AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	195 ft Monopole
ATC Asset Name	:	Mamers NC
ATC Asset Number	:	414969
Engineering Number	:	15020848_C3_02
Proposed Carrier	:	T-MOBILE
Carrier Site Name	:	ATC-414969
Carrier Site Number	:	5RA0962A
Site Location	:	177 Dean Rd. Lillington, NC 27546-7909 35.4214° N, 78.9568° W
County	:	Harnett
Date	:	January 29, 2025
Max Usage	:	104%
Analysis Result	:	Pass

Created By:

Lucas Tait
Structural Engineer II

L Tait

NORTH CAROLINA PROFESSIONAL SEAL 054229 ENGINEER ISAAC P. DODSON

Isaac Dodson

Digitally signed by Isaac Dodson
Date: 2025.02.03 12:24:52 -05'00'

COA: P-1177

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Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 195 ft Monopole tower to reflect the change in loading by T-MOBILE.

Supporting Documents

Tower:	PJF Job #44406-1019, dated July 12, 2006
Foundation:	PJF Job #44406-1019, dated July 12, 2006
Geotechnical:	GeoTechnologies Project #1-060645-EA, dated May 19, 2006

Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

Basic Wind Speed:	116 mph (3-second gust)
Basic Wind Speed w/ Ice:	37 mph (3-second gust) w/ 0.63" radial ice concurrent
Code(s):	ANSI/TIA-222-I / 2015 IBC / 2018 North Carolina Building Code
Exposure Category:	C
Risk Category:	II
Topographic Factor Procedure:	Method 1
Feature:	Flat
Crest Height (H):	0 ft
Crest Length (L):	0 ft
Spectral Response:	S_{DS} = 0.17, S_{D1} = 0.10
Site Class:	Default

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please reach out to your American Tower contact. If you do not have an American Tower contact and have an Engineering question, please contact **Engineering@americantower.com** Please include the American Tower asset name, asset number, and engineering number in the subject line for any questions.

Structure Usages

Structural Component	Usage	Control	Result
Pole Shaft	103.5%	1.2D + 1.0W	Pass
Serviceability Usage	71.7%	1.0D + 1.0W	Pass
Base Plate @ 0.0 ft	80.0%	Rods	Pass
Pier	78.7%	Flexure [Steel]	Pass

Maximum Reactions

Foundation	Moment (k-ft)	Axial (k)	Shear (k)
Monopole Base	5,642.9	59.8	39.1

Reactions shown reflect the results from the Load Case with maximum Moment excluding Overstrength Load Cases

Structure base reactions were analyzed using available geotechnical and foundation information.

T-MOBILE Final Loading

Elev (ft)	Qty	Equipment	Lines
173.0	1	Circular Platform with Handrails	(2) 2.00" (50.8mm) Hybrid
	3	Amphenol Antel APXVAALL24M-U-J20	
	3	Ericsson Radio 4460 B25+B66	
	3	Ericsson Radio 4480 B71+B85	

Install proposed lines inside the pole shaft.

Other Existing/Reserved Loading

Elev (ft)	Qty	Equipment	Lines
195.0	1	Platform with Handrails	(6) 1 5/8" Coax (5) 1 5/8" Hybriflex (1) 1.44" (36.5mm) Hybrid (Type 2)
	1	Unused Reserve (16854.12 sqin)	
	2	Raycap RCMDC-6627-PF-48	
	2	Raycap RRFDC-3315-PF-48 (32lbs)	
	3	Amphenol Antel BXA-70080-8CF-EDIN-X	
	6	Commscope NHH-65C-R2B	
	6	Ericsson 8843 Rev 2	
	6	Ericsson Radio 4449 - B13&B5	
185.0	2	Raycap DC9-48-60-24-8C-EV (Enclosure)	(2) 0.39" (10mm) Fiber Trunk (6) 0.92" (23.4mm) Cable
	3	Ericsson RRUS 4415 B25	
	3	Ericsson RRUS 4415 B30	
	3	Ericsson RRUS 4426 B66	
	3	Ericsson RRUS 4449 B5, B12	
	3	Ericsson RRUS 4478 B14 (18.1" Height)	
	3	Sector Frame	
	6	Commscope NNH4-65C-R6-V3 (102.5 lbs)	

(If table breaks across pages, please see previous page for data in merged cells)

Standard Conditions

All engineering services performed by A.T. Engineering Services, PLLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

- Information supplied by the client regarding antenna, mounts, and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Services, PLLC

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Services, PLLC and used in the performance of our engineering services is correct and complete.

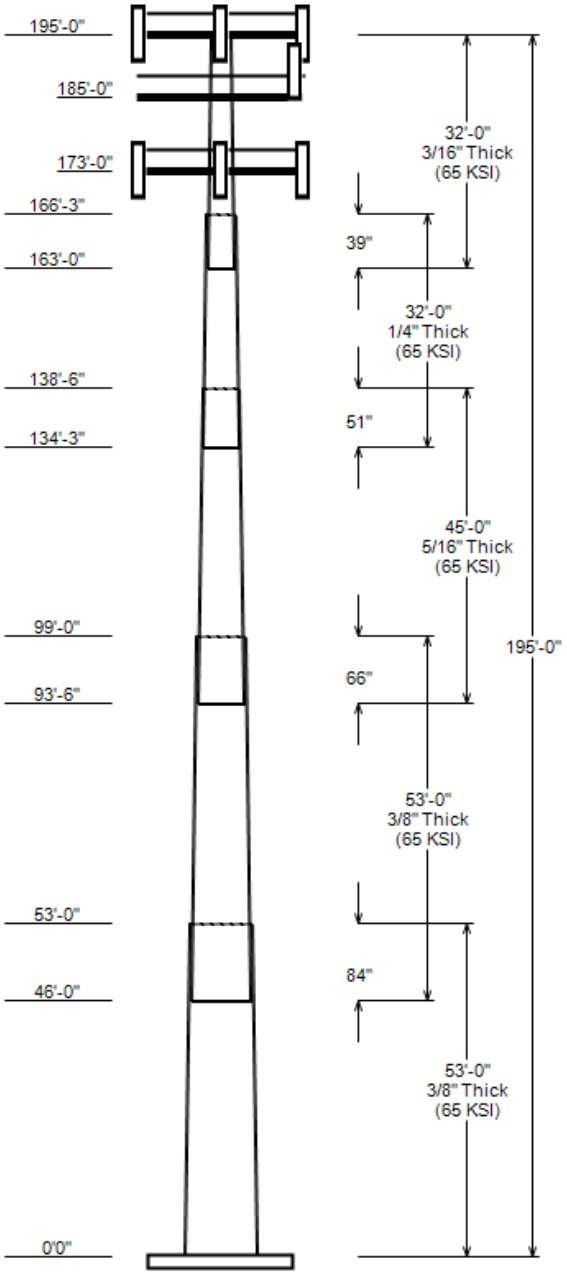
All assets of American Tower Corporation, its affiliates, and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

Unless explicitly agreed by both the client and A.T. Engineering Services, PLLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Services, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.

ANALYSIS PARAMETERS

Design Wind:	116 mph	**Ice Wind:**	37 mph w/ 0.6" ice	**Service Wind:**	60 mph
Risk Category:	II	**Exposure:**	C	**S_{D1}:** 0.100	**S_{DS}:** 0.170
Topo Factor:	Method 1	**Topo Feature:**	Flat		
Structure Height:	195.0 ft	**Base Elevation:**	0.00 ft	**Structure Type:**	Taper
Base Diameter:	67.00 in	**Base Rotation:**	0.00°	**Taper:**	0.2680 (in/ft)



POLE SECTION PROPERTIES

Section	Length (ft)	Flat Diameter (in) Top	Flat Diameter (in) Bottom	Thick (in)	Joint Type	Joint Length (in)	Pole Shape	Yield Strength (ksi)
1	53.000	52.80	67.00	0.375		0.00	18 Sides	65
2	53.000	41.22	55.42	0.375	Slip Joint	84.00	18 Sides	65
3	45.000	31.26	43.32	0.312	Slip Joint	66.00	18 Sides	65
4	32.000	24.33	32.90	0.250	Slip Joint	51.00	18 Sides	65
5	32.000	17.00	25.57	0.188	Slip Joint	39.00	18 Sides	65

DISCRETE APPURTENANCE

Elev (ft)	Description
195.0	(2) Raycap RCMDC-6627-PF-48
195.0	(1) Generic Flat Platform with Handrails
195.0	(2) Raycap RRFDC-3315-PF-48 (32lbs)
195.0	(6) Commscope NHH-65C-R2B
195.0	(6) Ericsson 8843 Rev 2
195.0	(6) Ericsson Radio 4449 - B13&B5
195.0	(3) Amphenol Antel BXA-70080-8CF-EDI
195.0	(1) Unused Reserve (16854.12 sqin)
185.0	(3) Ericsson RRUS 4415 B30
185.0	(6) Commscope NNH4-65C-R6-V3 (102.
185.0	(3) Ericsson RRUS 4415 B25
185.0	(3) Ericsson RRUS 4449 B5, B12
185.0	(3) Ericsson RRUS 4478 B14 (18.1" Heig
185.0	(3) Ericsson RRUS 4426 B66
185.0	(2) Raycap DC9-48-60-24-8C-EV (Enclo
185.0	(3) Generic Round Sector Frame
173.0	(3) Ericsson Radio 4480 B71+B85
173.0	(3) Amphenol Antel APXVAALL24M-U-J2
173.0	(1) Generic Circular Platform with Handra
173.0	(3) Ericsson Radio 4460 B25+B66

LINEAR APPURTENANCE

Elev To (ft)	Description
195.0	(6) 1 5/8" Coax
195.0	(5) 1 5/8" Hybriflex
195.0	(1) 1.44" (36.5mm) Hybrid (Type 2)
185.0	(6) 0.92" (23.4mm) Cable
185.0	(2) 0.39" (10mm) Fiber Trunk
173.0	(2) 2.00" (50.8mm) Hybrid

GLOBAL BASE REACTIONS

Load Case	Moment (kip-ft)	Axial (kip)	Shear (kip)
1.2D + 1.0W	5642.86	59.83	39.07
0.9D + 1.0W	5540.54	44.86	39.04
1.2D + 1.0Di + 1.0Wi	832.40	71.24	5.94
1.2D + 1.0Ev + 1.0Eh	259.87	59.79	1.50
0.9D - 1.0Ev + 1.0Eh	253.99	41.96	1.50
1.0D + 1.0W	1340.03	49.91	9.35

ANALYSIS PARAMETERS

Location:	Harnett County,NC	**Height:**	195 ft
Type and Shape:	Taper, 18 Sides	**Base Diameter:**	67.00 in
Manufacturer:	Undetermined	**Top Diameter:**	17.00 in
K_d (non-service):	0.95	**Taper:**	0.2680 in/ft
K_e:	0.99	**Rotation:**	0.000º

ICE & WIND PARAMETERS

Risk Category:	II	**Design Wind Speed:**	116 mph
Exposure Category:	C	**Design Wind Speed w/ Ice:**	37 mph
Design Ice Thickness:	0.63 in		
Topo Factor Procedure:	Method 1		
Crest Height(H):	0 ft	**Service Wind Speed:**	60 mph
Crest Length(L):	0 ft	**HMSL:**	366.00 ft
Feature:	Flat	**Distance from Apex (x):**	0 ft
		Upwind/Downwind:	

SEISMIC PARAMETERS

Analysis Method:	Equivalent Lateral Force Method				
Site Class:	Default		**Period Based on Rayleigh Method (sec):**		3.41
T_L (sec):	8	**P:**	1	**C_s:**	0.030
S_{ds}:	0.170	**S_{d1}:**	0.100	**C_s Max:**	0.030
				C_s Min:	0.030

LOAD CASES

1.2D + 1.0W	116 mph Wind with No Ice
0.9D + 1.0W	116 mph Wind with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	37 mph Wind with 0.63" Radial Ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	60 mph Wind with No Ice
1.2D + 1.0Ev + 1.5Eh	Seismic Overstrength
0.9D - 1.0Ev + 1.5Eh	Seismic Overstrength (Reduced DL)

SHAFT SECTION PROPERTIES

Section	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Joint Len (in)	Weight (lb)	Bottom Dia (in)	Bottom Elev (ft)	Bottom Area (in^2)	Bottom Ix (in^4)	Bottom W/t Ratio	Bottom D/t Ratio	Top Dia (in)	Top Elev (ft)	Top Area (in^2)	Top Ix (in^4)	Top W/t Ratio	Top D/t Ratio	Taper (in/ft)
1-18	53.00	0.3750	65		0.00	12,777	67.00	0.000	79.30	44,472.1	29.74	178.67	52.80	53.00	62.40	21,665.	23.06	140.80	0.2679
2-18	53.00	0.3750	65	Slip	84.00	10,292	55.42	46.000	65.52	25,086.1	24.30	147.80	41.22	99.00	48.62	10,249.	17.62	109.93	0.2679
3-18	45.00	0.3125	65	Slip	66.00	5,616	43.32	93.500	42.66	9,969.7	22.68	138.63	31.26	138.50	30.70	3,715.7	15.88	100.04	0.2679
4-18	32.00	0.2500	65	Slip	51.00	2,451	32.90	134.250	25.91	3,490.2	21.44	131.61	24.33	166.25	19.11	1,399.5	15.40	97.32	0.2679
5-18	32.00	0.1875	65	Slip	39.00	1,367	25.57	163.000	15.11	1,230.2	22.29	136.39	17.00	195.00	10.01	357.3	14.22	90.67	0.2679
			Total Shaft Weight			**32,503**													

DISCRETE APPURTENANCE PROPERTIES

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	No Ice Weight (lb)	No Ice EPAa (sf)	No Ice Orientation Factor	Ice Weight (lb)	Ice EPAa (sf)	Ice Orientation Factor
195.00	Raycap RRFDC-3315-PF-48 (32lbs	2	0.75	0.000	32.00	2.798	0.67	71.04	3.316	0.67
195.00	Ericsson Radio 4449 - B13&B5	6	0.75	0.000	70.00	1.650	0.50	94.30	2.016	0.50
195.00	Ericsson 8843 Rev 2	6	0.75	0.000	75.00	1.650	0.50	101.78	2.017	0.50
195.00	Amphenol Antel BXA-70080-8CF-E	3	0.75	0.000	23.00	8.200	0.74	94.68	9.526	0.74
195.00	Commscope NHH-65C-R2B	6	0.75	0.000	51.60	11.389	0.70	150.20	12.782	0.70
195.00	Unused Reserve (16854.12 sqin)	1	0.75	0.000	1123.40	117.043	0.90	1461.10	152.226	0.90
195.00	Generic Flat Platform with Han	1	1.00	0.000	2500.00	42.400	1.00	3266.54	51.449	1.00
195.00	Raycap RCMDC-6627-PF-48	2	0.75	0.000	32.00	4.056	0.79	86.84	4.645	0.79
185.00	Commscope NNH4-65C-R6-V3 (102.	6	0.80	0.300	102.50	17.073	0.64	243.39	18.656	0.64
185.00	Generic Round Sector Frame	3	0.75	0.000	700.00	14.400	0.75	1118.60	21.504	0.75
185.00	Ericsson RRUS 4478 B14 (18.1"	3	0.80	1.900	59.40	2.021	0.67	85.74	2.426	0.67
185.00	Ericsson RRUS 4449 B5, B12	3	0.80	1.900	71.00	1.969	0.50	98.66	2.369	0.50
185.00	Ericsson RRUS 4415 B25	3	0.80	1.900	46.00	1.842	0.50	67.04	2.227	0.50
185.00	Ericsson RRUS 4415 B30	3	0.80	1.900	46.00	1.842	0.50	67.04	2.227	0.50
185.00	Ericsson RRUS 4426 B66	3	0.80	1.900	48.40	1.650	0.50	67.56	2.015	0.50
185.00	Raycap DC9-48-60-24-8C-EV (Enc	2	0.80	3.000	18.50	2.676	0.67	54.46	3.165	0.67
173.00	Amphenol Antel APXVAALL24M-U-J	3	0.75	0.000	86.00	17.083	0.65	230.03	18.652	0.65
173.00	Ericsson Radio 4480 B71+B85	3	0.75	0.000	93.00	2.798	0.67	124.81	3.271	0.67
173.00	Ericsson Radio 4460 B25+B66	3	0.75	0.000	109.00	2.564	0.67	146.70	3.014	0.67
173.00	Generic Circular Platform with	1	1.00	0.000	3400.00	59.000	1.00	4612.37	94.064	1.00
Totals	**Row Count: 20**	**63**			**12,828.40**			**19,605.29**		

LINEAR APPURTENANCE PROPERTIES

Load Case Azimuth (deg): 0.00

Elev From (ft)	Elev To (ft)	Qty	Description	Diameter (in)	Weight (lb/ft)	Flat	Max/ Row	Distance Between Rows(in)	Distance Between Cols(in)	Azimuth (deg)	Distance From Face (in)	Exposed To Wind	Carrier
0.00	195.00	6	1 5/8" Coax	1.98	0.82	N	0	0	0	0	0	N	VERIZON WIRELESS
0.00	195.00	5	1 5/8" Hybriflex	1.98	1.3	N	0	0	0	0	0	N	VERIZON WIRELESS
0.00	195.00	1	1.44" (36.5mm) Hybrid	1.44	1.4	N	0	0	0	0	0	N	VERIZON WIRELESS
0.00	185.00	6	0.92" (23.4mm) Cable	0.92	0.89	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	185.00	2	0.39" (10mm) Fiber Tr	0.39	0.06	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	173.00	2	2.00" (50.8mm) Hybrid	2	3.09	N	0	0	0	0	0	N	T-MOBILE

SEGMENT PROPERTIES

Seg Top Elev (ft)	Description *(Max Length: 5 ft)*	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in^3)	Z (in^3)	Weight (lb)
0.00		0.3750	67.000	79.298	44,472.10	29.74	178.67	66.4	1307.4	0.0	0.0
5.00		0.3750	65.660	77.703	41,842.80	29.11	175.09	67.2	1255.2	0.0	1,335.6
10.00		0.3750	64.321	76.108	39,319.30	28.48	171.52	67.9	1204.0	0.0	1,308.5
15.00		0.3750	62.981	74.514	36,899.30	27.85	167.95	68.6	1154.0	0.0	1,281.3
20.00		0.3750	61.641	72.919	34,580.80	27.22	164.38	69.4	1105.0	0.0	1,254.2
25.00		0.3750	60.301	71.325	32,361.40	26.59	160.80	70.1	1057.0	0.0	1,227.1
30.00		0.3750	58.962	69.730	30,239.10	25.96	157.23	70.9	1010.1	0.0	1,199.9
35.00		0.3750	57.622	68.136	28,211.70	25.33	153.66	71.6	964.3	0.0	1,172.8
40.00		0.3750	56.282	66.541	26,277.00	24.70	150.09	72.3	919.6	0.0	1,145.7
45.00		0.3750	54.942	64.946	24,432.80	24.07	146.51	73.1	875.9	0.0	1,118.6
46.00	Bot - Section 2	0.3750	54.674	64.627	24,074.60	23.94	145.80	73.2	867.3	0.0	220.5
50.00		0.3750	53.603	63.352	22,677.00	23.44	142.94	73.8	833.3	0.0	1,754.1
53.00	Top - Section 1	0.3750	53.549	63.288	22,608.20	23.42	142.80	73.9	831.6	0.0	1,292.8
55.00		0.3750	53.013	62.650	21,931.60	23.16	141.37	74.2	814.8	0.0	428.5
60.00		0.3750	51.673	61.055	20,299.20	22.53	137.79	74.9	773.7	0.0	1,052.4
65.00		0.3750	50.333	59.461	18,749.90	21.90	134.22	75.6	733.7	0.0	1,025.2
70.00		0.3750	48.994	57.866	17,281.60	21.27	130.65	76.4	694.7	0.0	998.1
75.00		0.3750	47.654	56.272	15,891.90	20.64	127.08	77.1	656.8	0.0	971.0
80.00		0.3750	46.314	54.677	14,578.80	20.01	123.50	77.9	620.0	0.0	943.8
85.00		0.3750	44.974	53.082	13,340.20	19.38	119.93	78.6	584.2	0.0	916.7
90.00		0.3750	43.635	51.488	12,173.70	18.75	116.36	79.3	549.5	0.0	889.6
93.50	Bot - Section 3	0.3750	42.697	50.372	11,399.00	18.31	113.86	79.9	525.8	0.0	606.6
95.00		0.3750	42.295	49.893	11,077.30	18.12	112.79	80.1	515.9	0.0	472.6
99.00	Top - Section 2	0.3125	41.848	41.197	8,979.60	21.85	133.91	75.7	422.6	0.0	1,238.4
100.00		0.3125	41.580	40.931	8,806.90	21.70	133.06	75.9	417.2	0.0	139.7
105.00		0.3125	40.240	39.602	7,976.70	20.94	128.77	76.8	390.4	0.0	685.1
110.00		0.3125	38.901	38.273	7,200.40	20.19	124.48	77.7	364.6	0.0	662.5
115.00		0.3125	37.561	36.944	6,476.20	19.43	120.19	78.5	339.6	0.0	639.9
120.00		0.3125	36.221	35.616	5,802.20	18.67	115.91	79.4	315.5	0.0	617.3
125.00		0.3125	34.881	34.287	5,176.70	17.92	111.62	80.3	292.3	0.0	594.7
130.00		0.3125	33.542	32.958	4,597.80	17.16	107.33	81.2	270.0	0.0	572.0
134.25	Bot - Section 4	0.3125	32.403	31.829	4,141.10	16.52	103.69	82	251.7	0.0	468.5
135.00		0.3125	32.202	31.629	4,063.80	16.41	103.05	82.1	248.6	0.0	146.9
138.50	Top - Section 3	0.2500	31.764	25.006	3,137.60	20.64	127.06	77.1	194.6	0.0	673.4
140.00		0.2500	31.362	24.687	3,019.10	20.36	125.45	77.5	189.6	0.0	126.8
145.00		0.2500	30.022	23.624	2,645.60	19.41	120.09	78.6	173.6	0.0	411.0
150.00		0.2500	28.683	22.561	2,304.30	18.47	114.73	79.7	158.2	0.0	392.9
155.00		0.2500	27.343	21.497	1,993.70	17.52	109.37	80.8	143.6	0.0	374.8
160.00		0.2500	26.003	20.434	1,712.30	16.58	104.01	81.9	129.7	0.0	356.7
163.00	Bot - Section 5	0.2500	25.199	19.797	1,556.90	16.01	100.80	82.6	121.7	0.0	205.3
165.00		0.2500	24.663	19.371	1,458.70	15.63	98.65	82.6	116.5	0.0	235.0
166.25	Top - Section 4	0.1875	24.704	14.590	1,107.90	21.47	131.75	76.2	88.3	0.0	144.3
170.00		0.1875	23.699	13.992	977.20	20.52	126.39	77.3	81.2	0.0	182.4
173.00		0.1875	22.895	13.513	880.30	19.77	122.11	78.2	75.7	0.0	140.4
175.00		0.1875	22.359	13.194	819.50	19.26	119.25	78.7	72.2	0.0	90.9
180.00		0.1875	21.019	12.397	679.70	18.00	112.10	80.2	63.7	0.0	217.7
185.00		0.1875	19.679	11.600	556.80	16.74	104.96	81.7	55.7	0.0	204.1
190.00		0.1875	18.340	10.802	449.70	15.48	97.81	82.6	48.3	0.0	190.6
195.00		0.1875	17.000	10.005	357.30	14.22	90.67	82.6	41.4	0.0	177.0
										Total:	**32,503.9**

CALCULATED FORCES

Load Case: 1.2D + 1.0W — 116 mph Wind with No Ice — 28 Iterations

Gust Response Factor: 1.10
Dead load Factor: 1.20
Wind Load Factor: 1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-59.83	-39.07	0.00	-5,642.9	0.00	5,642.86	4,740.31	1,391.67	8,374.16	6,512.67	0	0	0.880

CALCULATED FORCES

5.00	-57.96	-38.64	0.00	-5,447.5	0.00	5,447.52	4,696.80	1,363.69	8,040.78	6,322.41	0.1	-0.18	0.875
10.00	-56.13	-38.21	0.00	-5,254.3	0.00	5,254.34	4,651.17	1,335.70	7,714.18	6,131.77	0.38	-0.36	0.870
15.00	-54.32	-37.78	0.00	-5,063.3	0.00	5,063.31	4,603.41	1,307.72	7,394.35	5,940.91	0.86	-0.55	0.865
20.00	-52.55	-37.33	0.00	-4,874.4	0.00	4,874.42	4,553.52	1,279.73	7,081.29	5,750.03	1.53	-0.74	0.860
25.00	-50.81	-36.86	0.00	-4,687.8	0.00	4,687.79	4,501.51	1,251.75	6,775.01	5,559.29	2.41	-0.93	0.855
30.00	-49.11	-36.37	0.00	-4,503.5	0.00	4,503.50	4,447.37	1,223.76	6,475.49	5,368.87	3.5	-1.14	0.851
35.00	-47.44	-35.87	0.00	-4,321.7	0.00	4,321.66	4,391.10	1,195.78	6,182.74	5,178.95	4.8	-1.34	0.846
40.00	-45.80	-35.37	0.00	-4,142.3	0.00	4,142.30	4,332.71	1,167.79	5,896.77	4,989.71	6.32	-1.56	0.842
45.00	-44.24	-35.04	0.00	-3,965.5	0.00	3,965.48	4,272.19	1,139.81	5,617.57	4,801.33	8.07	-1.78	0.837
46.00	-43.89	-34.79	0.00	-3,930.4	0.00	3,930.44	4,259.83	1,134.21	5,562.54	4,763.77	8.44	-1.82	0.836
50.00	-41.58	-34.38	0.00	-3,791.3	0.00	3,791.27	4,209.54	1,111.82	5,345.13	4,613.98	10.05	-2.01	0.833
53.00	-39.89	-34.08	0.00	-3,688.1	0.00	3,688.12	4,206.98	1,110.70	5,334.33	4,606.47	11.35	-2.15	0.811
55.00	-39.24	-33.72	0.00	-3,620.0	0.00	3,619.96	4,181.29	1,099.51	5,227.36	4,531.88	12.27	-2.24	0.809
60.00	-37.72	-33.18	0.00	-3,451.4	0.00	3,451.36	4,115.58	1,071.52	4,964.68	4,346.32	14.74	-2.47	0.804
65.00	-36.24	-32.63	0.00	-3,285.5	0.00	3,285.47	4,047.74	1,043.54	4,708.77	4,162.23	17.46	-2.71	0.799
70.00	-34.79	-32.09	0.00	-3,122.3	0.00	3,122.31	3,977.78	1,015.55	4,459.63	3,979.79	20.42	-2.95	0.794
75.00	-33.37	-31.55	0.00	-2,961.8	0.00	2,961.85	3,905.69	987.57	4,217.26	3,799.16	23.64	-3.2	0.789
80.00	-31.99	-31.02	0.00	-2,804.1	0.00	2,804.09	3,831.48	959.58	3,981.67	3,620.52	27.13	-3.46	0.784
85.00	-30.64	-30.49	0.00	-2,649.0	0.00	2,649.01	3,755.13	931.60	3,752.84	3,444.06	30.89	-3.72	0.778
90.00	-29.34	-30.03	0.00	-2,496.6	0.00	2,496.58	3,676.66	903.61	3,530.79	3,269.95	34.94	-4	0.773
93.50	-28.45	-29.75	0.00	-2,391.5	0.00	2,391.49	3,620.47	884.02	3,379.38	3,149.57	37.94	-4.2	0.768
95.00	-27.78	-29.46	0.00	-2,346.9	0.00	2,346.87	3,596.07	875.63	3,315.51	3,098.37	39.28	-4.29	0.766
99.00	-26.13	-29.12	0.00	-2,229.0	0.00	2,229.02	2,806.80	723.00	2,712.38	2,399.55	42.97	-4.52	0.940
100.00	-25.86	-28.86	0.00	-2,199.9	0.00	2,199.90	2,795.24	718.34	2,677.50	2,374.14	43.92	-4.58	0.937
105.00	-24.77	-28.37	0.00	-2,055.6	0.00	2,055.62	2,736.18	695.02	2,506.50	2,247.96	48.9	-4.93	0.925
110.00	-23.70	-27.89	0.00	-1,913.8	0.00	1,913.77	2,675.00	671.70	2,341.13	2,123.38	54.24	-5.28	0.912
115.00	-22.67	-27.42	0.00	-1,774.3	0.00	1,774.31	2,611.69	648.37	2,181.41	2,000.57	59.96	-5.65	0.897
120.00	-21.66	-26.96	0.00	-1,637.2	0.00	1,637.20	2,546.25	625.05	2,027.33	1,879.71	66.07	-6.02	0.881
125.00	-20.68	-26.51	0.00	-1,502.4	0.00	1,502.38	2,478.69	601.73	1,878.89	1,760.97	72.56	-6.41	0.863
130.00	-19.74	-26.10	0.00	-1,369.8	0.00	1,369.83	2,409.00	578.41	1,736.10	1,644.54	79.47	-6.8	0.843
134.25	-18.99	-25.84	0.00	-1,258.9	0.00	1,258.92	2,348.09	558.59	1,619.16	1,547.51	85.67	-7.15	0.824
135.00	-18.74	-25.68	0.00	-1,239.5	0.00	1,239.54	2,337.18	555.09	1,598.95	1,530.58	86.79	-7.21	0.820
138.50	**-17.77**	**-25.39**	**0.00**	**-1,149.7**	**0.00**	**1,149.68**	**1,735.68**	**438.85**	**1,249.15**	**1,125.37**	**92.17**	**-7.5**	**1.035**
140.00	**-17.48**	**-25.17**	**0.00**	**-1,111.6**	**0.00**	**1,111.59**	**1,720.95**	**433.25**	**1,217.50**	**1,101.48**	**94.55**	**-7.63**	**1.023**
145.00	-16.69	-24.79	0.00	-985.8	0.00	985.75	1,670.47	414.59	1,114.91	1,022.76	102.78	-8.13	0.977
150.00	-15.93	-24.41	0.00	-861.8	0.00	861.83	1,617.87	395.94	1,016.84	945.61	111.53	-8.62	0.925
155.00	-15.20	-24.04	0.00	-739.8	0.00	739.78	1,563.13	377.28	923.28	870.20	120.79	-9.12	0.864
160.00	-14.53	-23.73	0.00	-619.6	0.00	619.57	1,506.28	358.62	834.24	796.70	130.56	-9.6	0.792
163.00	-14.13	-23.55	0.00	-548.4	0.00	548.37	1,470.79	347.43	782.98	753.41	136.66	-9.89	0.742
165.00	-13.75	-23.40	0.00	-501.3	0.00	501.28	1,439.20	339.97	749.71	721.24	140.83	-10.09	0.709
166.25	-13.49	-23.23	0.00	-472.0	0.00	472.03	999.90	256.05	566.97	504.49	143.47	-10.2	0.957
170.00	-13.08	-23.01	0.00	-384.9	0.00	384.90	972.91	245.55	521.46	470.60	151.58	-10.53	0.840
173.00	-8.61	-17.37	0.00	-315.9	0.00	315.88	950.46	237.16	486.41	443.90	158.26	-10.84	0.726
175.00	-8.41	-17.15	0.00	-281.2	0.00	281.15	935.07	231.56	463.73	426.32	162.82	-11.03	0.674
180.00	-8.00	-16.81	0.00	-195.4	0.00	195.40	895.10	217.57	409.39	383.23	174.53	-11.44	0.525
185.00	-4.41	-11.06	0.00	-109.0	0.00	108.96	853.00	203.58	358.43	341.51	186.61	-11.76	0.327
190.00	-4.14	-10.73	0.00	-53.6	0.00	53.65	802.57	189.58	310.86	299.02	198.97	-11.97	0.188
195.00	0.00	-9.63	0.00	0.0	0.00	0.00	743.33	175.59	266.67	256.30	211.48	-12.06	0.003

CALCULATED FORCES

Load Case: 0.9D + 1.0W — 116 mph Wind with No Ice (Reduced DL) — 27 Iterations

Gust Response Factor: 1.10
Dead load Factor: 0.90
Wind Load Factor: 1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-44.86	-39.04	0.00	-5,540.5	0.00	5,540.54	4,740.31	1,391.67	8,374.16	6,512.67	0	0	0.861
5.00	-43.43	-38.56	0.00	-5,345.3	0.00	5,345.33	4,696.80	1,363.69	8,040.78	6,322.41	0.09	-0.17	0.856
10.00	-42.02	-38.09	0.00	-5,152.5	0.00	5,152.52	4,651.17	1,335.70	7,714.18	6,131.77	0.37	-0.35	0.850
15.00	-40.64	-37.61	0.00	-4,962.1	0.00	4,962.07	4,603.41	1,307.72	7,394.35	5,940.91	0.84	-0.54	0.845
20.00	-39.29	-37.12	0.00	-4,774.0	0.00	4,774.00	4,553.52	1,279.73	7,081.29	5,750.03	1.5	-0.72	0.840
25.00	-37.96	-36.61	0.00	-4,588.4	0.00	4,588.40	4,501.51	1,251.75	6,775.01	5,559.29	2.36	-0.92	0.835
30.00	-36.66	-36.08	0.00	-4,405.4	0.00	4,405.35	4,447.37	1,223.76	6,475.49	5,368.87	3.43	-1.11	0.830
35.00	-35.38	-35.55	0.00	-4,224.9	0.00	4,224.94	4,391.10	1,195.78	6,182.74	5,178.95	4.7	-1.32	0.825
40.00	-34.12	-35.00	0.00	-4,047.2	0.00	4,047.21	4,332.71	1,167.79	5,896.77	4,989.71	6.19	-1.52	0.820
45.00	-32.94	-34.66	0.00	-3,872.2	0.00	3,872.19	4,272.19	1,139.81	5,617.57	4,801.33	7.91	-1.74	0.815
46.00	-32.66	-34.39	0.00	-3,837.5	0.00	3,837.54	4,259.83	1,134.21	5,562.54	4,763.77	8.27	-1.78	0.814
50.00	-30.92	-33.97	0.00	-3,700.0	0.00	3,699.96	4,209.54	1,111.82	5,345.13	4,613.98	9.85	-1.96	0.810
53.00	-29.63	-33.66	0.00	-3,598.1	0.00	3,598.06	4,206.98	1,110.70	5,334.33	4,606.47	11.12	-2.1	0.789
55.00	-29.13	-33.28	0.00	-3,530.7	0.00	3,530.73	4,181.29	1,099.51	5,227.36	4,531.88	12.02	-2.19	0.787
60.00	-27.97	-32.71	0.00	-3,364.4	0.00	3,364.35	4,115.58	1,071.52	4,964.68	4,346.32	14.44	-2.42	0.782
65.00	-26.83	-32.14	0.00	-3,200.8	0.00	3,200.83	4,047.74	1,043.54	4,708.77	4,162.23	17.09	-2.65	0.777
70.00	-25.72	-31.57	0.00	-3,040.2	0.00	3,040.15	3,977.78	1,015.55	4,459.63	3,979.79	19.99	-2.88	0.771
75.00	-24.64	-31.01	0.00	-2,882.3	0.00	2,882.30	3,905.69	987.57	4,217.26	3,799.16	23.14	-3.13	0.766
80.00	-23.58	-30.45	0.00	-2,727.3	0.00	2,727.26	3,831.48	959.58	3,981.67	3,620.52	26.55	-3.38	0.760
85.00	-22.55	-29.90	0.00	-2,575.0	0.00	2,575.00	3,755.13	931.60	3,752.84	3,444.06	30.22	-3.64	0.755
90.00	-21.55	-29.43	0.00	-2,425.5	0.00	2,425.50	3,676.66	903.61	3,530.79	3,269.95	34.17	-3.9	0.749
93.50	-20.88	-29.14	0.00	-2,322.5	0.00	2,322.51	3,620.47	884.02	3,379.38	3,149.57	37.1	-4.1	0.744
95.00	-20.37	-28.85	0.00	-2,278.8	0.00	2,278.79	3,596.07	875.63	3,315.51	3,098.37	38.41	-4.18	0.742
99.00	-19.12	-28.52	0.00	-2,163.4	0.00	2,163.40	2,806.80	723.00	2,712.38	2,399.55	42.01	-4.41	0.910
100.00	-18.90	-28.23	0.00	-2,134.9	0.00	2,134.88	2,795.24	718.34	2,677.50	2,374.14	42.94	-4.47	0.908
105.00	-18.06	-27.72	0.00	-1,993.7	0.00	1,993.72	2,736.18	695.02	2,506.50	2,247.96	47.79	-4.81	0.895
110.00	-17.24	-27.22	0.00	-1,855.1	0.00	1,855.10	2,675.00	671.70	2,341.13	2,123.38	53	-5.15	0.882
115.00	-16.44	-26.74	0.00	-1,719.0	0.00	1,718.98	2,611.69	648.37	2,181.41	2,000.57	58.58	-5.5	0.867
120.00	-15.66	-26.26	0.00	-1,585.3	0.00	1,585.31	2,546.25	625.05	2,027.33	1,879.71	64.52	-5.86	0.851
125.00	-14.90	-25.79	0.00	-1,454.0	0.00	1,454.03	2,478.69	601.73	1,878.89	1,760.97	70.85	-6.24	0.834
130.00	-14.17	-25.36	0.00	-1,325.1	0.00	1,325.09	2,409.00	578.41	1,736.10	1,644.54	77.58	-6.62	0.814
134.25	-13.60	-25.11	0.00	-1,217.3	0.00	1,217.33	2,348.09	558.59	1,619.16	1,547.51	83.61	-6.95	0.794
135.00	-13.40	-24.93	0.00	-1,198.5	0.00	1,198.50	2,337.18	555.09	1,598.95	1,530.58	84.7	-7.02	0.791
138.50	-12.67	-24.65	0.00	-1,111.2	0.00	1,111.25	1,735.68	438.85	1,249.15	1,125.37	89.94	-7.3	0.998
140.00	-12.43	-24.41	0.00	-1,074.3	0.00	1,074.27	1,720.95	433.25	1,217.50	1,101.48	92.25	-7.42	0.986
145.00	-11.81	-24.00	0.00	-952.2	0.00	952.23	1,670.47	414.59	1,114.91	1,022.76	100.26	-7.9	0.941
150.00	-11.22	-23.61	0.00	-832.2	0.00	832.21	1,617.87	395.94	1,016.84	945.61	108.76	-8.38	0.891
155.00	-10.64	-23.22	0.00	-714.2	0.00	714.18	1,563.13	377.28	923.28	870.20	117.77	-8.86	0.831
160.00	-10.12	-22.91	0.00	-598.1	0.00	598.06	1,506.28	358.62	834.24	796.70	127.26	-9.33	0.761
163.00	-9.81	-22.71	0.00	-529.3	0.00	529.34	1,470.79	347.43	782.98	753.41	133.18	-9.61	0.714
165.00	-9.52	-22.57	0.00	-483.9	0.00	483.92	1,439.20	339.97	749.71	721.24	137.23	-9.79	0.682
166.25	-9.32	-22.40	0.00	-455.7	0.00	455.70	999.90	256.05	566.97	504.49	139.8	-9.91	0.920
170.00	-9.00	-22.16	0.00	-371.7	0.00	371.70	972.91	245.55	521.46	470.60	147.67	-10.22	0.807
173.00	-5.82	-16.78	0.00	-305.2	0.00	305.22	950.46	237.16	486.41	443.90	154.16	-10.52	0.699
175.00	-5.67	-16.55	0.00	-271.7	0.00	271.66	935.07	231.56	463.73	426.32	158.58	-10.7	0.648
180.00	-5.35	-16.21	0.00	-188.9	0.00	188.91	895.10	217.57	409.39	383.23	169.95	-11.1	0.504
185.00	-2.86	-10.71	0.00	-105.5	0.00	105.46	853.00	203.58	358.43	341.51	181.68	-11.41	0.315
190.00	-2.67	-10.39	0.00	-51.9	0.00	51.93	802.57	189.58	310.86	299.02	193.68	-11.62	0.180
195.00	0.00	-9.63	0.00	0.0	0.00	0.00	743.33	175.59	266.67	256.30	205.82	-11.7	0.003

CALCULATED FORCES

Load Case: 1.2D + 1.0Di + 1.0Wi — 37 mph Wind with 0.63" Radial Ice — 26 Iterations

Gust Response Factor: 1.10 — Ice Dead Load Factor 1.00
Dead load Factor: 1.20 — Ice Importance Factor 1.00
Wind Load Factor: 1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-71.24	-5.94	0.00	-832.4	0.00	832.40	4,740.31	1,391.67	8,374.16	6,512.67	0	0	0.143
5.00	-69.29	-5.87	0.00	-802.7	0.00	802.68	4,696.80	1,363.69	8,040.78	6,322.41	0.01	-0.03	0.142
10.00	-67.35	-5.80	0.00	-773.3	0.00	773.33	4,651.17	1,335.70	7,714.18	6,131.77	0.06	-0.05	0.141
15.00	-65.44	-5.73	0.00	-744.3	0.00	744.33	4,603.41	1,307.72	7,394.35	5,940.91	0.13	-0.08	0.140
20.00	-63.55	-5.65	0.00	-715.7	0.00	715.69	4,553.52	1,279.73	7,081.29	5,750.03	0.23	-0.11	0.138
25.00	-61.70	-5.57	0.00	-687.4	0.00	687.43	4,501.51	1,251.75	6,775.01	5,559.29	0.35	-0.14	0.137
30.00	-59.88	-5.49	0.00	-659.6	0.00	659.56	4,447.37	1,223.76	6,475.49	5,368.87	0.51	-0.17	0.136
35.00	-58.09	-5.41	0.00	-632.1	0.00	632.11	4,391.10	1,195.78	6,182.74	5,178.95	0.71	-0.2	0.135
40.00	-56.34	-5.32	0.00	-605.1	0.00	605.07	4,332.71	1,167.79	5,896.77	4,989.71	0.93	-0.23	0.134
45.00	-54.62	-5.27	0.00	-578.5	0.00	578.46	4,272.19	1,139.81	5,617.57	4,801.33	1.19	-0.26	0.133
46.00	-54.28	-5.23	0.00	-573.2	0.00	573.19	4,259.83	1,134.21	5,562.54	4,763.77	1.24	-0.27	0.133
50.00	-51.88	-5.16	0.00	-552.3	0.00	552.28	4,209.54	1,111.82	5,345.13	4,613.98	1.48	-0.29	0.132
53.00	-50.10	-5.11	0.00	-536.8	0.00	536.81	4,206.98	1,110.70	5,334.33	4,606.47	1.67	-0.31	0.128
55.00	-49.44	-5.05	0.00	-526.6	0.00	526.59	4,181.29	1,099.51	5,227.36	4,531.88	1.8	-0.33	0.128
60.00	-47.81	-4.96	0.00	-501.4	0.00	501.35	4,115.58	1,071.52	4,964.68	4,346.32	2.16	-0.36	0.127
65.00	-46.22	-4.87	0.00	-476.6	0.00	476.57	4,047.74	1,043.54	4,708.77	4,162.23	2.56	-0.4	0.126
70.00	-44.66	-4.77	0.00	-452.2	0.00	452.24	3,977.78	1,015.55	4,459.63	3,979.79	3	-0.43	0.125
75.00	-43.14	-4.68	0.00	-428.4	0.00	428.37	3,905.69	987.57	4,217.26	3,799.16	3.47	-0.47	0.124
80.00	-41.65	-4.59	0.00	-405.0	0.00	404.95	3,831.48	959.58	3,981.67	3,620.52	3.98	-0.5	0.123
85.00	-40.21	-4.51	0.00	-382.0	0.00	381.98	3,755.13	931.60	3,752.84	3,444.06	4.52	-0.54	0.122
90.00	-38.80	-4.43	0.00	-359.5	0.00	359.46	3,676.66	903.61	3,530.79	3,269.95	5.11	-0.58	0.121
93.50	-37.84	-4.38	0.00	-344.0	0.00	343.96	3,620.47	884.02	3,379.38	3,149.57	5.55	-0.61	0.120
95.00	-37.17	-4.33	0.00	-337.4	0.00	337.39	3,596.07	875.63	3,315.51	3,098.37	5.75	-0.62	0.119
99.00	-35.41	-4.28	0.00	-320.0	0.00	320.05	2,806.80	723.00	2,712.38	2,399.55	6.28	-0.66	0.146
100.00	-35.18	-4.23	0.00	-315.8	0.00	315.77	2,795.24	718.34	2,677.50	2,374.14	6.42	-0.67	0.146
105.00	-34.02	-4.15	0.00	-294.6	0.00	294.60	2,736.18	695.02	2,506.50	2,247.96	7.15	-0.72	0.144
110.00	-32.90	-4.07	0.00	-273.8	0.00	273.84	2,675.00	671.70	2,341.13	2,123.38	7.93	-0.77	0.141
115.00	-31.82	-4.00	0.00	-253.5	0.00	253.47	2,611.69	648.37	2,181.41	2,000.57	8.76	-0.82	0.139
120.00	-30.76	-3.92	0.00	-233.5	0.00	233.49	2,546.25	625.05	2,027.33	1,879.71	9.64	-0.87	0.136
125.00	-29.74	-3.85	0.00	-213.9	0.00	213.89	2,478.69	601.73	1,878.89	1,760.97	10.59	-0.93	0.134
130.00	-28.75	-3.78	0.00	-194.7	0.00	194.67	2,409.00	578.41	1,736.10	1,644.54	11.59	-0.98	0.130
134.25	-27.93	-3.73	0.00	-178.6	0.00	178.62	2,348.09	558.59	1,619.16	1,547.51	12.48	-1.03	0.127
135.00	-27.71	-3.71	0.00	-175.8	0.00	175.82	2,337.18	555.09	1,598.95	1,530.58	12.65	-1.04	0.127
138.50	-26.70	-3.66	0.00	-162.8	0.00	162.84	1,735.68	438.85	1,249.15	1,125.37	13.43	-1.08	0.160
140.00	-26.45	-3.63	0.00	-157.4	0.00	157.35	1,720.95	433.25	1,217.50	1,101.48	13.77	-1.1	0.158
145.00	-25.67	-3.56	0.00	-139.2	0.00	139.22	1,670.47	414.59	1,114.91	1,022.76	14.96	-1.17	0.152
150.00	-24.91	-3.50	0.00	-121.4	0.00	121.41	1,617.87	395.94	1,016.84	945.61	16.23	-1.24	0.144
155.00	-24.19	-3.44	0.00	-103.9	0.00	103.89	1,563.13	377.28	923.28	870.20	17.56	-1.31	0.135
160.00	-23.49	-3.39	0.00	-86.7	0.00	86.68	1,506.28	358.62	834.24	796.70	18.97	-1.38	0.124
163.00	-23.08	-3.36	0.00	-76.5	0.00	76.50	1,470.79	347.43	782.98	753.41	19.85	-1.42	0.117
165.00	-22.69	-3.34	0.00	-69.8	0.00	69.77	1,439.20	339.97	749.71	721.24	20.45	-1.45	0.113
166.25	-22.45	-3.31	0.00	-65.6	0.00	65.60	999.90	256.05	566.97	504.49	20.83	-1.46	0.153
170.00	-22.03	-3.28	0.00	-53.2	0.00	53.18	972.91	245.55	521.46	470.60	22	-1.51	0.136
173.00	-15.39	-2.41	0.00	-43.4	0.00	43.35	950.46	237.16	486.41	443.90	22.96	-1.55	0.114
175.00	-15.19	-2.38	0.00	-38.5	0.00	38.53	935.07	231.56	463.73	426.32	23.62	-1.58	0.107
180.00	-14.72	-2.32	0.00	-26.6	0.00	26.65	895.10	217.57	409.39	383.23	25.3	-1.63	0.086
185.00	-8.33	-1.51	0.00	-14.8	0.00	14.79	853.00	203.58	358.43	341.51	27.04	-1.68	0.053
190.00	-7.94	-1.45	0.00	-7.2	0.00	7.24	802.57	189.58	310.86	299.02	28.81	-1.71	0.034
195.00	0.00	-1.21	0.00	0.0	0.00	0.00	743.33	175.59	266.67	256.30	30.6	-1.72	0.000

CALCULATED FORCES

Load Case: 1.0D + 1.0W — 60 mph Wind with No Ice — 26 Iterations

Gust Response Factor: 1.10
Dead load Factor: 1.00
Wind Load Factor: 1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-49.91	-9.35	0.00	-1,340.0	0.00	1,340.03	4,740.31	1,391.67	8,374.16	6,512.67	0	0	0.216
5.00	-48.44	-9.24	0.00	-1,293.3	0.00	1,293.29	4,696.80	1,363.69	8,040.78	6,322.41	0.02	-0.04	0.215
10.00	-47.01	-9.13	0.00	-1,247.1	0.00	1,247.11	4,651.17	1,335.70	7,714.18	6,131.77	0.09	-0.09	0.214
15.00	-45.59	-9.02	0.00	-1,201.5	0.00	1,201.48	4,603.41	1,307.72	7,394.35	5,940.91	0.2	-0.13	0.212
20.00	-44.21	-8.90	0.00	-1,156.4	0.00	1,156.39	4,553.52	1,279.73	7,081.29	5,750.03	0.36	-0.18	0.211
25.00	-42.86	-8.78	0.00	-1,111.9	0.00	1,111.87	4,501.51	1,251.75	6,775.01	5,559.29	0.57	-0.22	0.210
30.00	-41.53	-8.66	0.00	-1,068.0	0.00	1,067.95	4,447.37	1,223.76	6,475.49	5,368.87	0.83	-0.27	0.208
35.00	-40.22	-8.54	0.00	-1,024.6	0.00	1,024.64	4,391.10	1,195.78	6,182.74	5,178.95	1.14	-0.32	0.207
40.00	-38.95	-8.41	0.00	-982.0	0.00	981.95	4,332.71	1,167.79	5,896.77	4,989.71	1.5	-0.37	0.206
45.00	-37.71	-8.33	0.00	-939.9	0.00	939.89	4,272.19	1,139.81	5,617.57	4,801.33	1.91	-0.42	0.205
46.00	-37.46	-8.27	0.00	-931.6	0.00	931.56	4,259.83	1,134.21	5,562.54	4,763.77	2	-0.43	0.204
50.00	-35.60	-8.17	0.00	-898.5	0.00	898.49	4,209.54	1,111.82	5,345.13	4,613.98	2.38	-0.48	0.203
53.00	-34.23	-8.10	0.00	-874.0	0.00	873.98	4,206.98	1,110.70	5,334.33	4,606.47	2.69	-0.51	0.198
55.00	-33.75	-8.01	0.00	-857.8	0.00	857.78	4,181.29	1,099.51	5,227.36	4,531.88	2.91	-0.53	0.197
60.00	-32.57	-7.87	0.00	-817.7	0.00	817.74	4,115.58	1,071.52	4,964.68	4,346.32	3.5	-0.59	0.196
65.00	-31.42	-7.74	0.00	-778.4	0.00	778.37	4,047.74	1,043.54	4,708.77	4,162.23	4.14	-0.64	0.195
70.00	-30.29	-7.61	0.00	-739.7	0.00	739.66	3,977.78	1,015.55	4,459.63	3,979.79	4.85	-0.7	0.194
75.00	-29.19	-7.48	0.00	-701.6	0.00	701.62	3,905.69	987.57	4,217.26	3,799.16	5.61	-0.76	0.192
80.00	-28.12	-7.35	0.00	-664.2	0.00	664.22	3,831.48	959.58	3,981.67	3,620.52	6.44	-0.82	0.191
85.00	-27.07	-7.22	0.00	-627.5	0.00	627.48	3,755.13	931.60	3,752.84	3,444.06	7.33	-0.88	0.189
90.00	-26.06	-7.11	0.00	-591.4	0.00	591.38	3,676.66	903.61	3,530.79	3,269.95	8.29	-0.95	0.188
93.50	-25.36	-7.04	0.00	-566.5	0.00	566.50	3,620.47	884.02	3,379.38	3,149.57	9	-1	0.187
95.00	-24.85	-6.97	0.00	-555.9	0.00	555.93	3,596.07	875.63	3,315.51	3,098.37	9.32	-1.02	0.186
99.00	-23.51	-6.90	0.00	-528.0	0.00	528.04	2,806.80	723.00	2,712.38	2,399.55	10.19	-1.07	0.229
100.00	-23.34	-6.83	0.00	-521.1	0.00	521.14	2,795.24	718.34	2,677.50	2,374.14	10.42	-1.09	0.228
105.00	-22.53	-6.71	0.00	-487.0	0.00	486.99	2,736.18	695.02	2,506.50	2,247.96	11.6	-1.17	0.225
110.00	-21.74	-6.60	0.00	-453.4	0.00	453.42	2,675.00	671.70	2,341.13	2,123.38	12.87	-1.25	0.222
115.00	-20.97	-6.49	0.00	-420.4	0.00	420.43	2,611.69	648.37	2,181.41	2,000.57	14.23	-1.34	0.218
120.00	-20.22	-6.38	0.00	-388.0	0.00	388.00	2,546.25	625.05	2,027.33	1,879.71	15.68	-1.43	0.214
125.00	-19.50	-6.27	0.00	-356.1	0.00	356.12	2,478.69	601.73	1,878.89	1,760.97	17.22	-1.52	0.210
130.00	-18.80	-6.17	0.00	-324.8	0.00	324.78	2,409.00	578.41	1,736.10	1,644.54	18.86	-1.61	0.205
134.25	-18.22	-6.11	0.00	-298.6	0.00	298.55	2,348.09	558.59	1,619.16	1,547.51	20.33	-1.69	0.201
135.00	-18.05	-6.07	0.00	-294.0	0.00	293.97	2,337.18	555.09	1,598.95	1,530.58	20.6	-1.71	0.200
138.50	-17.29	-6.01	0.00	-272.7	0.00	272.71	1,735.68	438.85	1,249.15	1,125.37	21.88	-1.78	0.252
140.00	-17.12	-5.96	0.00	-263.7	0.00	263.70	1,720.95	433.25	1,217.50	1,101.48	22.44	-1.81	0.250
145.00	-16.58	-5.87	0.00	-233.9	0.00	233.92	1,670.47	414.59	1,114.91	1,022.76	24.4	-1.93	0.239
150.00	-16.06	-5.78	0.00	-204.6	0.00	204.60	1,617.87	395.94	1,016.84	945.61	26.48	-2.04	0.227
155.00	-15.55	-5.69	0.00	-175.7	0.00	175.71	1,563.13	377.28	923.28	870.20	28.68	-2.16	0.212
160.00	-15.07	-5.62	0.00	-147.2	0.00	147.25	1,506.28	358.62	834.24	796.70	31.01	-2.28	0.195
163.00	-14.78	-5.58	0.00	-130.4	0.00	130.38	1,470.79	347.43	782.98	753.41	32.46	-2.35	0.183
165.00	-14.50	-5.55	0.00	-119.2	0.00	119.22	1,439.20	339.97	749.71	721.24	33.46	-2.39	0.176
166.25	-14.32	-5.51	0.00	-112.3	0.00	112.29	999.90	256.05	566.97	504.49	34.09	-2.42	0.237
170.00	-14.04	-5.46	0.00	-91.6	0.00	91.63	972.91	245.55	521.46	470.60	36.02	-2.5	0.210
173.00	-9.62	-4.13	0.00	-75.3	0.00	75.26	950.46	237.16	486.41	443.90	37.61	-2.57	0.180
175.00	-9.49	-4.08	0.00	-67.0	0.00	67.00	935.07	231.56	463.73	426.32	38.7	-2.62	0.168
180.00	-9.17	-4.00	0.00	-46.6	0.00	46.60	895.10	217.57	409.39	383.23	41.49	-2.72	0.132
185.00	-5.37	-2.64	0.00	-26.0	0.00	26.02	853.00	203.58	358.43	341.51	44.38	-2.79	0.083
190.00	-5.12	-2.56	0.00	-12.8	0.00	12.82	802.57	189.58	310.86	299.02	47.33	-2.84	0.049
195.00	0.00	-2.31	0.00	0.0	0.00	0.00	743.33	175.59	266.67	256.30	50.32	-2.86	0.000

EQUIVALENT LATERAL FORCES METHOD ANALYSIS

Design Spectral Response Acceleration at Short Period (S_{ds}):	0.170
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.100
Long-Period Transition Period (T_L – Seconds):	8
Importance Factor (I_e):	1.000
Response Modification Coefficient (R):	1.500
Seismic Response Coefficient (C_s):	0.030
Upper Limit C_S:	0.030
Lower Limit C_S:	0.030
Period based on Rayleigh Method (sec):	3.410
Redundancy Factor (p):	1.000
Seismic Force Distribution Exponent (k):	2.000
Total Unfactored Dead Load:	49.910 k
Seismic Base Shear (E):	1.500 k

SEISMIC FORCES

1.2D + 1.0Ev + 1.0Eh **Seismic**

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
48	192.5	241	8,935	0.012	18	298
47	187.5	255	8,953	0.012	18	314
46	182.5	296	9,843	0.013	20	365
45	177.5	309	9,739	0.013	20	381
44	174	127	3,858	0.005	8	157
43	171.5	214	6,287	0.009	13	264
42	168.125	274	7,747	0.011	16	338
41	165.625	175	4,797	0.006	10	216
40	164	284	7,637	0.010	16	350
39	161.5	279	7,270	0.010	15	344
38	157.5	479	11,883	0.016	24	591
37	152.5	497	11,561	0.016	24	613
36	147.5	515	11,209	0.015	23	636
35	142.5	533	10,829	0.015	22	658
34	139.25	164	3,171	0.004	6	202
33	136.75	759	14,194	0.019	29	937
32	134.625	165	2,995	0.004	6	204
31	132.125	572	9,993	0.014	20	706
30	127.5	694	11,287	0.015	23	857
29	122.5	717	10,759	0.015	22	885
28	117.5	740	10,211	0.014	21	913
27	112.5	762	9,646	0.013	20	941
26	107.5	785	9,069	0.012	19	968
25	102.5	807	8,483	0.012	17	996
24	99.5	164	1,626	0.002	3	203
23	97	1,336	12,573	0.017	26	1,649
22	94.25	509	4,524	0.006	9	628
21	91.75	692	5,827	0.008	12	854
20	87.5	1,012	7,747	0.011	16	1,249
19	82.5	1,039	7,072	0.010	14	1,282
18	77.5	1,066	6,403	0.009	13	1,316
17	72.5	1,093	5,746	0.008	12	1,349
16	67.5	1,120	5,105	0.007	10	1,383
15	62.5	1,148	4,483	0.006	9	1,416
14	57.5	1,175	3,884	0.005	8	1,450
13	54	477	1,392	0.002	3	589
12	51.5	1,366	3,623	0.005	7	1,686
11	48	1,852	4,267	0.006	9	2,285
10	45.5	245	507	0.001	1	302
9	42.5	1,241	2,241	0.003	5	1,531
8	37.5	1,268	1,783	0.002	4	1,565
7	32.5	1,295	1,368	0.002	3	1,598

SEISMIC FORCES

1.2D + 1.0Ev + 1.0Eh **Seismic**

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
6	27.5	1,322	1,000	0.001	2	1,632
5	22.5	1,349	683	0.001	1	1,665
4	17.5	1,377	422	0.001	1	1,699
3	12.5	1,404	219	0.000	0	1,732
2	7.5	1,431	80	0.000	0	1,766
1	2.5	1,458	9	0.000	0	1,799
Ericsson 8843 Rev 2	195	450	17,111	0.023	35	555
Ericsson Radio 4449 - B13&B5	195	420	15,970	0.022	33	518
Raycap RRFDC-3315-PF-48 (32lbs)	195	64	2,434	0.003	5	79
Raycap RCMDC-6627-PF-48	195	64	2,434	0.003	5	79
Amphenol Antel BXA-70080-8CF-EDIN-X	195	69	2,624	0.004	5	85
Commscope NHH-65C-R2B	195	310	11,773	0.016	24	382
Generic Flat Platform with Handrails	195	2,500	95,062	0.130	194	3,085
Unused Reserve (16854.12 sqin)	195	1,123	42,717	0.058	87	1,386
Ericsson RRUS 4426 B66	185	145	4,969	0.007	10	179
Ericsson RRUS 4415 B30	185	138	4,723	0.006	10	170
Ericsson RRUS 4415 B25	185	138	4,723	0.006	10	170
Ericsson RRUS 4449 B5, B12	185	213	7,290	0.010	15	263
Ericsson RRUS 4478 B14 (18.1" Height)	185	178	6,099	0.008	12	220
Raycap DC9-48-60-24-8C-EV (Enclosure)	185	37	1,266	0.002	3	46
Generic Round Sector Frame	185	2,100	71,872	0.098	147	2,591
Commscope NNH4-65C-R6-V3 (102.5 lbs)	185	615	21,048	0.029	43	759
Ericsson Radio 4460 B25+B66	173	327	9,787	0.013	20	404
Ericsson Radio 4480 B71+B85	173	279	8,350	0.011	17	344
Amphenol Antel APXVAALL24M-U-J20	173	258	7,722	0.010	16	318
Generic Circular Platform with Handrails	173	3,400	101,759	0.139	208	4,196
	Totals:	**49,911**	**732,672**	**1.000**	**1,497**	**61,590**

SEISMIC FORCES

0.9D - 1.0Ev + 1.0Eh **Seismic (Reduced DL)**

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
48	192.5	241	8,935	0.012	18	209
47	187.5	255	8,953	0.012	18	221
46	182.5	296	9,843	0.013	20	256
45	177.5	309	9,739	0.013	20	268
44	174	127	3,858	0.005	8	110
43	171.5	214	6,287	0.009	13	185
42	168.125	274	7,747	0.011	16	237
41	165.625	175	4,797	0.006	10	151
40	164	284	7,637	0.010	16	246
39	161.5	279	7,270	0.010	15	241
38	157.5	479	11,883	0.016	24	415
37	152.5	497	11,561	0.016	24	430
36	147.5	515	11,209	0.015	23	446
35	142.5	533	10,829	0.015	22	462
34	139.25	164	3,171	0.004	6	142
33	136.75	759	14,194	0.019	29	657
32	134.625	165	2,995	0.004	6	143
31	132.125	572	9,993	0.014	20	496
30	127.5	694	11,287	0.015	23	601
29	122.5	717	10,759	0.015	22	621
28	117.5	740	10,211	0.014	21	640
27	112.5	762	9,646	0.013	20	660
26	107.5	785	9,069	0.012	19	680
25	102.5	807	8,483	0.012	17	699
24	99.5	164	1,626	0.002	3	142
23	97	1,336	12,573	0.017	26	1,157
22	94.25	509	4,524	0.006	9	441
21	91.75	692	5,827	0.008	12	599
20	87.5	1,012	7,747	0.011	16	876

SEISMIC FORCES

0.9D - 1.0Ev + 1.0Eh **Seismic (Reduced DL)**

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
19	82.5	1,039	7,072	0.010	14	900
18	77.5	1,066	6,403	0.009	13	923
17	72.5	1,093	5,746	0.008	12	947
16	67.5	1,120	5,105	0.007	10	970
15	62.5	1,148	4,483	0.006	9	994
14	57.5	1,175	3,884	0.005	8	1,017
13	54	477	1,392	0.002	3	413
12	51.5	1,366	3,623	0.005	7	1,183
11	48	1,852	4,267	0.006	9	1,604
10	45.5	245	507	0.001	1	212
9	42.5	1,241	2,241	0.003	5	1,075
8	37.5	1,268	1,783	0.002	4	1,098
7	32.5	1,295	1,368	0.002	3	1,122
6	27.5	1,322	1,000	0.001	2	1,145
5	22.5	1,349	683	0.001	1	1,169
4	17.5	1,377	422	0.001	1	1,192
3	12.5	1,404	219	0.000	0	1,216
2	7.5	1,431	80	0.000	0	1,239
1	2.5	1,458	9	0.000	0	1,263
Ericsson 8843 Rev 2	195	450	17,111	0.023	35	390
Ericsson Radio 4449 - B13&B5	195	420	15,970	0.022	33	364
Raycap RRFDC-3315-PF-48 (32lbs)	195	64	2,434	0.003	5	55
Raycap RCMDC-6627-PF-48	195	64	2,434	0.003	5	55
Amphenol Antel BXA-70080-8CF-EDIN-X	195	69	2,624	0.004	5	60
Commscope NHH-65C-R2B	195	310	11,773	0.016	24	268
Generic Flat Platform with Handrails	195	2,500	95,062	0.130	194	2,165
Unused Reserve (16854.12 sqin)	195	1,123	42,717	0.058	87	973
Ericsson RRUS 4426 B66	185	145	4,969	0.007	10	126
Ericsson RRUS 4415 B30	185	138	4,723	0.006	10	120
Ericsson RRUS 4415 B25	185	138	4,723	0.006	10	120
Ericsson RRUS 4449 B5, B12	185	213	7,290	0.010	15	184
Ericsson RRUS 4478 B14 (18.1" Height)	185	178	6,099	0.008	12	154
Raycap DC9-48-60-24-8C-EV (Enclosure)	185	37	1,266	0.002	3	32
Generic Round Sector Frame	185	2,100	71,872	0.098	147	1,819
Commscope NNH4-65C-R6-V3 (102.5 lbs)	185	615	21,048	0.029	43	533
Ericsson Radio 4460 B25+B66	173	327	9,787	0.013	20	283
Ericsson Radio 4480 B71+B85	173	279	8,350	0.011	17	242
Amphenol Antel APXVAALL24M-U-J20	173	258	7,722	0.010	16	223
Generic Circular Platform with Handrails	173	3,400	101,759	0.139	208	2,944
	Totals:	**49,911**	**732,672**	**1.000**	**1,497**	**43,223**

SEISMIC FORCES

1.2D + 1.0Ev + 1.5Eh **Seismic Overstrength**

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
48	192.5	241	8,935	0.012	27	298
47	187.5	255	8,953	0.012	27	314
46	182.5	296	9,843	0.013	30	365
45	177.5	309	9,739	0.013	30	381
44	174	127	3,858	0.005	12	157
43	171.5	214	6,287	0.009	19	264
42	168.125	274	7,747	0.011	24	338
41	165.625	175	4,797	0.006	15	216
40	164	284	7,637	0.010	23	350
39	161.5	279	7,270	0.010	22	344
38	157.5	479	11,883	0.016	36	591
37	152.5	497	11,561	0.016	35	613
36	147.5	515	11,209	0.015	34	636
35	142.5	533	10,829	0.015	33	658
34	139.25	164	3,171	0.004	10	202
33	136.75	759	14,194	0.019	44	937

SEISMIC FORCES

1.2D + 1.0Ev + 1.5Eh **Seismic Overstrength**

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
32	134.625	165	2,995	0.004	9	204
31	132.125	572	9,993	0.014	31	706
30	127.5	694	11,287	0.015	35	857
29	122.5	717	10,759	0.015	33	885
28	117.5	740	10,211	0.014	31	913
27	112.5	762	9,646	0.013	30	941
26	107.5	785	9,069	0.012	28	968
25	102.5	807	8,483	0.012	26	996
24	99.5	164	1,626	0.002	5	203
23	97	1,336	12,573	0.017	39	1,649
22	94.25	509	4,524	0.006	14	628
21	91.75	692	5,827	0.008	18	854
20	87.5	1,012	7,747	0.011	24	1,249
19	82.5	1,039	7,072	0.010	22	1,282
18	77.5	1,066	6,403	0.009	20	1,316
17	72.5	1,093	5,746	0.008	18	1,349
16	67.5	1,120	5,105	0.007	16	1,383
15	62.5	1,148	4,483	0.006	14	1,416
14	57.5	1,175	3,884	0.005	12	1,450
13	54	477	1,392	0.002	4	589
12	51.5	1,366	3,623	0.005	11	1,686
11	48	1,852	4,267	0.006	13	2,285
10	45.5	245	507	0.001	2	302
9	42.5	1,241	2,241	0.003	7	1,531
8	37.5	1,268	1,783	0.002	5	1,565
7	32.5	1,295	1,368	0.002	4	1,598
6	27.5	1,322	1,000	0.001	3	1,632
5	22.5	1,349	683	0.001	2	1,665
4	17.5	1,377	422	0.001	1	1,699
3	12.5	1,404	219	0.000	1	1,732
2	7.5	1,431	80	0.000	0	1,766
1	2.5	1,458	9	0.000	0	1,799
Ericsson 8843 Rev 2	195	450	17,111	0.023	52	555
Ericsson Radio 4449 - B13&B5	195	420	15,970	0.022	49	518
Raycap RRFDC-3315-PF-48 (32lbs)	195	64	2,434	0.003	7	79
Raycap RCMDC-6627-PF-48	195	64	2,434	0.003	7	79
Amphenol Antel BXA-70080-8CF-EDIN-X	195	69	2,624	0.004	8	85
Commscope NHH-65C-R2B	195	310	11,773	0.016	36	382
Generic Flat Platform with Handrails	195	2,500	95,062	0.130	291	3,085
Unused Reserve (16854.12 sqin)	195	1,123	42,717	0.058	131	1,386
Ericsson RRUS 4426 B66	185	145	4,969	0.007	15	179
Ericsson RRUS 4415 B30	185	138	4,723	0.006	14	170
Ericsson RRUS 4415 B25	185	138	4,723	0.006	14	170
Ericsson RRUS 4449 B5, B12	185	213	7,290	0.010	22	263
Ericsson RRUS 4478 B14 (18.1" Height)	185	178	6,099	0.008	19	220
Raycap DC9-48-60-24-8C-EV (Enclosure)	185	37	1,266	0.002	4	46
Generic Round Sector Frame	185	2,100	71,872	0.098	220	2,591
Commscope NNH4-65C-R6-V3 (102.5 lbs)	185	615	21,048	0.029	65	759
Ericsson Radio 4460 B25+B66	173	327	9,787	0.013	30	404
Ericsson Radio 4480 B71+B85	173	279	8,350	0.011	26	344
Amphenol Antel APXVAALL24M-U-J20	173	258	7,722	0.010	24	318
Generic Circular Platform with Handrails	173	3,400	101,759	0.139	312	4,196
	Totals:	**49,911**	**732,672**	**1.000**	**2,246**	**61,590**

SEISMIC FORCES

0.9D - 1.0Ev + 1.5Eh **Seismic Overstrength (Reduced DL)**

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
48	192.5	241	8,935	0.012	27	209
47	187.5	255	8,953	0.012	27	221
46	182.5	296	9,843	0.013	30	256

SEISMIC FORCES

0.9D - 1.0Ev + 1.5Eh **Seismic Overstrength (Reduced DL)**

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
45	177.5	309	9,739	0.013	30	268
44	174	127	3,858	0.005	12	110
43	171.5	214	6,287	0.009	19	185
42	168.125	274	7,747	0.011	24	237
41	165.625	175	4,797	0.006	15	151
40	164	284	7,637	0.010	23	246
39	161.5	279	7,270	0.010	22	241
38	157.5	479	11,883	0.016	36	415
37	152.5	497	11,561	0.016	35	430
36	147.5	515	11,209	0.015	34	446
35	142.5	533	10,829	0.015	33	462
34	139.25	164	3,171	0.004	10	142
33	136.75	759	14,194	0.019	44	657
32	134.625	165	2,995	0.004	9	143
31	132.125	572	9,993	0.014	31	496
30	127.5	694	11,287	0.015	35	601
29	122.5	717	10,759	0.015	33	621
28	117.5	740	10,211	0.014	31	640
27	112.5	762	9,646	0.013	30	660
26	107.5	785	9,069	0.012	28	680
25	102.5	807	8,483	0.012	26	699
24	99.5	164	1,626	0.002	5	142
23	97	1,336	12,573	0.017	39	1,157
22	94.25	509	4,524	0.006	14	441
21	91.75	692	5,827	0.008	18	599
20	87.5	1,012	7,747	0.011	24	876
19	82.5	1,039	7,072	0.010	22	900
18	77.5	1,066	6,403	0.009	20	923
17	72.5	1,093	5,746	0.008	18	947
16	67.5	1,120	5,105	0.007	16	970
15	62.5	1,148	4,483	0.006	14	994
14	57.5	1,175	3,884	0.005	12	1,017
13	54	477	1,392	0.002	4	413
12	51.5	1,366	3,623	0.005	11	1,183
11	48	1,852	4,267	0.006	13	1,604
10	45.5	245	507	0.001	2	212
9	42.5	1,241	2,241	0.003	7	1,075
8	37.5	1,268	1,783	0.002	5	1,098
7	32.5	1,295	1,368	0.002	4	1,122
6	27.5	1,322	1,000	0.001	3	1,145
5	22.5	1,349	683	0.001	2	1,169
4	17.5	1,377	422	0.001	1	1,192
3	12.5	1,404	219	0.000	1	1,216
2	7.5	1,431	80	0.000	0	1,239
1	2.5	1,458	9	0.000	0	1,263
Ericsson 8843 Rev 2	195	450	17,111	0.023	52	390
Ericsson Radio 4449 - B13&B5	195	420	15,970	0.022	49	364
Raycap RRFDC-3315-PF-48 (32lbs)	195	64	2,434	0.003	7	55
Raycap RCMDC-6627-PF-48	195	64	2,434	0.003	7	55
Amphenol Antel BXA-70080-8CF-EDIN-X	195	69	2,624	0.004	8	60
Commscope NHH-65C-R2B	195	310	11,773	0.016	36	268
Generic Flat Platform with Handrails	195	2,500	95,062	0.130	291	2,165
Unused Reserve (16854.12 sqin)	195	1,123	42,717	0.058	131	973
Ericsson RRUS 4426 B66	185	145	4,969	0.007	15	126
Ericsson RRUS 4415 B30	185	138	4,723	0.006	14	120
Ericsson RRUS 4415 B25	185	138	4,723	0.006	14	120
Ericsson RRUS 4449 B5, B12	185	213	7,290	0.010	22	184
Ericsson RRUS 4478 B14 (18.1" Height)	185	178	6,099	0.008	19	154
Raycap DC9-48-60-24-8C-EV (Enclosure)	185	37	1,266	0.002	4	32
Generic Round Sector Frame	185	2,100	71,872	0.098	220	1,819
Commscope NNH4-65C-R6-V3 (102.5 lbs)	185	615	21,048	0.029	65	533

SEISMIC FORCES

0.9D - 1.0Ev + 1.5Eh **Seismic Overstrength (Reduced DL)**

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
Ericsson Radio 4460 B25+B66	173	327	9,787	0.013	30	283
Ericsson Radio 4480 B71+B85	173	279	8,350	0.011	26	242
Amphenol Antel APXVAALL24M-U-J20	173	258	7,722	0.010	24	223
Generic Circular Platform with Handrails	173	3,400	101,759	0.139	312	2,944
	Totals:	**49,911**	**732,672**	**1.000**	**2,246**	**43,223**

1.2D + 1.0Ev + 1.0Eh **Seismic**

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-59.79	-1.50	0.00	-259.87	0.00	259.87	4,740.31	1,391.67	8,374	6,512.67	0.00	0.00	0.05
5.00	-58.03	-1.51	0.00	-252.37	0.00	252.37	4,696.80	1,363.69	8,041	6,322.41	0.00	-0.01	0.05
10.00	-56.29	-1.52	0.00	-244.83	0.00	244.83	4,651.17	1,335.70	7,714	6,131.77	0.02	-0.02	0.05
15.00	-54.59	-1.52	0.00	-237.25	0.00	237.25	4,603.41	1,307.72	7,394	5,940.91	0.04	-0.03	0.05
20.00	-52.93	-1.53	0.00	-229.63	0.00	229.63	4,553.52	1,279.73	7,081	5,750.03	0.07	-0.03	0.05
25.00	-51.30	-1.53	0.00	-221.98	0.00	221.98	4,501.51	1,251.75	6,775	5,559.29	0.11	-0.04	0.05
30.00	-49.70	-1.54	0.00	-214.31	0.00	214.31	4,447.37	1,223.76	6,475	5,368.87	0.16	-0.05	0.05
35.00	-48.13	-1.54	0.00	-206.62	0.00	206.62	4,391.10	1,195.78	6,183	5,178.95	0.22	-0.06	0.05
40.00	-46.60	-1.54	0.00	-198.91	0.00	198.91	4,332.71	1,167.79	5,897	4,989.71	0.30	-0.07	0.05
45.00	-46.30	-1.55	0.00	-191.19	0.00	191.19	4,272.19	1,139.81	5,618	4,801.33	0.38	-0.08	0.05
46.00	-44.01	-1.54	0.00	-189.64	0.00	189.64	4,259.83	1,134.21	5,563	4,763.77	0.40	-0.09	0.05
50.00	-42.33	-1.54	0.00	-183.48	0.00	183.48	4,209.54	1,111.82	5,345	4,613.98	0.47	-0.09	0.05
53.00	-41.74	-1.54	0.00	-178.87	0.00	178.87	4,206.98	1,110.70	5,334	4,606.47	0.53	-0.10	0.05
55.00	-40.29	-1.53	0.00	-175.80	0.00	175.80	4,181.29	1,099.51	5,227	4,531.88	0.58	-0.11	0.05
60.00	-38.87	-1.53	0.00	-168.15	0.00	168.15	4,115.58	1,071.52	4,965	4,346.32	0.69	-0.12	0.05
65.00	-37.49	-1.52	0.00	-160.51	0.00	160.51	4,047.74	1,043.54	4,709	4,162.23	0.82	-0.13	0.05
70.00	-36.14	-1.51	0.00	-152.91	0.00	152.91	3,977.78	1,015.55	4,460	3,979.79	0.97	-0.14	0.05
75.00	-34.82	-1.50	0.00	-145.34	0.00	145.34	3,905.69	987.57	4,217	3,799.16	1.12	-0.15	0.05
80.00	-33.54	-1.49	0.00	-137.82	0.00	137.82	3,831.48	959.58	3,982	3,620.52	1.29	-0.17	0.05
85.00	-32.29	-1.48	0.00	-130.34	0.00	130.34	3,755.13	931.60	3,753	3,444.06	1.47	-0.18	0.05
90.00	-31.44	-1.47	0.00	-122.93	0.00	122.93	3,676.66	903.61	3,531	3,269.95	1.66	-0.19	0.05
93.50	-30.81	-1.47	0.00	-117.77	0.00	117.77	3,620.47	884.02	3,379	3,149.57	1.81	-0.20	0.05
95.00	-29.16	-1.44	0.00	-115.57	0.00	115.57	3,596.07	875.63	3,316	3,098.37	1.87	-0.21	0.05
99.00	-28.96	-1.44	0.00	-109.82	0.00	109.82	2,806.80	723.00	2,712	2,399.55	2.05	-0.22	0.06
100.00	-27.96	-1.42	0.00	-108.38	0.00	108.38	2,795.24	718.34	2,678	2,374.14	2.10	-0.22	0.06
105.00	-26.99	-1.41	0.00	-101.27	0.00	101.27	2,736.18	695.02	2,506	2,247.96	2.34	-0.24	0.06
110.00	-26.05	-1.39	0.00	-94.23	0.00	94.23	2,675.00	671.70	2,341	2,123.38	2.60	-0.26	0.05
115.00	-25.14	-1.38	0.00	-87.27	0.00	87.27	2,611.69	648.37	2,181	2,000.57	2.87	-0.27	0.05
120.00	-24.25	-1.36	0.00	-80.39	0.00	80.39	2,546.25	625.05	2,027	1,879.71	3.17	-0.29	0.05
125.00	-23.40	-1.34	0.00	-73.61	0.00	73.61	2,478.69	601.73	1,879	1,760.97	3.49	-0.31	0.05
130.00	-22.69	-1.32	0.00	-66.92	0.00	66.92	2,409.00	578.41	1,736	1,644.54	3.82	-0.33	0.05
134.25	-22.49	-1.32	0.00	-61.31	0.00	61.31	2,348.09	558.59	1,619	1,547.51	4.12	-0.35	0.05
135.00	-21.55	-1.29	0.00	-60.33	0.00	60.33	2,337.18	555.09	1,599	1,530.58	4.18	-0.35	0.05
138.50	-21.35	-1.28	0.00	-55.83	0.00	55.83	1,735.68	438.85	1,249	1,125.37	4.44	-0.36	0.06
140.00	-20.69	-1.26	0.00	-53.91	0.00	53.91	1,720.95	433.25	1,218	1,101.48	4.56	-0.37	0.06
145.00	-20.05	-1.24	0.00	-47.60	0.00	47.60	1,670.47	414.59	1,115	1,022.76	4.96	-0.39	0.06
150.00	-19.44	-1.22	0.00	-41.40	0.00	41.40	1,617.87	395.94	1,017	945.61	5.38	-0.42	0.06
155.00	-18.85	-1.20	0.00	-35.29	0.00	35.29	1,563.13	377.28	923	870.20	5.83	-0.44	0.05
160.00	-18.50	-1.19	0.00	-29.28	0.00	29.28	1,506.28	358.62	834	796.70	6.31	-0.47	0.05
163.00	-18.15	-1.17	0.00	-25.71	0.00	25.71	1,470.79	347.43	783	753.41	6.61	-0.48	0.05
165.00	-17.94	-1.17	0.00	-23.37	0.00	23.37	1,439.20	339.97	750	721.24	6.81	-0.49	0.05
166.25	-17.60	-1.15	0.00	-21.91	0.00	21.91	999.90	256.05	567	504.49	6.94	-0.49	0.06
170.00	-17.34	-1.14	0.00	-17.60	0.00	17.60	972.91	245.55	521	470.60	7.33	-0.51	0.06
173.00	-11.92	-0.82	0.00	-14.18	0.00	14.18	950.46	237.16	486	443.90	7.66	-0.52	0.05
175.00	-11.54	-0.80	0.00	-12.54	0.00	12.54	935.07	231.56	464	426.32	7.88	-0.53	0.04
180.00	-11.17	-0.78	0.00	-8.52	0.00	8.52	895.10	217.57	409	383.23	8.44	-0.55	0.04
185.00	-6.46	-0.47	0.00	-4.61	0.00	4.61	853.00	203.58	358	341.51	9.03	-0.56	0.02
190.00	-6.17	-0.45	0.00	-2.25	0.00	2.25	802.57	189.58	311	299.02	9.62	-0.57	0.02
195.00	0.00	-0.39	0.00	0.00	0.00	0.00	743.33	175.59	267	256.30	10.22	-0.58	0.00

0.9D - 1.0Ev + 1.0Eh **Seismic (Reduced DL)**

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-41.96	-1.50	0.00	-253.99	0.00	253.99	4,740.31	1,391.67	8,374	6,512.67	0.00	0.00	0.05
5.00	-40.72	-1.50	0.00	-246.50	0.00	246.50	4,696.80	1,363.69	8,041	6,322.41	0.00	-0.01	0.05
10.00	-39.51	-1.51	0.00	-238.97	0.00	238.97	4,651.17	1,335.70	7,714	6,131.77	0.02	-0.02	0.05
15.00	-38.31	-1.51	0.00	-231.43	0.00	231.43	4,603.41	1,307.72	7,394	5,940.91	0.04	-0.02	0.05
20.00	-37.14	-1.52	0.00	-223.85	0.00	223.85	4,553.52	1,279.73	7,081	5,750.03	0.07	-0.03	0.05
25.00	-36.00	-1.52	0.00	-216.26	0.00	216.26	4,501.51	1,251.75	6,775	5,559.29	0.11	-0.04	0.05
30.00	-34.88	-1.52	0.00	-208.66	0.00	208.66	4,447.37	1,223.76	6,475	5,368.87	0.16	-0.05	0.05
35.00	-33.78	-1.52	0.00	-201.04	0.00	201.04	4,391.10	1,195.78	6,183	5,178.95	0.22	-0.06	0.05
40.00	-32.70	-1.52	0.00	-193.42	0.00	193.42	4,332.71	1,167.79	5,897	4,989.71	0.29	-0.07	0.05
45.00	-32.49	-1.53	0.00	-185.80	0.00	185.80	4,272.19	1,139.81	5,618	4,801.33	0.37	-0.08	0.05
46.00	-30.89	-1.52	0.00	-184.28	0.00	184.28	4,259.83	1,134.21	5,563	4,763.77	0.39	-0.08	0.05
50.00	-29.70	-1.51	0.00	-178.20	0.00	178.20	4,209.54	1,111.82	5,345	4,613.98	0.46	-0.09	0.05
53.00	-29.29	-1.51	0.00	-173.67	0.00	173.67	4,206.98	1,110.70	5,334	4,606.47	0.52	-0.10	0.05
55.00	-28.27	-1.51	0.00	-170.64	0.00	170.64	4,181.29	1,099.51	5,227	4,531.88	0.56	-0.10	0.04
60.00	-27.28	-1.50	0.00	-163.11	0.00	163.11	4,115.58	1,071.52	4,965	4,346.32	0.68	-0.11	0.04
65.00	-26.31	-1.49	0.00	-155.61	0.00	155.61	4,047.74	1,043.54	4,709	4,162.23	0.80	-0.13	0.04
70.00	-25.36	-1.48	0.00	-148.14	0.00	148.14	3,977.78	1,015.55	4,460	3,979.79	0.94	-0.14	0.04
75.00	-24.44	-1.47	0.00	-140.72	0.00	140.72	3,905.69	987.57	4,217	3,799.16	1.09	-0.15	0.04
80.00	-23.54	-1.46	0.00	-133.35	0.00	133.35	3,831.48	959.58	3,982	3,620.52	1.25	-0.16	0.04
85.00	-22.66	-1.45	0.00	-126.04	0.00	126.04	3,755.13	931.60	3,753	3,444.06	1.43	-0.17	0.04
90.00	-22.06	-1.44	0.00	-118.79	0.00	118.79	3,676.66	903.61	3,531	3,269.95	1.62	-0.19	0.04
93.50	-21.62	-1.43	0.00	-113.75	0.00	113.75	3,620.47	884.02	3,379	3,149.57	1.76	-0.20	0.04
95.00	-20.46	-1.40	0.00	-111.61	0.00	111.61	3,596.07	875.63	3,316	3,098.37	1.82	-0.20	0.04
99.00	-20.32	-1.40	0.00	-105.99	0.00	105.99	2,806.80	723.00	2,712	2,399.55	1.99	-0.21	0.05
100.00	-19.62	-1.39	0.00	-104.59	0.00	104.59	2,795.24	718.34	2,678	2,374.14	2.04	-0.21	0.05
105.00	-18.94	-1.37	0.00	-97.65	0.00	97.65	2,736.18	695.02	2,506	2,247.96	2.27	-0.23	0.05
110.00	-18.28	-1.35	0.00	-90.80	0.00	90.80	2,675.00	671.70	2,341	2,123.38	2.52	-0.25	0.05
115.00	-17.64	-1.34	0.00	-84.03	0.00	84.03	2,611.69	648.37	2,181	2,000.57	2.79	-0.27	0.05
120.00	-17.02	-1.32	0.00	-77.35	0.00	77.35	2,546.25	625.05	2,027	1,879.71	3.08	-0.28	0.05
125.00	-16.42	-1.30	0.00	-70.77	0.00	70.77	2,478.69	601.73	1,879	1,760.97	3.39	-0.30	0.05
130.00	-15.92	-1.28	0.00	-64.29	0.00	64.29	2,409.00	578.41	1,736	1,644.54	3.71	-0.32	0.05
134.25	-15.78	-1.27	0.00	-58.87	0.00	58.87	2,348.09	558.59	1,619	1,547.51	4.00	-0.34	0.05
135.00	-15.12	-1.24	0.00	-57.91	0.00	57.91	2,337.18	555.09	1,599	1,530.58	4.06	-0.34	0.04
138.50	-14.98	-1.24	0.00	-53.56	0.00	53.56	1,735.68	438.85	1,249	1,125.37	4.31	-0.35	0.06
140.00	-14.52	-1.22	0.00	-51.71	0.00	51.71	1,720.95	433.25	1,218	1,101.48	4.42	-0.36	0.06
145.00	-14.07	-1.20	0.00	-45.63	0.00	45.63	1,670.47	414.59	1,115	1,022.76	4.81	-0.38	0.05
150.00	-13.64	-1.17	0.00	-39.65	0.00	39.65	1,617.87	395.94	1,017	945.61	5.22	-0.40	0.05
155.00	-13.23	-1.15	0.00	-33.77	0.00	33.77	1,563.13	377.28	923	870.20	5.66	-0.43	0.05
160.00	-12.98	-1.14	0.00	-28.01	0.00	28.01	1,506.28	358.62	834	796.70	6.12	-0.45	0.04
163.00	-12.74	-1.12	0.00	-24.59	0.00	24.59	1,470.79	347.43	783	753.41	6.40	-0.46	0.04
165.00	-12.59	-1.12	0.00	-22.34	0.00	22.34	1,439.20	339.97	750	721.24	6.60	-0.47	0.04
166.25	-12.35	-1.10	0.00	-20.95	0.00	20.95	999.90	256.05	567	504.49	6.72	-0.48	0.05
170.00	-12.16	-1.09	0.00	-16.82	0.00	16.82	972.91	245.55	521	470.60	7.10	-0.49	0.05
173.00	-8.36	-0.79	0.00	-13.56	0.00	13.56	950.46	237.16	486	443.90	7.42	-0.50	0.04
175.00	-8.10	-0.77	0.00	-11.98	0.00	11.98	935.07	231.56	464	426.32	7.63	-0.51	0.04
180.00	-7.84	-0.75	0.00	-8.14	0.00	8.14	895.10	217.57	409	383.23	8.18	-0.53	0.03
185.00	-4.53	-0.45	0.00	-4.40	0.00	4.40	853.00	203.58	358	341.51	8.74	-0.54	0.02
190.00	-4.33	-0.43	0.00	-2.15	0.00	2.15	802.57	189.58	311	299.02	9.31	-0.55	0.01
195.00	0.00	-0.39	0.00	0.00	0.00	0.00	743.33	175.59	267	256.30	9.89	-0.55	0.00

ANALYSIS SUMMARY

Load Case	Base Reactions: Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Max Usage: Elev (ft)	Interaction Ratio
1.2D + 1.0W	**39.07**	**0.00**	**59.83**	**0.00**	**0.00**	**5642.86**	**138.50**	**1.04**
0.9D + 1.0W	**39.04**	**0.00**	**44.86**	**0.00**	**0.00**	**5540.54**	**138.50**	**1**
1.2D + 1.0Di + 1.0Wi	5.94	0.00	71.24	0.00	0.00	832.40	138.50	0.16
1.2D + 1.0Ev + 1.0Eh	1.50	0.00	59.79	0.00	0.00	259.87	138.50	0.06
0.9D - 1.0Ev + 1.0Eh	1.50	0.00	41.96	0.00	0.00	253.99	138.50	0.06
1.0D + 1.0W	9.35	0.00	49.91	0.00	0.00	1340.03	138.50	0.25

ANALYSIS SUMMARY – OVERSTRENGTH LOAD CASES

Load Case	Base Reactions: Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.0Ev + 1.5Eh	2.25	0.00	59.79	0.00	0.00	390.01
0.9D - 1.0Ev + 1.5Eh	2.25	0.00	41.96	0.00	0.00	380.98

ASSET:	414969, Mamers NC	CODE:	ANSI/TIA-222-I
CUSTOMER:	T-MOBILE	PROJECT:	15020848

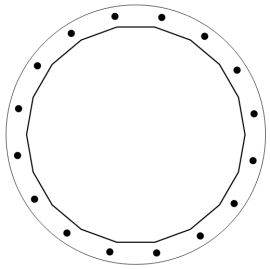
BASE PLATE ANALYSIS @ 0 FT

APPLIED REACTIONS

Moment (k-ft)	Axial (k)	Shear (k)
5642.86	59.83	39.07

PLATE PARAMETERS (ID# 33015)

Width:	80.5	in
Shape:	Round	
Thickness:	2.25	in
Grade:	A572-60	
Yield Strength:	60	ksi
Tensile Strength:	75	ksi
Rod Detail Type:	d	
Clear Distance	3.5	in
Base Weld Size:	0.125	in
Orientation Offset:	-	°
Analysis Type:	Plastic	
Neutral Axis:	21	°



ANCHOR ROD PARAMETERS

Class	Arrangement	Quantity	Diameter (in)	Circle (in)	Grade	F_y (ksi)	F_u (ksi)	Spacing (in)	Offset (°)
Original [ID#33884]	Radial	16	2.25	74.5	A615-75	75	100	-	10

COMPONENT PROPERTIES

Component	ID	Gross Area (in^2)	Net Area (in^2)	Individual Inertia (in^4)	Moment of Inertia (in^4)	Threads/in
Pole	67"ø x 0.375" (18 Sides)	78.0928	-	-	43334.37	-
Bolt Group	Original (16) 2.25"ø	3.9761	3.2477	0.8393	33568.66	4.5

REACTION DISTRIBUTION

Component	ID	Moment M_u (k-ft)	Axial Load P_u (k)	Shear V_u (k)	Moment Factor
Pole	67"ø x 0.375" (18 Sides)	5642.9	59.83	39.07	1.000
Bolt Group	Original (16) 2.25"ø	5642.9	-	39.07	1.000

BASE PLATE BEND LINE ANALYSIS @ 0 FT

POLE PROPERTIES

Flat-to-Flat Diameter:	67.12	in	Flat Width:	11.836	in
Point-to-Point Diameter:	68.16	in	Flat Radians:	0.349	rad
Orientation Offset:	-	°			

PLATE PROPERTIES

Neutral Axis:	21	°
Bend Line Limits:	1.465 to 2.418	rad

Bend Line	Chord Length (in)	Additional Length (in)	Section Modulus (in^3)	Applied Moment M_u (k-in)	Moment Capacity ΦM_n (k-in)	Flexure Result $M_u/\Phi M_n$
Flats	39.511	0.00	50.006	790.4	2700.3	29.3%
Corners	37.696	0.00	47.709	547.4	2576.3	21.2%
Circumferential	47.724	0.00	60.401	871.6	3261.6	26.7%

PLASTIC ANCHOR ROD ANALYSIS

Class	Group Quantity	Rod Diameter (in)	Applied Axial Load P_u (k)	Applied Shear Load V_u (k)	Compressive Capacity ΦP_n (k)	Interaction Result
Original	16	2.25	177.1	3.9	243.6	72.7%

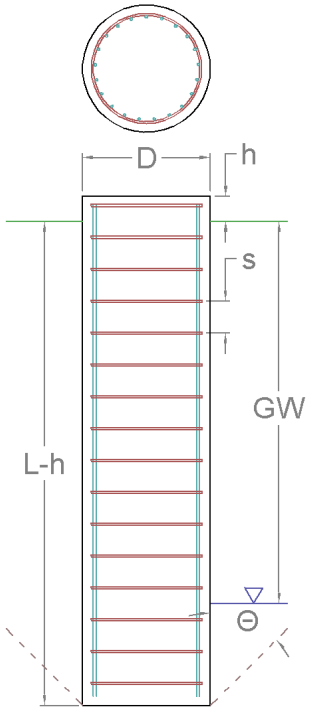
PIER FOUNDATION ANALYSIS

GLOBAL REACTIONS

Moment (k-ft)	Axial (k)	Shear (k)
5,642.86	59.83	39.07

FOUNDATION PARAMETERS

Pier Diameter:	D	8.00	ft
Pier Embedment Depth:	L-h	31.5	ft
Pier Height above Grade:	h	0.50	ft
Concrete Compressive Strength:		3,000	psi
Vertical Rebar:		(24) #11 bars [60 ksi]	
Tie Rebar:	s	#5 bars @ 18.0" c/c [40 ksi]	
Rebar Clear Cover:		3.00	in



SOIL PARAMETERS

Water Table Depth [BGL]: GW 33 ft

Layer Depth (ft) Top	Layer Depth (ft) Bottom	Unit Weight pcf	Cohesion psf	Friction Angle °	Ultimate Skin Friction psf	Ultimate Net Bearing psf
0	1	105	0	0	0	0
1	3	105	0	28	50	0
3	10	116	0	31	600	0
10	15	116	0	31	1,150	0
15	18	115	0	30	1,250	0
18	22.5	106	0	29	750	0
22.5	27	115	1,200	0	550	0
27	32.5	108	700	0	350	10,575

SOIL STRENGTH ANALYSIS

Volume of Concrete (ft^3)	Buoyant Weight of Concrete (k)	Skin Friction Resistance (k)	Inflection Point [BGL] (ft)
1,608.50	241.27	533.44	20.18

SOIL MOMENT ANALYSIS

Total Lateral Resistance (k)	Moment at Inflection Point, M_u (k-ft)	Additional Resistance (k-ft)	Nominal Moment Capacity, ΦM_n (k-ft)	Soil Moment Usage, $M_u / \Phi M_n$
2,854.02	6,450.87	0.00	13,169.72	**49.0%**

SOIL COMPRESSION ANALYSIS

Compressive Bearing Resistance (k)	Compressive Force, P_u (k)	Additional Resistance (k)	Nominal Compressive Capacity, ΦP_n (k)	Soil Compressive Usage, $P_u / \Phi P_n$
531.56	131.76	0.00	798.75	**16.5%**

REINFORCING STEEL STRENGTH ANALYSIS

Rebar Cage Diameter (in)	Steel Elastic Modulus, E (ksi)	Strength Bending/Tension Reduction Factor, Φ_b	Strength Shear Reduction Factor, Φ_v	Strength Compression Reduction Factor, Φ_c
87.34	29,000	0.9	0.75	0.65

PIER REINFORCING MOMENT ANALYSIS

Design Moment, M_u (k-ft)	Nominal Moment Capacity, $\Phi_b M_n$ (k-ft)	Bending Reinforcement Ratio	Pier Rebar Flexure Usage, $M_u/\Phi_b M_n$
5,668.52	7,205.38	0.01	**78.7%**

PIER REINFORCING COMPRESSION ANALYSIS

Buoyant Weight of Concrete (k)	Design Compression, P_u (k)	Nominal Compressive Capacity, $\Phi_p P_n$ (k)	Pier Rebar Compressive Usage, $P_u / \Phi_p P_n$
241.27	131.76	10,716.37	**1.2%**

PIER REINFORCING SHEAR ANALYSIS

Design Shear, V_u (k)	Nominal Shear Capacity, $\Phi_v V_n$ (k)	Pier Rebar Shear Usage, $V_u / \Phi_v V_n$
451.79	676.50	**66.8%**