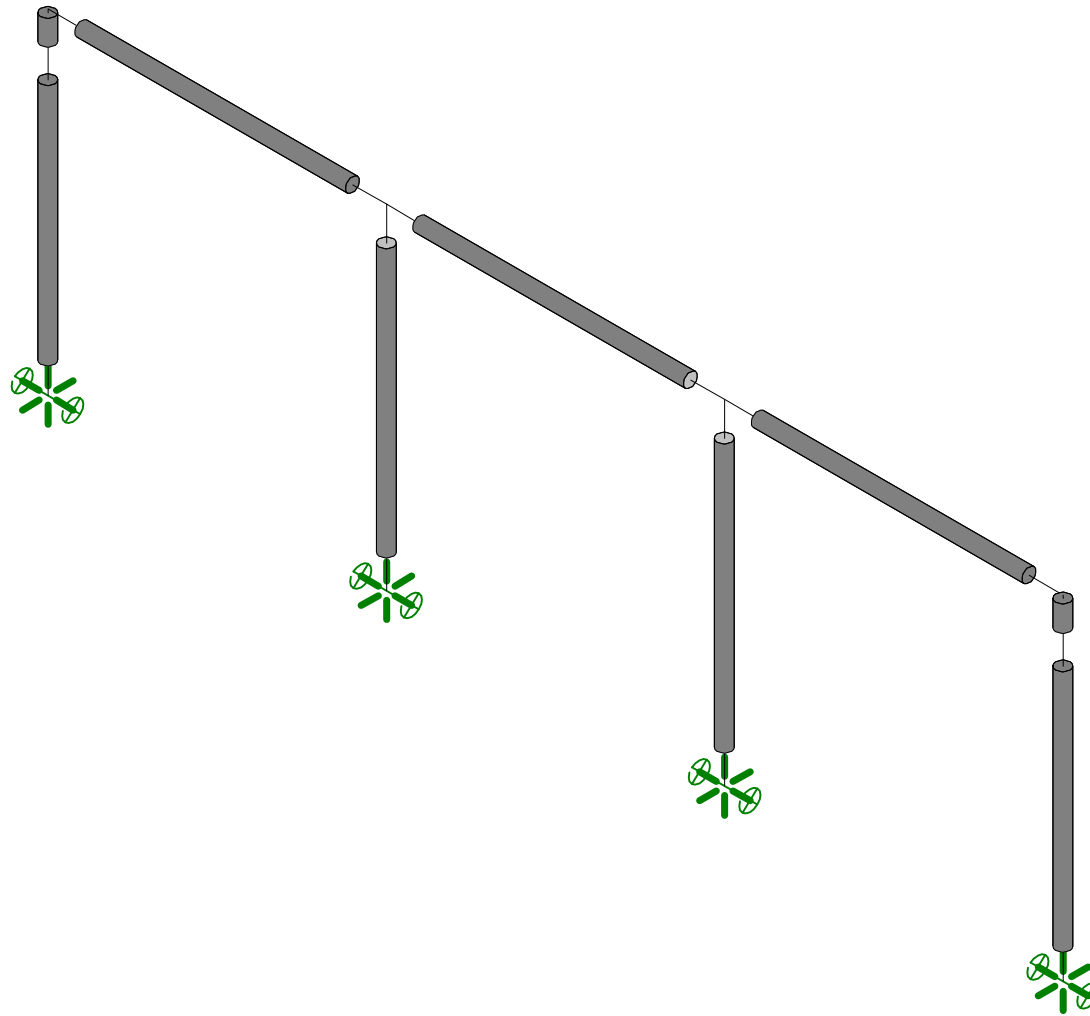
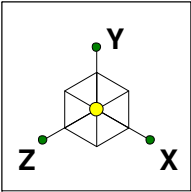


D28—1-1/4" PIPE x 42-1/2" HIGH RAIL WITHOUT BOTTOM RAIL

Building Code:	2006 International Building Code 2007 California Building Code AISC Steel Construction Manual, 13th ed—ASD
Material:	Carbon Steel, A53, Grade B, Fy = 35 ksi or Carbon Steel, A501, Grade B, Fy = 36 ksi Carbon Steel, A572, Grade 55, Fy = 55 ksi (Round Bar) Stainless Steel, LDX 2101 (UNS S32101), Fy = 60 ksi
Height:	42.5"
Anchor Post:	Carbon Steel: 1.66"φ Round Bar (A572, Grade 55) Stainless Steel: 1-1/4" XXS (1.66" OD x 0.382") Pipe (LDX 2101)
Intermediate Posts:	Carbon Steel: 1-1/4" SCHD 80 (1.66" OD x 0.191") Pipe Stainless Steel: 1-1/4" SCHD 40 (1.66" OD x 0.140") Pipe (LDX 2101)
Top Rail Adjacent to Anchor Post:	Carbon Steel: 1.66"φ Round Bar (A572, Grade 55) Stainless Steel: 1-1/4" XXS (1.66" OD x 0.382") Pipe (LDX 2101)
Top Rail Elsewhere:	Carbon Steel: 1-1/4" SCHD 40 (1.66" OD x 0.140") Pipe Stainless Steel: 1-1/4" SCHD 40 (1.66" OD x 0.140") Pipe (LDX 2101)
Number of Cables:	12
Cable Spacing:	3.14"
Cable Prestress:	400 lbs



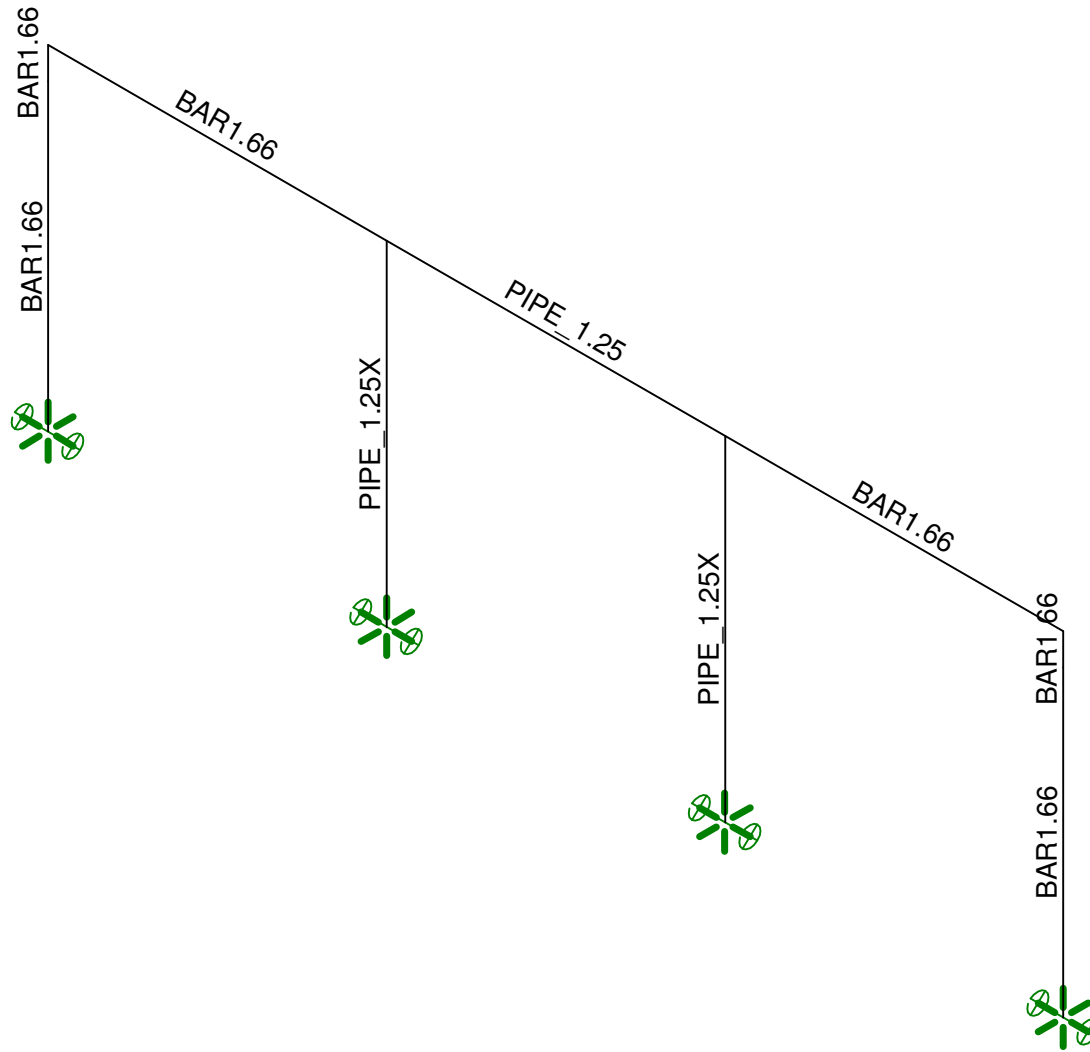
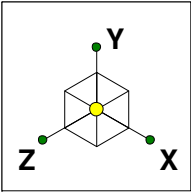
Disclaimer: Analysis and Structural Certification DOES NOT include base plates or anchorage to supporting structure. Where required by the Local Building Official, these shall be reviewed and designed by the project Structural Engineer of Record.



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D28 - 1.25" PIPE x 42.5" HIGH RAIL W/O BTM RAIL

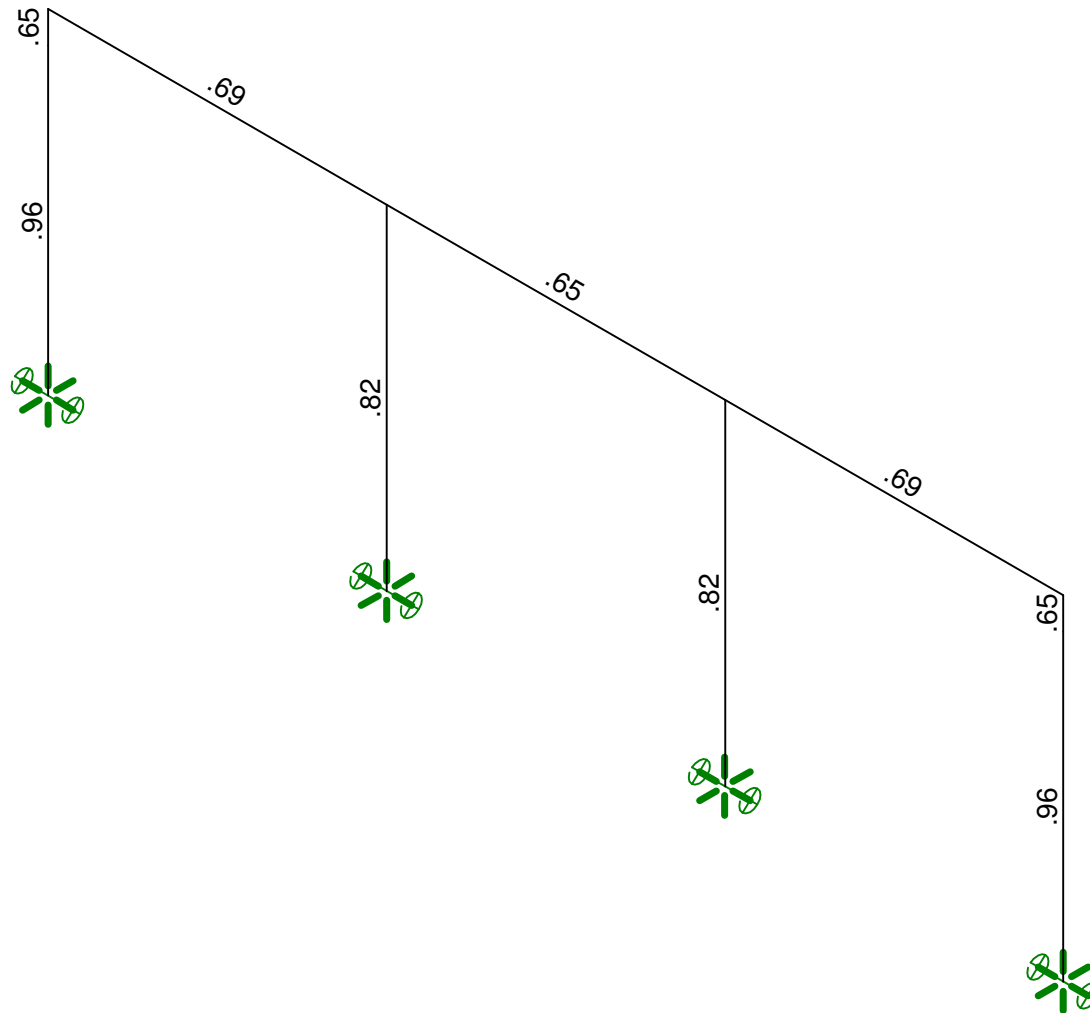
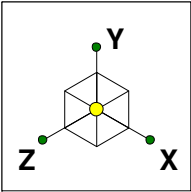
Dec 9, 2008 at 4:22 PM
D28.R3D



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D28 - 1.25" PIPE x 42.5" HIGH RAIL W/O BTM RAIL

Dec 9, 2008 at 4:22 PM
D28.R3D

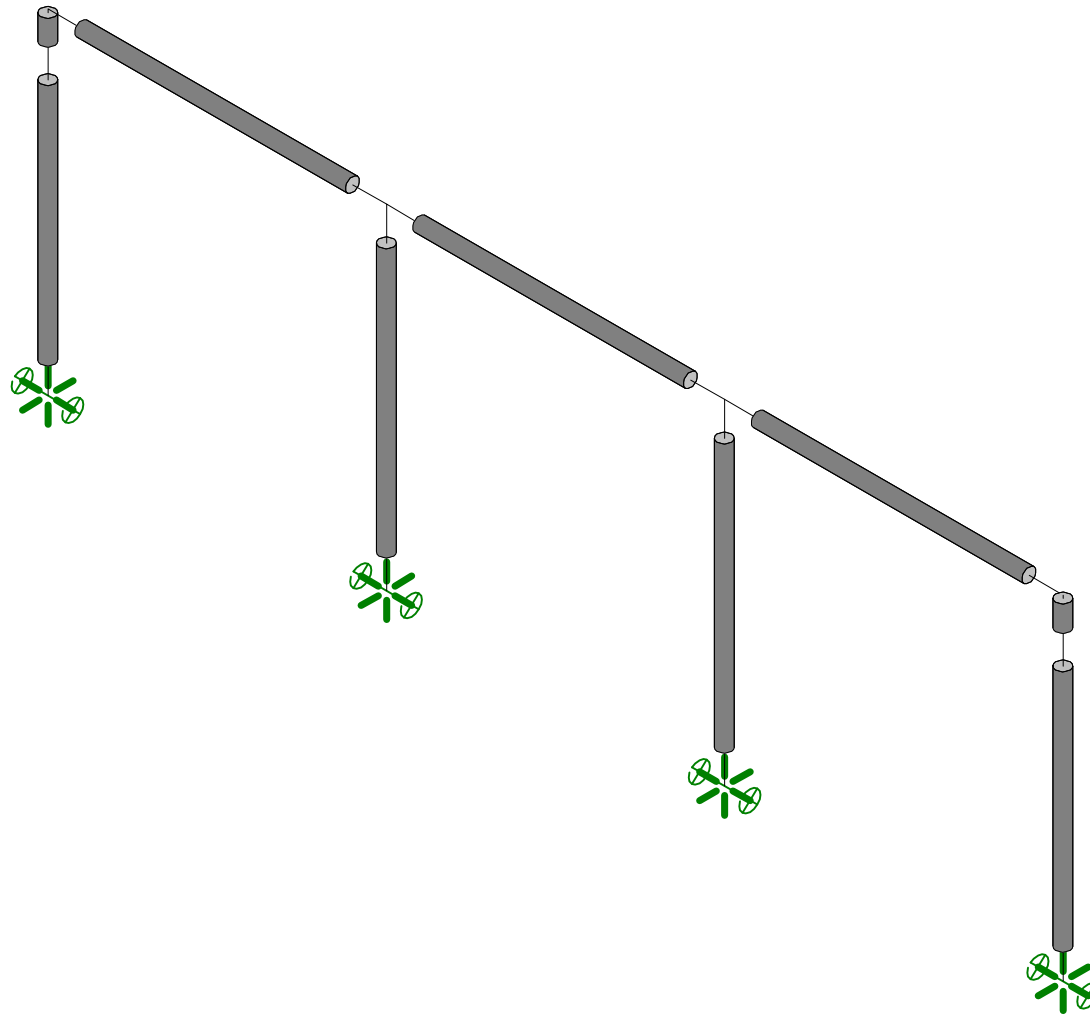
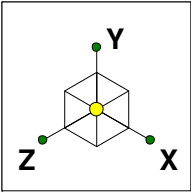


Member Code Checks Displayed
Solution: Envelope

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D28 - 1.25" PIPE x 42.5" HIGH RAIL W/O BTM RAIL

Dec 9, 2008 at 4:21 PM
D28.R3D

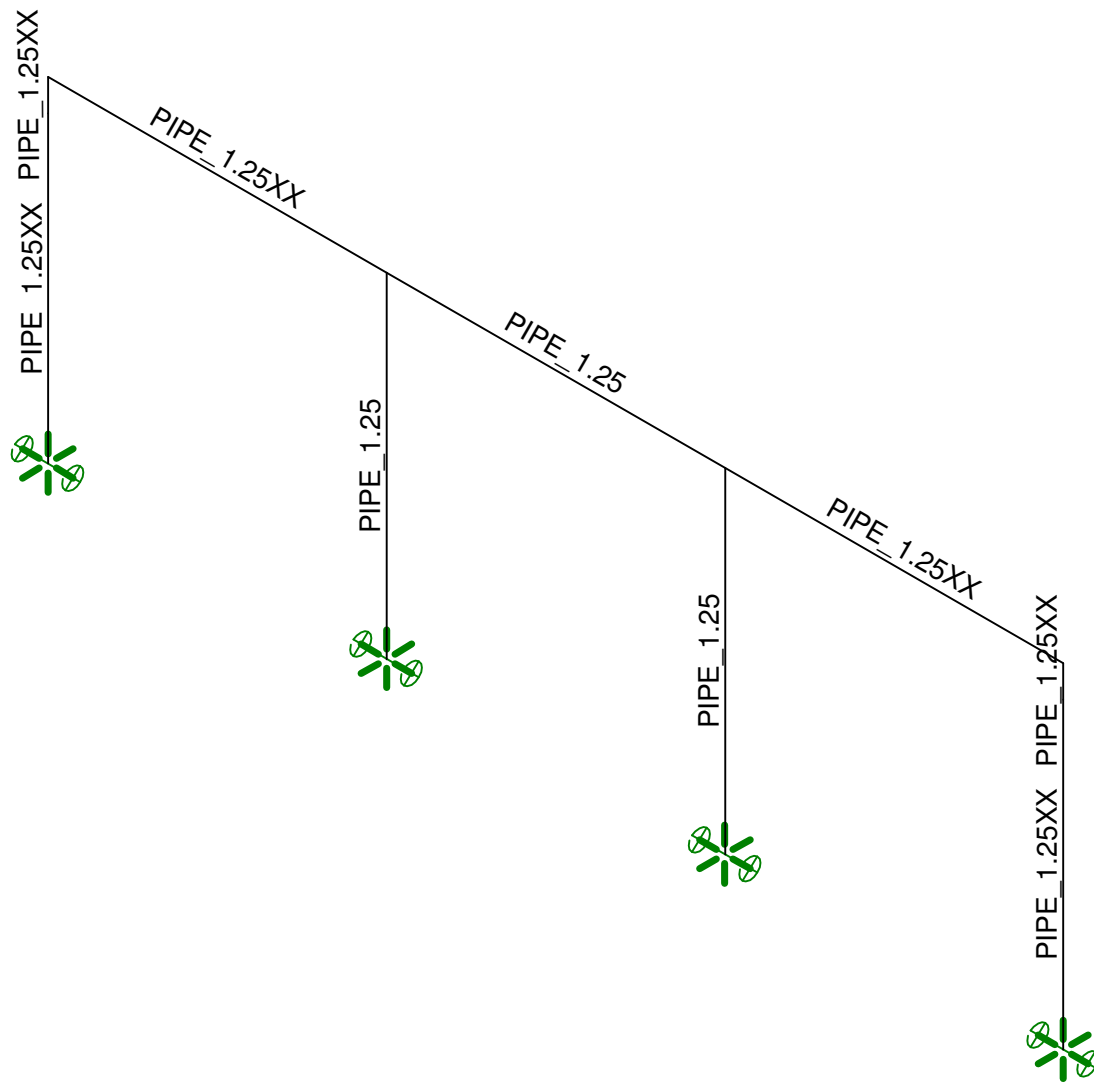
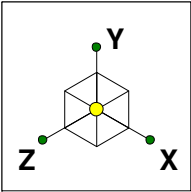


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D28 (SS) - 1.25" PIPE x 42.5" HIGH RAIL W/O BTM RAIL

Dec 9, 2008 at 4:26 PM

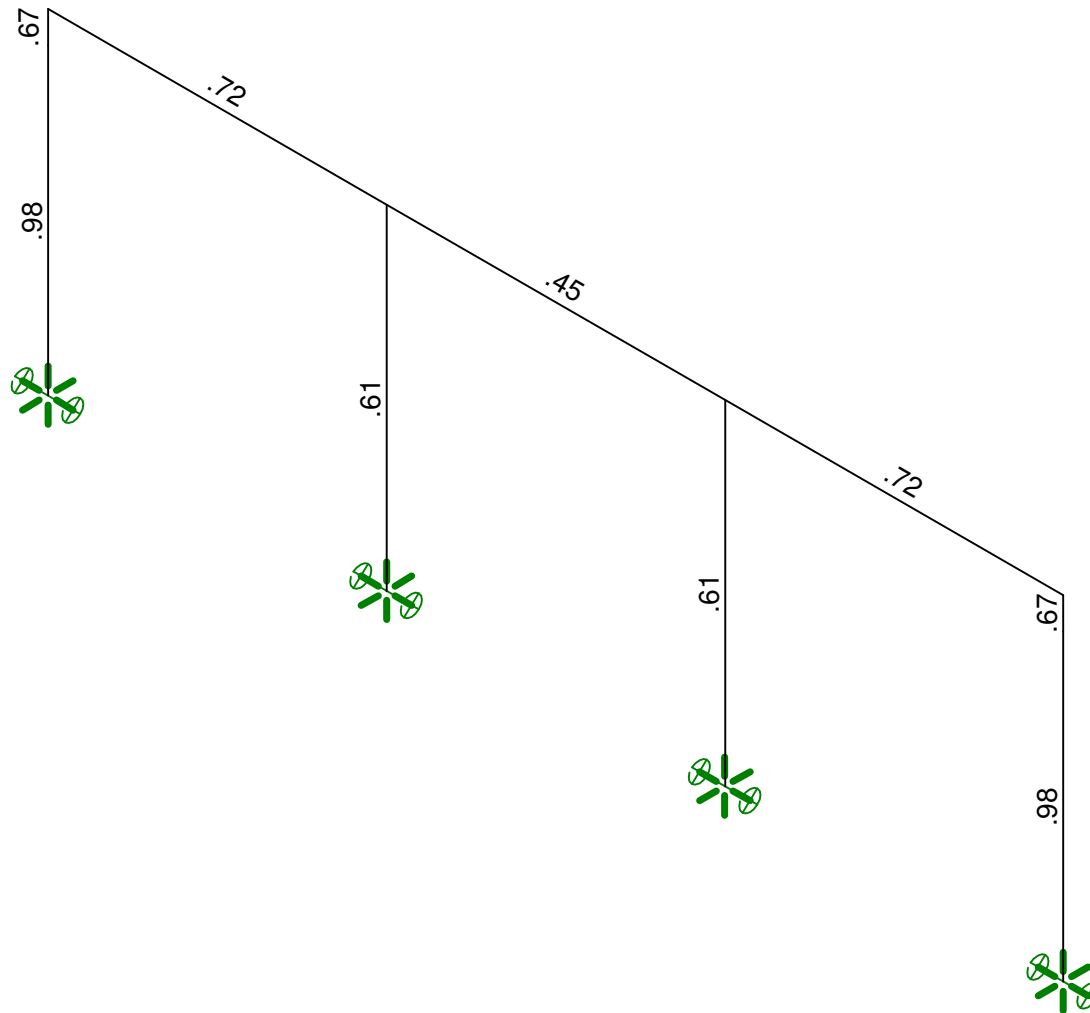
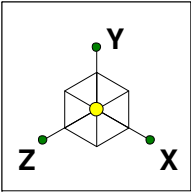
D28ss.R3D



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D28 (SS) - 1.25" PIPE x 42.5" HIGH RAIL W/O BTM RAIL

Dec 9, 2008 at 4:27 PM
D28ss.R3D



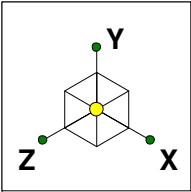
Member Code Checks Displayed
Solution: Envelope
Reaction units are lb and k-ft

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D28 (SS) - 1.25" PIPE x 42.5" HIGH RAIL W/O BTM RAIL

Dec 9, 2008 at 4:27 PM

D28ss.R3D



400lb
400lb
400lb
400lb
400lb
400lb
400lb
400lb
400lb
400lb
400lb
400lb



425.3

-2110.9

-425.3
54.5

-425.3

-54.5

2110.9

425.3

-400lb
-400lb
-400lb
-400lb
-400lb
-400lb
-400lb
-400lb
-400lb
-400lb
-400lb
-400lb



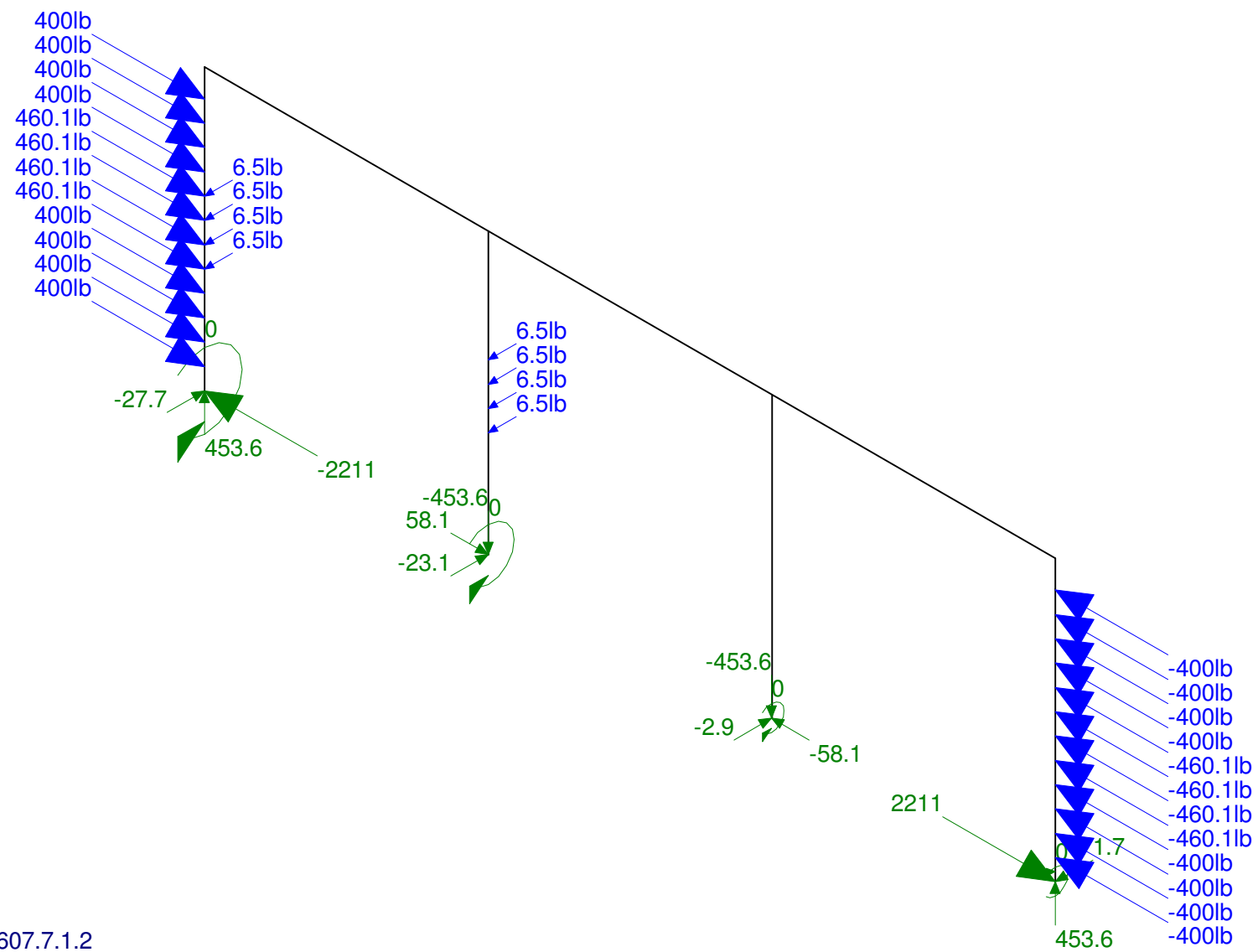
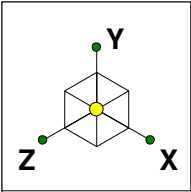
Loads: LC 1, Cable Prestress
Results for LC 1, Cable Prestress
Reaction units are lb and k-ft

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D28 - 1.25" PIPE x 42.5" HIGH RAIL W/O BTM RAIL

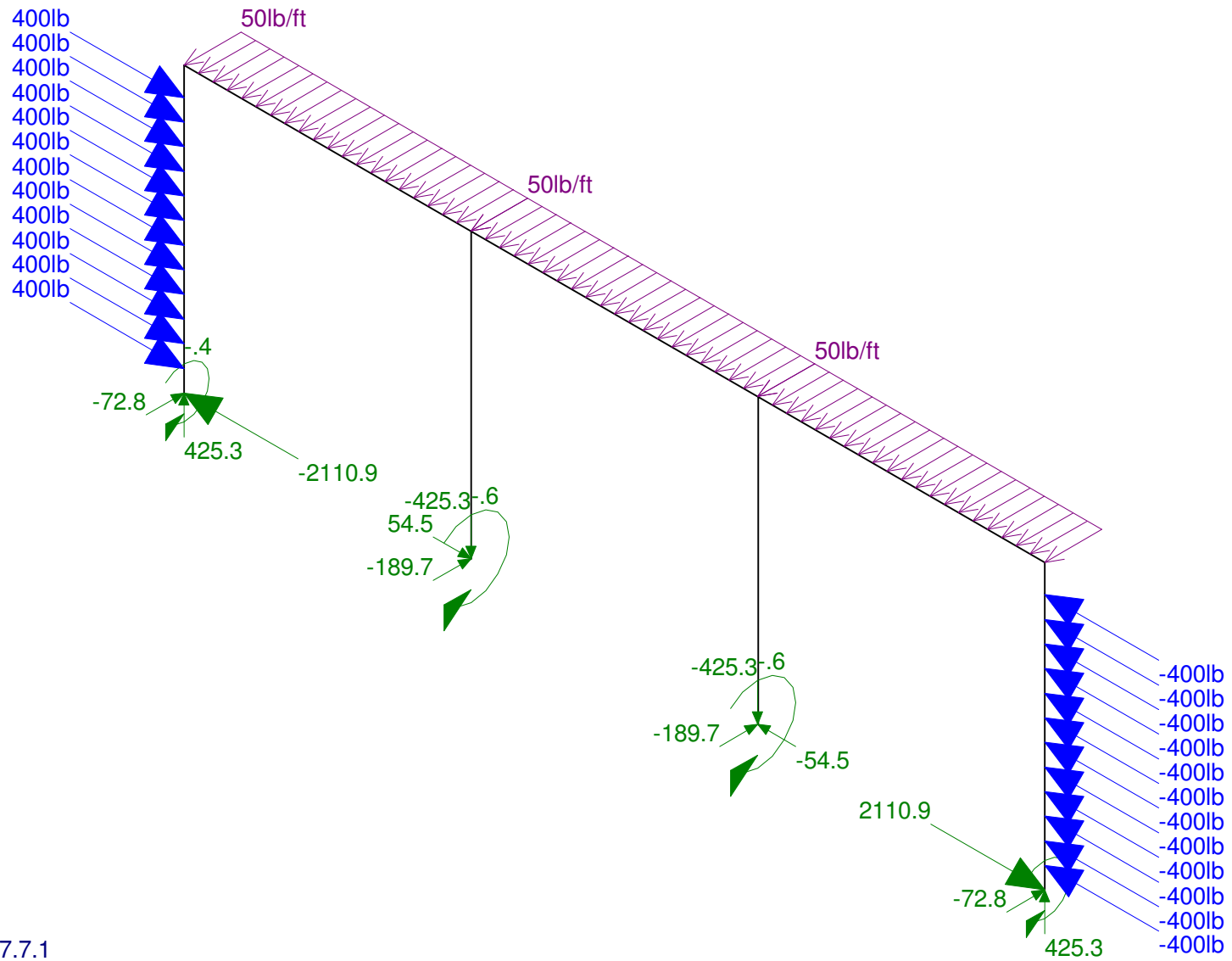
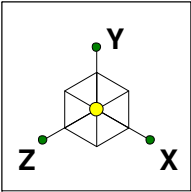
Dec 9, 2008 at 4:22 PM

D28.R3D



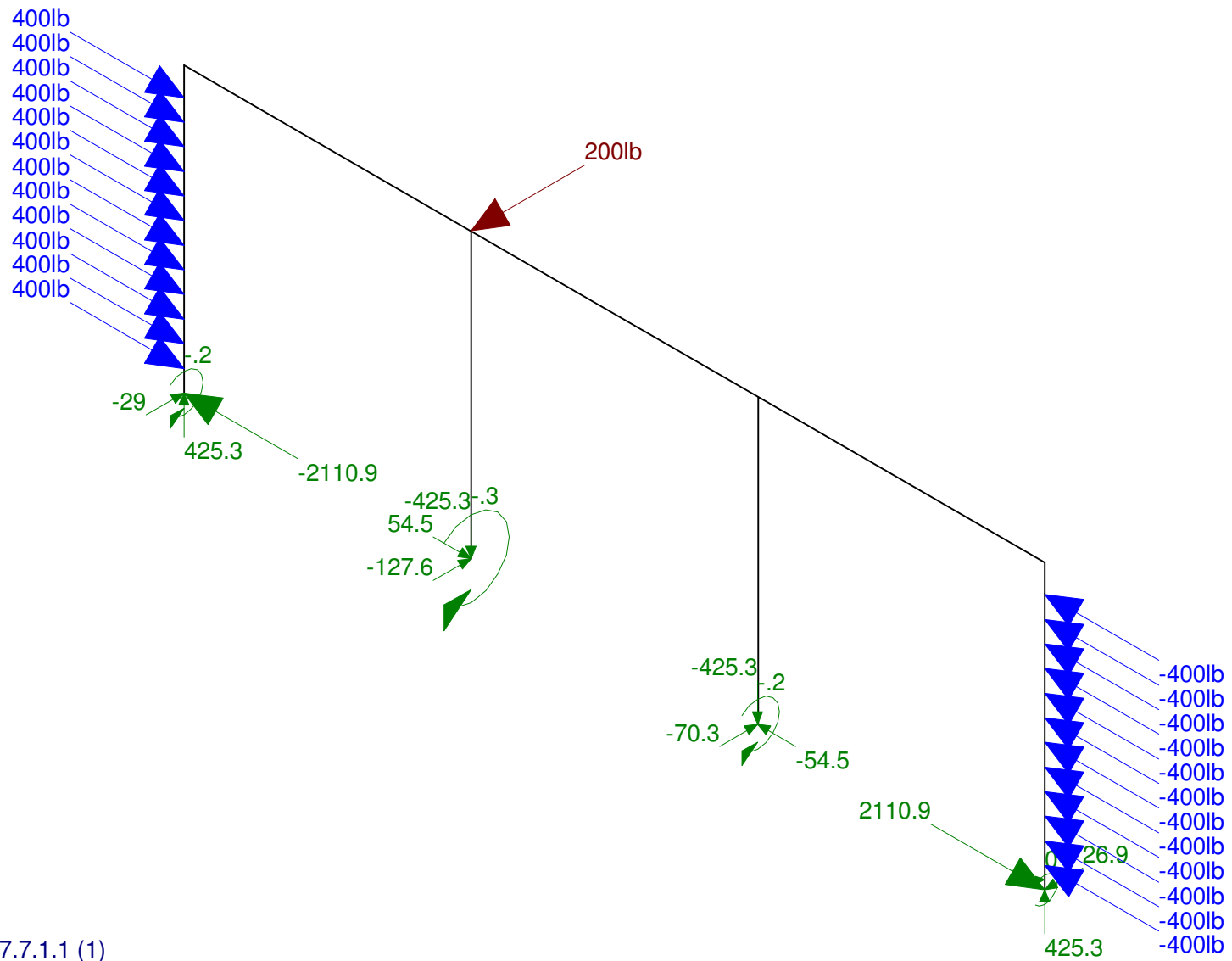
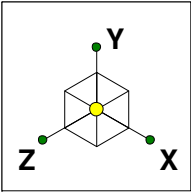
Loads: LC 2, 1607.7.1.2
 Results for LC 2, 1607.7.1.2
 Reaction units are lb and k-ft

Ferrari Shields & Associates	D28 - 1.25" PIPE x 42.5" HIGH RAIL W/O BTM RAIL	
Dan O'Connor		Dec 9, 2008 at 4:23 PM
08196		D28.R3D



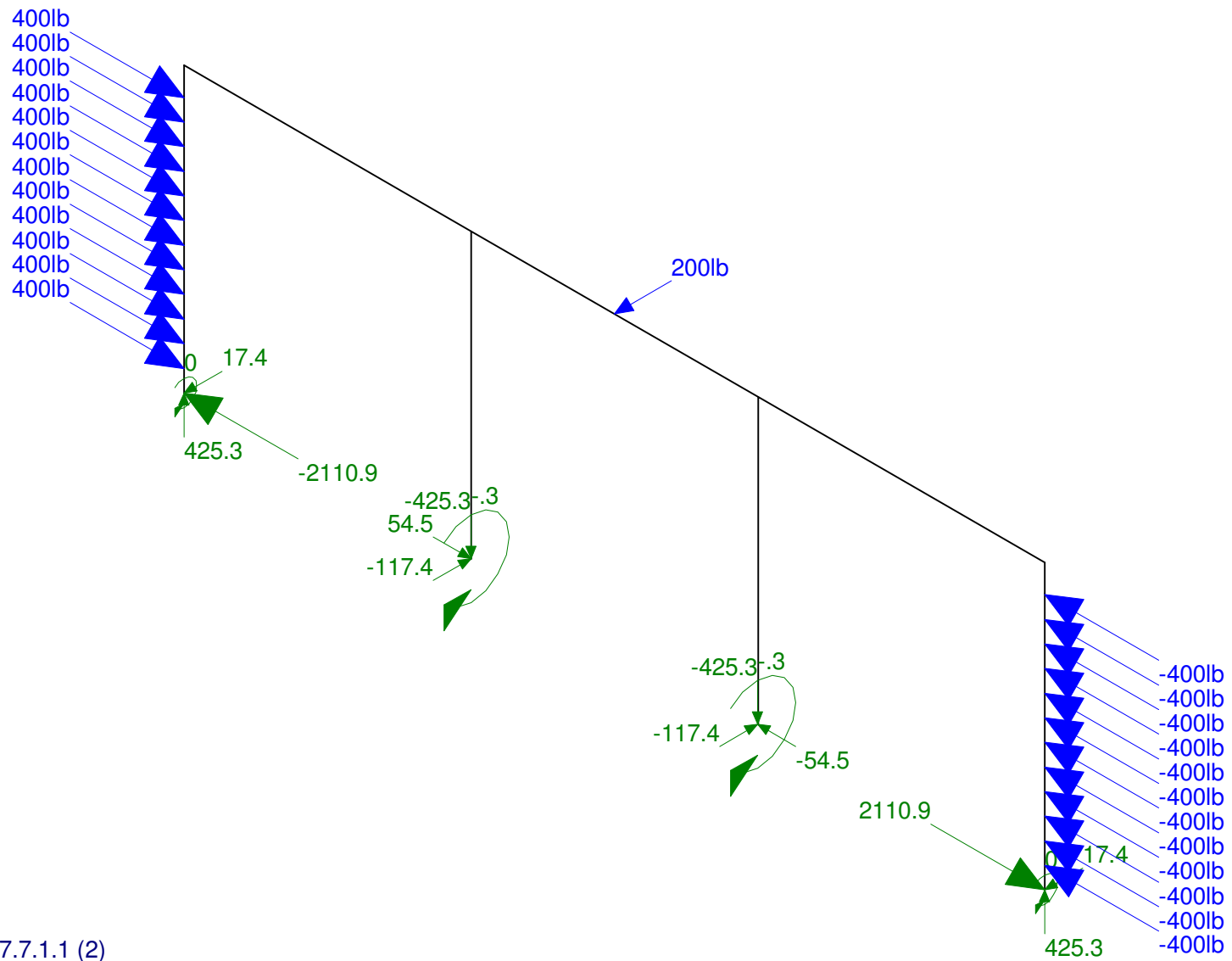
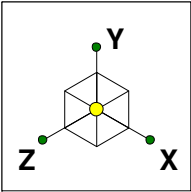
Loads: LC 3, 1607.7.1
 Results for LC 3, 1607.7.1
 Reaction units are lb and k-ft

Ferrari Shields & Associates	D28 - 1.25" PIPE x 42.5" HIGH RAIL W/O BTM RAIL	
Dan O'Connor		Dec 9, 2008 at 4:23 PM
08196		D28.R3D



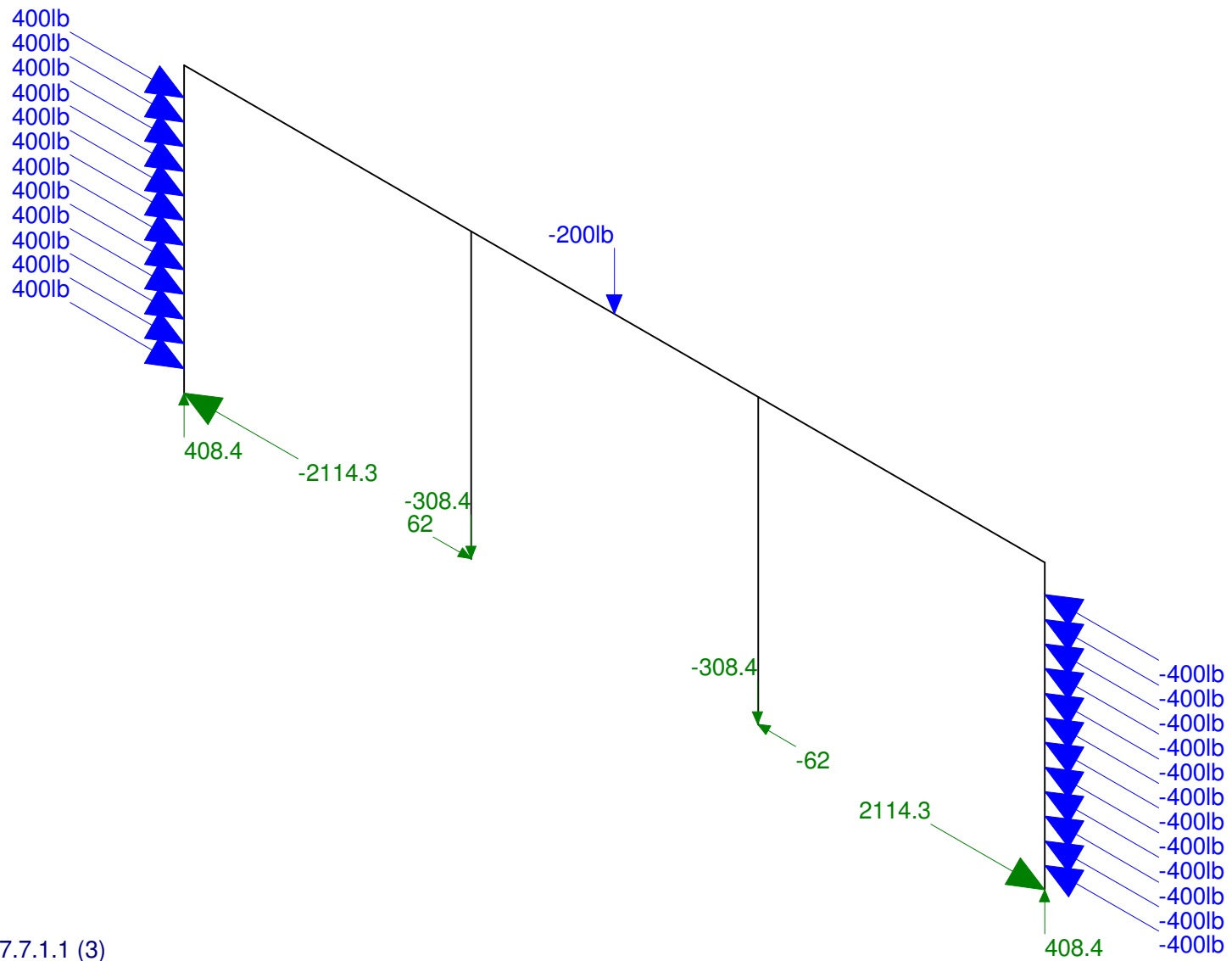
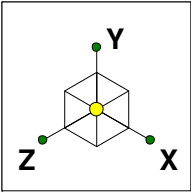
Loads: LC 4, 1607.7.1.1 (1)
 Results for LC 4, 1607.7.1.1 (1)
 Reaction units are lb and k-ft

Ferrari Shields & Associates	D28 - 1.25" PIPE x 42.5" HIGH RAIL W/O BTM RAIL	
Dan O'Connor		Dec 9, 2008 at 4:23 PM
08196		D28.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	D28 - 1.25" PIPE x 42.5" HIGH RAIL W/O BTM RAIL	
Dan O'Connor		Dec 9, 2008 at 4:23 PM
08196		D28.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	D28 - 1.25" PIPE x 42.5" HIGH RAIL W/O BTM RAIL	
Dan O'Connor		Dec 9, 2008 at 4:24 PM
08196		D28.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	A53 Gr B/A501	29000	11154	.3	.65	.49	35
2	A572Gr55	29000	11154	.3	.65	.49	55
3	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	PIPE 1.25	Beam	Pipe	A53 Gr B/A501	Typical	.62	.184	.184	.368
2	ERAIL	BAR1.66	Beam	Pipe	A572Gr55	Typical	2.164	.373	.373	.745
3	EPOST	BAR1.66	Column	Pipe	A572Gr55	Typical	2.164	.373	.373	.745
4	IPOST	PIPE 1.25X	Column	Pipe	A53 Gr B/A501	Typical	.83	.231	.231	.462

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			

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	N9			EPOST	Column	Pipe	A572Gr55	Typical
2	M2	N3	N4			IPOST	Column	Pipe	A53 Gr B/...	Typical
3	M3	N2	N4			ERAIL	Beam	Pipe	A572Gr55	Typical
4	M4	N4	N8			RAIL	Beam	Pipe	A53 Gr B/...	Typical
5	M5	N5	N10			EPOST	Column	Pipe	A572Gr55	Typical
6	M6	N7	N8			IPOST	Column	Pipe	A53 Gr B/...	Typical
7	M7	N8	N6			ERAIL	Beam	Pipe	A572Gr55	Typical
8	M8	N9	N2			ERAIL	Beam	Pipe	A572Gr55	Typical
9	M9	N10	N6			ERAIL	Beam	Pipe	A572Gr55	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	-2110.927	4	453.551	2	17.4	5	0	1	0	1	0	1
2		min	-2210.997	2	408.362	6	-72.849	3	-.368	3	0	1	0	1
3	N3	max	62.036	6	-308.362	6	0	1	0	1	0	1	0	1
4		min	54.454	1	-453.551	2	-189.651	3	-.556	3	0	1	0	1
5	N5	max	2210.997	2	453.551	2	26.916	4	.019	4	0	1	0	1
6		min	2110.927	4	408.362	6	-72.849	3	-.368	3	0	1	0	1
7	N7	max	-54.454	1	-308.362	6	0	1	0	1	0	1	0	1
8		min	-62.036	6	-453.551	2	-189.651	3	-.556	3	0	1	0	1
9	Totals:	max	0	6	200	6	0	1						
10		min	0	1	0	1	-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	453.551	2	2212.583	2	16.674	5	0	1	.368	3	0	1
2			min	408.362	6	2112.32	1	-76.959	3	0	1	0	1	0	1
3		2	max	453.551	2	1012.583	2	16.674	5	0	1	.308	3	-1.34	1
4			min	408.362	6	912.32	1	-76.959	3	0	1	0	1	-1.418	2
5		3	max	453.551	2	-284.328	6	16.674	5	0	1	.247	3	-1.733	1
6			min	408.362	6	-307.617	2	-76.959	3	0	1	0	1	-1.873	2
7		4	max	453.551	2	-1484.328	6	16.674	5	0	1	.187	3	-1.179	1
8			min	408.362	6	-1627.817	2	-76.959	3	0	1	0	1	-1.256	2
9		5	max	453.551	2	-2684.328	6	16.674	5	0	1	.127	3	.354	2
10			min	408.362	6	-2827.817	2	-76.959	3	0	1	-.001	2	.31	6
11	M2	1	max	-308.362	6	-54.454	1	0	1	0	1	.556	3	0	1
12			min	-453.551	2	-62.036	6	-189.651	3	0	1	0	1	0	1
13		2	max	-308.362	6	-54.454	1	0	1	0	1	.392	3	.054	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	
14		min	-453.551	2	-62.036	6	-189.651	3	0	1	0	1	.047	1	
15	3	max	-308.362	6	-54.454	1	0	1	0	1	.228	3	.107	6	
16		min	-453.551	2	-62.036	6	-189.651	3	0	1	-.002	2	.094	1	
17	4	max	-308.362	6	-54.454	1	2.939	2	0	1	.063	3	.161	6	
18		min	-453.551	2	-62.036	6	-189.651	3	0	1	-.002	2	.141	1	
19	5	max	-308.362	6	-54.454	1	2.939	2	0	1	0	2	.215	6	
20		min	-453.551	2	-62.036	6	-189.651	3	0	1	-.101	3	.189	1	
21	M3	1	max	2829.403	2	453.405	2	0	.002	2	0	1	1.278	2	
22		min	2685.674	6	408.26	6	-98.732	3	-.101	3	0	1	1.187	6	
23	2	max	2829.403	2	453.405	2	0	1	.002	2	0	1	.881	2	
24		min	2685.674	6	408.26	6	-54.982	3	-.101	3	-.067	3	.827	1	
25	3	max	2829.403	2	453.405	2	0	1	.002	2	0	1	.485	2	
26		min	2685.674	6	408.26	6	-47.354	4	-.101	3	-.096	3	.455	1	
27	4	max	2829.403	2	453.405	2	32.518	3	.002	2	0	1	.115	6	
28		min	2685.674	6	408.26	6	-47.354	4	-.101	3	-.124	4	.083	1	
29	5	max	2829.403	2	453.405	2	76.268	3	.002	2	0	1	-.242	6	
30		min	2685.674	6	408.26	6	-47.354	4	-.101	3	-.166	4	-.309	2	
31	M4	1	max	2887.482	2	100	6	56.725	.03	4	0	1	-.027	6	
32		min	2743.525	1	0	1	-100	5	0	1	-.166	4	-.108	2	
33	2	max	2887.482	2	100	6	56.725	4	.03	4	0	1	-.101	1	
34		min	2743.525	1	0	1	-100	5	0	1	-.116	4	-.115	6	
35	3	max	2887.482	2	0	1	100	5	.03	4	0	1	-.101	1	
36		min	2743.525	1	-100	6	0	1	0	1	-.196	5	-.202	6	
37	4	max	2887.482	2	0	1	100	5	.03	4	0	2	-.101	1	
38		min	2743.525	1	-100	6	0	1	0	1	-.109	5	-.115	6	
39	5	max	2887.482	2	0	1	100	5	.03	4	.033	4	-.027	6	
40		min	2743.525	1	-100	6	0	1	0	1	-.039	3	-.108	2	
41	M5	1	max	453.551	2	-2112.32	1	26.782	4	0	1	.368	3	0	1
42		min	408.362	6	-2212.583	2	-76.959	3	0	1	-.019	4	0	1	
43	2	max	453.551	2	-912.32	1	26.782	4	0	1	.308	3	1.418	2	
44		min	408.362	6	-1012.583	2	-76.959	3	0	1	-.001	2	1.34	1	
45	3	max	453.551	2	307.617	2	26.782	4	0	1	.247	3	1.873	2	
46		min	408.362	6	284.328	6	-76.959	3	0	1	0	1	1.733	1	
47	4	max	453.551	2	1627.817	2	26.782	4	0	1	.187	3	1.256	2	
48		min	408.362	6	1484.328	6	-76.959	3	0	1	0	1	1.179	1	
49	5	max	453.551	2	2827.817	2	26.782	4	0	1	.127	3	-.31	6	
50		min	408.362	6	2684.328	6	-76.959	3	0	1	0	1	-.354	2	
51	M6	1	max	-308.362	6	62.036	6	0	0	1	.556	3	0	1	
52		min	-453.551	2	54.454	1	-189.651	3	0	1	0	1	0	1	
53	2	max	-308.362	6	62.036	6	0	1	0	1	.392	3	-.047	1	
54		min	-453.551	2	54.454	1	-189.651	3	0	1	0	1	-.054	6	
55	3	max	-308.362	6	62.036	6	0	1	0	1	.228	3	-.094	1	
56		min	-453.551	2	54.454	1	-189.651	3	0	1	0	1	-.107	6	
57	4	max	-308.362	6	62.036	6	0	1	0	1	.063	3	-.141	1	
58		min	-453.551	2	54.454	1	-189.651	3	0	1	0	1	-.161	6	
59	5	max	-308.362	6	62.036	6	0	1	0	1	0	1	-.189	1	
60		min	-453.551	2	54.454	1	-189.651	3	0	1	-.101	3	-.215	6	
61	M7	1	max	2829.403	2	-408.26	6	6.036	.101	3	.033	4	-.242	6	
62		min	2685.674	6	-453.405	2	-76.268	3	0	1	-.039	3	-.309	2	
63	2	max	2829.403	2	-408.26	6	6.036	5	.101	3	.025	4	.115	6	
64		min	2685.674	6	-453.405	2	-32.518	3	0	1	-.087	3	.083	1	
65	3	max	2829.403	2	-408.26	6	11.232	3	.101	3	.016	4	.485	2	
66		min	2685.674	6	-453.405	2	-9.371	4	0	1	-.096	3	.455	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
67	4	max	2829.403	2	-408.26	6	54.982	3	.101	3	.008	4	.881	2
68		min	2685.674	6	-453.405	2	-9.371	4	0	1	-.067	3	.827	1
69	5	max	2829.403	2	-408.26	6	98.732	3	.101	3	0	1	1.278	2
70		min	2685.674	6	-453.405	2	-9.371	4	0	1	0	1	1.187	6
71	M8	1	max	453.551	2	-2697.83	6	15.574	5	0	.127	3	.354	2
72		min	408.362	6	-2843.738	2	-80.082	3	0	1	-.001	2	.31	6
73	2	max	453.551	2	-2697.83	6	15.574	5	0	1	.12	3	.585	2
74		min	408.362	6	-2843.738	2	-80.082	3	0	1	-.001	2	.529	6
75	3	max	453.551	2	-2697.83	6	15.574	5	0	1	.114	3	.816	2
76		min	408.362	6	-2843.738	2	-80.082	3	0	1	-.002	2	.748	6
77	4	max	453.551	2	-2697.83	6	15.574	5	0	1	.107	3	1.047	2
78		min	408.362	6	-2843.738	2	-80.082	3	0	1	-.002	2	.968	6
79	5	max	453.551	2	-2697.83	6	15.574	5	0	1	.101	3	1.278	2
80		min	408.362	6	-2843.738	2	-80.082	3	0	1	-.002	2	1.187	6
81	M9	1	max	453.551	2	2843.738	2	26.148	4	0	.127	3	-.31	6
82		min	408.362	6	2697.83	6	-80.082	3	0	1	0	1	-.354	2
83	2	max	453.551	2	2843.738	2	26.148	4	0	1	.12	3	-.529	6
84		min	408.362	6	2697.83	6	-80.082	3	0	1	0	1	-.585	2
85	3	max	453.551	2	2843.738	2	26.148	4	0	1	.114	3	-.748	6
86		min	408.362	6	2697.83	6	-80.082	3	0	1	0	1	-.816	2
87	4	max	453.551	2	2843.738	2	26.148	4	0	1	.107	3	-.968	6
88		min	408.362	6	2697.83	6	-80.082	3	0	1	0	1	-1.047	2
89	5	max	453.551	2	2843.738	2	26.148	4	0	1	.101	3	-1.187	6
90		min	408.362	6	2697.83	6	-80.082	3	0	1	0	1	-1.278	2

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	BAR1.66	.956	18.825	2	.066	37.65	2	36766.898	71277.47	1.972	1.972	1...	H1-1b
2	M2	PIPE 1.25X	.822	0	3	.038	0	3	12663.295	17395.21	.686	.686	1...	H1-1b
3	M3	BAR1.66	.693	0	2	.061	0	3	31274.188	71277.47	1.972	1.972	1...	H1-1b
4	M4	PIPE 1.25	.654	21	5	.078	0	4	9585.646	12994.012	.533	.533	1	H1-1a
5	M5	BAR1.66	.956	18.825	2	.066	37.65	2	36766.898	71277.47	1.972	1.972	1...	H1-1b
6	M6	PIPE 1.25X	.822	0	3	.038	0	3	12663.295	17395.21	.686	.686	1...	H1-1b
7	M7	BAR1.66	.693	42	2	.061	42	3	31274.188	71277.47	1.972	1.972	1...	H1-1b
8	M8	BAR1.66	.651	3.9	2	.066	0	2	70772.975	71277.47	1.972	1.972	1...	H1-1b
9	M9	BAR1.66	.651	3.9	2	.066	0	2	70772.975	71277.47	1.972	1.972	1...	H1-1b

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	A53 Gr B/A501	29000	11154	.3	.65	.49	35
2	A572Gr55	29000	11154	.3	.65	.49	55
3	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	PIPE 1.25	Beam	Pipe	LDX2101	Typical	.62	.184	.184	.368
2	ERAIL	PIPE 1.25XX	Beam	Pipe	LDX2101	Typical	1.534	.341	.341	.682
3	EPOST	PIPE 1.25XX	Column	Pipe	LDX2101	Typical	1.534	.341	.341	.682
4	IPOST	PIPE 1.25	Column	Pipe	LDX2101	Typical	.62	.184	.184	.368

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			

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	N9			EPOST	Column	Pipe	LDX2101	Typical
2	M2	N3	N4			IPOST	Column	Pipe	LDX2101	Typical
3	M3	N2	N4			ERAIL	Beam	Pipe	LDX2101	Typical
4	M4	N4	N8			RAIL	Beam	Pipe	LDX2101	Typical
5	M5	N5	N10			EPOST	Column	Pipe	LDX2101	Typical
6	M6	N7	N8			IPOST	Column	Pipe	LDX2101	Typical
7	M7	N8	N6			ERAIL	Beam	Pipe	LDX2101	Typical
8	M8	N9	N2			ERAIL	Beam	Pipe	LDX2101	Typical
9	M9	N10	N6			ERAIL	Beam	Pipe	LDX2101	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	-2111.912	4	449.718	2	18.396	5	0	1	0	1	0	1
2		min	-2212.039	2	404.372	6	-71.061	3	-.381	3	0	1	0	1
3	N3	max	55.198	6	-304.372	6	0	1	0	1	0	1	0	1
4		min	48.421	1	-449.718	2	-191.439	3	-.546	3	0	1	0	1
5	N5	max	2212.039	2	449.718	2	29.269	4	.017	4	0	1	0	1
6		min	2111.912	4	404.372	6	-71.061	3	-.381	3	0	1	0	1
7	N7	max	-48.421	1	-304.372	6	0	1	0	1	0	1	0	1
8		min	-55.198	6	-449.718	2	-191.439	3	-.546	3	0	1	0	1
9	Totals:	max	0	1	200	6	0	1						
10		min	0	2	0	1	-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	449.718	2	2213.837	2	17.476	5	0	1	.381	3	0	1
2			min	404.372	6	2113.491	1	-75.885	3	0	1	0	1	0	1
3		2	max	449.718	2	1013.837	2	17.476	5	0	1	.321	3	-1.341	1
4			min	404.372	6	913.491	1	-75.885	3	0	1	0	1	-1.419	2
5		3	max	449.718	2	-283.104	6	17.476	5	0	1	.262	3	-1.735	1
6			min	404.372	6	-306.363	2	-75.885	3	0	1	0	1	-1.875	2
7		4	max	449.718	2	-1483.104	6	17.476	5	0	1	.202	3	-1.182	1
8			min	404.372	6	-1626.563	2	-75.885	3	0	1	0	1	-1.259	2
9		5	max	449.718	2	-2683.104	6	17.476	5	0	1	.143	3	.35	2
10			min	404.372	6	-2826.563	2	-75.885	3	0	1	-.001	2	.306	6
11	M2	1	max	-304.372	6	-48.421	1	0	1	0	1	.546	3	0	1
12			min	-449.718	2	-55.198	6	-191.439	3	0	1	0	1	0	1
13		2	max	-304.372	6	-48.421	1	0	1	0	1	.38	3	.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
14		min	-449.718	2	-55.198	6	-191.439	3	0	1	0	1	.042	1
15	3	max	-304.372	6	-48.421	1	0	1	0	1	.215	3	.096	6
16		min	-449.718	2	-55.198	6	-191.439	3	0	1	-.002	2	.084	1
17	4	max	-304.372	6	-48.421	1	3.111	2	0	1	.049	3	.143	6
18		min	-449.718	2	-55.198	6	-191.439	3	0	1	-.003	2	.126	1
19	5	max	-304.372	6	-48.421	1	3.111	2	0	1	0	2	.191	6
20		min	-449.718	2	-55.198	6	-191.439	3	0	1	-.117	3	.168	1
21	M3	1	max	2828.361	2	449.515	2	0	.002	2	0	1	1.275	2
22		min	2684.627	6	404.231	6	-105.477	3	-.117	3	0	1	1.183	6
23	2	max	2828.361	2	449.515	2	0	1	.002	2	0	1	.881	2
24		min	2684.627	6	404.231	6	-61.727	3	-.117	3	-.073	3	.826	1
25	3	max	2828.361	2	449.515	2	0	1	.002	2	0	1	.488	2
26		min	2684.627	6	404.231	6	-52.341	4	-.117	3	-.108	3	.458	1
27	4	max	2828.361	2	449.515	2	25.773	3	.002	2	0	1	.122	6
28		min	2684.627	6	404.231	6	-52.341	4	-.117	3	-.137	4	.089	1
29	5	max	2828.361	2	449.515	2	69.523	3	.002	2	0	1	-.232	6
30		min	2684.627	6	404.231	6	-52.341	4	-.117	3	-.183	4	-.299	2
31	M4	1	max	2880.006	2	100	6	59.151	.032	4	0	1	-.04	6
32		min	2736.506	1	0	1	-100	5	0	1	-.183	4	-.12	2
33	2	max	2880.006	2	100	6	59.151	4	.032	4	0	1	-.112	1
34		min	2736.506	1	0	1	-100	5	0	1	-.131	4	-.128	6
35	3	max	2880.006	2	0	1	100	5	.032	4	0	1	-.112	1
36		min	2736.506	1	-100	6	0	1	0	1	-.213	5	-.215	6
37	4	max	2880.006	2	0	1	100	5	.032	4	0	2	-.112	1
38		min	2736.506	1	-100	6	0	1	0	1	-.126	5	-.128	6
39	5	max	2880.006	2	0	1	100	5	.032	4	.024	4	-.04	6
40		min	2736.506	1	-100	6	0	1	0	1	-.063	3	-.12	2
41	M5	1	max	449.718	2	-2113.491	1	29.051	4	0	.381	3	0	1
42		min	404.372	6	-2213.837	2	-75.885	3	0	1	-.017	4	0	1
43	2	max	449.718	2	-913.491	1	29.051	4	0	1	.321	3	1.419	2
44		min	404.372	6	-1013.837	2	-75.885	3	0	1	-.001	2	1.341	1
45	3	max	449.718	2	306.363	2	29.051	4	0	1	.262	3	1.875	2
46		min	404.372	6	283.104	6	-75.885	3	0	1	0	1	1.735	1
47	4	max	449.718	2	1626.563	2	29.051	4	0	1	.202	3	1.259	2
48		min	404.372	6	1483.104	6	-75.885	3	0	1	0	1	1.182	1
49	5	max	449.718	2	2826.563	2	29.051	4	0	1	.143	3	-.306	6
50		min	404.372	6	2683.104	6	-75.885	3	0	1	0	1	-.35	2
51	M6	1	max	-304.372	6	55.198	6	0	0	1	.546	3	0	1
52		min	-449.718	2	48.421	1	-191.439	3	0	1	0	1	0	1
53	2	max	-304.372	6	55.198	6	0	1	0	1	.38	3	-.042	1
54		min	-449.718	2	48.421	1	-191.439	3	0	1	0	1	-.048	6
55	3	max	-304.372	6	55.198	6	0	1	0	1	.215	3	-.084	1
56		min	-449.718	2	48.421	1	-191.439	3	0	1	0	1	-.096	6
57	4	max	-304.372	6	55.198	6	0	1	0	1	.049	3	-.126	1
58		min	-449.718	2	48.421	1	-191.439	3	0	1	0	1	-.143	6
59	5	max	-304.372	6	55.198	6	0	1	0	1	0	1	-.168	1
60		min	-449.718	2	48.421	1	-191.439	3	0	1	-.117	3	-.191	6
61	M7	1	max	2828.361	2	-404.231	6	10.911	.117	3	.024	4	-.232	6
62		min	2684.627	6	-449.515	2	-69.523	3	0	1	-.063	3	-.299	2
63	2	max	2828.361	2	-404.231	6	10.911	5	.117	3	.018	4	.122	6
64		min	2684.627	6	-449.515	2	-25.773	3	0	1	-.105	3	.089	1
65	3	max	2828.361	2	-404.231	6	17.977	3	.117	3	.012	4	.488	2
66		min	2684.627	6	-449.515	2	-6.81	4	0	1	-.108	3	.458	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
67	4	max	2828.361	2	-404.231	6	61.727	3	.117	3	.006	4	.881	2
68		min	2684.627	6	-449.515	2	-6.81	4	0	1	-.073	3	.826	1
69	5	max	2828.361	2	-404.231	6	105.477	3	.117	3	0	1	1.275	2
70		min	2684.627	6	-449.515	2	-6.81	4	0	1	0	1	1.183	6
71	M8	1	max	449.718	2	-2698.346	6	16.106	5	0	.143	3	.35	2
72		min	404.372	6	-2844.568	2	-79.652	3	0	1	-.001	2	.306	6
73	2	max	449.718	2	-2698.346	6	16.106	5	0	1	.136	3	.581	2
74		min	404.372	6	-2844.568	2	-79.652	3	0	1	-.001	2	.525	6
75	3	max	449.718	2	-2698.346	6	16.106	5	0	1	.13	3	.812	2
76		min	404.372	6	-2844.568	2	-79.652	3	0	1	-.002	2	.745	6
77	4	max	449.718	2	-2698.346	6	16.106	5	0	1	.123	3	1.043	2
78		min	404.372	6	-2844.568	2	-79.652	3	0	1	-.002	2	.964	6
79	5	max	449.718	2	-2698.346	6	16.106	5	0	1	.117	3	1.275	2
80		min	404.372	6	-2844.568	2	-79.652	3	0	1	-.002	2	1.183	6
81	M9	1	max	449.718	2	2844.568	2	28.218	4	0	.143	3	-.306	6
82		min	404.372	6	2698.346	6	-79.652	3	0	1	0	1	-.35	2
83	2	max	449.718	2	2844.568	2	28.218	4	0	1	.136	3	-.525	6
84		min	404.372	6	2698.346	6	-79.652	3	0	1	0	1	-.581	2
85	3	max	449.718	2	2844.568	2	28.218	4	0	1	.13	3	-.745	6
86		min	404.372	6	2698.346	6	-79.652	3	0	1	0	1	-.812	2
87	4	max	449.718	2	2844.568	2	28.218	4	0	1	.123	3	-.964	6
88		min	404.372	6	2698.346	6	-79.652	3	0	1	0	1	-1.043	2
89	5	max	449.718	2	2844.568	2	28.218	4	0	1	.117	3	-1.183	6
90		min	404.372	6	2698.346	6	-79.652	3	0	1	0	1	-1.275	2

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	PIPE_1.25XX	.982	18.825	2	.171	37.65	2	30876.788	55103.46	1.924	1.924	1...	H1-1b
2	M2	PIPE 1.25	.607	0	3	.030	0	3	13129.33	22275.449	.913	.913	1...	H1-1b
3	M3	PIPE_1.25XX	.715	0	2	.105	0	3	26800.807	55103.46	1.924	1.924	1...	H1-1b
4	M4	PIPE 1.25	.445	21	5	.049	0	4	12979.044	22275.449	.913	.913	1	H1-1a
5	M5	PIPE_1.25XX	.982	18.825	2	.171	37.65	2	30876.788	55103.46	1.924	1.924	1...	H1-1b
6	M6	PIPE 1.25	.607	0	3	.030	0	3	13129.33	22275.449	.913	.913	1...	H1-1b
7	M7	PIPE_1.25XX	.715	42	2	.105	42	3	26800.807	55103.46	1.924	1.924	1...	H1-1b
8	M8	PIPE_1.25XX	.667	3.9	2	.172	0	2	54762.06	55103.46	1.924	1.924	1...	H1-1b
9	M9	PIPE_1.25XX	.667	3.9	2	.172	0	2	54762.06	55103.46	1.924	1.924	1...	H1-1b

*** End of Calculations ***