539	4	0	1	0	2	0	1	-.012	2	-.035	4	
41	M5	1	max	-4.735	4	10.973	4	-714.2	1	0	0	1	.005	4	
42		min	-17.282	6	-83.738	3	-779.154	2	0	1	0	1	-.321	3	
43	2	max	2188.552	2	59.531	5	498.478	2	0	1	.042	2	.002	4	
44		min	2036.603	6	0	1	455.371	1	-.012	3	.04	6	-.211	3	
45	3	max	6081.606	2	57.917	5	95.903	2	0	1	.133	2	0	2	
46		min	5538.283	1	0	1	89.533	1	-.011	3	.121	1	-.143	3	
47	4	max	4603.222	2	57.844	5	-280.36	6	0	1	.123	2	0	2	
48		min	4299.858	1	0	1	-313.687	2	-.011	3	.114	1	-.07	3	
49	5	max	388.985	6	31.581	5	-482.658	4	0	1	-.038	6	0	1	
50		min	360.375	4	-15.534	3	-509.939	2	-.016	3	-.042	2	-.016	3	
51	M6	1	max	117.283	6	0	1	276.518	6	0	0	1	0	1	
52		min	4.734	4	-178.767	3	237.768	1	0	1	0	1	-.495	3	
53	2	max	65.952	6	0	1	-17.753	1	0	1	.017	6	0	1	
54		min	-51.386	2	-169.032	3	-38.907	6	-.011	5	.009	1	-.367	3	
55	3	max	65.952	6	0	1	-17.753	1	0	1	-.004	1	0	1	
56		min	-51.386	2	-169.032	3	-38.907	6	-.011	5	-.012	6	-.24	3	
57	4	max	65.952	6	0	1	-17.753	1	0	1	-.017	1	0	1	
58		min	-51.386	2	-169.032	3	-38.907	6	-.011	5	-.041	6	-.113	3	
59	5	max	65.952	6	0	1	-17.753	1	0	1	-.03	1	.015	5	
60		min	-51.386	2	-169.032	3	-38.907	6	-.011	5	-.07	6	0	2	
61	M7	1	max	1811.024	2	10.786	5	51.395	2	.015	5	-.01	6	.019	5
62		min	1704.211	6	-79.078	3	34.076	6	0	1	-.045	2	-.024	4	
63	2	max	1811.024	2	10.786	5	51.395	2	.015	5	.02	6	.053	3	
64		min	1704.211	6	-35.328	3	34.076	6	0	1	0	1	-.021	4	
65	3	max	1811.024	2	10.786	5	51.395	2	.015	5	.05	6	.065	3	
66		min	1704.211	6	-3.634	4	34.076	6	0	1	.042	1	-.018	4	
67	4	max	1811.024	2	52.172	3	51.395	2	.015	5	.09	2	.038	3	
68		min	1704.211	6	-3.634	4	34.076	6	0	1	.08	6	-.014	4	
69	5	max	507.246	2	15.052	3	386.132	6	.016	3	.042	2	0	1	
70		min	480.267	4	-31.095	5	357.572	4	0	1	.038	6	-.016	3	
71	M8	1	max	307.462	2	1277.041	2	43.134	5	0	0	2	.2	2	
72		min	273.54	1	1190.739	1	0	1	0	3	-.036	3	.184	1	
73	2	max	-3677.943	1	869.801	2	111.973	3	0	1	0	2	-.178	1	
74		min	-4004.351	2	770.002	1	0	1	0	3	-.037	3	-.193	2	
75	3	max	-5606.402	1	220.072	2	113.65	3	0	1	0	2	-.316	1	
76		min	-6132.739	2	205.454	1	0	1	0	3	-.037	3	-.346	2	
77	4	max	-4252.301	1	-643.355	6	113.223	3	0	1	0	2	-.211	1	
78		min	-4551.836	2	-719.833	2	0	1	0	3	-.011	3	-.225	2	
79	5	max	-312.817	4	-1220.571	6	79.382	3	0	1	.002	3	.133	2	
80		min	-354.932	6	-1303.778	2	0	1	0	3	-.002	4	.115	6	
81	M9	1	max	307.462	2	1277.037	2	0	1	0	.036	3	.2	2	
82		min	273.54	1	1190.735	1	-43.189	4	0	1	0	1	.184	1	
83	2	max	-3677.941	1	869.804	2	0	1	0	3	.037	3	-.178	1	
84		min	-4004.349	2	770.004	1	-111.971	3	0	1	0	1	-.193	2	
85	3	max	-5606.41	1	220.073	2	0	1	0	3	.037	3	-.316	1	
86		min	-6132.748	2	205.455	1	-113.649	3	0	2	0	1	-.346	2	
87	4	max	-4252.301	1	-643.357	6	5.825	2	0	3	.011	3	-.211	1	
88		min	-4551.836	2	-719.836	2	-113.221	3	0	2	0	1	-.225	2	
89	5	max	-312.815	4	-1220.57	6	4.171	2	0	3	.001	5	.133	2	
90		min	-354.936	6	-1303.778	2	-79.381	3	0	2	-.002	3	.115	6	

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	lc	y Shear[lb]	lc	z Shear[lb]	lc	Torque[k-ft]	lc	y-y Moment[...]	lc	z-z Moment[...]	lc
91	M24	1	max	1533.413	2	0	1	-228.501	1	0	1	.106	2	.02	3
92			min	1414.248	1	-35.938	4	-259.34	2	-.037	3	.096	1	0	1
93		2	max	2808.482	2	9.687	3	57.251	2	0	2	-.077	6	.018	3
94			min	2603.369	1	0	1	51.826	6	-.003	5	-.083	2	0	1
95		3	max	2808.482	2	9.687	3	57.251	2	0	2	-.031	1	.009	3
96			min	2603.369	1	0	1	51.826	6	-.003	5	-.033	2	0	1
97		4	max	2808.482	2	9.687	3	57.251	2	0	2	.017	2	.002	4
98			min	2603.369	1	0	1	51.826	6	-.003	5	.014	6	-.002	5
99		5	max	2808.482	2	9.687	3	57.251	2	0	2	.067	2	0	1
100			min	2603.369	1	0	1	51.826	6	-.003	5	.059	6	-.009	5
101	M25	1	max	2531.936	2	0	1	0	1	.003	4	0	6	.002	5
102			min	2302.801	6	-2.08	4	-.003	6	0	1	0	2	-.004	4
103		2	max	2531.936	2	0	1	0	1	.003	4	0	6	.002	5
104			min	2302.801	6	-2.08	4	-.003	6	0	1	0	2	-.002	4
105		3	max	2531.936	2	0	1	0	1	.003	4	0	6	.002	5
106			min	2302.801	6	-2.08	4	-.003	6	0	1	0	2	-.002	3
107		4	max	2531.936	2	0	1	0	1	.003	4	0	6	.002	5
108			min	2302.801	6	-2.08	4	-.003	6	0	1	0	2	-.002	3
109		5	max	2531.936	2	0	1	0	1	.003	4	0	6	.004	4
110			min	2302.801	6	-2.08	4	-.003	6	0	1	0	2	-.002	3
111	M26	1	max	2808.484	2	0	1	-51.832	6	.003	5	.067	2	0	1
112			min	2603.372	1	-9.687	3	-57.251	2	0	1	.059	6	-.009	5
113		2	max	2808.484	2	0	1	-51.832	6	.003	5	.017	2	0	3
114			min	2603.372	1	-9.687	3	-57.251	2	0	1	.014	6	-.003	4
115		3	max	2808.484	2	0	1	-51.832	6	.003	5	-.031	1	.009	3
116			min	2603.372	1	-9.687	3	-57.251	2	0	1	-.033	2	0	1
117		4	max	2808.484	2	0	1	-51.832	6	.003	5	-.077	6	.018	3
118			min	2603.372	1	-9.687	3	-57.251	2	0	1	-.083	2	0	1
119		5	max	1533.412	2	35.46	5	259.339	2	.037	3	.106	2	.02	3
120			min	1414.248	1	0	1	228.5	1	0	1	.096	1	0	1

Envelope AISC 13th ASD Steel Code Checks

	Member	Shape	Code Check	Loc[in]	lc	Shear ...	Loc[in]	Dir	lc	Pnc/om [lb]	Pnt/om [lb]	Mnyy/om [k-ft]	Mnzz/om ...	Cb	LRFD E...
1	M1	TU3x1x2	.822	19.875	3	.481	4.125	z	3	11349.041	16210.778	.526	1.202	1...	H1-1a
2	M2	TU3x1x2	.507	3.75	3	.167	0	z	6	11349.041	16210.778	.526	1.202	1...	H1-1b
3	M3	TU3x1x2	.334	1.75	2	.261	0	z	3	9977.855	16210.778	.526	1.202	1...	H1-1b
4	M4	TU3x1x2	.305	21	6	.060	21	z	6	9977.855	16210.778	.526	1.202	1	H1-1b
5	M5	TU3x1x2	.822	19.875	3	.481	4.125	z	3	11349.041	16210.778	.526	1.202	1...	H1-1a
6	M6	TU3x1x2	.507	3.75	3	.167	0	z	6	11349.041	16210.778	.526	1.202	1...	H1-1b
7	M7	TU3x1x2	.334	40.25	2	.261	40.688	z	3	9977.855	16210.778	.526	1.202	1...	H1-1b
8	M8	WT2x3.4	.888	16	3	.242	28.666	y	2	14855.167	16841.317	.405	.591	1	H1-1a
9	M9	WT2x3.4	.888	16	3	.243	28.666	y	2	14855.167	16841.317	.405	.591	1	H1-1a
10	M24	TU3x1x2	.494	1.75	2	.244	0	z	3	9977.855	16210.778	.526	1.202	1...	H1-1a
11	M25	TU3x1x2	.255	0	2	.007	0	z	4	9977.855	16210.778	.526	1.202	2...	H1-1a
12	M26	TU3x1x2	.493	40.25	2	.244	40.688	z	3	9977.855	16210.778	.526	1.202	2...	H1-1a

*** End of Calculations ***