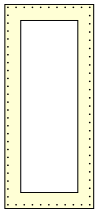
Property

1. Material

Concrete	Grade C6000	
fc'	6.00	kip/in²
Ec	4664.30	kip/in²
Poisson's Ratio	0.20	
Weight Density	0.00	kip/in³
Nonlinear Property	Curve 5:Mander	
Rebar	Grade 60	
fy	60.00	kip/in²
Es	29000.00	kip/in²
Nonlinear Property	Bilinear Model	

2. Section



As	107.64	in²

Ⅰ. General

Area	7848	in²
Shear Area (y)	1925.205542	in²
Shear Area (z)	5678.575481	in²
Ixx	26457562.78	in⁴
Iyy	36529632	in⁴
Izz	7818984	in⁴
Centroid (y)	42	in
Centroid (z)	102	in

Ⅱ. Section Modulus

Section Modulus (Top)	358133.6471	in³

Section Modulus (Bottom)	358133.6471 in^3
Section Modulus (Right)	186166.2857 in^3
Section Modulus (Left)	186166.2857 in^3

Ⅲ. Principal Properties

Principal Angle	0 °
Iyy'	36529632 in^4
Izz'	7818984 in^4

Ⅳ. Plastic Properties

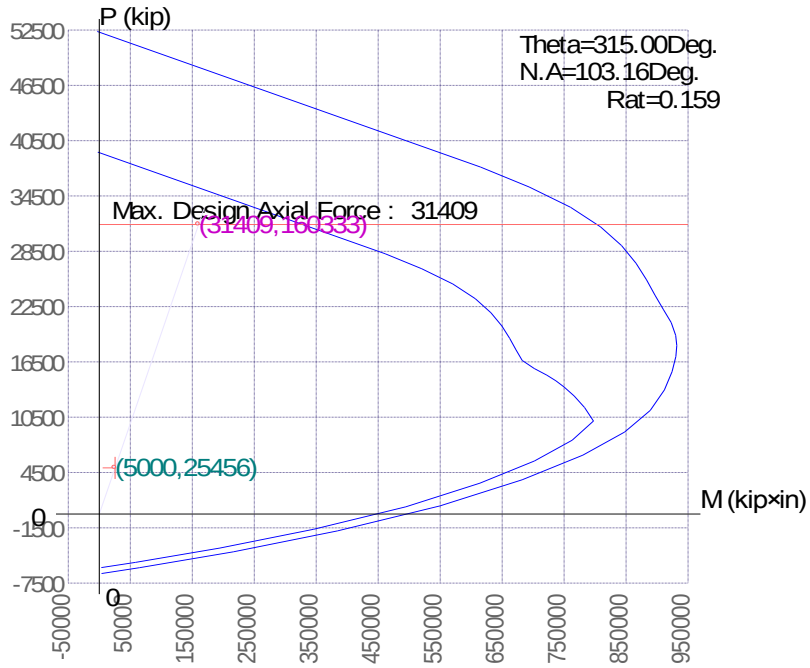
Plastic Modulus (Major axis)	474552 in^3
Plastic Modulus (Minor axis)	234468 in^3

3. Design Load Combination

No	Name	Pu(kip)	My(kip×in)	Mz(kip×in)	Vy(kip)	Vz(kip)	T(kip×in)
1	LC1	5066.00	-246455.0	-43632.00	0.00	0.00	0.00
2	LC2	10326.00	-335904.0	-99696.00	0.00	0.00	0.00

P-M Curve

Mode : Load Combination = Design 2
Checking Ratio = 0.159 (Keep M/P Constant)

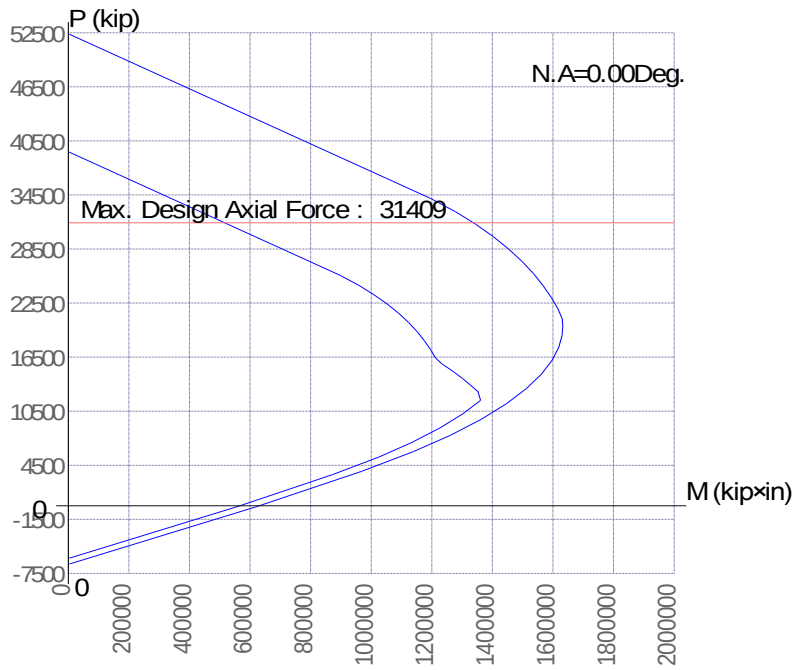


Pu(kip)	Mn(kip×in)
39261.371	2484.512
28230.090	461294.446
26610.415	520347.280
24959.037	570231.059
23359.191	606721.145
21838.627	631991.091
20398.864	649598.832
19052.142	662262.948
17808.176	672472.826
16663.132	682472.638
15786.484	701723.169
15054.215	722360.155
14442.926	736839.225
13774.783	750196.162
12803.503	766273.352
11558.362	782967.607
10081.955	797430.041
7998.609	763001.503
5748.922	702198.291
3342.009	614120.278
788.523	494700.219
-1650.373	345931.330

-3693.555	194665.515
-5248.042	58275.837
-5812.560	3260.088

P-M Curve

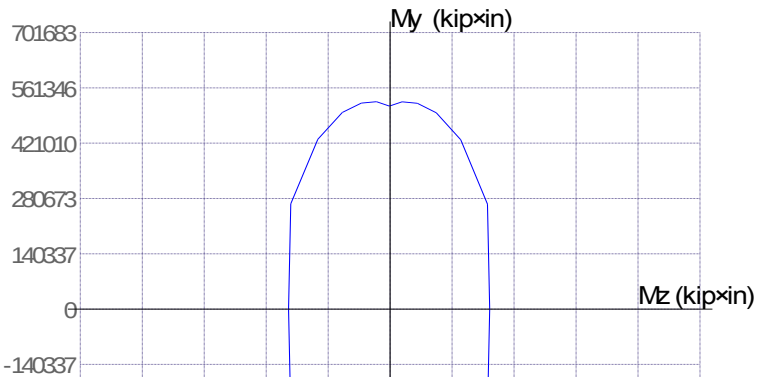
Mode : Angle = 0.00 °



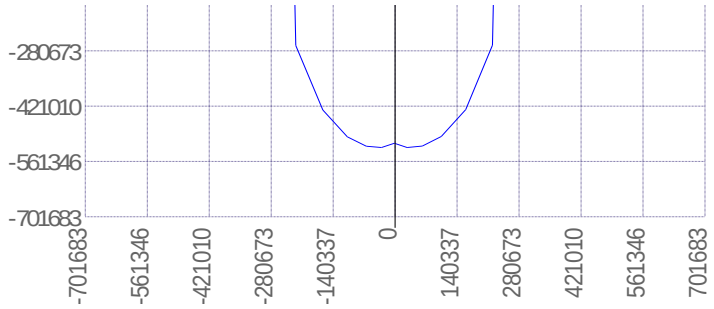
Pu(kip)	Mn(kip×in)
39261.371	2484.512
25593.742	896810.172
24479.528	959057.822
23438.770	1008767.569
22404.780	1052420.666
21374.404	1090493.251
20350.007	1123430.888
19334.815	1151730.915
18332.360	1175702.912
17353.990	1195679.597
16408.538	1212408.318
15706.902	1235123.898
15294.439	1253876.519
14796.517	1275183.708
14142.941	1300836.566
13427.062	1326824.663
12665.272	1352617.914
11711.681	1361114.265
10198.454	1301841.909
8654.714	1227518.204
7058.423	1136136.575
5421.926	1026307.925
3450.057	871920.895
-103.071	557323.181
-5812.560	3260.088

My-Mz Curve

Mode : Axial Force, P = 31409.10 kip



My(kip×in)	Mz(kip×in)
686974.986	-2561.576
701382.703	36366.798
696447.136	82366.326
664206.948	139441.833
573017.666	213178.334
355275.820	294053.692
0.000	300781.276
-355275.820	294053.692
-573017.666	213178.334



-664206.948	139441.833
-696447.136	82366.326
-701382.703	36366.798
-686974.986	-2561.576
-701683.109	-41427.317
-697056.069	-87371.787
-665253.924	-144503.341
-574503.673	-218515.725
-356356.227	-300012.257
0.000	-306996.748
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697056.069	-87371.787
701683.109	-41427.317
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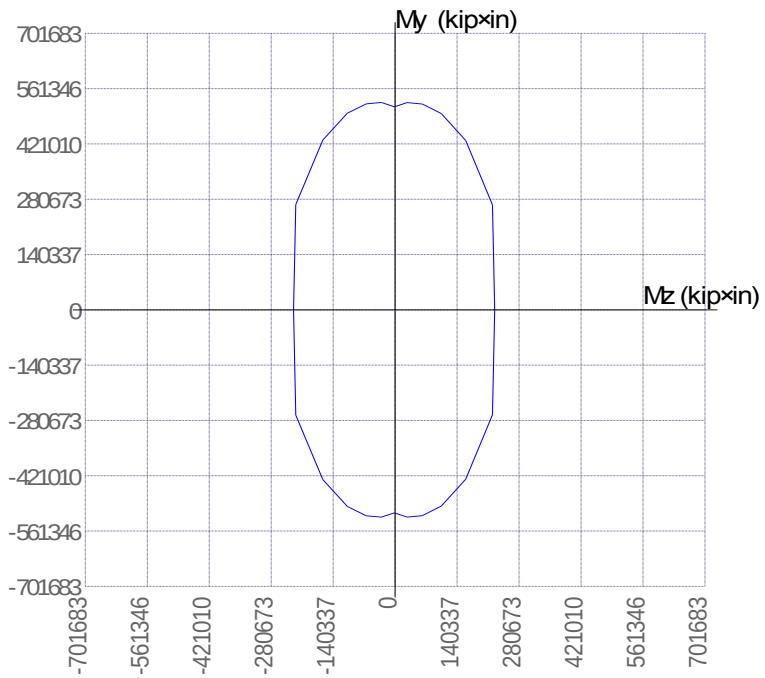
My-Mz Curve

Mode : Axial Force, P = 31409.10 kip



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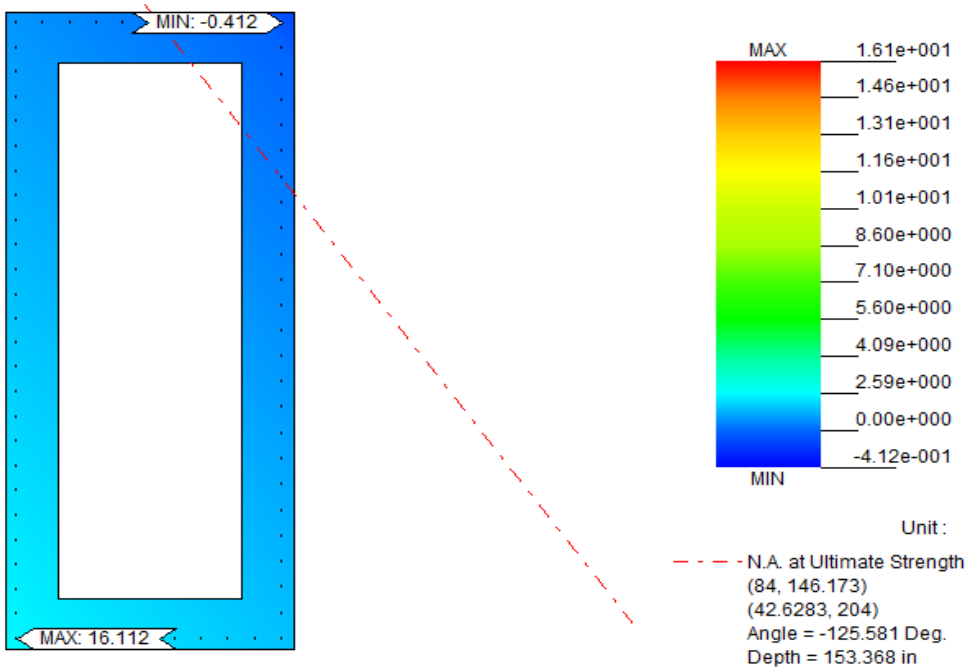
697056.069	-87371.787
701683.109	-41427.317
686974.986	-2561.576

Stress

Load Combination = LC2
Rank Option = RC O Steel X Rebar O
Components = Combined

Uncracked Elastic St (kip/in²)
Ratio of modulus of elasticity
Rebar / Conc. = 6.50
Steel / Conc. = 0.00

Maximum compressive stress in concrete	=	2.55	kip/in²
Maximum tensile stress in concrete	=	-0.13	kip/in²
Maximum tensile stress in rebar	=	-0.41	kip/in²
Maximum tensile stress in steel	=	0.00	kip/in²



Forces and stress in bars

No	y coord.(in)	z coord.(in)	Force(kip)	Stress(kip/in²)
1	3.30	200.70	8.39	5.37
2	3.30	192.80	9.06	5.80
3	3.30	184.91	9.73	6.23
4	3.30	177.01	10.40	6.66
5	3.30	169.12	11.07	7.09
6	3.30	161.22	11.74	7.52
7	3.30	153.32	12.41	7.95
8	3.30	145.43	13.09	8.38
9	3.30	137.53	13.76	8.81

10	3.30	129.64	14.43	9.24
11	3.30	121.74	15.10	9.67
12	3.30	113.84	15.77	10.10
13	3.30	105.95	16.44	10.53
14	3.30	98.05	17.11	10.96
15	3.30	90.16	17.78	11.39
16	3.30	82.26	18.45	11.82
17	3.30	74.36	19.12	12.25
18	3.30	66.47	19.79	12.68
19	3.30	58.57	20.46	13.10
20	3.30	50.68	21.13	13.53
21	3.30	42.78	21.80	13.96
22	3.30	34.88	22.47	14.39
23	3.30	26.99	23.15	14.82
24	3.30	19.09	23.82	15.25
25	3.30	11.20	24.49	15.68
26	3.30	3.30	25.16	16.11
27	11.04	3.30	24.25	15.53
28	18.78	3.30	23.35	14.95
29	26.52	3.30	22.45	14.38
30	34.26	3.30	21.54	13.80
31	42.00	3.30	20.64	13.22
32	49.74	3.30	19.74	12.64
33	57.48	3.30	18.83	12.06
34	65.22	3.30	17.93	11.48
35	72.96	3.30	17.03	10.90
36	80.70	3.30	16.12	10.33
37	80.70	11.52	15.42	9.88
38	80.70	19.75	14.73	9.43
39	80.70	27.97	14.03	8.98
40	80.70	36.20	13.33	8.54
41	80.70	44.42	12.63	8.09
42	80.70	52.65	11.93	7.64
43	80.70	60.87	11.23	7.19
44	80.70	69.10	10.53	6.75
45	80.70	77.32	9.84	6.30
46	80.70	85.55	9.14	5.85
47	80.70	93.77	8.44	5.40
48	80.70	102.00	7.74	4.96
49	80.70	110.23	7.04	4.51
50	80.70	118.45	6.34	4.06
51	80.70	126.68	5.64	3.61
52	80.70	134.90	4.95	3.17
53	80.70	143.13	4.25	2.72
54	80.70	151.35	3.55	2.27
55	80.70	159.58	2.85	1.82
56	80.70	167.80	2.15	1.38

57	80.70	176.03	1.45	0.93
58	80.70	184.25	0.75	0.48
59	80.70	192.48	0.06	0.04
60	80.70	200.70	-0.64	-0.41
61	72.96	200.70	0.26	0.17
62	65.22	200.70	1.16	0.74
63	57.48	200.70	2.07	1.32
64	49.74	200.70	2.97	1.90
65	42.00	200.70	3.87	2.48
66	34.26	200.70	4.78	3.06
67	26.52	200.70	5.68	3.64
68	18.78	200.70	6.58	4.22
69	11.04	200.70	7.49	4.79