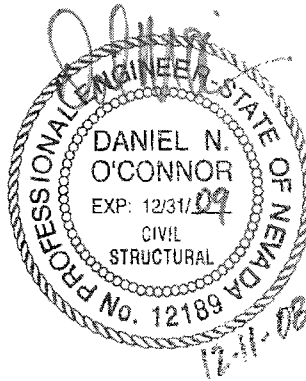
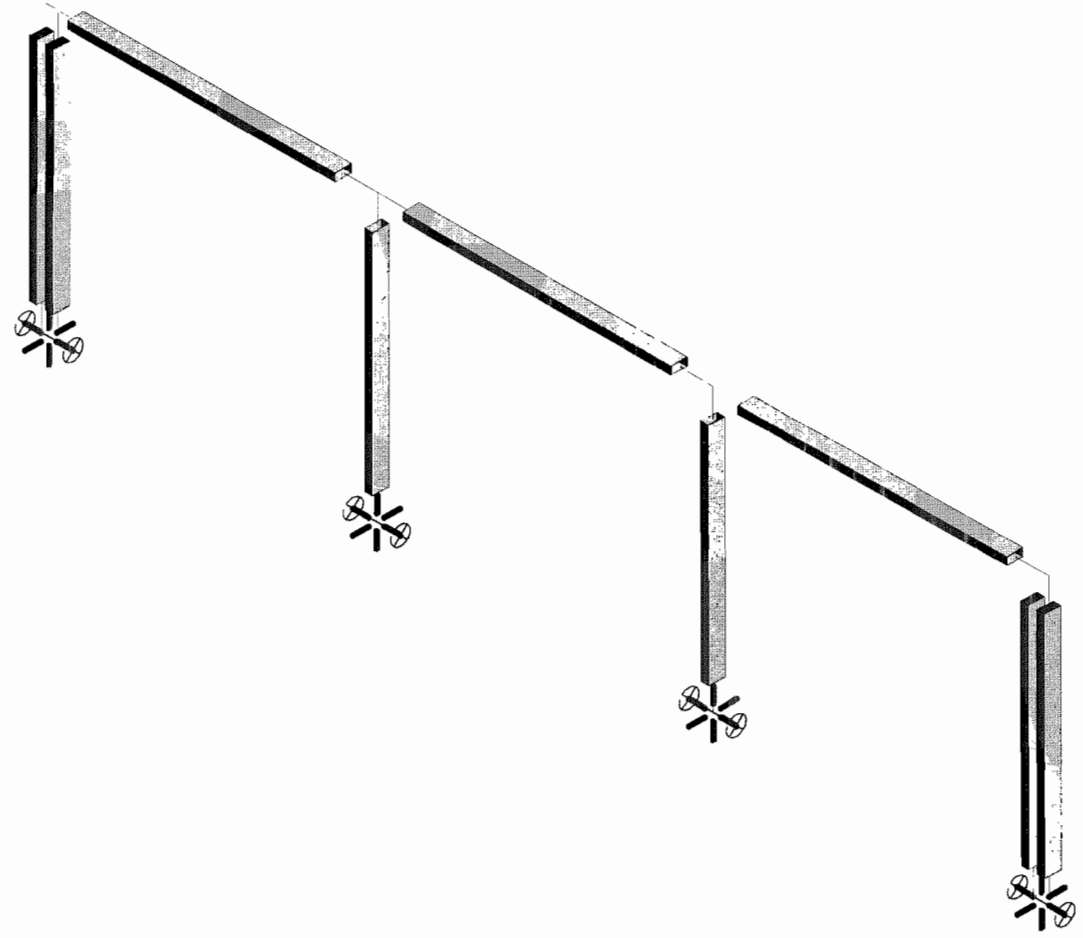
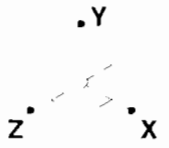


D2a—2" x 1" RECT. TUBE x 36-1/2" HIGH RAIL WITHOUT BOTTOM RAIL

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, A36, Fy = 36 ksi (Flat Bar) Stainless Steel, A554, Grade MT-304 or MT-316, Fy = 30 ksi Stainless Steel, LDX 2101 (UNS S32101), Fy = 60 ksi (Anchor Post)
Height:	36.5"
Anchor Post:	Carbon Steel: Double 2"x1" Flat Bar Stainless Steel: Double 2"x1"x0.120" Tube (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:	None
Number of Cables:	10
Cable Spacing:	3.23"



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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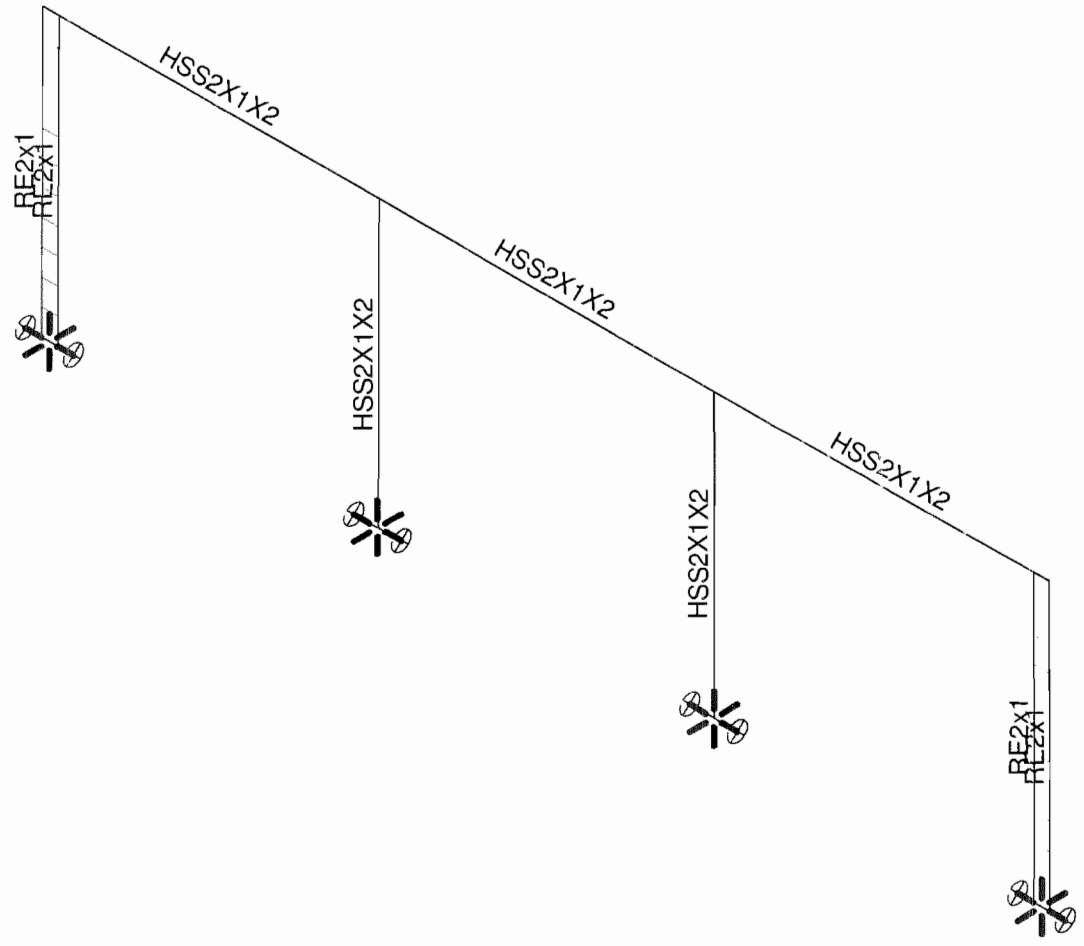
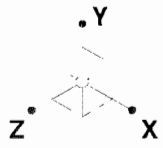
o'c

08196

D2a - 2"x1" RECT TUBE x 36.5" HIGH RAIL W/O BOTTOM RAIL

Dec 10, 2008 at 9:19 AM

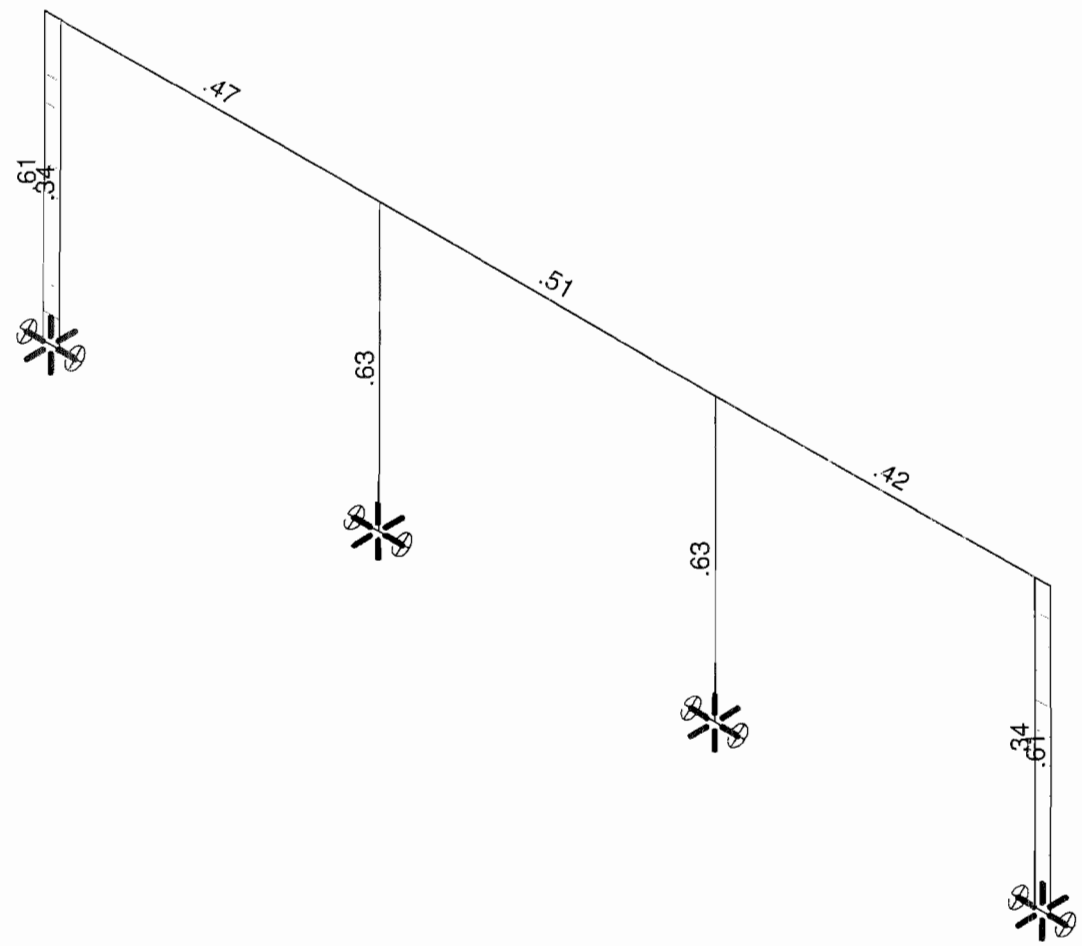
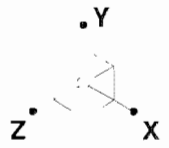
D2-2x1.R3D



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08196

D2a - 2"x1" RECT TUBE x 36.5" HIGH RAIL W/O BOTTOM RAIL

Dec 10, 2008 at 9:18 AM
D2-2x1.R3D



Member Code Checks Displayed
 Solution: Envelope

Ferrari Shields & Associates

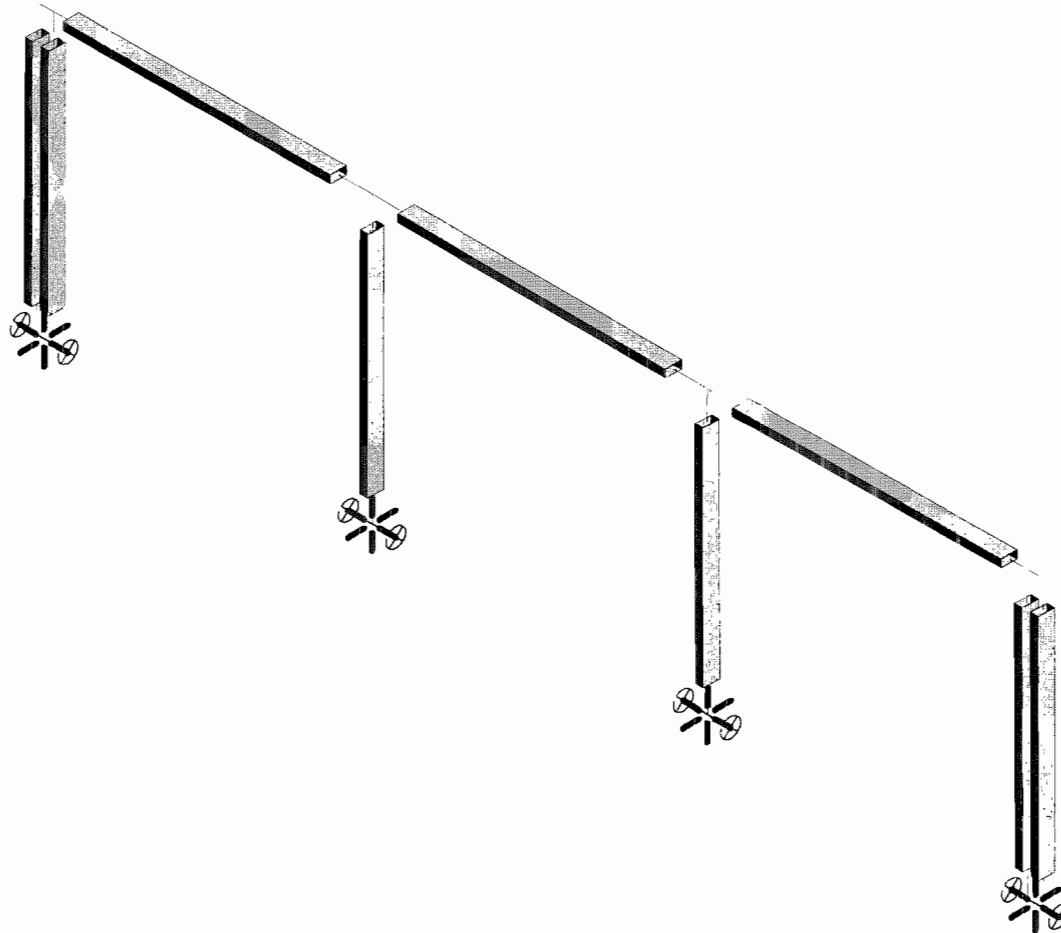
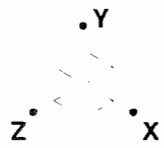
D2a - 2"x1" RECT TUBE x 36.5" HIGH RAIL W/O BOTTOM RAIL

o'c

08196

Dec 10, 2008 at 9:19 AM

D2-2x1.R3D



Ferrari Shields & Associates

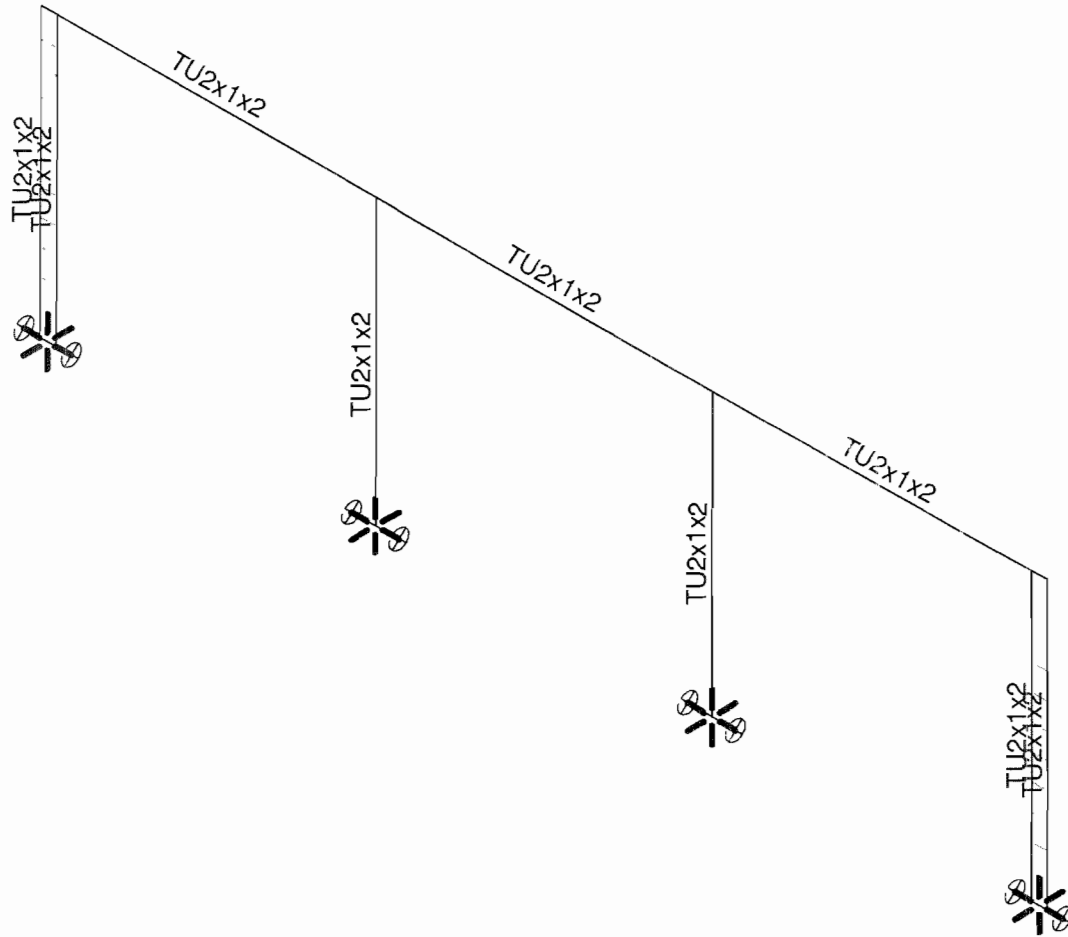
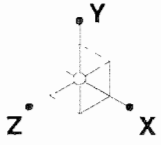
D2a (SS) - 2"x1" RECT TUBE x 36.5" HIGH RAIL W/O BOTTOM RAIL

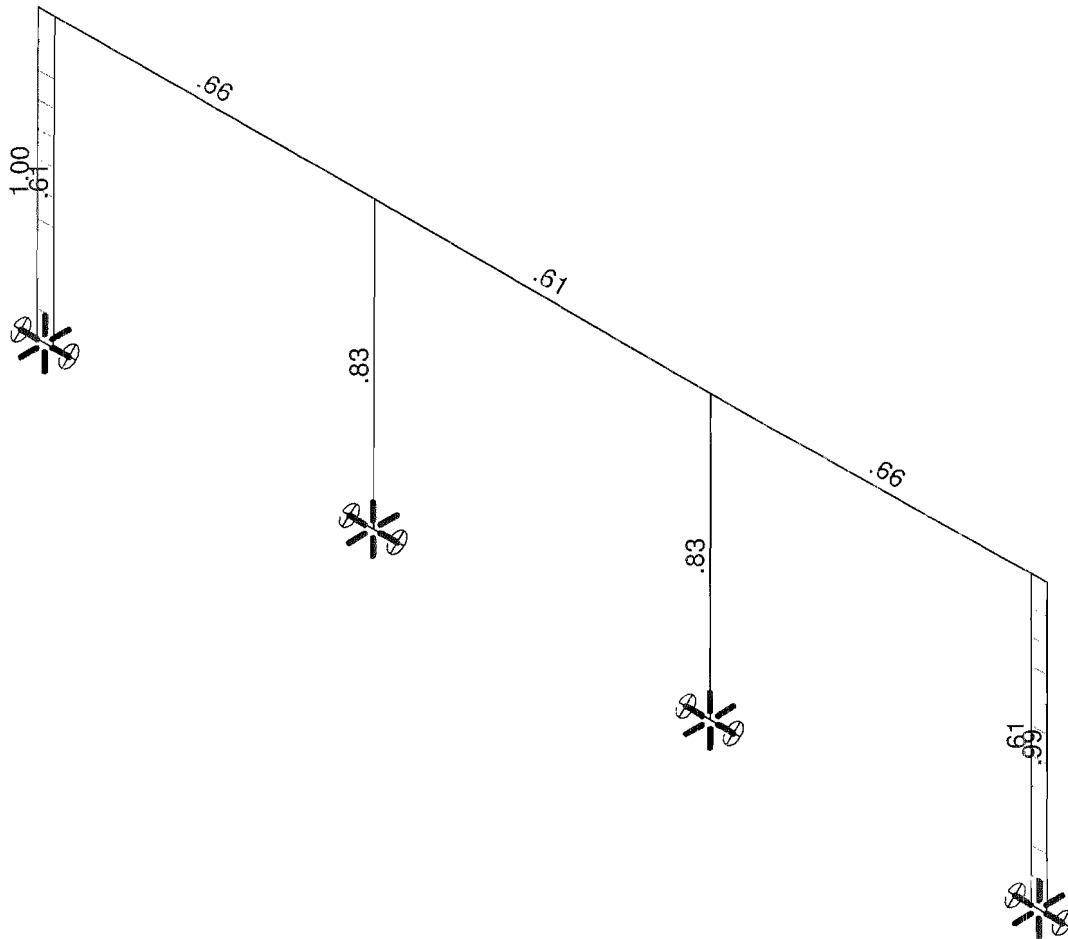
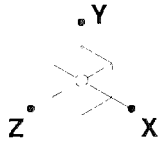
o'c

08196

Dec 10, 2008 at 9:22 AM

D2-2x1-ss.R3D





Member Code Checks Displayed
Solution: Envelope

Ferrari Shields & Associates

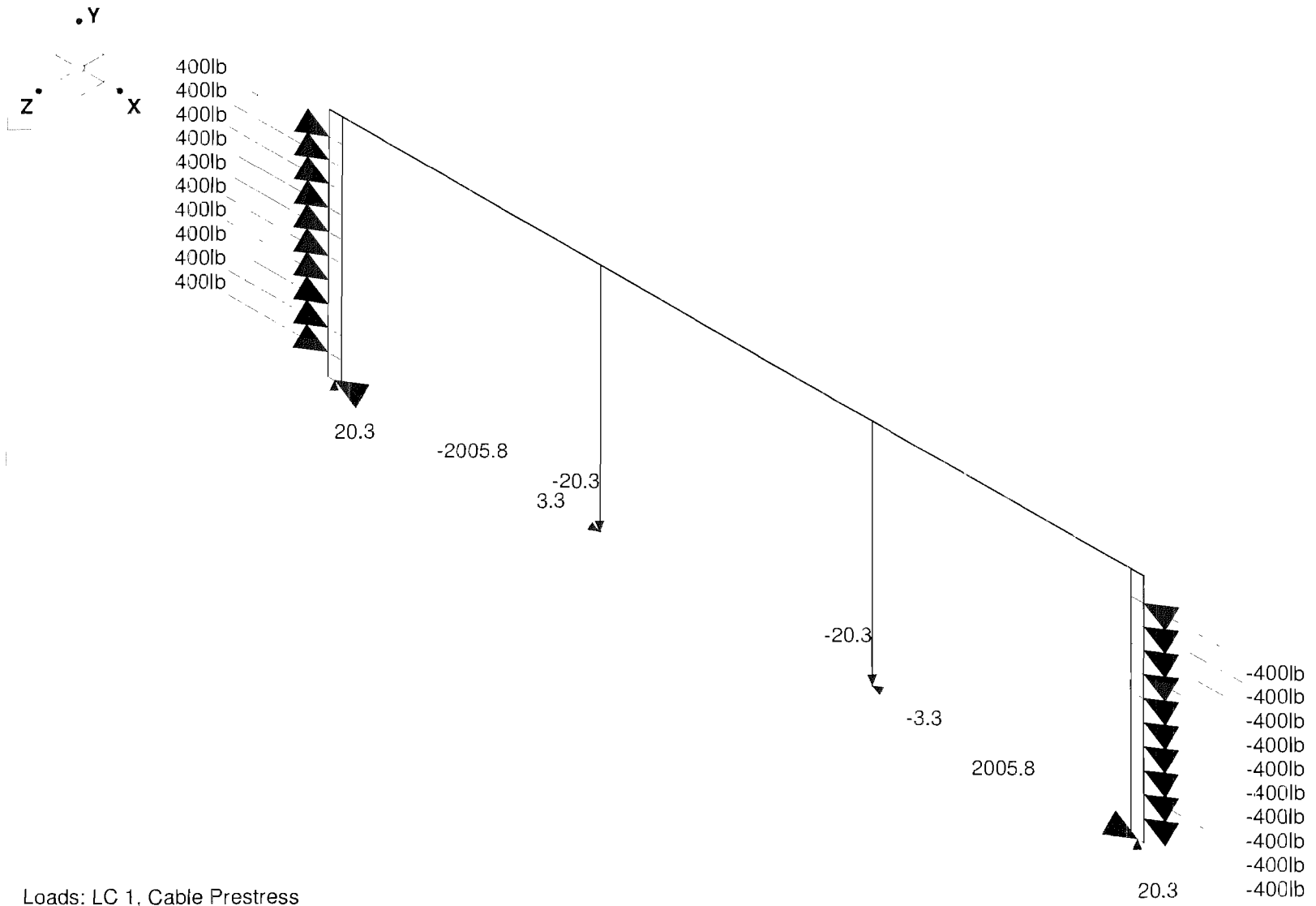
o'c

08196

D2a (SS) - 2"x1" RECT TUBE x 36.5" HIGH RAIL W/O BOTTOM RAIL

Dec 10, 2008 at 9:23 AM

D2-2x1-ss.R3D

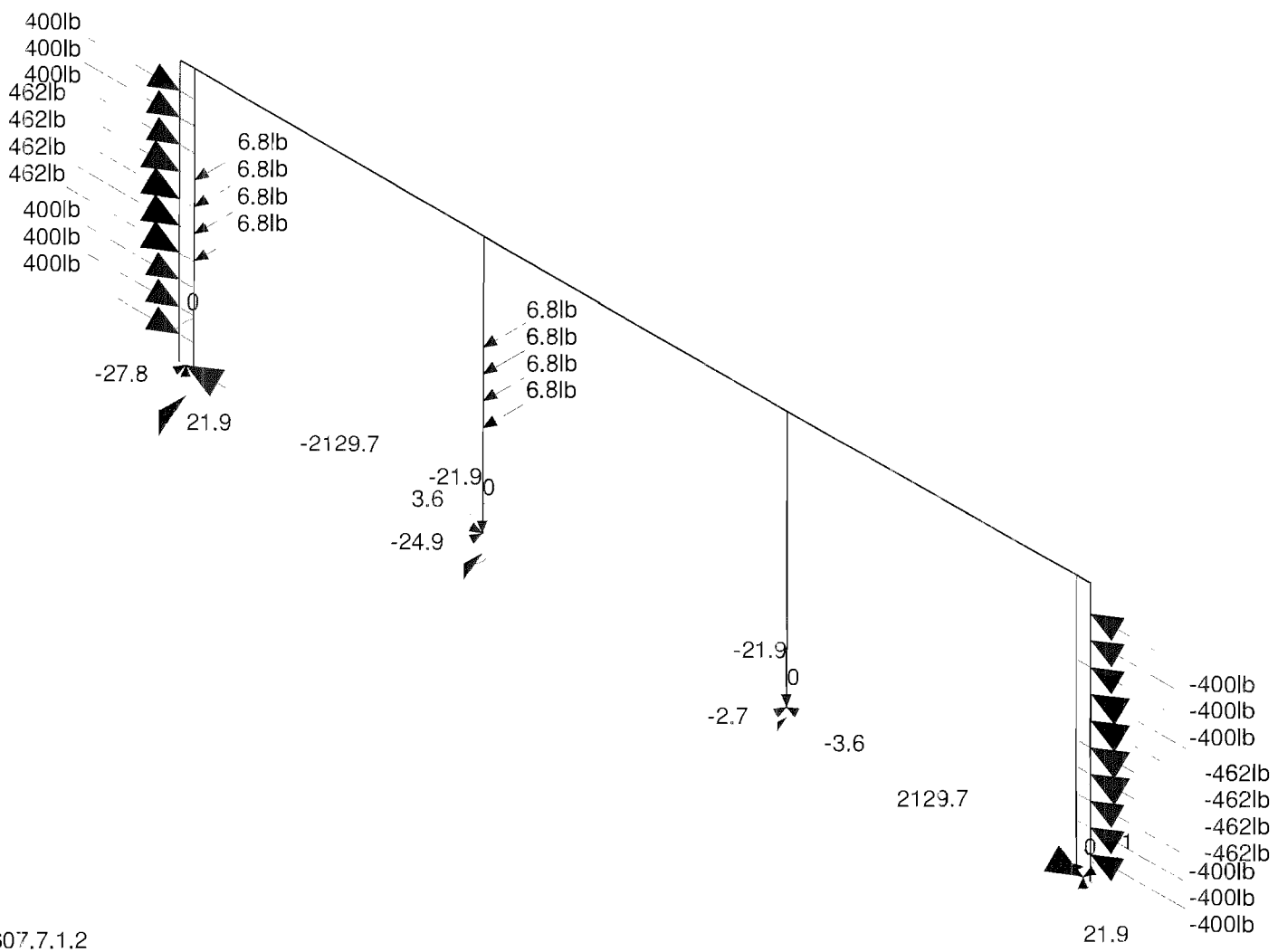
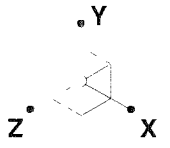


Loads: LC 1, Cable Prestress
 Results for LC 1, Cable Prestress
 Reaction units are lb and k-ft

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 08196

D2a - 2"x1" RECT TUBE x 36.5" HIGH RAIL W/O BOTTOM RAIL

Dec 10, 2008 at 9:20 AM
 D2-2x1.R3D

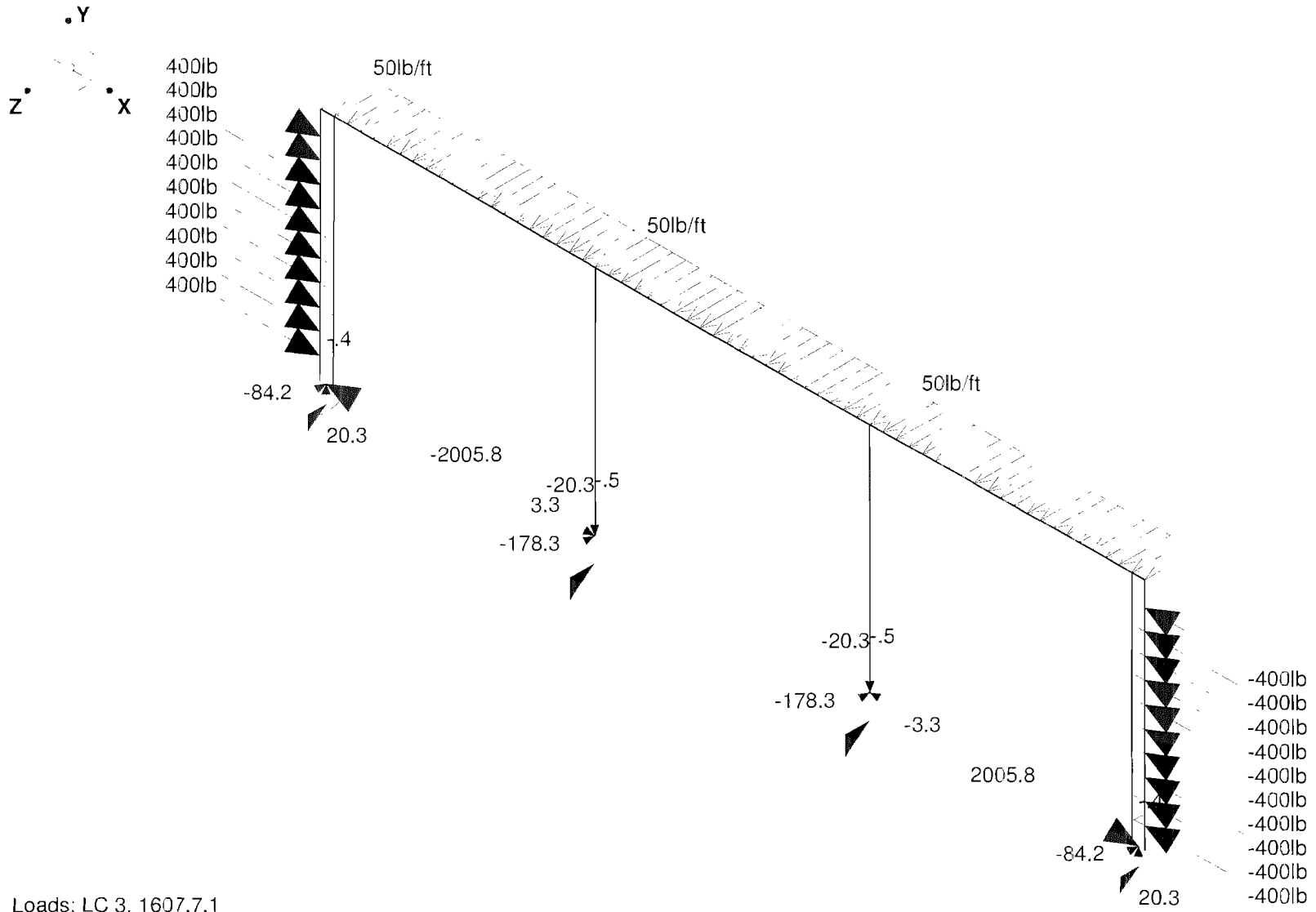


Loads: LC 2, 1607.7.1.2
 Results for LC 2, 1607.7.1.2
 Reaction units are lb and k-ft

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D2a - 2"x1" RECT TUBE x 36.5" HIGH RAIL W/O BOTTOM RAIL

Dec 10, 2008 at 9:20 AM
 D2-2x1.R3D



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

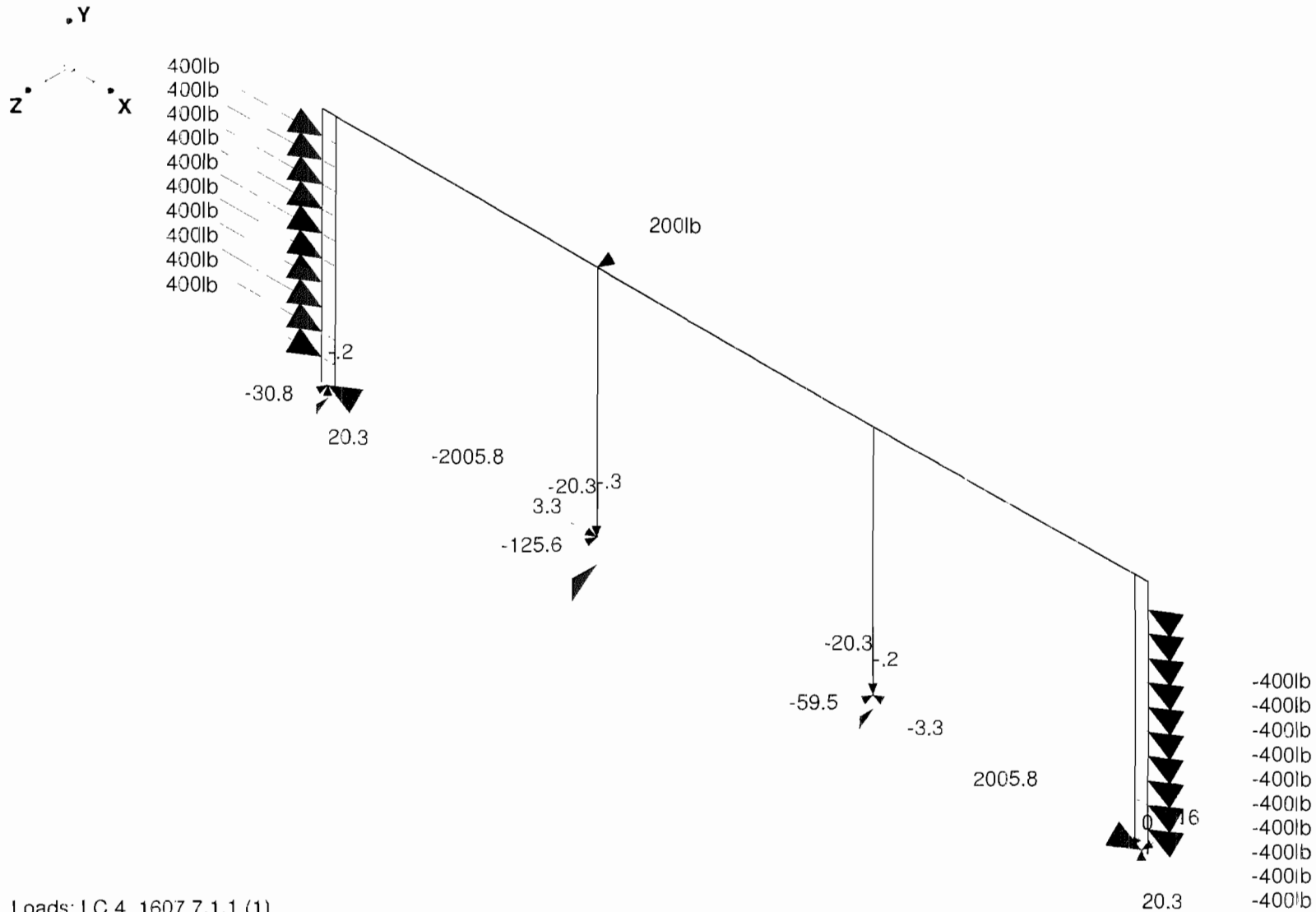
Ferrari Shields & Associates

o'c
 08196

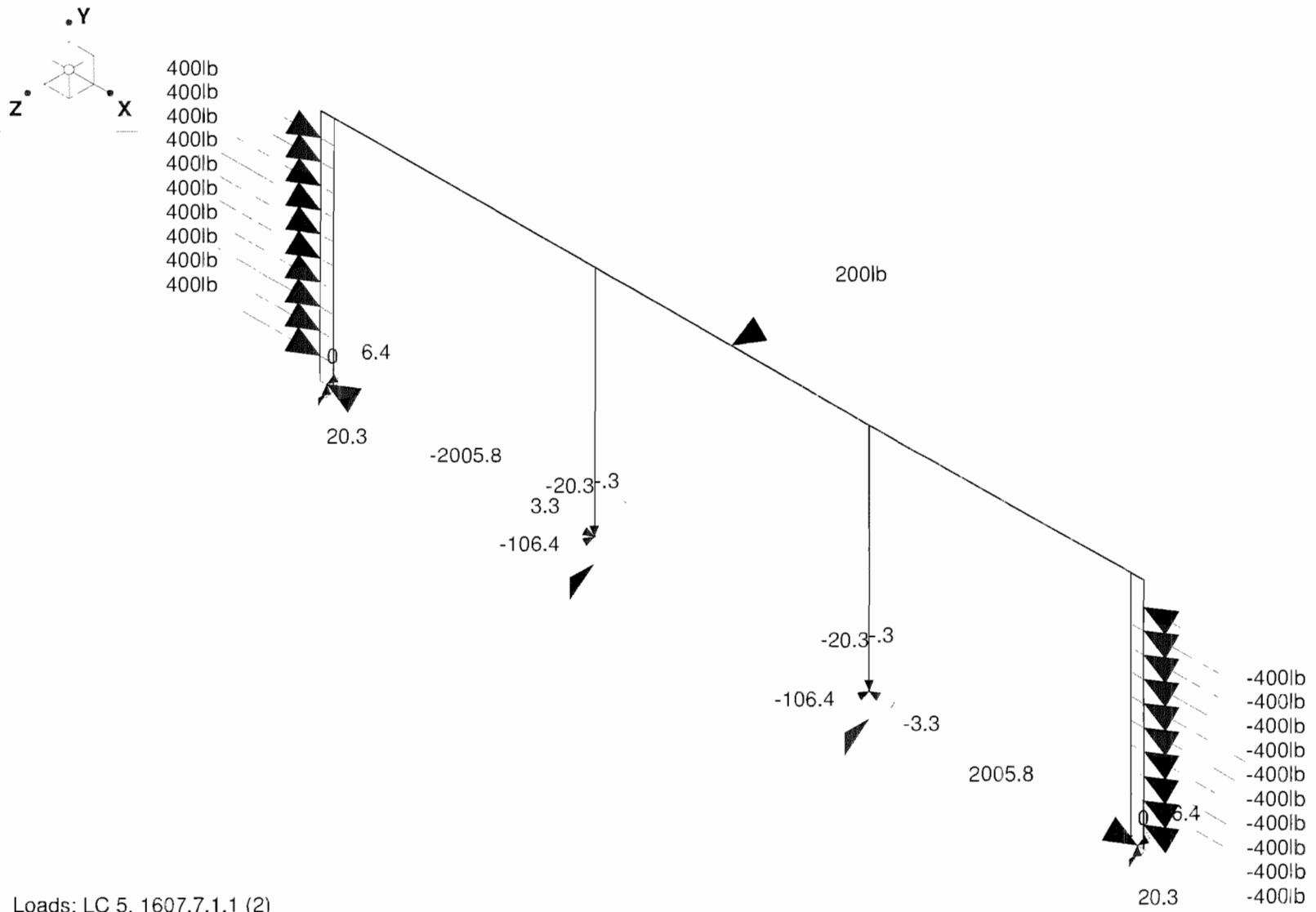
D2a - 2"x1" RECT TUBE x 36.5" HIGH RAIL W/O BOTTOM RAIL

Dec 10, 2008 at 9:21 AM

D2-2x1.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



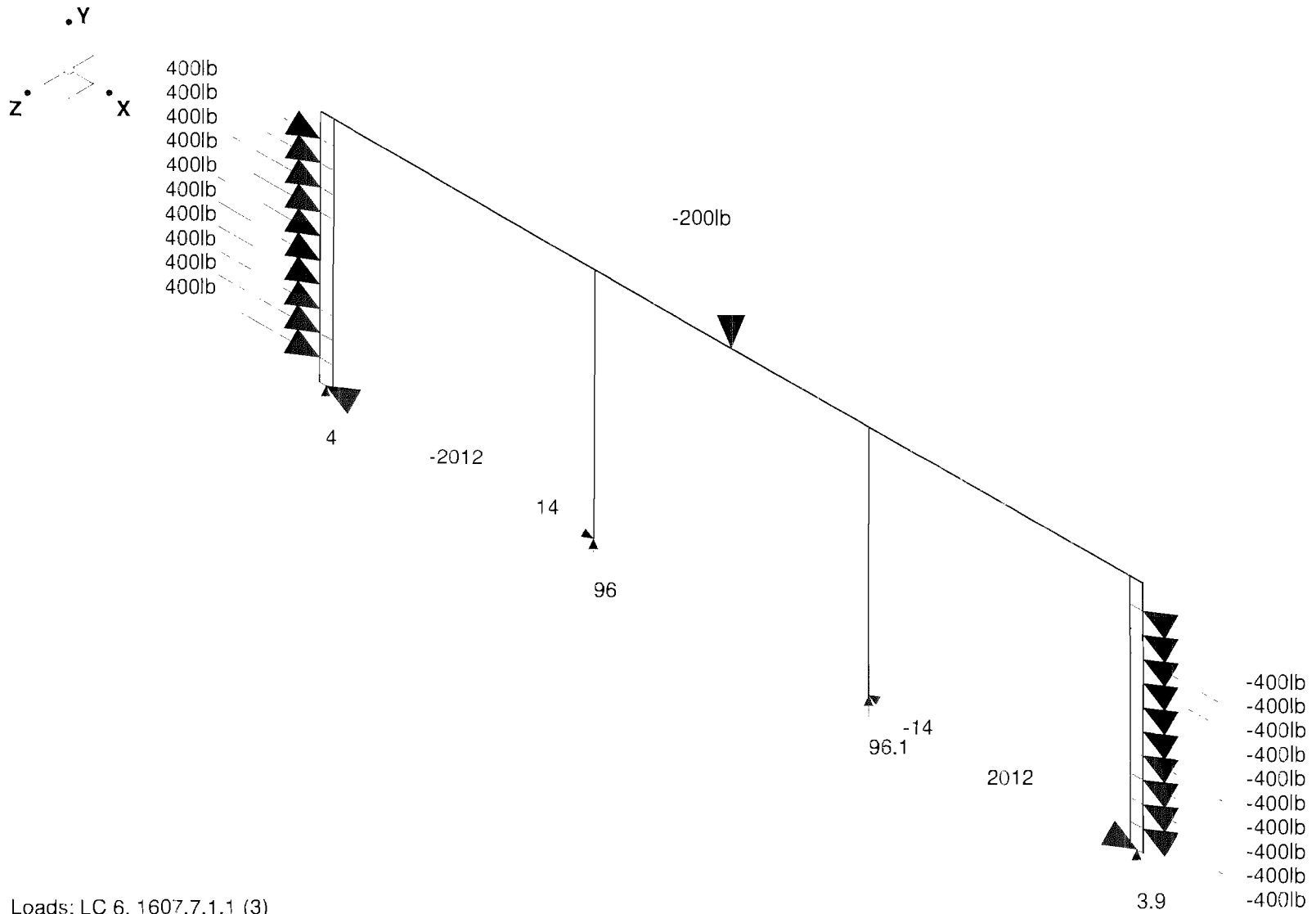
Loads: LC 5, 1607.7.1.1 (2)
 Results for LC 5, 1607.7.1.1 (2)
 Reaction units are lb and k-ft

Ferrari Shields & Associates

D2a - 2"x1" RECT TUBE x 36.5" HIGH RAIL W/O BOTTOM RAIL

o'c
 08196

Dec 10, 2008 at 9:21 AM
 D2-2x1.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

o/c

08196

D2a - 2"x1" RECT TUBE x 36.5" HIGH RAIL W/O BOTTOM RAIL

Dec 10, 2008 at 9:21 AM

D2-2x1.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 99: ASD
Wood Code	NDS 91/97: ASD
Wood Temperature	< 100F
Concrete Code	ACI 2005
Number of Shear Regions	4
Region Spacing Increment (In)	4
Biaxial Column Method	PCA Load Contour
Parme 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	A36	29000	11154	.3	.65	.49	36
2	A500Gr42	29000	11154	.3	.65	.49	42

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	IPOST	HSS2X1X2	Column	Tube	A500Gr42	Typical	.609	.092	.28	.238
3	EPOST	RE2x1	Column	Tube	A36	Typical	2	.167	.667	.457

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		Beam	GEN_RIGID	.25	.005	.005	.01

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area (Mem...	Surface (Pl...
1	Cable Prestress	None				20				
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	A36	Typical
2	M2	N3	N4		90	IPOST	Column	Tube	A500Gr42	Typical
3	M3	N2	N4		90	RAIL	Beam	Tube	A500Gr42	Typical
4	M4	N4	N8		90	RAIL	Beam	Tube	A500Gr42	Typical
5	M5	N5	N6		90	EPOST	Column	Tube	A36	Typical
6	M6	N7	N8		90	IPOST	Column	Tube	A500Gr42	Typical
7	M7	N8	N6		90	RAIL	Beam	Tube	A500Gr42	Typical
8	M8	N29	N30		90	EPOST	Column	Tube	A36	Typical
9	M9	N41	N42		90	EPOST	Column	Tube	A36	Typical
10	M10	N1	N53			LINK	Beam	None	GEN_RIGID	Default
11	M11	N41	N54			LINK	Beam	None	GEN_RIGID	Default
12	M12	N53	N29			LINK	Beam	None	GEN_RIGID	Default
13	M13	N54	N5			LINK	Beam	None	GEN_RIGID	Default
14	M14	N9	N31			LINK	Beam	None	GEN_RIGID	Default
15	M15	N11	N32			LINK	Beam	None	GEN_RIGID	Default
16	M16	N13	N33			LINK	Beam	None	GEN_RIGID	Default
17	M17	N15	N34			LINK	Beam	None	GEN_RIGID	Default
18	M18	N17	N35			LINK	Beam	None	GEN_RIGID	Default
19	M19	N19	N36			LINK	Beam	None	GEN_RIGID	Default
20	M20	N21	N37			LINK	Beam	None	GEN_RIGID	Default
21	M21	N23	N38			LINK	Beam	None	GEN_RIGID	Default
22	M22	N25	N39			LINK	Beam	None	GEN_RIGID	Default
23	M23	N27	N40			LINK	Beam	None	GEN_RIGID	Default
24	M24	N43	N10			LINK	Beam	None	GEN_RIGID	Default
25	M25	N44	N12			LINK	Beam	None	GEN_RIGID	Default
26	M26	N45	N14			LINK	Beam	None	GEN_RIGID	Default
27	M27	N46	N16			LINK	Beam	None	GEN_RIGID	Default
28	M28	N47	N18			LINK	Beam	None	GEN_RIGID	Default
29	M29	N48	N20			LINK	Beam	None	GEN_RIGID	Default
30	M30	N49	N22			LINK	Beam	None	GEN_RIGID	Default
31	M31	N50	N24			LINK	Beam	None	GEN_RIGID	Default

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
32	M32	N51	N26			LINK	Beam	None	GEN_RIGID	Default
33	M33	N52	N28			LINK	Beam	None	GEN_RIGID	Default

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	N3	max	13.993	6	95.975	6	0	1	0	1	0	1	0	1
2		min	3.321	1	-21.87	2	-178.346	3	-487	3	0	1	0	1
3	N7	max	-3.321	1	96.12	6	0	1	0	1	0	1	0	1
4		min	-13.96	6	-21.87	2	-178.346	3	-487	3	0	1	0	1
5	N53	max	-2005.825	4	21.87	2	6.383	5	0	1	0	1	0	1
6		min	-2129.658	2	4.017	6	-84.154	3	-358	3	0	1	0	1
7	N54	max	2129.658	2	21.87	2	15.958	4	.027	4	0	1	0	1
8		min	2005.825	4	3.888	6	-84.154	3	-358	3	0	1	0	1
9	Totals:	max	0	2	200	6	0	1						
10		min	0	1	0	3	-525	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	1683.212	2	2.568	5	-1007.828	1	0	2	.139	2	0	1
2			min	1579.564	6	-43.723	3	-1070.323	2	0	5	.131	1	-.18	3
3		2	max	6631.563	2	1.62	5	-613.798	1	0	1	-.106	1	0	1
4			min	6169.732	-1	-51.939	-3	-677.508	2	-.001	3	-.115	2	-.145	3
5		3	max	9720.212	2	0	1	-4.803	1	0	1	-.083	1	0	1
6			min	8893.446	1	-63.567	3	-7.904	6	-.002	3	-.091	2	-.105	3
7		4	max	6709.077	2	0	1	666.344	2	0	1	-.083	1	0	1
8			min	6244.457	1	-64.404	3	600.492	6	-.002	3	-.09	2	-.061	3
9		5	max	1003.443	2	0	1	967.742	2	.002	3	.092	2	0	2
10			min	945.741	1	-87.389	3	911.906	1	0	2	.086	1	-.006	3
11	M2	1	max	95.975	6	0	1	14.136	6	0	1	0	1	0	1
12			min	-21.87	2	-178.346	3	3.321	1	0	1	0	1	-.487	3
13		2	max	95.975	6	0	1	14.136	6	0	1	.011	6	0	1
14			min	-21.87	2	-178.346	3	3.321	1	0	1	.002	1	-.353	3
15		3	max	95.975	6	0	1	14.03	6	0	1	.021	6	.001	2
16			min	-21.87	2	-178.346	3	3.321	1	0	1	.005	1	-.219	3
17		4	max	95.975	6	2.308	2	13.805	6	0	1	.032	6	.003	2
18			min	-21.87	2	-178.346	3	3.321	1	0	1	.007	1	-.085	3
19		5	max	95.975	6	2.308	2	13.805	6	0	1	.042	6	.05	4
20			min	-21.87	2	-178.346	3	3.321	1	0	1	.01	1	0	1
21	M3	1	max	963.151	2	0	1	-942.871	1	0	2	.092	2	0	2
22			min	907.897	4	-94.033	3	-1000.14	2	-.006	3	.086	1	-.002	3
23		2	max	2118.342	2	0	1	-4.195	6	0	1	.04	2	.067	3
24			min	1987.965	6	-57.648	3	-22.046	2	-.049	3	.032	6	0	1
25		3	max	2118.342	2	0	1	-4.195	6	0	1	.028	6	.098	3
26			min	1987.965	6	-43.299	4	-22.046	2	-.049	3	.019	1	0	1
27		4	max	2118.342	2	29.852	3	-4.195	6	0	1	.024	6	.114	4
28			min	1987.965	6	-43.299	4	-22.046	2	-.049	3	.001	1	0	1
29		5	max	2118.342	2	73.602	3	-4.195	6	0	1	.021	6	.152	4
30			min	1987.965	6	-43.299	4	-22.046	2	-.049	3	-.018	2	0	1
31	M4	1	max	2121.93	2	50.199	4	0	1	.016	4	.063	6	.152	4
32			min	1997.495	1	-100	5	-99.992	6	0	1	-.007	2	0	1

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	
33	2	max	2121.93	2	50.199	4	0	1	.016	4	-.006	1	.112	5	
34		min	1997.495	1	-100	5	-99.992	6	0	1	-.025	6	0	1	
35	3	max	2121.93	2	100	5	100.008	6	.016	4	-.006	1	.2	5	
36		min	1997.495	1	0	1	0	1	0	1	-.112	6	0	1	
37	4	max	2121.93	2	100	5	100.008	6	.016	4	-.006	1	.112	5	
38		min	1997.495	1	0	1	0	1	0	1	-.025	6	0	2	
39	5	max	2121.93	2	100	5	100.008	6	.016	4	.063	6	.046	3	
40		min	1997.495	1	0	1	0	1	0	1	-.007	2	-.024	4	
41	M5	1	max	1683.212	2	7.689	4	1070.323	2	0	5	-.131	1	.013	4
42		min	1579.516	6	-43.723	3	1007.828	1	0	1	-.139	2	-.18	3	
43	2	max	6631.563	2	7.922	4	677.508	2	.001	3	.115	2	.007	4	
44		min	6169.732	1	-51.939	3	613.798	1	0	1	.106	1	-.145	3	
45	3	max	9720.212	2	7.97	4	7.989	6	.002	3	.091	2	0	4	
46		min	8893.446	1	-63.567	3	4.803	1	0	1	.083	1	-.105	3	
47	4	max	6709.077	2	6.48	4	-600.448	6	.002	3	.09	2	0	1	
48		min	6244.457	1	-64.404	3	-666.344	2	0	1	.083	1	-.061	3	
49	5	max	1003.443	2	0	1	-911.906	1	0	1	-.086	1	0	1	
50		min	945.741	1	-87.389	3	-967.742	2	-.002	3	-.092	2	-.006	3	
51	M6	1	max	96.12	6	0	1	-3.321	1	0	1	0	1	0	1
52		min	-21.87	2	-178.346	3	-13.948	6	0	1	0	1	-.487	3	
53	2	max	96.12	6	0	1	-3.321	1	0	1	-.002	1	0	1	
54		min	-21.87	2	-178.346	3	-13.948	6	0	1	-.01	6	-.353	3	
55	3	max	96.12	6	0	1	-3.321	1	0	1	-.005	1	0	1	
56		min	-21.87	2	-178.346	3	-13.948	6	0	1	-.021	6	-.219	3	
57	4	max	96.12	6	0	1	-3.321	1	0	1	-.007	1	0	1	
58		min	-21.87	2	-178.346	3	-13.948	6	0	1	-.031	6	-.085	3	
59	5	max	96.12	6	0	1	-3.321	1	0	1	-.01	1	.049	3	
60		min	-21.87	2	-178.346	3	-13.948	6	0	1	-.042	6	0	1	
61	M7	1	max	2118.342	2	6.419	5	22.046	2	.049	3	.021	6	.046	3
62		min	1987.999	6	-73.602	3	4.066	6	0	1	-.018	2	-.024	4	
63	2	max	2118.342	2	6.419	5	22.046	2	.049	3	.024	6	.091	3	
64		min	1987.999	6	-29.852	3	4.066	6	0	1	.001	1	-.017	4	
65	3	max	2118.342	2	13.898	3	22.046	2	.049	3	.028	6	.098	3	
66		min	1987.999	6	-7.369	4	4.066	6	0	1	.019	1	-.011	4	
67	4	max	2118.342	2	57.648	3	22.046	2	.049	3	.04	2	.067	3	
68		min	1987.999	6	-7.369	4	4.066	6	0	1	.032	6	-.004	4	
69	5	max	963.151	2	94.033	3	1000.14	2	.006	3	.092	2	0	1	
70		min	907.897	4	0	1	942.871	1	0	1	.086	1	-.002	3	
71	M8	1	max	-1562.462	1	3.707	5	-1005.247	1	0	1	.139	2	0	1
72		min	-1661.343	2	-42.302	3	-1067.65	2	0	3	.131	1	-.179	3	
73	2	max	-6149.456	1	3.884	5	-613.719	1	0	1	-.106	1	0	1	
74		min	-6609.694	2	-45.916	3	-677.484	2	-.001	3	-.115	2	-.145	3	
75	3	max	-8873.169	1	4.024	5	-4.813	1	0	1	-.083	1	0	1	
76		min	-9698.343	2	-51.315	3	-7.912	6	-.002	3	-.091	2	-.104	3	
77	4	max	-6224.18	1	5.763	5	671.673	2	0	1	-.083	1	0	1	
78		min	-6687.208	2	-46.269	3	604.565	6	-.003	3	-.089	2	-.061	3	
79	5	max	-925.465	1	36.525	5	1155.192	2	.001	5	.131	2	0	1	
80		min	-991.507	6	-1.038	3	1061.734	6	-.001	2	.113	6	-.043	3	
81	M9	1	max	-1562.462	1	8.406	4	1067.65	2	0	3	-.131	1	.013	4
82		min	-1661.343	2	-42.302	3	1005.247	1	0	1	-.139	2	-.179	3	
83	2	max	-6149.456	1	8.969	4	677.484	2	.001	3	.115	2	.007	4	
84		min	-6609.694	2	-45.916	3	613.719	1	0	1	.106	1	-.145	3	
85	3	max	-8873.169	1	9.699	4	7.997	6	.002	3	.091	2	0	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
86		min	-9698.343	2	-51.315	3	4.813	1	0	1	.083	1	-.104	3
87	4	max	-6224.18	1	10.511	4	-604.506	6	.003	3	.089	2	0	1
88		min	-6687.208	2	-46.269	3	-671.673	2	0	1	.083	1	-.061	3
89	5	max	-925.465	1	36.525	5	-1061.369	6	0	3	-.113	6	0	1
90		min	-992.548	6	-1.038	3	-1155.192	2	-.001	5	-.131	2	-.043	3

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	.614	16.125	3	.041	0	z	2	19012.44	43113.772	.898	1.796	1... H1-1a
2	M2	HSS2X1X2	.634	0	3	.031	22.875	y	3	9048.826	15307.164	.468	.768	1... H1-1b
3	M3	HSS2X1X2	.474	42	4	.439	0	z	2	7484.423	15307.164	.468	.768	1... H1-1a
4	M4	HSS2X1X2	.510	21	5	.051	0	z	4	7484.423	15307.164	.468	.768	1... H1-1a
5	M5	RE2x1	.614	16.125	3	.041	0	z	2	19012.44	43113.772	.898	1.796	1... H1-1a
6	M6	HSS2X1X2	.634	0	3	.031	0	y	3	9048.826	15307.164	.468	.768	1... H1-1b
7	M7	HSS2X1X2	.421	25.813	3	.438	40.25	z	2	7484.423	15307.164	.468	.768	1... H1-1a
8	M8	RE2x1	.342	16.5	3	.046	32.625	z	2	19012.44	43113.772	.898	1.796	1... H1-1a
9	M9	RE2x1	.342	16.5	3	.045	32.625	z	2	19012.44	43113.772	.898	1.796	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 99: ASD
Wood Code	NDS 91/97: 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 [ksj]	Nu	Therm (1/E5 F)	Density[k/ft^3]	Yield[ksi]
1	SS316	28000	11154	.3	.65	.49	30
2	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	IPOST	TU2x1x2	Column	Tube	SS316	Typical	.662	.102	.321	.238
3	EPOST	TU2x1x2	Column	Tube	LDX2101	Typical	.662	.102	.321	.238

General Material Properties

	Label	E [ksi]	G [ksj]	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		Beam	GEN_RIGID	.25	.005	.005	.01

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area (Mem...	Surface (Pl...
1	Cable Prestress	None				20				
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	IPOST	Column	Tube	SS316	Typical
3	M3	N2	N4		90	RAIL	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	IPOST	Column	Tube	SS316	Typical
7	M7	N8	N6		90	RAIL	Beam	Tube	SS316	Typical
8	M8	N29	N30		90	EPOST	Column	Tube	LDX2101	Typical
9	M9	N41	N42		90	EPOST	Column	Tube	LDX2101	Typical
10	M10	N1	N53			LINK	Beam	None	GEN_RIGID	Default
11	M11	N41	N54			LINK	Beam	None	GEN_RIGID	Default
12	M12	N53	N29			LINK	Beam	None	GEN_RIGID	Default
13	M13	N54	N5			LINK	Beam	None	GEN_RIGID	Default
14	M14	N9	N31			LINK	Beam	None	GEN_RIGID	Default
15	M15	N11	N32			LINK	Beam	None	GEN_RIGID	Default
16	M16	N13	N33			LINK	Beam	None	GEN_RIGID	Default
17	M17	N15	N34			LINK	Beam	None	GEN_RIGID	Default
18	M18	N17	N35			LINK	Beam	None	GEN_RIGID	Default
19	M19	N19	N36			LINK	Beam	None	GEN_RIGID	Default
20	M20	N21	N37			LINK	Beam	None	GEN_RIGID	Default
21	M21	N23	N38			LINK	Beam	None	GEN_RIGID	Default
22	M22	N25	N39			LINK	Beam	None	GEN_RIGID	Default
23	M23	N27	N40			LINK	Beam	None	GEN_RIGID	Default
24	M24	N43	N10			LINK	Beam	None	GEN_RIGID	Default
25	M25	N44	N12			LINK	Beam	None	GEN_RIGID	Default
26	M26	N45	N14			LINK	Beam	None	GEN_RIGID	Default
27	M27	N46	N16			LINK	Beam	None	GEN_RIGID	Default
28	M28	N47	N18			LINK	Beam	None	GEN_RIGID	Default
29	M29	N48	N20			LINK	Beam	None	GEN_RIGID	Default
30	M30	N49	N22			LINK	Beam	None	GEN_RIGID	Default
31	M31	N50	N24			LINK	Beam	None	GEN_RIGID	Default

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
32	M32	N51	N26			LINK	Beam	None	GEN_RIGID	Default
33	M33	N52	N28			LINK	Beam	None	GEN_RIGID	Default

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	N3	max	19.943	6	62.172	6	0	1	0	1	0	1	0	1
2		min	9.197	1	-57.975	2	-180.578	3	-.51	3	0	1	0	1
3	N7	max	-9.197	1	62.266	6	0	1	0	1	0	1	0	1
4		min	-19.929	6	-57.975	2	-180.578	3	-.51	3	0	1	0	1
5	N53	max	-1975.944	4	57.975	2	5.52	5	0	1	0	1	0	1
6		min	-2097.196	2	37.819	6	-81.922	3	-.379	3	0	1	0	1
7	N54	max	2097.196	2	57.975	2	16.1	4	.032	4	0	1	0	1
8		min	1975.944	5	37.743	6	-81.922	3	-.379	3	0	1	0	1
9	Totals:	max	0	2	200	6	0	1						
10		min	0	3	0	5	-525	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	1527.102	2	1.909	5	-997.885	1	0	2	.125	2	0	1
2			min	1432.272	6	-43.037	3	-1059.881	2	0	5	.117	1	-.19	3
3		2	max	6157.942	2	.494	5	-613.979	1	0	1	-.142	1	0	1
4			min	5725.727	1	-56.979	3	-679.105	2	-.001	3	-.154	2	-.155	3
5		3	max	8983.145	2	0	1	11.286	2	0	1	-.134	1	0	1
6			min	8204.706	1	-79.303	3	7.222	6	-.003	3	-.147	2	-.108	3
7		4	max	5973.493	2	0	1	701.848	2	0	1	-.116	1	0	1
8			min	5558.857	1	-75.827	3	632.023	6	-.003	3	-.125	2	-.056	3
9		5	max	803.827	6	0	1	967.076	2	0	5	.109	2	0	2
10			min	749.971	5	-69.42	3	911.48	1	0	2	.102	6	-.006	3
11	M2	1	max	62.172	6	0	1	20.068	6	0	1	0	1	0	1
12			min	-57.975	2	-180.578	3	9.197	1	0	1	0	1	-.51	3
13		2	max	62.172	6	0	1	20.068	6	0	1	.015	6	0	1
14			min	-57.975	2	-180.578	3	9.197	1	0	1	.007	1	-.374	3
15		3	max	62.172	6	0	1	19.977	6	0	1	.03	6	0	1
16			min	-57.975	2	-180.578	3	9.197	1	0	1	.014	1	-.239	3
17		4	max	62.172	6	1.599	2	19.783	6	0	1	.045	6	.002	2
18			min	-57.975	2	-180.578	3	9.197	1	0	1	.021	1	-.103	3
19		5	max	62.172	6	1.599	2	19.783	6	0	1	.06	6	.042	4
20			min	-57.975	2	-180.578	3	9.197	1	0	1	.028	1	0	1
21	M3	1	max	957.346	2	0	1	-741.316	5	0	2	.109	2	0	2
22			min	902.926	5	-70.127	3	-794.993	6	-.006	3	.102	6	0	5
23		2	max	2150.804	2	0	1	-38.317	6	0	2	.106	2	.059	3
24			min	2018.185	6	-49.624	3	-58.515	2	-.032	3	.093	6	0	1
25		3	max	2150.804	2	0	1	-38.317	6	0	2	.06	6	.083	3
26			min	2018.185	6	-40.993	4	-58.515	2	-.032	3	.051	1	0	1
27		4	max	2150.804	2	37.876	3	-38.317	6	0	2	.026	6	.108	4
28			min	2018.185	6	-40.993	4	-58.515	2	-.032	3	.003	1	0	1
29		5	max	2150.804	2	81.626	3	-38.317	6	0	2	-.007	6	.143	4
30			min	2018.185	6	-40.993	4	-58.515	2	-.032	3	-.048	2	0	1
31	M4	1	max	2160.758	2	48.272	4	0	1	.017	4	.052	6	.143	4
32			min	2033.247	1	-100	5	-99.991	6	0	1	-.018	2	0	1

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	
33	2	max	2160.758	2	48.272	4	0	1	.017	4	-.017	1	.11	5	
34		min	2033.247	1	-100	5	-99.991	6	0	1	-.035	6	0	1	
35	3	max	2160.758	2	100	5	100.009	6	.017	4	-.017	1	.198	5	
36		min	2033.247	1	0	1	0	1	0	1	-.123	6	0	1	
37	4	max	2160.758	2	100	5	100.009	6	.017	4	-.017	1	.11	5	
38		min	2033.247	1	0	1	0	1	0	1	-.035	6	-.001	2	
39	5	max	2160.758	2	100	5	100.009	6	.017	4	.052	6	.023	5	
40		min	2033.247	1	0	1	0	1	0	1	-.018	2	-.026	4	
41	M5	1	max	1527.102	2	7.651	4	1059.881	2	0	5	-.117	1	.016	4
42		min	1432.245	6	-43.037	3	997.885	1	0	1	-.125	2	-.19	3	
43	2	max	6157.942	2	8.355	4	679.105	2	.001	3	.154	2	.01	4	
44		min	5725.727	1	-56.979	3	613.979	1	0	1	.142	1	-.155	3	
45	3	max	8983.145	2	8.983	4	-7.17	6	.003	3	.147	2	.003	4	
46		min	8204.706	1	-79.303	3	-11.286	2	0	1	.134	1	-.108	3	
47	4	max	5973.493	2	7.288	4	-631.995	6	.003	3	.125	2	0	1	
48		min	5558.857	1	-75.827	3	-701.848	2	0	1	.116	1	-.056	3	
49	5	max	804.476	6	0	1	-911.48	1	0	1	-.102	6	0	1	
50		min	749.971	4	-69.42	3	-967.076	2	0	5	-.109	2	-.006	3	
51	M6	1	max	62.266	6	0	1	-9.197	1	0	1	0	1	0	1
52		min	-57.975	2	-180.578	3	-19.922	6	0	1	0	1	-.51	3	
53	2	max	62.266	6	0	1	-9.197	1	0	1	-.007	1	0	1	
54		min	-57.975	2	-180.578	3	-19.922	6	0	1	-.015	6	-.374	3	
55	3	max	62.266	6	0	1	-9.197	1	0	1	-.014	1	0	1	
56		min	-57.975	2	-180.578	3	-19.922	6	0	1	-.03	6	-.239	3	
57	4	max	62.266	6	0	1	-9.197	1	0	1	-.021	1	0	1	
58		min	-57.975	2	-180.578	3	-19.922	6	0	1	-.045	6	-.103	3	
59	5	max	62.266	6	0	1	-9.197	1	0	1	-.028	1	.032	3	
60		min	-57.975	2	-180.578	3	-19.922	6	0	1	-.06	6	0	1	
61	M7	1	max	2150.804	2	5.9	5	58.515	2	.032	3	-.007	6	.023	5
62		min	2018.199	6	-81.626	3	38.24	6	0	1	-.048	2	-.026	4	
63	2	max	2150.804	2	5.9	5	58.515	2	.032	3	.026	6	.069	3	
64		min	2018.199	6	-37.876	3	38.24	6	0	1	.003	1	-.019	4	
65	3	max	2150.804	2	5.9	5	58.515	2	.032	3	.06	6	.083	3	
66		min	2018.199	6	-7.916	4	38.24	6	0	1	.051	1	-.012	4	
67	4	max	2150.804	2	49.624	3	58.515	2	.032	3	.106	2	.059	3	
68		min	2018.199	6	-7.916	4	38.24	6	0	1	.093	6	-.005	4	
69	5	max	957.346	2	70.127	3	795.652	6	.006	3	.109	2	0	1	
70		min	902.926	4	0	1	741.316	4	0	1	.102	6	0	5	
71	M8	1	max	-1382.295	1	3.475	5	-995.52	1	0	1	.124	2	0	1
72		min	-1469.127	2	-41.184	3	-1057.395	2	0	3	.117	1	-.189	3	
73	2	max	-5672.106	1	3.516	5	-613.964	1	0	1	-.142	1	0	1	
74		min	-6099.967	2	-47.718	3	-679.098	2	-.001	3	-.154	2	-.155	3	
75	3	max	-8151.085	1	3.413	5	11.286	2	0	1	-.134	1	0	1	
76		min	-8925.17	2	-58.285	3	7.222	6	-.003	3	-.147	2	-.108	3	
77	4	max	-5505.236	1	4.718	5	701.944	2	0	1	-.116	1	0	1	
78		min	-5915.518	2	-53.124	3	632.098	6	-.003	3	-.125	2	-.056	3	
79	5	max	-696.348	5	27.096	5	1193.458	2	0	5	.168	2	0	1	
80		min	-766.008	6	-19.222	3	1107.587	6	-.001	2	.151	6	-.026	3	
81	M9	1	max	-1382.295	1	8.643	4	1057.395	2	0	3	-.117	1	.016	4
82		min	-1469.127	2	-41.184	3	995.52	1	0	1	-.124	2	-.189	3	
83	2	max	-5672.106	1	9.526	4	679.098	2	.001	3	.154	2	.01	4	
84		min	-6099.967	2	-47.718	3	613.964	1	0	1	.142	1	-.155	3	
85	3	max	-8151.085	1	10.796	4	-7.17	6	.003	3	.147	2	.003	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
86	min	-8925.17	2	-58.285	3	-11.286	2	0	1	.134	1	-.108	3
87	4 max	-5505.236	1	11.157	4	-632.07	6	.003	3	.125	2	0	1
88	min	-5915.518	2	-53.124	3	-701.944	2	0	1	.116	1	-.056	3
89	5 max	-696.348	4	27.096	5	-1107.469	6	0	3	-.151	6	0	1
90	min	-766.733	6	-19.222	3	-1193.458	2	0	4	-.168	2	-.026	3

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]	Minzz/om ...	Cb	LRFD E...
1	M1 TU2x1x2	.998	16.125	2	.320	0	z	2	11074.435	23784.431	.737	1.231	2...	H1-1a
2	M2 TU2x1x2	.831	0	3	.043	0	y	3	8114.788	11892.216	.368	.615	1...	H1-1b
3	M3 TU2x1x2	.661	2.188	2	.480	0	z	6	7068.776	11892.216	.368	.615	1...	H1-1a
4	M4 TU2x1x2	.613	21	5	.075	0	z	4	7068.776	11892.216	.368	.615	1...	H1-1a
5	M5 TU2x1x2	.994	16.125	2	.320	0	z	2	11074.435	23784.431	.737	1.231	2...	H1-1a
6	M6 TU2x1x2	.831	0	3	.043	0	y	3	8114.788	11892.216	.368	.615	1...	H1-1b
7	M7 TU2x1x2	.658	39.813	2	.481	40.25	z	6	7068.776	11892.216	.368	.615	1...	H1-1a
8	M8 TU2x1x2	.608	16.125	3	.363	32.625	z	2	11074.435	23784.431	.737	1.231	1...	H1-1a
9	M9 TU2x1x2	.608	16.125	3	.361	32.625	z	2	11074.435	23784.431	.737	1.231	1...	H1-1a

*** End of Calculations ***