



Date: **August 07, 2025**

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630

Subject:	Structural Analysis Report	
Carrier Designation:	T-Mobile Co-Locate	
	Site Number:	ML93776A
	Site Name:	USC Lake Waseecha
U.S. Cellular Designation:	Site Number:	774380
	Site Name:	Grand Rapids
Engineering Firm Designation:	B+T Group Project Number:	25-005522
Site Data:	2710 64TH Street South, Wisconsin Rapids, Wood County, WI 54494 Latitude 44° 22' 13.5", Longitude -89° 44' 46.8" 180 Foot - Monopole Tower	

B+T Group is pleased to submit this “**Structural Analysis Report**” to determine the structural integrity of the above-mentioned tower.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

Proposed Equipment Configuration

Sufficient Capacity –92.9%

The jurisdiction has adopted the 2015 International Building Code. This analysis has been performed in accordance with the TIA-222-H Standard.

Structural analysis prepared by: Truett Fowler

Respectfully submitted by: B+T Engineering, Inc.



Brad Milanowski, P.E.

tnxTower Report - version 8.3.1.2

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1) INTRODUCTION

This tower is a 180 ft. Monopole tower designed by Newmark Infrastructure Solutions.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	107 mph
Exposure Category:	C
Topographic Factor:	1
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Carrier
129.0	129.0	1	Ceragon	IP-20D	1 1 3 2 2	1.996 1.56 0.875 0.268 0.19	T-Mobile
		1	MTI Wireless	MT1180M50			
		1	Commscope	VHLP3-18A			
		2	Ceragon	FIBEAIR IP-20C			
		1	Ceragon	IP-50E			
		3	Commscope	FFHH-65C-R3			
		3	Nokia	AEHC			
		3	Nokia	AHFII			
		3	Nokia	AHLOA			
		1	--	Junction Box			
		1	Commscope	MC-PK8-DSH Platform Mount			

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Carrier
178.4	182.0	6	Antel	8' x 11" x 6" Panel	6 26	1-5/8 1-1/4	USCC
	180.8	6	Amphenol	TWIN6510LU000G-T			
	178.4	1	--	Platform Mount w/ Handrail			
	176.7	2	Raycap	RUSDC-6267-PF-48			
	176.6	3	Ericsson	Radio 4415 B2 B25			
		3	Ericsson	RADIO 4449 B71/B85A			
	176.4	3	Ericsson	RADIO 2217 B5			
171.7	176.7	4	Raycap	RUSDC-6267-PF-48	4	1-1/4	USCC
	176.6	3	Ericsson	RRU LAA			
		3	Ericsson	RRUS 4449			
		3	Ericsson	RRUS 8843			
		3	Ericsson	CBRS 2208			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Carrier
		3	Ericsson	RRUS 4478			
	171.7	1	--	Side Arm Mount			
163.0	164.5	3	Ericsson	RRUS 11 B4	6 3 3	1-5/8 0.8 0.4	--
		3	Ericsson	RRUS A2 B4			
	164.2	6	Powerwave	M-1900-65-20i-2-0			
		3	Kathrein	80010652			
	163.0	1	--	Platform Mount w/ Handrail			
150.0	150.0	3	Ericsson	RRUS 4449	1 1	2 1-5/8	VZW
		6	Commscope	NHH-65B-R2B			
		3	Ericsson	4408 W/KRE 105 281/1			
		6	Ericsson	8843			
		3	Ericsson	AIR6449			
		1	Raycap	RVZDC-3315-PF-48			
		1	Raycap	RVZDC-6627-PF-48			
		1	--	Platform Mount w/ Mount Mod			
139.0	139.0	3	Ericsson	4494 B14/B29	4 2	0.78 0.4	New Cingular Wireless
		6	Commscope	NNH4-65B-R6H4			
		3	Ericsson	4490 B5/B12			
		3	Ericsson	4890 B25/B66			
		1	Raycap	DC6-48-60-18-8C			
		1	Raycap	DC9-48-60-24-8C-EV			
		6	--	10' x 2.375" Mount Pipe			
		12	--	10' x 2.5STD Mount Pipe			
		3	SitePro1	VFA12-U Sector Mount			
115.0	115.0	3	Cellmax Tech.	CX12045x	1	1.6	Dish Wireless
		1	Commscope	MC-PK8-DSH Platform Mount			
		3	Fujitsu	TA08025-B604			
		3	Fujitsu	TA08025-B605			
		1	Raycap	RDIDC-9181-PF-48			

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
Tower Data	Tower Manufacturer Details by Newmark Infrastructure Solutions, Job No. 32003-0074	Date: 05/20/2003	U.S. Cellular
Foundation Data			
Soil Data	Geotech Details by G2 Consulting Group, Project No. 142109	Date: 08/05/2014	U.S. Cellular
Existing Loading	Structural Analysis Report by Mission 1 Communications, Project No. 774380.05.DISH	Date: 02/22/2023	U.S. Cellular
	USCC Loading Summary	Date: 04/24/2025	U.S. Cellular
Proposed Loading	Colocation Application, Site# 774380	Date: 07/18/2025	U.S. Cellular

3.1) Analysis Method

tnxTower (version 8.3.1.2), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

- 1) The tower and structures were maintained in accordance with the - TIA-222 standard.
- 2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

This analysis may be affected if any assumptions are not valid or have been made in error. B+T Group should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	180 - 140.42	Pole	TP41.167x30.6x0.188	1	-14.321	1240.650	53.5	Pass
L2	140.42 - 92	Pole	TP53.716x39.369x0.25	2	-35.636	2192.660	91.8	Pass
L3	92 - 45.25	Pole	TP65.696x51.348x0.313	3	-50.723	3404.190	92.9	Pass
L4	45.25 - 0	Pole	TP77.15x62.802x0.438	4	-78.061	6231.710	67.3	Pass
							Summary	
						Pole (L3)	92.9	Pass
						Rating =	92.9	Pass

Table 5 - Tower Component Stresses vs. Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	Base	83.7	Pass
1	Base Plate	Base	51.9	Pass
1	Base Foundation (Structure)	Base	72.4	Pass
1	Base Foundation (Soil Interaction)	Base	48.9	Pass
Structure Rating (max from all components) =				92.9%

Notes:

- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

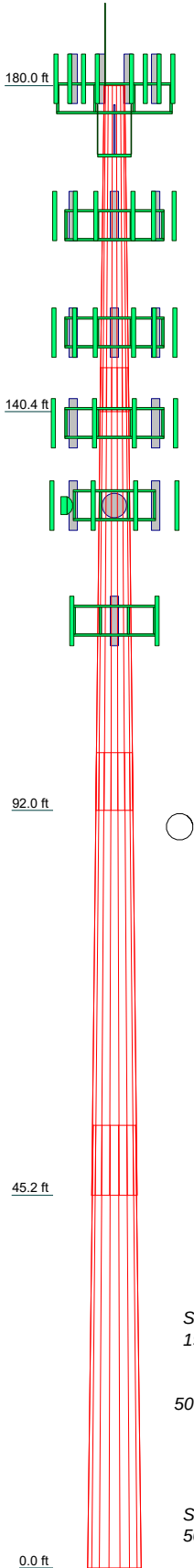
4.1) Recommendations

The tower and its foundations have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

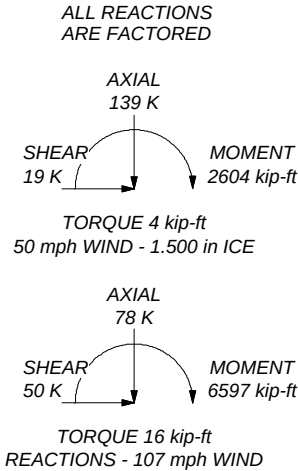
Section	1	2	3	4	
Length (ft)	39.580	53.750	53.750	53.750	
Number of Sides	18	18	18	18	
Thickness (in)	0.188	0.250	0.312	0.438	
Socket Length (ft)	5.330	7.000	8.500		
Top Dia (in)	30.600	39.369	51.348	62.802	
Bot Dia (in)	41.167	53.716	65.696	77.150	
Grade	A572-65				
Weight (K)	2.9	6.7	10.6	17.7	37.8



MATERIAL STRENGTH					
GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in Wood County, Wisconsin.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 107 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TOWER RATING: 92.9%



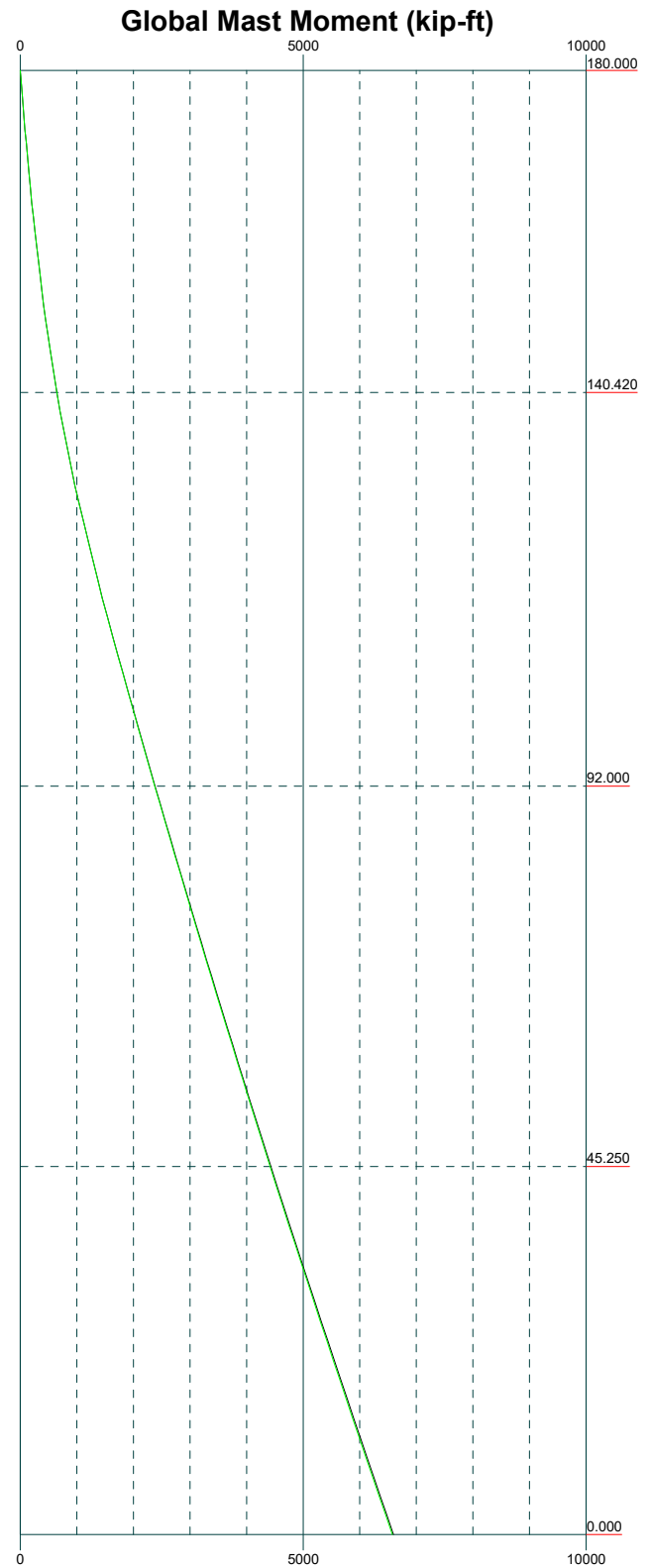
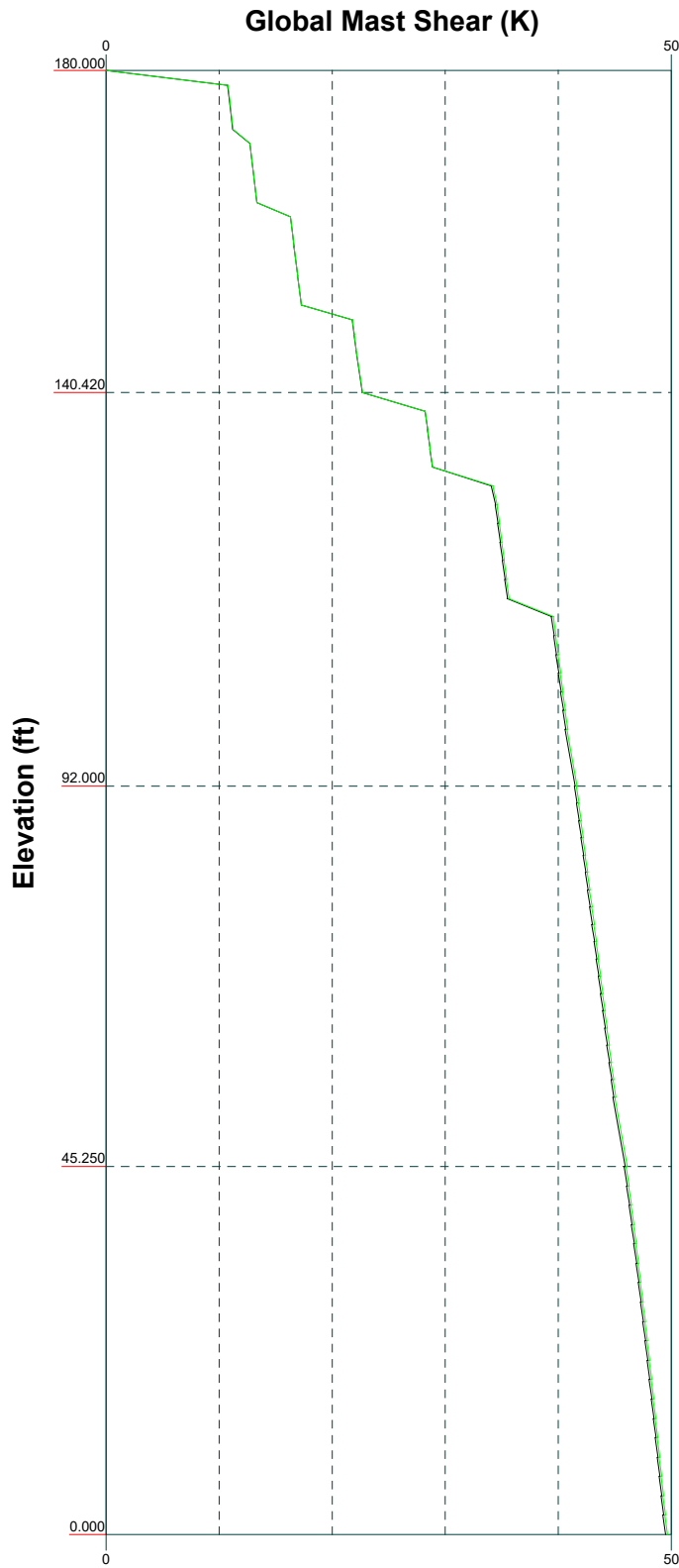
 B+T GRP	B+T Group		Job: 25-005522 - Grand Rapids, WI (Site# 774380)	
	1717 S. Boulder, Suite 300		Project:	
	Tulsa, OK 74119		Client: U.S. Cellular	Drawn by: R AITHAL
	Phone: (918) 587-4630		Code: TIA-222-H	Date: 08/07/25
	FAX: (918) 587-4630		Path:	Scale: NTS
		G:\SA\250522-08-2025-104-1025-005522 - Grand Rapids, 774380-A.dwg - AutoCAD - R:25-005522-25-005522 - Grand Rapids, WI		Dwg No. E-1

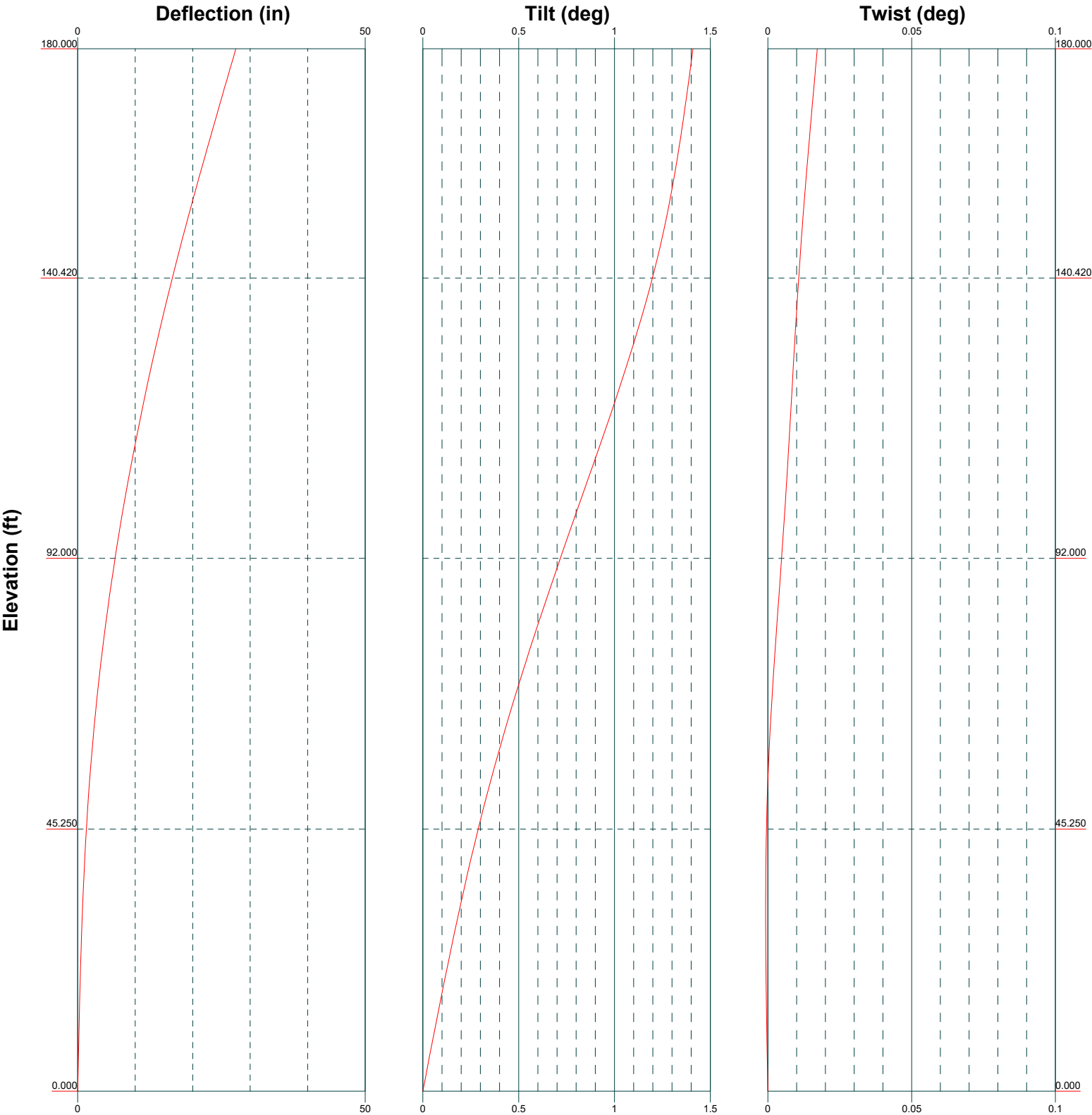
Vx

Vz

Mx

Mz





Feed Line Distribution Chart

0' - 180'

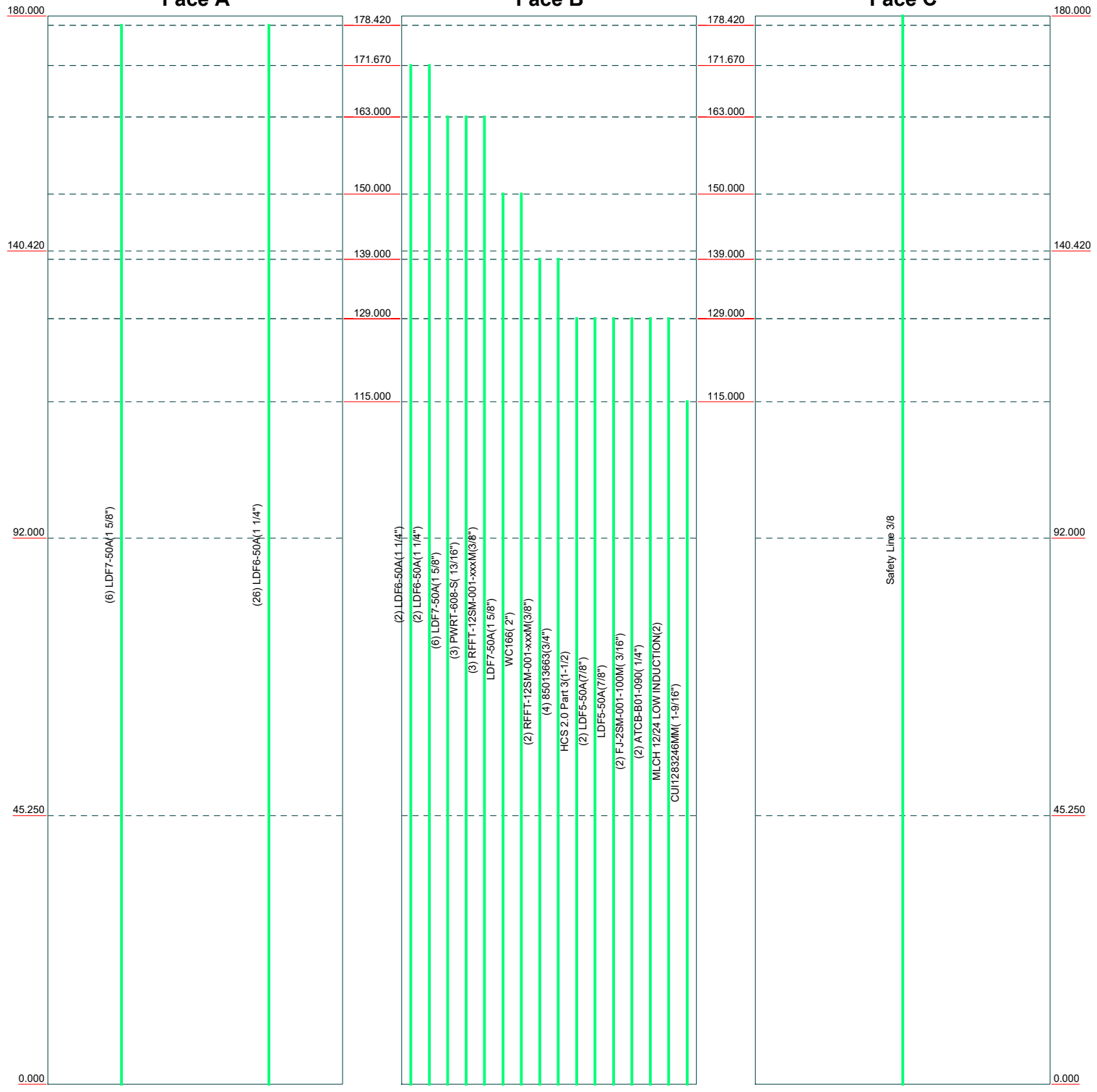
Round Flat App In Face App Out Face Truss Leg

Face A

Face B

Face C

Elevation (ft)





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Project:		
Client: U.S. Cellular	Drawn by: R AITHAL	App'd:
Code: TIA-222-H	Date: 08/07/25	Scale: NTS
Path:	Dwg No. E-7	

©ISA Job#02-08-2025-104-10/25-005522_Grand Rapids, WI 4380-A-Design-RTW 25-005522/25-005522_Grand Rapids, WI on

Designed by	R AITHAL
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Section	Elevation	Section Length	Splice Length	Number of Sides	Top Diameter	Bottom Diameter	Wall Thickness	Bend Radius	Pole Grade
	ft	ft	ft		in	in	in	in	
L1	180.000-140.420	39.580	5.330	18	30.600	41.167	0.188	0.750	A572-65 (65 ksi)

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	Client	11:26:13 08/07/25
	U.S. Cellular	Designed by
		R AITHAL

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L2	140.420-92.000	53.750	7.000	18	39.369	53.716	0.250	1.000	A572-65 (65 ksi)
L3	92.000-45.250	53.750	8.500	18	51.348	65.696	0.312	1.250	A572-65 (65 ksi)
L4	45.250-0.000	53.750		18	62.802	77.150	0.438	1.750	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	It/Q in ²	w in	w/t
L1	31.043	18.099	2114.959	10.796	15.545	136.056	4232.701	9.051	5.056	26.963
	41.773	24.388	5174.229	14.548	20.913	247.419	10355.266	12.196	6.915	36.882
L2	41.382	31.041	6001.334	13.887	19.999	300.075	12010.565	15.523	6.489	25.956
	54.506	42.425	15322.071	18.980	27.288	561.500	30664.303	21.217	9.014	36.056
L3	53.989	50.620	16657.128	18.117	26.085	638.582	33336.174	25.315	8.487	27.159
	66.661	64.852	35026.673	23.211	33.374	1049.533	70099.435	32.432	11.012	35.24
L4	66.007	86.601	42553.334	22.139	31.903	1333.819	85162.661	43.309	10.283	23.504
	78.273	106.525	79199.208	27.233	39.192	2020.790	158502.628	53.273	12.808	29.276

Tower Elevation ft	Gusset Area (per face) ft ²	Gusset Thickness in	Gusset Grade	Adjust. Factor A _f	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 180.000-140.4 20				1	1	1			
L2 140.420-92.00 0				1	1	1			
L3 92.000-45.250				1	1	1			
L4 45.250-0.000				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
*											
*											

Feed Line/Linear Appurtenances - Entered As Area

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Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C _A A _A ft ² /ft	Weight klf
Safety Line 3/8	C	No	No	CaAa (Out Of Face)	180.000 - 0.000	1	No Ice	0.037	0.000
							1/2" Ice	0.137	0.001
							1" Ice	0.238	0.001
							2" Ice	0.437	0.002
*									
LDF7-50A(1 5/8")	A	No	No	Inside Pole	178.420 - 0.000	6	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
							2" Ice	0.000	0.001
LDF6-50A(1 1/4")	A	No	No	Inside Pole	178.420 - 0.000	26	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
							2" Ice	0.000	0.001
*									
LDF6-50A(1 1/4")	B	No	No	Inside Pole	171.670 - 0.000	2	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
							2" Ice	0.000	0.001
LDF6-50A(1 1/4")	B	No	No	Inside Pole	171.670 - 0.000	2	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
							2" Ice	0.000	0.001
*									
LDF7-50A(1 5/8")	B	No	No	Inside Pole	163.000 - 0.000	6	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
							2" Ice	0.000	0.001
PWRT-608-S(13/16")	B	No	No	Inside Pole	163.000 - 0.000	3	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
							2" Ice	0.000	0.001
RFFT-12SM-001-xx xM(3/8")	B	No	No	Inside Pole	163.000 - 0.000	3	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
							2" Ice	0.000	0.000
*									
LDF7-50A(1 5/8")	B	No	No	Inside Pole	150.000 - 0.000	1	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
							2" Ice	0.000	0.001
WC166(2")	B	No	No	Inside Pole	150.000 - 0.000	1	No Ice	0.000	0.003
							1/2" Ice	0.000	0.003
							1" Ice	0.000	0.003
							2" Ice	0.000	0.003
*									
RFFT-12SM-001-xx xM(3/8")	B	No	No	Inside Pole	139.000 - 0.000	2	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
							2" Ice	0.000	0.000
85013663(3/4")	B	No	No	Inside Pole	139.000 - 0.000	4	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
							2" Ice	0.000	0.001
*									
*									
HCS 2.0 Part 3(1-1/2)	B	No	No	Inside Pole	129.000 - 0.000	1	No Ice	0.000	0.002
							1/2" Ice	0.000	0.002
							1" Ice	0.000	0.002
							2" Ice	0.000	0.002
LDF5-50A(7/8")	B	No	No	Inside Pole	129.000 - 0.000	2	No Ice	0.000	0.000

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Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C _A A _A ft ² /ft	Weight klf
LDF5-50A(7/8")	B	No	No	Inside Pole	129.000 - 0.000	1	1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
							2" Ice	0.000	0.000
							No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
FJ-2SM-001-100M(3/16")	B	No	No	Inside Pole	129.000 - 0.000	2	1" Ice	0.000	0.000
							2" Ice	0.000	0.000
							No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
ATCB-B01-090(1/4")	B	No	No	Inside Pole	129.000 - 0.000	2	2" Ice	0.000	0.000
							No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
							2" Ice	0.000	0.000
MLCH 12/24 LOW INDUCTION(2)	B	No	No	Inside Pole	129.000 - 0.000	1	No Ice	0.000	0.003
							1/2" Ice	0.000	0.003
							1" Ice	0.000	0.003
							2" Ice	0.000	0.003
* * CUI1283246MM(1-9/16")	B	No	No	Inside Pole	115.000 - 0.000	1	No Ice	0.000	0.002
							1/2" Ice	0.000	0.002
							1" Ice	0.000	0.002
							2" Ice	0.000	0.002
* *									

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L1	180.000-140.420	A	0.000	0.000	0.000	0.000	0.839
		B	0.000	0.000	0.000	0.000	0.276
		C	0.000	0.000	0.000	1.484	0.009
L2	140.420-92.000	A	0.000	0.000	0.000	0.000	1.069
		B	0.000	0.000	0.000	0.000	1.014
		C	0.000	0.000	0.000	1.816	0.011
L3	92.000-45.250	A	0.000	0.000	0.000	0.000	1.032
		B	0.000	0.000	0.000	0.000	1.087
		C	0.000	0.000	0.000	1.753	0.010
L4	45.250-0.000	A	0.000	0.000	0.000	0.000	0.999
		B	0.000	0.000	0.000	0.000	1.053
		C	0.000	0.000	0.000	1.697	0.010

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
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Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L1	180.000-140.420	A	1.756	0.000	0.000	0.000	0.000	0.839
		B		0.000	0.000	0.000	0.000	0.276
		C		0.000	0.000	0.000	15.383	0.082
L2	140.420-92.000	A	1.700	0.000	0.000	0.000	0.000	1.069
		B		0.000	0.000	0.000	0.000	1.014
		C		0.000	0.000	0.000	18.819	0.101
L3	92.000-45.250	A	1.613	0.000	0.000	0.000	0.000	1.032
		B		0.000	0.000	0.000	0.000	1.087
		C		0.000	0.000	0.000	17.648	0.095
L4	45.250-0.000	A	1.446	0.000	0.000	0.000	0.000	0.999
		B		0.000	0.000	0.000	0.000	1.053
		C		0.000	0.000	0.000	16.295	0.087

Feed Line Center of Pressure

Section	Elevation ft	CP _x in	CP _z in	CP _x Ice in	CP _z Ice in
L1	180.000-140.420	-0.299	0.173	-1.492	0.861
L2	140.420-92.000	-0.300	0.173	-1.561	0.901
L3	92.000-45.250	-0.301	0.174	-1.567	0.905
L4	45.250-0.000	-0.302	0.174	-1.532	0.884

Note: For pole sections, center of pressure calculations do not consider feed line shielding.

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
Lightning Rod 1/2"x6' on 5' Pole	C	From Leg	0.000	0.000	185.000	No Ice	1.488	0.041
			0.000			1/2" Ice	2.408	0.058
			0.000			1" Ice	3.349	0.080
			0.000			2" Ice	4.880	0.144
* (2) TWIN6510LU000G-T_TIA w/ Mount Pipe	A	From Leg	4.000	0.000	178.420	No Ice	27.453	0.090
			0.000			1/2" Ice	28.325	0.262
			2.413			1" Ice	29.206	0.445
			2.413			2" Ice	30.942	0.855
(2) TWIN6510LU000G-T_TIA w/ Mount Pipe	B	From Leg	4.000	0.000	178.420	No Ice	27.453	0.090
			0.000			1/2" Ice	28.325	0.262
			2.413			1" Ice	29.206	0.445
			2.413			2" Ice	30.942	0.855
(2) TWIN6510LU000G-T_TIA w/ Mount Pipe	C	From Leg	4.000	0.000	178.420	No Ice	27.453	0.090
			0.000			1/2" Ice	28.325	0.262
			2.413			1" Ice	29.206	0.445
			2.413			2" Ice	30.942	0.855

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
(2) Antel 8' x 11" x 6" Panel	A	From Leg	4.000 0.000 3.580	0.000	178.420	No Ice 1/2" Ice 1" Ice 2" Ice	10.893 11.601 12.316 13.685	8.090 9.578 11.077 13.354	0.051 0.131 0.219 0.429
(2) Antel 8' x 11" x 6" Panel	B	From Leg	4.000 0.000 3.580	0.000	178.420	No Ice 1/2" Ice 1" Ice 2" Ice	10.893 11.601 12.316 13.685	8.090 9.578 11.077 13.354	0.051 0.131 0.219 0.429
(2) Antel 8' x 11" x 6" Panel	C	From Leg	4.000 0.000 3.580	0.000	178.420	No Ice 1/2" Ice 1" Ice 2" Ice	10.893 11.601 12.316 13.685	8.090 9.578 11.077 13.354	0.051 0.131 0.219 0.429
RADIO 2217 B5	A	From Leg	4.000 0.000 -2.003	0.000	178.420	No Ice 1/2" Ice 1" Ice 2" Ice	1.351 1.497 1.650 1.978	0.586 0.690 0.805 1.059	0.026 0.037 0.050 0.082
RADIO 2217 B5	B	From Leg	4.000 0.000 -2.003	0.000	178.420	No Ice 1/2" Ice 1" Ice 2" Ice	1.351 1.497 1.650 1.978	0.586 0.690 0.805 1.059	0.026 0.037 0.050 0.082
RADIO 2217 B5	C	From Leg	4.000 0.000 -2.003	0.000	178.420	No Ice 1/2" Ice 1" Ice 2" Ice	1.351 1.497 1.650 1.978	0.586 0.690 0.805 1.059	0.026 0.037 0.050 0.082
Radio 4415 B2 B25	A	From Leg	4.000 0.000 -1.837	0.000	178.420	No Ice 1/2" Ice 1" Ice 2" Ice	1.650 1.810 1.978 2.336	0.682 0.794 0.916 1.188	0.044 0.057 0.071 0.109
Radio 4415 B2 B25	B	From Leg	4.000 0.000 -1.837	0.000	178.420	No Ice 1/2" Ice 1" Ice 2" Ice	1.650 1.810 1.978 2.336	0.682 0.794 0.916 1.188	0.044 0.057 0.071 0.109
Radio 4415 B2 B25	C	From Leg	4.000 0.000 -1.837	0.000	178.420	No Ice 1/2" Ice 1" Ice 2" Ice	1.650 1.810 1.978 2.336	0.682 0.794 0.916 1.188	0.044 0.057 0.071 0.109
RADIO 4449 B71/B85A	A	From Leg	4.000 0.000 -1.837	0.000	178.420	No Ice 1/2" Ice 1" Ice 2" Ice	1.644 1.804 1.972 2.329	1.310 1.455 1.608 1.936	0.075 0.092 0.112 0.161
RADIO 4449 B71/B85A	B	From Leg	4.000 0.000 -1.837	0.000	178.420	No Ice 1/2" Ice 1" Ice 2" Ice	1.644 1.804 1.972 2.329	1.310 1.455 1.608 1.936	0.075 0.092 0.112 0.161
RADIO 4449 B71/B85A	C	From Leg	4.000 0.000 -1.837	0.000	178.420	No Ice 1/2" Ice 1" Ice 2" Ice	1.644 1.804 1.972 2.329	1.310 1.455 1.608 1.936	0.075 0.092 0.112 0.161
RUSDC-6267-PF-48	A	From Leg	4.000 0.000 -1.753	0.000	178.420	No Ice 1/2" Ice 1" Ice 2" Ice	3.231 3.454 3.684 4.167	1.037 1.182 1.334 1.659	0.020 0.041 0.066 0.126
RUSDC-6267-PF-48	B	From Leg	4.000 0.000 -1.753	0.000	178.420	No Ice 1/2" Ice 1" Ice 2" Ice	3.231 3.454 3.684 4.167	1.037 1.182 1.334 1.659	0.020 0.041 0.066 0.126
(2) 8' x 2" Mount Pipe	A	From Leg	4.000	0.000	178.420	No Ice	1.900	1.900	0.029

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
			0.000			1/2" Ice	2.728	2.728	0.044
			-2.000			1" Ice	3.401	3.401	0.063
						2" Ice	4.396	4.396	0.119
(2) 8' x 2" Mount Pipe	B	From Leg	4.000	0.000	178.420	No Ice	1.900	1.900	0.029
			0.000			1/2" Ice	2.728	2.728	0.044
			-2.000			1" Ice	3.401	3.401	0.063
						2" Ice	4.396	4.396	0.119
(2) 8' x 2" Mount Pipe	C	From Leg	4.000	0.000	178.420	No Ice	1.900	1.900	0.029
			0.000			1/2" Ice	2.728	2.728	0.044
			-2.000			1" Ice	3.401	3.401	0.063
						2" Ice	4.396	4.396	0.119
Platform Mount [15.5' LP 602-1]	C	None		0.000	178.420	No Ice	40.112	40.112	1.734
						1/2" Ice	44.953	44.953	2.540
						1" Ice	49.678	49.678	3.446
						2" Ice	59.128	59.128	5.258
*									
RRUS 4478	A	From Leg	2.000	0.000	171.670	No Ice	1.843	1.059	0.060
			0.000			1/2" Ice	2.012	1.197	0.076
			4.910			1" Ice	2.190	1.342	0.094
						2" Ice	2.566	1.656	0.140
RRUS 4478	B	From Leg	2.000	0.000	171.670	No Ice	1.843	1.059	0.060
			0.000			1/2" Ice	2.012	1.197	0.076
			4.910			1" Ice	2.190	1.342	0.094
						2" Ice	2.566	1.656	0.140
RRUS 4478	C	From Leg	2.000	0.000	171.670	No Ice	1.843	1.059	0.060
			0.000			1/2" Ice	2.012	1.197	0.076
			4.910			1" Ice	2.190	1.342	0.094
						2" Ice	2.566	1.656	0.140
RRUS 8843	A	From Leg	2.000	0.000	171.670	No Ice	1.639	1.353	0.072
			0.000			1/2" Ice	1.799	1.500	0.090
			4.910			1" Ice	1.966	1.655	0.110
						2" Ice	2.323	1.986	0.159
RRUS 8843	B	From Leg	2.000	0.000	171.670	No Ice	1.639	1.353	0.072
			0.000			1/2" Ice	1.799	1.500	0.090
			4.910			1" Ice	1.966	1.655	0.110
						2" Ice	2.323	1.986	0.159
RRUS 8843	C	From Leg	2.000	0.000	171.670	No Ice	1.639	1.353	0.072
			0.000			1/2" Ice	1.799	1.500	0.090
			4.910			1" Ice	1.966	1.655	0.110
						2" Ice	2.323	1.986	0.159
RRUS 4449	A	From Leg	2.000	0.000	171.670	No Ice	1.980	1.410	0.070
			0.000			1/2" Ice	2.157	1.566	0.089
			4.910			1" Ice	2.341	1.729	0.110
						2" Ice	2.733	2.078	0.162
RRUS 4449	B	From Leg	2.000	0.000	171.670	No Ice	1.980	1.410	0.070
			0.000			1/2" Ice	2.157	1.566	0.089
			4.910			1" Ice	2.341	1.729	0.110
						2" Ice	2.733	2.078	0.162
RRUS 4449	C	From Leg	2.000	0.000	171.670	No Ice	1.980	1.410	0.070
			0.000			1/2" Ice	2.157	1.566	0.089
			4.910			1" Ice	2.341	1.729	0.110
						2" Ice	2.733	2.078	0.162
CBRS 2208	A	From Leg	2.000	0.000	171.670	No Ice	0.609	0.383	0.012
			0.000			1/2" Ice	0.767	0.515	0.018
			4.910			1" Ice	0.943	0.664	0.024
						2" Ice	1.351	1.018	0.044
CBRS 2208	B	From Leg	2.000	0.000	171.670	No Ice	0.609	0.383	0.012

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K	
			0.000			1/2" Ice	0.767	0.515	0.018
			4.910			1" Ice	0.943	0.664	0.024
						2" Ice	1.351	1.018	0.044
CBRS 2208	C	From Leg	2.000	0.000	171.670	No Ice	0.609	0.383	0.012
			0.000			1/2" Ice	0.767	0.515	0.018
			4.910			1" Ice	0.943	0.664	0.024
						2" Ice	1.351	1.018	0.044
RRU LAA	A	From Leg	2.000	0.000	171.670	No Ice	1.644	1.256	0.042
			0.000			1/2" Ice	1.808	1.404	0.058
			4.910			1" Ice	1.978	1.560	0.076
						2" Ice	2.342	1.894	0.121
RRU LAA	B	From Leg	2.000	0.000	171.670	No Ice	1.644	1.256	0.042
			0.000			1/2" Ice	1.808	1.404	0.058
			4.910			1" Ice	1.978	1.560	0.076
						2" Ice	2.342	1.894	0.121
RRU LAA	C	From Leg	2.000	0.000	171.670	No Ice	1.644	1.256	0.042
			0.000			1/2" Ice	1.808	1.404	0.058
			4.910			1" Ice	1.978	1.560	0.076
						2" Ice	2.342	1.894	0.121
RUSDC-6267-PF-48	A	From Leg	2.000	0.000	171.670	No Ice	3.231	1.037	0.020
			0.000			1/2" Ice	3.454	1.182	0.041
			5.000			1" Ice	3.684	1.334	0.066
						2" Ice	4.167	1.659	0.126
RUSDC-6267-PF-48	B	From Leg	2.000	0.000	171.670	No Ice	3.231	1.037	0.020
			0.000			1/2" Ice	3.454	1.182	0.041
			5.000			1" Ice	3.684	1.334	0.066
						2" Ice	4.167	1.659	0.126
(2) RUSDC-6267-PF-48	C	From Leg	2.000	0.000	171.670	No Ice	3.231	1.037	0.020
			0.000			1/2" Ice	3.454	1.182	0.041
			5.000			1" Ice	3.684	1.334	0.066
						2" Ice	4.167	1.659	0.126
7' x 2.375" Mount Pipe	A	From Leg	1.000	0.000	171.670	No Ice	1.663	1.663	0.061
			0.000			1/2" Ice	2.391	2.391	0.073
			3.000			1" Ice	2.825	2.825	0.090
						2" Ice	3.706	3.706	0.140
7' x 2.375" Mount Pipe	B	From Leg	1.000	0.000	171.670	No Ice	1.663	1.663	0.061
			0.000			1/2" Ice	2.391	2.391	0.073
			3.000			1" Ice	2.825	2.825	0.090
						2" Ice	3.706	3.706	0.140
7' x 2.375" Mount Pipe	C	From Leg	1.000	0.000	171.670	No Ice	1.663	1.663	0.061
			0.000			1/2" Ice	2.391	2.391	0.073
			3.000			1" Ice	2.825	2.825	0.090
						2" Ice	3.706	3.706	0.140
Side Arm Mount [SO 104-3]	C	None		0.000	171.670	No Ice	2.620	2.620	0.288
						1/2" Ice	3.300	3.300	0.408
						1" Ice	3.980	3.980	0.528
						2" Ice	5.350	5.350	0.768
*									
(2) M-1900-65-20i-2-0 w/ Mount Pipe	A	From Leg	4.000	0.000	163.000	No Ice	4.568	3.503	0.030
			0.000			1/2" Ice	5.028	4.720	0.067
			1.170			1" Ice	5.495	5.692	0.111
						2" Ice	6.452	7.378	0.224
(2) M-1900-65-20i-2-0 w/ Mount Pipe	B	From Leg	4.000	0.000	163.000	No Ice	4.568	3.503	0.030
			0.000			1/2" Ice	5.028	4.720	0.067
			1.170			1" Ice	5.495	5.692	0.111
						2" Ice	6.452	7.378	0.224
(2) M-1900-65-20i-2-0 w/	C	From Leg	4.000	0.000	163.000	No Ice	4.568	3.503	0.030

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
Mount Pipe			0.000 1.170			1/2" Ice 1" Ice 2" Ice	5.028 5.495 6.452	4.720 5.692 7.378	0.067 0.111 0.224
80010652_TIA w/ Mount Pipe	A	From Leg	4.000 0.000 1.170	0.000	163.000	No Ice 1/2" Ice 1" Ice 2" Ice	7.885 8.404 8.898 9.911	4.025 5.025 5.822 7.467	0.061 0.116 0.176 0.324
80010652_TIA w/ Mount Pipe	B	From Leg	4.000 0.000 1.170	0.000	163.000	No Ice 1/2" Ice 1" Ice 2" Ice	7.885 8.404 8.898 9.911	4.025 5.025 5.822 7.467	0.061 0.116 0.176 0.324
80010652_TIA w/ Mount Pipe	C	From Leg	4.000 0.000 1.170	0.000	163.000	No Ice 1/2" Ice 1" Ice 2" Ice	7.885 8.404 8.898 9.911	4.025 5.025 5.822 7.467	0.061 0.116 0.176 0.324
RRUS A2 B4	A	From Leg	4.000 0.000 1.500	0.000	163.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.196 2.380 2.572 2.977	0.539 0.653 0.774 1.036	0.022 0.035 0.051 0.092
RRUS A2 B4	B	From Leg	4.000 0.000 1.500	0.000	163.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.196 2.380 2.572 2.977	0.539 0.653 0.774 1.036	0.022 0.035 0.051 0.092
RRUS A2 B4	C	From Leg	4.000 0.000 1.500	0.000	163.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.196 2.380 2.572 2.977	0.539 0.653 0.774 1.036	0.022 0.035 0.051 0.092
RRUS 11 B4	A	From Leg	4.000 0.000 1.500	0.000	163.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.833 3.043 3.259 3.715	1.182 1.330 1.485 1.826	0.051 0.072 0.095 0.153
RRUS 11 B4	B	From Leg	4.000 0.000 1.500	0.000	163.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.833 3.043 3.259 3.715	1.182 1.330 1.485 1.826	0.051 0.072 0.095 0.153
RRUS 11 B4	C	From Leg	4.000 0.000 1.500	0.000	163.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.833 3.043 3.259 3.715	1.182 1.330 1.485 1.826	0.051 0.072 0.095 0.153
7' x 2.375" Mount Pipe	A	From Leg	4.000 0.000 1.500	0.000	163.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.663 2.391 2.825 3.706	1.663 2.391 2.825 3.706	0.061 0.073 0.090 0.140
7' x 2.375" Mount Pipe	B	From Leg	4.000 0.000 1.500	0.000	163.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.663 2.391 2.825 3.706	1.663 2.391 2.825 3.706	0.061 0.073 0.090 0.140
7' x 2.375" Mount Pipe	C	From Leg	4.000 0.000 1.500	0.000	163.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.663 2.391 2.825 3.706	1.663 2.391 2.825 3.706	0.061 0.073 0.090 0.140
Platform Mount [LP 303-1_HR-1]	C	None		0.000	163.000	No Ice 1/2" Ice 1" Ice 2" Ice	17.090 21.470 25.720 33.960	17.090 21.470 25.720 33.960	1.495 1.881 2.346 3.518
*									
(2) NHH-65B-R2B_TIA w/	A	From Leg	4.000	0.000	150.000	No Ice	8.316	7.004	0.069

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	Client		Designed by
			R AITHAL

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
Mount Pipe			0.000 0.000			1/2" Ice 8.876 1" Ice 9.402 2" Ice 10.475	8.185 9.081 10.904	0.139 0.214 0.395
(2) NHH-65B-R2B_TIA w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	150.000	No Ice 8.316 1/2" Ice 8.876 1" Ice 9.402 2" Ice 10.475	7.004 8.185 9.081 10.904	0.069 0.139 0.214 0.395
(2) NHH-65B-R2B_TIA w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	150.000	No Ice 8.316 1/2" Ice 8.876 1" Ice 9.402 2" Ice 10.475	7.004 8.185 9.081 10.904	0.069 0.139 0.214 0.395
4408 W/KRE 105 281/1_TIA w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	150.000	No Ice 0.680 1/2" Ice 0.838 1" Ice 1.009 2" Ice 1.390	0.349 0.511 0.689 1.094	0.008 0.016 0.025 0.053
4408 W/KRE 105 281/1_TIA w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	150.000	No Ice 0.680 1/2" Ice 0.838 1" Ice 1.009 2" Ice 1.390	0.349 0.511 0.689 1.094	0.008 0.016 0.025 0.053
4408 W/KRE 105 281/1_TIA w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	150.000	No Ice 0.680 1/2" Ice 0.838 1" Ice 1.009 2" Ice 1.390	0.349 0.511 0.689 1.094	0.008 0.016 0.025 0.053
AIR6449_TIA w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	150.000	No Ice 4.261 1/2" Ice 4.585 1" Ice 4.918 2" Ice 5.616	3.475 3.917 4.377 5.343	0.110 0.153 0.201 0.315
AIR6449_TIA w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	150.000	No Ice 4.261 1/2" Ice 4.585 1" Ice 4.918 2" Ice 5.616	3.475 3.917 4.377 5.343	0.110 0.153 0.201 0.315
AIR6449_TIA w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	150.000	No Ice 4.261 1/2" Ice 4.585 1" Ice 4.918 2" Ice 5.616	3.475 3.917 4.377 5.343	0.110 0.153 0.201 0.315
RRUS 4449	A	From Leg	4.000 0.000 0.000	0.000	150.000	No Ice 1.980 1/2" Ice 2.157 1" Ice 2.341 2" Ice 2.733	1.410 1.566 1.729 2.078	0.070 0.089 0.110 0.162
RRUS 4449	B	From Leg	4.000 0.000 0.000	0.000	150.000	No Ice 1.980 1/2" Ice 2.157 1" Ice 2.341 2" Ice 2.733	1.410 1.566 1.729 2.078	0.070 0.089 0.110 0.162
RRUS 4449	C	From Leg	4.000 0.000 0.000	0.000	150.000	No Ice 1.980 1/2" Ice 2.157 1" Ice 2.341 2" Ice 2.733	1.410 1.566 1.729 2.078	0.070 0.089 0.110 0.162
(2) 8843	A	From Leg	4.000 0.000 0.000	0.000	150.000	No Ice 1.650 1/2" Ice 1.810 1" Ice 1.978 2" Ice 2.336	1.363 1.510 1.665 1.997	0.072 0.090 0.110 0.160
(2) 8843	B	From Leg	4.000 0.000 0.000	0.000	150.000	No Ice 1.650 1/2" Ice 1.810 1" Ice 1.978 2" Ice 2.336	1.363 1.510 1.665 1.997	0.072 0.090 0.110 0.160
(2) 8843	C	From Leg	4.000 0.000	0.000	150.000	No Ice 1.650 1/2" Ice 1.810	1.363 1.510	0.072 0.090

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
			0.000			1" Ice	1.978	1.665	0.110
						2" Ice	2.336	1.997	0.160
RVZDC-3315-PF-48	A	From Leg	4.000	0.000	150.000	No Ice	4.063	2.989	0.027
			0.000			1/2" Ice	4.321	3.223	0.063
			0.000			1" Ice	4.587	3.465	0.103
						2" Ice	5.141	3.970	0.196
RVZDC-6627-PF-48	B	From Leg	4.000	0.000	150.000	No Ice	3.792	2.514	0.032
			0.000			1/2" Ice	4.044	2.727	0.063
			0.000			1" Ice	4.303	2.947	0.099
						2" Ice	4.844	3.417	0.181
Miscellaneous [NA 509-3]	C	None		0.000	150.000	No Ice	11.840	11.840	0.275
						1/2" Ice	16.960	16.960	0.296
						1" Ice	22.080	22.080	0.317
						2" Ice	32.320	32.320	0.360
Platform Mount [LP 712-1]	C	None		0.000	150.000	No Ice	24.560	24.560	1.335
						1/2" Ice	27.920	27.920	1.915
						1" Ice	31.270	31.270	2.548
						2" Ice	37.980	37.980	3.971
*									
(2) NNH4-65B-R6H4_TIA w/ Mount Pipe	A	From Leg	4.000	0.000	139.000	No Ice	12.509	7.413	0.109
			0.000			1/2" Ice	13.108	8.598	0.200
			0.000			1" Ice	13.672	9.496	0.299
						2" Ice	14.822	11.328	0.526
(2) NNH4-65B-R6H4_TIA w/ Mount Pipe	B	From Leg	4.000	0.000	139.000	No Ice	12.509	7.413	0.109
			0.000			1/2" Ice	13.108	8.598	0.200
			0.000			1" Ice	13.672	9.496	0.299
						2" Ice	14.822	11.328	0.526
(2) NNH4-65B-R6H4_TIA w/ Mount Pipe	C	From Leg	4.000	0.000	139.000	No Ice	12.509	7.413	0.109
			0.000			1/2" Ice	13.108	8.598	0.200
			0.000			1" Ice	13.672	9.496	0.299
						2" Ice	14.822	11.328	0.526
DC9-48-60-24-8C-EV	B	From Leg	2.000	0.000	139.000	No Ice	1.145	1.145	0.026
			0.000			1/2" Ice	1.792	1.792	0.047
			0.000			1" Ice	2.002	2.002	0.070
						2" Ice	2.451	2.451	0.125
DC6-48-60-18-8C	A	From Leg	2.000	0.000	139.000	No Ice	2.737	2.737	0.026
			0.000			1/2" Ice	2.963	2.963	0.052
			0.000			1" Ice	3.196	3.196	0.082
						2" Ice	3.684	3.684	0.152
4494 B14/B29	A	From Leg	2.000	0.000	139.000	No Ice	2.202	0.838	0.057
			0.000			1/2" Ice	2.387	0.966	0.073
			0.000			1" Ice	2.580	1.100	0.092
						2" Ice	2.986	1.393	0.137
4494 B14/B29	B	From Leg	2.000	0.000	139.000	No Ice	2.202	0.838	0.057
			0.000			1/2" Ice	2.387	0.966	0.073
			0.000			1" Ice	2.580	1.100	0.092
						2" Ice	2.986	1.393	0.137
4494 B14/B29	C	From Leg	2.000	0.000	139.000	No Ice	2.202	0.838	0.057
			0.000			1/2" Ice	2.387	0.966	0.073
			0.000			1" Ice	2.580	1.100	0.092
						2" Ice	2.986	1.393	0.137
4490 B5/B12	A	From Leg	2.000	0.000	139.000	No Ice	2.202	0.853	0.021
			0.000			1/2" Ice	2.387	0.978	0.038
			0.000			1" Ice	2.580	1.111	0.058
						2" Ice	2.986	1.399	0.106
4490 B5/B12	B	From Leg	2.000	0.000	139.000	No Ice	2.202	0.853	0.021
			0.000			1/2" Ice	2.387	0.978	0.038

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
			0.000			1" Ice	2.580	1.111	0.058
						2" Ice	2.986	1.399	0.106
4490 B5/B12	C	From Leg	2.000	0.000	139.000	No Ice	2.202	0.853	0.021
			0.000			1/2" Ice	2.387	0.978	0.038
			0.000			1" Ice	2.580	1.111	0.058
						2" Ice	2.986	1.399	0.106
4890 B25/B66	A	From Leg	2.000	0.000	139.000	No Ice	2.695	1.221	0.067
			0.000			1/2" Ice	2.901	1.372	0.087
			0.000			1" Ice	3.113	1.531	0.111
						2" Ice	3.561	1.874	0.167
4890 B25/B66	B	From Leg	2.000	0.000	139.000	No Ice	2.695	1.221	0.067
			0.000			1/2" Ice	2.901	1.372	0.087
			0.000			1" Ice	3.113	1.531	0.111
						2" Ice	3.561	1.874	0.167
4890 B25/B66	C	From Leg	2.000	0.000	139.000	No Ice	2.695	1.221	0.067
			0.000			1/2" Ice	2.901	1.372	0.087
			0.000			1" Ice	3.113	1.531	0.111
						2" Ice	3.561	1.874	0.167
(2) 10' x 2.375" Mount Pipe	A	From Leg	2.000	0.000	139.000	No Ice	2.375	2.375	0.037
			0.000			1/2" Ice	3.403	3.403	0.054
			0.000			1" Ice	4.448	4.448	0.079
						2" Ice	5.911	5.911	0.148
(2) 10' x 2.375" Mount Pipe	B	From Leg	2.000	0.000	139.000	No Ice	2.375	2.375	0.037
			0.000			1/2" Ice	3.403	3.403	0.054
			0.000			1" Ice	4.448	4.448	0.079
						2" Ice	5.911	5.911	0.148
(2) 10' x 2.375" Mount Pipe	C	From Leg	2.000	0.000	139.000	No Ice	2.375	2.375	0.037
			0.000			1/2" Ice	3.403	3.403	0.054
			0.000			1" Ice	4.448	4.448	0.079
						2" Ice	5.911	5.911	0.148
(2) 10' x 2.5STD. Pipe Mount	A	From Leg	4.000	0.000	139.000	No Ice	2.375	2.375	0.037
			0.000			1/2" Ice	3.403	3.403	0.054
			0.000			1" Ice	4.448	4.448	0.079
						2" Ice	5.911	5.911	0.148
(2) 10' x 2.5STD. Pipe Mount	B	From Leg	4.000	0.000	139.000	No Ice	2.375	2.375	0.037
			0.000			1/2" Ice	3.403	3.403	0.054
			0.000			1" Ice	4.448	4.448	0.079
						2" Ice	5.911	5.911	0.148
(2) 10' x 2.5STD. Pipe Mount	C	From Leg	4.000	0.000	139.000	No Ice	2.375	2.375	0.037
			0.000			1/2" Ice	3.403	3.403	0.054
			0.000			1" Ice	4.448	4.448	0.079
						2" Ice	5.911	5.911	0.148
(2) Side Arm Mount [SO 102-3]	C	None		0.000	139.000	No Ice	3.600	3.600	0.075
						1/2" Ice	4.180	4.180	0.105
						1" Ice	4.750	4.750	0.135
						2" Ice	5.900	5.900	0.195
Pipe Mount [PM 601-3]	C	None		0.000	139.000	No Ice	3.170	3.170	0.195
						1/2" Ice	3.790	3.790	0.232
						1" Ice	4.420	4.420	0.279
						2" Ice	5.760	5.760	0.401
Sector Mount [SM 502-3]	C	None		0.000	139.000	No Ice	29.820	29.820	1.673
						1/2" Ice	42.210	42.210	2.266
						1" Ice	54.430	54.430	3.052
						2" Ice	78.490	78.490	5.180
* *									
FFHH-65C-R3_TIA w/	A	From Leg	4.000	0.000	129.000	No Ice	21.350	11.490	0.160

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
Mount Pipe			0.000 0.000			1/2" Ice 22.107 1" Ice 22.872 2" Ice 24.339	13.019 14.572 16.930	0.304 0.457 0.801
FFHH-65C-R3_TIA w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	129.000	No Ice 21.350 1/2" Ice 22.107 1" Ice 22.872 2" Ice 24.339	11.490 13.019 14.572 16.930	0.160 0.304 0.457 0.801
FFHH-65C-R3_TIA w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	129.000	No Ice 21.350 1/2" Ice 22.107 1" Ice 22.872 2" Ice 24.339	11.490 13.019 14.572 16.930	0.160 0.304 0.457 0.801
AHLOA	A	From Leg	4.000 0.000 0.000	0.000	129.000	No Ice 2.229 1/2" Ice 2.422 1" Ice 2.623 2" Ice 3.048	1.391 1.552 1.720 2.082	0.084 0.102 0.123 0.175
AHLOA	B	From Leg	4.000 0.000 0.000	0.000	129.000	No Ice 2.229 1/2" Ice 2.422 1" Ice 2.623 2" Ice 3.048	1.391 1.552 1.720 2.082	0.084 0.102 0.123 0.175
AHLOA	C	From Leg	4.000 0.000 0.000	0.000	129.000	No Ice 2.229 1/2" Ice 2.422 1" Ice 2.623 2" Ice 3.048	1.391 1.552 1.720 2.082	0.084 0.102 0.123 0.175
Junction Box-	A	From Leg	4.000 0.000 0.000	0.000	129.000	No Ice 1.245 1/2" Ice 1.389 1" Ice 1.541 2" Ice 1.867	0.782 0.902 1.031 1.318	0.036 0.047 0.059 0.093
FIBEAIR IP-20C	A	From Leg	4.000 0.000 0.000	0.000	129.000	No Ice 0.684 1/2" Ice 0.788 1" Ice 0.900 2" Ice 1.146	0.291 0.367 0.449 0.637	0.014 0.020 0.027 0.048
AEHC_TIA	A	From Leg	4.000 0.000 0.000	0.000	129.000	No Ice 6.741 1/2" Ice 7.068 1" Ice 7.403 2" Ice 8.094	2.600 2.839 3.084 3.596	0.099 0.143 0.192 0.303
AEHC_TIA	B	From Leg	4.000 0.000 0.000	0.000	129.000	No Ice 6.741 1/2" Ice 7.068 1" Ice 7.403 2" Ice 8.094	2.600 2.839 3.084 3.596	0.099 0.143 0.192 0.303
AEHC_TIA	C	From Leg	4.000 0.000 0.000	0.000	129.000	No Ice 6.741 1/2" Ice 7.068 1" Ice 7.403 2" Ice 8.094	2.600 2.839 3.084 3.596	0.099 0.143 0.192 0.303
AHFII	A	From Leg	4.000 0.000 0.000	0.000	129.000	No Ice 2.900 1/2" Ice 3.121 1" Ice 3.349 2" Ice 3.828	1.102 1.268 1.440 1.807	0.072 0.090 0.112 0.165
AHFII	B	From Leg	4.000 0.000 0.000	0.000	129.000	No Ice 2.900 1/2" Ice 3.121 1" Ice 3.349 2" Ice 3.828	1.102 1.268 1.440 1.807	0.072 0.090 0.112 0.165
AHFII	C	From Leg	4.000 0.000 0.000	0.000	129.000	No Ice 2.900 1/2" Ice 3.121 1" Ice 3.349 2" Ice 3.828	1.102 1.268 1.440 1.807	0.072 0.090 0.112 0.165
FIBEAIR IP-20D	C	From Leg	4.000 0.000	0.000	129.000	No Ice 0.684 1/2" Ice 0.788	0.291 0.367	0.014 0.020

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
			0.000			1" Ice	0.900	0.449	0.027
						2" Ice	1.146	0.637	0.048
IP-50E	C	From Leg	4.000	0.000	129.000	No Ice	0.943	0.373	0.012
			0.000			1/2" Ice	1.067	0.463	0.019
			0.000			1" Ice	1.198	0.560	0.028
						2" Ice	1.482	0.774	0.051
5.5' x 2.875" Mount Pipe	A	From Leg	2.000	0.000	129.000	No Ice	1.521	1.521	0.022
			0.000			1/2" Ice	1.855	1.855	0.034
			0.000			1" Ice	2.197	2.197	0.049
						2" Ice	2.910	2.910	0.092
(2) 8' x 2" Mount Pipe	A	From Leg	4.000	0.000	129.000	No Ice	1.900	1.900	0.029
			0.000			1/2" Ice	2.728	2.728	0.044
			0.000			1" Ice	3.401	3.401	0.063
						2" Ice	4.396	4.396	0.119
8' x 2.875" Mount Pipe	A	From Leg	4.000	0.000	129.000	No Ice	2.300	2.300	0.041
			0.000			1/2" Ice	3.132	3.132	0.057
			0.000			1" Ice	3.620	3.620	0.080
						2" Ice	4.620	4.620	0.141
(2) 8' x 2" Mount Pipe	B	From Leg	4.000	0.000	129.000	No Ice	1.900	1.900	0.029
			0.000			1/2" Ice	2.728	2.728	0.044
			0.000			1" Ice	3.401	3.401	0.063
						2" Ice	4.396	4.396	0.119
(3) 8' x 2" Mount Pipe	C	From Leg	4.000	0.000	129.000	No Ice	1.900	1.900	0.029
			0.000			1/2" Ice	2.728	2.728	0.044
			0.000			1" Ice	3.401	3.401	0.063
						2" Ice	4.396	4.396	0.119
8' x 2.875" Mount Pipe	C	From Leg	4.000	0.000	129.000	No Ice	2.300	2.300	0.041
			0.000			1/2" Ice	3.132	3.132	0.057
			0.000			1" Ice	3.620	3.620	0.080
						2" Ice	4.620	4.620	0.141
Side Arm Mount [SO 102-3]	C	None		0.000	127.000	No Ice	3.600	3.600	0.075
						1/2" Ice	4.180	4.180	0.105
						1" Ice	4.750	4.750	0.135
						2" Ice	5.900	5.900	0.195
Commscope MC-PK8-DSH	C	None		0.000	129.000	No Ice	34.240	34.240	1.749
						1/2" Ice	62.950	62.950	2.099
						1" Ice	91.660	91.660	2.450
						2" Ice	149.080	149.080	3.151
* *									
CX12045x_TIA w/ Mount Pipe	A	From Leg	4.000	0.000	115.000	No Ice	22.960	10.323	0.148
			0.000			1/2" Ice	23.730	11.852	0.293
			0.000			1" Ice	24.508	13.404	0.447
						2" Ice	26.002	15.768	0.795
CX12045x_TIA w/ Mount Pipe	B	From Leg	4.000	0.000	115.000	No Ice	22.960	10.323	0.148
			0.000			1/2" Ice	23.730	11.852	0.293
			0.000			1" Ice	24.508	13.404	0.447
						2" Ice	26.002	15.768	0.795
CX12045x_TIA w/ Mount Pipe	C	From Leg	4.000	0.000	115.000	No Ice	22.960	10.323	0.148
			0.000			1/2" Ice	23.730	11.852	0.293
			0.000			1" Ice	24.508	13.404	0.447
						2" Ice	26.002	15.768	0.795
TA08025-B605	A	From Leg	4.000	0.000	115.000	No Ice	1.964	1.129	0.075
			0.000			1/2" Ice	2.138	1.267	0.093
			0.000			1" Ice	2.320	1.411	0.114
						2" Ice	2.705	1.723	0.164
TA08025-B605	B	From Leg	4.000	0.000	115.000	No Ice	1.964	1.129	0.075

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _A A _A Front ft²	C _A A _A Side ft²	Weight K	
TA08025-B605	C	From Leg	0.000	0.000	115.000	1/2" Ice	2.138	1.267	0.093
			0.000			1" Ice	2.320	1.411	0.114
						2" Ice	2.705	1.723	0.164
			4.000			No Ice	1.964	1.129	0.075
			0.000			1/2" Ice	2.138	1.267	0.093
TA08025-B604	A	From Leg	0.000	0.000	115.000	1" Ice	2.320	1.411	0.114
			0.000			2" Ice	2.705	1.723	0.164
						No Ice	1.964	0.981	0.064
			4.000			1/2" Ice	2.138	1.112	0.081
			0.000			1" Ice	2.320	1.250	0.100
TA08025-B604	B	From Leg	0.000	0.000	115.000	2" Ice	2.705	1.548	0.148
						No Ice	1.964	0.981	0.064
			4.000			1/2" Ice	2.138	1.112	0.081
			0.000			1" Ice	2.320	1.250	0.100
			0.000			2" Ice	2.705	1.548	0.148
TA08025-B604	C	From Leg	4.000	0.000	115.000	No Ice	1.964	0.981	0.064
			0.000			1/2" Ice	2.138	1.112	0.081
			0.000			1" Ice	2.320	1.250	0.100
						2" Ice	2.705	1.548	0.148
						No Ice	1.964	0.981	0.064
RDIDC-9181-PF-48	A	From Leg	0.000	0.000	115.000	1/2" Ice	2.189	1.311	0.040
			0.000			1" Ice	2.373	1.461	0.060
						2" Ice	2.763	1.784	0.110
			4.000			No Ice	1.900	1.900	0.029
			0.000			1/2" Ice	2.728	2.728	0.044
(2) 8' x 2" Mount Pipe	A	From Leg	0.000	0.000	115.000	1" Ice	3.401	3.401	0.063
						2" Ice	4.396	4.396	0.119
						No Ice	1.900	1.900	0.029
			4.000			1/2" Ice	2.728	2.728	0.044
			0.000			1" Ice	3.401	3.401	0.063
(2) 8' x 2" Mount Pipe	B	From Leg	4.000	0.000	115.000	2" Ice	4.396	4.396	0.119
			0.000			No Ice	1.900	1.900	0.029
			0.000			1/2" Ice	2.728	2.728	0.044
						1" Ice	3.401	3.401	0.063
						2" Ice	4.396	4.396	0.119
(2) 8' x 2" Mount Pipe	C	From Leg	4.000	0.000	115.000	No Ice	1.900	1.900	0.029
			0.000			1/2" Ice	2.728	2.728	0.044
			0.000			1" Ice	3.401	3.401	0.063
						2" Ice	4.396	4.396	0.119
						No Ice	1.900	1.900	0.029
Commscope MC-PK8-DSH	C	None		0.000	115.000	1/2" Ice	2.728	2.728	0.044
						1" Ice	3.401	3.401	0.063
						2" Ice	4.396	4.396	0.119
						No Ice	34.240	34.240	1.749
						1/2" Ice	62.950	62.950	2.099
*						1" Ice	91.660	91.660	2.450
						2" Ice	149.080	149.080	3.151

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft²	Weight K	
*											
VHLP3-18A	A	Paraboloid w/Shroud (HP)	From Leg	4.000 0.000	0.000		129.000	3.000	No Ice 1/2" Ice	7.069 7.467	0.053 0.091

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Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft ²	Weight K
				0.000					1" Ice 7.865	0.130
									2" Ice 8.661	0.206
MT1180M50	C	Paraboloid w/Shroud (HP)	From Leg	4.000	0.000		129.000	2.149	No Ice 3.627	0.018
				0.000					1/2" Ice 3.914	0.038
				0.000					1" Ice 4.201	0.058
									2" Ice 4.775	0.098
*										

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service

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Comb. No.	Description
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	180 - 140.42	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-40.940	-0.756	0.497
			Max. Mx	8	-14.325	-526.486	0.462
			Max. My	2	-14.321	-0.146	526.487
			Max. Vy	8	22.106	-526.486	0.462
			Max. Vx	14	22.123	-0.095	-526.373
			Max. Torque	13			8.987
L2	140.42 - 92	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-84.096	1.170	3.080
			Max. Mx	8	-35.647	-2090.065	4.029
			Max. My	2	-35.637	-2.420	2094.840
			Max. Vy	8	40.672	-2090.065	4.029
			Max. Vx	14	40.845	2.254	-2094.740
			Max. Torque	4			16.096
L3	92 - 45.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-104.505	1.365	2.967
			Max. Mx	8	-50.730	-4028.959	7.984
			Max. My	14	-50.723	4.940	-4041.462
			Max. Vy	8	44.924	-4028.959	7.984
			Max. Vx	14	45.095	4.940	-4041.462
			Max. Torque	4			16.136
L4	45.25 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-138.938	1.632	2.813
			Max. Mx	8	-78.061	-6575.036	12.768
			Max. My	14	-78.061	8.069	-6596.718
			Max. Vy	8	49.491	-6575.036	12.768
			Max. Vx	14	49.659	8.069	-6596.718
			Max. Torque	4			16.209

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	27	138.938	-0.025	19.377
	Max. H _x	20	78.085	49.417	-0.016
	Max. H _z	2	78.085	-0.091	49.559
	Max. M _x	2	6590.681	-0.091	49.559
	Max. M _z	8	6575.036	-49.452	0.088
	Max. Torsion	4	16.209	-24.755	42.944
	Min. Vert	23	58.564	42.788	24.766
	Min. H _x	8	78.085	-49.452	0.088
	Min. H _z	14	78.085	0.057	-49.620

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Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Min. M _x	14	-6596.718	0.057	-49.620
	Min. M _z	20	-6571.389	49.417	-0.016
	Min. Torsion	16	-16.195	24.744	-42.989

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Dead Only	65.071	0.000	0.000	-0.781	0.425	0.000
1.2 Dead+1.0 Wind 0 deg - No Ice	78.085	0.091	-49.559	-6590.681	-11.520	-1.016
0.9 Dead+1.0 Wind 0 deg - No Ice	58.564	0.091	-49.559	-6533.850	-11.567	-1.005
1.2 Dead+1.0 Wind 30 deg - No Ice	78.085	24.755	-42.944	-5710.740	-3290.991	-16.209
0.9 Dead+1.0 Wind 30 deg - No Ice	58.564	24.755	-42.944	-5661.473	-3262.843	-16.196
1.2 Dead+1.0 Wind 60 deg - No Ice	78.085	42.818	-24.848	-3304.816	-5692.498	-2.021
0.9 Dead+1.0 Wind 60 deg - No Ice	58.564	42.818	-24.848	-3276.199	-5643.744	-2.006
1.2 Dead+1.0 Wind 90 deg - No Ice	78.085	49.452	-0.088	-12.770	-6575.036	12.656
0.9 Dead+1.0 Wind 90 deg - No Ice	58.564	49.452	-0.088	-12.396	-6518.702	12.670
1.2 Dead+1.0 Wind 120 deg - No Ice	78.085	42.792	24.806	3297.513	-5689.756	-0.799
0.9 Dead+1.0 Wind 120 deg - No Ice	58.564	42.792	24.806	3269.451	-5641.018	-0.796
1.2 Dead+1.0 Wind 150 deg - No Ice	78.085	24.674	42.992	5715.788	-3280.343	-14.246
0.9 Dead+1.0 Wind 150 deg - No Ice	58.564	24.674	42.992	5666.955	-3252.319	-14.254
1.2 Dead+1.0 Wind 180 deg - No Ice	78.085	-0.057	49.620	6596.718	8.068	1.108
0.9 Dead+1.0 Wind 180 deg - No Ice	58.564	-0.057	49.620	6540.345	7.872	1.097
1.2 Dead+1.0 Wind 210 deg - No Ice	78.085	-24.744	42.989	5714.873	3290.431	16.195
0.9 Dead+1.0 Wind 210 deg - No Ice	58.564	-24.744	42.989	5666.051	3262.063	16.183
1.2 Dead+1.0 Wind 240 deg - No Ice	78.085	-42.767	24.896	3309.180	5686.923	1.815
0.9 Dead+1.0 Wind 240 deg - No Ice	58.564	-42.767	24.896	3281.031	5637.942	1.800
1.2 Dead+1.0 Wind 270 deg - No Ice	78.085	-49.417	0.016	1.064	6571.389	-12.642
0.9 Dead+1.0 Wind 270 deg - No Ice	58.564	-49.417	0.016	1.331	6514.811	-12.656
1.2 Dead+1.0 Wind 300 deg - No Ice	78.085	-42.788	-24.766	-3294.204	5690.254	0.913
0.9 Dead+1.0 Wind 300 deg - No Ice	58.564	-42.788	-24.766	-3265.665	5641.241	0.909
1.2 Dead+1.0 Wind 330 deg - No Ice	78.085	-24.685	-42.905	-5706.219	3283.024	14.246
0.9 Dead+1.0 Wind 330 deg - No Ice	58.564	-24.685	-42.905	-5656.980	3254.664	14.253

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Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
No Ice						
1.2 Dead+1.0 Ice+1.0 Temp	138.938	0.000	0.000	-2.813	1.632	0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	138.938	0.025	-19.377	-2604.401	-1.674	-1.308
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	138.938	9.684	-16.788	-2256.825	-1298.058	-3.552
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	138.938	16.756	-9.707	-1306.429	-2247.331	-0.666
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	138.938	19.350	-0.024	-6.607	-2595.708	2.386
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	138.938	16.748	9.694	1298.095	-2246.458	0.697
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	138.938	9.660	16.799	2251.990	-1294.889	-1.230
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	138.938	-0.016	19.392	2600.000	3.993	1.334
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	138.938	-9.680	16.799	2251.857	1301.201	3.548
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	138.938	-16.742	9.719	1301.547	2249.090	0.611
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	138.938	-19.341	0.005	-2.605	2597.977	-2.382
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	138.938	-16.747	-9.684	-1303.287	2249.876	-0.668
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	138.938	-9.663	-16.776	-2255.391	1298.999	1.230
Dead+Wind 0 deg - Service	65.071	0.026	-13.945	-1846.028	-2.932	-0.280
Dead+Wind 30 deg - Service	65.071	6.965	-12.083	-1599.641	-921.208	-4.587
Dead+Wind 60 deg - Service	65.071	12.048	-6.992	-925.938	-1593.678	-0.565
Dead+Wind 90 deg - Service	65.071	13.914	-0.025	-4.101	-1840.798	3.594
Dead+Wind 120 deg - Service	65.071	12.040	6.980	922.801	-1592.909	-0.226
Dead+Wind 150 deg - Service	65.071	6.942	12.097	1599.944	-918.264	-4.044
Dead+Wind 180 deg - Service	65.071	-0.016	13.962	1846.634	2.555	0.306
Dead+Wind 210 deg - Service	65.071	-6.962	12.096	1599.689	921.679	4.583
Dead+Wind 240 deg - Service	65.071	-12.033	7.005	926.068	1592.705	0.506
Dead+Wind 270 deg - Service	65.071	-13.904	0.005	-0.227	1840.362	-3.590
Dead+Wind 300 deg - Service	65.071	-12.039	-6.968	-922.963	1593.634	0.258
Dead+Wind 330 deg - Service	65.071	-6.945	-12.072	-1598.370	919.564	4.044

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.000	-65.071	0.000	0.000	65.071	0.000	0.000%
2	0.091	-78.085	-49.559	-0.091	78.085	49.559	0.000%
3	0.091	-58.564	-49.559	-0.091	58.564	49.559	0.000%
4	24.755	-78.085	-42.944	-24.755	78.085	42.944	0.000%
5	24.755	-58.564	-42.944	-24.755	58.564	42.944	0.000%
6	42.818	-78.085	-24.848	-42.818	78.085	24.848	0.000%
7	42.818	-58.564	-24.848	-42.818	58.564	24.848	0.000%
8	49.452	-78.085	-0.088	-49.452	78.085	0.088	0.000%
9	49.452	-58.564	-0.088	-49.452	58.564	0.088	0.000%
10	42.792	-78.085	24.806	-42.792	78.085	-24.806	0.000%
11	42.792	-58.564	24.806	-42.792	58.564	-24.806	0.000%
12	24.674	-78.085	42.992	-24.674	78.085	-42.992	0.000%
13	24.674	-58.564	42.992	-24.674	58.564	-42.992	0.000%
14	-0.057	-78.085	49.620	0.057	78.085	-49.620	0.000%

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Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
15	-0.057	-58.564	49.620	0.057	58.564	-49.620	0.000%
16	-24.744	-78.085	42.989	24.744	78.085	-42.989	0.000%
17	-24.744	-58.564	42.989	24.744	58.564	-42.989	0.000%
18	-42.767	-78.085	24.896	42.767	78.085	-24.896	0.000%
19	-42.767	-58.564	24.896	42.767	58.564	-24.896	0.000%
20	-49.417	-78.085	0.016	49.417	78.085	-0.016	0.000%
21	-49.417	-58.564	0.016	49.417	58.564	-0.016	0.000%
22	-42.788	-78.085	-24.766	42.788	78.085	24.766	0.000%
23	-42.788	-58.564	-24.766	42.788	58.564	24.766	0.000%
24	-24.685	-78.085	-42.905	24.685	78.085	42.905	0.000%
25	-24.685	-58.564	-42.905	24.685	58.564	42.905	0.000%
26	0.000	-138.938	0.000	0.000	138.938	0.000	0.000%
27	0.025	-138.938	-19.376	-0.025	138.938	19.377	0.000%
28	9.683	-138.938	-16.788	-9.684	138.938	16.788	0.000%
29	16.756	-138.938	-9.707	-16.756	138.938	9.707	0.000%
30	19.350	-138.938	-0.024	-19.350	138.938	0.024	0.000%
31	16.748	-138.938	9.694	-16.748	138.938	-9.694	0.000%
32	9.660	-138.938	16.799	-9.660	138.938	-16.799	0.000%
33	-0.016	-138.938	19.392	0.016	138.938	-19.392	0.000%
34	-9.680	-138.938	16.799	9.680	138.938	-16.799	0.000%
35	-16.742	-138.938	9.719	16.742	138.938	-9.719	0.000%
36	-19.340	-138.938	0.005	19.341	138.938	-0.005	0.000%
37	-16.747	-138.938	-9.684	16.747	138.938	9.684	0.000%
38	-9.663	-138.938	-16.776	9.663	138.938	16.776	0.000%
39	0.026	-65.071	-13.945	-0.026	65.071	13.945	0.000%
40	6.965	-65.071	-12.083	-6.965	65.071	12.083	0.000%
41	12.048	-65.071	-6.992	-12.048	65.071	6.992	0.000%
42	13.914	-65.071	-0.025	-13.914	65.071	0.025	0.000%
43	12.040	-65.071	6.980	-12.040	65.071	-6.980	0.000%
44	6.942	-65.071	12.097	-6.942	65.071	-12.097	0.000%
45	-0.016	-65.071	13.962	0.016	65.071	-13.962	0.000%
46	-6.962	-65.071	12.096	6.962	65.071	-12.096	0.000%
47	-12.033	-65.071	7.005	12.033	65.071	-7.005	0.000%
48	-13.904	-65.071	0.005	13.904	65.071	-0.005	0.000%
49	-12.039	-65.071	-6.968	12.039	65.071	6.968	0.000%
50	-6.945	-65.071	-12.072	6.945	65.071	12.072	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00020377
3	Yes	4	0.00000001	0.00010036
4	Yes	5	0.00000001	0.00042646
5	Yes	5	0.00000001	0.00018633
6	Yes	5	0.00000001	0.00049081
7	Yes	5	0.00000001	0.00021689
8	Yes	5	0.00000001	0.00011776
9	Yes	5	0.00000001	0.00005504
10	Yes	5	0.00000001	0.00047718
11	Yes	5	0.00000001	0.00021046
12	Yes	5	0.00000001	0.00057025
13	Yes	5	0.00000001	0.00025578
14	Yes	4	0.00000001	0.00025401
15	Yes	4	0.00000001	0.00013830

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16	Yes	5	0.00000001	0.00057850
17	Yes	5	0.00000001	0.00025964
18	Yes	5	0.00000001	0.00047580
19	Yes	5	0.00000001	0.00020969
20	Yes	5	0.00000001	0.00011993
21	Yes	5	0.00000001	0.00005603
22	Yes	5	0.00000001	0.00048673
23	Yes	5	0.00000001	0.00021502
24	Yes	5	0.00000001	0.00042774
25	Yes	5	0.00000001	0.00018690
26	Yes	4	0.00000001	0.00000001
27	Yes	5	0.00000001	0.00045270
28	Yes	5	0.00000001	0.00065957
29	Yes	5	0.00000001	0.00067739
30	Yes	5	0.00000001	0.00045546
31	Yes	5	0.00000001	0.00066943
32	Yes	5	0.00000001	0.00068391
33	Yes	5	0.00000001	0.00045068
34	Yes	5	0.00000001	0.00069930
35	Yes	5	0.00000001	0.00066709
36	Yes	5	0.00000001	0.00045629
37	Yes	5	0.00000001	0.00067283
38	Yes	5	0.00000001	0.00066395
39	Yes	4	0.00000001	0.00004996
40	Yes	4	0.00000001	0.00034813
41	Yes	4	0.00000001	0.00036081
42	Yes	4	0.00000001	0.00026642
43	Yes	4	0.00000001	0.00033565
44	Yes	4	0.00000001	0.00054978
45	Yes	4	0.00000001	0.00005069
46	Yes	4	0.00000001	0.00056785
47	Yes	4	0.00000001	0.00033290
48	Yes	4	0.00000001	0.00026763
49	Yes	4	0.00000001	0.00035424
50	Yes	4	0.00000001	0.00033888

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	180 - 140.42	27.513	39	1.411	0.018
L2	145.75 - 92	17.838	39	1.236	0.011
L3	99 - 45.25	7.643	39	0.790	0.004
L4	53.75 - 0	2.084	45	0.356	0.001

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
185.000	Lightning Rod 1/2"x6' on 5' Pole	39	27.513	1.411	0.018	46586
178.420	(2) TWIN6510LU000G-T_TIA w/ Mount Pipe	39	27.050	1.405	0.018	46586
171.670	RRUS 4478	39	25.080	1.376	0.016	27963
163.000	(2) M-1900-65-20i-2-0 w/ Mount	39	22.581	1.337	0.014	13701

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Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
150.000	Pipe (2) NHH-65B-R2B_TIA w/ Mount	39	18.968	1.265	0.012	7764
139.000	Pipe (2) NNH4-65B-R6H4_TIA w/ Mount	39	16.108	1.185	0.010	6593
129.000	VHLP3-18A	39	13.698	1.097	0.008	6308
127.000	Side Arm Mount [SO 102-3]	39	13.238	1.078	0.008	6254
115.000	CX12045x_TIA w/ Mount Pipe	39	10.646	0.958	0.006	5949

Maximum Tower Deflections - Design Wind

Section No.	Elevation	Horz. Deflection	Gov. Load Comb.	Tilt	Twist
	ft	in		°	°
L1	180 - 140.42	98.291	14	5.043	0.064
L2	145.75 - 92	63.749	14	4.419	0.038
L3	99 - 45.25	27.328	14	2.824	0.016
L4	53.75 - 0	7.449	14	1.271	0.005

Critical Deflections and Radius of Curvature - Design Wind

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
185.000	Lightning Rod 1/2"x6' on 5' Pole	14	98.291	5.043	0.064	13224
178.420	(2) TWIN6510LU000G-T_TIA w/ Mount Pipe	14	96.641	5.020	0.063	13224
171.670	RRUS 4478	14	89.609	4.919	0.058	7937
163.000	(2) M-1900-65-20i-2-0 w/ Mount Pipe	14	80.687	4.778	0.051	3887
150.000	(2) NHH-65B-R2B_TIA w/ Mount Pipe	14	67.785	4.521	0.041	2201
139.000	(2) NNH4-65B-R6H4_TIA w/ Mount Pipe	14	57.571	4.236	0.034	1865
129.000	VHLP3-18A	14	48.963	3.923	0.028	1782
127.000	Side Arm Mount [SO 102-3]	14	47.322	3.856	0.027	1766
115.000	CX12045x_TIA w/ Mount Pipe	14	38.058	3.427	0.022	1676

Compression Checks

Pole Design Data

Section No.	Elevation	Size	L	L _u	Kl/r	A	P _u	φP _n	Ratio P _u /φP _n
	ft		ft	ft		in ²	K	K	
L1	180 - 140.42	TP41.167x30.6x0.188	39.580	0.000	0.0	23.541	-14.321	1240.650	0.012

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Section No.	Elevation	Size	L	L _u	Kl/r	A	P _u	φP _n	Ratio
	ft		ft	ft		in ²	K	K	$\frac{P_u}{\phi P_n}$
	(1)								
L2	140.42 - 92 (2)	TP53.716x39.369x0.25	53.750	0.000	0.0	40.943	-35.636	2192.660	0.016
L3	92 - 45.25 (3)	TP65.696x51.348x0.313	53.750	0.000	0.0	62.602	-50.723	3404.190	0.015
L4	45.25 - 0 (4)	TP77.15x62.802x0.438	53.750	0.000	0.0	106.525	-78.061	6231.710	0.013

Pole Bending Design Data

Section No.	Elevation	Size	M _{ux}	φM _{nx}	Ratio	M _{uy}	φM _{ny}	Ratio
	ft		kip-ft	kip-ft	$\frac{M_{ux}}{\phi M_{nx}}$	kip-ft	kip-ft	$\frac{M_{uy}}{\phi M_{ny}}$
L1	180 - 140.42 (1)	TP41.167x30.6x0.188	526.500	1012.292	0.520	0.000	1012.292	0.000
L2	140.42 - 92 (2)	TP53.716x39.369x0.25	2094.442	2333.425	0.898	0.000	2333.425	0.000
L3	92 - 45.25 (3)	TP65.696x51.348x0.313	4041.467	4430.875	0.912	0.000	4430.875	0.000
L4	45.25 - 0 (4)	TP77.15x62.802x0.438	6596.725	9992.583	0.660	0.000	9992.583	0.000

Pole Shear Design Data

Section No.	Elevation	Size	Actual V _u	φV _n	Ratio	Actual T _u	φT _n	Ratio
	ft		K	K	$\frac{V_u}{\phi V_n}$	kip-ft	kip-ft	$\frac{T_u}{\phi T_n}$
L1	180 - 140.42 (1)	TP41.167x30.6x0.188	22.135	413.146	0.054	8.979	1431.200	0.006
L2	140.42 - 92 (2)	TP53.716x39.369x0.25	40.793	718.544	0.057	16.096	3246.850	0.005
L3	92 - 45.25 (3)	TP65.696x51.348x0.313	45.095	1098.660	0.041	0.966	6072.559	0.000
L4	45.25 - 0 (4)	TP77.15x62.802x0.438	49.659	1869.510	0.027	1.108	12559.584	0.000

Pole Interaction Design Data

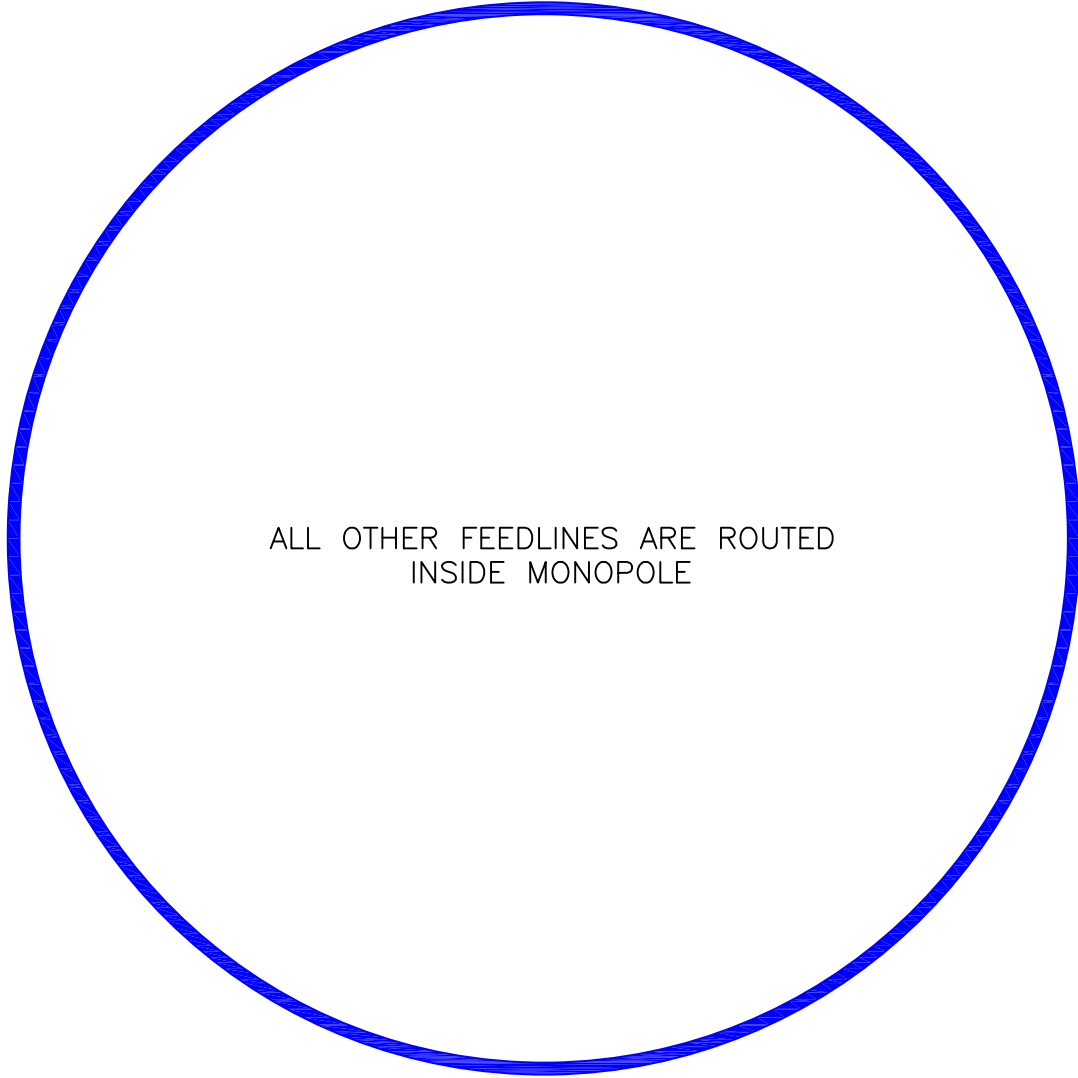
Section No.	Elevation	Ratio P _u	Ratio M _{ux}	Ratio M _{uy}	Ratio V _u	Ratio T _u	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	ft	$\frac{P_u}{\phi P_n}$	$\frac{M_{ux}}{\phi M_{nx}}$	$\frac{M_{uy}}{\phi M_{ny}}$	$\frac{V_u}{\phi V_n}$	$\frac{T_u}{\phi T_n}$			
L1	180 - 140.42 (1)	0.012	0.520	0.000	0.054	0.006	0.535	1.000	
L2	140.42 - 92 (2)	0.016	0.898	0.000	0.057	0.005	0.918	1.000	
L3	92 - 45.25 (3)	0.015	0.912	0.000	0.041	0.000	0.929	1.000	
L4	45.25 - 0 (4)	0.013	0.660	0.000	0.027	0.000	0.673	1.000	

Section Capacity Table

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Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$\emptyset P_{allow}$ K	% Capacity	Pass Fail
L1	180 - 140.42	Pole	TP41.167x30.6x0.188	1	-14.321	1240.650	53.5	Pass
L2	140.42 - 92	Pole	TP53.716x39.369x0.25	2	-35.636	2192.660	91.8	Pass
L3	92 - 45.25	Pole	TP65.696x51.348x0.313	3	-50.723	3404.190	92.9	Pass
L4	45.25 - 0	Pole	TP77.15x62.802x0.438	4	-78.061	6231.710	67.3	Pass
							Summary	
							Pole (L3)	92.9 Pass
							RATING =	92.9 Pass

APPENDIX B
BASE LEVEL DRAWING



ALL OTHER FEEDLINES ARE ROUTED
INSIDE MONOPOLE

PROJECT NUMBER: 25-005522

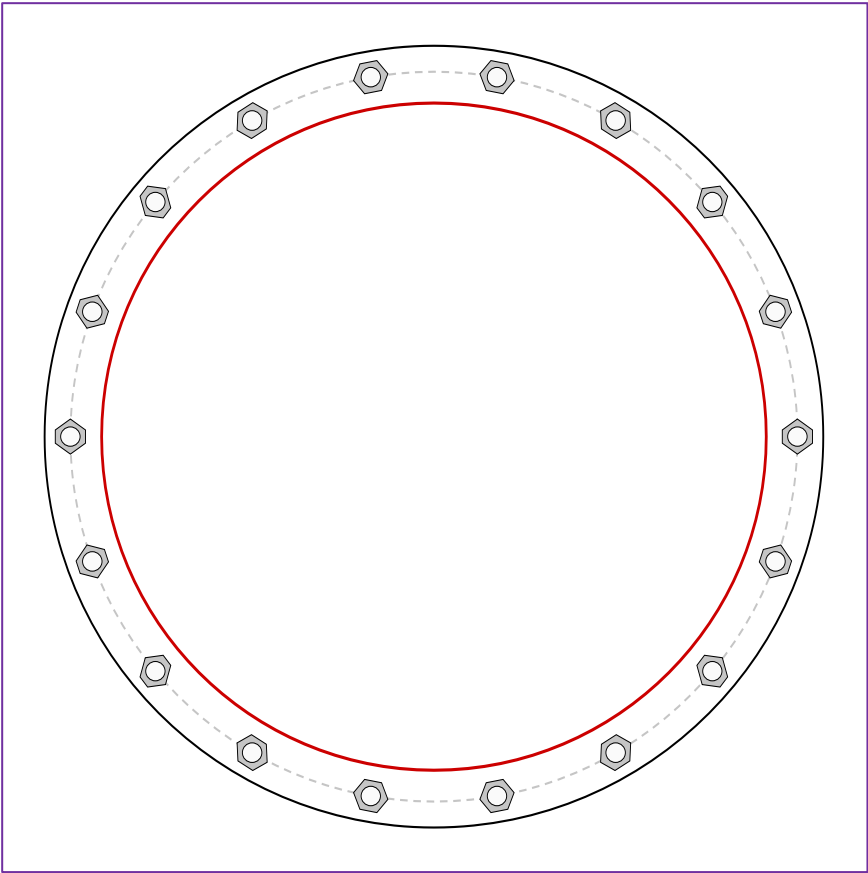
APPENDIX C
ADDITIONAL CALCULATIONS

Monopole Base Plate Connection

Site Info	
Site #	774380-A
Site Name	Grand Rapids, WI
Project #	25-005522

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	1

Applied Loads	
Moment (kip-ft)	6596.72
Axial Force (kips)	78.06
Shear Force (kips)	49.66



Connection Properties		Analysis Results	
Anchor Rod Data		Anchor Rod Summary <i>(units of kips, kip-in)</i>	
(18) 2-1/4" ϕ bolts (A615-75 N; F_y =75 ksi, F_u =100 ksi) on 84.375" BC		P_{u_t} = 204.09	ϕP_{n_t} = 243.75 Stress Rating
Base Plate Data		V_u = 2.76	ϕV_n = 149.1 83.7%
90.375" OD x 2.5" Plate (A572-50; F_y =50 ksi, F_u =65 ksi)		M_u = n/a	ϕM_n = n/a Pass
Stiffener Data		Base Plate Summary	
N/A		Max Stress (ksi):	23.34 (Flexural)
Pole Data		Allowable Stress (ksi):	45
77.15" x 0.4375" 18-sided pole (A572-65; F_y =65 ksi, F_u =80 ksi)		Stress Rating:	51.9% Pass

Drilled Pier Foundation

Site #	774380-A
Site Name:	Grand Rapids, WI
project Number	25-005522
TIA-222 Revision:	H
Tower Type:	Monopole

Applied Loads		
	Comp.	Uplift
Moment (kip-ft)	6596.72	
Axial Force (kips)	78.06	
Shear Force (kips)	49.66	

Material Properties		
Concrete Strength, f'c:	3	ksi
Rebar Strength, Fy:	60	ksi
Tie Yield Strength, Fyt:	40	ksi

Pier Design Data		
Depth	31	ft
Ext. Above Grade	0.5	ft
Pier Section 1		
From 0.5' above grade to 31' below grade		
Pier Diameter	9	ft
Rebar Quantity	30	
Rebar Size	11	
Clear Cover to Ties	4	in
Tie Size	5	
Tie Spacing	18	in

[Rebar & Pier Options](#)

[Embedded Pole Inputs](#)

[Belled Pier Inputs](#)

Analysis Results		
Soil Lateral Check		
	Compression	Uplift
D _{v=0} (ft from TOC)	8.22	-
Soil Safety Factor	2.72	-
Max Moment (kip-ft)	7011.38	-
Rating	48.9%	-
Soil Vertical Check		
	Compression	Uplift
Skin Friction (kips)	649.55	-
End Bearing (kips)	1254.22	-
Weight of Concrete (kips)	274.95	-
Total Capacity (kips)	1903.77	-
Axial (kips)	353.01	-
Rating	18.5%	-
Reinforced Concrete Flexure		
	Compression	Uplift
Critical Depth (ft from TOC)	7.86	-
Critical Moment (kip-ft)	7009.40	-
Critical Moment Capacity	9936.20	-
Rating	70.5%	-
Reinforced Concrete Shear		
	Compression	Uplift
Critical Depth (ft from TOC)	22.76	-
Critical Shear (kip)	638.84	-
Critical Shear Capacity	882.17	-
Rating	72.4%	-

Structural Foundation Rating	72.4%
Soil Interaction Rating	48.9%

Check Limitation	
Apply TIA-222-H Section 15.5:	☐
N/A	☐
Design Options	
Input Effective Depths (else Actual):	☐
Consider non-tapered moment capacity:	☐
Check Shear along Depth of Pier:	☒
Utilize Shear-Friction Methodology:	☐
Override Critical Depth:	☐

[Go to Soil Calculations](#)

Soil Profile									
Groundwater Depth	13	# of Layers	5						

Layer	Top (ft)	Bottom (ft)	Thickness (ft)	Y _{soil} (pcf)	Y _{concrete} (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Net Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	5.833	5.833	110	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
2	5.833	8	2.167	110	150	0	34	0.871	0.871				20	Cohesionless
3	8	13	5	110	150	0	30	0.900	0.900				11	Cohesionless
4	13	22	9	47.6	87.6	0	30	1.025	1.025				10	Cohesionless
5	22	31	9	47.6	87.6	0	34	1.669	1.669			24	20	Cohesionless

ASCE Hazards Report

Address:

No Address at This Location

Standard:

ASCE/SEI 7-16

Risk Category: II**Soil Class:**

D - Default (see
Section 11.4.3)

Latitude:

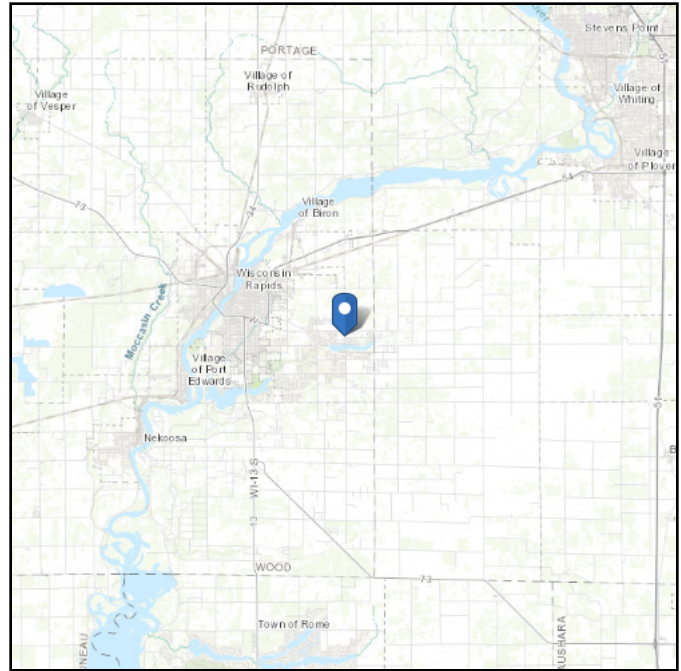
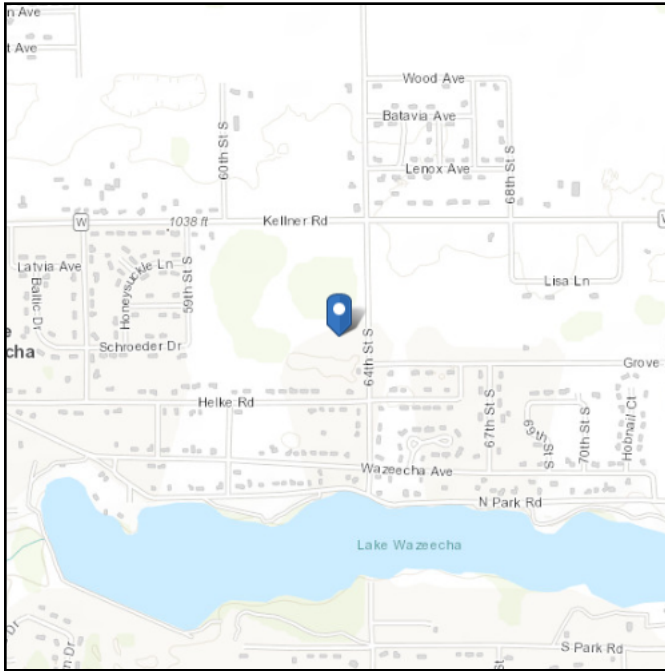
44.37041

Longitude:

-89.74633

Elevation:

1038.534843456211 ft
(NAVD 88)



Wind

Results:

Wind Speed	107 Vmph
10-year MRI	73 Vmph
25-year MRI	80 Vmph
50-year MRI	85 Vmph
100-year MRI	91 Vmph

Data Source:

ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2

Date Accessed:

Thu Jul 31 2025

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

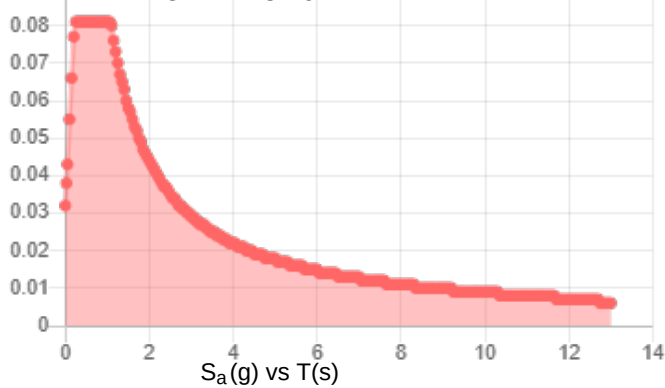
Site is not in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2.

Site Soil Class: D - Default (see Section 11.4.3)

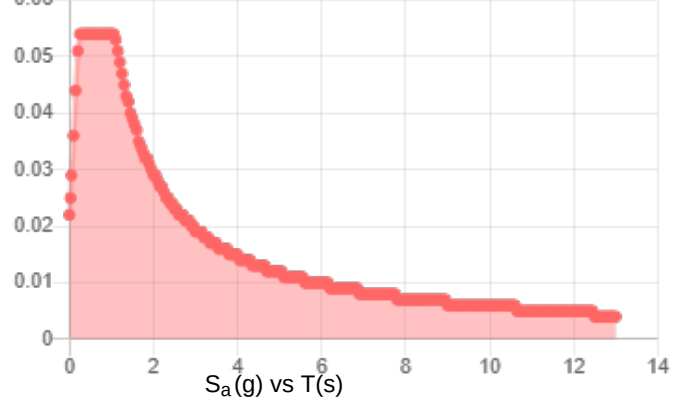
Results:

S_S :	0.05	S_{D1} :	0.058
S_1 :	0.037	T_L :	12
F_a :	1.6	PGA :	0.024
F_v :	2.4	PGA _M :	0.039
S_{MS} :	0.081	F_{PGA} :	1.6
S_{M1} :	0.088	I_e :	1
S_{DS} :	0.054	C_v :	0.7

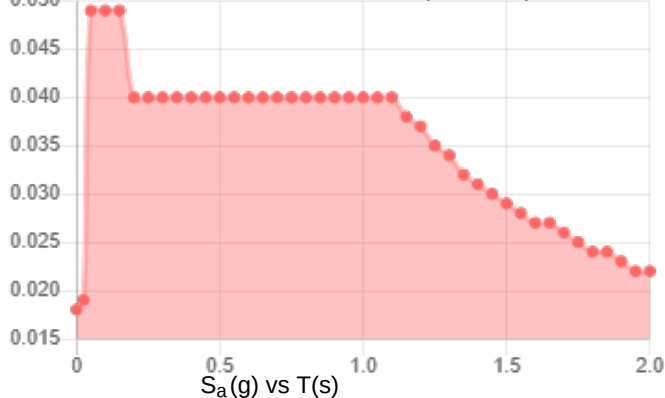
Seismic Design Category: A MCE_R Response Spectrum



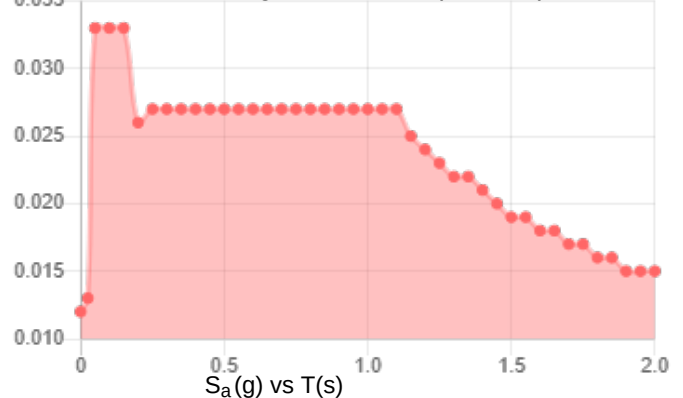
Design Response Spectrum



MCE_R Vertical Response Spectrum



Design Vertical Response Spectrum



Data Accessed: Thu Jul 31 2025

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness: 1.50 in.

Concurrent Temperature: -5 F

Gust Speed 50 mph

Data Source: Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8

Date Accessed: Thu Jul 31 2025

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

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