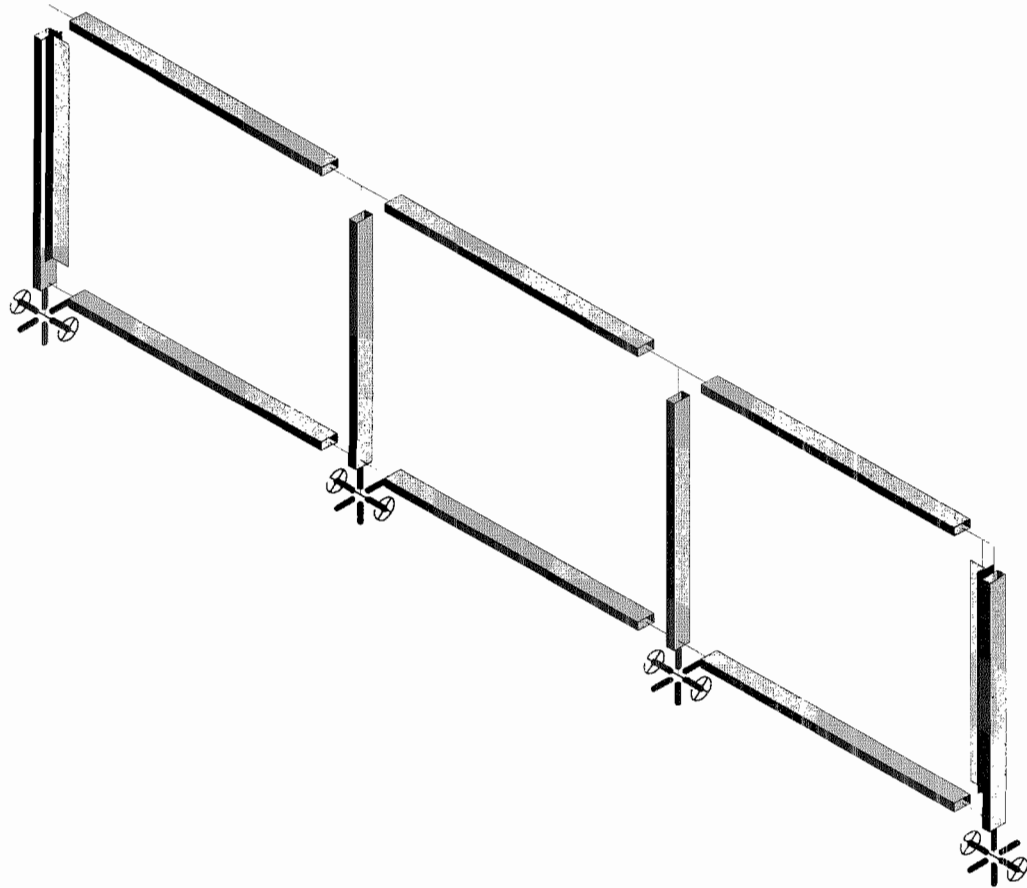
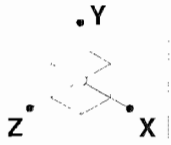


**D10a—2"x1" RECT. TUBE x 36-1/2" HIGH RAIL WITH 2"x1-1/2"x1/4" TEE
FOR USE WITH ADJUST-A-JAW™ AND FIXED JAW HARDWARE,
WITH BOTTOM RAIL**

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 Stainless Steel, LDX 2101 (UNS S32101), Fy = 60 ksi (Anchor Post and Tee)
Height:	36.5"
Anchor Post:	Carbon Steel: HSS 2x1x1/8 Tube with 2"x1.5"x 1/4" Tee Stainless Steel: 2"x1"x0.120" Tube (LDX 2101) with 2"x1.5"x 1/4" Tee (LDX 2101)
Intermediate Posts:	Carbon Steel: HSS 2x1x1/8 Tube Stainless Steel: 2"x1"x0.120" Tube
Top Rail:	Carbon Steel: HSS 2x1x1/8 Tube Stainless Steel: 2"x1"x0.120" Tube
Bottom Rail:	Carbon Steel: HSS 2x1x1/8 Tube Stainless Steel: 2"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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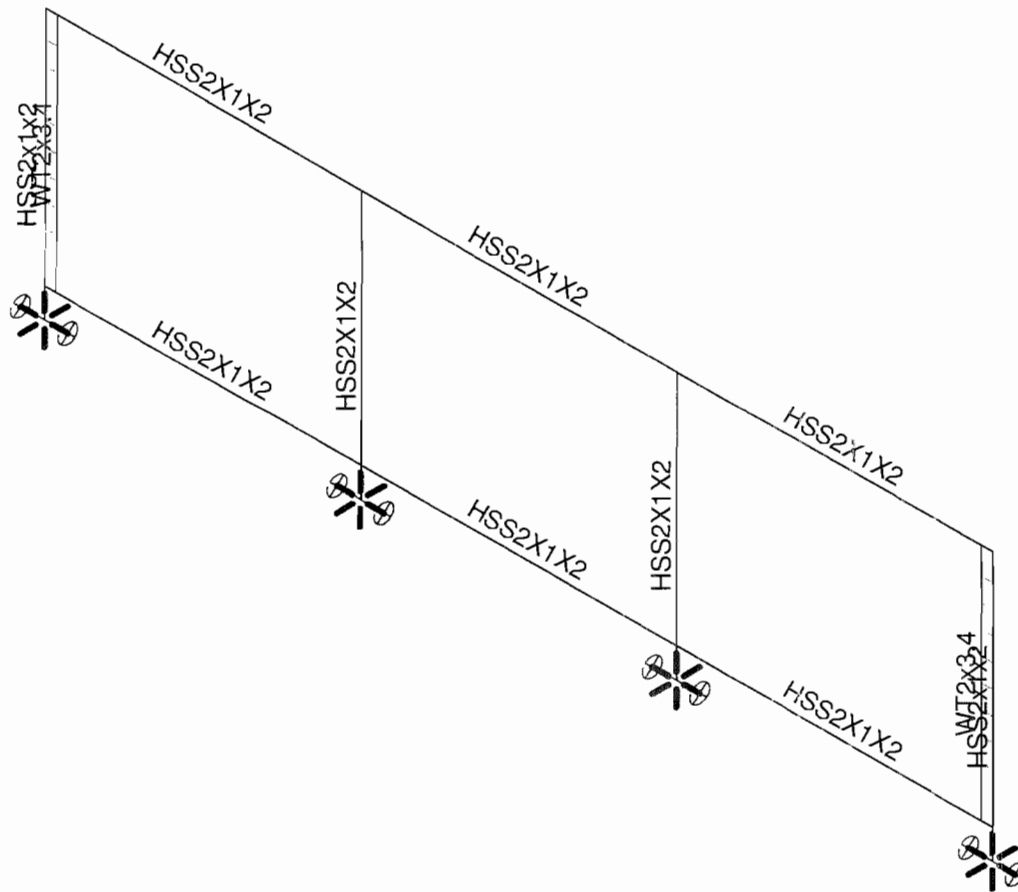
D. O'Connor

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D10a - 2x1 TUBE x 36-1/2" HIGH RAIL W/ T2x1.5x0.25 W/ BTM RAIL

Dec 10, 2008 at 2:18 PM

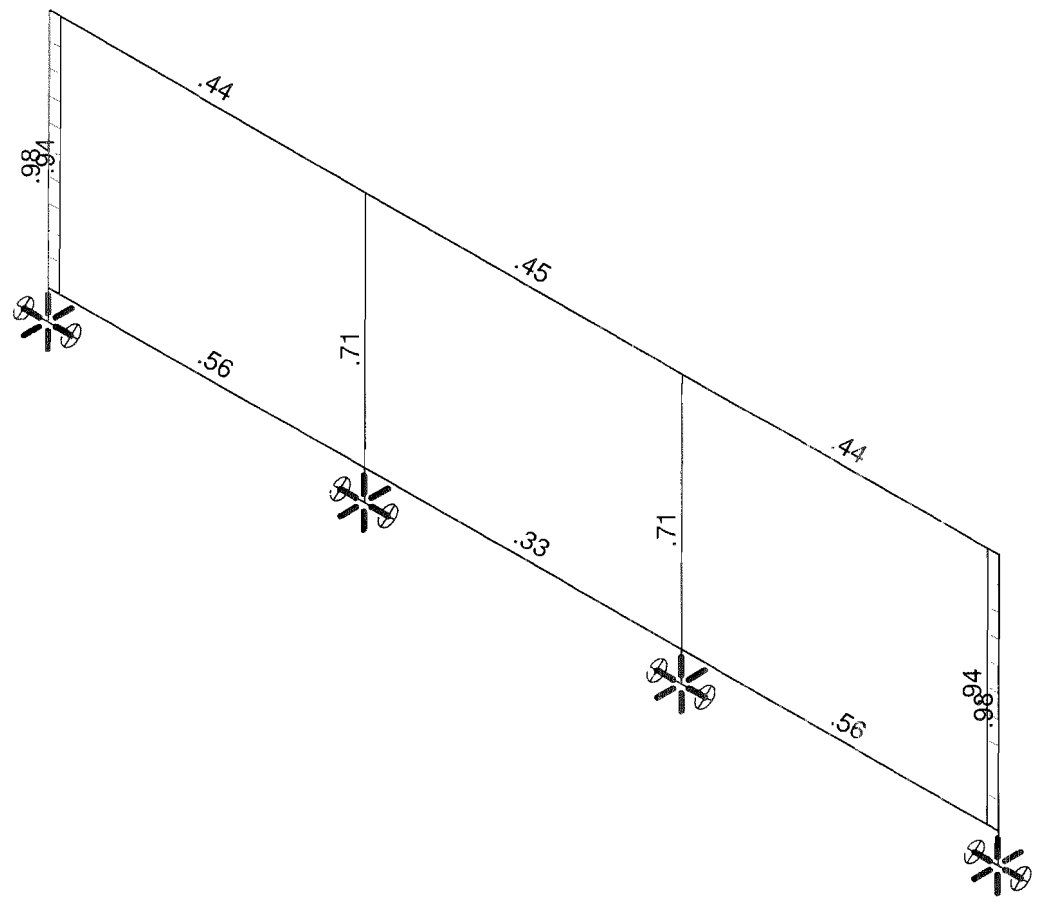
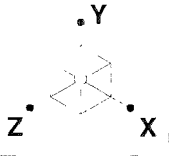
D10a.R3D



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D10a - 2x1 TUBE x 36-1/2" HIGH RAIL W/ T2x1.5x0.25 W/ BTM RAIL

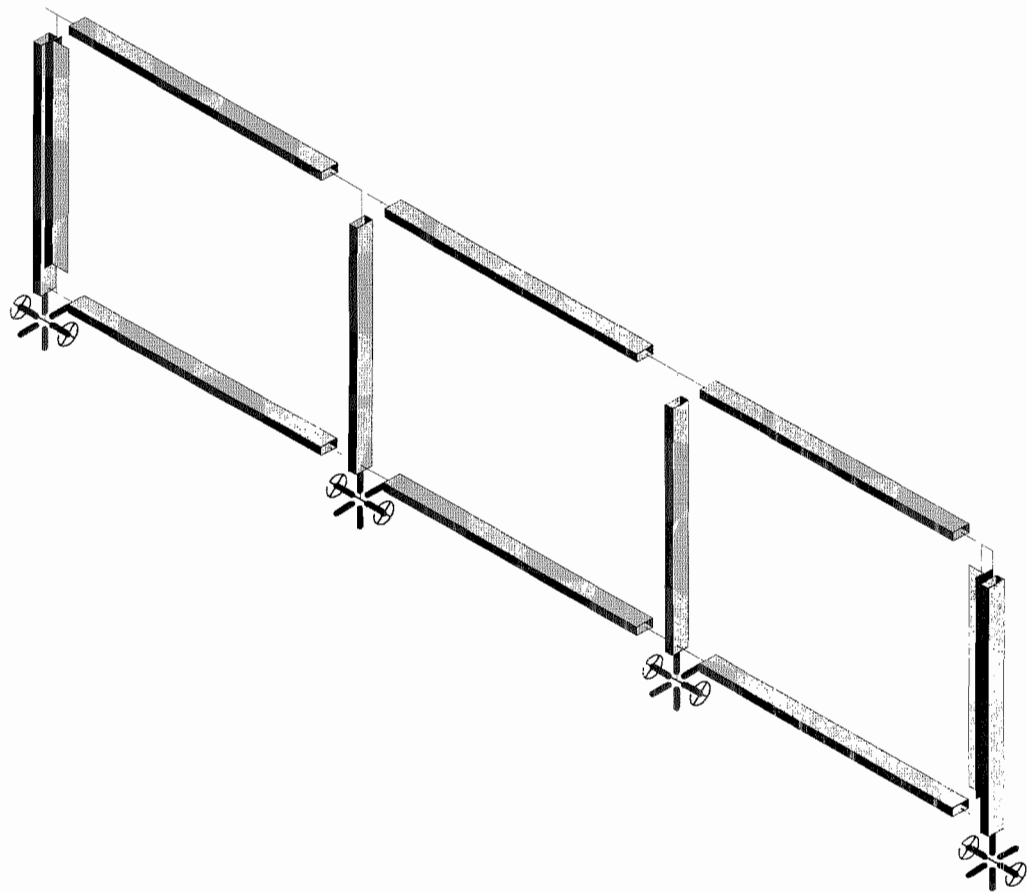
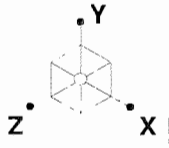
Dec 10, 2008 at 2:18 PM
D10a.R3D



Member Code Checks Displayed
 Solution: Envelope
 Ferrari Shields & Associates
 D. O'Connor
 08196

D10a - 2x1 TUBE x 36-1/2" HIGH RAIL W/ T2x1.5x0.25 W/ BTM RAIL

Dec 10, 2008 at 2:18 PM
 D10a.R3D



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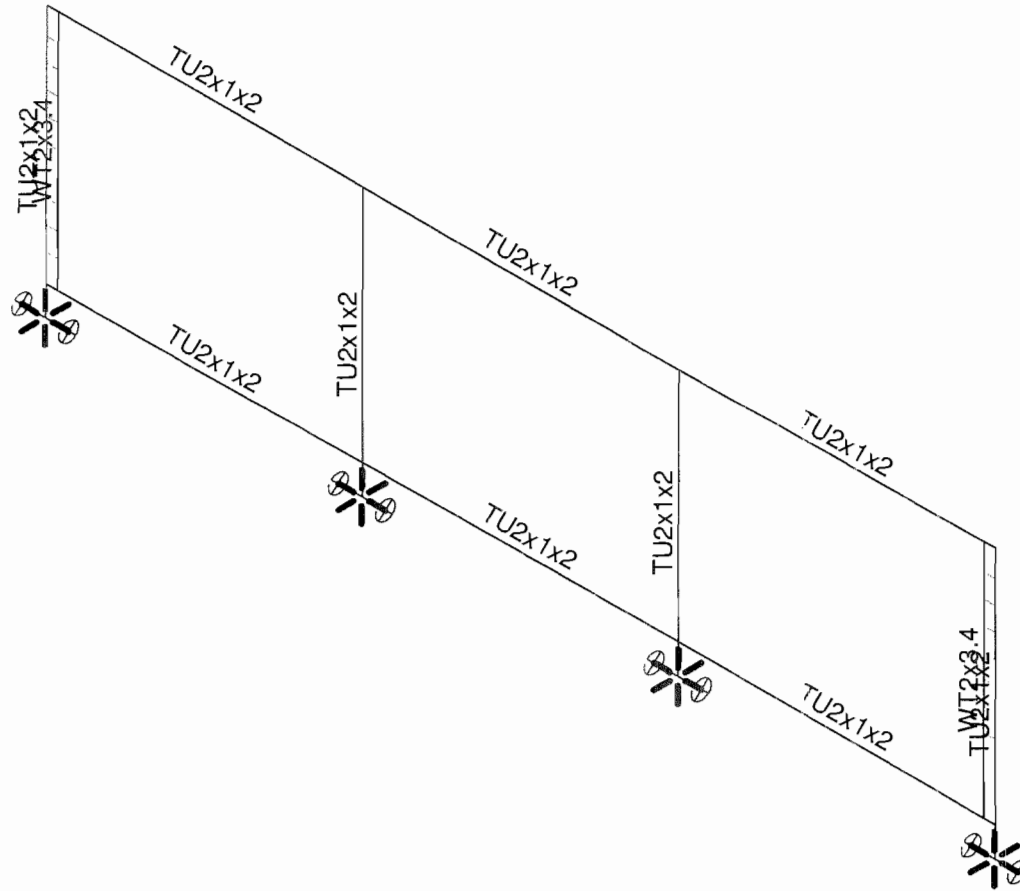
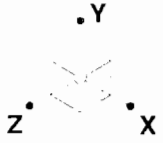
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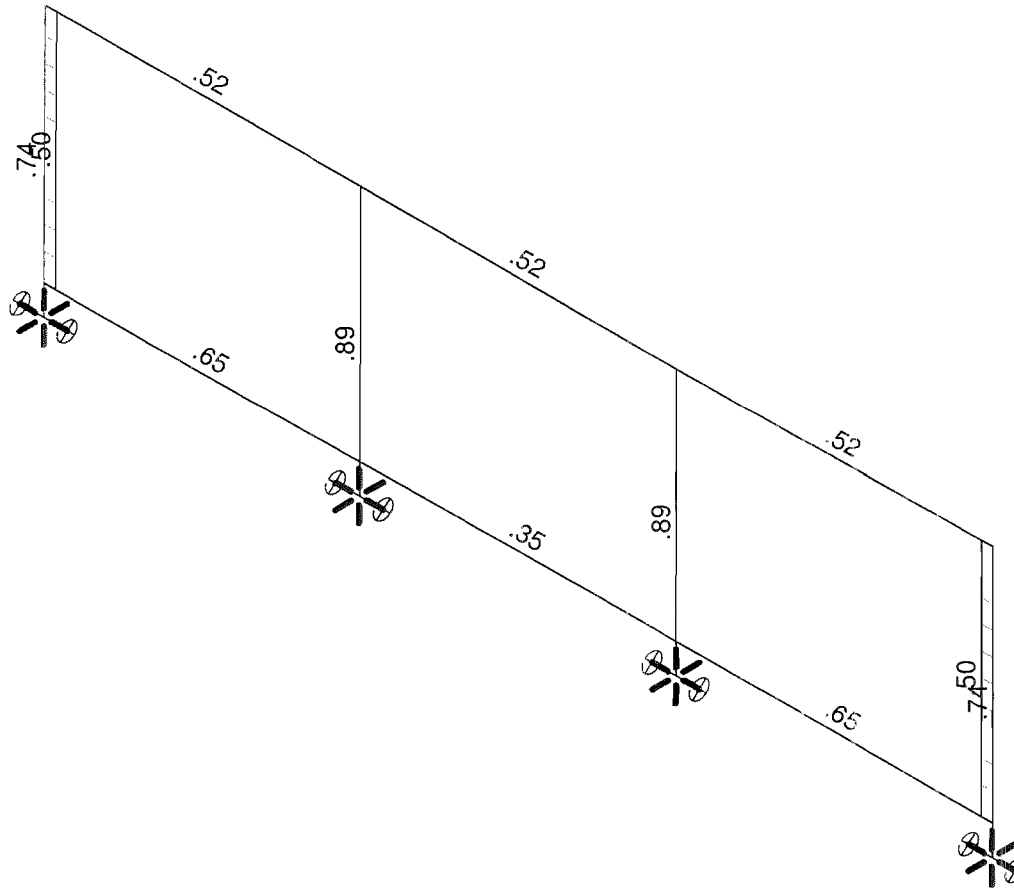
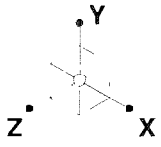
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D10a (SS) - 2x1 TUBE x 36-1/2" HIGH RAIL W/ T2x1.5x0.25 W/ BTM RAIL

Dec 10, 2008 at 2:24 PM

D10ass.R3D





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

Ferrari Shields & Associates

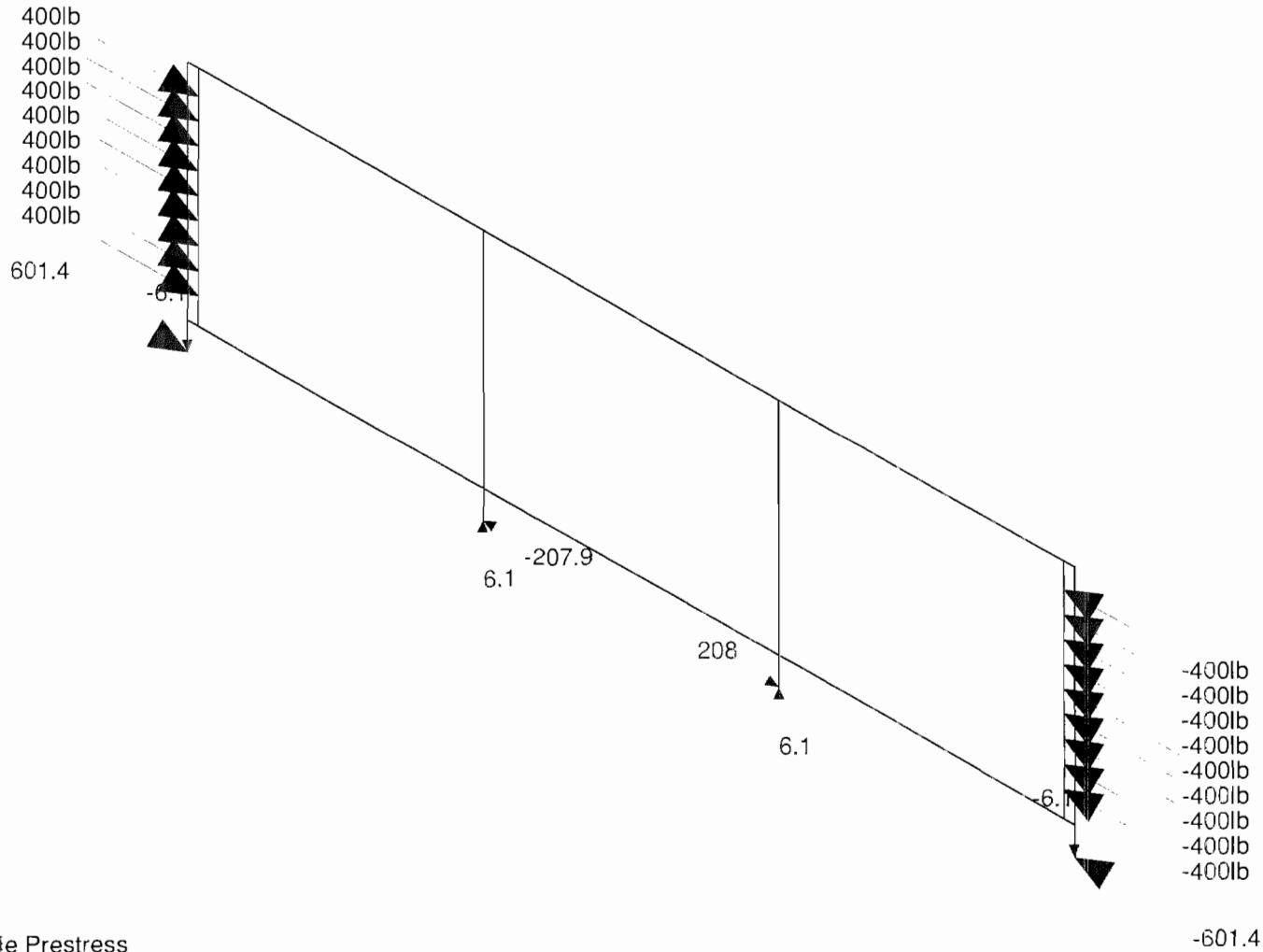
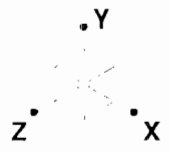
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D10a (SS) - 2x1 TUBE x 36-1/2" HIGH RAIL W/ T2x1.5x0.25 W/ BTM RAIL

Dec 10, 2008 at 2:24 PM

D10ass.R3D



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

Ferrari Shields & Associates

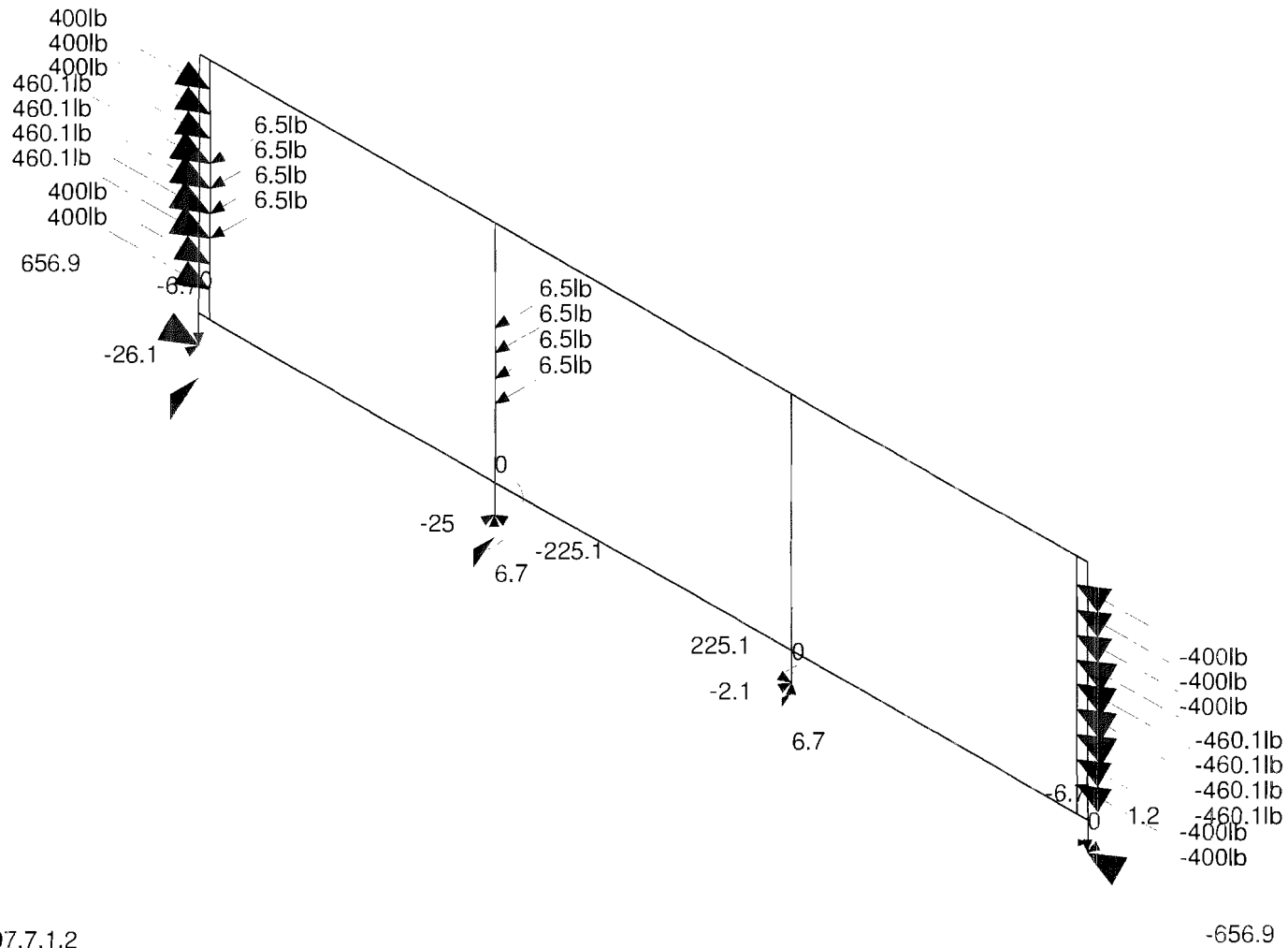
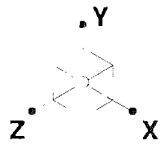
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D10a - 2x1 TUBE x 36-1/2" HIGH RAIL W/ T2x1.5x0.25 W/ BTM RAIL

Dec 10, 2008 at 2:19 PM

D10a.R3D



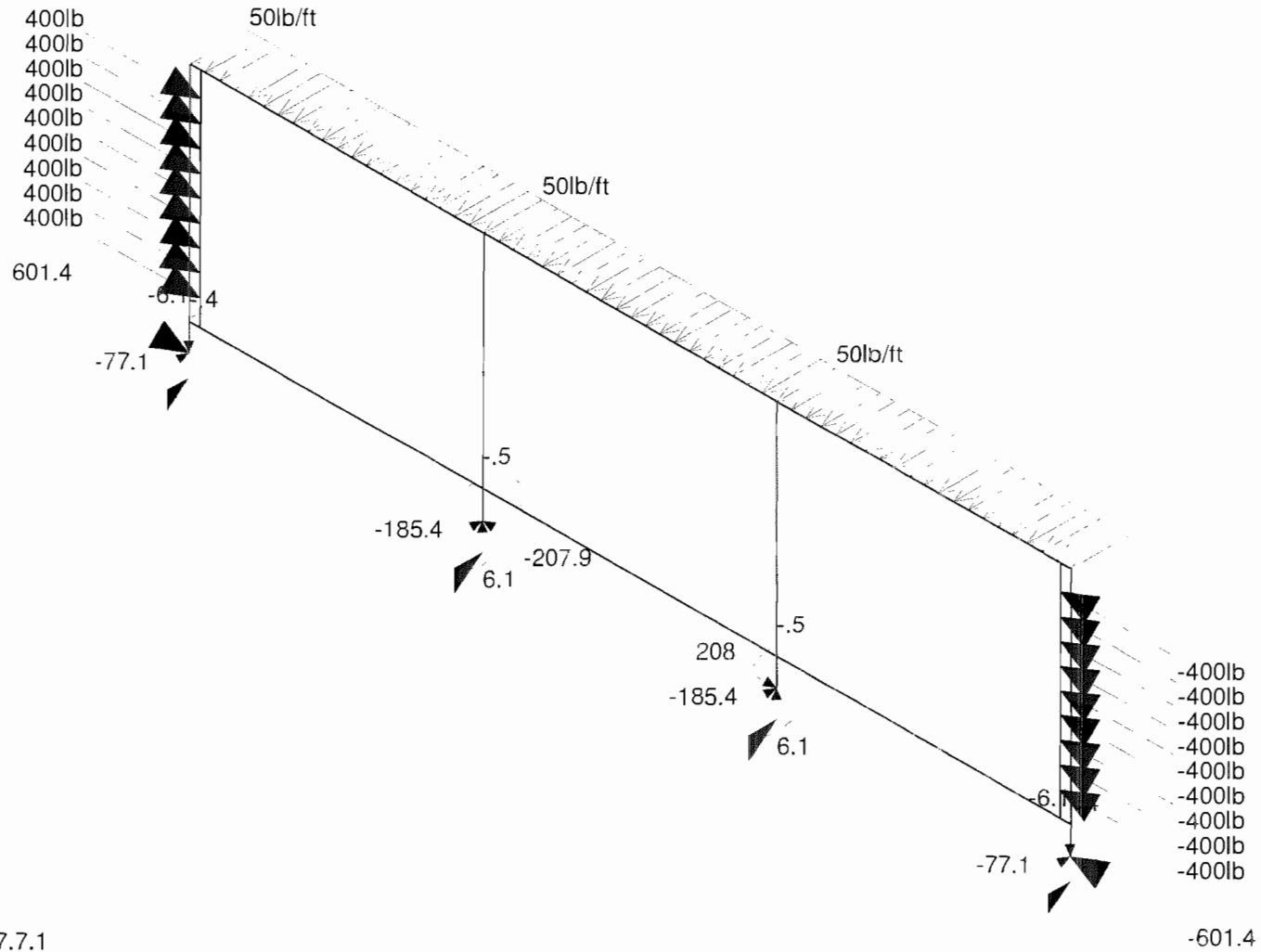
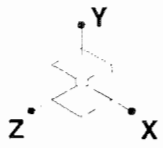
Loads: LC 2, 1607.7.1.2
 Results for LC 2, 1607.7.1.2
 Reaction units are lb and k-ft

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D10a - 2x1 TUBE x 36-1/2" HIGH RAIL W/ T2x1.5x0.25 W/ BTM RAIL

Dec 10, 2008 at 2:20 PM

D10a.R3D



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

Ferrari Shields & Associates

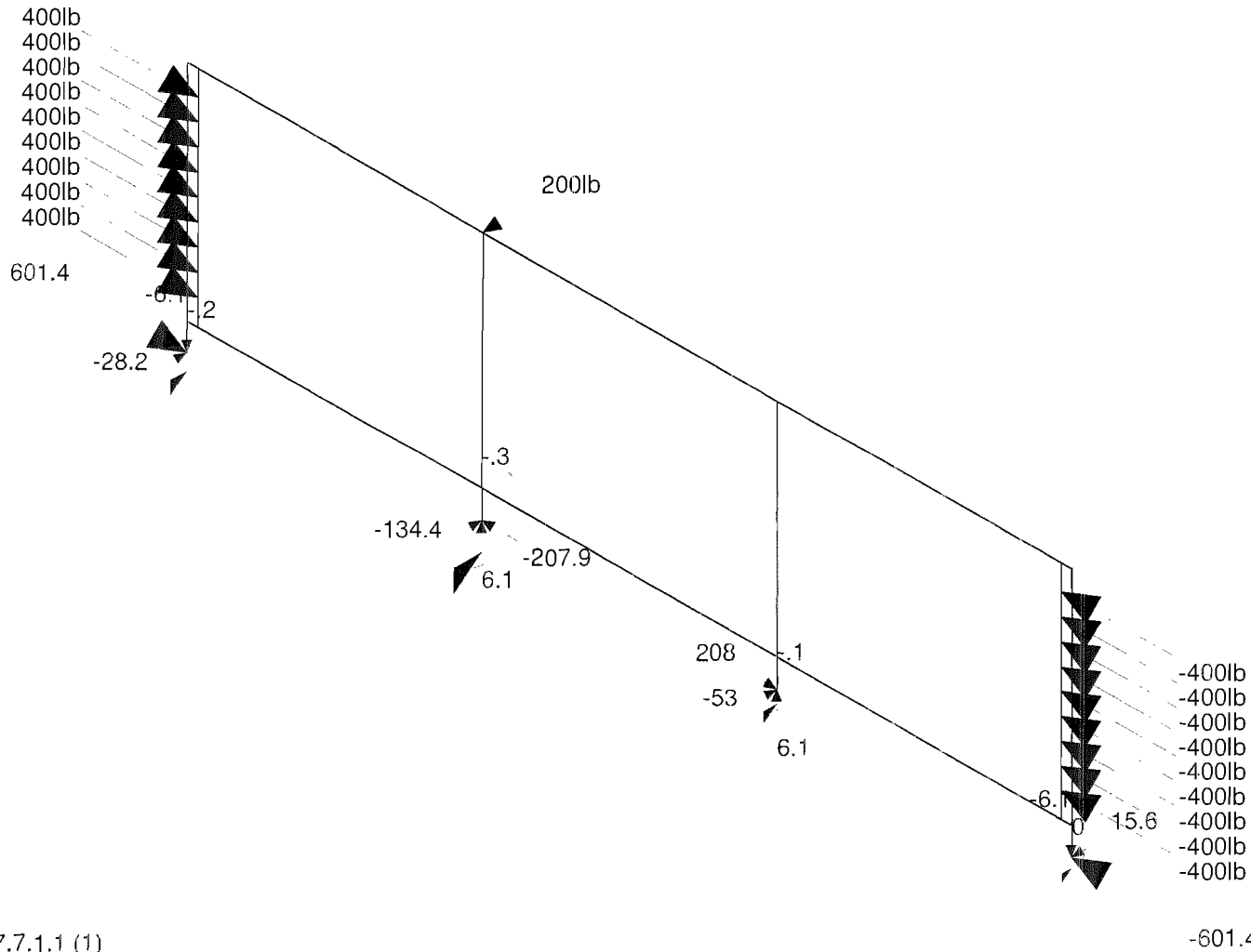
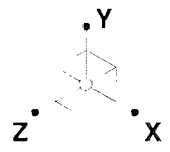
D. O'Connor

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D10a - 2x1 TUBE x 36-1/2" HIGH RAIL W/ T2x1.5x0.25 W/ BTM RAIL

Dec 10, 2008 at 2:20 PM

D10a.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

Ferrari Shields & Associates

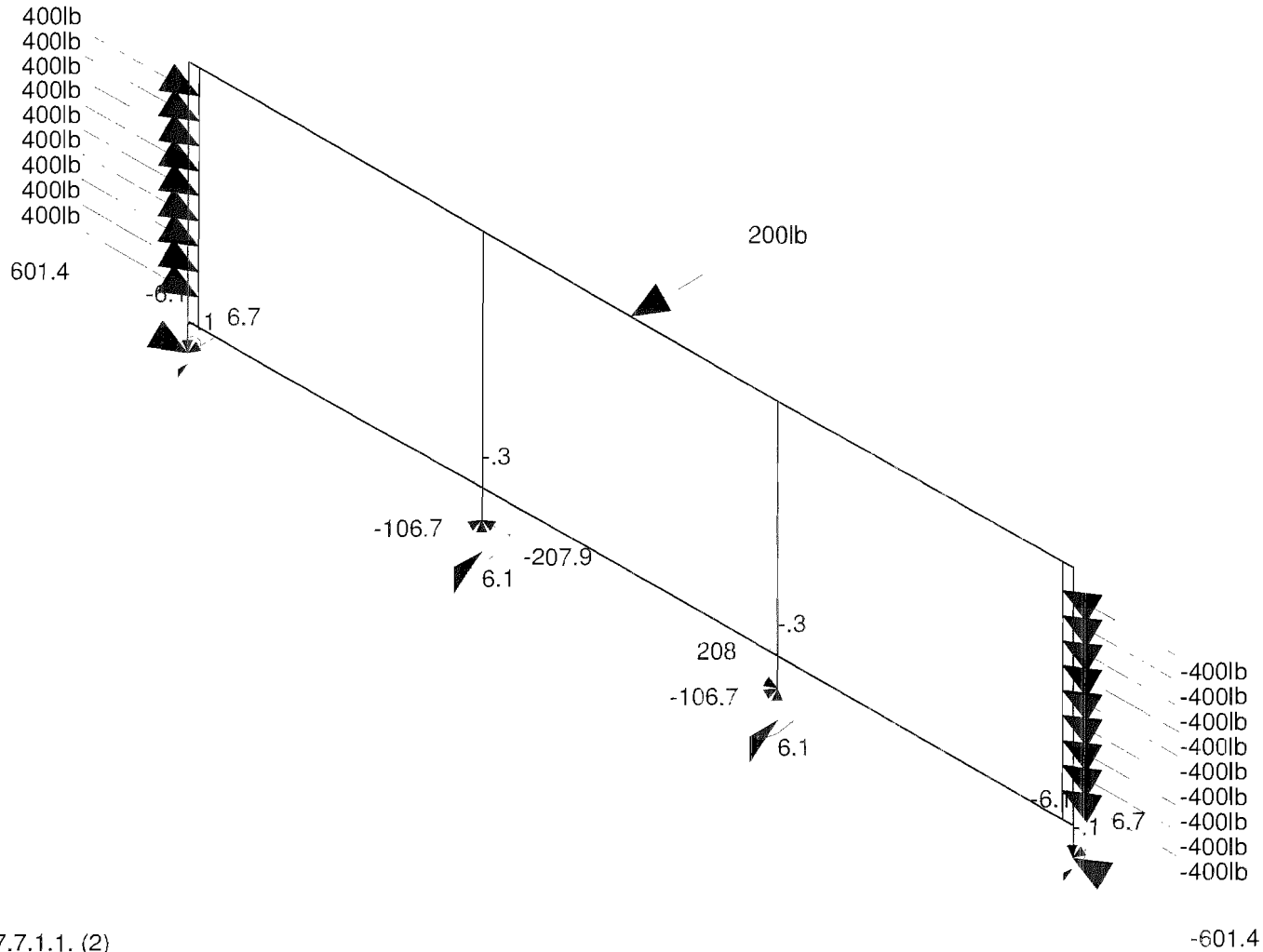
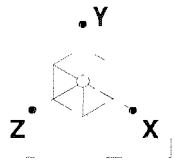
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D10a - 2x1 TUBE x 36-1/2" HIGH RAIL W/ T2x1.5x0.25 W/ BTM RAIL

Dec 10, 2008 at 2:20 PM

D10a.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

Ferrari Shields & Associates

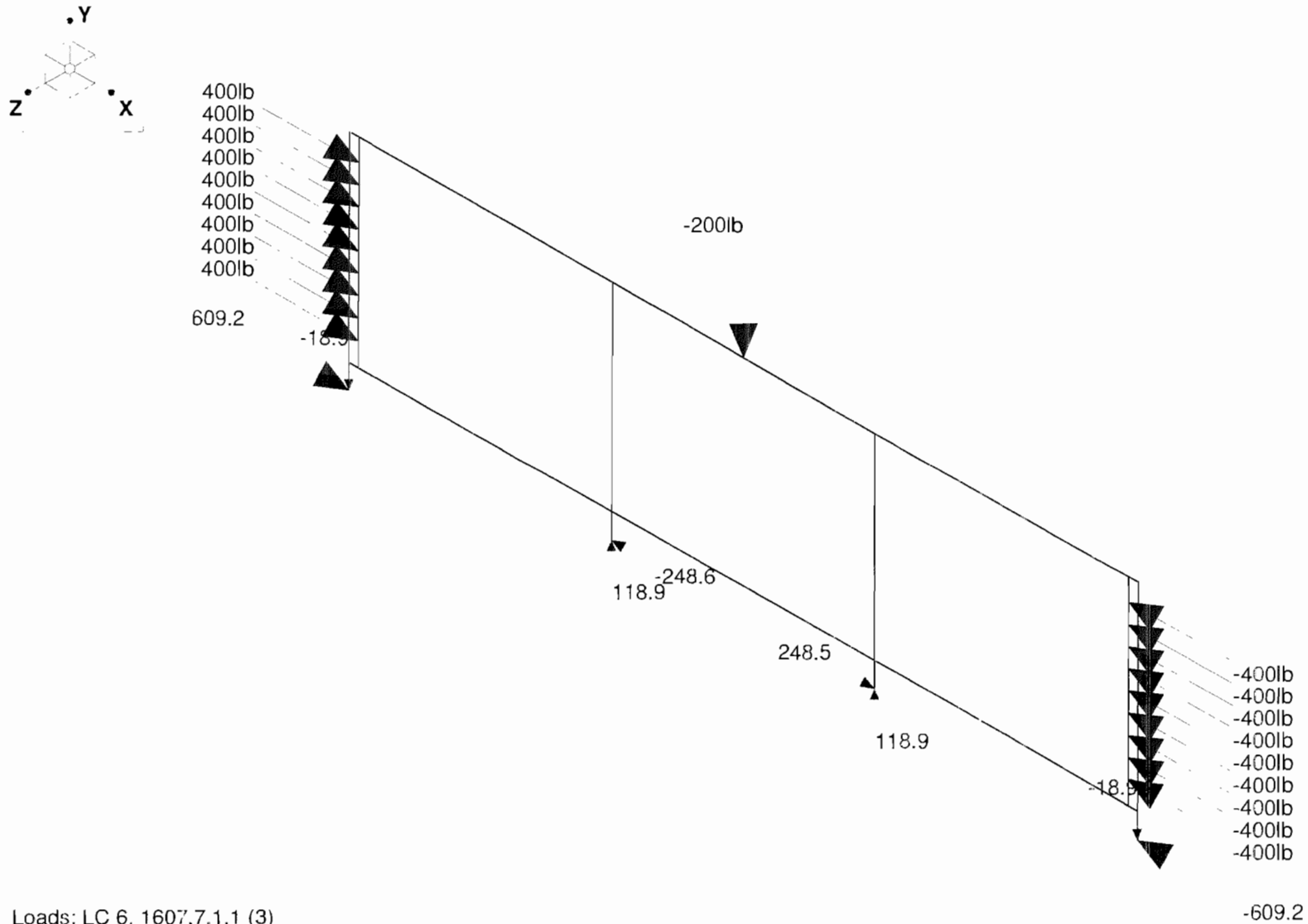
D. O'Connor

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D10a - 2x1 TUBE x 36-1/2" HIGH RAIL W/ T2x1.5x0.25 W/ BTM RAIL

Dec 10, 2008 at 2:20 PM

D10a.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

Ferrari Shields & Associates

D. O'Connor

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D10a - 2x1 TUBE x 36-1/2" HIGH RAIL W/ T2x1.5x0.25 W/ BTM RAIL

Dec 10, 2008 at 2:20 PM

D10a.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 (1/E5 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	HSS2X1X2	Beam	Tube	A500Gr42	Typical	.609	.092	.28	.238
2	ERAIL	HSS2X1X2	Beam	Tube	A500Gr42	Typical	.609	.092	.28	.238
3	POST	HSS2X1X2	Column	Tube	A500Gr42	Typical	.609	.092	.28	.238
4	EPOST	HSS2x1x2	Column	Tube	A500Gr42	Typical	.609	.092	.28	.238
5	TEE	WT2x3.4	Column	W_Tee	A36	Typical	.938	.169	.348	.018

General Material Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (1/E5 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
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	J 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	656.906	2	-6.083	4	6.712	5	0	1	0	1	0	1
2		min	601.393	1	-18.893	6	-77.113	3	-389	3	0	1	0	1
3	N3	max	-207.927	1	118.893	6	0	1	0	1	0	1	0	1
4		min	-248.558	6	6.085	4	-185.386	3	-494	3	0	1	0	1
5	N5	max	-601.397	1	-6.092	3	15.631	4	.001	2	0	1	0	1
6		min	-656.91	2	-18.905	6	-77.114	3	-389	3	0	1	0	1
7	N7	max	248.541	6	118.904	6	0	1	0	1	0	1	0	1
8		min	207.952	1	6.088	3	-185.386	3	-494	3	0	1	0	1
9	Totals:	max	.023	2	199.999	6	0	1						
10		min	.021	1	0	2	-524.999	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	-6.083	4	6.712	5	656.906	2	0	1	0	1	0	1
2			min	-18.893	6	-77.113	3	601.393	1	0	1	0	1	-389	3
3		2	max	2382.827	2	116.011	5	-426.861	1	.015	3	-.033	6	0	1
4			min	2216.299	6	-17.701	2	-467.368	2	0	2	-.035	2	-.2	3
5		3	max	6095.723	2	110.329	5	-81.305	1	.014	3	-.093	1	0	1
6			min	5553	1	-17.605	2	-87.06	2	0	2	-.102	2	-.137	3
7		4	max	4616.538	2	110.241	5	300.64	2	.014	3	-.091	1	0	1
8			min	4310.025	1	-13.292	2	268.702	6	-.001	2	-.099	2	-.061	3
9		5	max	480.682	6	72.391	5	468.035	2	.02	3	.042	2	.001	2
10			min	450.674	4	-7.048	2	442.821	4	-.001	2	.039	6	-.02	3
11	M2	1	max	118.893	6	0	1	-207.934	1	0	1	0	1	0	1
12			min	6.085	4	-185.4	3	-248.683	6	0	1	0	1	-494	3
13		2	max	76.447	6	0	1	36.292	6	.019	5	-.009	1	0	1
14			min	-40.312	2	-170.216	3	14.917	1	-.001	2	-.017	6	-.361	3
15		3	max	76.447	6	0	1	36.316	6	.019	5	.01	6	0	1
16			min	-40.312	2	-170.216	3	14.917	1	-.001	2	.002	1	-.233	3
17		4	max	76.447	6	1.597	2	36.135	6	.019	5	.037	6	.001	2
18			min	-40.312	2	-170.216	3	14.917	1	-.001	2	.013	1	-.106	3
19		5	max	76.447	6	1.597	2	36.135	6	.019	5	.064	6	.037	4
20			min	-40.312	2	-170.216	3	14.917	1	-.001	2	.024	1	0	1
21	M3	1	max	463.977	2	71.783	5	-447.545	4	.001	2	.042	2	.001	2
22			min	439.241	4	-6.527	2	-477.491	6	-.02	3	.039	6	-.02	3
23		2	max	1823.787	2	.062	2	-23.495	6	.001	2	.07	2	.027	3
24			min	1715.75	6	-55.215	3	-40.227	2	-.024	5	.061	6	-.017	5
25		3	max	1823.787	2	.062	2	-23.495	6	.001	2	.04	6	.056	3
26			min	1715.75	6	-46.39	4	-40.227	2	-.024	5	.032	1	-.005	5
27		4	max	1823.787	2	32.285	3	-23.495	6	.001	2	.02	6	.088	4
28			min	1715.75	6	-46.39	4	-40.227	2	-.024	5	0	2	0	1
29		5	max	1823.787	2	76.035	3	-23.495	6	.001	2	0	6	.128	4
30			min	1715.75	6	-46.39	4	-40.227	2	-.024	5	-.035	2	0	3
31	M4	1	max	1839.904	2	48.123	4	0	1	.019	4	.063	6	.128	4
32			min	1737.434	4	-100	5	-99.994	6	0	3	-.009	2	-.01	3
33		2	max	1839.904	2	48.123	4	0	1	.019	4	-.008	1	.089	5
34			min	1737.434	4	-100	5	-99.994	6	0	3	-.024	6	0	1
35		3	max	1839.904	2	100	5	100.006	6	.019	4	-.008	1	.177	5
36			min	1737.434	4	0	1	0	2	0	3	-.112	6	0	2
37		4	max	1839.904	2	100	5	100.006	6	.019	4	-.008	1	.089	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	1737.434	4	0	1	0	2	0	3	-.024	6	-.002	2
39	5	max	1839.904	2	100	5	100.006	6	.019	4	.063	6	.002	5
40		min	1737.434	4	0	1	0	2	0	3	-.009	2	-.041	4
41	M5	1	max	-6.092	3	15.631	4	-601.397	1	0	0	1	.001	2
42		min	-18.905	6	-77.114	3	-656.91	2	0	1	0	1	-.389	3
43		2	max	2382.804	2	116.011	5	467.371	2	0	.035	2	0	2
44		min	2216.281	6	0	1	426.864	1	-.015	3	.033	6	-.2	3
45		3	max	6095.732	2	110.328	5	87.062	2	0	.102	2	0	2
46		min	5553.008	1	0	1	81.307	1	-.014	3	.093	1	-.137	3
47		4	max	4616.574	2	110.241	5	-268.701	6	0	.099	2	0	1
48		min	4310.058	1	0	1	-300.639	2	-.014	3	.091	1	-.061	3
49		5	max	480.695	6	72.39	5	-442.825	3	0	-.039	6	0	1
50		min	450.691	3	0	1	-468.039	2	-.02	3	-.042	2	-.02	3
51	M6	1	max	118.904	6	0	1	248.666	6	0	0	1	0	1
52		min	-6.088	3	-185.4	3	207.959	1	0	1	0	1	-.494	3
53		2	max	76.458	6	0	1	-14.913	1	0	.017	6	0	1
54		min	-40.31	2	-170.217	3	-36.226	6	-.019	5	.009	1	-.361	3
55		3	max	76.458	6	0	1	-14.913	1	0	-.002	1	0	1
56		min	-40.31	2	-170.217	3	-36.226	6	-.019	5	-.01	6	-.233	3
57		4	max	76.458	6	0	1	-14.913	1	0	-.013	1	0	1
58		min	-40.31	2	-170.217	3	-36.226	6	-.019	5	-.037	6	-.106	3
59		5	max	76.458	6	0	1	-14.913	1	0	-.024	1	.024	5
60		min	-40.31	2	-170.217	3	-36.226	6	-.019	5	-.064	6	0	2
61	M7	1	max	1823.792	2	14.267	5	40.224	2	.024	5	0	.02	5
62		min	1715.757	6	-76.035	3	23.496	6	0	1	-.035	2	-.022	4
63		2	max	1823.792	2	14.267	5	40.224	2	.024	5	.02	.047	3
64		min	1715.757	6	-32.285	3	23.496	6	0	1	0	2	-.021	4
65		3	max	1823.792	2	14.267	5	40.224	2	.024	5	.04	.056	3
66		min	1715.757	6	-1.098	4	23.496	6	0	1	.032	1	-.02	4
67		4	max	1823.792	2	55.215	3	40.224	2	.024	5	.07	.027	3
68		min	1715.757	6	-1.098	4	23.496	6	0	1	.061	6	-.019	4
69		5	max	463.981	2	0	1	477.504	6	.02	.042	2	0	1
70		min	439.245	4	-71.783	5	447.562	3	0	1	.039	6	-.02	3
71	M8	1	max	198.527	2	1288.799	2	66.943	5	0	0	2	.169	2
72		min	172.184	1	1202.562	1	-1.445	3	-.003	3	-.089	3	.156	1
73		2	max	-3793.436	1	885.537	2	193.806	3	0	0	2	-.233	1
74		min	-4129.382	2	783.491	1	0	1	-.001	3	-.114	3	-.253	2
75		3	max	-5612.356	1	217.239	2	200.815	3	0	0	2	-.388	1
76		min	-6138.041	2	202.879	1	0	1	-.001	3	-.095	3	-.426	2
77		4	max	-4272.777	1	-670.465	6	198.829	3	0	0	1	-.267	1
78		min	-4576.265	2	-750.158	2	0	1	-.001	3	-.035	3	-.285	2
79		5	max	-413.409	3	-1272.377	6	140.254	3	0	0	1	.117	2
80		min	-457.147	6	-1359.811	2	0	1	-.002	3	-.006	4	.099	6
81	M9	1	max	198.505	2	1288.783	2	6.689	2	.003	.089	3	.169	2
82		min	172.164	1	1202.548	1	-66.943	5	0	1	0	1	.156	1
83		2	max	-3793.442	1	885.531	2	0	1	.001	.114	3	-.233	1
84		min	-4129.39	2	783.487	1	-193.805	3	0	2	0	1	-.253	2
85		3	max	-5612.333	1	217.232	2	3.169	2	.001	.095	3	-.388	1
86		min	-6138.016	2	202.873	1	-200.813	3	0	2	0	1	-.426	2
87		4	max	-4272.74	1	-670.468	6	8.297	2	.001	.035	3	-.267	1
88		min	-4576.225	2	-750.162	2	-198.831	3	0	2	0	1	-.285	2
89		5	max	-413.39	4	-1272.374	6	6.268	2	.002	.006	5	.117	2
90		min	-457.135	6	-1359.81	2	-140.257	3	0	2	0	1	.099	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	1386.222	2	16.124	3	-136.886	1	0	1	.085	2	.037	3
92			min	1277.509	1	-54.705	5	-161.062	2	-.089	3	.077	1	0	1
93		2	max	2673.458	2	15.151	3	47.667	2	0	2	-.063	6	.027	3
94			min	2478.82	1	0	1	43.023	6	-.005	5	-.068	2	0	1
95		3	max	2673.458	2	15.151	3	47.667	2	0	2	-.025	1	.013	3
96			min	2478.82	1	0	1	43.023	6	-.005	5	-.027	2	0	1
97		4	max	2673.458	2	15.151	3	47.667	2	0	2	.015	2	.002	4
98			min	2478.82	1	0	1	43.023	6	-.005	5	.012	6	-.005	5
99		5	max	2673.458	2	15.151	3	47.667	2	0	2	.057	2	0	2
100			min	2478.82	1	0	1	43.023	6	-.005	5	.05	6	-.016	5
101	M25	1	max	2432.273	2	0	3	-.002	1	.005	4	0	6	.003	5
102			min	2208.593	6	-4.137	4	-.007	6	0	3	-.002	2	-.008	4
103		2	max	2432.273	2	0	3	-.002	1	.005	4	0	6	.003	5
104			min	2208.593	6	-4.137	4	-.007	6	0	3	-.002	2	-.004	4
105		3	max	2432.273	2	0	3	-.002	1	.005	4	0	6	.003	5
106			min	2208.593	6	-4.137	4	-.007	6	0	3	-.002	2	-.004	3
107		4	max	2432.273	2	0	3	-.002	1	.005	4	0	6	.003	4
108			min	2208.593	6	-4.137	4	-.007	6	0	3	-.002	2	-.004	3
109		5	max	2432.273	2	0	3	-.002	1	.005	4	0	6	.007	4
110			min	2208.593	6	-4.137	4	-.007	6	0	3	-.002	2	-.004	3
111	M26	1	max	2673.479	2	0	1	-43.036	6	.005	5	.057	2	0	1
112			min	2478.84	1	-15.151	3	-47.672	2	0	3	.05	6	-.016	5
113		2	max	2673.479	2	0	1	-43.036	6	.005	5	.015	2	0	3
114			min	2478.84	1	-15.151	3	-47.672	2	0	3	.012	6	-.005	5
115		3	max	2673.479	2	0	1	-43.036	6	.005	5	-.025	1	.013	3
116			min	2478.84	1	-15.151	3	-47.672	2	0	3	-.027	2	0	1
117		4	max	2673.479	2	0	1	-43.036	6	.005	5	-.063	6	.027	3
118			min	2478.84	1	-15.151	3	-47.672	2	0	3	-.068	2	0	1
119		5	max	1386.229	2	54.705	5	161.079	2	.089	3	.085	2	.037	3
120			min	1277.515	1	-16.124	3	136.902	1	0	1	.077	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	HSS2x1x2	.982	19.875	3	.412	4.125	z	3	9049.09	15307.164	.468	.768	2...	H1-1a
2	M2	HSS2X1X2	.707	3.75	3	.109	0	z	6	9049.09	15307.164	.468	.768	1...	H1-1b
3	M3	HSS2X1X2	.441	42	4	.259	0	z	3	7484.423	15307.164	.468	.768	2...	H1-1a
4	M4	HSS2X1X2	.452	21	5	.059	0	z	4	7484.423	15307.164	.468	.768	1...	H1-1a
5	M5	HSS2x1x2	.982	19.875	3	.412	4.125	z	3	9049.09	15307.164	.468	.768	2...	H1-1a
6	M6	HSS2X1X2	.707	3.75	3	.109	0	z	6	9049.09	15307.164	.468	.768	1...	H1-1b
7	M7	HSS2X1X2	.437	40.25	5	.259	40.688	z	3	7484.423	15307.164	.468	.768	2...	H1-1a
8	M8	WT2x3.4	.938	16	3	.220	0	y	3	17474.88	20209.581	.486	.709	1	H1-1a
9	M9	WT2x3.4	.938	16	3	.220	0	y	3	17474.88	20209.581	.486	.709	1	H1-1a
10	M24	HSS2X1X2	.555	1.75	3	.340	0	z	3	7484.423	15307.164	.468	.768	2...	H1-1a
11	M25	HSS2X1X2	.329	0	2	.015	0	z	4	7484.423	15307.164	.468	.768	2...	H1-1a
12	M26	HSS2X1X2	.556	40.25	3	.340	40.688	z	3	7484.423	15307.164	.468	.768	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
Parne 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	TU2x1x2	Beam	Tube	SS316	Typical	.662	.102	.321	.238
2	ERAIL	TU2x1x2	Beam	Tube	SS316	Typical	.662	.102	.321	.238
3	POST	TU2x1x2	Column	Tube	SS316	Typical	.662	.102	.321	.238
4	EPOST	TU2x1x2	Column	Tube	LDX2101	Typical	.662	.102	.321	.238
5	TEE	WT2x3.4	Column	W_Tee	LDX2101	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	LDX2101	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	LDX2101	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	LDX2101	Typical
9	M9	N12	N11			TEE	Column	W Tee	LDX2101	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	696.668	2	-5.959	4	5.753	5	0	1	0	1	0	1
2		min	637.948	1	-18.74	6	-77.915	3	-.379	3	0	1	0	1
3	N3	max	-216.55	1	118.738	6	0	1	0	1	0	1	0	1
4		min	-257.269	6	5.959	4	-184.569	3	-.495	3	0	1	0	1
5	N5	max	-637.947	1	-5.957	4	15.067	4	.002	2	0	1	0	1
6		min	-696.666	2	-18.741	6	-77.919	3	-.379	3	0	1	0	1
7	N7	max	257.223	6	118.744	6	0	1	0	1	0	1	0	1
8		min	216.542	1	5.958	4	-184.57	3	-.495	3	0	1	0	1
9	Totals:	max	-.006	1	200.001	6	0	1						
10		min	-.006	2	0	1	-524.972	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	-5.959	4	5.753	5	696.668	2	0	1	0	1	0	1
2			min	-18.74	6	-77.915	3	637.948	1	0	1	0	1	-.379	3
3		2	max	2334.318	2	112.677	5	-455.53	1	.014	3	-.034	6	0	1
4			min	2171.392	6	-17.694	2	-498.738	2	0	2	-.036	2	-.203	3
5		3	max	6104.614	2	107.555	5	-87.829	1	.013	3	-.098	1	0	1
6			min	5560.61	1	-17.281	2	-94.069	2	0	2	-.108	2	-.139	3
7		4	max	4627.082	2	107.446	5	318.528	2	.013	3	-.096	1	0	1
8			min	4320.362	1	-12.939	2	284.657	6	-.001	2	-.104	2	-.063	3
9		5	max	491.69	6	69.63	5	494.145	2	.019	3	.045	2	.001	2
10			min	460.082	4	-6.985	2	467.603	4	-.001	2	.042	6	-.019	3
11	M2	1	max	118.738	6	0	1	-216.556	1	0	1	0	1	0	1
12			min	5.959	4	-184.581	3	-257.39	6	0	1	0	1	-.495	3
13		2	max	74.475	6	0	1	37.065	6	.017	5	-.01	1	0	1
14			min	-42.401	2	-170.139	3	15.677	1	-.001	2	-.018	6	-.362	3
15		3	max	74.475	6	0	1	37.087	6	.017	5	.01	6	0	1
16			min	-42.401	2	-170.139	3	15.677	1	-.001	2	.002	1	-.235	3
17		4	max	74.475	6	1.615	2	36.919	6	.017	5	.038	6	.001	2
18			min	-42.401	2	-170.139	3	15.677	1	-.001	2	.014	1	-.107	3
19		5	max	74.475	6	1.615	2	36.919	6	.017	5	.065	6	.034	4
20			min	-42.401	2	-170.139	3	15.677	1	-.001	2	.026	1	0	1
21	M3	1	max	490.072	2	68.935	5	-456.822	4	.001	2	.045	2	.001	2
22			min	464.005	4	-6.504	2	-488.365	6	-.019	3	.042	6	-.019	3
23		2	max	1819.192	2	.031	2	-25.485	6	0	2	.074	2	.029	3
24			min	1711.527	6	-54.766	3	-42.337	2	-.022	5	.064	6	-.016	5
25		3	max	1819.192	2	.031	2	-25.485	6	0	2	.042	6	.057	3
26			min	1711.527	6	-46.169	4	-42.337	2	-.022	5	.034	1	-.004	5
27		4	max	1819.192	2	32.734	3	-25.485	6	0	2	.02	6	.088	4
28			min	1711.527	6	-46.169	4	-42.337	2	-.022	5	0	2	0	1
29		5	max	1819.192	2	76.484	3	-25.485	6	0	2	-.003	6	.129	4
30			min	1711.527	6	-46.169	4	-42.337	2	-.022	5	-.037	2	0	1
31	M4	1	max	1836.13	2	48.04	4	0	2	.017	4	.063	6	.128	4
32			min	1733.978	4	-100	5	-99.993	6	0	3	-.01	2	-.009	3
33		2	max	1836.13	2	48.04	4	0	2	.017	4	-.009	1	.09	5
34			min	1733.978	4	-100	5	-99.993	6	0	3	-.025	6	0	1
35		3	max	1836.13	2	100	5	100.007	6	.017	4	-.009	1	.178	5
36			min	1733.978	4	0	1	0	1	0	3	-.112	6	0	2
37		4	max	1836.13	2	100	5	100.007	6	.017	4	-.009	1	.09	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	1733.978	4	0	1	0	1	0	3	-.025	6	-.002	2	
39	5	max	1836.13	2	100	5	100.007	6	.017	4	.063	6	.003	5	
40		min	1733.978	4	0	1	0	1	0	3	-.01	2	-.04	4	
41	M5	1	max	-5.957	4	15.067	4	-637.947	1	0	1	0	.002	2	
42		min	-18.741	6	-77.919	3	-696.666	2	0	1	0	1	-.379	3	
43	2	max	2334.324	2	112.676	5	498.736	2	0	1	.036	2	0	2	
44		min	2171.402	6	0	1	455.529	1	-.014	3	.034	6	-.203	3	
45	3	max	6104.604	2	107.554	5	94.068	2	0	1	.108	2	0	2	
46		min	5560.6	1	0	1	87.827	1	-.013	3	.098	1	-.139	3	
47	4	max	4627.062	2	107.445	5	-284.657	6	0	1	.104	2	0	2	
48		min	4320.344	1	0	1	-318.527	2	-.013	3	.096	1	-.063	3	
49	5	max	491.681	6	69.629	5	-467.602	4	0	1	-.042	6	0	1	
50		min	460.078	4	0	1	-494.144	2	-.019	3	-.045	2	-.019	3	
51	M6	1	max	118.744	6	0	1	257.343	6	0	1	0	1	0	1
52		min	5.958	4	-184.582	3	216.548	1	0	1	0	1	-.495	3	
53	2	max	74.483	6	0	1	-15.678	1	0	1	.018	6	0	1	
54		min	-42.401	2	-170.14	3	-37.01	6	-.017	5	.01	1	-.362	3	
55	3	max	74.483	6	0	1	-15.678	1	0	1	-.002	1	0	1	
56		min	-42.401	2	-170.14	3	-37.01	6	-.017	5	-.01	6	-.235	3	
57	4	max	74.483	6	0	1	-15.678	1	0	1	-.014	1	0	1	
58		min	-42.401	2	-170.14	3	-37.01	6	-.017	5	-.038	6	-.107	3	
59	5	max	74.483	6	0	1	-15.678	1	0	1	-.026	1	.022	5	
60		min	-42.401	2	-170.14	3	-37.01	6	-.017	5	-.065	6	0	2	
61	M7	1	max	1819.191	2	13.883	5	42.338	2	.022	5	-.003	6	.02	5
62		min	1711.529	6	-76.485	3	25.49	6	0	1	-.037	2	-.023	4	
63	2	max	1819.191	2	13.883	5	42.338	2	.022	5	.02	6	.048	3	
64		min	1711.529	6	-32.735	3	25.49	6	0	1	0	2	-.021	4	
65	3	max	1819.191	2	13.883	5	42.338	2	.022	5	.042	6	.057	3	
66		min	1711.529	6	-1.442	4	25.49	6	0	1	.034	1	-.02	4	
67	4	max	1819.191	2	54.765	3	42.338	2	.022	5	.074	2	.029	3	
68		min	1711.529	6	-1.442	4	25.49	6	0	1	.064	6	-.019	4	
69	5	max	490.07	2	0	1	488.356	6	.019	3	.045	2	0	1	
70		min	464.004	4	-68.935	5	456.818	4	0	1	-.042	6	-.019	3	
71	M8	1	max	241.316	2	1254.352	2	67.381	5	0	1	0	2	.173	2
72		min	211.061	1	1170.449	1	0	1	-.003	3	-.08	3	.159	1	
73	2	max	-3769.849	1	865.536	2	186.322	3	0	1	0	2	-.22	1	
74		min	-4103.801	2	765.915	1	0	1	-.001	3	-.101	3	-.239	2	
75	3	max	-5624.445	1	214.798	2	192.27	3	0	1	0	2	-.371	1	
76		min	-6151.59	2	200.549	1	0	1	0	3	-.086	3	-.406	2	
77	4	max	-4281.126	1	-649.999	6	190.621	3	0	1	0	1	-.254	1	
78		min	-4584.661	2	-727.34	2	0	1	0	3	-.031	3	-.272	2	
79	5	max	-420.859	4	-1243.228	6	134.493	3	0	1	0	1	.121	2	
80		min	-466.157	6	-1329.121	2	0	1	-.002	3	-.005	4	.103	6	
81	M9	1	max	241.323	2	1254.356	2	5.48	2	.003	3	.08	3	.173	2
82		min	211.068	1	1170.453	1	-67.382	5	0	1	0	1	.159	1	
83	2	max	-3769.848	1	865.538	2	0	1	.001	3	.101	3	-.22	1	
84		min	-4103.8	2	765.916	1	-186.324	3	0	2	0	1	-.239	2	
85	3	max	-5624.461	1	214.802	2	3.366	2	0	3	.086	3	-.371	1	
86		min	-6151.607	2	200.552	1	-192.273	3	0	2	0	1	-.406	2	
87	4	max	-4281.144	1	-649.998	6	8.394	2	0	3	.031	3	-.254	1	
88		min	-4584.681	2	-727.34	2	-190.621	3	0	2	0	1	-.272	2	
89	5	max	-420.864	4	-1243.225	6	6.248	2	.002	3	.005	5	.121	2	
90		min	-466.171	6	-1329.121	2	-134.497	3	0	2	0	1	-.103	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	1465.353	2	6.477	3	-174.268	1	0	1	.089	2	.034	3
92		min	1350.671	1	-55.747	5	-202.253	2	-.079	3	.081	1	0	1
93		2 max	2717.867	2	14.398	3	49.629	2	0	2	-.066	6	.026	3
94		min	2519.64	1	0	1	44.84	6	-.004	5	-.071	2	0	1
95		3 max	2717.867	2	14.398	3	49.629	2	0	2	-.026	1	.013	3
96		min	2519.64	1	0	1	44.84	6	-.004	5	-.028	2	0	1
97		4 max	2717.867	2	14.398	3	49.629	2	0	2	.016	2	.002	4
98		min	2519.64	1	0	1	44.84	6	-.004	5	.013	6	-.004	5
99		5 max	2717.867	2	14.398	3	49.629	2	0	2	.059	2	0	2
100		min	2519.64	1	0	1	44.84	6	-.004	5	.052	6	-.015	5
101	M25	1 max	2466.513	2	0	3	0	2	.004	4	0	6	.002	5
102		min	2240.192	6	-3.779	4	-.004	6	0	3	-.002	2	-.007	4
103		2 max	2466.513	2	0	3	0	2	.004	4	0	6	.002	5
104		min	2240.192	6	-3.779	4	-.004	6	0	3	-.002	2	-.004	4
105		3 max	2466.513	2	0	3	0	2	.004	4	0	6	.002	5
106		min	2240.192	6	-3.779	4	-.004	6	0	3	-.002	2	-.003	3
107		4 max	2466.513	2	0	3	0	2	.004	4	0	6	.003	4
108		min	2240.192	6	-3.779	4	-.004	6	0	3	-.002	2	-.003	3
109		5 max	2466.513	2	0	3	0	2	.004	4	0	6	.006	4
110		min	2240.192	6	-3.779	4	-.004	6	0	3	-.002	2	-.003	3
111	M26	1 max	2717.86	2	0	1	-44.846	6	.004	5	.059	2	0	1
112		min	2519.634	1	-14.398	3	-49.627	2	0	3	.052	6	-.015	5
113		2 max	2717.86	2	0	1	-44.846	6	.004	5	.016	2	0	3
114		min	2519.634	1	-14.398	3	-49.627	2	0	3	.013	6	-.004	5
115		3 max	2717.86	2	0	1	-44.846	6	.004	5	-.026	1	.013	3
116		min	2519.634	1	-14.398	3	-49.627	2	0	3	-.028	2	0	1
117		4 max	2717.86	2	0	1	-44.846	6	.004	5	-.066	6	.026	3
118		min	2519.634	1	-14.398	3	-49.627	2	0	3	-.071	2	0	1
119		5 max	1465.35	2	55.746	5	202.246	2	.079	3	.089	2	.034	3
120		min	1350.668	1	-6.481	3	174.262	1	0	1	.081	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	TU2x1x2	.742	19.875	3	.290	4.125	z	3	11074.906	23784.431	.737	1.231	2...	H1-1a
2	M2	TU2x1x2	.895	3.75	3	.155	0	z	6	8114.96	11892.216	.368	.615	1...	H1-1b
3	M3	TU2x1x2	.515	1.75	5	.360	0	z	3	7068.776	11892.216	.368	.615	2...	H1-1a
4	M4	TU2x1x2	.524	21	5	.075	0	z	4	7068.776	11892.216	.368	.615	1...	H1-1a
5	M5	TU2x1x2	.742	19.875	3	.290	4.125	z	3	11074.906	23784.431	.737	1.231	2...	H1-1a
6	M6	TU2x1x2	.895	3.75	3	.155	0	z	6	8114.96	11892.216	.368	.615	1...	H1-1b
7	M7	TU2x1x2	.515	40.25	5	.360	40.688	z	3	7068.776	11892.216	.368	.615	2...	H1-1a
8	M8	WT2x3.4	.503	16	3	.127	0	y	3	26206.501	33682.635	.809	1.182	1	H1-1b
9	M9	WT2x3.4	.503	16	3	.127	0	y	3	26206.501	33682.635	.809	1.182	1	H1-1b
10	M24	TU2x1x2	.647	1.75	3	.453	0	z	3	7068.776	11892.216	.368	.615	2...	H1-1a
11	M25	TU2x1x2	.354	0	2	.019	0	z	4	7068.776	11892.216	.368	.615	2...	H1-1a
12	M26	TU2x1x2	.647	40.25	3	.453	40.688	z	3	7068.776	11892.216	.368	.615	2...	H1-1a

*** End of Calculations ***