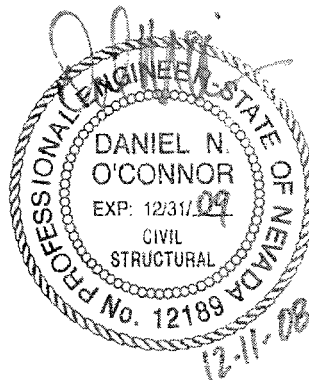
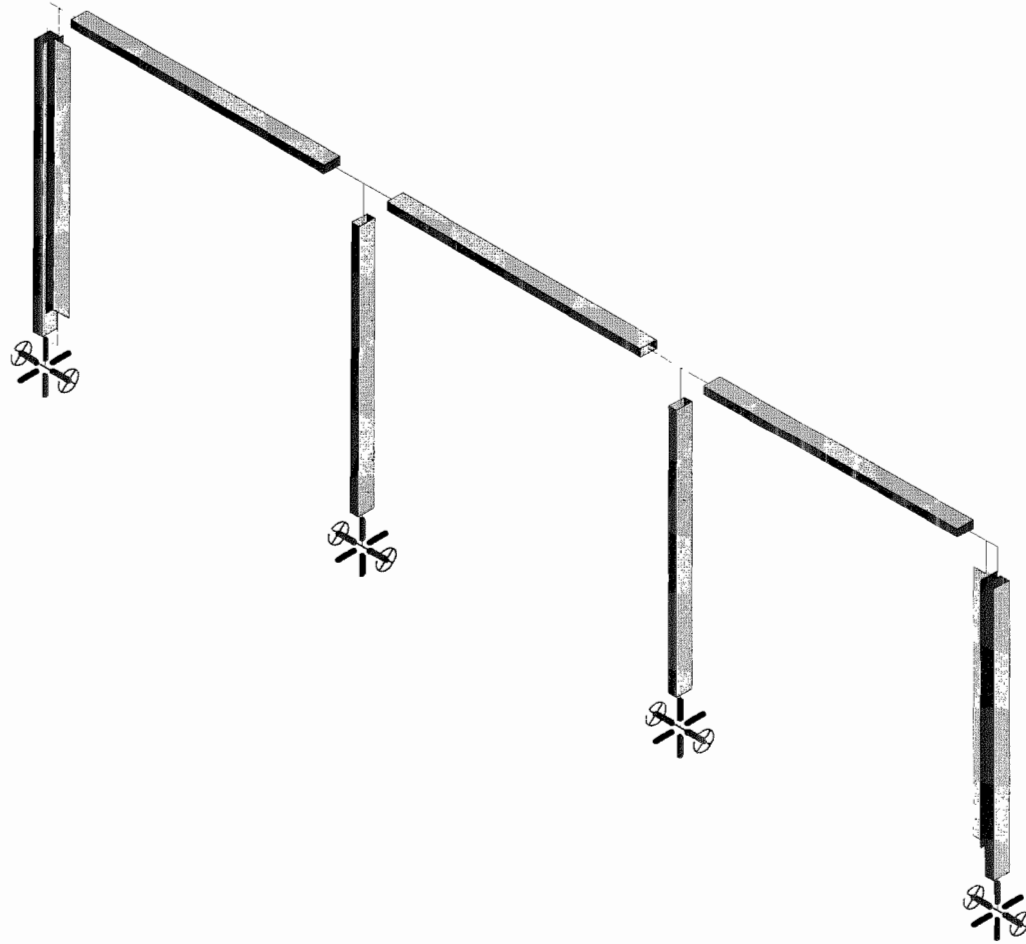
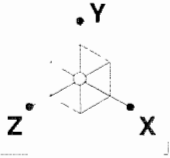


**D9c—2"x1" RECT. TUBE x 42-1/2" HIGH RAIL WITH 2"x1-1/2"x1/4" TEE
FOR USE WITH ADJUST-A-JAW™ AND FIXED JAW HARDWARE,
WITHOUT BOTTOM RAIL**

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, A572, Grade 50, Fy = 50 ksi (Flat Bar and Tee) Stainless Steel, A554, Grade MT-304 or MT-316, Fy = 30 ksi Stainless Steel, LDX 2101 (UNS S32101), Fy = 60 ksi (Anchor Post Flat Bar and Tee)
Height:	42.5"
Anchor Post:	Carbon Steel: 2"x1.125" Flat Bar (A572, Grade 50) with 2"x1.5"x1/4" Tee (A572, Grade 50) Stainless Steel: 2"x1.125" Flat Bar (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 at Anchor Post:	Carbon Steel: 2"x1" Flat Bar (A572, Grade 50) Stainless Steel: 2"x1" Flat Bar
Top Rail Elsewhere:	Carbon Steel: HSS 2x1x1/8 Tube Stainless Steel: 2"x1"x0.120" Tube
Number of Cables:	12
Cable Spacing:	3.19"



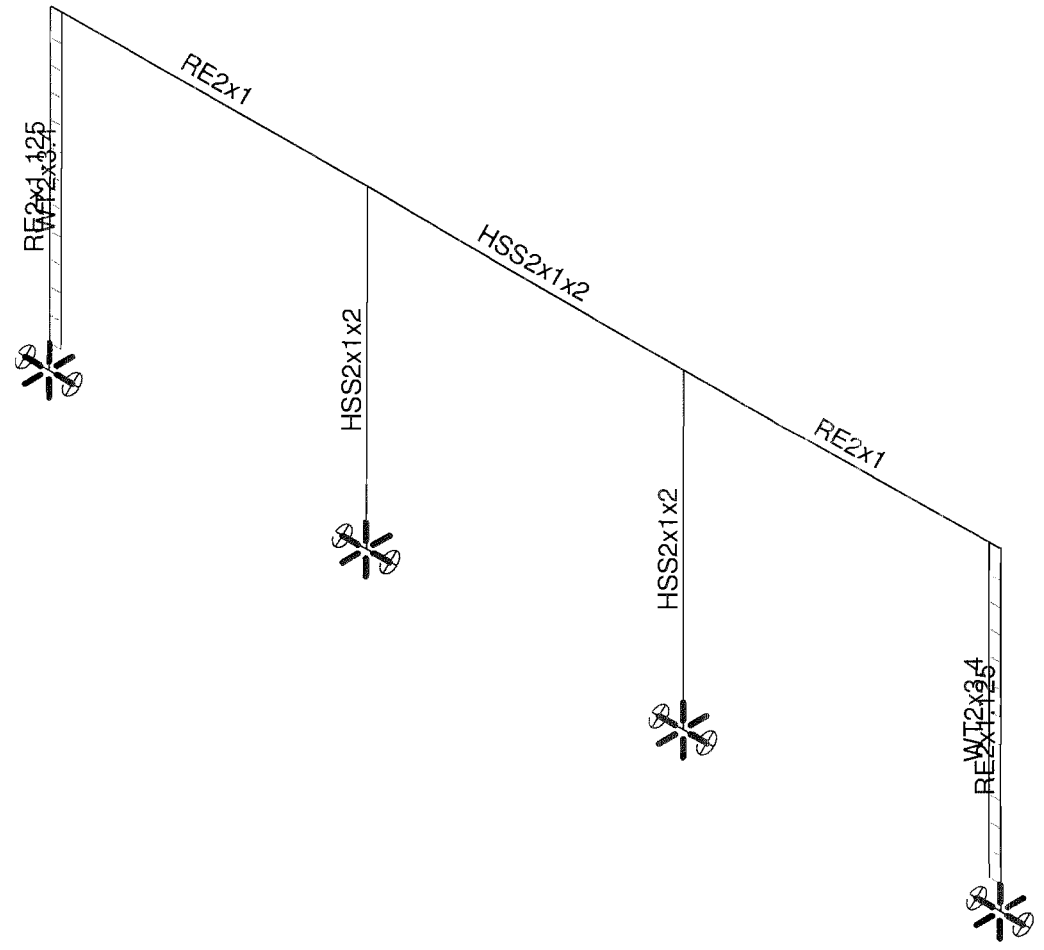
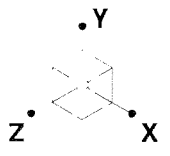
Disclaimer: Analysis and Structural Certification DOES NOT include base plates or anchorage to supporting structure. Where required by the Local Building Official, these shall be reviewed and designed by the project Structural Engineer of Record.

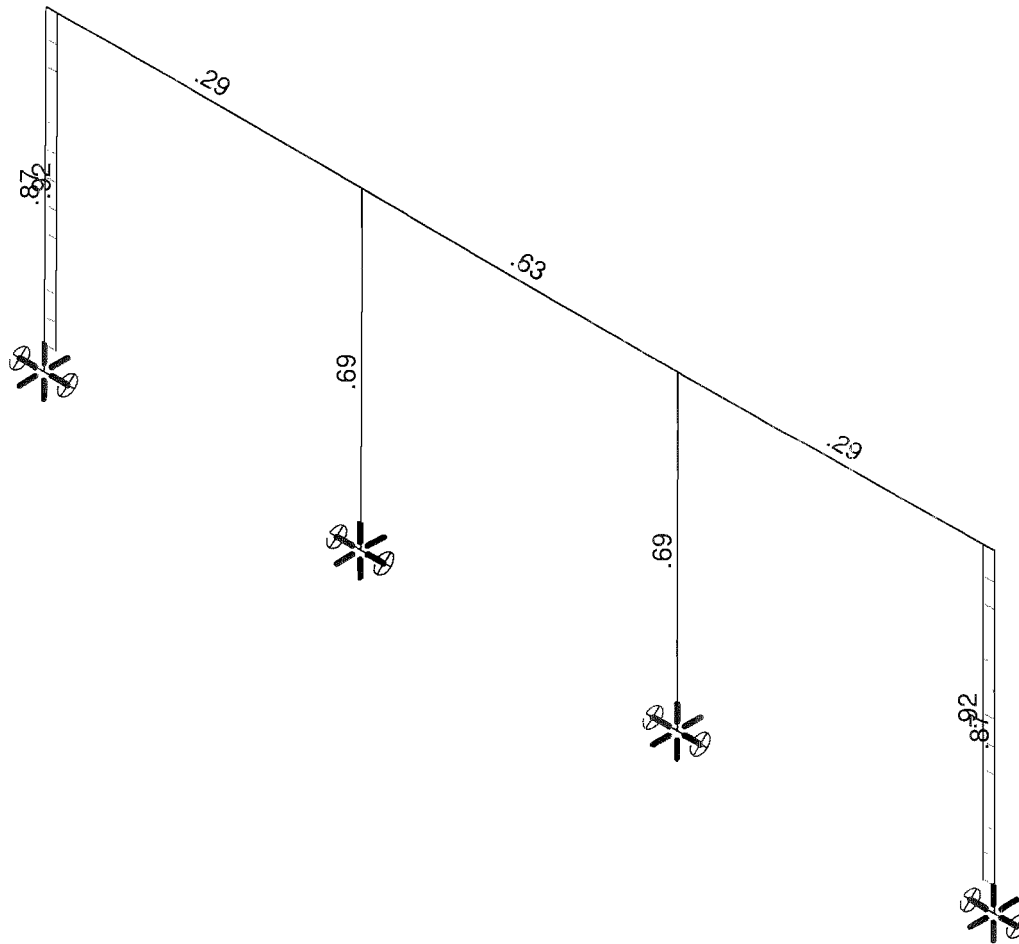
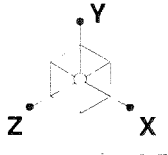


Ferrari Shields & Associates
D. O'Connor
08196

D9c - 2x1 TUBE x 42-1/2" HIGH RAIL W/ T2x1.5x0.25 W/O BTM RAIL

Dec 9, 2008 at 2:15 PM
D9c.R3D





Member Code Checks Displayed
Solution: Envelope

Ferrari Shields & Associates

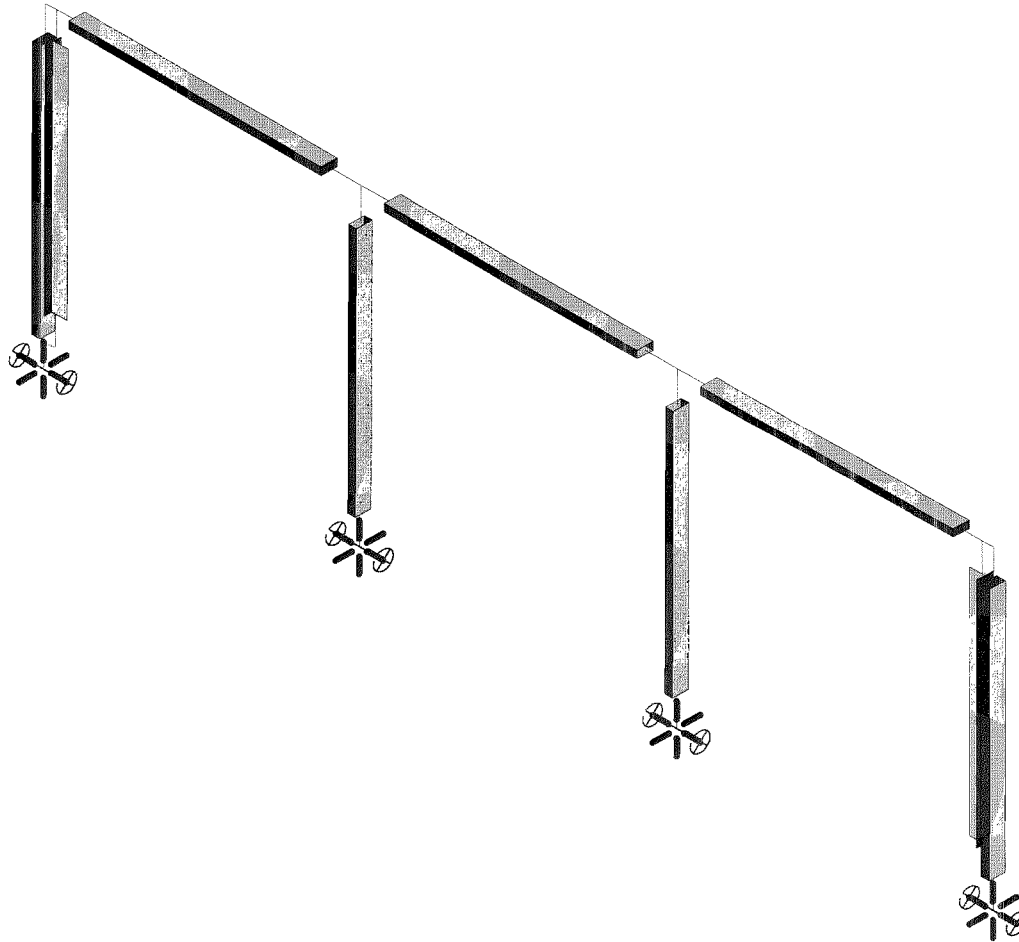
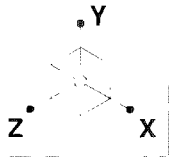
D. O'Connor

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D9c - 2x1 TUBE x 42-1/2" HIGH RAIL W/ T2x1.5x0.25 W/O BTM RAIL

Dec 10, 2008 at 3:30 PM

D9c.R3D



Ferrari Shields & Associates

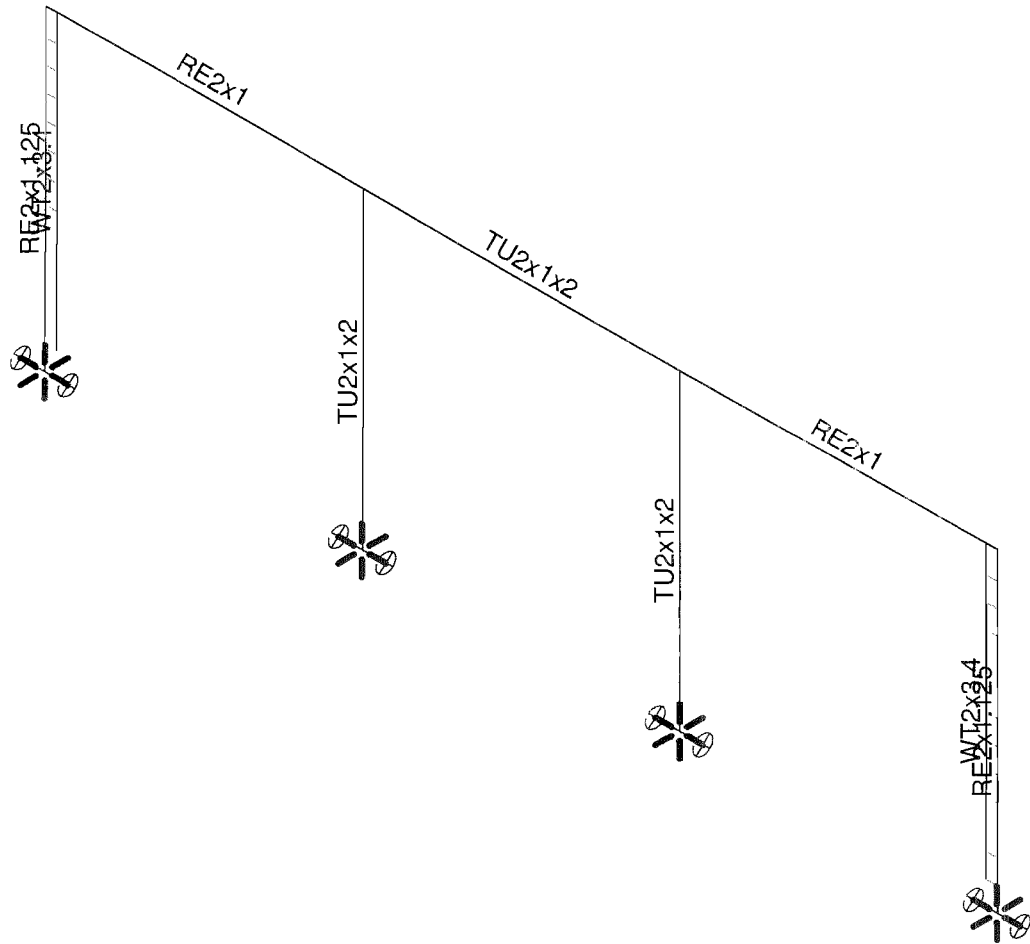
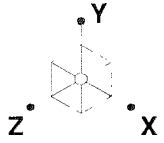
D. O'Connor

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D9c (SS) - 2x1 TUBE x 42-1/2" HIGH RAIL W/ T2x1.5x0.25 W/O BTM RAIL

Dec 9, 2008 at 2:00 PM

D9c-ss.R3D



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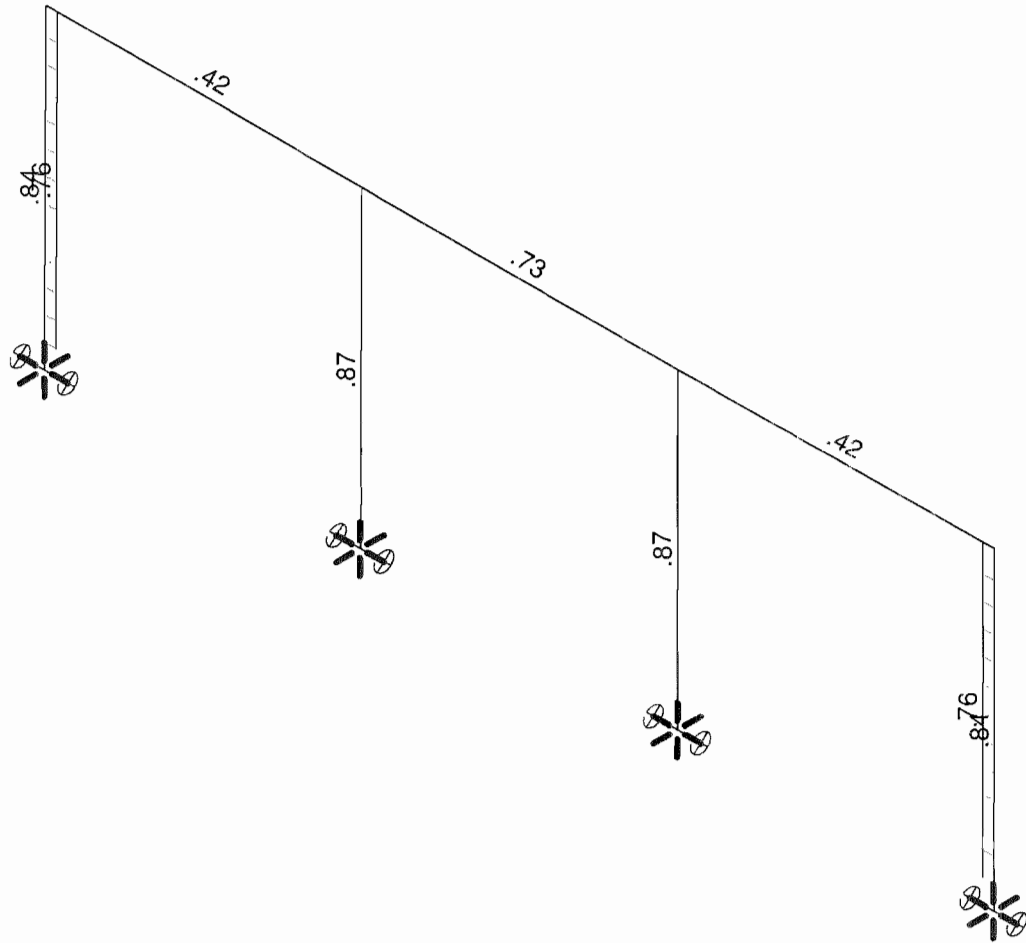
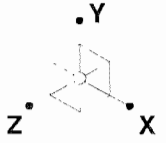
D. O'Connor

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D9c (SS) - 2x1 TUBE x 42-1/2" HIGH RAIL W/ T2x1.5x0.25 W/O BTM RAIL

Dec 9, 2008 at 2:00 PM

D9c-ss.R3D



Member Code Checks Displayed
Solution: Envelope

Ferrari Shields & Associates

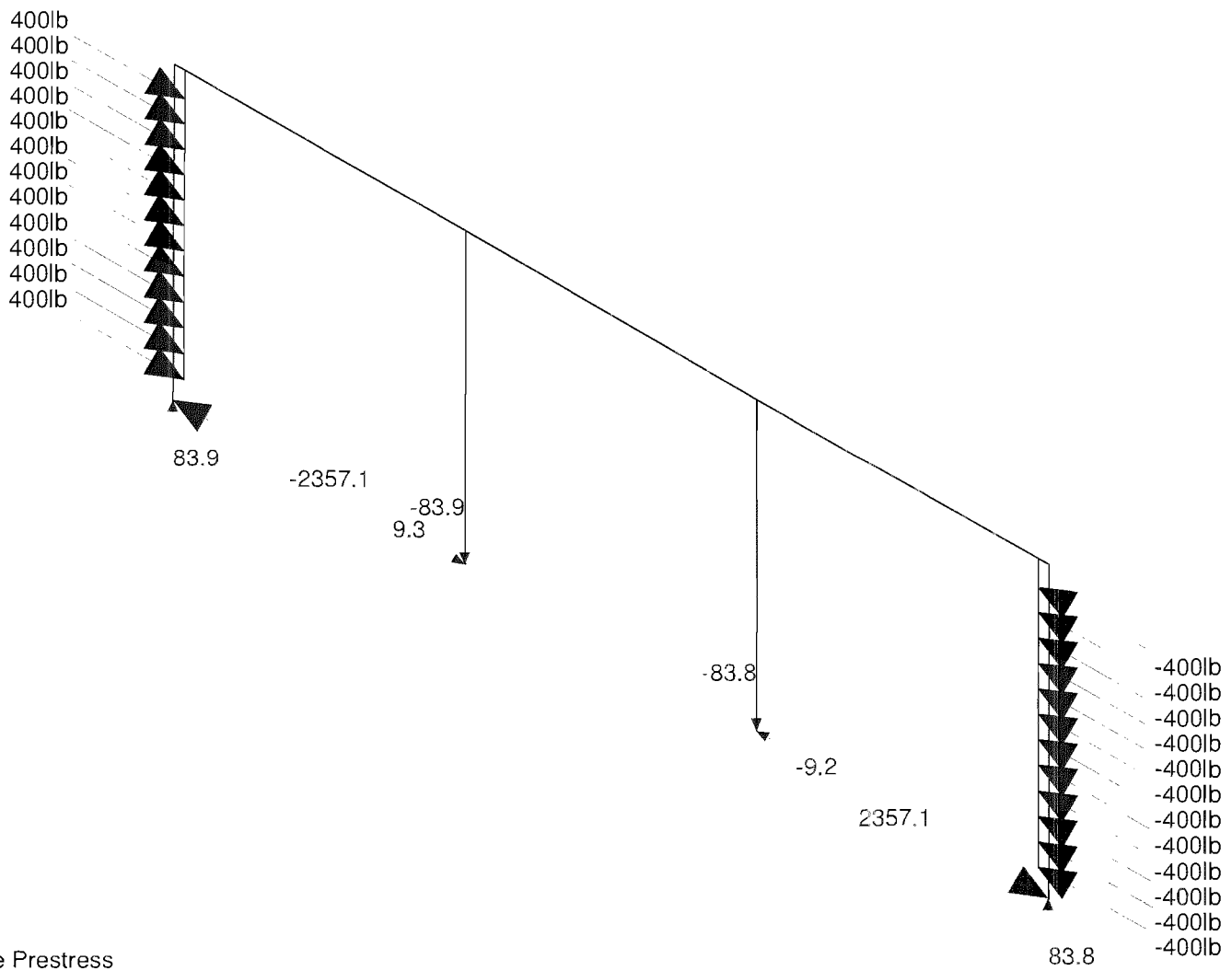
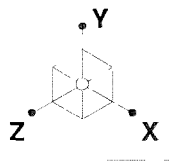
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D9c (SS) - 2x1 TUBE x 42-1/2" HIGH RAIL W/ T2x1.5x0.25 W/O BTM RAIL

Dec 9, 2008 at 2:00 PM

D9c-ss.R3D



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

Ferrari Shields & Associates

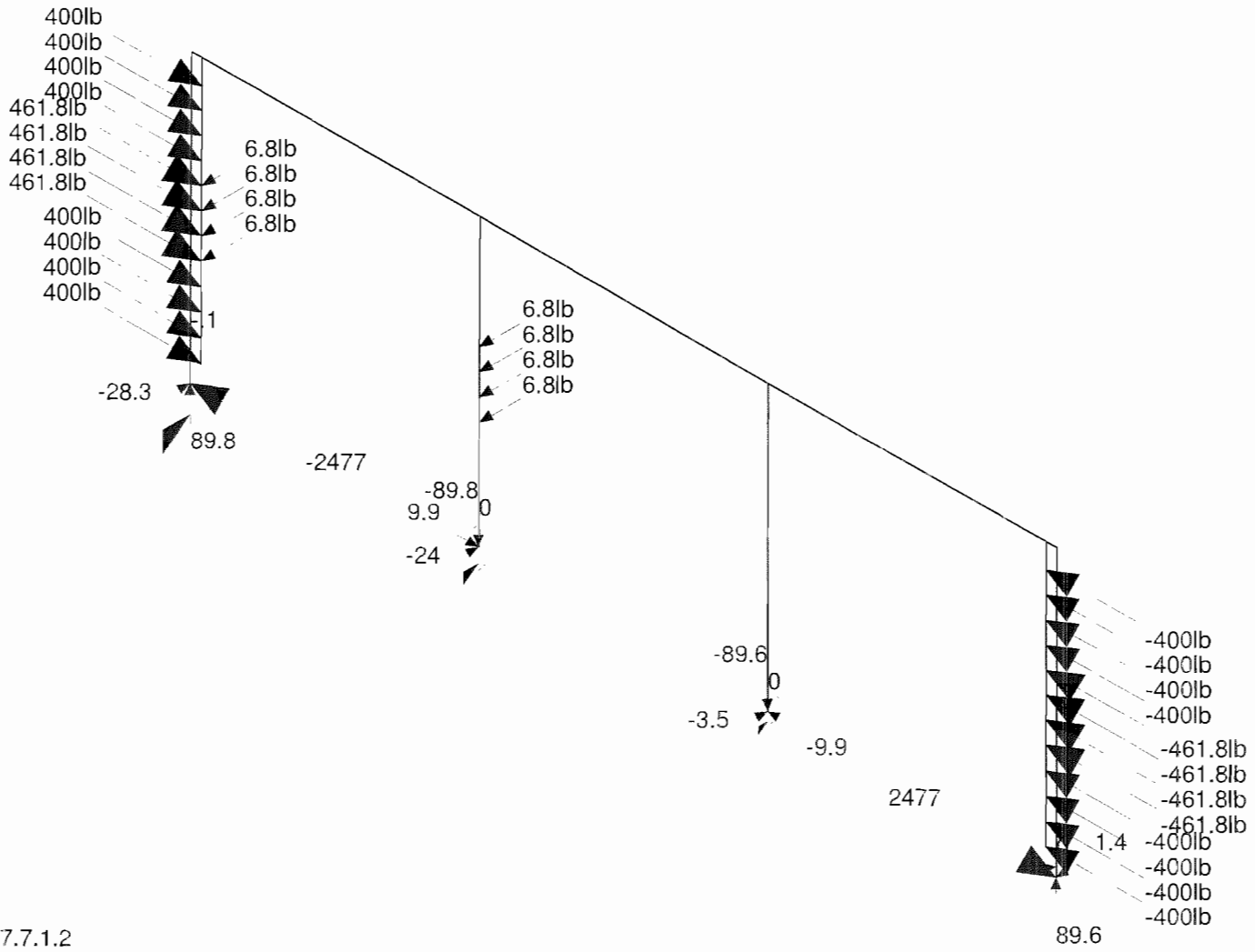
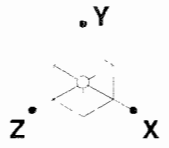
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D9c - 2x1 TUBE x 42-1/2" HIGH RAIL W/ T2x1.5x0.25 W/O BTM RAIL

Dec 9, 2008 at 2:17 PM

D9c.R3D

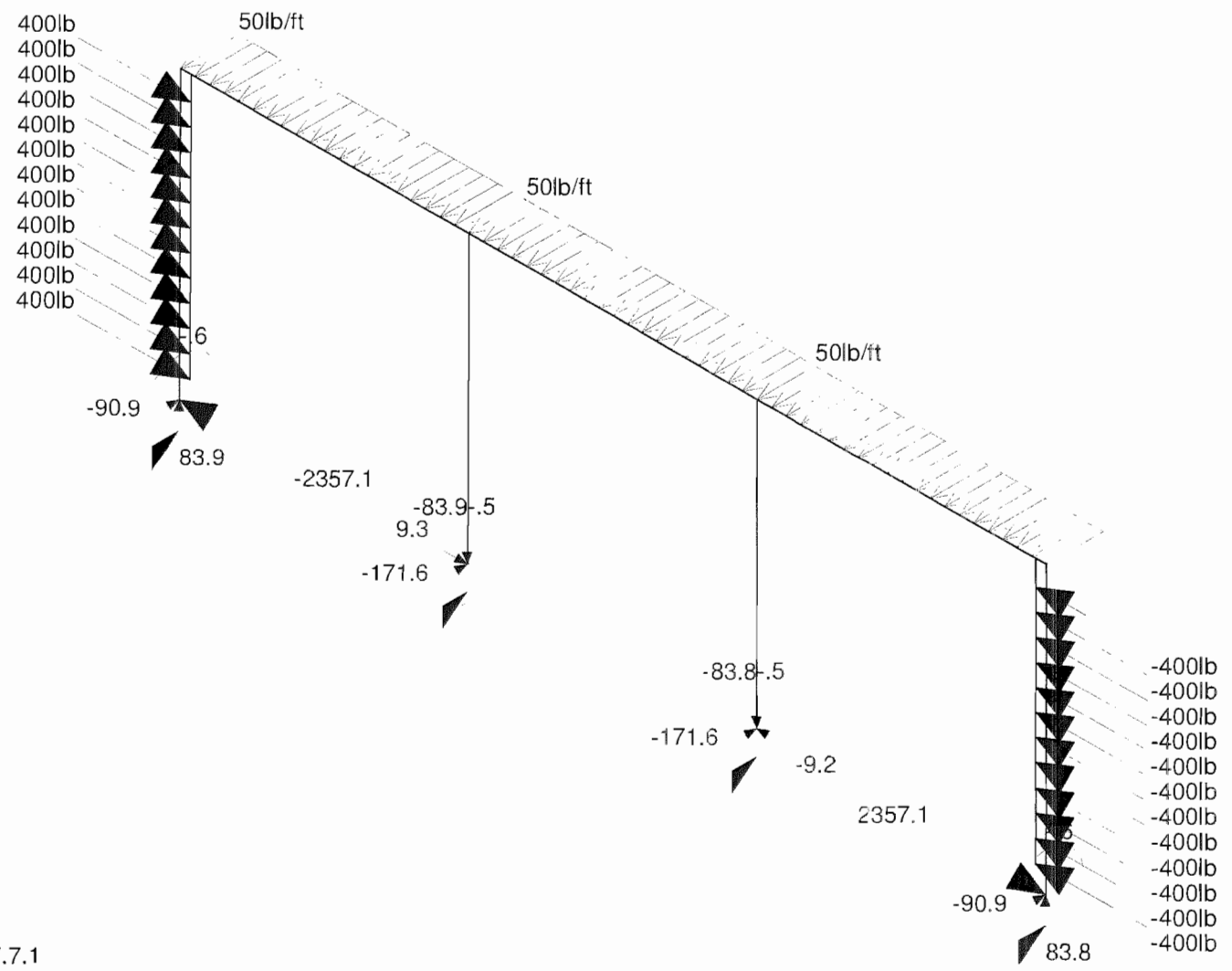
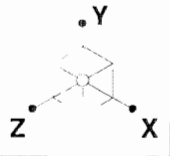


Loads: LC 2, 1607.7.1.2
 Results for LC 2, 1607.7.1.2
 Reaction units are lb and k-ft

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D9c - 2x1 TUBE x 42-1/2" HIGH RAIL W/ T2x1.5x0.25 W/O BTM RAIL

Dec 9, 2008 at 2:17 PM
 D9c.R3D

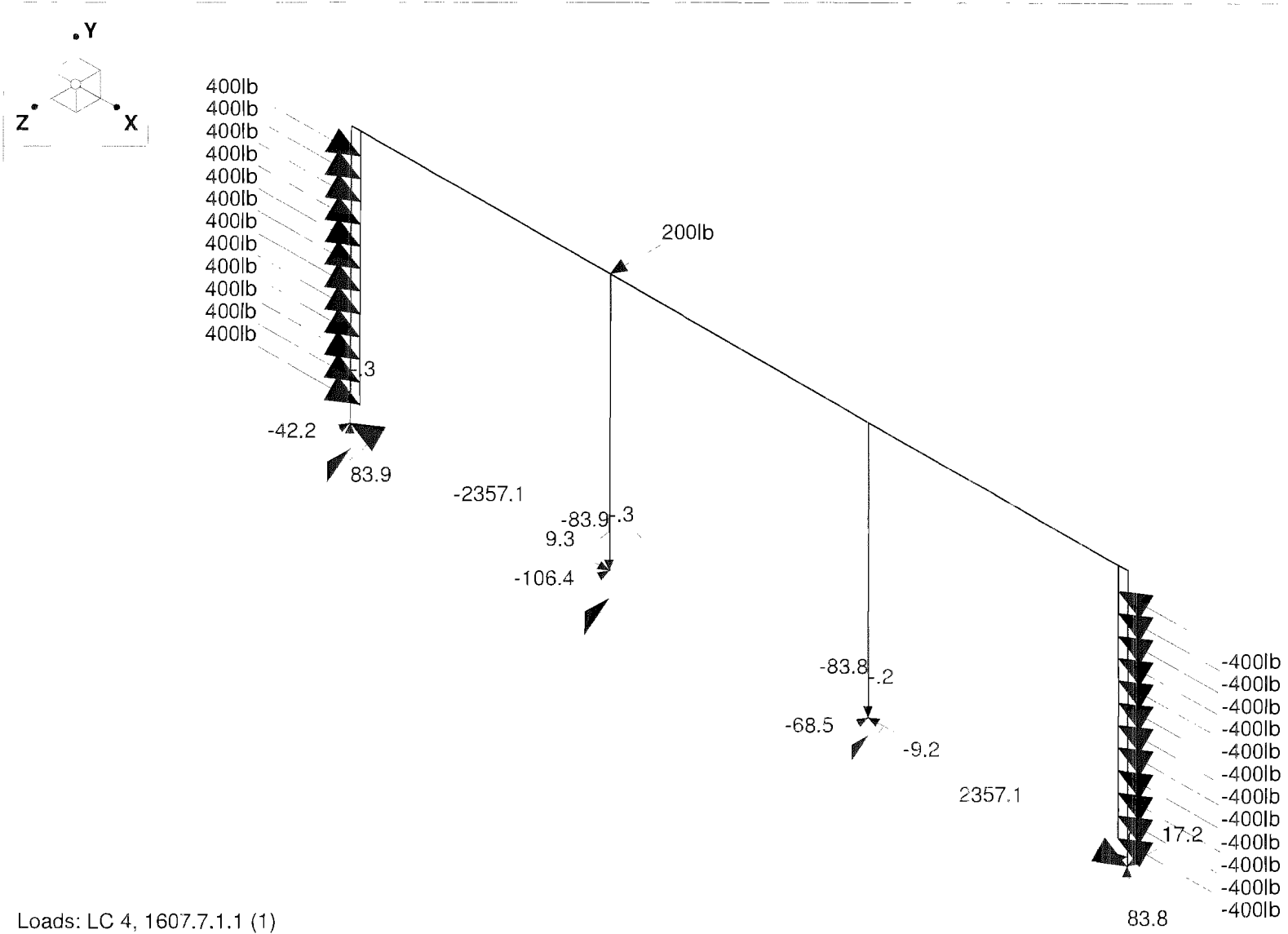


Loads: LC 3, 1607.7.1
 Results for LC 3, 1607.7.1
 Reaction units are lb and k-ft

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D9c - 2x1 TUBE x 42-1/2" HIGH RAIL W/ T2x1.5x0.25 W/O BTM RAIL

Dec 9, 2008 at 2:17 PM
 D9c.R3D

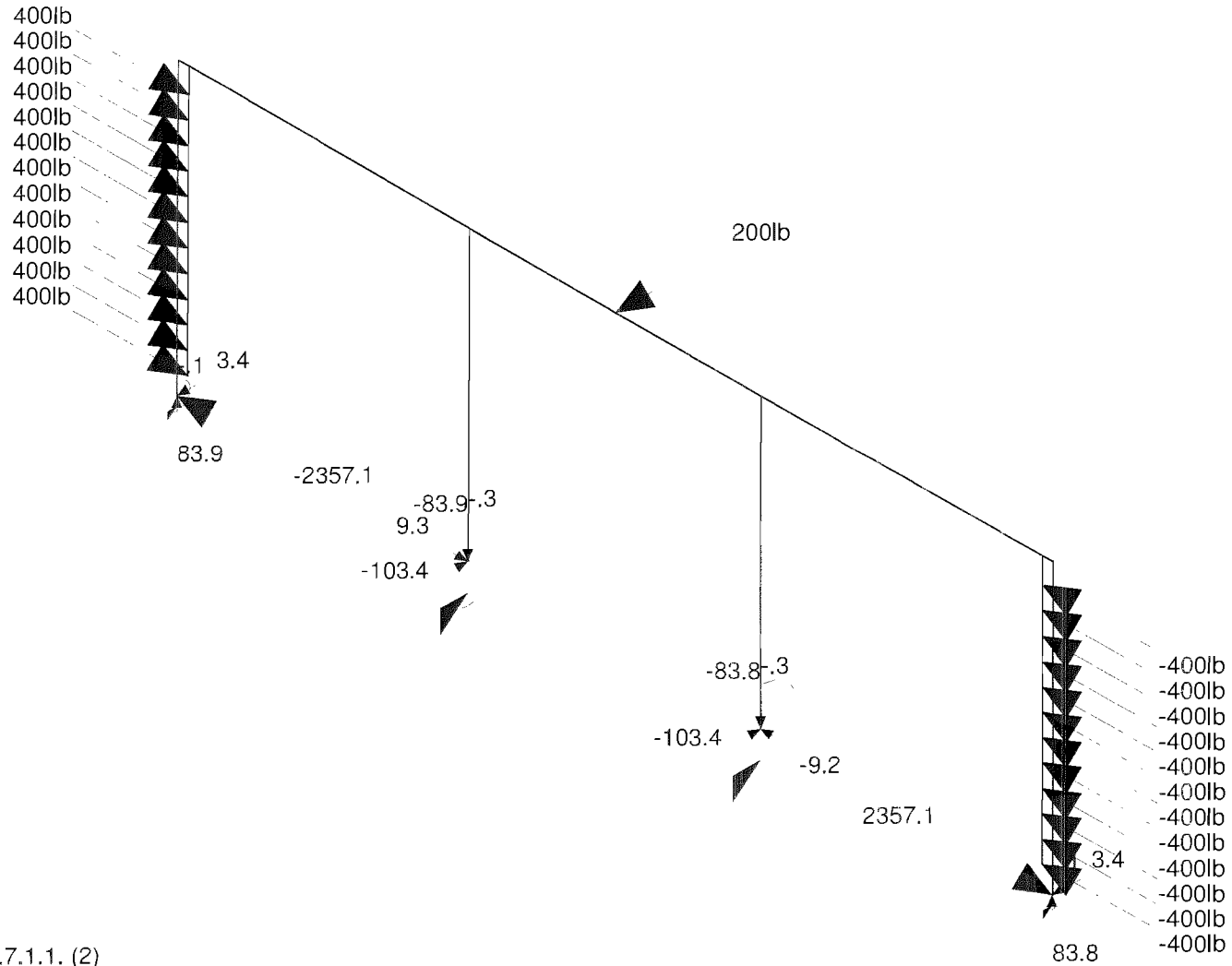
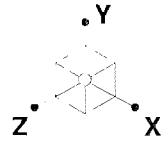


Loads: LC 4, 1607.7.1.1 (1)
 Results for LC 4, 1607.7.1.1 (1)
 Reaction units are lb and k-ft

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D9c - 2x1 TUBE x 42-1/2" HIGH RAIL W/ T2x1.5x0.25 W/O BTM RAIL

Dec 9, 2008 at 2:17 PM
 D9c.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

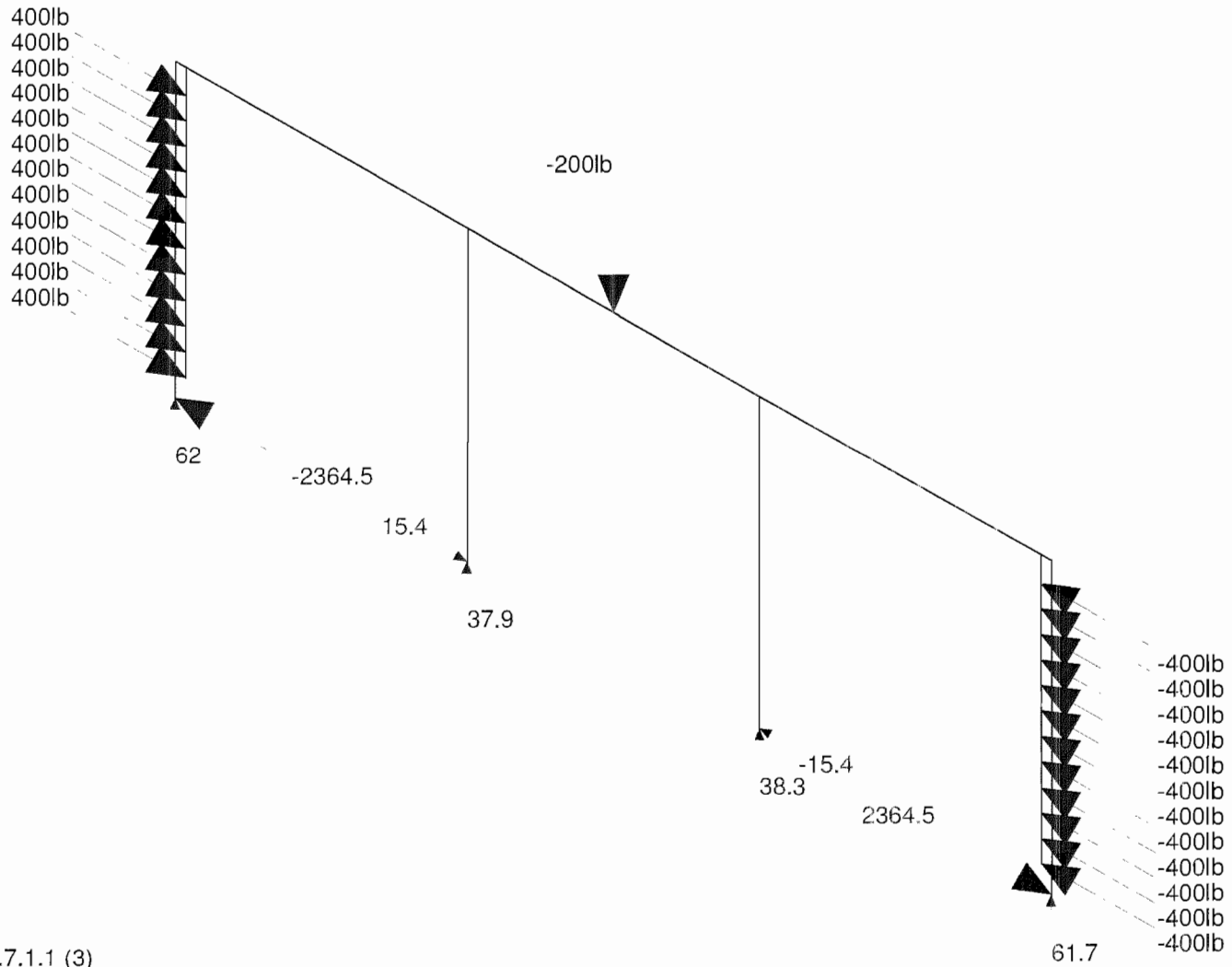
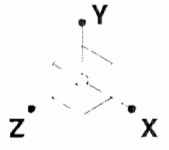
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D9c - 2x1 TUBE x 42-1/2" HIGH RAIL W/ T2x1.5x0.25 W/O BTM RAIL

Dec 9, 2008 at 2:17 PM

D9c.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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D9c - 2x1 TUBE x 42-1/2" HIGH RAIL W/ T2x1.5x0.25 W/O BTM RAIL

Dec 9, 2008 at 2:18 PM

D9c.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	A572Gr50	29000	11154	.3	.65	.49	50

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	RE2x1	Beam	Tube	A572Gr50	Typical	2	.167	.667	.457
3	POST	HSS2X1X2	Column	Tube	A500Gr42	Typical	.609	.092	.28	.238
4	EPOST	RE2x1.125	Column	Tube	A572Gr50	Typical	2.25	.237	.75	.613
5	TEE	WT2x3.4	Column	W_Tee	A572Gr50	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				24				
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			
9		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	A572Gr50	Typical
2	M2	N3	N4		90	POST	Column	Tube	A500Gr42	Typical
3	M3	N2	N4		90	ERAIL	Beam	Tube	A572Gr50	Typical
4	M4	N4	N8		90	RAIL	Beam	Tube	A500Gr42	Typical
5	M5	N5	N6		90	EPOST	Column	Tube	A572Gr50	Typical
6	M6	N7	N8		90	POST	Column	Tube	A500Gr42	Typical
7	M7	N8	N6		90	ERAIL	Beam	Tube	A572Gr50	Typical
8	M8	N58	N10		180	TEE	Column	W Tee	A572Gr50	Typical
9	M9	N57	N9			TEE	Column	W Tee	A572Gr50	Typical
10	M10	N11	N13			LINK	Beam	None	GEN_RIGID	Typical
11	M11	N14	N12			LINK	Beam	None	GEN_RIGID	Typical
12	M12	N15	N17			LINK	Beam	None	GEN_RIGID	Typical
13	M13	N18	N16			LINK	Beam	None	GEN_RIGID	Typical
14	M14	N19	N21			LINK	Beam	None	GEN_RIGID	Typical
15	M15	N22	N20			LINK	Beam	None	GEN_RIGID	Typical
16	M16	N23	N25			LINK	Beam	None	GEN_RIGID	Typical
17	M17	N26	N24			LINK	Beam	None	GEN_RIGID	Typical
18	M18	N27	N29			LINK	Beam	None	GEN_RIGID	Typical
19	M19	N30	N28			LINK	Beam	None	GEN_RIGID	Typical
20	M20	N31	N33			LINK	Beam	None	GEN_RIGID	Typical
21	M21	N34	N32			LINK	Beam	None	GEN_RIGID	Typical
22	M22	N35	N37			LINK	Beam	None	GEN_RIGID	Typical
23	M23	N38	N36			LINK	Beam	None	GEN_RIGID	Typical
24	M24	N39	N41			LINK	Beam	None	GEN_RIGID	Typical
25	M25	N42	N40			LINK	Beam	None	GEN_RIGID	Typical
26	M26	N43	N45			LINK	Beam	None	GEN_RIGID	Typical
27	M27	N46	N44			LINK	Beam	None	GEN_RIGID	Typical
28	M28	N51	N53			LINK	Beam	None	GEN_RIGID	Typical
29	M29	N54	N52			LINK	Beam	None	GEN_RIGID	Typical
30	M30	N55	N57			LINK	Beam	None	GEN_RIGID	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
31	M31	N58	N56			LINK	Beam	None	GEN_RIGID	Typical
32	M32	N59	N61			LINK	Beam	None	GEN_RIGID	Typical
33	M33	N62	N60			LINK	Beam	None	GEN_RIGID	Typical

Envelope Joint Reactions

	Joint		X [lb]	Ic	Y [lb]	Ic	Z [lb]	Ic	MX [k-ft]	Ic	MY [k-ft]	Ic	MZ [k-ft]	Ic
1	N1	max	-2357.057	1	89.847	2	3.362	5	0	1	0	1	0	1
2		min	-2476.99	2	62.035	6	-90.919	3	-585	3	0	1	0	1
3	N3	max	15.426	6	37.948	6	0	1	0	1	0	1	0	1
4		min	9.25	1	-89.85	2	-171.602	3	-525	3	0	1	0	1
5	N5	max	2477.005	2	89.646	2	17.171	4	.006	4	0	1	0	1
6		min	2357.084	4	61.735	6	-90.909	3	-585	3	0	1	0	1
7	N7	max	-9.206	4	38.282	6	0	1	0	1	0	1	0	1
8		min	-15.357	6	-89.644	2	-171.602	3	-525	3	0	1	0	1
9	Totals:	max	.076	2	200	6	0	1						
10		min	.071	4	0	4	-525.033	3						

Envelope Member Section Forces

	Member	Sec		Axial[lb]	Ic	y Shear[lb]	Ic	z Shear[lb]	Ic	Torque[k-ft]	Ic	y-y Moment[...]	Ic	z-z Moment[...]	Ic
1	M1	1	max	89.847	2	3.352	5	-2358.181	1	0	1	0	1	0	1
2			min	62.035	6	-90.988	3	-2478.275	2	0	1	0	1	-585	3
3		2	max	10181.675	2	0	1	-821.625	4	0	1	-189	4	0	1
4			min	9543.199	4	-120.51	3	-909.068	2	-.002	3	-199	2	-403	3
5		3	max	13119.269	2	0	1	30.086	2	0	1	-.3	4	0	1
6			min	12113.894	4	-162.702	3	22.684	6	-.002	3	-325	2	-288	3
7		4	max	9801.744	2	0	1	966.789	2	0	1	-142	4	0	1
8			min	9192.489	4	-158.898	3	870.718	6	-.002	3	-149	2	-154	3
9		5	max	835.56	6	0	1	1310.8	2	.007	5	.145	2	.001	2
10			min	746.804	4	-159.968	3	1248.884	4	-.002	2	.138	6	-.037	3
11	M2	1	max	37.948	6	0	1	15.511	6	0	1	0	1	0	1
12			min	-89.85	2	-171.602	3	9.25	1	0	1	0	1	-525	3
13		2	max	37.948	6	0	1	15.511	6	0	1	.014	6	0	1
14			min	-89.85	2	-171.602	3	9.25	1	0	1	.008	1	-375	3
15		3	max	37.948	6	0	1	15.449	6	0	1	.027	6	.002	2
16			min	-89.85	2	-171.602	3	9.25	1	0	1	.016	1	-225	3
17		4	max	37.948	6	3.18	2	15.321	6	0	1	.041	6	.003	2
18			min	-89.85	2	-171.602	3	9.25	1	0	1	.024	1	-.075	3
19		5	max	37.948	6	3.18	2	15.321	6	0	1	.054	6	.075	3
20			min	-89.85	2	-171.602	3	9.25	1	0	1	.032	1	0	1
21	M3	1	max	1301.423	2	0	1	-733.311	4	.001	2	.145	2	.002	2
22			min	1240.367	4	-165.752	3	-821.76	6	-.037	3	.138	6	-.007	5
23		2	max	2570.103	2	0	1	-62.441	6	0	2	.178	2	.079	3
24			min	2435.375	6	-69.746	3	-90.257	2	-.075	3	.161	6	0	1
25		3	max	2570.103	2	0	1	-62.441	6	0	2	.106	6	.121	3
26			min	2435.375	6	-56.592	4	-90.257	2	-.075	3	.093	1	0	1
27		4	max	2570.103	2	17.754	3	-62.441	6	0	2	.051	6	.148	4
28			min	2435.375	6	-56.592	4	-90.257	2	-.075	3	.019	4	0	1
29		5	max	2570.103	2	61.504	3	-62.441	6	0	2	-.003	6	.198	4
30			min	2435.375	6	-56.592	4	-90.257	2	-.075	3	-.059	2	0	1
31	M4	1	max	2580.019	2	59.209	4	.003	2	.014	4	.051	6	.198	4

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	
32		min	2450.801	6	-100	5	-99.982	6	0	3	-.024	2	0	1	
33	2	max	2580.019	2	59.209	4	.003	2	.014	4	-.022	1	.147	3	
34		min	2450.801	6	-100	5	-99.982	6	0	3	-.037	6	0	1	
35	3	max	2580.019	2	100	5	100.018	6	.014	4	-.022	1	.228	5	
36		min	2450.801	6	0	1	.002	1	0	3	-.124	6	0	1	
37	4	max	2580.019	2	100	5	100.018	6	.014	4	-.022	4	.147	3	
38		min	2450.801	6	0	1	.002	1	0	3	-.037	6	0	1	
39	5	max	2580.019	2	100	5	100.018	6	.014	4	.051	6	.09	3	
40		min	2450.801	6	0	1	.002	1	0	3	-.024	2	-.01	4	
41	M5	1	max	89.646	2	17.172	4	2478.289	2	0	1	0	.006	4	
42		min	61.735	6	-90.979	3	2358.207	4	0	1	0	1	-.585	3	
43	2	max	10182.122	2	15.196	4	909.222	2	.002	3	.199	2	.001	2	
44		min	9543.58	1	-120.504	3	821.741	1	0	4	.189	1	-.403	3	
45	3	max	13120.793	2	13.945	4	-22.435	6	.002	3	.325	2	0	2	
46		min	12115.045	1	-162.701	3	-29.922	2	0	4	.3	1	-.288	3	
47	4	max	9804.049	2	12.637	4	-870.575	6	.002	3	.149	2	0	1	
48		min	9194.163	1	-158.908	3	-966.705	2	0	4	.143	1	-.155	3	
49	5	max	838.607	6	0	1	-1249.17	1	0	1	-.138	6	0	1	
50		min	748.224	1	-159.974	3	-1311.197	2	-.007	5	-.145	2	-.037	3	
51	M6	1	max	38.282	6	0	1	-9.206	4	0	1	0	1	0	1
52		min	-89.644	2	-171.602	3	-15.352	6	0	1	0	1	-.525	3	
53	2	max	38.282	6	0	1	-9.206	4	0	1	-.008	4	0	1	
54		min	-89.644	2	-171.602	3	-15.352	6	0	1	-.013	6	-.375	3	
55	3	max	38.282	6	0	1	-9.206	4	0	1	-.016	4	0	1	
56		min	-89.644	2	-171.602	3	-15.352	6	0	1	-.027	6	-.225	3	
57	4	max	38.282	6	0	1	-9.206	4	0	1	-.024	4	0	1	
58		min	-89.644	2	-171.602	3	-15.352	6	0	1	-.04	6	-.075	3	
59	5	max	38.282	6	0	1	-9.206	4	0	1	-.032	4	.075	3	
60		min	-89.644	2	-171.602	3	-15.352	6	0	1	-.054	6	0	1	
61	M7	1	max	2570.164	2	15.402	5	90.056	2	.075	3	-.003	6	.09	3
62		min	2435.444	6	-61.504	3	62.14	6	0	1	-.058	2	-.01	4	
63	2	max	2570.164	2	15.402	5	90.056	2	.075	3	.051	6	.125	3	
64		min	2435.444	6	-17.754	3	62.14	6	0	1	.019	1	-.008	4	
65	3	max	2570.164	2	25.996	3	90.056	2	.075	3	.106	6	.121	3	
66		min	2435.444	6	-2.54	4	62.14	6	0	1	.093	4	-.005	4	
67	4	max	2570.164	2	69.746	3	90.056	2	.075	3	.178	2	.079	3	
68		min	2435.444	6	-2.54	4	62.14	6	0	1	.16	6	-.003	4	
69	5	max	1301.81	2	165.747	3	824.837	6	.037	3	.145	2	0	1	
70		min	1240.647	1	0	1	734.744	1	0	1	.138	6	-.007	5	
71	M8	1	max	-4821.827	4	711.559	2	8.116	3	0	3	0	2	-.088	4
72		min	-5084.781	2	669.278	1	-1.871	4	0	4	-.101	3	-.092	2	
73	2	max	-10920.631	1	314.942	2	16.826	3	0	3	0	2	-.366	1	
74		min	-11739.29	2	271.794	1	-1.83	4	0	4	-.084	3	-.391	2	
75	3	max	-11664.216	1	-154.984	6	20.646	3	0	3	0	1	-.444	1	
76		min	-12611.201	2	-180.977	2	-1.643	4	0	4	-.059	3	-.481	2	
77	4	max	-6957.138	1	-566.202	6	17.588	3	0	3	0	1	-.312	1	
78		min	-7365.891	2	-613.609	2	-1.563	4	0	4	-.032	3	-.332	2	
79	5	max	-664.449	1	-1181.775	6	0	1	0	1	0	1	.195	2	
80		min	-776.871	6	-1268.354	2	-61.205	3	0	5	-.038	3	.172	6	
81	M9	1	max	-4821.703	1	711.517	2	.641	5	0	5	.101	3	-.088	1
82		min	-5084.653	2	669.244	4	-8.117	3	0	3	0	1	-.092	2	
83	2	max	-10919.849	4	314.857	2	0	1	0	1	.084	3	-.366	4	
84		min	-11738.294	2	271.732	4	-16.824	3	0	3	0	1	-.391	2	

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
85	3	max	-11662.705	4	-155.091	6	6.28	2	0	1	.059	3	-.444	4
86		min	-12609.159	2	-181.043	2	-20.643	3	0	3	0	1	-.481	2
87	4	max	-6955.228	4	-566.243	6	10.082	2	0	1	.032	3	-.312	4
88		min	-7363.252	2	-613.629	2	-17.579	3	0	3	0	2	-.332	2
89	5	max	-662.884	4	-1182.297	6	61.213	3	0	5	.038	3	.195	2
90		min	-773.526	6	-1268.681	2	0	1	0	2	0	1	.172	6

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	RE2x1.125	.869	19.25	3	.061	0	z	2	20219.865	67365.269	1.579	2.807	1... H1-1a
2	M2	HSS2X1X2	.686	0	3	.030	16.188	y	3	7484.295	15307.164	.468	.768	1... H1-1b
3	M3	RE2x1	.288	1.75	2	.068	1.75	y	3	14201.396	59880.24	1.248	2.495	1... H1-1b
4	M4	HSS2X1X2	.634	21	5	.045	0	y	4	7484.423	15307.164	.468	.768	1... H1-1a
5	M5	RE2x1.125	.869	19.25	3	.061	0	z	2	20219.865	67365.269	1.579	2.807	1... H1-1a
6	M6	HSS2X1X2	.686	0	3	.030	0	y	3	7484.295	15307.164	.468	.768	1... H1-1b
7	M7	RE2x1	.286	40.25	2	.068	40.25	y	3	14201.396	59880.24	1.248	2.495	1... H1-1b
8	M8	WT2x3.4	.917	15.755	3	.141	35.145	y	2	20865.052	28068.862	.674	.985	1 H1-1a
9	M9	WT2x3.4	.917	15.755	3	.142	35.145	y	2	20865.052	28068.862	.674	.985	1 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	46
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	RE2x1	Beam	Tube	SS316	Typical	2	.167	.667	.457
3	POST	TU2x1x2	Column	Tube	SS316	Typical	.662	.102	.321	.238
4	EPOST	RE2x1.125	Column	Tube	LDX2101	Typical	2.25	.237	.75	.613
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				24			
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		
9		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	N58	N10		180	TEE	Column	W Tee	LDX2101	Typical
9	M9	N57	N9			TEE	Column	W Tee	LDX2101	Typical
10	M10	N11	N13			LINK	Beam	None	GEN_RIGID	Typical
11	M11	N14	N12			LINK	Beam	None	GEN_RIGID	Typical
12	M12	N15	N17			LINK	Beam	None	GEN_RIGID	Typical
13	M13	N18	N16			LINK	Beam	None	GEN_RIGID	Typical
14	M14	N19	N21			LINK	Beam	None	GEN_RIGID	Typical
15	M15	N22	N20			LINK	Beam	None	GEN_RIGID	Typical
16	M16	N23	N25			LINK	Beam	None	GEN_RIGID	Typical
17	M17	N26	N24			LINK	Beam	None	GEN_RIGID	Typical
18	M18	N27	N29			LINK	Beam	None	GEN_RIGID	Typical
19	M19	N30	N28			LINK	Beam	None	GEN_RIGID	Typical
20	M20	N31	N33			LINK	Beam	None	GEN_RIGID	Typical
21	M21	N34	N32			LINK	Beam	None	GEN_RIGID	Typical
22	M22	N35	N37			LINK	Beam	None	GEN_RIGID	Typical
23	M23	N38	N36			LINK	Beam	None	GEN_RIGID	Typical
24	M24	N39	N41			LINK	Beam	None	GEN_RIGID	Typical
25	M25	N42	N40			LINK	Beam	None	GEN_RIGID	Typical
26	M26	N43	N45			LINK	Beam	None	GEN_RIGID	Typical
27	M27	N46	N44			LINK	Beam	None	GEN_RIGID	Typical
28	M28	N51	N53			LINK	Beam	None	GEN_RIGID	Typical
29	M29	N54	N52			LINK	Beam	None	GEN_RIGID	Typical
30	M30	N55	N57			LINK	Beam	None	GEN_RIGID	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
31	M31	N58	N56			LINK	Beam	None	GEN_RIGID	Typical
32	M32	N59	N61			LINK	Beam	None	GEN_RIGID	Typical
33	M33	N62	N60			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	-2356.524	4	91.257	2	2.113	5	0	1	0	1	0	1
2		min	-2476.39	2	64.326	6	-90.686	3	-58	3	0	1	0	1
3	N3	max	16.325	6	35.661	6	0	1	0	1	0	1	0	1
4		min	9.778	4	-91.256	2	-171.803	3	-535	3	0	1	0	1
5	N5	max	2476.396	2	91.647	2	16.538	4	.009	4	0	1	0	1
6		min	2356.5	1	64.459	6	-90.696	3	-58	3	0	1	0	1
7	N7	max	-9.867	1	35.554	6	0	1	0	1	0	1	0	1
8		min	-16.387	6	-91.648	2	-171.801	3	-535	3	0	1	0	1
9	Totals:	max	-.112	1	200	6	0	1						
10		min	-.121	2	0	4	-524.986	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	91.257	2	2.102	5	-2357.708	4	0	1	0	1
2			min	64.326	6	-90.758	3	-2477.744	2	0	1	0	1
3		2	max	10190.377	2	0	1	-818.552	1	0	1	-189	1
4			min	9550.727	1	-121.251	3	-905.804	2	-.002	3	-.2	2
5		3	max	13134.302	2	0	1	30.172	2	0	1	-.3	1
6			min	12126.417	1	-164.39	3	23.045	6	-.002	3	-.325	2
7		4	max	9807.261	2	0	1	963.669	2	0	1	-.143	1
8			min	9196.421	1	-160.201	3	868.073	6	-.002	3	-.149	2
9		5	max	828.553	6	0	1	1298.773	2	.007	5	.144	2
10			min	743.121	1	-150.539	3	1237.378	1	-.002	2	.137	6
11	M2	1	max	35.661	6	0	1	16.403	6	0	1	0	1
12			min	-91.256	2	-171.803	3	9.778	4	0	1	0	1
13		2	max	35.661	6	0	1	16.403	6	0	1	.014	6
14			min	-91.256	2	-171.803	3	9.778	4	0	1	.009	4
15		3	max	35.661	6	0	1	16.346	6	0	1	.029	6
16			min	-91.256	2	-171.803	3	9.778	4	0	1	.017	4
17		4	max	35.661	6	2.985	2	16.226	6	0	1	.043	6
18			min	-91.256	2	-171.803	3	9.778	4	0	1	.026	4
19		5	max	35.661	6	2.985	2	16.226	6	0	1	.057	6
20			min	-91.256	2	-171.803	3	9.778	4	0	1	.034	4
21	M3	1	max	1289.124	2	0	1	-729.289	1	.001	2	.144	2
22			min	1228.615	1	-154.54	3	-814.416	6	-.033	3	.137	6
23		2	max	2570.893	2	0	1	-64.746	6	0	2	.179	2
24			min	2436.384	6	-66.478	3	-91.684	2	-.066	3	.161	6
25		3	max	2570.893	2	0	1	-64.746	6	0	2	.105	6
26			min	2436.384	6	-55.113	4	-91.684	2	-.066	3	.092	4
27		4	max	2570.893	2	21.022	3	-64.746	6	0	2	.048	6
28			min	2436.384	6	-55.113	4	-91.684	2	-.066	3	.017	1
29		5	max	2570.893	2	64.772	3	-64.746	6	0	2	-.009	6
30			min	2436.384	6	-55.113	4	-91.684	2	-.066	3	-.062	2
31	M4	1	max	2581.351	2	58.363	4	-.001	1	.014	4	.048	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	
32		min	2452.709	6	-100	5	-99.988	6	0	1	-.025	2	0	1	
33	2	max	2581.351	2	58.363	4	-.001	1	.014	4	-.024	4	.141	4	
34		min	2452.709	6	-100	5	-99.988	6	0	1	-.039	6	0	1	
35	3	max	2581.351	2	100	5	100.012	6	.014	4	-.024	1	.226	5	
36		min	2452.709	6	0	3	-.002	2	0	1	-.127	6	0	1	
37	4	max	2581.351	2	100	5	100.012	6	.014	4	-.024	1	.138	5	
38		min	2452.709	6	0	1	-.002	2	0	1	-.039	6	0	2	
39	5	max	2581.351	2	100	5	100.012	6	.014	4	.048	6	.079	3	
40		min	2452.709	6	0	1	-.002	2	0	1	-.025	2	-.012	4	
41	M5	1	max	91.647	2	16.539	4	2477.752	2	0	0	1	.009	4	
42		min	64.459	6	-90.768	3	2357.685	1	0	1	0	1	-.58	3	
43	2	max	10189.651	2	14.851	4	905.526	2	.002	3	.2	2	.002	2	
44		min	9550.125	4	-121.252	3	818.355	4	0	4	.189	4	-.398	3	
45	3	max	13131.529	2	13.884	4	-23.145	6	.002	3	.325	2	0	2	
46		min	12124.411	4	-164.371	3	-30.505	2	0	4	.3	4	-.282	3	
47	4	max	9802.806	2	12.6	4	-868.106	6	.002	3	.149	2	0	1	
48		min	9193.289	4	-160.156	3	-963.832	2	0	4	.143	4	-.147	3	
49	5	max	827.363	6	0	1	-1236.833	4	0	1	-.137	6	0	1	
50		min	740.457	4	-150.521	3	-1297.993	2	-.007	5	-.144	2	-.033	3	
51	M6	1	max	35.554	6	0	1	-9.867	1	0	0	1	0	1	
52		min	-91.648	2	-171.801	3	-16.383	6	0	1	0	1	-.535	3	
53	2	max	35.554	6	0	1	-9.867	1	0	1	-.009	1	0	1	
54		min	-91.648	2	-171.801	3	-16.383	6	0	1	-.014	6	-.385	3	
55	3	max	35.554	6	0	1	-9.867	1	0	1	-.017	1	0	1	
56		min	-91.648	2	-171.801	3	-16.383	6	0	1	-.029	6	-.235	3	
57	4	max	35.554	6	0	1	-9.867	1	0	1	-.026	1	0	1	
58		min	-91.648	2	-171.801	3	-16.383	6	0	1	-.043	6	-.084	3	
59	5	max	35.554	6	0	1	-9.867	1	0	1	-.035	1	.066	3	
60		min	-91.648	2	-171.801	3	-16.383	6	0	1	-.057	6	0	1	
61	M7	1	max	2570.766	2	14.817	5	92.075	2	.066	3	-.009	6	.079	3
62		min	2436.322	6	-64.772	3	64.877	6	0	1	-.062	2	-.012	4	
63	2	max	2570.766	2	14.817	5	92.075	2	.066	3	.048	6	.116	3	
64		min	2436.322	6	-21.022	3	64.877	6	0	1	.017	4	-.009	4	
65	3	max	2570.766	2	22.728	3	92.075	2	.066	3	.105	6	.116	3	
66		min	2436.322	6	-3.164	4	64.877	6	0	1	.092	1	-.006	4	
67	4	max	2570.766	2	66.478	3	92.075	2	.066	3	.179	2	.076	3	
68		min	2436.322	6	-3.164	4	64.877	6	0	1	-.161	6	-.004	4	
69	5	max	1288.363	2	154.546	3	813.217	6	.033	3	.144	2	0	1	
70		min	1228.082	4	0	1	726.601	4	0	1	.137	6	-.007	5	
71	M8	1	max	-4821.781	1	720.022	2	8.255	3	0	3	0	4	-.087	1
72		min	-5084.822	2	677.206	4	-1.804	4	0	4	-.1	3	-.091	2	
73	2	max	-10927.587	4	318.97	2	17.088	3	0	3	0	2	-.366	4	
74		min	-11747.358	2	275.272	4	-1.813	4	0	4	-.083	3	-.39	2	
75	3	max	-11669.616	4	-157.531	6	21.006	3	0	3	0	2	-.444	4	
76		min	-12617.368	2	-183.839	2	-1.653	4	0	4	-.057	3	-.482	2	
77	4	max	-6949.906	4	-573.695	6	17.82	3	0	3	0	1	-.313	4	
78		min	-7357.428	2	-621.673	2	-1.557	4	0	4	-.03	3	-.333	2	
79	5	max	-654.885	4	-1195.537	6	0	1	0	1	0	1	.198	2	
80		min	-762.905	6	-1282.402	2	-55.45	5	0	5	-.033	3	.175	6	
81	M9	1	max	-4821.963	4	720.094	2	.491	5	0	5	.1	3	-.087	4
82		min	-5085.003	2	677.263	1	-8.253	3	0	3	0	1	-.091	2	
83	2	max	-10928.908	1	319.131	2	0	1	0	1	.083	3	-.366	1	
84		min	-11749.111	2	275.382	1	-17.088	3	0	3	0	1	-.39	2	

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	
85	3	max	-11672.351	1	-157.489	6	6.161	2	0	1	.057	3	-.445	1
86		min	-12621.207	2	-183.688	2	-21.009	3	0	3	0	1	-.482	2
87	4	max	-6953.485	1	-573.692	6	9.961	2	0	1	.03	3	-.313	1
88		min	-7362.536	2	-621.632	2	-17.825	3	0	3	0	2	-.333	2
89	5	max	-657.821	1	-1195.351	6	55.449	5	0	5	.033	3	.197	2
90		min	-764.226	6	-1281.769	2	0	1	0	2	0	1	.175	6

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	RE2x1.125	.844	19.25	3	.051	0	z	2	19522.629	80838.323	1.895	3.368	1.... H1-1a
2	M2	TU2x1x2	.873	0	3	.040	22.75	y	3	7068.688	11892.216	.368	.615	1.... H1-1b
3	M3	RE2x1	.424	1.75	2	.101	1.75	y	3	13711.693	35928.144	.749	1.497	1.... H1-1b
4	M4	TU2x1x2	.731	21	5	.061	0	y	4	7068.776	11892.216	.368	.615	1.... H1-1a
5	M5	RE2x1.125	.844	19.25	3	.051	0	z	2	19522.629	80838.323	1.895	3.368	1.... H1-1a
6	M6	TU2x1x2	.873	0	3	.040	0	y	3	7068.688	11892.216	.368	.615	1.... H1-1b
7	M7	RE2x1	.423	40.25	2	.101	40.25	y	3	13711.693	35928.144	.749	1.497	1.... H1-1b
8	M8	WT2x3.4	.763	15.755	3	.119	35.145	y	2	15304.11	33682.635	.809	1.182	1.... H1-1a
9	M9	WT2x3.4	.763	15.755	3	.119	35.145	y	2	15304.11	33682.635	.809	1.182	1.... H1-1a

*** End of Calculations ***