

Date: **April 08, 2021**



Crown Castle
2000 Corporate Drive
Canonsburg, PA 15317
(724) 416-2000

Subject: **Structural Analysis Report**

Carrier Designation: **DISH Network Co-Locate**
Site Number: BOBDL00054A
Site Name: CT-CCI-T-807134

Crown Castle Designation: **BU Number:** 807134
Site Name: NHV 031B 943108
JDE Job Number: 645664
Work Order Number: 1945874
Order Number: 553397 Rev. 0

Engineering Firm Designation: **Crown Castle Project Number:** 1945874

Site Data: **197 North Chestnut Hill Road, KILLINGWORTH, Middlesex County, CT**
Latitude 41° 23' 9.93", Longitude -72° 36' 14.39"
170 Foot - Self Support Tower

Crown Castle 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:

LC5: Proposed Equipment Configuration

Sufficient Capacity – 58.4%

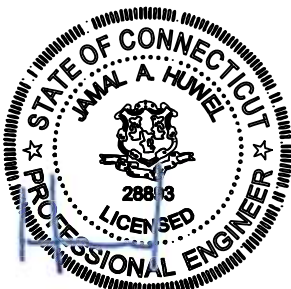
This analysis utilizes an ultimate 3-second gust wind speed of 130 mph as required by the 2018 Connecticut State Building Code and Appendix N. Applicable Standard references and design criteria are listed in Section 2 - "Analysis Criteria".

Structural analysis prepared by: Jared Koski

Respectfully submitted by:

Jamal A. Huwel, P.E.
Director Engineering

A blue ink handwritten signature of Jamal A. Huwel.



Date Signed: 04/12/2021

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1) INTRODUCTION

This tower is a 170 ft Self Support tower designed by Rohn.

The tower has been modified per reinforcement drawings prepared by GPD. Reinforcement consists of replacing diagonal bolts between elevations 0' and 20' with higher grade bolts.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	130 mph
Exposure Category:	B
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)
148.0	148.0	3	jma wireless	MX08FRO665-20 w/ Mount Pipe	1	1-1/2
		3	fujitsu	TA08025-B604		
		3	fujitsu	TA08025-B605		
		1	raycap	RDIDC-9181-PF-48		
		1	tower mounts	Commscope MTC3975083 (3)		

Table 2 - Non-Carrier Equipment To Be Removed

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
146.0	147.0	12	decibel	DB844H90E-SX w/Mount Pipe	12	1-5/8
	146.0	1	tower mounts	Sector Mount [SM 602-3]		

Table 3 - 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)
170.0	171.0	3	antel	BXA-70063-6CF-EDIN-0 w/ Mount Pipe	18	1-5/8
		6	antel	LPA-171063-12CF-EDIN-2 w/ Mount Pipe		
		6	antel	LPA-80063/6CF w/ Mount Pipe		
	170.0	1	tower mounts	Sector Mount [SM 514-3]		
135.0	136.0	1	kmw communications	AM-X-CD-16-65-00T-RET w/ Mount Pipe	1	3/8
		6	powerwave technologies	7770.00	2 12 1	7/16 1-1/4 Conduit

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
		1	powerwave technologies	P65-16-XLH-RR w/ Mount Pipe		
		1	powerwave technologies	P65-17-XLH-RR w/ Mount Pipe		
	135.0	3	ericsson	RRUS-11		
		6	powerwave technologies	LGP21401		
		6	powerwave technologies	LGP21901		
		1	raycap	DC6-48-60-18-8F		
		1	tower mounts	Sector Mount [SM 402-3]		

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	258466	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	301178	CCISITES
4-TOWER MANUFACTURER DRAWINGS	258477	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	2303423	CCISITES
4-POST-MODIFICATION INSPECTION	2354059	CCISITES

3.1) Analysis Method

tnxTower (version 8.0.7.5), 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. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

3.2) Assumptions

- 1) 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. Crown Castle should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P _{allow} (K)	% Capacity	Pass / Fail
T1	170 - 160	Leg	ROHN 2.5 STD	2	-8.57	60.05	14.3	Pass
T2	160 - 140	Leg	ROHN 2.5 EH	21	-29.67	61.44	48.3	Pass
T3	140 - 120	Leg	ROHN 3 EH	45	-57.86	99.05	58.4	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T4	120 - 100	Leg	ROHN 4 EH	66	-86.73	167.91	51.7	Pass
T5	100 - 80	Leg	ROHN 5 EH	87	-113.21	211.29	53.6	Pass
T6	80 - 60	Leg	ROHN 6 EHS	102	-142.54	256.27	55.6	Pass
T7	60 - 40	Leg	ROHN 6 EH	117	-171.64	318.90	53.8	Pass
T8	40 - 20	Leg	ROHN 8 EHS	132	-200.74	405.72	49.5	Pass
T9	20 - 0	Leg	ROHN 8 EHS	147	-230.01	405.72	56.7	Pass
T1	170 - 160	Diagonal	L 2 x 2 x 3/16	10	-2.95	10.33	28.6 40.9 (b)	Pass
T2	160 - 140	Diagonal	L2 1/2x2 1/2x1/4	28	-4.50	16.20	27.8 35.0 (b)	Pass
T3	140 - 120	Diagonal	L2 1/2x2 1/2x1/4	49	-5.90	12.43	47.5	Pass
T4	120 - 100	Diagonal	L3x3x1/4	70	-6.92	17.34	39.9 46.1 (b)	Pass
T5	100 - 80	Diagonal	L3 1/2x3 1/2x1/4	91	-8.33	18.92	44.0 55.1 (b)	Pass
T6	80 - 60	Diagonal	L4x4x5/16	106	-9.38	29.62	31.7 49.7 (b)	Pass
T7	60 - 40	Diagonal	L4x4x5/16	121	-9.77	24.78	39.4 51.9 (b)	Pass
T8	40 - 20	Diagonal	L4x4x5/16	136	-10.86	21.56	50.4 57.1 (b)	Pass
T9	20 - 0	Diagonal	L4x4x3/8	151	-11.75	22.00	53.4	Pass
T1	170 - 160	Top Girt	L2 1/2x2 1/2x3/16	4	-1.15	6.92	16.7	Pass
T2	160 - 140	Top Girt	L2 1/2x2 1/2x3/16	22	-0.23	6.92	3.3	Pass
							Summary	
						Leg (T3)	58.4	Pass
						Diagonal (T8)	57.1	Pass
						Top Girt (T1)	16.7	Pass
						Bolt Checks	57.1	Pass
						Rating =	58.4	Pass

Table 6 - Tower Component Stresses vs. Capacity - LC5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	18.3	Pass
1	Base Foundation (Structure)	0	19.7	Pass
1	Base Foundation (Soil Interaction)	0	44.9	Pass

Structure Rating (max from all components) =	58.4%
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Notes:

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

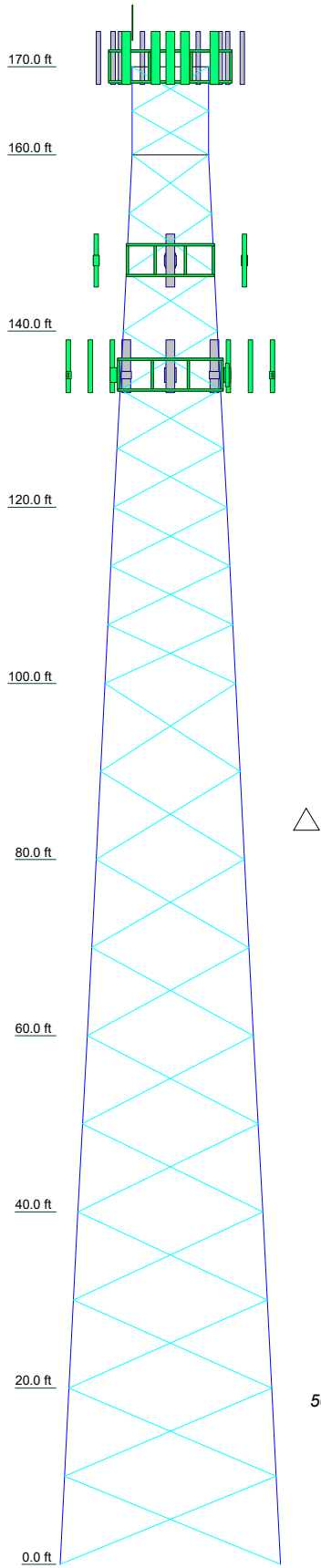
4.1) Recommendations

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

APPENDIX A

TNXTOWER OUTPUT

Section	T1	T2	T3	T4	T5	T6	T7	T8	T9
Legs	A	ROHN 2.5 EH	ROHN 3 EH	ROHN 4 EH	ROHN 5 EH	ROHN 6 EHS	ROHN 6 EH	ROHN 8 EHS	
Leg Grade	A572-50								
Diagonals	L 2 x 2 x 3/16	L2 1/2x2 1/2x1/4	L2 1/2x2 1/2x3/16	L3x3x1/4	L3 1/2x3 1/2x1/4	L4x4x5/16	L4x4x3/8	L4x4x3/8	L4x4x3/8
Diagonal Grade	A36								
Top Girts	N.A.								
Face Width (ft)	8.64583	10.6875	12.7604	14.7708	16.8542	18.8542	21	23	25
# Panels @ (ft)	2 @ 5	9 @ 6.66667					10 @ 10		
Weight (K)	0.6	1.5	1.7	2.4	2.7	3.5	4.1	4.6	5.3
									26.2



SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	ROHN 2.5 STD		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

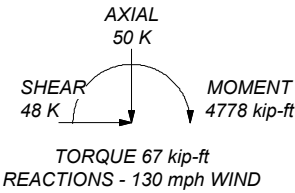
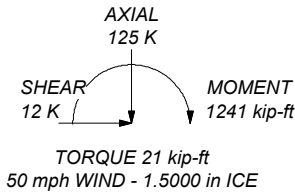
TOWER DESIGN NOTES

1. Tower is located in Middlesex County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 130 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 0.00 ft
8. TOWER RATING: 58.4%

ALL REACTIONS
ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 237 K
SHEAR: 29 K

UPLIFT: -195 K
SHEAR: 25 K



 Crown Castle 2000 Corporate Drive Canonsburg, PA 15317 Phone: (724) 416-2000 FAX:			Job: BU# 807134 Project: Client: Crown Castle Code: TIA-222-H Path: C:\Users\jkoski\Desktop\Work Area\807134\WO 1945874 - SAIProd\807134.dwg		
Drawn by: JKoski Date: 04/08/21 Scale: NTS Dwg No. E-1					

Tower Input Data

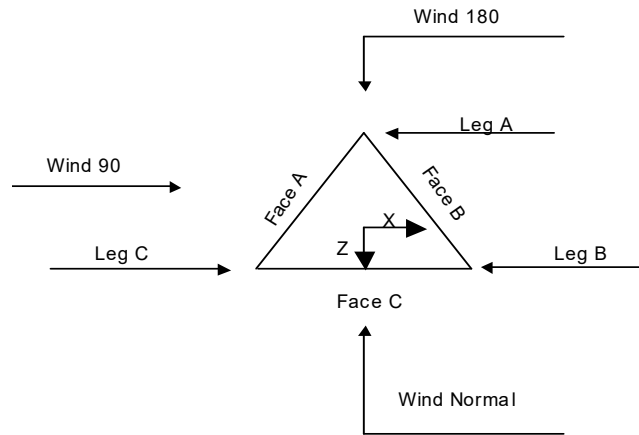
The main tower is a 3x free standing tower with an overall height of 170.00 ft above the ground line.
 The base of the tower is set at an elevation of 0.00 ft above the ground line.
 The face width of the tower is 8.65 ft at the top and 25.00 ft at the base.
 This tower is designed using the TIA-222-H standard.

The following design criteria apply:

- 3) Tower is located in Middlesex County, Connecticut.
- 4) Tower base elevation above sea level: 382.00 ft.
- 5) Basic wind speed of 130 mph.
- 6) Risk Category II.
- 7) Exposure Category B.
- 8) Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- 9) Topographic Category: 1.
- 10) Crest Height: 0.00 ft.
- 11) Nominal ice thickness of 1.5000 in.
- 12) Ice thickness is considered to increase with height.
- 13) Ice density of 56 pcf.
- 14) A wind speed of 50 mph is used in combination with ice.
- 15) Temperature drop of 50 °F.
- 16) Deflections calculated using a wind speed of 60 mph.
- 17) A non-linear (P-delta) analysis was used.
- 18) Pressures are calculated at each section.
- 19) Tower analysis based on target reliabilities in accordance with Annex S.
- 20) Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
- 21) Stress ratio used in tower member design is 1.05.
- 22) Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs	Distribute Leg Loads As Uniform	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Horizontals	Assume Legs Pinned	√ Calculate Redundant Bracing Forces
Consider Moments - Diagonals	√ Assume Rigid Index Plate	Ignore Redundant Members in FEA
Use Moment Magnification	√ Use Clear Spans For Wind Area	√ SR Leg Bolts Resist Compression
Use Code Stress Ratios	√ Use Clear Spans For KL/r	All Leg Panels Have Same Allowable
√ Use Code Safety Factors - Guys	Retension Guys To Initial Tension	Offset Girt At Foundation
Escalate Ice	√ Bypass Mast Stability Checks	√ Consider Feed Line Torque
Always Use Max Kz	√ Use Azimuth Dish Coefficients	√ Include Angle Block Shear Check
Use Special Wind Profile	√ Project Wind Area of Appurt.	Use TIA-222-H Bracing Resist.
√ Include Bolts In Member Capacity	Autocalc Torque Arm Areas	Exemption
Leg Bolts Are At Top Of Section		Use TIA-222-H Tension Splice
√ Secondary Horizontal Braces Leg	Add IBC .6D+W Combination	Exemption
Use Diamond Inner Bracing (4 Sided)	√ Sort Capacity Reports By Component	Poles
SR Members Have Cut Ends	Triangulate Diamond Inner Bracing	Include Shear-Torsion Interaction
SR Members Are Concentric	Treat Feed Line Bundles As Cylinder	Always Use Sub-Critical Flow
	Ignore KL/ry For 60 Deg. Angle Legs	Use Top Mounted Sockets
		Pole Without Linear Attachments
		Pole With Shroud Or No
		Appurtenances
		Outside and Inside Corner Radii Are
		Known



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	170.00-160.00			8.65	1	10.00
T2	160.00-140.00			8.65	1	20.00
T3	140.00-120.00			10.69	1	20.00
T4	120.00-100.00			12.76	1	20.00
T5	100.00-80.00			14.77	1	20.00
T6	80.00-60.00			16.85	1	20.00
T7	60.00-40.00			18.85	1	20.00
T8	40.00-20.00			21.00	1	20.00
T9	20.00-0.00			23.00	1	20.00

Tower Section Geometry (cont'd)

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	170.00-160.00	5.00	X Brace	No	Yes	0.0000	0.0000
T2	160.00-140.00	6.67	X Brace	No	Yes	0.0000	0.0000
T3	140.00-120.00	6.67	X Brace	No	No	0.0000	0.0000
T4	120.00-100.00	6.67	X Brace	No	No	0.0000	0.0000
T5	100.00-80.00	10.00	X Brace	No	No	0.0000	0.0000
T6	80.00-60.00	10.00	X Brace	No	No	0.0000	0.0000
T7	60.00-40.00	10.00	X Brace	No	No	0.0000	0.0000
T8	40.00-20.00	10.00	X Brace	No	No	0.0000	0.0000
T9	20.00-0.00	10.00	X Brace	No	No	0.0000	0.0000

Tower Section Geometry (cont'd)

Tower Elevation	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
ft						
T1 170.00-	Pipe	ROHN 2.5 STD	A572-50	Single Angle	L 2 x 2 x 3/16	A36

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
160.00			(50 ksi)			(36 ksi)
T2 160.00-140.00	Pipe	ROHN 2.5 EH	A572-50	Single Angle	L2 1/2x2 1/2x1/4	A36
T3 140.00-120.00	Pipe	ROHN 3 EH	A572-50	Single Angle	L2 1/2x2 1/2x1/4	(36 ksi) A36
T4 120.00-100.00	Pipe	ROHN 4 EH	A572-50	Single Angle	L3x3x1/4	(36 ksi) A572-50
T5 100.00-80.00	Pipe	ROHN 5 EH	A572-50	Single Angle	L3 1/2x3 1/2x1/4	(50 ksi) A572-50
T6 80.00-60.00	Pipe	ROHN 6 EHS	A572-50	Single Angle	L4x4x5/16	(50 ksi) A572-50
T7 60.00-40.00	Pipe	ROHN 6 EH	A572-50	Single Angle	L4x4x5/16	(50 ksi) A572-50
T8 40.00-20.00	Pipe	ROHN 8 EHS	A572-50	Single Angle	L4x4x5/16	(50 ksi) A572-50
T9 20.00-0.00	Pipe	ROHN 8 EHS	A572-50	Single Angle	L4x4x3/8	(50 ksi) A572-50

Tower Section Geometry (cont'd)

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 170.00-160.00	Single Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T2 160.00-140.00	Single Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)	Solid Round		A36 (36 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	Gusset Area (per face) ft ²	Gusset Thickness in	Gusset Grade	Adjust. Factor A _r	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontal in	Double Angle Stitch Bolt Spacing Redundants in
T1 170.00-160.00	0.00	0.0000	A36 (36 ksi)	1.05	1	1.05	36.0000	36.0000	36.0000
T2 160.00-140.00	0.00	0.0000	A36 (36 ksi)	1.05	1	1.05	36.0000	36.0000	36.0000
T3 140.00-120.00	0.00	0.0000	A36 (36 ksi)	1.05	1	1.05	36.0000	36.0000	36.0000
T4 120.00-100.00	0.00	0.0000	A36 (36 ksi)	1.05	1	1.05	36.0000	36.0000	36.0000
T5 100.00-80.00	0.00	0.0000	A36 (36 ksi)	1.05	1	1.05	36.0000	36.0000	36.0000
T6 80.00-60.00	0.00	0.0000	A36 (36 ksi)	1.05	1	1.05	36.0000	36.0000	36.0000
T7 60.00-40.00	0.00	0.0000	A36 (36 ksi)	1.05	1	1.05	36.0000	36.0000	36.0000
T8 40.00-20.00	0.00	0.0000	A36 (36 ksi)	1.05	1	1.05	36.0000	36.0000	36.0000
T9 20.00-0.00	0.00	0.0000	A36 (36 ksi)	1.05	1	1.05	36.0000	36.0000	36.0000

Tower Section Geometry (cont'd)

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Legs	K Factors ¹						
				X Brace Diags	K Brace Diags	Single Diags	Girts	Horiz.	Sec. Horiz.	Inner Brace
				X Y	X Y	X Y	X Y	X Y	X Y	X Y
T1 170.00-160.00	Yes	No	1	1	1	1	1	1	1	1
T2 160.00-140.00	Yes	No	1	1	1	1	1	1	1	1
T3 140.00-120.00	Yes	No	1	1	1	1	1	1	1	1
T4 120.00-100.00	Yes	No	1	1	1	1	1	1	1	1
T5 100.00-80.00	Yes	No	1	1	1	1	1	1	1	1
T6 80.00-60.00	Yes	No	1	1	1	1	1	1	1	1
T7 60.00-40.00	Yes	No	1	1	1	1	1	1	1	1
T8 40.00-20.00	Yes	No	1	1	1	1	1	1	1	1
T9 20.00-0.00	Yes	No	1	1	1	1	1	1	1	1

¹Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 170.00-160.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 160.00-140.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 140.00-120.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 120.00-100.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 100.00-80.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 80.00-60.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 60.00-40.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 40.00-20.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 20.00-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 170.00-160.00	Flange	0.6250 A325N	4	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T2 160.00- 140.00	Flange	0.7500 A325N	4	0.7500 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 140.00- 120.00	Flange	0.8750 A325N	4	0.7500 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T4 120.00- 100.00	Flange	1.0000 A325N	4	0.7500 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T5 100.00- 80.00	Flange	1.0000 A325N	6	0.7500 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T6 80.00- 60.00	Flange	1.0000 A325N	6	0.7500 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T7 60.00- 40.00	Flange	1.0000 A325N	8	0.7500 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T8 40.00- 20.00	Flange	1.0000 A325N	8	0.7500 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T9 20.00-0.00	Flange	1.0000 A354-BC	0	0.7500 A490N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Componen t Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacin g in	Width or Diameter in	Perimete r in	Weight plf
Face A Feedline Ladder (Af)	A	No	No	Af (CaAa)	170.00 - 0.00	0.0000	0.4	1	1	3.0000	3.0000		8.40
Leg A 2" Rigid Conduit	A	No	No	Ar (CaAa)	135.00 - 0.00	- 5.0000	0.42	1	1	2.0000	2.0000		2.80
FB-L98B- 002-75000(3/8")	A	No	No	Ar (CaAa)	135.00 - 0.00	- 5.0000	0.42	1	1	0.3937	0.0000		0.06
WR- VG122ST- BRDA(7/16)	A	No	No	Ar (CaAa)	135.00 - 0.00	- 5.0000	0.42	2	2	0.4600	0.0000		0.14
LDF6-50A(1- 1/4")	A	No	No	Ar (CaAa)	135.00 - 0.00	- 5.0000	0.45	8	5	1.5500	1.5500		0.66
LDF6-50A(1- 1/4")	B	No	No	Ar (CaAa)	135.00 - 0.00	- 3.0000	-0.43	4	3	1.5500	1.5500		0.66
T-Brackets (Af)	A	No	No	Af (CaAa)	135.00 - 0.00	- 3.0000	0.48	1	1	1.0000	1.0000		8.40
Face C HJ7-50A(1- 5/8")	C	No	No	Ar (CaAa)	170.00 - 0.00	0.0000	-0.36	18	15	1.9800	1.9800		1.04
Feedline Ladder (Af)	C	No	No	Af (CaAa)	170.00 - 0.00	0.0000	-0.36	1	1	3.0000	3.0000		8.40
Leg B Thin Flat Bar Climbing Ladder ***	B	No	No	Af (CaAa)	170.00 - 0.00	- 12.000 0	0.4	1	1	2.0000	2.0000		4.00
CU12PSM9P 6XXX(1-1/2) ***	B	No	No	Ar (CaAa)	148.00 - 0.00	0.0000	0.48	1	1	1.6000	1.6000		2.35

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Componen t Type	Placement ft	Total Number	CAAA ft²/ft	Weight plf

Feed Line/Linear Appurtenances Section Areas

Tower Sectio n	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
T1	170.00-160.00	A	0.000	0.000	5.000	0.000	0.08
		B	0.000	0.000	3.333	0.000	0.04
		C	0.000	0.000	40.640	0.000	0.27
T2	160.00-140.00	A	0.000	0.000	10.000	0.000	0.17
		B	0.000	0.000	7.947	0.000	0.10
		C	0.000	0.000	81.280	0.000	0.54
T3	140.00-120.00	A	0.000	0.000	34.100	0.000	0.42
		B	0.000	0.000	19.167	0.000	0.17
		C	0.000	0.000	81.280	0.000	0.54
T4	120.00-100.00	A	0.000	0.000	42.133	0.000	0.50
		B	0.000	0.000	22.267	0.000	0.18
		C	0.000	0.000	81.280	0.000	0.54
T5	100.00-80.00	A	0.000	0.000	42.133	0.000	0.50
		B	0.000	0.000	22.267	0.000	0.18
		C	0.000	0.000	81.280	0.000	0.54
T6	80.00-60.00	A	0.000	0.000	42.133	0.000	0.50
		B	0.000	0.000	22.267	0.000	0.18
		C	0.000	0.000	81.280	0.000	0.54
T7	60.00-40.00	A	0.000	0.000	42.133	0.000	0.50
		B	0.000	0.000	22.267	0.000	0.18
		C	0.000	0.000	81.280	0.000	0.54
T8	40.00-20.00	A	0.000	0.000	42.133	0.000	0.50
		B	0.000	0.000	22.267	0.000	0.18
		C	0.000	0.000	81.280	0.000	0.54
T9	20.00-0.00	A	0.000	0.000	42.133	0.000	0.50
		B	0.000	0.000	22.267	0.000	0.18
		C	0.000	0.000	81.280	0.000	0.54

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Sectio n	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
T1	170.00-160.00	A	1.498	0.000	0.000	7.995	0.000	0.19
		B		0.000	0.000	6.329	0.000	0.12
		C		0.000	0.000	84.336	0.000	1.50
T2	160.00-140.00	A	1.483	0.000	0.000	15.934	0.000	0.37
		B		0.000	0.000	16.254	0.000	0.30
		C		0.000	0.000	168.534	0.000	2.98
T3	140.00-120.00	A	1.462	0.000	0.000	77.580	0.000	1.39
		B		0.000	0.000	46.108	0.000	0.71
		C		0.000	0.000	168.330	0.000	2.96
T4	120.00-100.00	A	1.438	0.000	0.000	97.438	0.000	1.71
		B		0.000	0.000	53.926	0.000	0.81
		C		0.000	0.000	168.096	0.000	2.93
T5	100.00-80.00	A	1.410	0.000	0.000	96.590	0.000	1.69
		B		0.000	0.000	53.498	0.000	0.80
		C		0.000	0.000	167.820	0.000	2.89
T6	80.00-60.00	A	1.375	0.000	0.000	95.553	0.000	1.66
		B		0.000	0.000	52.974	0.000	0.78
		C		0.000	0.000	167.482	0.000	2.85
T7	60.00-40.00	A	1.329	0.000	0.000	94.205	0.000	1.62
		B		0.000	0.000	52.294	0.000	0.76
		C		0.000	0.000	167.042	0.000	2.80
T8	40.00-20.00	A	1.263	0.000	0.000	92.244	0.000	1.56
		B		0.000	0.000	51.303	0.000	0.72
		C		0.000	0.000	166.403	0.000	2.72
T9	20.00-0.00	A	1.132	0.000	0.000	88.352	0.000	1.45
		B		0.000	0.000	49.338	0.000	0.66
		C		0.000	0.000	165.136	0.000	2.56

Feed Line Center of Pressure

Section	Elevation	CP _x	CP _z	CP _x Ice	CP _z Ice
	ft	in	in	in	in
T1	170.00-160.00	15.6650	3.7176	18.4673	3.5863
T2	160.00-140.00	17.7855	4.3490	21.3604	4.4945
T3	140.00-120.00	18.7852	-9.7782	22.0948	-13.5765
T4	120.00-100.00	18.7745	-13.5410	22.8999	-18.8509
T5	100.00-80.00	21.4346	-15.5018	26.2382	-21.6368
T6	80.00-60.00	21.9468	-15.7638	27.7002	-22.5294
T7	60.00-40.00	23.3490	-16.7592	29.9462	-24.1429
T8	40.00-20.00	24.4938	-17.4990	31.4571	-24.8497
T9	20.00-0.00	25.7004	-18.3595	33.5395	-25.8649

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T1	3	Feedline Ladder (Af)	160.00 - 170.00	0.6000	0.6000
T1	12	HJ7-50A(1-5/8")	160.00 - 170.00	0.6000	0.6000
T1	14	Feedline Ladder (Af)	160.00 - 170.00	0.6000	0.6000
T1	16	Thin Flat Bar Climbing Ladder	160.00 - 170.00	0.6000	0.6000
T2	3	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T2	12	HJ7-50A(1-5/8")	140.00 - 160.00	0.6000	0.6000
T2	14	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T2	16	Thin Flat Bar Climbing Ladder	140.00 - 160.00	0.6000	0.6000
T2	18	CU12PSM9P6XXX(1-1/2)	140.00 - 148.00	0.6000	0.6000
T3	3	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T3	5	2" Rigid Conduit	120.00 - 135.00	0.6000	0.6000
T3	6	FB-L98B-002-75000(3/8")	120.00 - 135.00	0.6000	0.6000
T3	7	WR-VG122ST-BRDA(7/16)	120.00 - 135.00	1.0000	1.0000
T3	8	LDF6-50A(1-1/4")	120.00 - 135.00	0.6000	0.6000
T3	9	LDF6-50A(1-1/4")	120.00 - 135.00	0.6000	0.6000
T3	10	T-Brackets (Af)	120.00 - 135.00	0.6000	0.6000
T3	12	HJ7-50A(1-5/8")	120.00 - 140.00	0.6000	0.6000
T3	14	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T3	16	Thin Flat Bar Climbing Ladder	120.00 - 140.00	0.6000	0.6000
T3	18	CU12PSM9P6XXX(1-1/2)	120.00 - 140.00	0.6000	0.6000
T4	3	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T4	5	2" Rigid Conduit	100.00 - 120.00	0.6000	0.6000
T4	6	FB-L98B-002-75000(3/8")	100.00 - 120.00	0.6000	0.6000
T4	7	WR-VG122ST-BRDA(7/16)	100.00 - 120.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T4	8	LDF6-50A(1-1/4")	100.00 - 120.00	0.6000	0.6000
T4	9	LDF6-50A(1-1/4")	100.00 - 120.00	0.6000	0.6000
T4	10	T-Brackets (Af)	100.00 - 120.00	0.6000	0.6000
T4	12	HJ7-50A(1-5/8")	100.00 - 120.00	0.6000	0.6000
T4	14	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T4	16	Thin Flat Bar Climbing Ladder	100.00 - 120.00	0.6000	0.6000
T4	18	CU12PSM9P6XXX(1-1/2)	100.00 - 120.00	0.6000	0.6000
T5	3	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T5	5	2" Rigid Conduit	80.00 - 100.00	0.6000	0.6000
T5	6	FB-L98B-002-75000(3/8")	80.00 - 100.00	0.6000	0.6000
T5	7	WR-VG122ST-BRDA(7/16)	80.00 - 100.00	1.0000	1.0000
T5	8	LDF6-50A(1-1/4")	80.00 - 100.00	0.6000	0.6000
T5	9	LDF6-50A(1-1/4")	80.00 - 100.00	0.6000	0.6000
T5	10	T-Brackets (Af)	80.00 - 100.00	0.6000	0.6000
T5	12	HJ7-50A(1-5/8")	80.00 - 100.00	0.6000	0.6000
T5	14	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T5	16	Thin Flat Bar Climbing Ladder	80.00 - 100.00	0.6000	0.6000
T5	18	CU12PSM9P6XXX(1-1/2)	80.00 - 100.00	0.6000	0.6000
T6	3	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T6	5	2" Rigid Conduit	60.00 - 80.00	0.6000	0.6000
T6	6	FB-L98B-002-75000(3/8")	60.00 - 80.00	0.6000	0.6000
T6	7	WR-VG122ST-BRDA(7/16)	60.00 - 80.00	1.0000	1.0000
T6	8	LDF6-50A(1-1/4")	60.00 - 80.00	0.6000	0.6000
T6	9	LDF6-50A(1-1/4")	60.00 - 80.00	0.6000	0.6000
T6	10	T-Brackets (Af)	60.00 - 80.00	0.6000	0.6000
T6	12	HJ7-50A(1-5/8")	60.00 - 80.00	0.6000	0.6000
T6	14	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T6	16	Thin Flat Bar Climbing Ladder	60.00 - 80.00	0.6000	0.6000
T6	18	CU12PSM9P6XXX(1-1/2)	60.00 - 80.00	0.6000	0.6000
T7	3	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T7	5	2" Rigid Conduit	40.00 - 60.00	0.6000	0.6000
T7	6	FB-L98B-002-75000(3/8")	40.00 - 60.00	0.6000	0.6000
T7	7	WR-VG122ST-BRDA(7/16)	40.00 - 60.00	1.0000	1.0000
T7	8	LDF6-50A(1-1/4")	40.00 - 60.00	0.6000	0.6000
T7	9	LDF6-50A(1-1/4")	40.00 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T7	10	T-Brackets (Af)	60.00 40.00 -	0.6000	0.6000
T7	12	HJ7-50A(1-5/8")	60.00 40.00 -	0.6000	0.6000
T7	14	Feedline Ladder (Af)	60.00 40.00 -	0.6000	0.6000
T7	16	Thin Flat Bar Climbing Ladder	60.00 40.00 -	0.6000	0.6000
T7	18	CU12PSM9P6XXX(1-1/2)	60.00 40.00 -	0.6000	0.6000
T8	3	Feedline Ladder (Af)	60.00 20.00 -	0.6000	0.6000
T8	5	2" Rigid Conduit	40.00 20.00 -	0.6000	0.6000
T8	6	FB-L98B-002-75000(3/8")	40.00 20.00 -	0.6000	0.6000
T8	7	WR-VG122ST-BRDA(7/16)	40.00 20.00 -	1.0000	1.0000
T8	8	LDF6-50A(1-1/4")	40.00 20.00 -	0.6000	0.6000
T8	9	LDF6-50A(1-1/4")	40.00 20.00 -	0.6000	0.6000
T8	10	T-Brackets (Af)	40.00 20.00 -	0.6000	0.6000
T8	12	HJ7-50A(1-5/8")	40.00 20.00 -	0.6000	0.6000
T8	14	Feedline Ladder (Af)	40.00 20.00 -	0.6000	0.6000
T8	16	Thin Flat Bar Climbing Ladder	40.00 20.00 -	0.6000	0.6000
T8	18	CU12PSM9P6XXX(1-1/2)	40.00 20.00 -	0.6000	0.6000
T9	3	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T9	5	2" Rigid Conduit	0.00 - 20.00	0.6000	0.6000
T9	6	FB-L98B-002-75000(3/8")	0.00 - 20.00	0.6000	0.6000
T9	7	WR-VG122ST-BRDA(7/16)	0.00 - 20.00	1.0000	1.0000
T9	8	LDF6-50A(1-1/4")	0.00 - 20.00	0.6000	0.6000
T9	9	LDF6-50A(1-1/4")	0.00 - 20.00	0.6000	0.6000
T9	10	T-Brackets (Af)	0.00 - 20.00	0.6000	0.6000
T9	12	HJ7-50A(1-5/8")	0.00 - 20.00	0.6000	0.6000
T9	14	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T9	16	Thin Flat Bar Climbing Ladder	0.00 - 20.00	0.6000	0.6000
T9	18	CU12PSM9P6XXX(1-1/2)	0.00 - 20.00	0.6000	0.6000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft	CaAA Front ft²	CaAA Side ft²	Weight K
Lightning Rod 1" x 5' on 5' Pole	C	From Leg	0.00 0.00 5.00	0.0000	170.00	No Ice 1.94 1/2" 2.96 Ice 3.68 1" Ice 4.99 2" Ice	1.94 2.96 3.68 4.99	0.08 0.10 0.13 0.21

(2) LPA-80063/6CF w/ Mount Pipe	A	From Face	4.00 0.00 1.00	0.0000	170.00	No Ice 9.83 1/2" 10.40 Ice 10.93 1" Ice 12.03 2" Ice	10.22 11.38 12.27 14.09	0.05 0.14 0.25 0.48

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
(2) LPA-80063/6CF w/ Mount Pipe	B	From Face	4.00 0.00 1.00	0.0000	170.00	No Ice 1/2" Ice 1" Ice 2" Ice	9.83 10.40 10.93 12.03	10.22 11.38 12.27 14.09	0.05 0.14 0.25 0.48
(2) LPA-80063/6CF w/ Mount Pipe	C	From Face	4.00 0.00 1.00	0.0000	170.00	No Ice 1/2" Ice 1" Ice 2" Ice	9.83 10.40 10.93 12.03	10.22 11.38 12.27 14.09	0.05 0.14 0.25 0.48
(2) LPA-171063-12CF- EDIN-2 w/ Mount Pipe	A	From Face	4.00 0.00 1.00	0.0000	170.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.23 6.80 7.35 8.44	7.75 8.97 9.91 11.79	0.04 0.10 0.17 0.34
(2) LPA-171063-12CF- EDIN-2 w/ Mount Pipe	B	From Face	4.00 0.00 1.00	0.0000	170.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.23 6.80 7.35 8.44	7.75 8.97 9.91 11.79	0.04 0.10 0.17 0.34
(2) LPA-171063-12CF- EDIN-2 w/ Mount Pipe	C	From Face	4.00 0.00 1.00	0.0000	170.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.23 6.80 7.35 8.44	7.75 8.97 9.91 11.79	0.04 0.10 0.17 0.34
BXA-70063-6CF-EDIN-0 w/ Mount Pipe	A	From Face	4.00 0.00 1.00	0.0000	170.00	No Ice 1/2" Ice 1" Ice 2" Ice	7.40 8.14 8.90 10.46	5.39 6.10 6.83 8.34	0.04 0.10 0.16 0.33
BXA-70063-6CF-EDIN-0 w/ Mount Pipe	B	From Face	4.00 0.00 1.00	0.0000	170.00	No Ice 1/2" Ice 1" Ice 2" Ice	7.40 8.14 8.90 10.46	5.39 6.10 6.83 8.34	0.04 0.10 0.16 0.33
BXA-70063-6CF-EDIN-0 w/ Mount Pipe	C	From Face	4.00 0.00 1.00	0.0000	170.00	No Ice 1/2" Ice 1" Ice 2" Ice	7.40 8.14 8.90 10.46	5.39 6.10 6.83 8.34	0.04 0.10 0.16 0.33
Sector Mount [SM 514-3]	C	None		0.0000	170.00	No Ice 1/2" Ice 1" Ice 2" Ice	55.50 80.55 105.00 152.52	55.50 80.55 105.00 152.52	1.34 2.26 3.50 6.87
*** ***									
MX08FRO665-20 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.01 8.52 9.04 10.11	4.23 4.69 5.16 6.12	0.10 0.18 0.28 0.51
MX08FRO665-20 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.01 8.52 9.04 10.11	4.23 4.69 5.16 6.12	0.10 0.18 0.28 0.51
MX08FRO665-20 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	148.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.01 8.52 9.04 10.11	4.23 4.69 5.16 6.12	0.10 0.18 0.28 0.51
RDIDC-9181-PF-48	A	From Leg	4.00 0.00 0.00	0.0000	148.00	No Ice 1/2" Ice	2.31 2.50 2.70	1.29 1.45 1.61	0.02 0.04 0.06

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
						1" Ice	3.12	1.96	0.12
						2" Ice			
TA08025-B604	A	From Leg	4.00	0.0000	148.00	No Ice	1.96	0.98	0.06
			0.00			1/2"	2.14	1.11	0.08
			0.00			Ice	2.32	1.25	0.10
						1" Ice	2.71	1.55	0.15
						2" Ice			
TA08025-B604	B	From Leg	4.00	0.0000	148.00	No Ice	1.96	0.98	0.06
			0.00			1/2"	2.14	1.11	0.08
			0.00			Ice	2.32	1.25	0.10
						1" Ice	2.71	1.55	0.15
						2" Ice			
TA08025-B604	C	From Leg	4.00	0.0000	148.00	No Ice	1.96	0.98	0.06
			0.00			1/2"	2.14	1.11	0.08
			0.00			Ice	2.32	1.25	0.10
						1" Ice	2.71	1.55	0.15
						2" Ice			
TA08025-B605	A	From Leg	4.00	0.0000	148.00	No Ice	1.96	1.13	0.08
			0.00			1/2"	2.14	1.27	0.09
			0.00			Ice	2.32	1.41	0.11
						1" Ice	2.71	1.72	0.16
						2" Ice			
TA08025-B605	B	From Leg	4.00	0.0000	148.00	No Ice	1.96	1.13	0.08
			0.00			1/2"	2.14	1.27	0.09
			0.00			Ice	2.32	1.41	0.11
						1" Ice	2.71	1.72	0.16
						2" Ice			
TA08025-B605	C	From Leg	4.00	0.0000	148.00	No Ice	1.96	1.13	0.08
			0.00			1/2"	2.14	1.27	0.09
			0.00			Ice	2.32	1.41	0.11
						1" Ice	2.71	1.72	0.16
						2" Ice			
Commscope MTC3975083 (3)	C	None		0.0000	148.00	No Ice	23.85	23.85	1.26
						1/2"	34.12	34.12	1.80
						Ice	44.39	44.39	2.35
						1" Ice	64.93	64.93	3.43
						2" Ice			
(2) 8' x 2" Mount Pipe	A	From Leg	4.00	0.0000	148.00	No Ice	1.90	1.90	0.03
			0.00			1/2"	2.73	2.73	0.04
			0.00			Ice	3.40	3.40	0.06
						1" Ice	4.40	4.40	0.12
						2" Ice			
(2) 8' x 2" Mount Pipe	B	From Leg	4.00	0.0000	148.00	No Ice	1.90	1.90	0.03
			0.00			1/2"	2.73	2.73	0.04
			0.00			Ice	3.40	3.40	0.06
						1" Ice	4.40	4.40	0.12
						2" Ice			
(2) 8' x 2" Mount Pipe	C	From Leg	4.00	0.0000	148.00	No Ice	1.90	1.90	0.03
			0.00			1/2"	2.73	2.73	0.04
			0.00			Ice	3.40	3.40	0.06
						1" Ice	4.40	4.40	0.12
						2" Ice			

(2) 7770.00	A	From Leg	4.00	0.0000	135.00	No Ice	5.51	2.93	0.04
			0.00			1/2"	5.87	3.27	0.07
			1.00			Ice	6.23	3.63	0.11
						1" Ice	6.99	4.35	0.20
						2" Ice			
(2) 7770.00	B	From Leg	4.00	0.0000	135.00	No Ice	5.51	2.93	0.04
			0.00			1/2"	5.87	3.27	0.07
			1.00			Ice	6.23	3.63	0.11
						1" Ice	6.99	4.35	0.20
						2" Ice			
(2) 7770.00	C	From Leg	4.00	0.0000	135.00	No Ice	5.51	2.93	0.04

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
			0.00			1/2"	5.87	3.27	0.07
			1.00			Ice	6.23	3.63	0.11
						1" Ice	6.99	4.35	0.20
						2" Ice			
P65-17-XLH-RR w/ Mount Pipe	A	From Leg	4.00	0.0000	135.00	No Ice	7.48	5.29	0.09
			0.00			1/2"	8.17	5.96	0.17
			1.00			Ice	8.88	6.64	0.26
						1" Ice	10.33	8.05	0.49
						2" Ice			
AM-X-CD-16-65-00T-RET w/ Mount Pipe	B	From Leg	4.00	0.0000	135.00	No Ice	4.63	3.27	0.07
			0.00			1/2"	5.06	3.69	0.13
			1.00			Ice	5.51	4.12	0.20
						1" Ice	6.43	5.00	0.38
						2" Ice			
P65-16-XLH-RR w/ Mount Pipe	C	From Leg	4.00	0.0000	135.00	No Ice	5.66	4.01	0.08
			0.00			1/2"	6.21	4.53	0.14
			1.00			Ice	6.76	5.06	0.21
						1" Ice	7.90	6.15	0.38
						2" Ice			
(2) LGP21401	A	From Leg	4.00	0.0000	135.00	No Ice	1.10	0.21	0.01
			0.00			1/2"	1.24	0.27	0.02
			0.00			Ice	1.38	0.35	0.03
						1" Ice	1.69	0.52	0.05
						2" Ice			
(2) LGP21401	B	From Leg	4.00	0.0000	135.00	No Ice	1.10	0.21	0.01
			0.00			1/2"	1.24	0.27	0.02
			0.00			Ice	1.38	0.35	0.03
						1" Ice	1.69	0.52	0.05
						2" Ice			
(2) LGP21401	C	From Leg	4.00	0.0000	135.00	No Ice	1.10	0.21	0.01
			0.00			1/2"	1.24	0.27	0.02
			0.00			Ice	1.38	0.35	0.03
						1" Ice	1.69	0.52	0.05
						2" Ice			
(2) LGP21901	A	From Leg	4.00	0.0000	135.00	No Ice	0.23	0.16	0.01
			0.00			1/2"	0.29	0.21	0.01
			0.00			Ice	0.36	0.28	0.01
						1" Ice	0.53	0.42	0.02
						2" Ice			
(2) LGP21901	B	From Leg	4.00	0.0000	135.00	No Ice	0.23	0.16	0.01
			0.00			1/2"	0.29	0.21	0.01
			0.00			Ice	0.36	0.28	0.01
						1" Ice	0.53	0.42	0.02
						2" Ice			
(2) LGP21901	C	From Leg	4.00	0.0000	135.00	No Ice	0.23	0.16	0.01
			0.00			1/2"	0.29	0.21	0.01
			0.00			Ice	0.36	0.28	0.01
						1" Ice	0.53	0.42	0.02
						2" Ice			
RRUS-11	A	From Leg	1.00	0.0000	135.00	No Ice	2.78	1.19	0.05
			0.00			1/2"	2.99	1.33	0.07
			0.00			Ice	3.21	1.49	0.09
						1" Ice	3.66	1.83	0.15
						2" Ice			
RRUS-11	B	From Leg	1.00	0.0000	135.00	No Ice	2.78	1.19	0.05
			0.00			1/2"	2.99	1.33	0.07
			0.00			Ice	3.21	1.49	0.09
						1" Ice	3.66	1.83	0.15
						2" Ice			
RRUS-11	C	From Leg	1.00	0.0000	135.00	No Ice	2.78	1.19	0.05
			0.00			1/2"	2.99	1.33	0.07
			0.00			Ice	3.21	1.49	0.09
						1" Ice	3.66	1.83	0.15
						2" Ice			
DC6-48-60-18-8F	B	From Leg	1.00	0.0000	135.00	No Ice	1.21	1.21	0.02

Description	Face or Leg	Offset Type	Offsets:	Azimuth	Placement	C _A A _A	C _A A _A	Weight	
			Horz Lateral Vert ft ft ft	Adjustmen t °	ft	Front ft²	Side ft²		K
Sector Mount [SM 402-3]	C	None	0.00	0.0000	135.00	1/2"	1.89	1.89	0.04
			0.00			Ice	2.11	2.11	0.07
						1" Ice	2.57	2.57	0.13
						2" Ice			
						No Ice	18.87	18.87	0.85
						1/2"	26.47	26.47	1.21
						Ice	33.99	33.99	1.70
						1" Ice	48.84	48.84	3.04
						2" Ice			

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft ²	Weight K

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

Comb. No.	Description
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
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
T1	170 - 160	Leg	Max Tension	15	6.59	-0.06	-0.03
			Max. Compression	10	-8.57	-0.04	-0.02
			Max. Mx	4	-7.38	0.08	0.04
			Max. My	4	-1.14	-0.05	0.10
			Max. Vy	20	2.05	0.00	0.00
		Diagonal	Max. Vx	14	-2.05	0.00	0.00
			Max Tension	12	2.93	0.00	0.00
			Max. Compression	24	-2.95	0.00	0.00
			Max. Mx	32	0.34	0.03	-0.00
			Max. My	8	-2.47	0.01	-0.00
		Top Girt	Max. Vy	31	-0.03	0.03	-0.00
			Max. Vx	8	-0.00	0.00	0.00
			Max Tension	3	1.11	0.00	0.00
			Max. Compression	14	-1.15	0.00	0.00
			Max. Mx	31	0.20	-0.12	0.00
			Max. My	4	-0.01	0.00	0.00
			Max. Vy	31	0.06	0.00	0.00
			Max. Vx	4	-0.00	0.00	0.00
T2	160 - 140	Leg	Max Tension	15	24.47	-0.34	0.06
			Max. Compression	2	-29.67	0.06	-0.06
			Max. Mx	14	16.84	0.44	0.06
			Max. My	20	-1.49	-0.02	0.47
			Max. Vy	14	0.60	-0.35	0.06
		Diagonal	Max. Vx	4	0.59	-0.02	-0.32
			Max Tension	24	4.40	0.00	0.00
			Max. Compression	24	-4.50	0.00	0.00
			Max. Mx	32	0.32	0.06	0.01
			Max. My	14	-3.98	0.01	0.01
		Top Girt	Max. Vy	33	0.05	0.06	0.01
			Max. Vx	33	-0.00	0.00	0.00
			Max Tension	3	0.17	0.00	0.00
			Max. Compression	14	-0.23	0.00	0.00
			Max. Mx	31	-0.03	-0.12	0.00
			Max. My	27	-0.11	0.00	0.00
			Max. Vy	31	0.06	0.00	0.00
			Max. Vx	27	-0.00	0.00	0.00
T3	140 - 120	Leg	Max Tension	15	48.45	0.04	0.06
			Max. Compression	2	-57.86	0.24	-0.06
			Max. Mx	14	38.77	-0.52	0.06
			Max. My	20	-3.70	-0.01	0.60
			Max. Vy	14	0.62	-0.52	0.06
		Diagonal	Max. Vx	4	0.60	-0.01	-0.37
			Max Tension	24	5.89	0.00	0.00
			Max. Compression	24	-5.90	0.00	0.00
			Max. Mx	32	0.62	0.09	0.01
			Max. My	14	-5.03	0.02	0.01

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T4	120 - 100	Leg	Max. Vy	32	0.06	0.08	-0.01
			Max. Vx	33	-0.00	0.00	0.00
			Max Tension	15	73.46	-0.17	0.05
			Max. Compression	2	-86.73	0.34	-0.10
			Max. Mx	3	-85.11	0.34	-0.10
			Max. My	4	-6.72	-0.01	-0.42
		Diagonal	Max. Vy	19	-0.08	0.33	0.03
			Max. Vx	4	0.15	-0.01	-0.42
			Max Tension	24	6.84	0.00	0.00
			Max. Compression	24	-6.92	0.00	0.00
			Max. Mx	31	1.09	0.12	0.01
			Max. My	33	-1.43	0.10	0.02
			Max. Vy	33	0.07	0.12	0.02
			Max. Vx	27	0.00	0.00	0.00
T5	100 - 80	Leg	Max Tension	15	95.97	-0.34	0.12
			Max. Compression	2	-113.21	0.61	-0.14
			Max. Mx	2	-113.21	0.61	-0.14
			Max. My	4	-7.51	-0.04	-0.57
			Max. Vy	18	-0.12	0.59	0.04
			Max. Vx	4	0.18	-0.04	-0.57
		Diagonal	Max Tension	24	8.19	0.00	0.00
			Max. Compression	24	-8.33	0.00	0.00
			Max. Mx	33	1.83	0.19	-0.02
			Max. My	27	0.00	0.16	-0.03
			Max. Vy	33	0.10	0.19	-0.02
			Max. Vx	27	-0.01	0.00	0.00
T6	80 - 60	Leg	Max Tension	15	120.27	-0.52	0.11
			Max. Compression	2	-142.54	0.65	-0.11
			Max. Mx	2	-142.54	0.65	-0.11
			Max. My	4	-9.26	-0.06	-0.80
			Max. Vy	18	-0.12	0.63	0.03
			Max. Vx	4	0.19	-0.06	-0.80
		Diagonal	Max Tension	24	9.23	0.00	0.00
			Max. Compression	24	-9.38	0.00	0.00
			Max. Mx	31	2.00	0.28	-0.03
			Max. My	27	0.19	0.24	-0.04
			Max. Vy	33	0.13	0.27	-0.03
			Max. Vx	27	-0.01	0.00	0.00
T7	60 - 40	Leg	Max Tension	15	143.78	-0.54	0.10
			Max. Compression	2	-171.64	0.70	-0.09
			Max. Mx	33	9.40	-1.48	0.05
			Max. My	4	-12.49	0.02	-0.69
			Max. Vy	37	0.25	-1.47	-0.03
			Max. Vx	4	0.16	-0.06	-0.66
		Diagonal	Max Tension	24	9.63	0.00	0.00
			Max. Compression	24	-9.77	0.00	0.00
			Max. Mx	33	1.50	0.32	-0.04
			Max. My	33	-1.44	0.27	0.05
			Max. Vy	33	0.14	0.31	0.04
			Max. Vx	27	-0.01	0.00	0.00
T8	40 - 20	Leg	Max Tension	15	166.94	-0.93	0.07
			Max. Compression	2	-200.74	1.38	-0.13
			Max. Mx	33	10.24	-4.12	0.05
			Max. My	4	-13.72	-0.11	-1.20
			Max. Vy	37	0.70	-4.08	-0.03
			Max. Vx	4	-0.21	-0.11	-1.20
		Diagonal	Max Tension	24	10.59	0.00	0.00
			Max. Compression	24	-10.86	0.00	0.00
			Max. Mx	33	1.20	0.39	-0.04
			Max. My	27	-0.83	0.35	-0.05
			Max. Vy	33	0.15	0.39	-0.04
			Max. Vx	27	-0.01	0.00	0.00
T9	20 - 0	Leg	Max Tension	15	189.69	-0.96	0.10
			Max. Compression	2	-230.01	-0.00	0.00
			Max. Mx	27	-97.20	4.27	0.05
			Max. My	4	-16.21	-0.16	-2.09
			Max. Vy	37	-0.84	-4.08	-0.03
			Max. Vx	4	-0.35	-0.16	-2.09
		Diagonal	Max Tension	24	11.42	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	24	-11.75	0.00	0.00
			Max. Mx	33	-1.08	0.52	0.06
			Max. My	33	-5.19	0.49	0.07
			Max. Vy	33	0.17	0.52	0.06
			Max. Vx	33	-0.01	0.00	0.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	18	220.41	23.99	-13.27
	Max. H _x	18	220.41	23.99	-13.27
	Max. H _z	7	-182.52	-20.25	11.12
	Min. Vert	7	-182.52	-20.25	11.12
	Min. H _x	7	-182.52	-20.25	11.12
	Min. H _z	18	220.41	23.99	-13.27
Leg B	Max. Vert	10	226.14	-23.77	-14.62
	Max. H _x	23	-182.70	19.96	12.38
	Max. H _z	25	-171.21	17.66	13.84
	Min. Vert	23	-182.70	19.96	12.38
	Min. H _x	10	226.14	-23.77	-14.62
	Min. H _z	12	202.90	-19.93	-15.14
Leg A	Max. Vert	2	237.39	1.56	29.40
	Max. H _x	20	17.25	3.83	1.52
	Max. H _z	2	237.39	1.56	29.40
	Min. Vert	15	-195.27	-1.54	-25.02
	Min. H _x	11	-91.12	-3.96	-12.08
	Min. H _z	15	-195.27	-1.54	-25.02

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	41.80	0.00	0.00	-9.92	-32.98	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	50.16	0.00	-47.75	-4777.68	-40.25	67.04
0.9 Dead+1.0 Wind 0 deg - No Ice	37.62	0.00	-47.75	-4771.30	-30.31	67.03
1.2 Dead+1.0 Wind 30 deg - No Ice	50.16	22.38	-38.79	-3935.83	-2302.41	67.31
0.9 Dead+1.0 Wind 30 deg - No Ice	37.62	22.38	-38.79	-3930.02	-2290.84	67.28
1.2 Dead+1.0 Wind 60 deg - No Ice	50.16	35.71	-20.64	-2112.44	-3672.11	21.62
0.9 Dead+1.0 Wind 60 deg - No Ice	37.62	35.71	-20.64	-2107.94	-3659.55	21.61
1.2 Dead+1.0 Wind 90 deg - No Ice	50.16	38.35	-0.00	-12.38	-3940.76	-30.90
0.9 Dead+1.0 Wind 90 deg - No Ice	37.62	38.35	-0.00	-9.40	-3928.00	-30.88
1.2 Dead+1.0 Wind 120 deg - No Ice	50.16	39.09	22.59	2243.05	-3940.48	-32.75
0.9 Dead+1.0 Wind 120 deg - No Ice	37.62	39.09	22.59	2244.42	-3927.77	-32.74
1.2 Dead+1.0 Wind 150 deg - No Ice	50.16	23.01	39.90	3993.43	-2348.90	-54.66
0.9 Dead+1.0 Wind 150 deg - No Ice	37.62	23.01	39.90	3993.55	-2337.31	-54.63
1.2 Dead+1.0 Wind 180 deg	50.16	-0.00	44.61	4499.59	-39.39	-67.05

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						
0.9 Dead+1.0 Wind 180 deg	37.62	-0.00	44.61	4499.33	-29.45	-67.01
- No Ice						
1.2 Dead+1.0 Wind 210 deg	50.16	-22.38	38.79	3912.13	2222.79	-67.31
- No Ice						
0.9 Dead+1.0 Wind 210 deg	37.62	-22.38	38.79	3912.29	2231.11	-67.28
- No Ice						
1.2 Dead+1.0 Wind 240 deg	50.16	-38.43	22.21	2215.81	3812.87	-21.62
- No Ice						
0.9 Dead+1.0 Wind 240 deg	37.62	-38.43	22.21	2217.21	3820.07	-21.62
- No Ice						
1.2 Dead+1.0 Wind 270 deg	50.16	-38.35	0.00	-11.54	3861.38	30.90
- No Ice						
0.9 Dead+1.0 Wind 270 deg	37.62	-38.35	0.00	-8.56	3868.51	30.88
- No Ice						
1.2 Dead+1.0 Wind 300 deg	50.16	-36.36	-21.01	-2139.84	3640.87	32.76
- No Ice						
0.9 Dead+1.0 Wind 300 deg	37.62	-36.36	-21.01	-2135.33	3648.16	32.73
- No Ice						
1.2 Dead+1.0 Wind 330 deg	50.16	-23.01	-39.90	-4017.37	2269.35	54.66
- No Ice						
0.9 Dead+1.0 Wind 330 deg	37.62	-23.01	-39.90	-4011.52	2277.64	54.63
- No Ice						
1.2 Dead+1.0 Ice+1.0 Temp	124.90	-0.00	0.00	-2.25	-166.59	0.00
1.2 Dead+1.0 Wind 0	124.90	0.00	-12.07	-1227.79	-166.67	21.20
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 30	124.90	5.53	-9.58	-986.80	-734.47	15.91
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 60	124.90	8.46	-4.89	-509.92	-1044.78	-0.03
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 90	124.90	9.38	-0.00	-2.33	-1139.53	-10.53
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 120	124.90	8.99	5.20	529.09	-1085.99	-11.82
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 150	124.90	5.63	9.75	994.99	-741.74	-15.37
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 180	124.90	-0.00	11.65	1190.39	-166.53	-21.20
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 210	124.90	-5.53	9.58	982.26	401.27	-15.91
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 240	124.90	-8.82	5.10	521.82	740.12	0.03
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 270	124.90	-9.38	0.00	-2.22	806.34	10.53
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 300	124.90	-8.63	-4.99	-517.21	724.33	11.82
deg+1.0 Ice+1.0 Temp						
1.2 Dead+1.0 Wind 330	124.90	-5.63	-9.75	-999.55	408.54	15.37
deg+1.0 Ice+1.0 Temp						
Dead+Wind 0 deg - Service	41.80	0.00	-10.71	-1078.06	-33.17	15.03
Dead+Wind 30 deg - Service	41.80	5.02	-8.70	-889.38	-540.17	15.09
Dead+Wind 60 deg - Service	41.80	8.01	-4.63	-480.69	-847.15	4.85
Dead+Wind 90 deg - Service	41.80	8.60	-0.00	-10.03	-907.39	-6.93
Dead+Wind 120 deg - Service	41.80	8.76	5.06	495.47	-907.33	-7.34
Dead+Wind 150 deg - Service	41.80	5.16	8.95	887.77	-550.59	-12.25
Dead+Wind 180 deg - Service	41.80	-0.00	10.00	1001.18	-32.99	-15.03
Dead+Wind 210 deg - Service	41.80	-5.02	8.70	869.53	474.03	-15.09
Dead+Wind 240 deg - Service	41.80	-8.62	4.98	489.36	830.41	-4.85
Dead+Wind 270 deg - Service	41.80	-8.60	0.00	-9.84	841.26	6.93
Dead+Wind 300 deg - Service	41.80	-8.15	-4.71	-486.84	791.81	7.34
Dead+Wind 330 deg - Service	41.80	-5.16	-8.95	-907.63	484.46	12.25

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	0.00	-41.80	0.00	0.00	41.80	0.00	0.000%
2	0.00	-50.16	-47.75	-0.00	50.16	47.75	0.000%
3	0.00	-37.62	-47.75	-0.00	37.62	47.75	0.000%
4	22.38	-50.16	-38.79	-22.38	50.16	38.79	0.000%
5	22.38	-37.62	-38.79	-22.38	37.62	38.79	0.000%
6	35.71	-50.16	-20.64	-35.71	50.16	20.64	0.000%
7	35.71	-37.62	-20.64	-35.71	37.62	20.64	0.000%
8	38.35	-50.16	-0.00	-38.35	50.16	0.00	0.000%
9	38.35	-37.62	-0.00	-38.35	37.62	0.00	0.000%
10	39.09	-50.16	22.59	-39.09	50.16	-22.59	0.001%
11	39.09	-37.62	22.59	-39.09	37.62	-22.59	0.000%
12	23.01	-50.16	39.90	-23.01	50.16	-39.90	0.000%
13	23.01	-37.62	39.90	-23.01	37.62	-39.90	0.000%
14	-0.00	-50.16	44.61	0.00	50.16	-44.61	0.000%
15	-0.00	-37.62	44.61	0.00	37.62	-44.61	0.000%
16	-22.38	-50.16	38.79	22.38	50.16	-38.79	0.000%
17	-22.38	-37.62	38.79	22.38	37.62	-38.79	0.000%
18	-38.43	-50.16	22.21	38.43	50.16	-22.21	0.000%
19	-38.43	-37.62	22.21	38.43	37.62	-22.21	0.000%
20	-38.35	-50.16	0.00	38.35	50.16	-0.00	0.000%
21	-38.35	-37.62	0.00	38.35	37.62	-0.00	0.000%
22	-36.36	-50.16	-21.01	36.36	50.16	21.01	0.000%
23	-36.36	-37.62	-21.01	36.36	37.62	21.01	0.000%
24	-23.01	-50.16	-39.90	23.01	50.16	39.90	0.000%
25	-23.01	-37.62	-39.90	23.01	37.62	39.90	0.000%
26	0.00	-124.90	0.00	0.00	124.90	0.00	0.000%
27	0.00	-124.90	-12.07	-0.00	124.90	12.07	0.000%
28	5.53	-124.90	-9.58	-5.53	124.90	9.58	0.000%
29	8.46	-124.90	-4.89	-8.46	124.90	4.89	0.000%
30	9.38	-124.90	-0.00	-9.38	124.90	0.00	0.000%
31	8.99	-124.90	5.20	-8.99	124.90	-5.20	0.000%
32	5.63	-124.90	9.75	-5.63	124.90	-9.75	0.000%
33	-0.00	-124.90	11.65	0.00	124.90	-11.65	0.000%
34	-5.53	-124.90	9.58	5.53	124.90	-9.58	0.000%
35	-8.82	-124.90	5.10	8.82	124.90	-5.10	0.000%
36	-9.38	-124.90	0.00	9.38	124.90	-0.00	0.000%
37	-8.63	-124.90	-4.99	8.63	124.90	4.99	0.000%
38	-5.63	-124.90	-9.75	5.63	124.90	9.75	0.000%
39	0.00	-41.80	-10.71	-0.00	41.80	10.71	0.000%
40	5.02	-41.80	-8.70	-5.02	41.80	8.70	0.000%
41	8.01	-41.80	-4.63	-8.01	41.80	4.63	0.000%
42	8.60	-41.80	-0.00	-8.60	41.80	0.00	0.000%
43	8.76	-41.80	5.06	-8.76	41.80	-5.06	0.000%
44	5.16	-41.80	8.95	-5.16	41.80	-8.95	0.000%
45	-0.00	-41.80	10.00	0.00	41.80	-10.00	0.000%
46	-5.02	-41.80	8.70	5.02	41.80	-8.70	0.000%
47	-8.62	-41.80	4.98	8.62	41.80	-4.98	0.000%
48	-8.60	-41.80	0.00	8.60	41.80	-0.00	0.000%
49	-8.15	-41.80	-4.71	8.15	41.80	4.71	0.000%
50	-5.16	-41.80	-8.95	5.16	41.80	8.95	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	0.00000001
3	Yes	4	0.00000001	0.00000001
4	Yes	4	0.00000001	0.00000001
5	Yes	4	0.00000001	0.00000001
6	Yes	4	0.00000001	0.00000001
7	Yes	4	0.00000001	0.00000001
8	Yes	4	0.00000001	0.00000001

9	Yes	4	0.00000001	0.00000001
10	Yes	4	0.00000001	0.00000001
11	Yes	4	0.00000001	0.00000001
12	Yes	4	0.00000001	0.00000001
13	Yes	4	0.00000001	0.00000001
14	Yes	4	0.00000001	0.00000001
15	Yes	4	0.00000001	0.00000001
16	Yes	4	0.00000001	0.00000247
17	Yes	4	0.00000001	0.00000001
18	Yes	4	0.00000001	0.00000001
19	Yes	4	0.00000001	0.00000001
20	Yes	4	0.00000001	0.00000001
21	Yes	4	0.00000001	0.00000001
22	Yes	4	0.00000001	0.00000001
23	Yes	4	0.00000001	0.00000001
24	Yes	4	0.00000001	0.00000001
25	Yes	4	0.00000001	0.00000001
26	Yes	4	0.00000001	0.00000001
27	Yes	4	0.00000001	0.00000001
28	Yes	4	0.00000001	0.00000001
29	Yes	4	0.00000001	0.00000001
30	Yes	4	0.00000001	0.00000324
31	Yes	4	0.00000001	0.00000001
32	Yes	4	0.00000001	0.00000001
33	Yes	4	0.00000001	0.00000001
34	Yes	4	0.00000001	0.00000001
35	Yes	4	0.00000001	0.00000001
36	Yes	4	0.00000001	0.00000001
37	Yes	4	0.00000001	0.00000001
38	Yes	4	0.00000001	0.00000001
39	Yes	4	0.00000001	0.00000001
40	Yes	4	0.00000001	0.00000001
41	Yes	4	0.00000001	0.00000001
42	Yes	4	0.00000001	0.00000001
43	Yes	4	0.00000001	0.00000001
44	Yes	4	0.00000001	0.00000001
45	Yes	4	0.00000001	0.00000001
46	Yes	4	0.00000001	0.00000001
47	Yes	4	0.00000001	0.00000001
48	Yes	4	0.00000001	0.00000001
49	Yes	4	0.00000001	0.00000001
50	Yes	4	0.00000001	0.00000001

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	170 - 160	2.335	39	0.1219	0.0231
T2	160 - 140	2.074	39	0.1194	0.0225
T3	140 - 120	1.584	39	0.1065	0.0199
T4	120 - 100	1.155	39	0.0884	0.0161
T5	100 - 80	0.800	39	0.0710	0.0123
T6	80 - 60	0.516	39	0.0557	0.0092
T7	60 - 40	0.301	39	0.0398	0.0068
T8	40 - 20	0.147	39	0.0260	0.0045
T9	20 - 0	0.045	39	0.0134	0.0021

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
170.00	Lightning Rod 1" x 5' on 5' Pole	39	2.335	0.1219	0.0231	189505
148.00	MX08FRO665-20 w/ Mount Pipe	39	1.773	0.1127	0.0212	80772

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
135.00	(2) 7770.00	39	1.470	0.1021	0.0190	70419

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	170 - 160	10.385	2	0.5447	0.1032
T2	160 - 140	9.217	2	0.5331	0.1006
T3	140 - 120	7.033	2	0.4740	0.0890
T4	120 - 100	5.127	2	0.3926	0.0718
T5	100 - 80	3.549	2	0.3149	0.0549
T6	80 - 60	2.290	2	0.2471	0.0409
T7	60 - 40	1.337	2	0.1765	0.0306
T8	40 - 20	0.653	2	0.1154	0.0200
T9	20 - 0	0.202	2	0.0593	0.0092

Critical Deflections and Radius of Curvature - Design Wind

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
170.00	Lightning Rod 1" x 5' on 5' Pole	2	10.385	0.5447	0.1032	43919
148.00	MX08FRO665-20 w/ Mount Pipe	2	7.876	0.5025	0.0946	18770
135.00	(2) 7770.00	2	6.528	0.4545	0.0850	16297

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load Allowable	Allowable Ratio	Criteria
T1	170	Leg	A325N	0.6250	4	1.65	20.34	0.081	1.05	Bolt Tension
		Diagonal	A325N	0.6250	1	2.93	6.83	0.429	1.05	Member Block Shear
		Top Girt	A325N	0.6250	1	1.11	7.83	0.141	1.05	Member Bearing
T2	160	Leg	A325N	0.7500	4	6.12	30.10	0.203	1.05	Bolt Tension
		Diagonal	A325N	0.7500	1	4.40	11.96	0.368	1.05	Member Block Shear
		Top Girt	A325N	0.6250	1	0.17	7.83	0.021	1.05	Member Bearing
T3	140	Leg	A325N	0.8750	4	12.11	41.56	0.291	1.05	Bolt Tension
		Diagonal	A325N	0.7500	1	5.89	11.96	0.493	1.05	Member Block Shear
T4	120	Leg	A325N	1.0000	4	18.36	54.52	0.337	1.05	Bolt Tension
		Diagonal	A325N	0.7500	1	6.84	14.14	0.484	1.05	Member Bearing
T5	100	Leg	A325N	1.0000	6	15.99	54.52	0.293	1.05	Bolt Tension
		Diagonal	A325N	0.7500	1	8.19	14.14	0.579	1.05	Member Bearing
T6	80	Leg	A325N	1.0000	6	20.04	54.52	0.368	1.05	Bolt Tension
		Diagonal	A325N	0.7500	1	9.23	17.67	0.522	1.05	Member Bearing
T7	60	Leg	A325N	1.0000	8	17.97	54.52	0.330	1.05	Bolt Tension
		Diagonal	A325N	0.7500	1	9.63	17.67	0.545	1.05	Member Bearing
T8	40	Leg	A325N	1.0000	8	20.87	54.52	0.383	1.05	Bolt Tension
		Diagonal	A325N	0.7500	1	10.59	17.67	0.600	1.05	Member

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load Allowable	Allowable Ratio	Criteria
T9	20	Diagonal	A490N	0.7500	1	11.42	21.21	0.538	1.05	Bearing Member Bearing

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	170 - 160	ROHN 2.5 STD	10.00	5.00	63.3 K=1.00	1.7040	-8.57	57.19	0.150 ¹
T2	160 - 140	ROHN 2.5 EH	20.03	6.68	86.7 K=1.00	2.2535	-29.67	58.51	0.507 ¹
T3	140 - 120	ROHN 3 EH	20.04	6.68	70.5 K=1.00	3.0159	-57.86	94.34	0.613 ¹
T4	120 - 100	ROHN 4 EH	20.03	6.68	54.3 K=1.00	4.4074	-86.73	159.91	0.542 ¹
T5	100 - 80	ROHN 5 EH	20.04	10.02	65.4 K=1.00	6.1120	-113.21	201.23	0.563 ¹
T6	80 - 60	ROHN 6 EHS	20.03	10.02	54.0 K=1.00	6.7133	-142.54	244.06	0.584 ¹
T7	60 - 40	ROHN 6 EH	20.04	10.02	54.8 K=1.00	8.4049	-171.64	303.71	0.565 ¹
T8	40 - 20	ROHN 8 EHS	20.03	10.02	41.2 K=1.00	9.7193	-200.74	386.40	0.520 ¹
T9	20 - 0	ROHN 8 EHS	20.03	10.02	41.2 K=1.00	9.7193	-230.01	386.40	0.595 ¹

¹ P_u / φP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	170 - 160	L 2 x 2 x 3/16	9.99	4.74	144.2 K=1.00	0.7150	-2.95	9.84	0.300 ¹
T2	160 - 140	L2 1/2x2 1/2x1/4	12.31	6.08	148.6 K=1.00	1.1900	-4.50	15.43	0.291 ¹
T3	140 - 120	L2 1/2x2 1/2x1/4	14.09	6.94	169.7 K=1.00	1.1900	-5.90	11.83	0.499 ¹
T4	120 - 100	L3x3x1/4	15.90	7.79	158.0 K=1.00	1.4400	-6.92	16.51	0.419 ¹
T5	100 - 80	L3 1/2x3 1/2x1/4	19.15	9.48	163.8 K=1.00	1.6900	-8.33	18.02	0.462 ¹
T6	80 - 60	L4x4x5/16	20.90	10.29	156.1 K=1.00	2.4000	-9.38	28.21	0.332 ¹
T7	60 - 40	L4x4x5/16	22.78	11.25	170.6 K=1.00	2.4000	-9.77	23.60	0.414 ¹
T8	40 - 20	L4x4x5/16	24.62	12.06	182.9 K=1.00	2.4000	-10.86	20.53	0.529 ¹
T9	20 - 0	L4x4x3/8	26.46	12.98	197.6 K=1.00	2.8600	-11.75	20.96	0.561 ¹

¹ $P_u / \phi P_n$ controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	170 - 160	L2 1/2x2 1/2x3/16	8.65	8.17	198.0 K=1.00	0.9020	-1.15	6.59	0.175 ¹
T2	160 - 140	L2 1/2x2 1/2x3/16	8.65	8.17	198.0 K=1.00	0.9020	-0.23	6.59	0.035 ¹

¹ $P_u / \phi P_n$ controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	170 - 160	ROHN 2.5 STD	10.00	5.00	63.3	1.7040	6.59	76.68	0.086 ¹
T2	160 - 140	ROHN 2.5 EH	20.03	6.68	86.7	2.2535	24.47	101.41	0.241 ¹
T3	140 - 120	ROHN 3 EH	20.04	6.68	70.5	3.0159	48.45	135.72	0.357 ¹
T4	120 - 100	ROHN 4 EH	20.03	6.68	54.3	4.4074	73.46	198.34	0.370 ¹
T5	100 - 80	ROHN 5 EH	20.04	10.02	65.4	6.1120	95.97	275.04	0.349 ¹
T6	80 - 60	ROHN 6 EHS	20.03	10.02	54.0	6.7133	120.27	302.10	0.398 ¹
T7	60 - 40	ROHN 6 EH	20.04	10.02	54.8	8.4049	143.78	378.22	0.380 ¹
T8	40 - 20	ROHN 8 EHS	20.03	10.02	41.2	9.7193	166.94	437.37	0.382 ¹
T9	20 - 0	ROHN 8 EHS	20.03	10.02	41.2	9.7193	189.69	437.37	0.434 ¹

¹ $P_u / \phi P_n$ controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	170 - 160	L 2 x 2 x 3/16	9.99	4.74	94.4	0.4308	2.93	18.74	0.156 ¹
T2	160 - 140	L2 1/2x2 1/2x1/4	12.31	6.08	97.0	0.7284	4.40	31.69	0.139 ¹
T3	140 - 120	L2 1/2x2 1/2x1/4	14.09	6.94	110.4	0.7284	5.89	31.69	0.186 ¹
T4	120 - 100	L3x3x1/4	15.90	7.79	102.3	0.9159	6.84	44.65	0.153 ¹
T5	100 - 80	L3 1/2x3 1/2x1/4	19.15	9.48	105.8	1.1034	8.19	53.79	0.152 ¹
T6	80 - 60	L4x4x5/16	20.90	10.29	100.9	1.5949	9.23	77.75	0.119 ¹
T7	60 - 40	L4x4x5/16	22.78	11.25	110.1	1.5949	9.63	77.75	0.124 ¹
T8	40 - 20	L4x4x5/16	24.62	12.06	118.0	1.5949	10.59	77.75	0.136 ¹
T9	20 - 0	L4x4x3/8	26.46	12.98	127.9	1.8989	11.42	92.57	0.123 ¹

¹ $P_u / \phi P_n$ controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	170 - 160	L2 1/2x2 1/2x3/16	8.65	8.17	129.7	0.5710	1.11	24.84	0.045 ¹
T2	160 - 140	L2 1/2x2 1/2x3/16	8.65	8.17	129.7	0.5710	0.17	24.84	0.007 ¹

¹ P_u / φP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	φP _{allow} K	% Capacity	Pass Fail
T1	170 - 160	Leg	ROHN 2.5 STD	2	-8.57	60.05	14.3	Pass
T2	160 - 140	Leg	ROHN 2.5 EH	21	-29.67	61.44	48.3	Pass
T3	140 - 120	Leg	ROHN 3 EH	45	-57.86	99.05	58.4	Pass
T4	120 - 100	Leg	ROHN 4 EH	66	-86.73	167.91	51.7	Pass
T5	100 - 80	Leg	ROHN 5 EH	87	-113.21	211.29	53.6	Pass
T6	80 - 60	Leg	ROHN 6 EHS	102	-142.54	256.27	55.6	Pass
T7	60 - 40	Leg	ROHN 6 EH	117	-171.64	318.90	53.8	Pass
T8	40 - 20	Leg	ROHN 8 EHS	132	-200.74	405.72	49.5	Pass
T9	20 - 0	Leg	ROHN 8 EHS	147	-230.01	405.72	56.7	Pass
T1	170 - 160	Diagonal	L 2 x 2 x 3/16	10	-2.95	10.33	28.6	Pass
							40.9 (b)	
T2	160 - 140	Diagonal	L2 1/2x2 1/2x1/4	28	-4.50	16.20	27.8	Pass
							35.0 (b)	
T3	140 - 120	Diagonal	L2 1/2x2 1/2x1/4	49	-5.90	12.43	47.5	Pass
T4	120 - 100	Diagonal	L3x3x1/4	70	-6.92	17.34	39.9	Pass
							46.1 (b)	
T5	100 - 80	Diagonal	L3 1/2x3 1/2x1/4	91	-8.33	18.92	44.0	Pass
							55.1 (b)	
T6	80 - 60	Diagonal	L4x4x5/16	106	-9.38	29.62	31.7	Pass
							49.7 (b)	
T7	60 - 40	Diagonal	L4x4x5/16	121	-9.77	24.78	39.4	Pass
							51.9 (b)	
T8	40 - 20	Diagonal	L4x4x5/16	136	-10.86	21.56	50.4	Pass
							57.1 (b)	
T9	20 - 0	Diagonal	L4x4x3/8	151	-11.75	22.00	53.4	Pass
T1	170 - 160	Top Girt	L2 1/2x2 1/2x3/16	4	-1.15	6.92	16.7	Pass
T2	160 - 140	Top Girt	L2 1/2x2 1/2x3/16	22	-0.23	6.92	3.3	Pass
							Summary	
							Leg (T3)	Pass
							Diagonal (T8)	Pass
							Top Girt (T1)	Pass
							Bolt	Pass
							Checks	
							RATING =	58.4 Pass

APPENDIX B
BASE LEVEL DRAWING



(PROPOSED EQUIPMENT CONFIGURATION)
(1) 1-1/2" TO 148 FT LEVEL

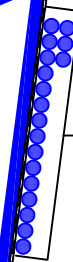
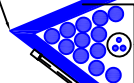
(OTHER CONSIDERED EQUIPMENT—IN 2" CONDUIT)
(1) 3/8" TO 135 FT LEVEL
(2) 7/16" TO 135 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(12) 1-1/4" TO 135 FT LEVEL

LEG A

LEG B

(OTHER CONSIDERED EQUIPMENT)
(18) 1-5/8" TO 170 FT LEVEL

LEG C



APPENDIX C

ADDITIONAL CALCULATIONS

Self Support Anchor Rod Capacity

Site Info		
BU #	807134	
Site Name	NHV 031B 943108	
Order #	553397 Rev 0	

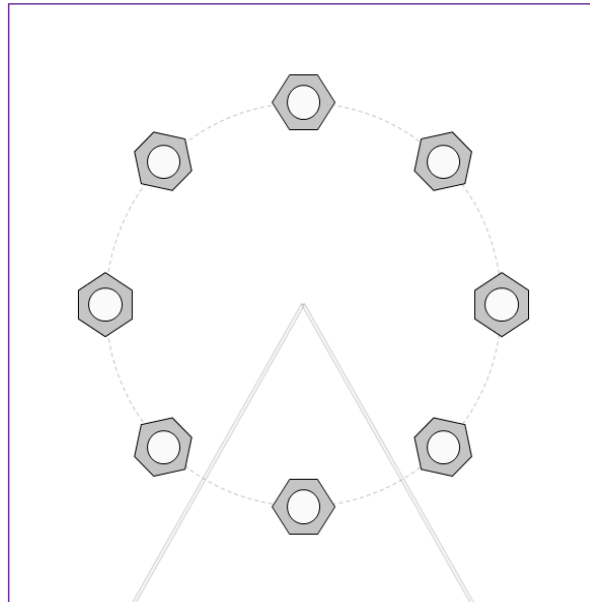
Analysis Considerations		
TIA-222 Revision	H	
Grout Considered:	Yes	
l_{ar} (in)	3	

Applied Loads		
	Comp.	Uplift
Axial Force (kips)	237.39	195.27
Shear Force (kips)	29.44	25.07

*TIA-222-H Section 15.5 Applied

Considered Eccentricity		
Leg Mod Eccentricity (in)	0.000	
Anchor Rod N.A Shift (in)	0.000	
Total Eccentricity (in)	0.000	

*Anchor Rod Eccentricity Applied



Connection Properties		Analysis Results	
Anchor Rod Data		Anchor Rod Summary	(units of kips, kip-in)
(8) 1" ϕ bolts (A354-BC N; $F_y=109$ ksi, $F_u=125$ ksi)		$Pu_t = 24.41$	$\phi Pn_t = 56.81$
l_{ar} (in): 3		$Vu = 3.13$	$\phi Vn = 36.82$
		$Mu = n/a$	$\phi Mn = n/a$
			Stress Rating
			18.3%
			Pass

SST Unit Base Foundation



BU # : 807134
 Site Name: NHV 031B
 App. Number: 553397 Rev 0

TIA-222 Revision: H

Top & Bot. Pad Rein. Different?:	☐
Tower Centroid Offset?:	☐
Block Foundation?:	☒
Rectangular Pad?:	☐

Superstructure Analysis Reactions		
Global Moment, M:	4777.85	ft-kips
Global Axial, P:	50.16	kips
Global Shear, V:	47.75	kips
Leg Compression, P_{comp}:	237.39	kips
Leg Comp. Shear, V_{u, comp}:	29.44	kips
Leg Uplift, P_{uplift}:	195.27	kips
Leg Uplift. Shear, V_{u, uplift}:	25.07	kips
Tower Height, H:	170	ft
Base Face Width, BW:	25	ft
BP Dist. Above Fdn, bp_{dist}:	4	in
Anchor Bolt Circle, BC:	14	in

Foundation Analysis Checks				
	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	325.60	47.75	14.0%	Pass
Bearing Pressure (ksf)	60.00	1.83	2.9%	Pass
Overtuning (kip*ft)	11108.76	4984.77	44.9%	Pass
Pad Flexure (kip*ft)	4757.68	981.66	19.7%	Pass
Pad Shear - 1-way (kips)	1464.43	131.64	8.6%	Pass
Pad Shear - Comp 2-way (ksi)	0.164	0.029	17.1%	Pass
Flexural 2-way (Comp) (kip*ft)	2499.77	0.00	0.0%	Pass
Pad Shear - Tension 2-way (ksi)	0.164	0.024	14.0%	Pass
Flexural 2-way (Tension) (kip*ft)	2499.77	0.00	0.0%	Pass

*Rating per TIA-222-H Section 15.5

Soil Rating*:	44.9%
Structural Rating*:	19.7%

Pad Properties		
Depth, D:	3.50	ft
Pad Width, W₁:	34.00	ft
Pad Thickness, T:	4.00	ft
Pad Rebar Size (Bottom dir. 2), Sp₂:	7	
Pad Rebar Quantity (Bottom dir. 2), mp₂:	41	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties		
Rebar Grade, Fy:	60	ksi
Concrete Compressive Strength, F'c:	3	ksi
Dry Concrete Density, δc:	150	pcf

Soil Properties		
Total Soil Unit Weight, γ:	170	pcf
Ultimate Gross Bearing, Qult:	80.000	ksf
Cohesion, Cu:		ksf
Friction Angle, φ:		degrees
SPT Blow Count, N_{blows}:		
Base Friction, μ:	0.65	
Neglected Depth, N:	3.3	ft
Foundation Bearing on Rock?	Yes	
Groundwater Depth, gw:	N/A	ft

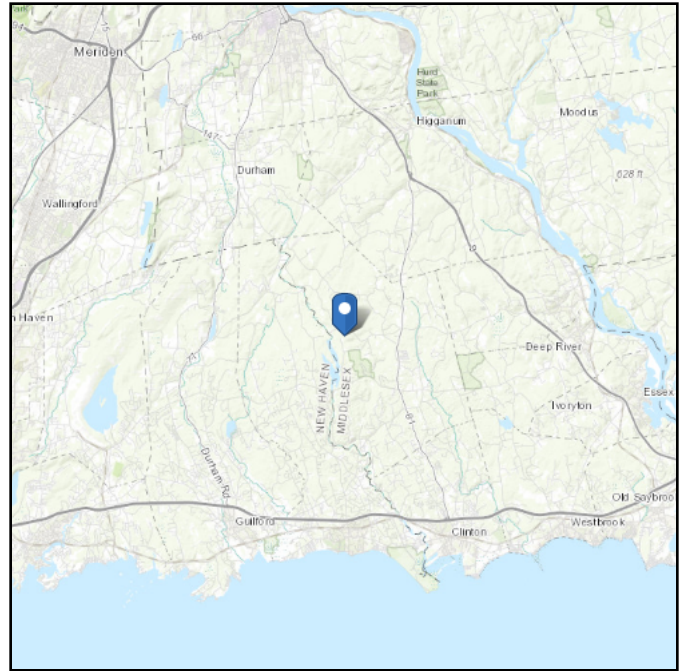
<-- Toggle between Gross and Net

ASCE 7 Hazards Report

Address:
No Address at This
Location

Standard: ASCE/SEI 7-10
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 381.75 ft (NAVD 88)
Latitude: 41.386092
Longitude: -72.603997



Wind

Results:

Wind Speed:	128 Vmph
10-year MRI	78 Vmph
25-year MRI	88 Vmph
50-year MRI	95 Vmph
100-year MRI	105 Vmph

130 Vmph per Appendix N of 2018 Connecticut State Building Code

Data Sources: ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, and Section 26.5.2, incorporating errata of March 12, 2014

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 7-10 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

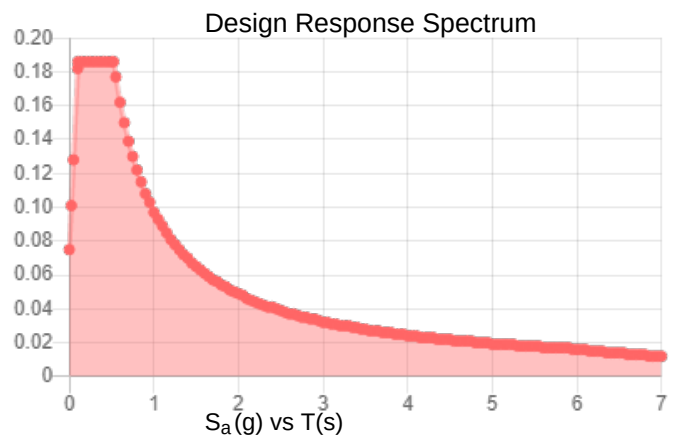
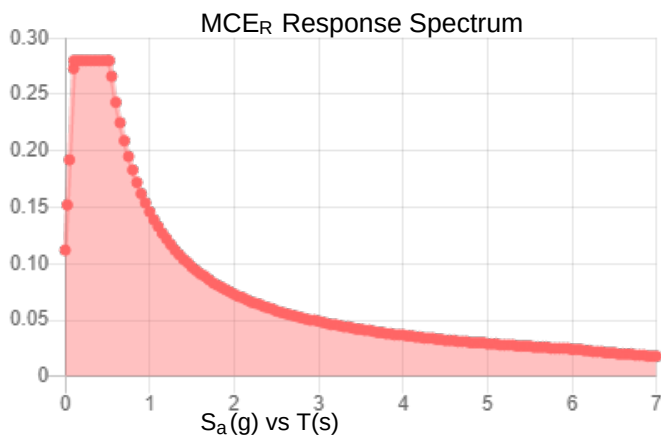
Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Site Soil Class: D - Stiff Soil

Results:

S_S :	0.175	S_{DS} :	0.186
S_1 :	0.061	S_{D1} :	0.097
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.089
S_{MS} :	0.28	PGA_M :	0.142
S_{M1} :	0.146	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B



Data Accessed:

Wed Mar 31 2021

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness: 0.75 in.

Concurrent Temperature: 15 F

Gust Speed: 50 mph

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

Date Accessed: Wed Mar 31 2021

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 50-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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