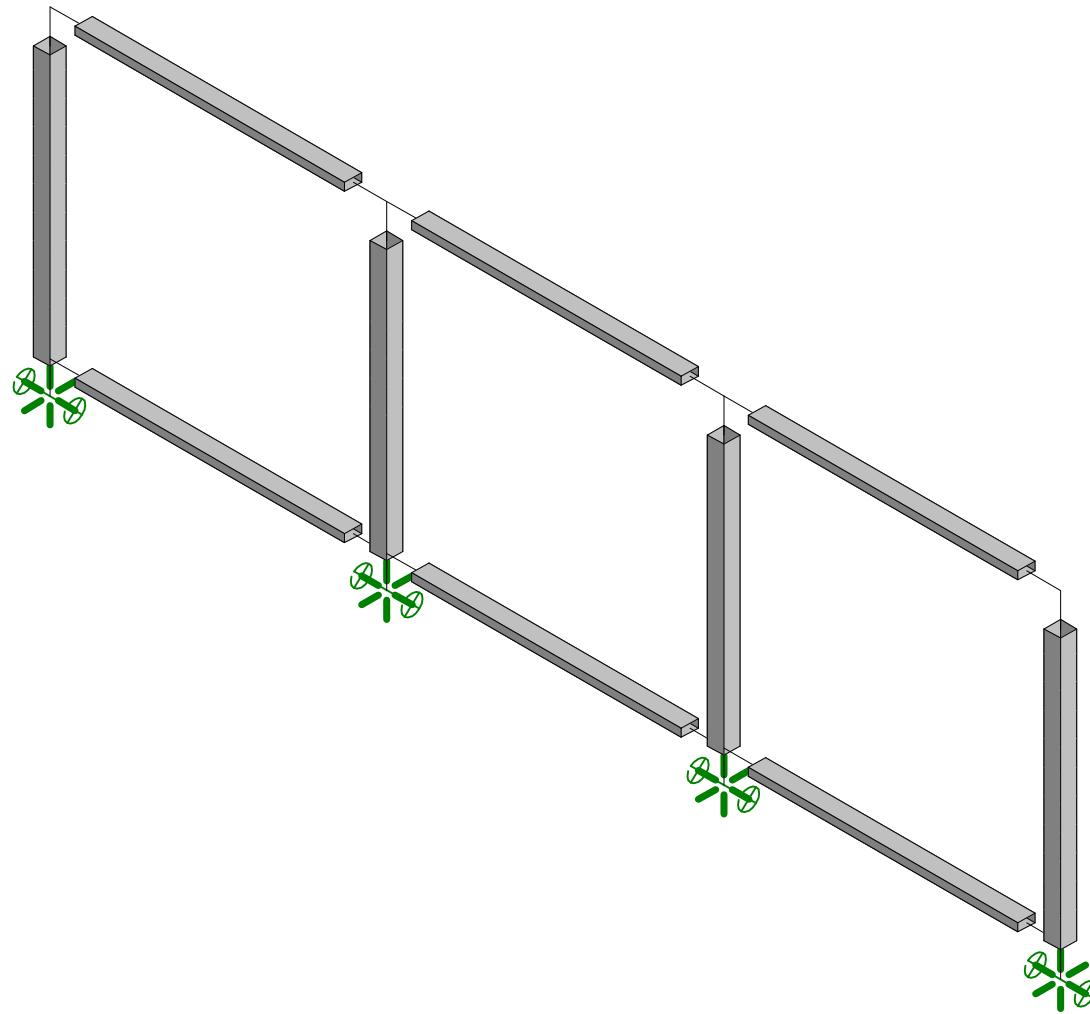
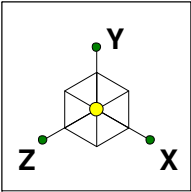


D7—2" SQ TUBE x 42-1/2" HIGH RAIL WITH 2"x1" RECT TOP RAIL WITH BOTTOM RAIL

Building Code:	2006 <i>International Building Code</i> 2007 <i>California Building Code</i> AISC <i>Steel Construction Manual</i>, 13th ed—ASD
Material:	Carbon Steel, A500, Grade B, $F_y = 42$ ksi Stainless Steel, A554, Grade MT-304 or MT-316, $F_y = 30$ ksi
Height:	42.5"
Anchor Post:	Carbon Steel: <i>HSS 2x2x1/8 Tube</i> Stainless Steel: <i>2"x2"x0.188" Tube</i>
Intermediate Posts:	Carbon Steel: <i>HSS 2x2x1/8 Tube</i> Stainless Steel: <i>2"x2"x0.120" Tube</i>
Top Rail:	Carbon Steel: <i>HSS 2x1x1/8 Tube</i> Stainless Steel: <i>2"x1"x0.120" Tube</i>
Bottom Rail:	Carbon Steel: <i>HSS 2x1x1/8 Tube</i> Stainless Steel: <i>2"x1"x0.120" Tube</i>
Number of Cables:	11
Cable Spacing:	3.08"
Cable Prestress:	325 lbs



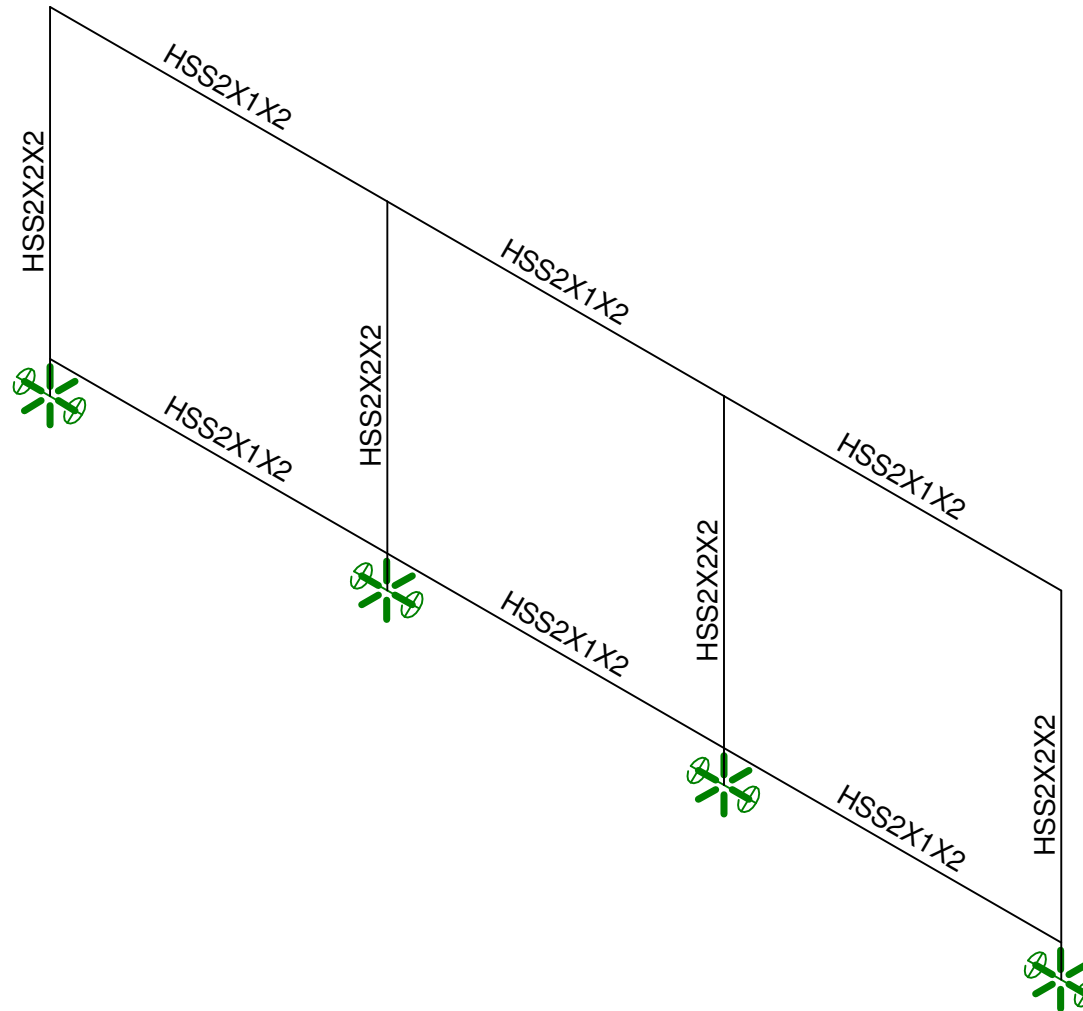
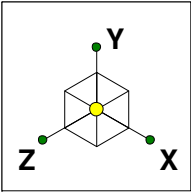
Disclaimer: Analysis and Structural Certification DOES NOT include base plates or anchorage to supporting structure. Where required by the Local Building Official, these shall be reviewed and designed by the project Structural Engineer of Record.



Ferrari Shields & Associates
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D7 - 2" SQ TUBE x 42.5" HIGH RAIL W/ 2"x1" TOP RAIL W/ BTM RAIL

Mar 3, 2009 at 10:47 AM
D7.R3D



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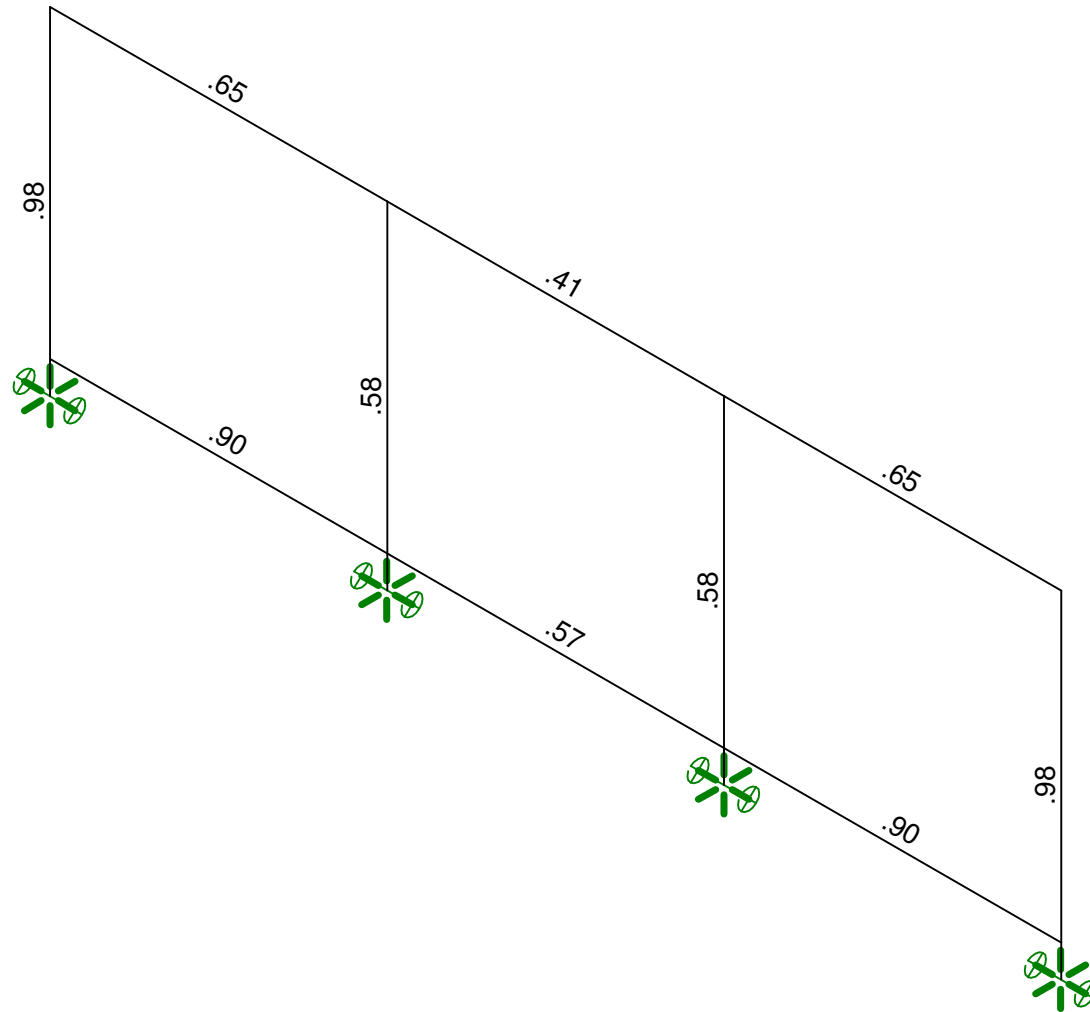
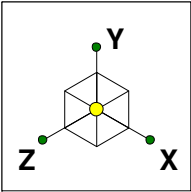
D. O'Connor

08196

D7 - 2" SQ TUBE x 42.5" HIGH RAIL W/ 2"x1" TOP RAIL W/ BTM RAIL

Mar 3, 2009 at 10:48 AM

D7.R3D

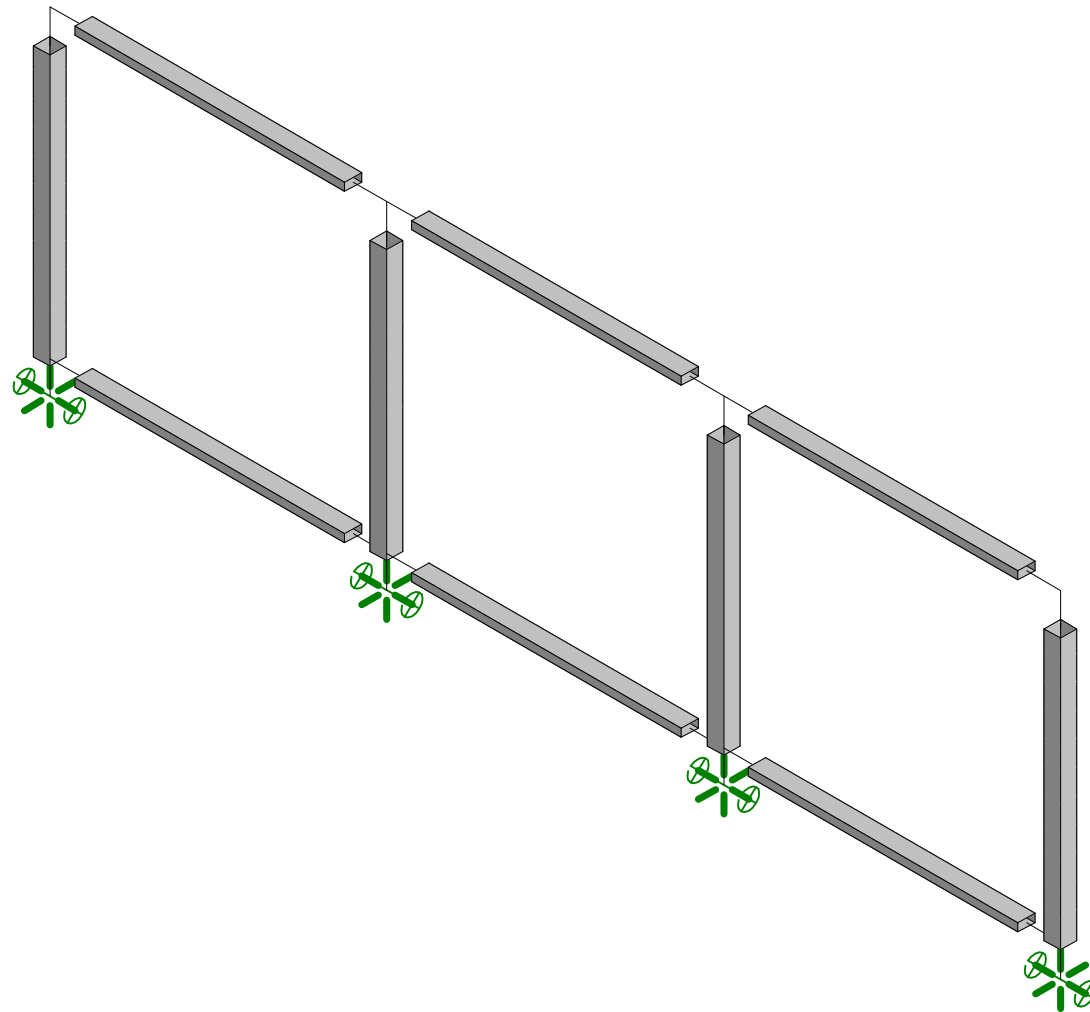
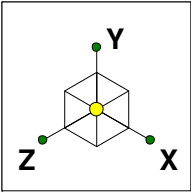


Member Code Checks Displayed
Solution: Envelope

Ferrari Shields & Associates
D. O'Connor
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D7 - 2" SQ TUBE x 42.5" HIGH RAIL W/ 2"x1" TOP RAIL W/ BTM RAIL

Mar 3, 2009 at 10:48 AM
D7.R3D



Ferrari Shields & Associates

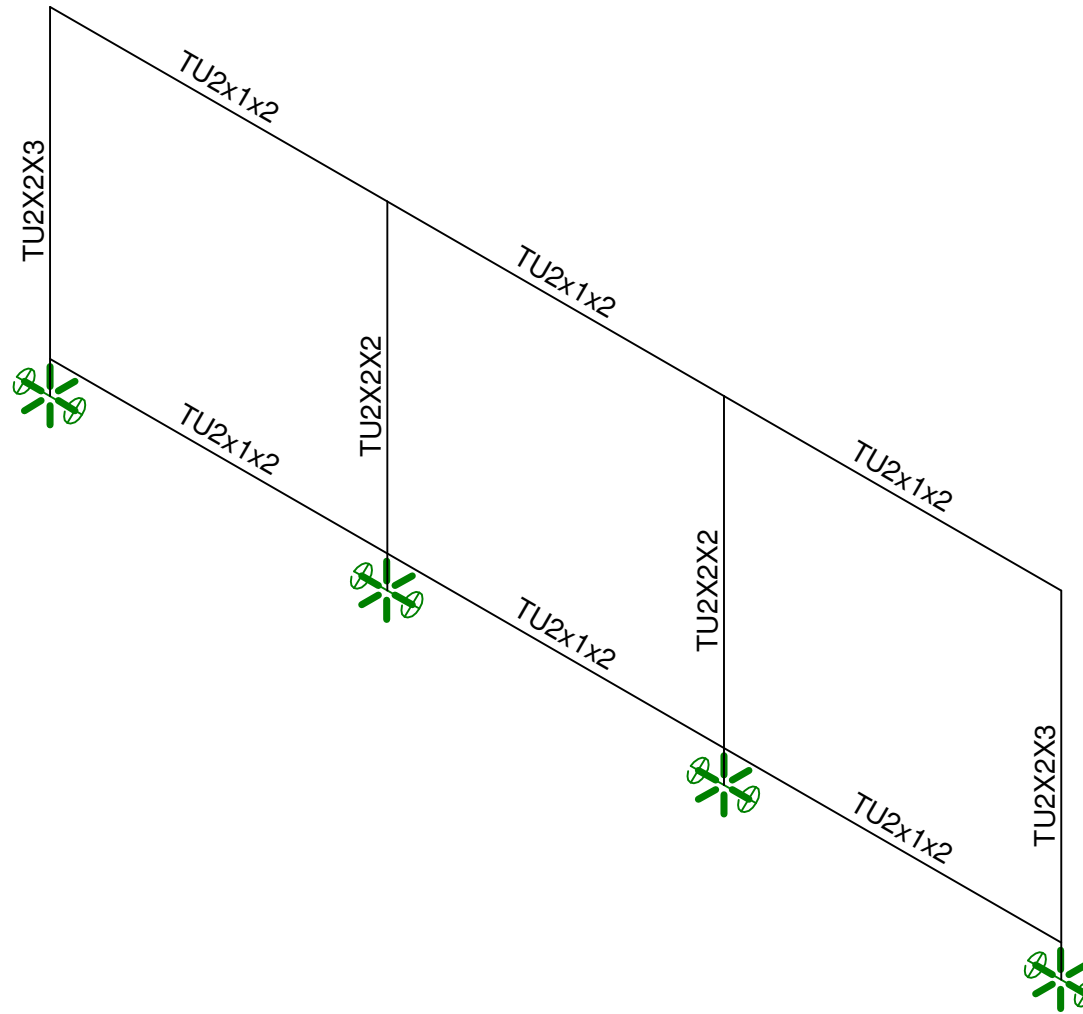
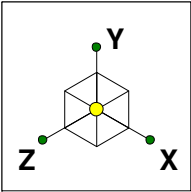
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D7 (SS) - 2" SQ TUBE x 42.5" HIGH RAIL W/ 2"x1" TOP RAIL W/ BTM RAIL

Mar 3, 2009 at 10:58 AM

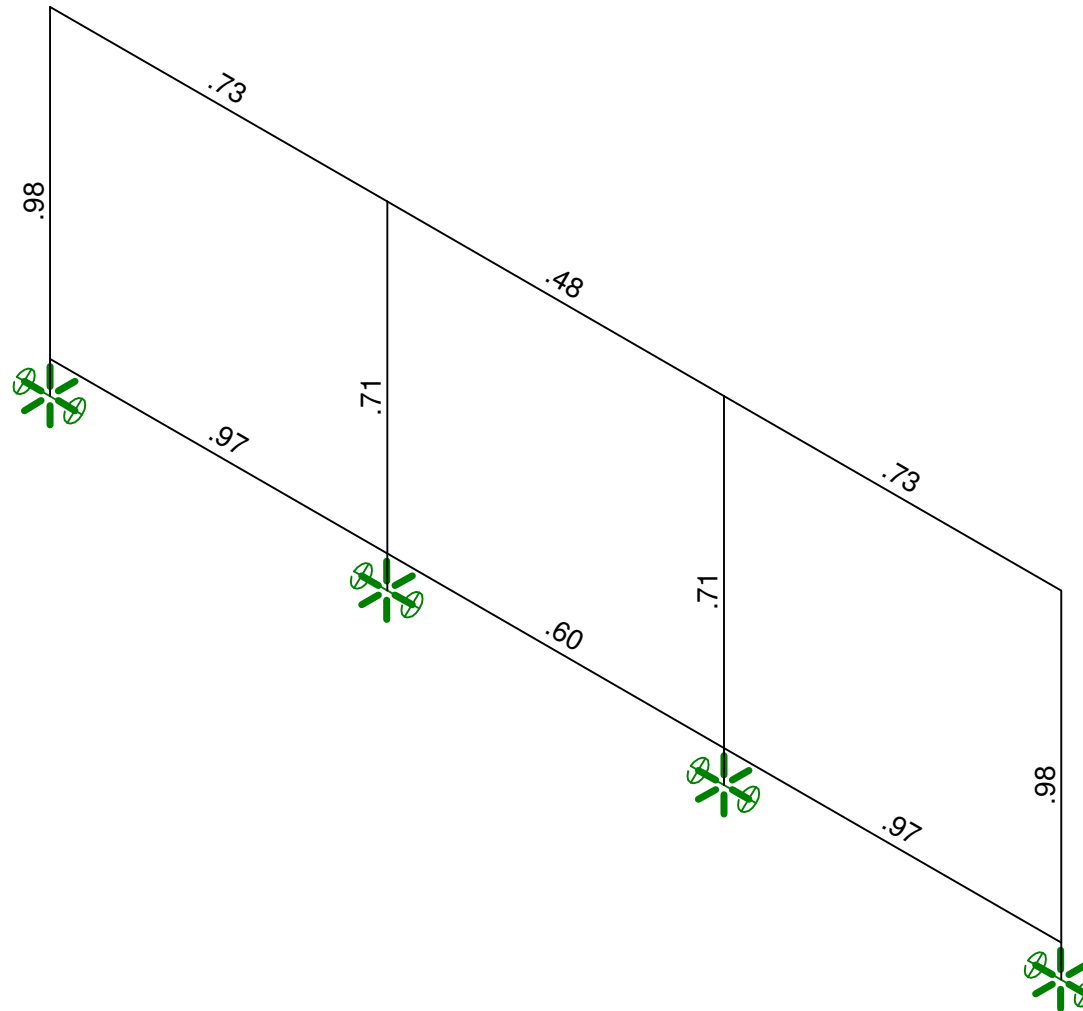
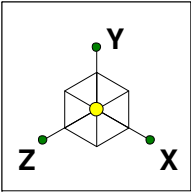
D7ss.R3D



Ferrari Shields & Associates
 D. O'Connor
 08196

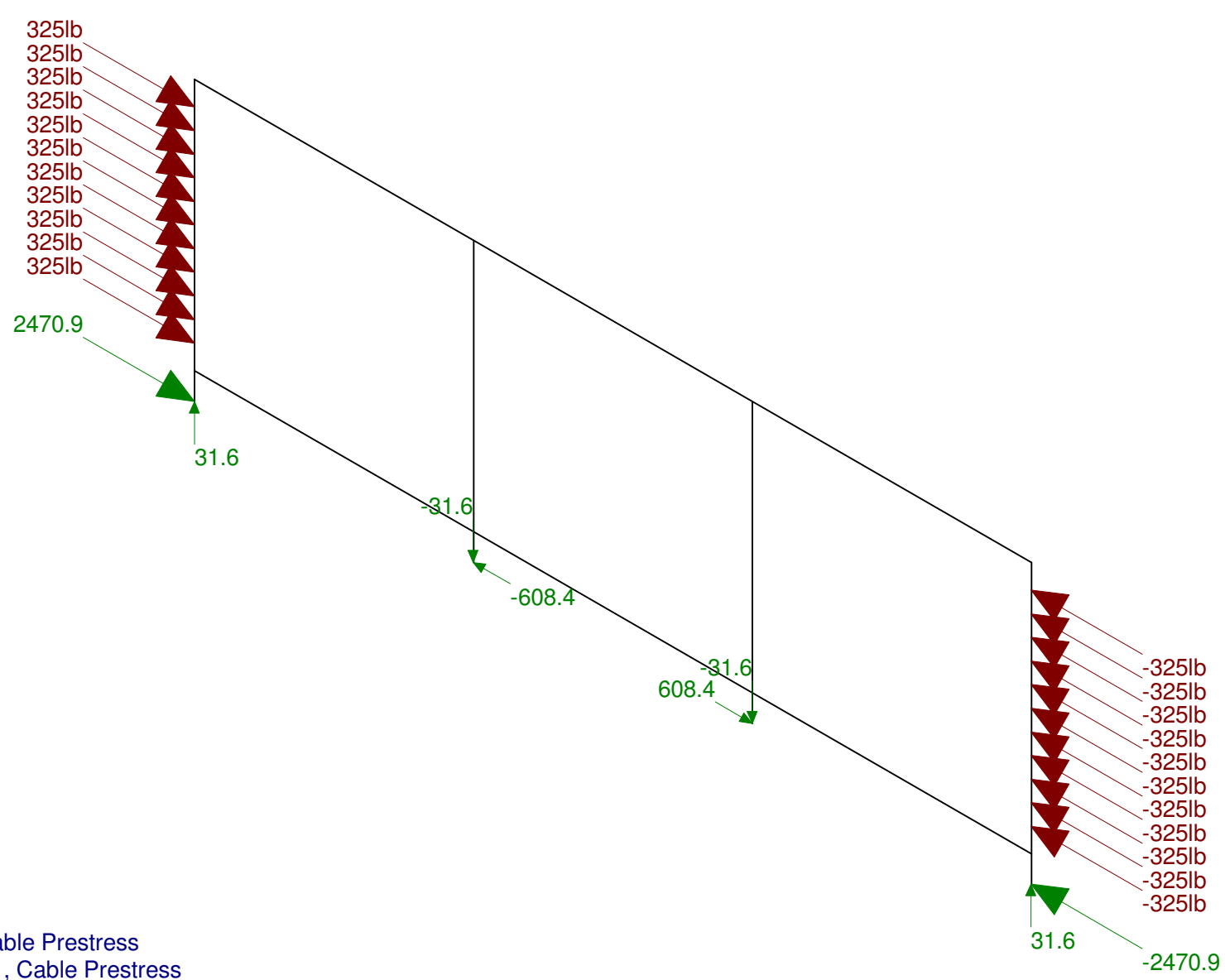
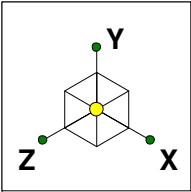
D7 (SS) - 2" SQ TUBE x 42.5" HIGH RAIL W/ 2"x1" TOP RAIL W/ BTM RAIL

Mar 3, 2009 at 10:59 AM
 D7ss.R3D



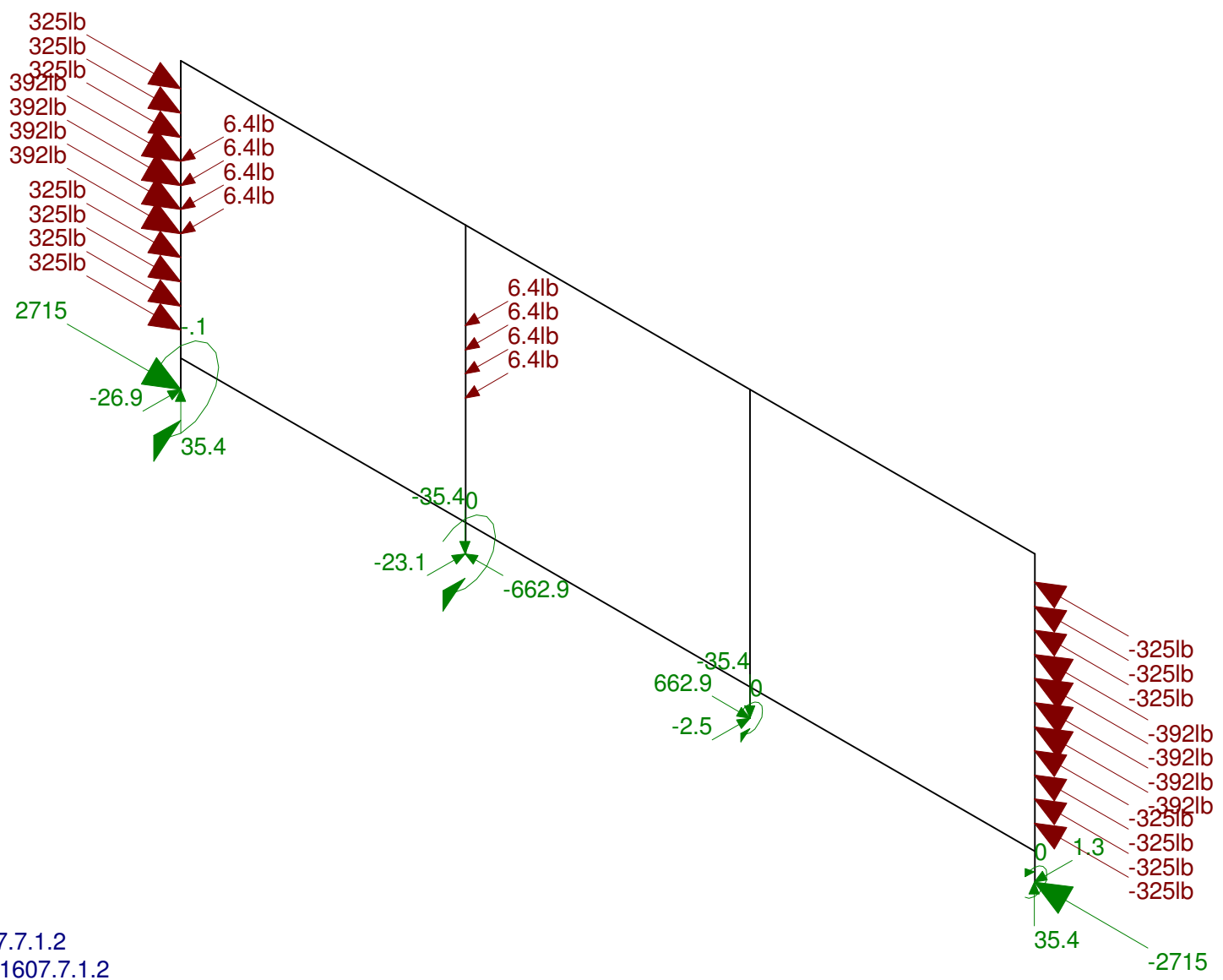
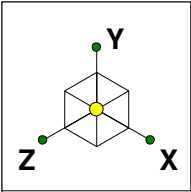
Member Code Checks Displayed
Solution: Envelope

Ferrari Shields & Associates	D7 (SS) - 2" SQ TUBE x 42.5" HIGH RAIL W/ 2"x1" TOP RAIL W/ BTM RAIL	
D. O'Connor		Mar 3, 2009 at 10:59 AM
08196		D7ss.R3D



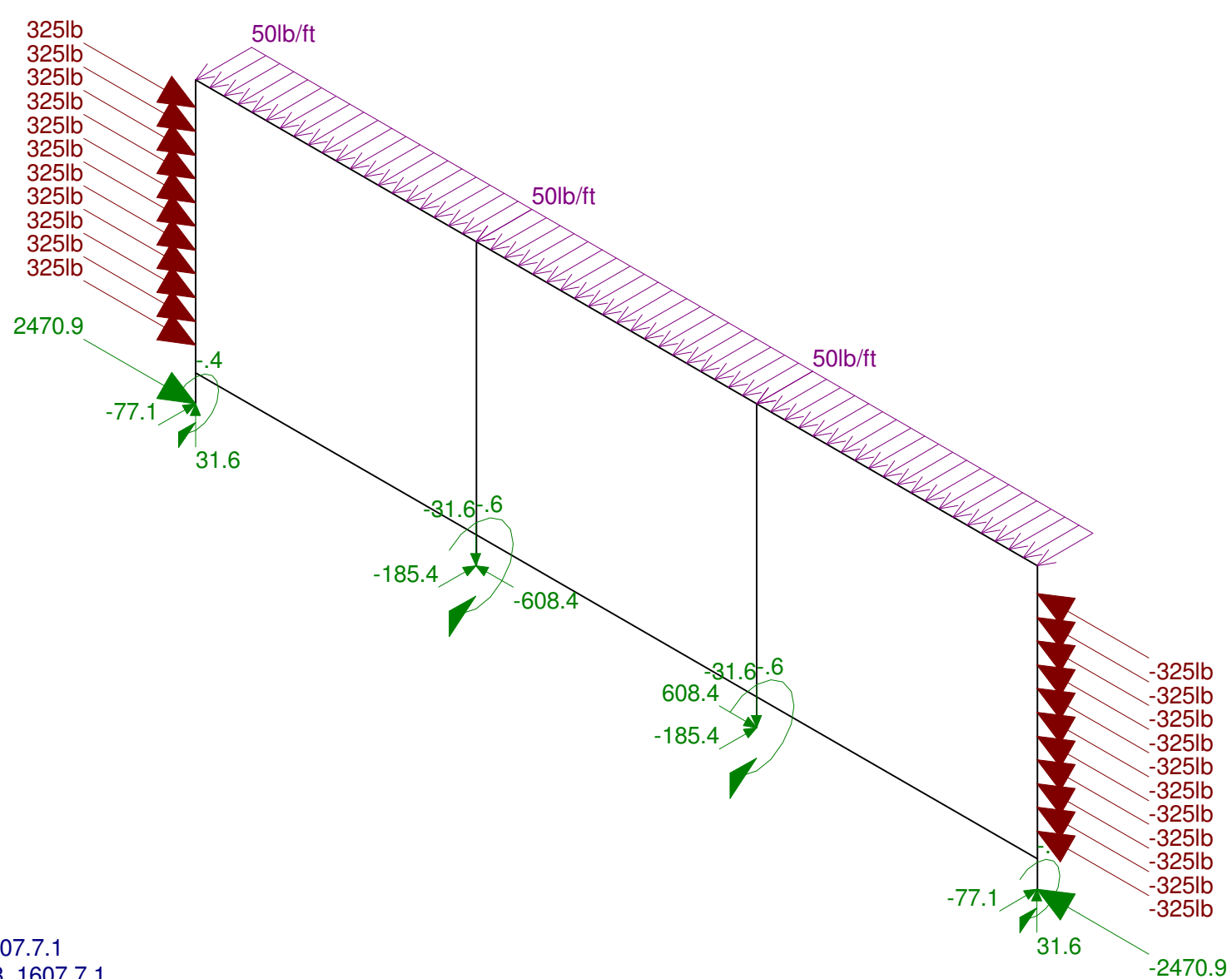
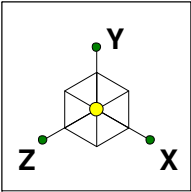
Loads: LC 1, Cable Prestress
 Results for LC 1, Cable Prestress
 Reaction units are lb and k-ft

Ferrari Shields & Associates	D7 - 2" SQ TUBE x 42.5" HIGH RAIL W/ 2"x1" TOP RAIL W/ BTM RAIL	
D. O'Connor		Mar 3, 2009 at 10:49 AM
08196		D7.R3D



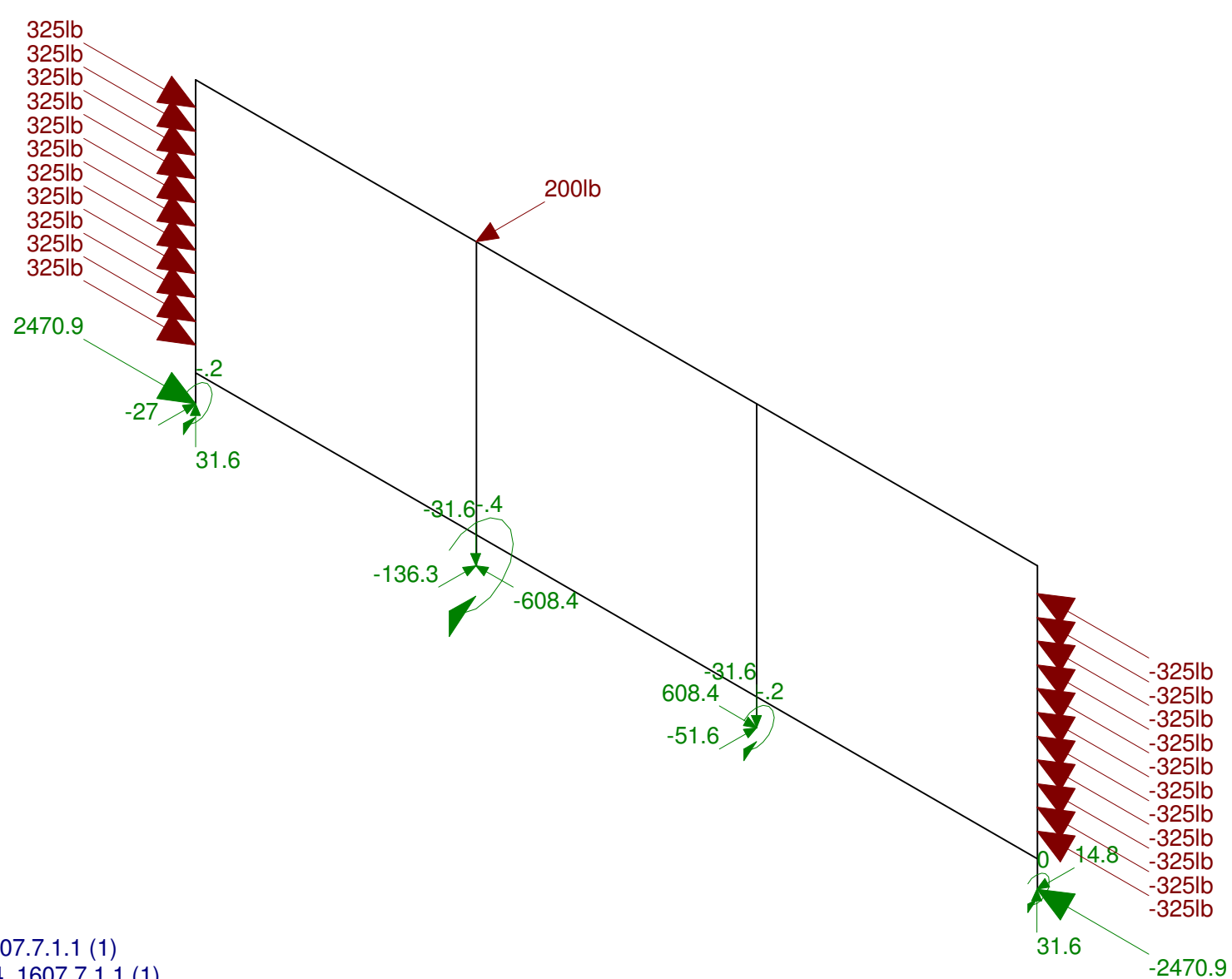
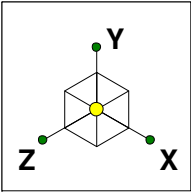
Loads: LC 2, 1607.7.1.2
 Results for LC 2, 1607.7.1.2
 Reaction units are lb and k-ft

Ferrari Shields & Associates	D7 - 2" SQ TUBE x 42.5" HIGH RAIL W/ 2"x1" TOP RAIL W/ BTM RAIL	
D. O'Connor		Mar 3, 2009 at 10:51 AM
08196		D7.R3D



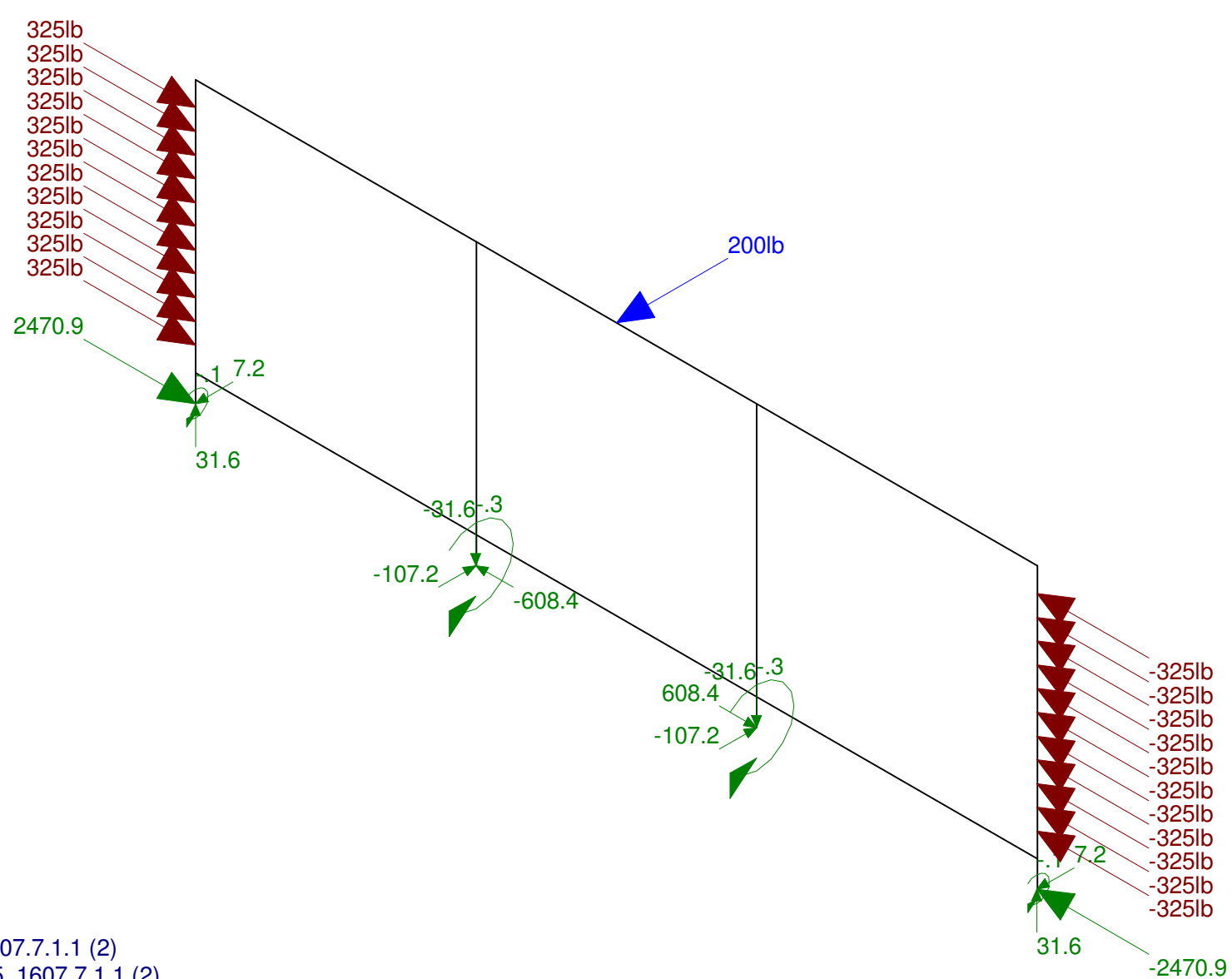
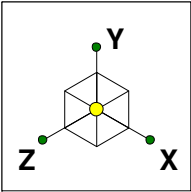
Loads: LC 3, 1607.7.1
 Results for LC 3, 1607.7.1
 Reaction units are lb and k-ft

Ferrari Shields & Associates	D7 - 2" SQ TUBE x 42.5" HIGH RAIL W/ 2"x1" TOP RAIL W/ BTM RAIL	Mar 3, 2009 at 10:51 AM
D. O'Connor		D7.R3D
08196		



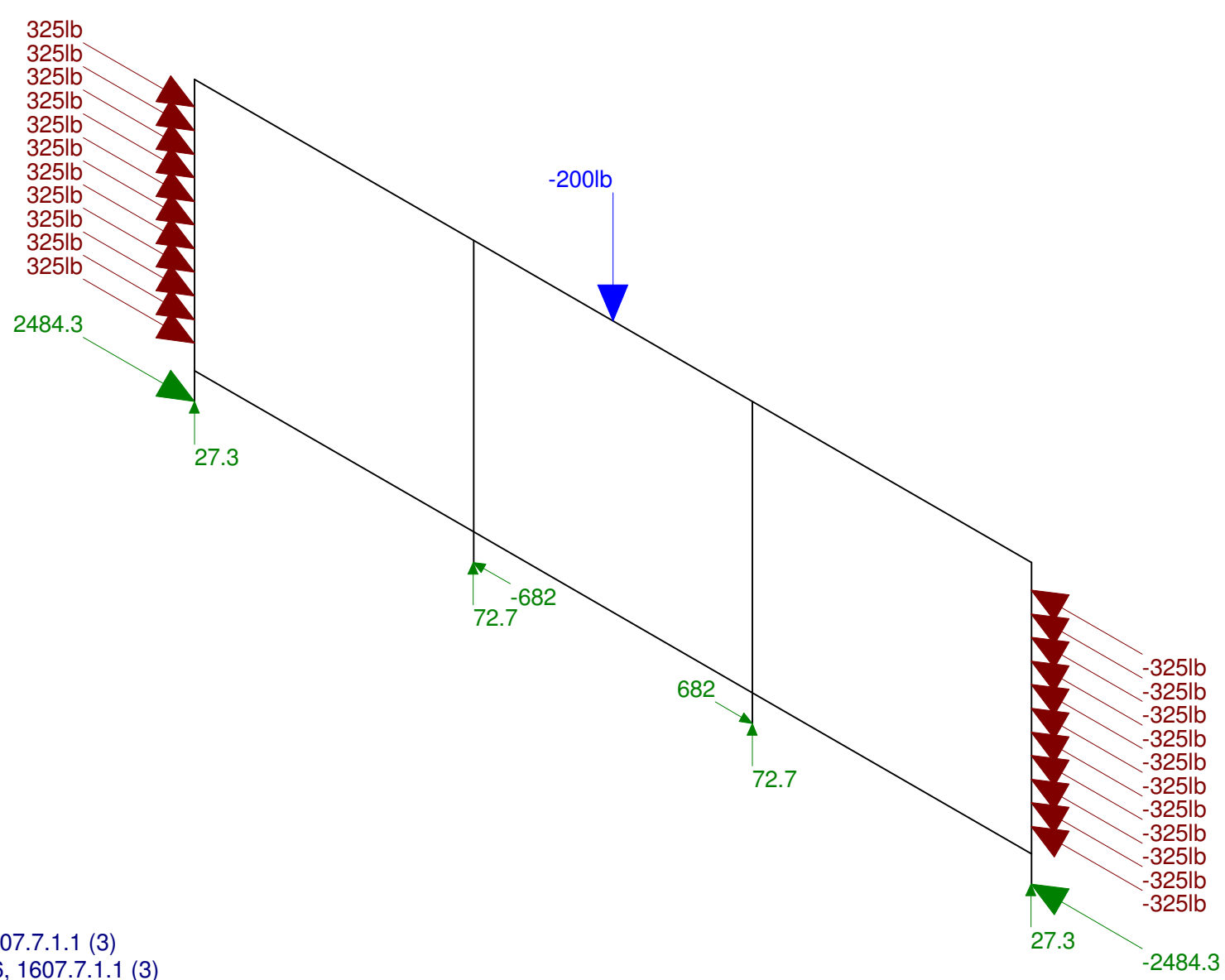
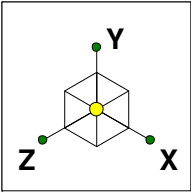
Loads: LC 4, 1607.7.1.1 (1)
 Results for LC 4, 1607.7.1.1 (1)
 Reaction units are lb and k-ft

Ferrari Shields & Associates	D7 - 2" SQ TUBE x 42.5" HIGH RAIL W/ 2"x1" TOP RAIL W/ BTM RAIL	
D. O'Connor		Mar 3, 2009 at 10:52 AM
08196		D7.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	D7 - 2" SQ TUBE x 42.5" HIGH RAIL W/ 2"x1" TOP RAIL W/ BTM RAIL	
D. O'Connor		Mar 3, 2009 at 10:52 AM
08196		D7.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	D7 - 2" SQ TUBE x 42.5" HIGH RAIL W/ 2"x1" TOP RAIL W/ BTM RAIL	
D. O'Connor		Mar 3, 2009 at 10:52 AM
08196		D7.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
Masonry Code	MSJC 05/IBC 06 ASD

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	SS316	28000	11154	.3	.65	.49	30

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	HSS2X2X2	Column	Tube	A500Gr42	Typical	.841	.487	.487	.797
4	IPOST	HSS2X2X2	Column	Tube	A500Gr42	Typical	.841	.487	.487	.797

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area (Mem...	Surface (Pl...
1	Cable Prestress	None				22				
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	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	POST	Column	Tube	A500Gr42	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	POST	Column	Tube	A500Gr42	Typical
6	M6	N7	N8		90	IPOST	Column	Tube	A500Gr42	Typical
7	M7	N8	N6		90	RAIL	Beam	Tube	A500Gr42	Typical
8	M8	N11	N12		90	ERAIL	Beam	Tube	A500Gr42	Typical
9	M9	N12	N14		90	RAIL	Beam	Tube	A500Gr42	Typical
10	M10	N14	N13		90	ERAIL	Beam	Tube	A500Gr42	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	2715.008	2	35.379	2	7.212	5	0	1	0	1	0	1
2		min	2470.905	1	27.254	6	-77.065	3	-.352	3	0	1	0	1
3	N3	max	-608.433	1	72.746	6	0	1	0	1	0	1	0	1
4		min	-682.001	6	-35.379	2	-185.435	3	-.569	3	0	1	0	1
5	N5	max	-2470.905	1	35.379	2	14.849	4	0	2	0	1	0	1
6		min	-2715.008	2	27.254	6	-77.065	3	-.352	3	0	1	0	1
7	N7	max	682	6	72.746	6	0	1	0	1	0	1	0	1
8		min	608.433	1	-35.379	2	-185.435	3	-.569	3	0	1	0	1
9	Totals:	max	0	4	200	6	0	1						
10		min	0	1	0	2	-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	35.379	2	7.207	5	2714.773	2	0	1	0	1	0	1
2			min	27.254	6	-77.095	3	2470.713	1	0	1	0	1	-.352	3
3		2	max	94.881	2	0	1	-1698.759	1	.045	3	-.061	2	0	1
4			min	81.161	6	-96.363	3	-1844.836	2	-.001	2	-.074	1	-.271	3
5		3	max	94.881	2	0	1	-397.958	1	.045	3	-.94	1	0	1
6			min	81.161	6	-96.699	3	-476.879	2	-.001	2	-1.049	2	-.186	3
7		4	max	94.881	2	0	1	700.472	2	.045	3	-.846	1	0	2
8			min	81.161	6	-96.857	3	575.261	6	-.001	2	-.932	2	-.101	3
9		5	max	94.881	2	0	1	1676.202	2	.045	3	.225	2	0	2
10			min	81.161	6	-96.934	3	1550.84	6	-.001	2	.199	6	-.019	5
11	M2	1	max	72.746	6	0	1	-608.433	1	0	1	0	1	0	1
12			min	-35.379	2	-185.435	3	-682.13	6	0	1	0	1	-.569	3

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	
13	2	max	18.839	6	0	1	98.724	6	.04	5	-.086	1	0	1	
14		min	-94.881	2	-166.481	3	68.489	1	-.003	2	-.097	6	-.42	3	
15	3	max	18.839	6	0	1	98.738	6	.04	5	-.01	6	0	1	
16		min	-94.881	2	-166.481	3	68.489	1	-.003	2	-.028	2	-.275	3	
17	4	max	18.839	6	2.583	2	98.717	6	.04	5	.076	6	.002	2	
18		min	-94.881	2	-166.481	3	68.489	1	-.003	2	.034	1	-.129	3	
19	5	max	18.839	6	2.583	2	98.717	6	.04	5	.163	6	.03	4	
20		min	-94.881	2	-166.481	3	68.489	1	-.003	2	.094	1	0	1	
21	M3	1	max	1674.479	2	0	-81.154	6	0	2	.225	2	.001	2	
22		min	1549.5	6	-101.749	3	-94.856	2	-.019	5	.199	6	-.045	3	
23	2	max	1674.479	2	0	1	-81.154	6	0	2	.142	2	.025	3	
24		min	1549.5	6	-57.999	3	-94.856	2	-.019	5	.128	6	-.018	5	
25	3	max	1674.479	2	0	1	-81.154	6	0	2	.059	2	.057	3	
26		min	1549.5	6	-47.026	4	-94.856	2	-.019	5	.054	1	-.003	5	
27	4	max	1674.479	2	29.501	3	-81.154	6	0	2	-.014	6	.085	4	
28		min	1549.5	6	-47.026	4	-94.856	2	-.019	5	-.024	2	0	1	
29	5	max	1674.479	2	73.251	3	-81.154	6	0	2	-.085	6	.126	4	
30		min	1549.5	6	-47.026	4	-94.856	2	-.019	5	-.107	2	0	1	
31	M4	1	max	1749.42	2	51.107	4	0	.015	4	.078	6	.126	4	
32		min	1620.815	4	-100	5	-100	6	0	1	-.003	2	-.016	3	
33	2	max	1749.42	2	51.107	4	0	1	.015	4	-.003	1	.081	4	
34		min	1620.815	4	-100	5	-100	6	0	1	-.01	6	0	1	
35	3	max	1749.42	2	100	5	100	6	.015	4	-.003	1	.163	5	
36		min	1620.815	4	0	1	0	1	0	1	-.097	6	0	2	
37	4	max	1749.42	2	100	5	100	6	.015	4	-.003	1	.076	5	
38		min	1620.815	4	0	1	0	1	0	1	-.01	6	-.008	4	
39	5	max	1749.42	2	100	5	100	6	.015	4	.078	6	0	1	
40		min	1620.815	4	0	1	0	1	0	1	-.003	2	-.053	4	
41	M5	1	max	35.379	2	14.849	4	-2470.713	1	0	1	0	0	2	
42		min	27.254	6	-77.095	3	-2714.773	2	0	1	0	1	-.352	3	
43	2	max	94.881	2	2.241	4	1844.836	2	0	1	.074	1	0	2	
44		min	81.161	6	-96.363	3	1698.759	1	-.045	3	.061	2	-.271	3	
45	3	max	94.881	2	2.228	4	476.879	2	0	1	1.049	2	0	1	
46		min	81.161	6	-96.699	3	397.958	1	-.045	3	.94	1	-.186	3	
47	4	max	94.881	2	2.216	4	-575.261	6	0	1	.932	2	0	1	
48		min	81.161	6	-96.857	3	-700.472	2	-.045	3	.846	1	-.101	3	
49	5	max	94.881	2	2.201	4	-1550.84	6	0	1	-.199	6	0	1	
50		min	81.161	6	-96.934	3	-1676.202	2	-.045	3	-.225	2	-.019	5	
51	M6	1	max	72.746	6	0	682.129	6	0	1	0	1	0	1	
52		min	-35.379	2	-185.435	3	608.433	1	0	1	0	1	-.569	3	
53	2	max	18.839	6	0	1	-68.489	1	0	1	.097	6	0	1	
54		min	-94.881	2	-166.481	3	-98.725	6	-.04	4	.086	1	-.42	3	
55	3	max	18.839	6	0	1	-68.489	1	0	1	.028	2	0	1	
56		min	-94.881	2	-166.481	3	-98.725	6	-.04	4	.01	6	-.275	3	
57	4	max	18.839	6	0	1	-68.489	1	0	1	-.034	1	0	1	
58		min	-94.881	2	-166.481	3	-98.725	6	-.04	4	-.076	6	-.129	3	
59	5	max	18.839	6	0	1	-68.489	1	0	1	-.094	1	.019	5	
60		min	-94.881	2	-166.481	3	-98.725	6	-.04	4	-.163	6	-.001	4	
61	M7	1	max	1674.479	2	17.612	5	94.856	2	.019	5	-.085	6	.028	5
62		min	1549.5	6	-73.251	3	81.155	6	0	1	-.107	2	-.013	4	
63	2	max	1674.479	2	17.612	5	94.856	2	.019	5	-.014	6	.05	3	
64		min	1549.5	6	-29.501	3	81.155	6	0	1	-.024	2	-.015	4	
65	3	max	1674.479	2	17.612	5	94.856	2	.019	5	.059	2	.057	3	

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		
66		min	1549.5	6	-18	2	81.155	6	0	1	.054	1	-.017	4	
67	4	max	1674.479	2	57.999	3	94.856	2	.019	5	.142	2	.025	3	
68		min	1549.5	6	-18	2	81.155	6	0	1	.128	6	-.019	4	
69	5	max	1674.479	2	101.749	3	94.856	2	.019	5	.225	2	0	1	
70		min	1549.5	6	-18	2	81.155	6	0	1	.199	6	-.045	3	
71	M8	1	max	4883.529	2	18.701	3	59.505	2	0	2	-.119	6	.045	3
72		min	4493.578	1	-.788	2	53.905	6	-.004	5	-.13	2	-.001	2	
73	2	max	4883.529	2	18.701	3	59.505	2	0	2	-.072	6	.028	3	
74		min	4493.578	1	-.788	2	53.905	6	-.004	5	-.078	2	0	2	
75	3	max	4883.529	2	18.701	3	59.505	2	0	2	-.024	1	.013	4	
76		min	4493.578	1	-.788	2	53.905	6	-.004	5	-.026	2	0	1	
77	4	max	4883.529	2	18.701	3	59.505	2	0	2	.026	2	0	2	
78		min	4493.578	1	-.788	2	53.905	6	-.004	5	.023	6	-.014	5	
79	5	max	4883.529	2	18.701	3	59.505	2	0	2	.078	2	.002	2	
80		min	4493.578	1	-.788	2	53.905	6	-.004	5	.07	6	-.03	5	
81	M9	1	max	4145.643	2	0	0	1	.003	4	-.007	6	.01	5	
82		min	3729.112	6	-8.556	4	0	6	0	1	-.009	2	-.012	4	
83	2	max	4145.643	2	0	1	0	1	.003	4	-.007	6	.01	5	
84		min	3729.112	6	-8.556	4	0	6	0	1	-.009	2	-.005	4	
85	3	max	4145.643	2	0	1	0	1	.003	4	-.007	6	.01	5	
86		min	3729.112	6	-8.556	4	0	6	0	1	-.009	2	0	2	
87	4	max	4145.643	2	0	1	0	1	.003	4	-.007	6	.01	4	
88		min	3729.112	6	-8.556	4	0	6	0	1	-.009	2	0	1	
89	5	max	4145.643	2	0	1	0	1	.003	4	-.007	6	.018	4	
90		min	3729.112	6	-8.556	4	0	6	0	1	-.009	2	0	1	
91	M10	1	max	4883.529	2	0	1	-53.906	6	.004	5	.078	2	0	1
92		min	4493.578	1	-18.701	3	-59.505	2	0	1	.07	6	-.03	5	
93	2	max	4883.529	2	0	1	-53.906	6	.004	5	.026	2	0	1	
94		min	4493.578	1	-18.701	3	-59.505	2	0	1	.023	6	-.014	5	
95	3	max	4883.529	2	0	1	-53.906	6	.004	5	-.024	1	.012	3	
96		min	4493.578	1	-18.701	3	-59.505	2	0	1	-.026	2	0	4	
97	4	max	4883.529	2	0	1	-53.906	6	.004	5	-.072	6	.028	3	
98		min	4493.578	1	-18.701	3	-59.505	2	0	1	-.078	2	0	1	
99	5	max	4883.529	2	0	1	-53.906	6	.004	5	-.119	6	.045	3	
100		min	4493.578	1	-18.701	3	-59.505	2	0	1	-.13	2	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	Eqn	
1	M1	HSS2X2X2	.980	4.375	3	.469	0	z	2	17542.558	21154.469	1.227	1.227	1.... H1-1b
2	M2	HSS2X2X2	.577	3.938	3	.118	0	z	6	17542.558	21154.469	1.227	1.227	1.... H1-1b
3	M3	HSS2X1X2	.654	0	2	.096	0	z	5	7484.423	15307.164	.468	.768	1.... H1-1a
4	M4	HSS2X1X2	.411	21	5	.049	0	z	4	7484.423	15307.164	.468	.768	1.... H1-1a
5	M5	HSS2X2X2	.980	4.375	3	.469	0	z	2	17542.558	21154.469	1.227	1.227	1.... H1-1b
6	M6	HSS2X2X2	.577	3.938	3	.118	0	z	6	17542.558	21154.469	1.227	1.227	1.... H1-1b
7	M7	HSS2X1X2	.654	42	2	.096	0	z	5	7484.423	15307.164	.468	.768	1.... H1-1a
8	M8	HSS2X1X2	.902	0	2	.036	0	z	5	7484.423	15307.164	.468	.768	2.... H1-1a
9	M9	HSS2X1X2	.572	0	2	.010	0	z	4	7484.423	15307.164	.468	.768	2.... H1-1a
10	M10	HSS2X1X2	.902	42	2	.036	0	z	5	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
Masonry Code	MSJC 05/IBC 06 ASD

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	LDX2101	28000	11154	.3	.65	.49	60
2	SS316	28000	11154	.3	.65	.49	30

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	EPOST	TU2X2X3	Column	Tube	SS316	Typical	1.27	.668	.668	1.15
4	IPOST	TU2X2X2	Column	Tube	SS316	Typical	.897	.513	.513	.846

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area (Mem...	Surface (Pl...
1	Cable Prestress	None				22				
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	BLC Factor
1	Cable Prestress	Yes	C		1	1							
2	1607.7.1.2	Yes	C		1	1	2	1					
3	1607.7.1	Yes	C		1	1	3	1					
4	1607.7.1.1 (1)	Yes	C		1	1	4	1					
5	1607.7.1.1 (2)	Yes	C		1	1	5	1					
6	1607.7.1.1 (3)	Yes	C		1	1	6	1					

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N1	N2		90	EPOST	Column	Tube	SS316	Typical
2	M2	N3	N4		90	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	SS316	Typical
6	M6	N7	N8		90	IPOST	Column	Tube	SS316	Typical
7	M7	N8	N6		90	RAIL	Beam	Tube	SS316	Typical
8	M8	N11	N12		90	ERAIL	Beam	Tube	SS316	Typical
9	M9	N12	N14		90	RAIL	Beam	Tube	SS316	Typical
10	M10	N14	N13		90	ERAIL	Beam	Tube	SS316	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	2571.967	2	26.744	2	6.128	5	0	1	0	1	0	1
2		min	2338.707	1	19.233	6	-79.354	3	-383	3	0	1	0	1
3	N3	max	-566.833	1	80.767	6	0	1	0	1	0	1	0	1
4		min	-640.044	6	-26.744	2	-183.146	3	-538	3	0	1	0	1
5	N5	max	-2338.707	1	26.744	2	14.153	4	0	2	0	1	0	1
6		min	-2571.967	2	19.233	6	-79.354	3	-383	3	0	1	0	1
7	N7	max	640.044	6	80.767	6	0	1	0	1	0	1	0	1
8		min	566.833	1	-26.744	2	-183.146	3	-538	3	0	1	0	1
9	Totals:	max	0	1	200	6	0	1						
10		min	0	2	0	4	-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	26.744	2	6.125	5	2571.804	2	0	1	0	1	0	1
2			min	19.233	6	-79.372	3	2338.573	1	0	1	0	1	-383	3
3		2	max	81.708	2	0	1	-1690.458	1	.061	3	-.114	2	0	1
4			min	68.978	6	-105.071	3	-1835.971	2	0	2	-.123	1	-295	3
5		3	max	81.708	2	0	1	-389.898	1	.061	3	-.982	1	0	1
6			min	68.978	6	-105.309	3	-468.303	2	0	2	-1.095	2	-203	3
7		4	max	81.708	2	0	1	708.604	2	.061	3	-.881	1	0	1
8			min	68.978	6	-105.421	3	582.727	6	0	2	-.971	2	-.111	3
9		5	max	81.708	2	0	1	1684.103	2	.061	3	.194	2	0	2
10			min	68.978	6	-105.477	3	1558.117	6	0	2	.17	6	-.019	3
11	M2	1	max	80.767	6	0	1	-566.833	1	0	1	0	1	0	1
12			min	-26.744	2	-183.146	3	-640.178	6	0	1	0	1	-.538	3

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	
13	2	max	31.022	6	0	1	91.658	6	.041	5	-.081	1	0	1	
14		min	-81.708	2	-157.672	3	61.688	1	-.002	2	-.091	6	-.395	3	
15	3	max	31.022	6	0	1	91.678	6	.041	5	-.011	6	0	1	
16		min	-81.708	2	-157.672	3	61.688	1	-.002	2	-.029	2	-.257	3	
17	4	max	31.022	6	3.247	2	91.649	6	.041	5	.069	6	.003	2	
18		min	-81.708	2	-157.672	3	61.688	1	-.002	2	.027	1	-.119	3	
19	5	max	31.022	6	3.247	2	91.649	6	.041	5	.15	6	.029	4	
20		min	-81.708	2	-157.672	3	61.688	1	-.002	2	.081	1	0	1	
21	M3	1	max	1682.926	2	0	-68.976	6	0	2	.194	2	0	2	
22		min	1557.213	6	-111.241	3	-81.69	2	-.019	3	.17	6	-.061	3	
23	2	max	1682.926	2	0	1	-68.976	6	0	2	.122	2	.017	3	
24		min	1557.213	6	-67.491	3	-81.69	2	-.019	3	.11	6	-.023	5	
25	3	max	1682.926	2	0	1	-68.976	6	0	2	.051	2	.057	3	
26		min	1557.213	6	-52.391	4	-81.69	2	-.019	3	.046	1	-.004	5	
27	4	max	1682.926	2	20.009	3	-68.976	6	0	2	-.011	6	.089	4	
28		min	1557.213	6	-52.391	4	-81.69	2	-.019	3	-.021	2	0	1	
29	5	max	1682.926	2	63.759	3	-68.976	6	0	2	-.071	6	.135	4	
30		min	1557.213	6	-52.391	4	-81.69	2	-.019	3	-.092	2	0	1	
31	M4	1	max	1750.397	2	51.914	4	0	.014	4	.078	6	.131	4	
32		min	1621.972	4	-100	5	-100	6	0	1	-.003	2	-.008	5	
33	2	max	1750.397	2	51.914	4	0	1	.014	4	-.002	1	.086	4	
34		min	1621.972	4	-100	5	-100	6	0	1	-.009	6	0	1	
35	3	max	1750.397	2	100	5	100	6	.014	4	-.002	1	.167	5	
36		min	1621.972	4	0	1	0	1	0	1	-.097	6	0	1	
37	4	max	1750.397	2	100	5	100	6	.014	4	-.002	1	.079	5	
38		min	1621.972	4	0	1	0	1	0	1	-.009	6	-.005	4	
39	5	max	1750.397	2	100	5	100	6	.014	4	.078	6	0	1	
40		min	1621.972	4	0	1	0	1	0	1	-.003	2	-.051	4	
41	M5	1	max	26.744	2	14.153	4	-2338.573	1	0	1	0	1	0	2
42		min	19.233	6	-79.372	3	-2571.804	2	0	1	0	1	-.383	3	
43	2	max	81.708	2	.336	2	1835.971	2	0	1	.123	1	0	2	
44		min	68.978	6	-105.071	3	1690.458	1	-.061	3	.114	2	-.295	3	
45	3	max	81.708	2	.336	2	468.303	2	0	1	1.095	2	0	1	
46		min	68.978	6	-105.309	3	389.898	1	-.061	3	.982	1	-.203	3	
47	4	max	81.708	2	.336	2	-582.726	6	0	1	.971	2	0	1	
48		min	68.978	6	-105.421	3	-708.604	2	-.061	3	.881	1	-.111	3	
49	5	max	81.708	2	.335	2	-1558.117	6	0	1	-.17	6	0	1	
50		min	68.978	6	-105.477	3	-1684.103	2	-.061	3	-.194	2	-.019	3	
51	M6	1	max	80.767	6	0	640.177	6	0	1	0	1	0	1	
52		min	-26.744	2	-183.146	3	566.833	1	0	1	0	1	-.538	3	
53	2	max	31.023	6	0	1	-61.688	1	0	1	.091	6	0	1	
54		min	-81.708	2	-157.672	3	-91.659	6	-.041	5	.081	1	-.395	3	
55	3	max	31.023	6	0	1	-61.688	1	0	1	.029	2	0	1	
56		min	-81.708	2	-157.672	3	-91.659	6	-.041	5	.011	6	-.257	3	
57	4	max	31.023	6	0	1	-61.688	1	0	1	-.027	1	0	1	
58		min	-81.708	2	-157.672	3	-91.659	6	-.041	5	-.069	6	-.119	3	
59	5	max	31.023	6	0	1	-61.688	1	0	1	-.081	1	.019	3	
60		min	-81.708	2	-157.672	3	-91.659	6	-.041	5	-.15	6	0	4	
61	M7	1	max	1682.926	2	21.231	5	81.69	2	.019	3	-.071	6	.033	5
62		min	1557.213	6	-63.759	3	68.976	6	0	1	-.092	2	-.01	4	
63	2	max	1682.926	2	21.231	5	81.69	2	.019	3	-.011	6	.059	3	
64		min	1557.213	6	-20.009	3	68.976	6	0	1	-.021	2	-.014	4	
65	3	max	1682.926	2	23.741	3	81.69	2	.019	3	.051	2	.057	3	

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	
66		min	1557.213	6	-.039	2	68.976	6	0	1	.046	1	-.018	4	
67	4	max	1682.926	2	67.491	3	81.69	2	.019	3	.122	2	.017	3	
68		min	1557.213	6	-.039	2	68.976	6	0	1	.11	6	-.023	5	
69	5	max	1682.926	2	111.241	3	81.69	2	.019	3	.194	2	0	1	
70		min	1557.213	6	-.039	2	68.976	6	0	1	.17	6	-.061	3	
71	M8	1	max	4732.041	2	25.202	3	54.965	2	0	2	-.109	6	.061	3
72		min	4353.423	1	-.471	2	49.742	6	-.004	3	-.12	2	0	2	
73	2	max	4732.041	2	25.202	3	54.965	2	0	2	-.065	6	.039	3	
74		min	4353.423	1	-.471	2	49.742	6	-.004	3	-.072	2	0	2	
75	3	max	4732.041	2	25.202	3	54.965	2	0	2	-.022	1	.017	3	
76		min	4353.423	1	-.471	2	49.742	6	-.004	3	-.023	2	0	1	
77	4	max	4732.041	2	25.202	3	54.965	2	0	2	.025	2	0	2	
78		min	4353.423	1	-.471	2	49.742	6	-.004	3	.022	6	-.014	5	
79	5	max	4732.041	2	25.202	3	54.965	2	0	2	.073	2	.001	2	
80		min	4353.423	1	-.471	2	49.742	6	-.004	3	.065	6	-.032	5	
81	M9	1	max	4047.048	2	0	0	1	.003	4	-.007	6	.009	5	
82		min	3639.526	6	-8.45	4	0	6	0	1	-.009	2	-.013	4	
83	2	max	4047.048	2	0	1	0	1	.003	4	-.007	6	.009	5	
84		min	3639.526	6	-8.45	4	0	6	0	1	-.009	2	-.005	4	
85	3	max	4047.048	2	0	1	0	1	.003	4	-.007	6	.009	5	
86		min	3639.526	6	-8.45	4	0	6	0	1	-.009	2	0	3	
87	4	max	4047.048	2	0	1	0	1	.003	4	-.007	6	.01	4	
88		min	3639.526	6	-8.45	4	0	6	0	1	-.009	2	0	3	
89	5	max	4047.048	2	0	1	0	1	.003	4	-.007	6	.017	4	
90		min	3639.526	6	-8.45	4	0	6	0	1	-.009	2	0	3	
91	M10	1	max	4732.041	2	0	1	-49.743	6	.004	3	.073	2	0	1
92		min	4353.423	1	-25.202	3	-54.965	2	0	1	.065	6	-.032	5	
93	2	max	4732.041	2	0	1	-49.743	6	.004	3	.025	2	0	1	
94		min	4353.423	1	-25.202	3	-54.965	2	0	1	.022	6	-.014	5	
95	3	max	4732.041	2	0	1	-49.743	6	.004	3	-.022	1	.017	3	
96		min	4353.423	1	-25.202	3	-54.965	2	0	1	-.023	2	0	2	
97	4	max	4732.041	2	0	1	-49.743	6	.004	3	-.065	6	.039	3	
98		min	4353.423	1	-25.202	3	-54.965	2	0	1	-.072	2	0	1	
99	5	max	4732.041	2	0	1	-49.743	6	.004	3	-.109	6	.061	3	
100		min	4353.423	1	-25.202	3	-54.965	2	0	1	-.12	2	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	Eqn		
1	M1	TU2X2X3	.981	23.188	3	.443	0	z	2	19589.699	22814.371	1.257	1.257	1.6	H1-1b
2	M2	TU2X2X2	.715	3.938	3	.146	0	z	6	14006.53	16113.772	.93	.93	1...	H1-1b
3	M3	TU2x1x2	.734	0	3	.127	0	z	3	7068.776	11892.216	.368	.615	1...	H1-1a
4	M4	TU2x1x2	.476	21	5	.060	21	z	6	7068.776	11892.216	.368	.615	1...	H1-1a
5	M5	TU2X2X3	.981	23.188	3	.443	0	z	2	19589.699	22814.371	1.257	1.257	1.6	H1-1b
6	M6	TU2X2X2	.715	3.938	3	.146	0	z	6	14006.53	16113.772	.93	.93	1...	H1-1b
7	M7	TU2x1x2	.734	42	3	.127	0	z	3	7068.776	11892.216	.368	.615	1...	H1-1a
8	M8	TU2x1x2	.969	0	3	.048	0	z	3	7068.776	11892.216	.368	.615	2...	H1-1a
9	M9	TU2x1x2	.596	42	2	.013	0	z	4	7068.776	11892.216	.368	.615	2...	H1-1a
10	M10	TU2x1x2	.969	42	3	.048	0	z	3	7068.776	11892.216	.368	.615	2...	H1-1a

*** End of Calculations ***