Date: **August 18, 2025**

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

Subject:	**Structural Analysis Report**	
Carrier Designation:	***Verizon Wireless* Co-Locate**	
	Site Number:	5000078561
	Site Name:	COMMERCE
Crown Castle Designation:	**BU Number:**	846219
	Site Name:	FAIRGROUNDS
	JDE Job Number:	2151532
	Work Order Number:	2414462
	Order Number:	708674 Rev. 0
Engineering Firm Designation:	**B+T Group Project Number:**	25-005927
Site Data:	**682 Southwest Commerce Drive, Lake City, Columbia County, FL** **Latitude *30° 10' 26.43"*, Longitude *-82° 40' 49.87"*** **184.818 Foot - Guyed Tower**	

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

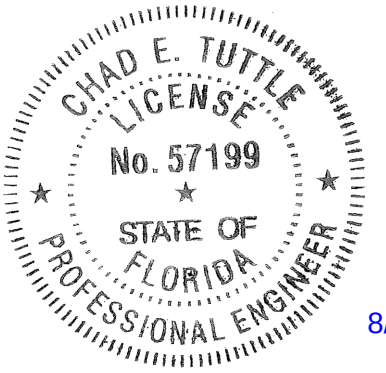
The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC5: Proposed Equipment Configuration **Sufficient Capacity**

This analysis utilizes an ultimate 3-second gust wind speed of 119 mph as required by the 2023 Florida Building Code, 8th Edition. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Andrew Fisher

Respectfully submitted by: B+T Engineering, Inc.
COA: 27496;



CHAD TUTTLE, P.E.
B&T ENGINEERING, INC
This Item has been digitally signed and sealed by Chad Tuttle on the date adjacent to the seal. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

8/18/2025

Chad E. Tuttle, P.E.

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 184.818 ft. Guyed tower designed by Rohn.

The tower has been modified multiple times to accommodate additional loading.

2) ANALYSIS CRITERIA

TIA-222 Revision: TIA-222-H
Risk Category: II
Wind Speed: 119 mph
Exposure Category: C
Topographic Factor: 1
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)
150.0	153.0	3	--	VZWSMART-SFK3-SL V-Bracing	2 2	1-5/8 3/8
	150.0	2	Aviat Networks	ODU600		
		4	Commscope	NNSS-65C-HG-R2B_20241102		
		1	Commscope	VHLPX3-11W		
		4	Ericsson	AIR 3283 B25 B66		
		4	Ericsson	AIR 6419		
		4	Ericsson	RADIO 4490HP 44B5 44B13 C		
		2	Raycap	RVZDC-6627-PF-48		
		5	--	Pipe 2 SCH40 x 96” Long		
		1	--	Pipe 2 SCH40 x 72" Long Tie Back		
		1	--	Sector Mount [SM 502-3]		
		2	Site Pro 1	24” Universal Standoff pipe to pipe kit		

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)
183.0	187.0	2	Ericsson	AIR 6419 B77G_2024	12 11 12 6 3	1-1/4 7/8 3/4 3/8 5/16
	186.0	4	Ericsson	AIR 6419 B77G_2024		
		2	Ericsson	RRUS 32		
		3	Ericsson	RRUS 32 B2		
		3	Ericsson	RRUS 32 B66		
		6	Ericsson	Radio 4449 B5 B12A_2024		
		2	Raycap	DC6-48-60-18-8F_070710		
		4	Raycap	DC9-48-60-24-PC16-EV		
	184.0	6	Commscope	2NN2HH-33B-R4		
		3	Ericsson	RRUS 4478 B14		
	183.0	6	Commscope	CBC1726-DP-2X		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
		6	Ericsson	AIR 6449 B77D_CCIV3		
		1	--	Sector Mount [SM 502-3]		
	180.0	6	Commscope	CBC1726-DP-2X		
		4	Ericsson	RRUS 32		
		3	Ericsson	RRUS 32 B2		
		3	Ericsson	RRUS 32 B66		
173.0	173.0	1	Andrew	HDX10-59	1	EW52
		1	--	Pipe Mount [PM 601-1]		
159.0	159.0	1	--	Pipe Mount [PM 601-1]	1	EW52
	158.0	1	Andrew	HSX6-59A		
137.0	137.0	1	Commscope	HSX8-59	1	EW52
		1	--	Pipe Mount [PM 601-1]		
115.0	116.0	1	Andrew	HSX6-59-P3A/B	1	EW52
	115.0	1	--	Pipe Mount [PM 601-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
Tower Mapping	5016030	CCI Sites
Tower Modification Drawing	5813652	CCI Sites
Legacy Post Modification Inspection	5921972	CCI Sites
Tower Modification Drawing	5989136	CCI Sites
Post Modification Inspection	6088592	CCI Sites
Foundation Drawing	4552442	CCI Sites
Geotech Report	4552447	CCI Sites
Crown CAD Package	Date: 08/06/2025	CCI Sites

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. 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) 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
T1	184.818 - 164.818	Leg	ROHN 2.5 EH	2	-48.533	99.127	49.0	Pass
T2	164.818 - 144.818	Leg	ROHN 2.5 STD	59	-45.677	75.218	60.7	Pass
T3	144.818 - 124.818	Leg	ROHN 2.5 STD	116	-45.951	61.326	74.9	Pass
T4	124.818 - 104.818	Leg	ROHN 2.5 STD	149	-48.794	61.326	79.6	Pass
T5	104.818 - 84.8177	Leg	ROHN 2.5 EH	182	-57.227	79.978	71.6	Pass
T6	84.8177 - 64.8177	Leg	ROHN 2.5 EH	215	-56.988	79.978	71.3	Pass
T7	64.8177 - 44.8177	Leg	ROHN 2.5 EH	247	-73.365	79.978	91.7	Pass
T8	44.8177 - 24.8177	Leg	ROHN 2.5 EH	280	-74.715	79.978	93.4	Pass
T9	24.8177 - 4.81771	Leg	ROHN 2.5 EH	313	-68.167	79.978	85.2	Pass
T10	4.81771 - 0	Leg	ROHN 2.5 EH	346	-53.151	104.279	51.0	Pass
T1	184.818 - 164.818	Diagonal	ROHN 1.5 x 11GA	23	-6.437	11.431	56.3 62.7 (b)	Pass
T2	164.818 - 144.818	Diagonal	ROHN 1.5 x 16GA	111	-3.793	6.519	58.2	Pass
T3	144.818 - 124.818	Diagonal	ROHN 1.5 x 16GA	127	-5.965	6.519	91.5 99.8 (b)	Pass
T4	124.818 - 104.818	Diagonal	ROHN 1.5 x 16GA	176	-3.623	6.519	55.6 56.4 (b)	Pass
T5	104.818 - 84.8177	Diagonal	ROHN 1.5 x 16GA	193	-3.662	6.519	56.2 59.3 (b)	Pass
T6	84.8177 - 64.8177	Diagonal	ROHN 1.5 x 16GA	242	-4.937	6.519	75.7 80.0 (b)	Pass
T7	64.8177 - 44.8177	Diagonal	ROHN 1.5 x 16GA	278	-3.640	6.519	55.8	Pass
T8	44.8177 - 24.8177	Diagonal	ROHN 1.5 x 16GA	290	-2.201	6.519	33.8	Pass
T9	24.8177 - 4.81771	Diagonal	ROHN 1.5 x 16GA	326	-3.358	6.519	51.5 56.0 (b)	Pass
T10	4.81771 - 0	Horizontal	L4x4x1/4	354	-0.975	61.857	10.8	Pass
T1	184.818 - 164.818	Top Girt	ROHN 1.5 x 16GA	4	-0.841	7.401	11.4 13.5 (b)	Pass
T2	164.818 - 144.818	Top Girt	ROHN 1.5 x 16GA	63	1.182	9.439	12.5 19.0 (b)	Pass
T3	144.818 - 124.818	Top Girt	ROHN 1.5 x 16GA	119	-0.831	7.401	11.2 13.4 (b)	Pass
T4	124.818 - 104.818	Top Girt	ROHN 1.5 x 16GA	151	-0.845	7.401	11.4 13.9 (b)	Pass
T5	104.818 - 84.8177	Top Girt	ROHN 1.5 x 16GA	184	-1.017	7.401	13.7 16.4 (b)	Pass
T6	84.8177 - 64.8177	Top Girt	ROHN 1.5 x 16GA	217	-1.020	7.401	13.8 16.4 (b)	Pass
T7	64.8177 - 44.8177	Top Girt	ROHN 1.5 x 16GA	250	-1.282	7.401	17.3 20.6 (b)	Pass
T8	44.8177 - 24.8177	Top Girt	ROHN 1.5 x 16GA	283	-1.294	7.401	17.5 20.8 (b)	Pass
T9	24.8177 - 4.81771	Top Girt	ROHN 1.5 x 16GA	316	-1.203	7.401	16.3 19.4 (b)	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T10	4.81771 - 0	Top Girt	L4x4x1/4	351	10.389	65.999	15.7	Pass
T1	184.818 - 164.818	Bottom Girt	ROHN 1.5 x 16GA	9	1.364	9.439	14.4 21.9 (b)	Pass
T2	164.818 - 144.818	Bottom Girt	ROHN 1.5 x 16GA	64	-0.834	7.401	11.3 13.4 (b)	Pass
T3	144.818 - 124.818	Bottom Girt	ROHN 1.5 x 16GA	121	-1.503	7.401	20.3 27.1 (b)	Pass
T4	124.818 - 104.818	Bottom Girt	ROHN 1.5 x 16GA	154	-0.845	7.401	11.4 13.6 (b)	Pass
T5	104.818 - 84.8177	Bottom Girt	ROHN 1.5 x 16GA	188	-1.132	7.401	15.3 22.5 (b)	Pass
T6	84.8177 - 64.8177	Bottom Girt	ROHN 1.5 x 16GA	220	-1.020	7.401	13.8 16.4 (b)	Pass
T7	64.8177 - 44.8177	Bottom Girt	ROHN 1.5 x 16GA	253	-1.282	7.401	17.3 20.6 (b)	Pass
T8	44.8177 - 24.8177	Bottom Girt	ROHN 1.5 x 16GA	286	-1.294	7.401	17.5 20.8 (b)	Pass
T9	24.8177 - 4.81771	Bottom Girt	ROHN 1.5 x 16GA	321	1.637	9.439	17.3 26.3 (b)	Pass
T1	184.818 - 164.818	Guy A@167.341	3/4 (ECP - 24000)	373	25.534	36.729	69.5	Pass
T4	124.818 - 104.818	Guy A@124.203	5/8 (ECP - 23000)	381	15.878	26.712	59.4	Pass
T6	84.8177 - 64.8177	Guy A@84.2031	9/16 (ECP - 23000)	387	15.570	22.050	70.6	Pass
T1	184.818 - 164.818	Guy B@167.341	3/4 (ECP - 24000)	368	24.691	36.729	67.2	Pass
T4	124.818 - 104.818	Guy B@124.203	5/8 (ECP - 23000)	380	15.581	26.712	58.3	Pass
T6	84.8177 - 64.8177	Guy B@84.2031	9/16 (ECP - 23000)	386	15.830	22.050	71.8	Pass
T1	184.818 - 164.818	Guy C@167.341	3/4 (ECP - 24000)	362	23.540	36.729	64.1	Pass
T4	124.818 - 104.818	Guy C@124.203	5/8 (ECP - 23000)	376	14.905	26.712	55.8	Pass
T6	84.8177 - 64.8177	Guy C@84.2031	9/16 (ECP - 23000)	382	15.636	22.050	70.9	Pass
T1	184.818 - 164.818	Top Guy Pull-Off@167.341	2L2x2x1/4x3/8	367	12.412	51.556	24.6 53.4 (b)	Pass
T4	124.818 - 104.818	Top Guy Pull-Off@124.203	4 1/2x3/8	379	5.561	57.409	9.7 21.8 (b)	Pass
T6	84.8177 - 64.8177	Top Guy Pull-Off@84.2031	4 1/2x3/8	385	6.198	57.409	10.8 24.3 (b)	Pass
T1	184.818 - 164.818	Torque Arm Top@167.341	C15x33.9	374	-5.238	306.341	46.2 55.3 (b)	Pass
							Summary	
						Leg (T8)	93.4	Pass
						Diagonal (T3)	99.8	Pass
						Horizontal (T10)	10.8	Pass
						Top Girt (T8)	20.8	Pass
						Bottom Girt (T3)	27.1	Pass
						Guy A (T6)	70.6	Pass
						Guy B (T6)	71.8	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
						Guy C (T6)	70.9	Pass
						Top Guy Pull-Off (T1)	53.4	Pass
						Torque Arm Top (T1)	55.3	Pass
						Bolt Checks	99.8	Pass
						Rating =	99.8	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Base Foundation (Structure)	Base	45.8	Pass
1,2	Base Foundation (Soil Interaction)	Base	34.9	Pass
1,2	Guy Anchor Shaft	Base	75.0	Pass
1,2	Guy Anchor Foundation (Structure)	Base	23.1	Pass
1,2	Guy Anchor Foundation (Soil Interaction)	Base	26.5	Pass

Structure Rating (max from all components) =	99.8%

Notes:
1) See additional documentation in “Appendix C – Additional Calculations” for calculations supporting the % capacity consumed.
2) Rating per TIA-222-H Section 15.5.

4.1) Recommendations

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

The result of the tilt and twist values for a 60 mph 3-second gust service wind speed per the TIA-222-H Standard are given below:

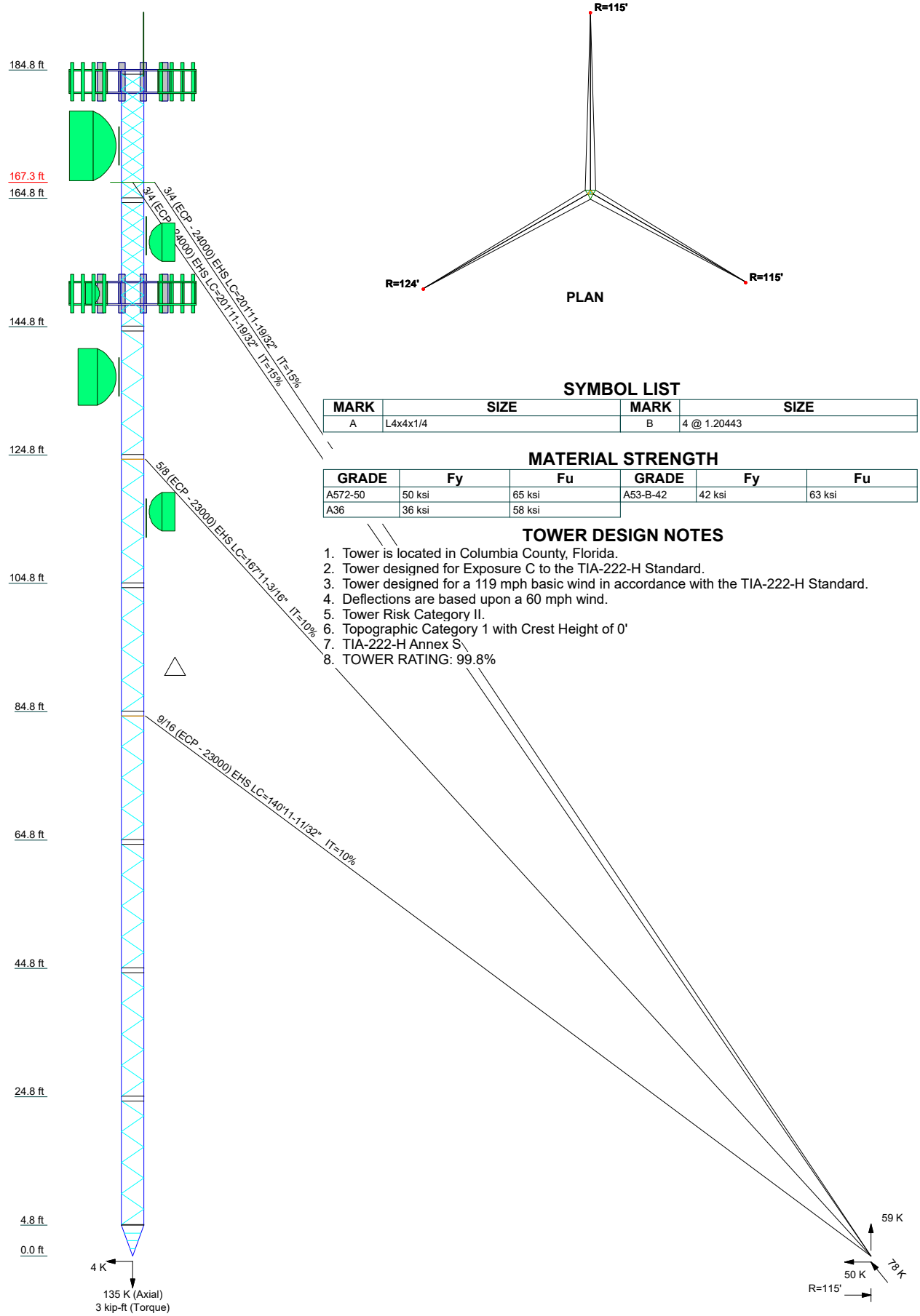
Table 6 – Proposed Equipment Tilt-Sway Results for 60 mph Service Wind – LC5

Elevation (ft)	*Dish Model*	*Diameter (ft)*	*Tilt (°)*	*Twist (°)*
150.0	VHLPX3-11W	3.283	0.044	0.289

APPENDIX A

TNXTOWER OUTPUT

Section	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10
Legs	ROHN 2.5 EH		ROHN 2.5 STD				ROHN 2.5 EH			
Leg Grade	A572-50									
Diagonals	ROHN 1.5 x 11GA		ROHN 1.5 x 16GA							N.A.
Diagonal Grade	A36		A53-B-42							N.A.
Top Girts			ROHN 1.5 x 16GA							A
Bottom Girts			ROHN 1.5 x 16GA							N.A.
Horizontals			N.A.							A
Top Guy Pull-Offs	2L2x2x1/4x3/8		N.A.	4 1/2x3/8	N.A.	4 1/2x3/8		N.A.		
Face Width (ft)	3.41667				72 @ 2.40885					
# Panels @ (ft)	1.6	0.5	0.5	0.5	0.6	0.7	0.6	0.6	0.6	B
Weight (K)										6.4



PLAN

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	L4x4x1/4	B	4 @ 1.20443

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A53-B-42	42 ksi	63 ksi
A36	36 ksi	58 ksi			

TOWER DESIGN NOTES

1. Tower is located in Columbia County, Florida.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 119 mph basic wind in accordance with the TIA-222-H Standard.
4. Deflections are based upon a 60 mph wind.
5. Tower Risk Category II.
6. Topographic Category 1 with Crest Height of 0'
7. TIA-222-H Annex S
8. TOWER RATING: 99.8%

ALL REACTIONS ARE FACTORED

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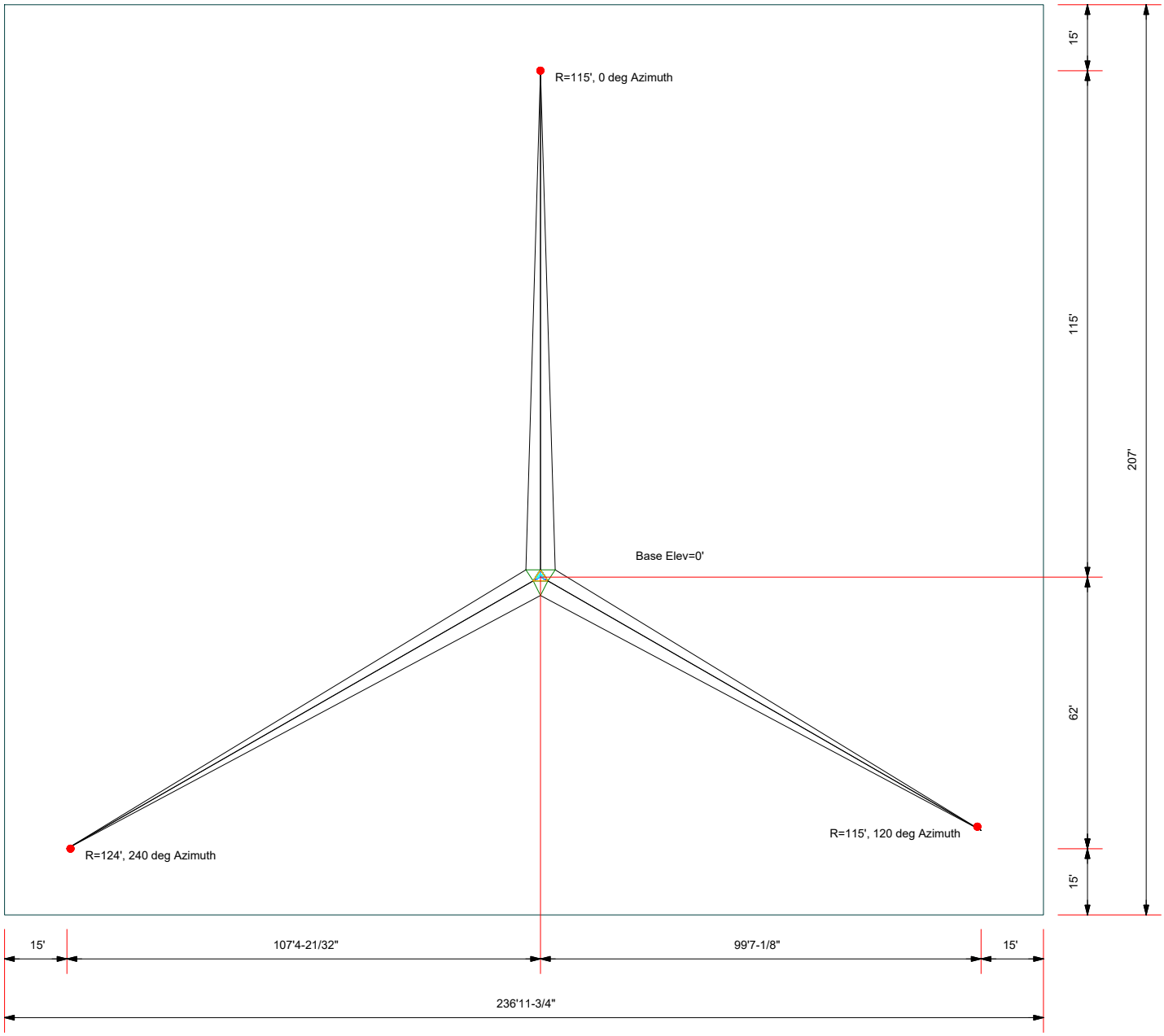
Job: 25-005927 - FAIRGROUNDS, FL (BU# 846219			
Project:			
Client: Crown Castle	Drawn by: Sahana	App'd:	
Code: TIA-222-H	Date: 08/10/25	Scale: NTS	
Path: C:\Users\s1\Desktop\Aug 8\25-005927_846219_Fairgrounds---Sahana---P---O\tnxTower\25-005927_FAIRGROUNDS_FL.eri		Dwg No. E-1	

Plot Plan
Total Area - 1.13 Acres



B+T GRP

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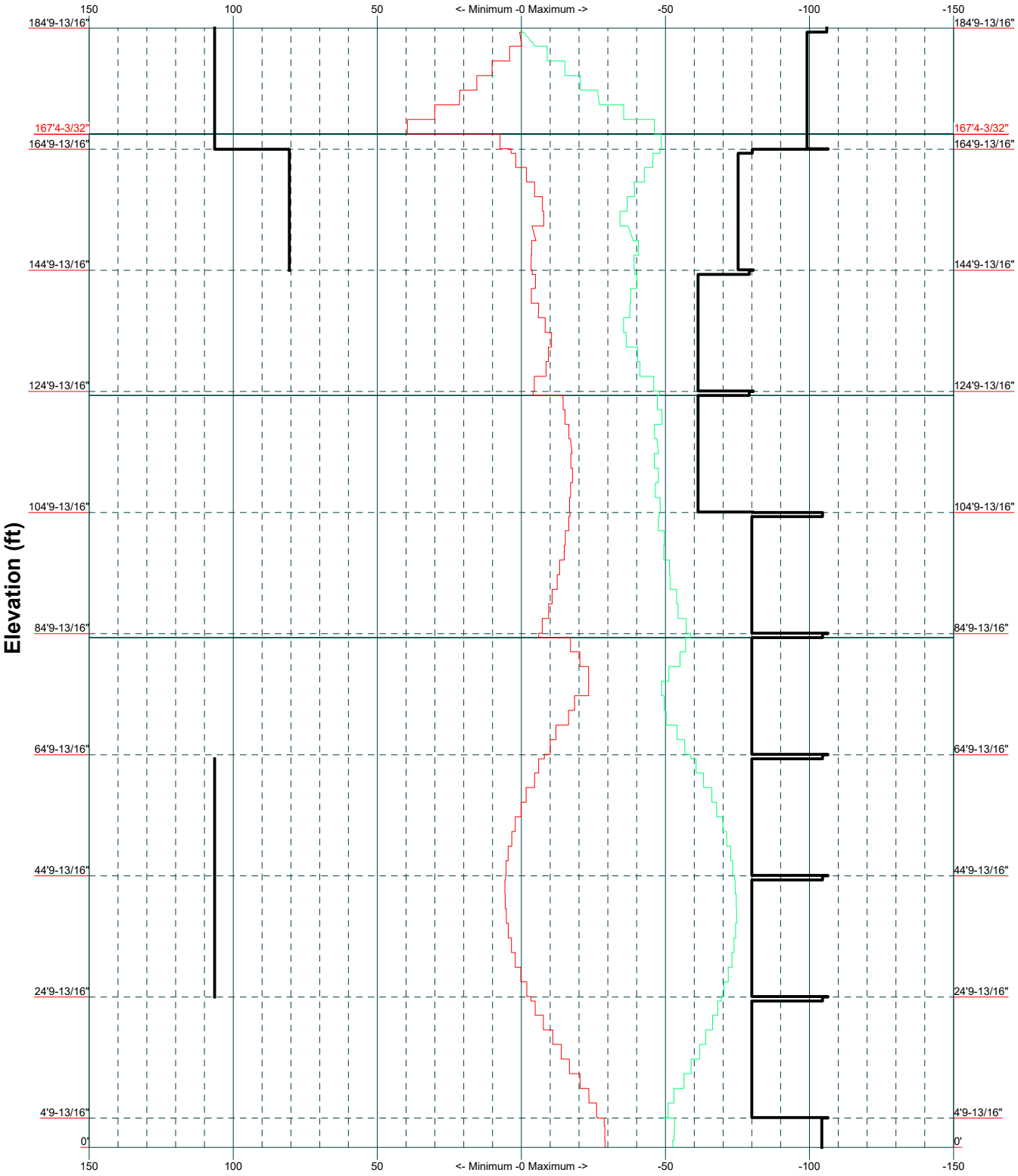
TIA-222-H - 119 mph Exposure C

Leg Capacity ——— **Leg Compression (K)**



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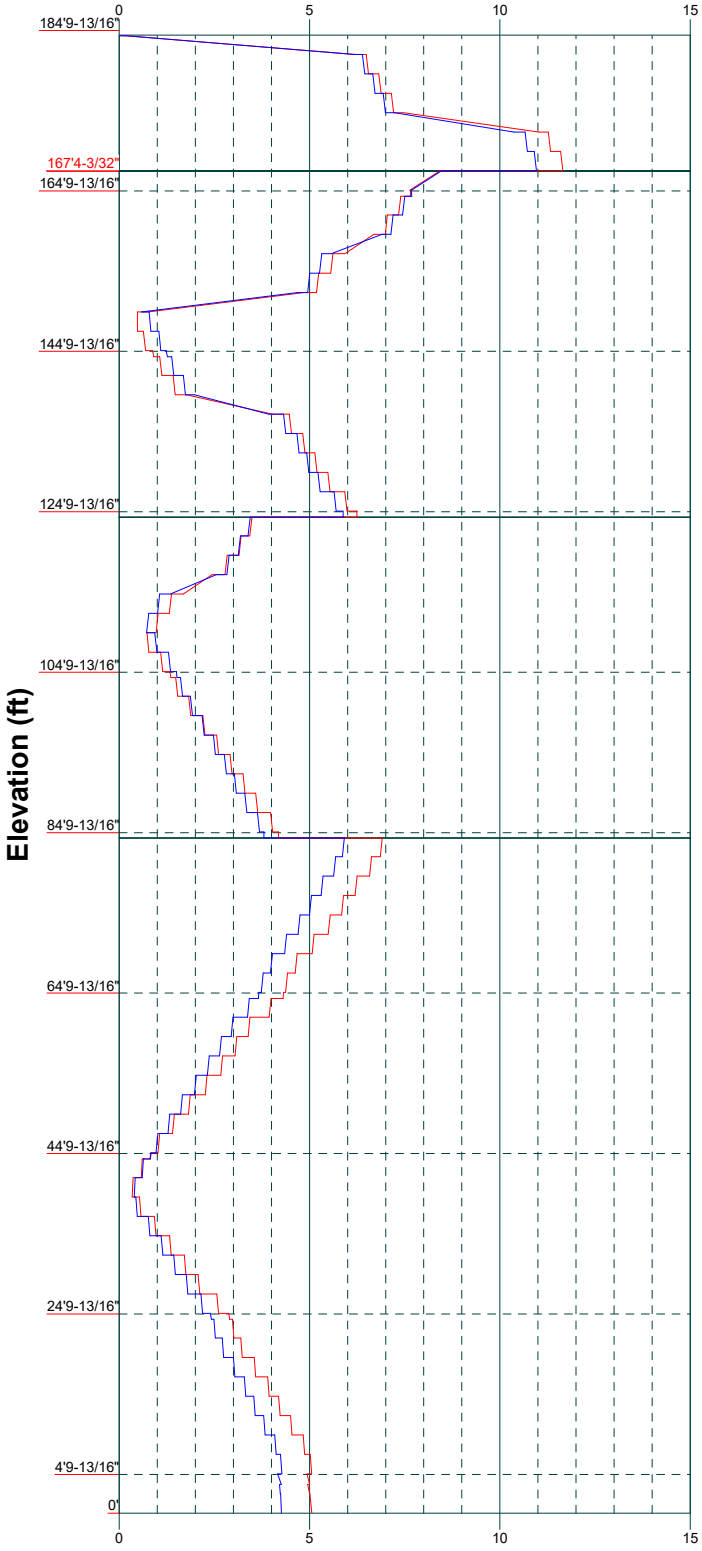
TIA-222-H - 119 mph Exposure C

Vx Vz

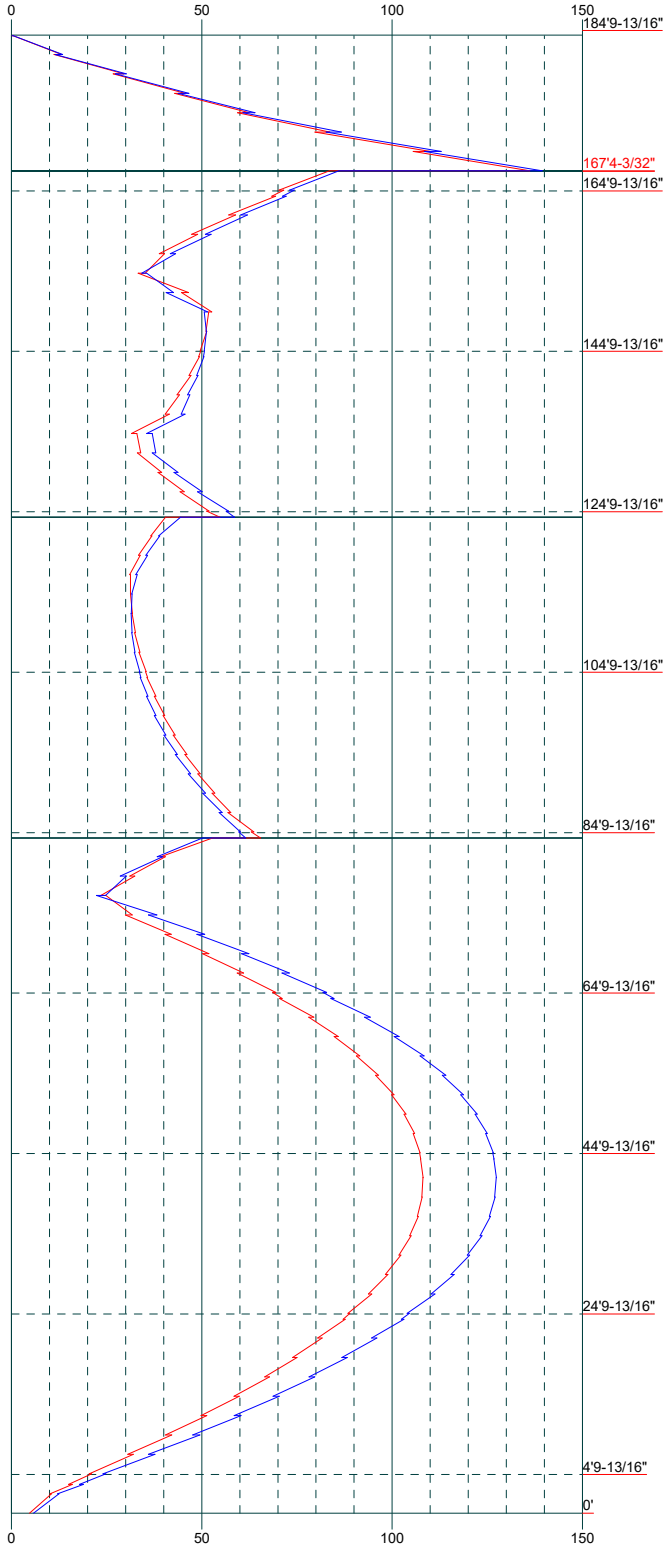
Maximum Values

Mx Mz

Global Mast Shear (K)



Global Mast Moment (kip-ft)



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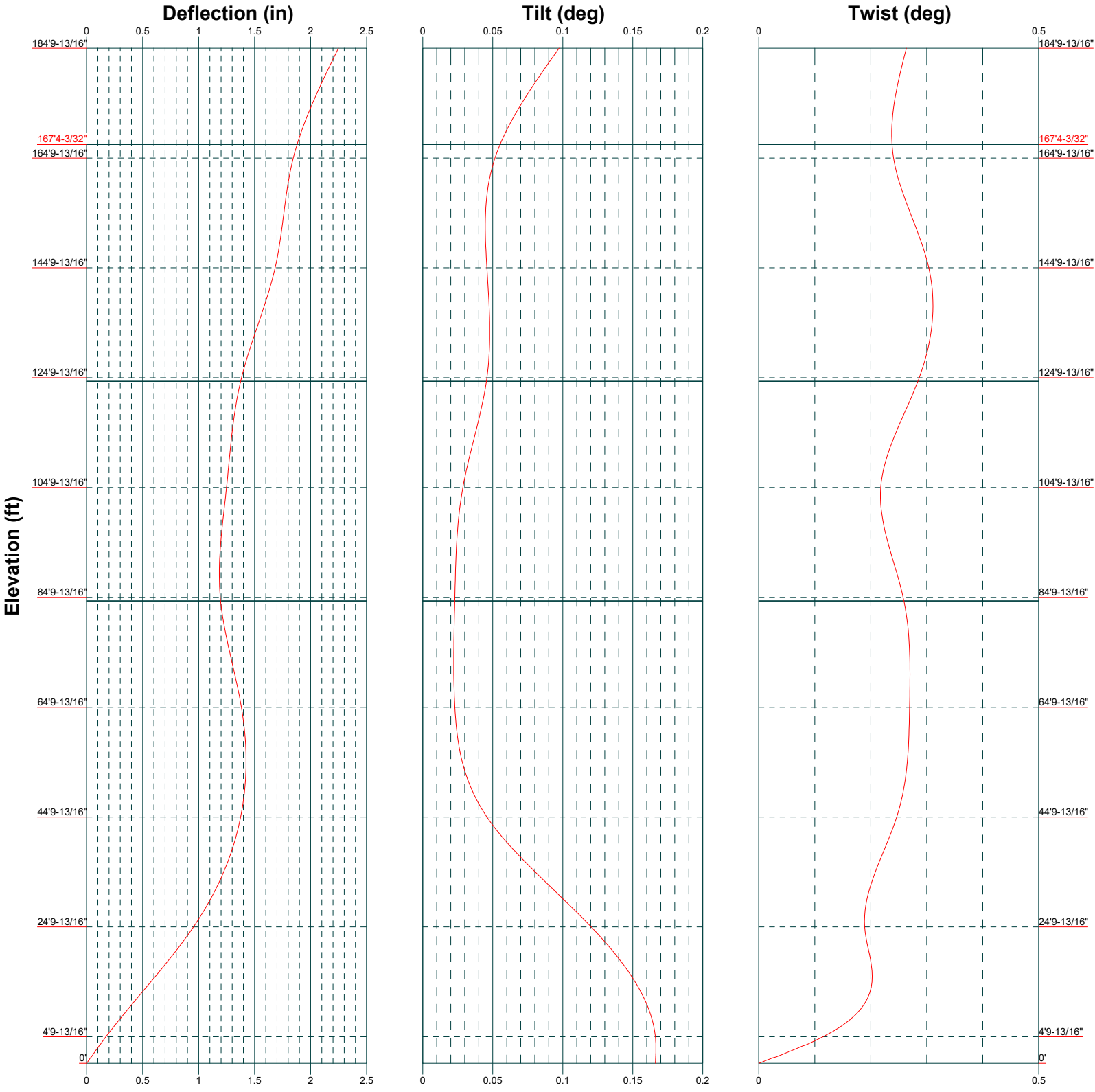
TIA-222-H - Service - 60 mph

Maximum Values



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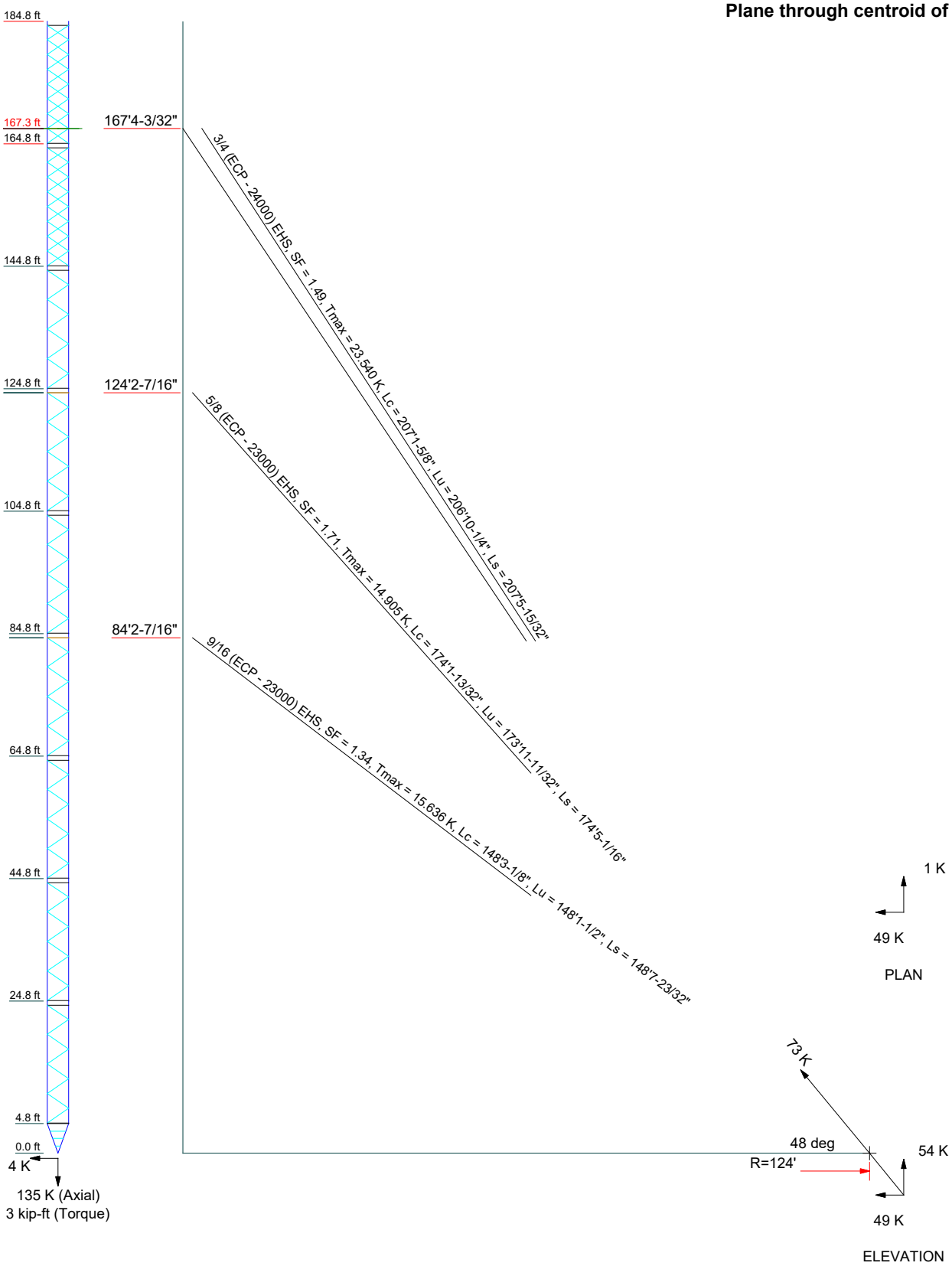
Code: TIA-222-H	Date: 08/10/25	Scale: NTS	
Path: C:\Users\1\Desktop\Aug 8\25-005927_846219_Fairgrounds---Sahana---P---O\tnxTower\25-005927_FAIRGROUNDS_FL.eri		Dwg No. E-5	

Guy Tensions and Tower Reactions

TIA-222-H - 119 mph Exposure C

Maximum Values
Anchor 'C'@124 ft Azimuth 240 deg Elev 0 ft
Plane through centroid of tower



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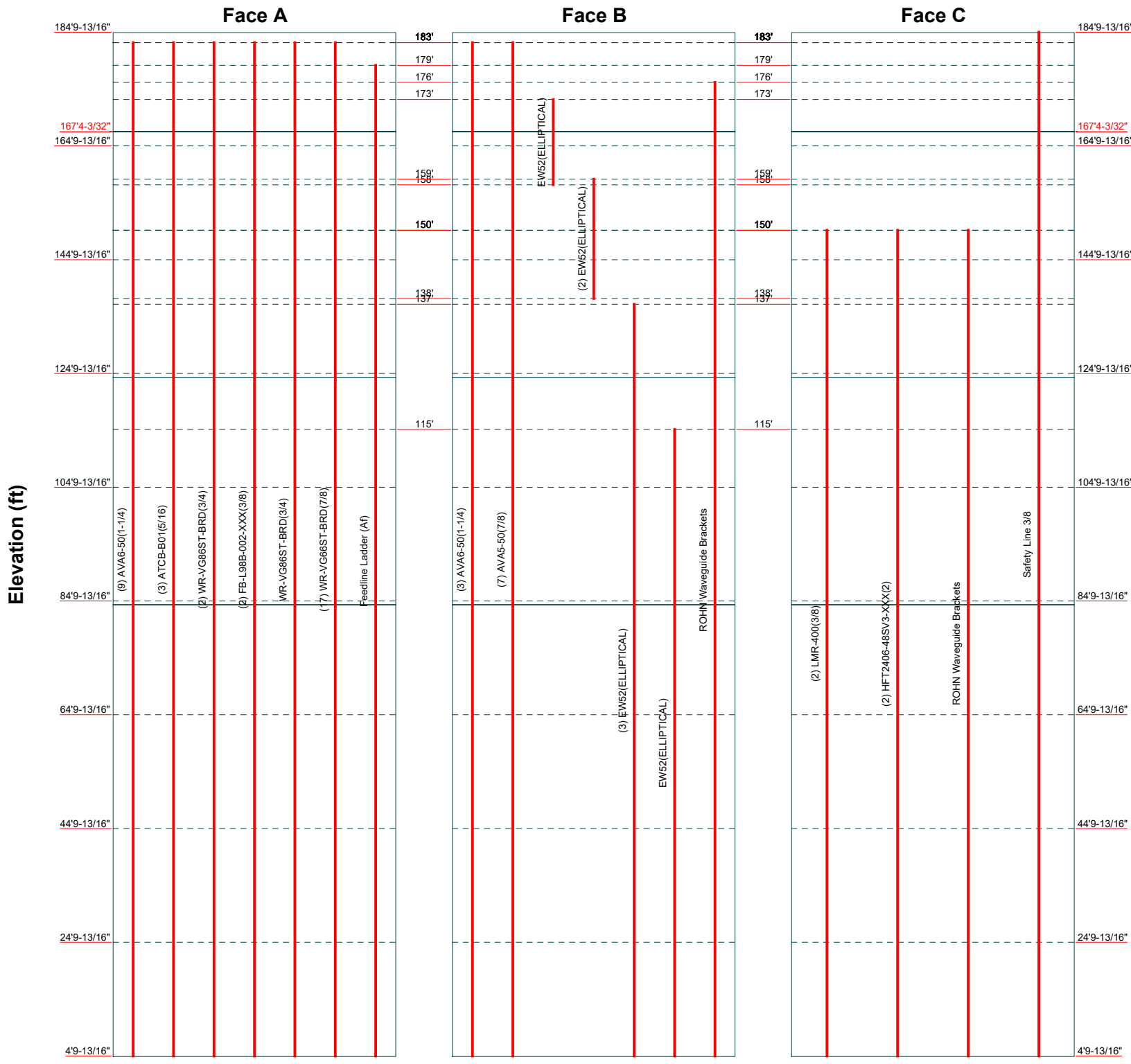
Code: TIA-222-H	Date: 08/10/25	Scale: NTS	
Path: C:\Users\s1\Desktop\Aug 8\25-005927_846219_Fairgrounds---Sahana---P---O\tnxTower\25-005927_FAIRGROUNDS_FL.eri		Dwg No. E-6	

Feed Line Distribution Chart
4'9-13/16" - 184'9-13/16"

Round | Flat | App In Face | App Out Face | Truss Leg



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Project:			
Client: Crown Castle	Drawn by: Sahana	App'd:	
Code: TIA-222-H	Date: 08/10/25	Scale: NTS	
Path: C:\Users\1\Desktop\Aug 8\25-005927_846219_Fairgrounds---Sahana---P---O\tnxTower\25-005927_FAIRGROUNDS_FL.eri		Dwg No. E-7	

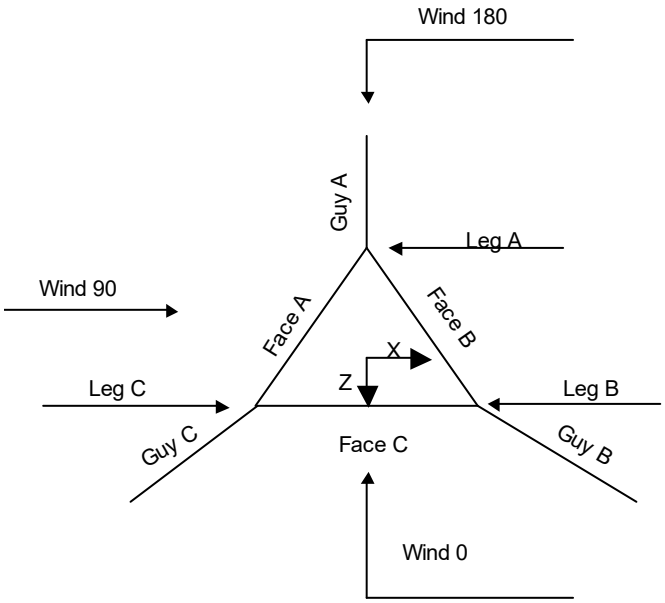
Tower Input Data

The main tower is a 3x guyed tower with an overall height of 184'9-13/16" above the ground line.
The base of the tower is set at an elevation of 0' above the ground line.
The face width of the tower is 3'5" at the top and tapered at the base.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

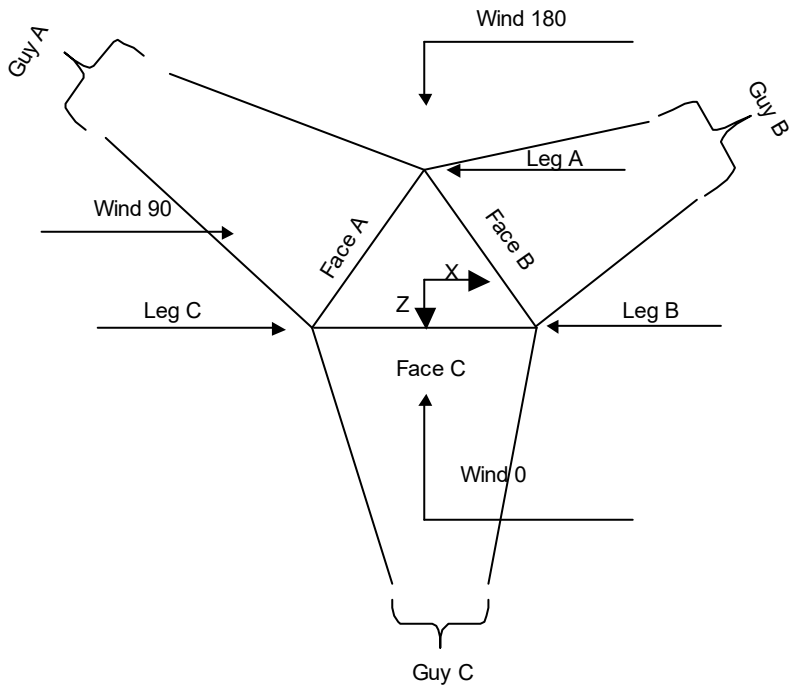
Tower is located in Columbia County, Florida.
Tower base elevation above sea level: 156'.
Basic wind speed of 119 mph.
Risk Category II.
Exposure Category C.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0'.
Deflections calculated using a wind speed of 60 mph.
TIA-222-H Annex S.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.
Safety factor used in guy design is 1.
Tower analysis based on target reliabilities in accordance with Annex S.
Load Modification Factors used: $K_{es}(F_w) = 0.95$.
Maximum demand-capacity ratio is: 1.05.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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



Corner & Starmount Guyed Tower



Face Guyed

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	184'9-13/16"-164' 9-13/16"			3'5"	1	20'
T2	164'9-13/16"-144' 9-13/16"			3'5"	1	20'
T3	144'9-13/16"-124' 9-13/16"			3'5"	1	20'
T4	124'9-13/16"-104' 9-13/16"			3'5"	1	20'
T5	104'9-13/16"-84'9 -13/16"			3'5"	1	20'
T6	84'9-13/16"-64'9-13/16"			3'5"	1	20'
T7	64'9-13/16"-44'9-13/16"			3'5"	1	20'
T8	44'9-13/16"-24'9-13/16"			3'5"	1	20'

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T9	24'9-13/16"-4'9-1 3/16"			3'5"	1	20'
T10	4'9-13/16"-0'			3'5"	1	4'9-13/16"

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	184'9-13/16"-164' 9-13/16"	2'4-29/32"	CX Brace	No	No	7.375	1.375
T2	164'9-13/16"-144' 9-13/16"	2'4-29/32"	CX Brace	No	No	7.375	1.375
T3	144'9-13/16"-124' 9-13/16"	2'4-29/32"	K Brace Left	No	No	7.375	1.375
T4	124'9-13/16"-104' 9-13/16"	2'4-29/32"	K Brace Left	No	No	7.375	1.375
T5	104'9-13/16"-84'9 -13/16"	2'4-29/32"	K Brace Left	No	No	7.375	1.375
T6	84'9-13/16"-64'9-13/16"	2'4-29/32"	K Brace Left	No	No	7.375	1.375
T7	64'9-13/16"-44'9-13/16"	2'4-29/32"	K Brace Left	No	No	7.375	1.375
T8	44'9-13/16"-24'9-13/16"	2'4-29/32"	K Brace Left	No	No	7.375	1.375
T9	24'9-13/16"-4'9-1 3/16"	2'4-29/32"	K Brace Left	No	No	7.375	1.375
T10	4'9-13/16"-0'	1'2-7/16"	X Brace	No	Yes	0.000	0.000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 184'9-13/16"-164' 9-13/16"	Pipe	ROHN 2.5 EH	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 11GA	A36 (36 ksi)
T2 164'9-13/16"-144' 9-13/16"	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
T3 144'9-13/16"-124' 9-13/16"	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
T4 124'9-13/16"-104' 9-13/16"	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
T5 104'9-13/16"-84'9 -13/16"	Pipe	ROHN 2.5 EH	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
T6 84'9-13/16"-64'9-	Pipe	ROHN 2.5 EH	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
13/16" T7 64'9-13/16"-44'9-13/16"	Pipe	ROHN 2.5 EH	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
T8 44'9-13/16"-24'9-13/16"	Pipe	ROHN 2.5 EH	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
T9 24'9-13/16"-4'9-1 3/16"	Pipe	ROHN 2.5 EH	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
T10 4'9-13/16"-0'	Pipe	ROHN 2.5 EH	A572-50 (50 ksi)	Single Angle		A36 (36 ksi)

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 184'9-13/16"-164' 9-13/16"	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
T2 164'9-13/16"-144' 9-13/16"	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
T3 144'9-13/16"-124' 9-13/16"	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
T4 124'9-13/16"-104' 9-13/16"	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
T5 104'9-13/16"-84'9 -13/16"	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
T6 84'9-13/16"-64'9-13/16"	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
T7 64'9-13/16"-44'9-13/16"	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
T8 44'9-13/16"-24'9-13/16"	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
T9 24'9-13/16"-4'9-1 3/16"	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
T10 4'9-13/16"-0'	Single Angle	L4x4x1/4	A36 (36 ksi)	Single Angle	L4x4x1/4	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T10 4'9-13/16"-0'	None	Solid Round		A36 (36 ksi)	Single Angle	L4x4x1/4	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_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
T1 184'9-13/16"-164'9-13/16"	0.000	0.176	A36 (36 ksi)	1	1.03	1.03	41.000	41.000	41.000
T2 164'9-13/16"-144'9-13/16"	0.000	0.176	A36 (36 ksi)	1	1.03	1.03	41.000	41.000	41.000
T3 144'9-13/16"-124'9-13/16"	0.000	0.176	A36 (36 ksi)	1	1.03	1.03	41.000	41.000	41.000
T4 124'9-13/16"-104'9-13/16"	0.000	0.176	A36 (36 ksi)	1	1.03	1.03	41.000	41.000	41.000
T5 104'9-13/16"-84'9-13/16"	0.000	0.176	A36 (36 ksi)	1	1.03	1.03	41.000	41.000	41.000
T6 84'9-13/16"-64'9-13/16"	0.000	0.176	A36 (36 ksi)	1	1.08	1.1	41.000	41.000	41.000
T7 64'9-13/16"-44'9-13/16"	0.000	0.176	A36 (36 ksi)	1	1.03	1.03	41.000	41.000	41.000
T8 44'9-13/16"-24'9-13/16"	0.000	0.176	A36 (36 ksi)	1	1.03	1.03	41.000	41.000	41.000
T9 24'9-13/16"-4'9-13/16"	0.000	0.176	A36 (36 ksi)	1	1.03	1.03	41.000	41.000	41.000
T10 4'9-13/16"-0'	0.000	0.000	A36 (36 ksi)	1.03	1	1.03	41.000	41.000	41.000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1]: Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1 184'9-13/16"-164'9-13/16"	No	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T2 164'9-13/16"-144'9-13/16"	No	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T3 144'9-13/16"-124'9-13/16"	No	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T4 124'9-13/16"-104'9-13/16"	No	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T5 104'9-13/16"-84'9-13/16"	No	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T6 84'9-13/16"-64'9-13/16"	No	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T7 64'9-13/16"-44'9-13/16"	No	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T8 44'9-13/16"-24'9-13/16"	No	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T9 24'9-13/16"-4'9-13/16"	No	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T10 4'9-13/16"-0'	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1

[1]*Note: 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 Net Width Deduct in	Leg U	Diagonal Net Width Deduct in	Diagonal U	Top Girt Net Width Deduct in	Top Girt U	Bottom Girt Net Width Deduct in	Bottom Girt U	Mid Girt Net Width Deduct in	Mid Girt U	Long Horizontal Net Width Deduct in	Long Horizontal U	Short Horizontal Net Width Deduct in	Short Horizontal U
T1 184'9-13/16"-164'9-13/16"	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T2 164'9-13/16"-144'9-13/16"	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T3 144'9-13/16"-124'9-13/16"	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T4 124'9-13/16"-104'9-13/16"	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T5 104'9-13/16"-84'9-13/16"	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75

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
T6 84'9-13/16"-64' 9-13/16"	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T7 64'9-13/16"-44' 9-13/16"	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T8 44'9-13/16"-24' 9-13/16"	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T9 24'9-13/16"-4'9 -13/16"	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T10 4'9-13/16"-0'	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	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 184'9-13/16"-164'9-13/16"	0.000	0.75 (1)	0.000	0.75 (1)	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75 (1)	0.000	0.75 (1)
	0.000	0.75 (2)	0.000	0.75 (2)							0.000	0.75 (2)	0.000	0.75 (2)
	0.000	0.75 (3)	0.000	0.75 (3)							0.000	0.75 (3)	0.000	0.75 (3)
	0.000	0.75 (4)	0.000	0.75 (4)							0.000	0.75 (4)	0.000	0.75 (4)
T2 164'9-13/16"-144'9-13/16"	0.000	0.75 (1)	0.000	0.75 (1)	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75 (1)	0.000	0.75 (1)
	0.000	0.75 (2)	0.000	0.75 (2)							0.000	0.75 (2)	0.000	0.75 (2)
	0.000	0.75 (3)	0.000	0.75 (3)							0.000	0.75 (3)	0.000	0.75 (3)
	0.000	0.75 (4)	0.000	0.75 (4)							0.000	0.75 (4)	0.000	0.75 (4)
T3 144'9-13/16"-124'9-13/16"	0.000	0.75 (1)	0.000	0.75 (1)	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75 (1)	0.000	0.75 (1)
	0.000	0.75 (2)	0.000	0.75 (2)							0.000	0.75 (2)	0.000	0.75 (2)
	0.000	0.75 (3)	0.000	0.75 (3)							0.000	0.75 (3)	0.000	0.75 (3)
	0.000	0.75 (4)	0.000	0.75 (4)							0.000	0.75 (4)	0.000	0.75 (4)
T4 124'9-13/16"-104'9-13/16"	0.000	0.75 (1)	0.000	0.75 (1)	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75 (1)	0.000	0.75 (1)
	0.000	0.75 (2)	0.000	0.75 (2)							0.000	0.75 (2)	0.000	0.75 (2)

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	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
	0.000	0.75 (3)	0.000	0.75 (3)							0.000	0.75 (3)	0.000	0.75 (3)
	0.000	0.75 (4)	0.000	0.75 (4)							0.000	0.75 (4)	0.000	0.75 (4)
T5 104'9-13/16"-84'9-13/16"	0.000	0.75 (1)	0.000	0.75 (1)	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75 (1)	0.000	0.75 (1)
	0.000	0.75 (2)	0.000	0.75 (2)							0.000	0.75 (2)	0.000	0.75 (2)
	0.000	0.75 (3)	0.000	0.75 (3)							0.000	0.75 (3)	0.000	0.75 (3)
	0.000	0.75 (4)	0.000	0.75 (4)							0.000	0.75 (4)	0.000	0.75 (4)
T6 84'9-13/16"-64'9-13/16"	0.000	0.75 (1)	0.000	0.75 (1)	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75 (1)	0.000	0.75 (1)
	0.000	0.75 (2)	0.000	0.75 (2)							0.000	0.75 (2)	0.000	0.75 (2)
	0.000	0.75 (3)	0.000	0.75 (3)							0.000	0.75 (3)	0.000	0.75 (3)
	0.000	0.75 (4)	0.000	0.75 (4)							0.000	0.75 (4)	0.000	0.75 (4)
T7 64'9-13/16"-44'9-13/16"	0.000	0.75 (1)	0.000	0.75 (1)	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75 (1)	0.000	0.75 (1)
	0.000	0.75 (2)	0.000	0.75 (2)							0.000	0.75 (2)	0.000	0.75 (2)
	0.000	0.75 (3)	0.000	0.75 (3)							0.000	0.75 (3)	0.000	0.75 (3)
	0.000	0.75 (4)	0.000	0.75 (4)							0.000	0.75 (4)	0.000	0.75 (4)
T8 44'9-13/16"-24'9-13/16"	0.000	0.75 (1)	0.000	0.75 (1)	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75 (1)	0.000	0.75 (1)
	0.000	0.75 (2)	0.000	0.75 (2)							0.000	0.75 (2)	0.000	0.75 (2)
	0.000	0.75 (3)	0.000	0.75 (3)							0.000	0.75 (3)	0.000	0.75 (3)
	0.000	0.75 (4)	0.000	0.75 (4)							0.000	0.75 (4)	0.000	0.75 (4)
T9 24'9-13/16"-4'9-13/16"	0.000	0.75 (1)	0.000	0.75 (1)	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75 (1)	0.000	0.75 (1)
	0.000	0.75 (2)	0.000	0.75 (2)							0.000	0.75 (2)	0.000	0.75 (2)
	0.000	0.75 (3)	0.000	0.75 (3)							0.000	0.75 (3)	0.000	0.75 (3)
	0.000	0.75 (4)	0.000	0.75 (4)							0.000	0.75 (4)	0.000	0.75 (4)
T10 4'9-13/16"-0'	0.000	0.75 (1)	0.000	0.75 (1)	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75 (1)	0.000	0.75 (1)
	0.000	0.75 (2)	0.000	0.75 (2)							0.000	0.75 (2)	0.000	0.75 (2)

	0.000	0.75 (3)	0.000	0.75 (3)				0.000	0.75 (3)	0.000	0.75 (3)
	0.000	0.75 (4)	0.000	0.75 (4)				0.000	0.75 (4)	0.000	0.75 (4)

Tower Section Geometry *(cont'd)*

Tower Elevation	*Connection Offsets*							
	Diagonal				*K-Bracing*			
	Vert. Top	*Horiz. Top*	*Vert. Bot.*	*Horiz. Bot.*	*Vert. Top*	*Horiz. Top*	*Vert. Bot.*	*Horiz. Bot.*
ft	in	in	in	in	in	in	in	in
T1 184'9-13/16"-164'9-13/16"	0.000	3.500	0.000	3.500	0.000	0.000	0.000	0.000
T2 164'9-13/16"-144'9-13/16"	0.000	3.500	0.000	3.500	0.000	0.000	0.000	0.000
T3 144'9-13/16"-124'9-13/16"	0.000	3.500	0.000	3.500	0.000	0.000	0.000	0.000
T4 124'9-13/16"-104'9-13/16"	0.000	3.500	0.000	3.500	0.000	0.000	0.000	0.000
T5 104'9-13/16"-84'9-13/16"	0.000	3.500	0.000	3.500	0.000	0.000	0.000	0.000
T6 84'9-13/16"-64'9-13/16"	0.000	3.500	0.000	3.500	0.000	0.000	0.000	0.000
T7 64'9-13/16"-44'9-13/16"	0.000	3.500	0.000	3.500	0.000	0.000	0.000	0.000
T8 44'9-13/16"-24'9-13/16"	0.000	3.500	0.000	3.500	0.000	0.000	0.000	0.000
T9 24'9-13/16"-4'9-13/16"	0.000	3.500	0.000	3.500	0.000	0.000	0.000	0.000
T10 4'9-13/16"-0'	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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 184'9-13/16"-164'9-13/16"	Flange	0.750 A325X	0	0.500 A325X	1	0.500 A325X	1	0.500 A325X	1	0.625 A325N	0	0.625 A325X	0	0.625 A325N	0
T2 164'9-13/16"-144'9-13/16"	Flange	0.750 A325X	4	0.500 A325X	1	0.500 A325X	1	0.500 A325X	1	0.625 A325N	0	0.625 A325X	0	0.625 A325N	0
T3 144'9-13/16"-124'9-13/16"	Flange	0.750 A325X	4	0.500 A325X	1	0.500 A325X	1	0.500 A325X	1	0.625 A325N	0	0.625 A325X	0	0.625 A325N	0
T4 124'9-13/16"-104'9-13/16"	Flange	0.750 A325X	4	0.500 A325X	1	0.500 A325X	1	0.500 A325X	1	0.625 A325N	0	0.625 A325X	0	0.625 A325N	0
T5 104'9-13/16"-84'9-13/16"	Flange	0.750 A325X	4	0.500 A325X	1	0.500 A325X	1	0.500 A325X	1	0.625 A325N	0	0.625 A325X	0	0.625 A325N	0
T6 84'9-13/16"-64'9-13/16"	Flange	0.750 A325X	4	0.500 A325X	1	0.500 A325X	1	0.500 A325X	1	0.625 A325N	0	0.625 A325X	0	0.625 A325N	0
T7 64'9-13/16"-44'9-13/16"	Flange	0.750 A325X	4	0.500 A325X	1	0.500 A325X	1	0.500 A325X	1	0.625 A325N	0	0.625 A325X	0	0.625 A325N	0
T8 44'9-13/16"-24'9-13/16"	Flange	0.750 A325X	4	0.500 A325X	1	0.500 A325X	1	0.500 A325X	1	0.625 A325N	0	0.625 A325X	0	0.625 A325N	0
T9 24'9-13/16"-4'9-13/16"	Flange	0.750 A325X	4	0.500 A325X	1	0.500 A325X	1	0.500 A325X	1	0.625 A325N	0	0.625 A325X	0	0.625 A325N	0
T10 4'9-13/16"-0'	Flange	0.750 A325X	4	0.500 A325X	0 *	0.500 A325X	0 *	0.500 A325X	0 *	0.625 A325N	0	0.625 A325X	0 *	0.625 A325N	0

* Out-of-plane partial restraint assumed

Guy Data

Guy Elevation ft	Guy Grade	Guy Size	Initial Tension K	%	Guy Modulus ksi	Guy Weight plf	L_u ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %
167.341	EHS	A 3/4 (ECP - 24000)	8.745	15%	24000.000	1.155	201'8-15/16"	115'	0.000	0'	100%
		B 3/4 (ECP - 24000)	8.745	15%	24000.000	1.155	201'8-15/16"	115'	0.000	0'	100%
		C 3/4 (ECP - 24000)	8.745	15%	24000.000	1.155	206'10-15/16"	124'	0.000	0'	100%
124.203	EHS	A 5/8 (ECP - 23000)	4.240	10%	23000.000	0.813	167'9-21/32"	115'	0.000	0'	100%
		B 5/8 (ECP - 23000)	4.240	10%	23000.000	0.813	167'9-21/32"	115'	0.000	0'	100%
		C 5/8 (ECP - 23000)	4.240	10%	23000.000	0.813	173'11-13/16"	124'	0.000	0'	100%

84.2031	EHS	A	9/16 (ECP - 23000)	3.500	10%	23000.000	0.671	140'10-1/32"	115'	0.000	0'	100%
		B	23000)	3.500	10%	23000.000	0.671	140'10-1/32"	115'	0.000	0'	100%
		C	9/16 (ECP - 23000)	3.500	10%	23000.000	0.671	148'1-3/4"	124'	0.000	0'	100%
			9/16 (ECP - 23000)									

Guy Data*(cont'd)*

Guy Elevation ft	*Mount Type*	*Torque-Arm Spread ft*	*Torque-Arm Leg Angle °*	*Torque-Arm Style*	*Torque-Arm Grade*	*Torque-Arm Type*	*Torque-Arm Size*
167.341	Torque Arm	6'10"	0.000	Channel	A36 (36 ksi)	Channel	C15x33.9
124.203	Corner						
84.2031	Corner						

Guy Data *(cont'd)*

Guy Elevation ft	*Diagonal Grade*	*Diagonal Type*	*Upper Diagonal Size*	*Lower Diagonal Size*	*Is Strap.*	*Pull-Off Grade*	*Pull-Off Type*	*Pull-Off Size*
167'4-3/32"	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Double Angle	2L2x2x1/4x3/8
124'2-7/16"	A572-50 (50 ksi)	Solid Round			Yes	A36 (36 ksi)	Flat Bar	4 1/2x3/8
84'2-7/16"	A572-50 (50 ksi)	Solid Round			Yes	A36 (36 ksi)	Flat Bar	4 1/2x3/8

Guy Data *(cont'd)*

Guy Elevation ft	*Cable Weight A K*	*Cable Weight B K*	*Cable Weight C K*	*Cable Weight D K*	*Tower Intercept A ft*	*Tower Intercept B ft*	*Tower Intercept C ft*	*Tower Intercept D ft*
167.341	0.233	0.233	0.239		2'7-15/16" 2.8 sec/pulse	2'7-15/16" 2.8 sec/pulse	2'9-19/32" 2.9 sec/pulse	
124.203	0.136	0.136	0.141		2'8-1/32" 2.8 sec/pulse	2'8-1/32" 2.8 sec/pulse	2'10-7/16" 2.9 sec/pulse	
84.2031	0.095	0.095	0.099		1'10-21/32" 2.4 sec/pulse	1'10-21/32" 2.4 sec/pulse	2'1-1/16" 2.5 sec/pulse	

Guy Data *(cont'd)*

	Torque Arm	*Pull Off*	*Diagonal*

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K_x	K_y	K_x	K_y	K_x	K_y
167.341	No	No	1	1	1	1	1	1
124.203	No	No			1	1	1	1
84.2031	No	No			1	1	1	1

Guy Data *(cont'd)*

Guy Elevation ft	Torque-Arm				Pull Off				Diagonal			
	Bolt Size in	Number	Net Width Deduct in	U	Bolt Size in	Number	Net Width Deduct in	U	Bolt Size in	Number	Net Width Deduct in	U
167.341	0.875 A325N	2	0.000	0.75	0.625 A325N	2	0.000	0.75	0.625 A325N	0	0.000	0.75
124.203	0.625 A325N	0	0.000	0.75	0.750 A325N	2	0.000	1	0.625 A325N	0	0.000	0.75
84.2031	0.625 A325N	0	0.000	0.75	0.750 A325N	2	0.000	1	0.625 A325N	0	0.000	0.75

Guy Pressures

Guy Elevation ft	Guy Location	z ft	q_z ksf	q_z Ice ksf	Ice Thickness in
167.341	A	83'8-1/16"	0.035		
	B	83'8-1/16"	0.035		
	C	83'8-1/16"	0.035		
124.203	A	62'1-7/32"	0.033		
	B	62'1-7/32"	0.033		
	C	62'1-7/32"	0.033		
84.2031	A	42'1-7/32"	0.031		
	B	42'1-7/32"	0.031		
	C	42'1-7/32"	0.031		

Guy-Mast Forces (Excluding Wind) - No Ice

Guy Elevation ft	Guy Location	Chord Angle °	Guy Tension Top Bottom K	F_x K	F_y K	F_z K	M_x kip-ft	M_y kip-ft	M_z kip-ft
167.341	A	55.952	8.938 8.745	-0.150	7.442	-4.948	-14.681	17.200	-25.428
	A	55.952	8.938 8.745	0.150	7.442	-4.948	-14.681	-17.200	25.428
	B	55.952	8.938 8.745	4.360	7.442	2.344	29.361	17.200	0.000
	B	55.952	8.938 8.745	4.210	7.442	2.603	-14.681	-17.200	-25.428
	C	53.889	8.938 8.745	-4.438	7.262	2.730	-14.326	18.083	24.813

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top / Bottom K	F_x	F_y	F_z	M_x	M_y	M_z
ft		°		K	K	K	kip-ft	kip-ft	kip-ft
	C	53.889	8.938	-4.583	7.262	2.478	28.651	-18.083	0.000
			8.745						
			Sum:	**-0.451**	44.293	**0.261**	**-0.355**	0.000	**-0.615**
124.203	A	47.697	4.341	0.000	3.241	-2.887	-6.394	0.000	0.000
			4.240						
	B	47.697	4.341	2.501	3.241	1.444	3.197	0.000	-5.537
			4.240						
	C	45.506	4.341	-2.604	3.131	1.503	3.088	-0.000	5.349
			4.240						
			Sum:	**-0.103**	9.614	**0.060**	**-0.109**	0.000	**-0.188**
84.2031	A	36.685	3.556	0.000	2.155	-2.829	-4.251	0.000	0.000
			3.500						
	B	36.685	3.556	2.450	2.155	1.415	2.126	0.000	-3.682
			3.500						
	C	34.607	3.556	-2.515	2.053	1.452	2.025	-0.000	3.508
			3.500						
			Sum:	**-0.065**	6.364	**0.037**	**-0.100**	0.000	**-0.173**

Guy-Mast Forces (Excluding Wind) - Service

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top / Bottom K	F_x	F_y	F_z	M_x	M_y	M_z
ft		°		K	K	K	kip-ft	kip-ft	kip-ft
167.341	A	55.952	8.938	-0.150	7.442	-4.948	-14.681	17.200	-25.428
			8.745						
	A	55.952	8.938	0.150	7.442	-4.948	-14.681	-17.200	25.428
			8.745						
	B	55.952	8.938	4.360	7.442	2.344	29.361	17.200	0.000
			8.745						
	B	55.952	8.938	4.210	7.442	2.603	-14.681	-17.200	-25.428
			8.745						
	C	53.889	8.938	-4.438	7.262	2.730	-14.326	18.083	24.813
			8.745						
	C	53.889	8.938	-4.583	7.262	2.478	28.651	-18.083	0.000
			8.745						
			Sum:	**-0.451**	44.293	**0.261**	**-0.355**	0.000	**-0.615**
124.203	A	47.697	4.341	0.000	3.241	-2.887	-6.394	0.000	0.000
			4.240						
	B	47.697	4.341	2.501	3.241	1.444	3.197	0.000	-5.537
			4.240						
	C	45.506	4.341	-2.604	3.131	1.503	3.088	-0.000	5.349
			4.240						
			Sum:	**-0.103**	9.614	**0.060**	**-0.109**	0.000	**-0.188**
84.2031	A	36.685	3.556	0.000	2.155	-2.829	-4.251	0.000	0.000
			3.500						
	B	36.685	3.556	2.450	2.155	1.415	2.126	0.000	-3.682
			3.500						
	C	34.607	3.556	-2.515	2.053	1.452	2.025	-0.000	3.508
			3.500						
			Sum:	**-0.065**	6.364	**0.037**	**-0.100**	0.000	**-0.173**

Guy-Tensioning Information

				Temperature At Time Of Tensioning													
				0 F		20 F		40 F		60 F		80 F		100 F		120 F	
Guy Elevation		H	V	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept
ft		ft	ft	K	ft	K	ft	K	ft	K	ft	K	ft	K	ft	K	ft
167.341	A	113.08	167.34	9.718	2.40	9.393	2.48	9.069	2.57	8.745	2.66	8.422	2.76	8.100	2.87	7.778	2.99
	B	113.08	167.34	9.718	2.40	9.393	2.48	9.069	2.57	8.745	2.66	8.422	2.76	8.100	2.87	7.778	2.99
	C	122.08	167.34	9.821	2.49	9.462	2.59	9.103	2.69	8.745	2.80	8.388	2.92	8.032	3.05	7.678	3.19
124.203	A	113.03	124.20	5.165	2.20	4.855	2.33	4.546	2.49	4.240	2.67	3.937	2.87	3.638	3.11	3.344	3.38
	B	113.03	124.20	5.165	2.20	4.855	2.33	4.546	2.49	4.240	2.67	3.937	2.87	3.638	3.11	3.344	3.38
	C	122.03	124.20	5.238	2.33	4.903	2.49	4.570	2.67	4.240	2.87	3.914	3.11	3.594	3.38	3.281	3.70
84.2031	A	113.03	84.20	4.587	1.44	4.221	1.57	3.859	1.71	3.500	1.89	3.146	2.10	2.800	2.36	2.465	2.67
	B	113.03	84.20	4.587	1.44	4.221	1.57	3.859	1.71	3.500	1.89	3.146	2.10	2.800	2.36	2.465	2.67
	C	122.03	84.20	4.639	1.58	4.256	1.72	3.876	1.89	3.500	2.09	3.131	2.33	2.771	2.63	2.425	3.00

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
**Face A*													
AVA6-50(1-1/4)	A	No	No	Ar (CaAa)	183' - 0'	0.000	0.27	9	5	0.500	1.560		0.000
ATCB-B01(5/16)	A	No	No	Ar (CaAa)	183' - 0'	0.000	0.11	3	1	0.500	0.315		0.000
WR-VG86ST-BRD(3/4)	A	No	No	Ar (CaAa)	183' - 0'	4.000	0.36	2	2	0.500	0.795		0.001
FB-L98B-002-XXX(3/8)	A	No	No	Ar (CaAa)	183' - 0'	4.000	0.22	2	2	0.500	0.394		0.000
WR-VG86ST-BRD(3/4)	A	No	No	Ar (CaAa)	183' - 0'	4.000	0.16	1	1	0.500	0.795		0.001
WR-VG66ST-BRD(7/8)	A	No	No	Ar (CaAa)	183' - 0'	0.000	-0.08	17	8	0.850 0.750	0.957		0.001
Feedline Ladder (Af) *	A	No	No	Af (CaAa)	179' - 0'	0.000	0	1	1	3.000	2.750		0.008
Face B													
AVA6-50(1-1/4)	B	No	No	Ar (CaAa)	183' - 0'	0.000	-0.25	3	3	0.500	1.560		0.000
AVA5-50(7/8) *	B	No	No	Ar (CaAa)	183' - 0'	0.000	0.23	7	3	0.500	1.102		0.000
EW52(ELLIPTICAL)	B	No	No	Ar (CaAa)	173' - 158'	0.000	0	1	1	0.500	2.250		0.001
EW52(ELLIPTICAL)	B	No	No	Ar (CaAa)	159' - 138'	0.000	0	2	2	0.500	2.250		0.001
EW52(ELLIPTICAL) *	B	No	No	Ar (CaAa)	137' - 0'	0.000	0	3	3	0.500	2.250		0.001
EW52(ELLIPTICAL) *	B	No	No	Ar (CaAa)	115' - 0'	0.000	0.42	1	1	1.000 0.750	2.250		0.001
ROHN Waveguide Brackets *	B	No	No	Af (CaAa)	176' - 0'	0.000	0.01	1	1	1.750	1.750		0.001

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
Face C													
LMR-400(3/8)	C	No	No	Ar (CaAa)	150' - 0'	0.000	0	2	2	0.500	0.405		0.000
HFT2406-48S	C	No	No	Ar (CaAa)	150' - 0'	1.000	0	2	2	0.500	2.000		0.003
V3-XXX(2) ROHN Waveguide Brackets *	C	No	No	Af (CaAa)	150' - 0'	0.000	0	1	1	1.750	1.750		0.001
Safety Line 3/8 *	C	No	No	Ar (CaAa)	184'9-13/16" - 0'	0.000	0.5	1	1	0.375	0.375		0.000

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	C_AA_A ft^2/ft	Weight klf
*								
*								
*								

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	184'9-13/16"-164' 9-13/16"	A	0.000	0.000	69.095	0.000	0.515
		B	0.000	0.000	27.638	0.000	0.082
		C	0.000	0.000	0.750	0.000	0.004
T2	164'9-13/16"-144' 9-13/16"	A	0.000	0.000	78.019	0.000	0.603
		B	0.000	0.000	38.537	0.000	0.116
		C	0.000	0.000	4.754	0.000	0.044
T3	144'9-13/16"-124' 9-13/16"	A	0.000	0.000	78.019	0.000	0.603
		B	0.000	0.000	41.912	0.000	0.125
		C	0.000	0.000	16.203	0.000	0.156
T4	124'9-13/16"-104' 9-13/16"	A	0.000	0.000	78.019	0.000	0.603
		B	0.000	0.000	46.412	0.000	0.136
		C	0.000	0.000	16.203	0.000	0.156
T5	104'9-13/16"-84'9-13/16"	A	0.000	0.000	78.019	0.000	0.603
		B	0.000	0.000	48.621	0.000	0.142
		C	0.000	0.000	16.203	0.000	0.156
T6	84'9-13/16"-64'9-1 3/16"	A	0.000	0.000	78.019	0.000	0.603
		B	0.000	0.000	48.621	0.000	0.142
		C	0.000	0.000	16.203	0.000	0.156
T7	64'9-13/16"-44'9-1 3/16"	A	0.000	0.000	78.019	0.000	0.603
		B	0.000	0.000	48.621	0.000	0.142
		C	0.000	0.000	16.203	0.000	0.156
T8	44'9-13/16"-24'9-1 3/16"	A	0.000	0.000	78.019	0.000	0.603
		B	0.000	0.000	48.621	0.000	0.142

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C	0.000	0.000	16.203	0.000	0.156
T9	24'9-13/16"-4'9-13/16"	A	0.000	0.000	78.019	0.000	0.603
		B	0.000	0.000	48.621	0.000	0.142
		C	0.000	0.000	16.203	0.000	0.156
T10	4'9-13/16"-0'	A	0.000	0.000	18.794	0.000	0.145
		B	0.000	0.000	11.712	0.000	0.034
		C	0.000	0.000	3.903	0.000	0.038

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	184'9-13/16"-164'9-13/16"	-1.600	-5.611	-1.600	-5.611
T2	164'9-13/16"-144'9-13/16"	-1.068	-5.556	-1.068	-5.556
T3	144'9-13/16"-124'9-13/16"	-0.917	-4.876	-0.917	-4.876
T4	124'9-13/16"-104'9-13/16"	-0.432	-4.585	-0.432	-4.585
T5	104'9-13/16"-84'9-13/16"	-0.104	-4.510	-0.104	-4.510
T6	84'9-13/16"-64'9-13/16"	-0.099	-4.365	-0.099	-4.365
T7	64'9-13/16"-44'9-13/16"	-0.104	-4.510	-0.104	-4.510
T8	44'9-13/16"-24'9-13/16"	-0.104	-4.510	-0.104	-4.510
T9	24'9-13/16"-4'9-13/16"	-0.104	-4.510	-0.104	-4.510
T10	4'9-13/16"-0'	-0.449	-3.460	-0.449	-3.460

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	2	AVA6-50(1-1/4)	164.82 - 183.00	0.6000	0.6000
T1	3	ATCB-B01(5/16)	164.82 - 183.00	0.6000	0.6000
T1	4	WR-VG86ST-BRD(3/4)	164.82 - 183.00	0.6000	0.6000
T1	5	FB-L98B-002-XXX(3/8)	164.82 - 183.00	0.6000	0.6000
T1	6	WR-VG86ST-BRD(3/4)	164.82 - 183.00	0.6000	0.6000
T1	7	WR-VG66ST-BRD(7/8)	164.82 - 183.00	0.6000	0.6000
T1	11	Feedline Ladder (Af)	164.82 - 179.00	0.6000	0.6000
T1	14	AVA6-50(1-1/4)	164.82 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	15	AVA5-50(7/8)	164.82 - 183.00	0.6000	0.6000
T1	17	EW52(ELLIPTICAL)	164.82 - 183.00	0.6000	0.6000
T1	23	ROHN Waveguide Brackets	164.82 - 173.00	0.6000	0.6000
T1	32	Safety Line 3/8	164.82 - 176.00	0.6000	0.6000
T2	2	AVA6-50(1-1/4)	144.82 - 184.82	0.6000	0.6000
T2	3	ATCB-B01(5/16)	144.82 - 164.82	0.6000	0.6000
T2	4	WR-VG86ST-BRD(3/4)	144.82 - 164.82	0.6000	0.6000
T2	5	FB-L98B-002-XXX(3/8)	144.82 - 164.82	0.6000	0.6000
T2	6	WR-VG86ST-BRD(3/4)	144.82 - 164.82	0.6000	0.6000
T2	7	WR-VG66ST-BRD(7/8)	144.82 - 164.82	0.6000	0.6000
T2	11	Feedline Ladder (Af)	144.82 - 164.82	0.6000	0.6000
T2	14	AVA6-50(1-1/4)	144.82 - 164.82	0.6000	0.6000
T2	15	AVA5-50(7/8)	144.82 - 164.82	0.6000	0.6000
T2	17	EW52(ELLIPTICAL)	158.00 - 164.82	0.6000	0.6000
T2	18	EW52(ELLIPTICAL)	144.82 - 159.00	0.6000	0.6000
T2	23	ROHN Waveguide Brackets	144.82 - 164.82	0.6000	0.6000
T2	28	LMR-400(3/8)	144.82 - 150.00	0.6000	0.6000
T2	29	HFT2406-48SV3-XXX(2)	144.82 - 150.00	0.6000	0.6000
T2	30	ROHN Waveguide Brackets	144.82 - 150.00	0.6000	0.6000
T2	32	Safety Line 3/8	144.82 - 164.82	0.6000	0.6000
T3	2	AVA6-50(1-1/4)	124.82 - 144.82	0.6000	0.6000
T3	3	ATCB-B01(5/16)	124.82 - 144.82	0.6000	0.6000
T3	4	WR-VG86ST-BRD(3/4)	124.82 - 144.82	0.6000	0.6000
T3	5	FB-L98B-002-XXX(3/8)	124.82 - 144.82	0.6000	0.6000
T3	6	WR-VG86ST-BRD(3/4)	124.82 - 144.82	0.6000	0.6000
T3	7	WR-VG66ST-BRD(7/8)	124.82 - 144.82	0.6000	0.6000
T3	11	Feedline Ladder (Af)	124.82 - 144.82	0.6000	0.6000
T3	14	AVA6-50(1-1/4)	124.82 - 144.82	0.6000	0.6000
T3	15	AVA5-50(7/8)	124.82 - 144.82	0.6000	0.6000
T3	18	EW52(ELLIPTICAL)	138.00 - 144.82	0.6000	0.6000
T3	19	EW52(ELLIPTICAL)	124.82 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			137.00		
T3	23	ROHN Waveguide Brackets	124.82 - 144.82	0.6000	0.6000
T3	28	LMR-400(3/8)	124.82 - 144.82	0.6000	0.6000
T3	29	HFT2406-48SV3-XXX(2)	124.82 - 144.82	0.6000	0.6000
T3	30	ROHN Waveguide Brackets	124.82 - 144.82	0.6000	0.6000
T3	32	Safety Line 3/8	124.82 - 144.82	0.6000	0.6000
T4	2	AVA6-50(1-1/4)	104.82 - 124.82	0.6000	0.6000
T4	3	ATCB-B01(5/16)	104.82 - 124.82	0.6000	0.6000
T4	4	WR-VG86ST-BRD(3/4)	104.82 - 124.82	0.6000	0.6000
T4	5	FB-L98B-002-XXX(3/8)	104.82 - 124.82	0.6000	0.6000
T4	6	WR-VG86ST-BRD(3/4)	104.82 - 124.82	0.6000	0.6000
T4	7	WR-VG66ST-BRD(7/8)	104.82 - 124.82	0.6000	0.6000
T4	11	Feedline Ladder (Af)	104.82 - 124.82	0.6000	0.6000
T4	14	AVA6-50(1-1/4)	104.82 - 124.82	0.6000	0.6000
T4	15	AVA5-50(7/8)	104.82 - 124.82	0.6000	0.6000
T4	19	EW52(ELLIPTICAL)	104.82 - 124.82	0.6000	0.6000
T4	21	EW52(ELLIPTICAL)	104.82 - 115.00	0.6000	0.6000
T4	23	ROHN Waveguide Brackets	104.82 - 124.82	0.6000	0.6000
T4	28	LMR-400(3/8)	104.82 - 124.82	0.6000	0.6000
T4	29	HFT2406-48SV3-XXX(2)	104.82 - 124.82	0.6000	0.6000
T4	30	ROHN Waveguide Brackets	104.82 - 124.82	0.6000	0.6000
T4	32	Safety Line 3/8	104.82 - 124.82	0.6000	0.6000
T5	2	AVA6-50(1-1/4)	84.82 - 104.82	0.6000	0.6000
T5	3	ATCB-B01(5/16)	84.82 - 104.82	0.6000	0.6000
T5	4	WR-VG86ST-BRD(3/4)	84.82 - 104.82	0.6000	0.6000
T5	5	FB-L98B-002-XXX(3/8)	84.82 - 104.82	0.6000	0.6000
T5	6	WR-VG86ST-BRD(3/4)	84.82 - 104.82	0.6000	0.6000
T5	7	WR-VG66ST-BRD(7/8)	84.82 - 104.82	0.6000	0.6000
T5	11	Feedline Ladder (Af)	84.82 - 104.82	0.6000	0.6000
T5	14	AVA6-50(1-1/4)	84.82 - 104.82	0.6000	0.6000
T5	15	AVA5-50(7/8)	84.82 - 104.82	0.6000	0.6000
T5	19	EW52(ELLIPTICAL)	84.82 - 104.82	0.6000	0.6000
T5	21	EW52(ELLIPTICAL)	84.82 - 104.82	0.6000	0.6000
T5	23	ROHN Waveguide Brackets	84.82 - 104.82	0.6000	0.6000
T5	28	LMR-400(3/8)	84.82 - 104.82	0.6000	0.6000
T5	29	HFT2406-48SV3-XXX(2)	84.82 - 104.82	0.6000	0.6000
T5	30	ROHN Waveguide Brackets	84.82 - 104.82	0.6000	0.6000
T5	32	Safety Line 3/8	84.82 - 104.82	0.6000	0.6000
T6	2	AVA6-50(1-1/4)	64.82 - 84.82	0.6000	0.6000
T6	3	ATCB-B01(5/16)	64.82 - 84.82	0.6000	0.6000
T6	4	WR-VG86ST-BRD(3/4)	64.82 - 84.82	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T6	5	FB-L98B-002-XXX(3/8)	64.82 - 84.82	0.6000	0.6000
T6	6	WR-VG86ST-BRD(3/4)	64.82 - 84.82	0.6000	0.6000
T6	7	WR-VG66ST-BRD(7/8)	64.82 - 84.82	0.6000	0.6000
T6	11	Feedline Ladder (Af)	64.82 - 84.82	0.6000	0.6000
T6	14	AVA6-50(1-1/4)	64.82 - 84.82	0.6000	0.6000
T6	15	AVA5-50(7/8)	64.82 - 84.82	0.6000	0.6000
T6	19	EW52(ELLIPTICAL)	64.82 - 84.82	0.6000	0.6000
T6	21	EW52(ELLIPTICAL)	64.82 - 84.82	0.6000	0.6000
T6	23	ROHN Waveguide Brackets	64.82 - 84.82	0.6000	0.6000
T6	28	LMR-400(3/8)	64.82 - 84.82	0.6000	0.6000
T6	29	HFT2406-48SV3-XXX(2)	64.82 - 84.82	0.6000	0.6000
T6	30	ROHN Waveguide Brackets	64.82 - 84.82	0.6000	0.6000
T6	32	Safety Line 3/8	64.82 - 84.82	0.6000	0.6000
T7	2	AVA6-50(1-1/4)	44.82 - 64.82	0.6000	0.6000
T7	3	ATCB-B01(5/16)	44.82 - 64.82	0.6000	0.6000
T7	4	WR-VG86ST-BRD(3/4)	44.82 - 64.82	0.6000	0.6000
T7	5	FB-L98B-002-XXX(3/8)	44.82 - 64.82	0.6000	0.6000
T7	6	WR-VG86ST-BRD(3/4)	44.82 - 64.82	0.6000	0.6000
T7	7	WR-VG66ST-BRD(7/8)	44.82 - 64.82	0.6000	0.6000
T7	11	Feedline Ladder (Af)	44.82 - 64.82	0.6000	0.6000
T7	14	AVA6-50(1-1/4)	44.82 - 64.82	0.6000	0.6000
T7	15	AVA5-50(7/8)	44.82 - 64.82	0.6000	0.6000
T7	19	EW52(ELLIPTICAL)	44.82 - 64.82	0.6000	0.6000
T7	21	EW52(ELLIPTICAL)	44.82 - 64.82	0.6000	0.6000
T7	23	ROHN Waveguide Brackets	44.82 - 64.82	0.6000	0.6000
T7	28	LMR-400(3/8)	44.82 - 64.82	0.6000	0.6000
T7	29	HFT2406-48SV3-XXX(2)	44.82 - 64.82	0.6000	0.6000
T7	30	ROHN Waveguide Brackets	44.82 - 64.82	0.6000	0.6000
T7	32	Safety Line 3/8	44.82 - 64.82	0.6000	0.6000
T8	2	AVA6-50(1-1/4)	24.82 - 44.82	0.6000	0.6000
T8	3	ATCB-B01(5/16)	24.82 - 44.82	0.6000	0.6000
T8	4	WR-VG86ST-BRD(3/4)	24.82 - 44.82	0.6000	0.6000
T8	5	FB-L98B-002-XXX(3/8)	24.82 - 44.82	0.6000	0.6000
T8	6	WR-VG86ST-BRD(3/4)	24.82 - 44.82	0.6000	0.6000
T8	7	WR-VG66ST-BRD(7/8)	24.82 - 44.82	0.6000	0.6000
T8	11	Feedline Ladder (Af)	24.82 - 44.82	0.6000	0.6000
T8	14	AVA6-50(1-1/4)	24.82 - 44.82	0.6000	0.6000
T8	15	AVA5-50(7/8)	24.82 - 44.82	0.6000	0.6000
T8	19	EW52(ELLIPTICAL)	24.82 - 44.82	0.6000	0.6000
T8	21	EW52(ELLIPTICAL)	24.82 - 44.82	0.6000	0.6000
T8	23	ROHN Waveguide Brackets	24.82 - 44.82	0.6000	0.6000
T8	28	LMR-400(3/8)	24.82 - 44.82	0.6000	0.6000
T8	29	HFT2406-48SV3-XXX(2)	24.82 - 44.82	0.6000	0.6000
T8	30	ROHN Waveguide Brackets	24.82 - 44.82	0.6000	0.6000
T8	32	Safety Line 3/8	24.82 - 44.82	0.6000	0.6000
T9	2	AVA6-50(1-1/4)	4.82 - 24.82	0.6000	0.6000
T9	3	ATCB-B01(5/16)	4.82 - 24.82	0.6000	0.6000
T9	4	WR-VG86ST-BRD(3/4)	4.82 - 24.82	0.6000	0.6000
T9	5	FB-L98B-002-XXX(3/8)	4.82 - 24.82	0.6000	0.6000
T9	6	WR-VG86ST-BRD(3/4)	4.82 - 24.82	0.6000	0.6000
T9	7	WR-VG66ST-BRD(7/8)	4.82 - 24.82	0.6000	0.6000
T9	11	Feedline Ladder (Af)	4.82 - 24.82	0.6000	0.6000
T9	14	AVA6-50(1-1/4)	4.82 - 24.82	0.6000	0.6000
T9	15	AVA5-50(7/8)	4.82 - 24.82	0.6000	0.6000
T9	19	EW52(ELLIPTICAL)	4.82 - 24.82	0.6000	0.6000
T9	21	EW52(ELLIPTICAL)	4.82 - 24.82	0.6000	0.6000
T9	23	ROHN Waveguide Brackets	4.82 - 24.82	0.6000	0.6000
T9	28	LMR-400(3/8)	4.82 - 24.82	0.6000	0.6000
T9	29	HFT2406-48SV3-XXX(2)	4.82 - 24.82	0.6000	0.6000
T9	30	ROHN Waveguide Brackets	4.82 - 24.82	0.6000	0.6000
T9	32	Safety Line 3/8	4.82 - 24.82	0.6000	0.6000
T10	2	AVA6-50(1-1/4)	0.00 - 4.82	0.4608	0.4608

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T10	3	ATCB-B01(5/16)	0.00 - 4.82	0.4608	0.4608
T10	4	WR-VG86ST-BRD(3/4)	0.00 - 4.82	0.4608	0.4608
T10	5	FB-L98B-002-XXX(3/8)	0.00 - 4.82	0.4608	0.4608
T10	6	WR-VG86ST-BRD(3/4)	0.00 - 4.82	0.4608	0.4608
T10	7	WR-VG66ST-BRD(7/8)	0.00 - 4.82	0.4608	0.4608
T10	11	Feedline Ladder (Af)	0.00 - 4.82	0.4608	0.4608
T10	14	AVA6-50(1-1/4)	0.00 - 4.82	0.4608	0.4608
T10	15	AVA5-50(7/8)	0.00 - 4.82	0.4608	0.4608
T10	19	EW52(ELLIPTICAL)	0.00 - 4.82	0.4608	0.4608
T10	21	EW52(ELLIPTICAL)	0.00 - 4.82	0.4608	0.4608
T10	23	ROHN Waveguide Brackets	0.00 - 4.82	0.4608	0.4608
T10	28	LMR-400(3/8)	0.00 - 4.82	0.4608	0.4608
T10	29	HFT2406-48SV3-XXX(2)	0.00 - 4.82	0.4608	0.4608
T10	30	ROHN Waveguide Brackets	0.00 - 4.82	0.4608	0.4608
T10	32	Safety Line 3/8	0.00 - 4.82	0.4608	0.4608

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Lightning Rod 5/8" x 8'	B	From Leg	0.000 0' 4'	0.000	184'9-13/16"	No Ice	0.500	0.500	0.031
*									
(2) AIR 6419 B77G_2024 w/ Mount Pipe	A	From Leg	4.000 0' 4'	0.000	183'	No Ice	3.430	1.950	0.077
(2) AIR 6419 B77G_2024 w/ Mount Pipe	B	From Leg	4.000 0' 3'	0.000	183'	No Ice	3.430	1.950	0.077
(2) AIR 6419 B77G_2024 w/ Mount Pipe	C	From Leg	4.000 0' 3'	0.000	183'	No Ice	3.430	1.950	0.077
(2) AIR 6449 B77D_CCIV3 w/ Mount Pipe	A	From Leg	4.000 0' 0'	0.000	183'	No Ice	3.650	2.720	0.110
(2) AIR 6449 B77D_CCIV3 w/ Mount Pipe	B	From Leg	4.000 0' 0'	0.000	183'	No Ice	3.650	2.720	0.110
(2) AIR 6449 B77D_CCIV3 w/ Mount Pipe	C	From Leg	4.000 0' 0'	0.000	183'	No Ice	3.650	2.720	0.110
(2) 2NN2HH-33B-R4 w/ Mount Pipe	A	From Leg	4.000 0' 1'	0.000	183'	No Ice	9.199	4.567	0.180
(2) 2NN2HH-33B-R4 w/ Mount Pipe	B	From Leg	4.000 0' 1'	0.000	183'	No Ice	9.199	4.567	0.180
(2) 2NN2HH-33B-R4 w/ Mount Pipe	C	From Leg	4.000 0'	0.000	183'	No Ice	9.199	4.567	0.180

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(2) RRUS 32	A	From Leg	1' 4.000 0'	0.000	183'	No Ice	2.857	1.777	0.055
RRUS 32	A	From Leg	-3' 4.000 0'	0.000	183'	No Ice	2.857	1.777	0.055
(2) RRUS 32	B	From Leg	3' 4.000 0'	0.000	183'	No Ice	2.857	1.777	0.055
RRUS 32	C	From Leg	-3' 4.000 0'	0.000	183'	No Ice	2.857	1.777	0.055
RRUS 32 B2	A	From Leg	3' 4.000 0'	0.000	183'	No Ice	2.731	1.668	0.053
RRUS 32 B2	A	From Leg	-3' 4.000 0'	0.000	183'	No Ice	2.731	1.668	0.053
(2) RRUS 32 B2	B	From Leg	3' 4.000 0'	0.000	183'	No Ice	2.731	1.668	0.053
(2) RRUS 32 B2	C	From Leg	3' 4.000 0'	0.000	183'	No Ice	2.731	1.668	0.053
(2) CBC1726-DP-2X	A	From Leg	-3' 4.000 0'	0.000	183'	No Ice	0.240	0.240	0.010
(2) CBC1726-DP-2X	B	From Leg	-3' 4.000 0'	0.000	183'	No Ice	0.240	0.240	0.010
(2) CBC1726-DP-2X	C	From Leg	-3' 4.000 0'	0.000	183'	No Ice	0.240	0.240	0.010
(2) CBC1726-DP-2X	A	From Leg	-3' 4.000 0'	0.000	183'	No Ice	0.240	0.240	0.010
(2) CBC1726-DP-2X	B	From Leg	0' 4.000 0'	0.000	183'	No Ice	0.240	0.240	0.010
(2) CBC1726-DP-2X	C	From Leg	0' 4.000 0'	0.000	183'	No Ice	0.240	0.240	0.010
RRUS 4478 B14	A	From Leg	0' 4.000 0'	0.000	183'	No Ice	1.843	1.059	0.060
RRUS 4478 B14	B	From Leg	1' 4.000 0'	0.000	183'	No Ice	1.843	1.059	0.060
RRUS 4478 B14	C	From Leg	1' 4.000 0'	0.000	183'	No Ice	1.843	1.059	0.060
DC9-48-60-24-PC16-EV	A	From Leg	1' 4.000 0'	0.000	183'	No Ice	2.256	1.115	0.035
DC9-48-60-24-PC16-EV	B	From Leg	3' 4.000 0'	0.000	183'	No Ice	2.256	1.115	0.035

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(2) DC9-48-60-24-PC16-EV	C	From Leg	4.000 0' 3'	0.000	183'	No Ice	2.256	1.115	0.035
(2) Radio 4449 B5 B12A_2024	A	From Leg	4.000 0' 3'	0.000	183'	No Ice	1.650	1.300	0.075
(2) Radio 4449 B5 B12A_2024	B	From Leg	4.000 0' 3'	0.000	183'	No Ice	1.650	1.300	0.075
(2) Radio 4449 B5 B12A_2024	C	From Leg	4.000 0' 3'	0.000	183'	No Ice	1.650	1.300	0.075
RRUS 32 B66	A	From Leg	4.000 0' -3'	0.000	183'	No Ice	2.743	1.668	0.053
RRUS 32 B66	B	From Leg	4.000 0' -3'	0.000	183'	No Ice	2.743	1.668	0.053
RRUS 32 B66	B	From Leg	4.000 0' 3'	0.000	183'	No Ice	2.743	1.668	0.053
RRUS 32 B66	C	From Leg	4.000 0' -3'	0.000	183'	No Ice	2.743	1.668	0.053
(2) RRUS 32 B66	C	From Leg	4.000 0' 3'	0.000	183'	No Ice	2.743	1.668	0.053
DC6-48-60-18-8F_070710	A	From Leg	4.000 0' 3'	0.000	183'	No Ice	2.200	1.811	0.019
DC6-48-60-18-8F_070710	B	From Leg	4.000 0' 3'	0.000	183'	No Ice	2.200	1.811	0.019
6' x 2" Mount Pipe	A	From Leg	2.000 0' -3'	0.000	183'	No Ice	1.425	1.425	0.022
6' x 2" Mount Pipe	B	From Leg	2.000 0' -3'	0.000	183'	No Ice	1.425	1.425	0.022
6' x 2" Mount Pipe	C	From Leg	2.000 0' -3'	0.000	183'	No Ice	1.425	1.425	0.022
5' x 2" Pipe Mount	A	From Leg	4.000 0' 0'	0.000	183'	No Ice	1.188	1.188	0.018
5' x 2" Pipe Mount	B	From Leg	4.000 0' 0'	0.000	183'	No Ice	1.188	1.188	0.018
5' x 2" Pipe Mount	C	From Leg	4.000 0' 0'	0.000	183'	No Ice	1.188	1.188	0.018
Sector Mount [SM 502-3] *	C	None		0.000	183'	No Ice	29.820	29.820	1.673
Pipe Mount [PM 601-1]	C	From Leg	0.500 0' 0'	0.000	173'	No Ice	1.320	1.320	0.065

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
* Pipe Mount [PM 601-1]	B	From Leg	0.500 0' 0'	0.000	159'	No Ice	1.320	1.320	0.065
* (2) ODU600	B	From Leg	4.000 0' 0'	0.000	150'	No Ice	0.901	0.425	0.011
(2) NNSS-65C-HG-R2B_20241102	A	From Leg	4.000 0' 0'	0.000	150'	No Ice	9.740	3.850	0.107
NNSS-65C-HG-R2B_20241102 w/ Mount Pipe	B	From Leg	4.000 0' 0'	0.000	150'	No Ice	9.700	5.090	0.140
NNSS-65C-HG-R2B_20241102 w/ Mount Pipe	C	From Leg	4.000 0' 0'	0.000	150'	No Ice	9.700	5.090	0.140
(2) AIR 3283 B25 B66	A	From Leg	4.000 0' 0'	0.000	150'	No Ice	7.873	4.575	0.104
AIR 3283 B25 B66 w/ Mount Pipe	B	From Leg	4.000 0' 0'	0.000	150'	No Ice	8.111	5.747	0.122
AIR 3283 B25 B66 w/ Mount Pipe	C	From Leg	4.000 0' 0'	0.000	150'	No Ice	8.111	5.747	0.122
AIR 6419	A	From Leg	4.000 0' 0'	0.000	150'	No Ice	3.841	1.512	0.055
(2) AIR 6419	B	From Leg	4.000 0' 0'	0.000	150'	No Ice	3.841	1.512	0.055
AIR 6419 w/ Mount Pipe	C	From Leg	4.000 0' 0'	0.000	150'	No Ice	3.791	2.147	0.069
(2) RADIO 4490HP 44B5 44B13 C	A	From Leg	4.000 0' 0'	0.000	150'	No Ice	2.217	0.994	0.068
RADIO 4490HP 44B5 44B13 C	B	From Leg	4.000 0' 0'	0.000	150'	No Ice	2.217	0.994	0.068
RADIO 4490HP 44B5 44B13 C	C	From Leg	4.000 0' 0'	0.000	150'	No Ice	2.217	0.994	0.068
(2) RVZDC-6627-PF-48	A	From Leg	4.000 0' 0'	0.000	150'	No Ice	3.792	2.514	0.032
(5) 8' x 2" Mount Pipe	A	From Leg	4.000 0' 0'	0.000	150'	No Ice	1.900	1.900	0.029
(2) 8' x 2" Mount Pipe	B	From Leg	4.000 0' 0'	0.000	150'	No Ice	1.900	1.900	0.029
8' x 2" Mount Pipe	C	From Leg	4.000 0' 0'	0.000	150'	No Ice	1.900	1.900	0.029
5' x 2" Pipe Mount	B	From Leg	4.000	0.000	150'	No Ice	1.188	1.188	0.018

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0' 0'						
6' x 2" Mount Pipe	B	From Leg	2.000 0' 0'	0.000	150'	No Ice	1.425	1.425	0.022
6' x 2" Horizontal Mount Pipe	A	From Leg	2.000 0' 0'	0.000	150'	No Ice	1.140	0.010	0.016
6' x 2" Horizontal Mount Pipe	B	From Leg	2.000 0' 0'	0.000	150'	No Ice	1.140	0.010	0.016
(2) L 2 1/2x2 1/2x1/4x8'	A	From Leg	4.000 0' 3'	0.000	150'	No Ice	2.000	0.007	0.062
(2) L 2 1/2x2 1/2x1/4x8'	B	From Leg	4.000 0' 3'	0.000	150'	No Ice	2.000	0.007	0.062
(2) L 2 1/2x2 1/2x1/4x8'	C	From Leg	4.000 0' 3'	0.000	150'	No Ice	2.000	0.007	0.062
Sector Mount [SM 502-3]	C	None		0.000	150'	No Ice	29.820	29.820	1.673
Side Arm Mount [SO 202-1]	A	From Leg	4.000 0' 0'	0.000	150'	No Ice	1.780	2.970	0.110
*									
Pipe Mount [PM 601-1]	C	From Leg	0.500 0' 0'	0.000	137'	No Ice	1.320	1.320	0.065
*									
Pipe Mount [PM 601-1]	B	From Leg	0.500 0' 0'	0.000	115'	No Ice	1.320	1.320	0.065
*									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
HDX10-59	C	Paraboloid w/Shroud (HP)	From Leg	1.000 0' 0'	71.000		173'	10.875	No Ice	92.890	0.541
*											
Andrew HSX6-59A	B	Paraboloid w/Shroud (HP)	From Leg	1.000 0' -1'	42.000		159'	6.000	No Ice	28.300	0.143
*											
Commscope VHLPX3-11W	C	Paraboloid w/Shroud (HP)	From Leg	4.000 0'	90.000		150'	3.283	No Ice	8.467	0.053

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'							
HSX8-59	C	Paraboloid w/Shroud (HP)	From Leg	1.000 0' 0'	68.000		137'	8.875	No Ice	61.862	0.500
*											
HSX6-59-P3A/B	B	Paraboloid w/Shroud (HP)	From Leg	1.000 0' 1'	35.000		115'	6.000	No Ice	28.270	0.320
*											

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice+1.0 Guy
3	1.2D+1.0W (pattern 1) 0 deg - No Ice+1.0 Guy
4	1.2D+1.0W (pattern 2) 0 deg - No Ice+1.0 Guy
5	1.2D+1.0W (pattern 3) 0 deg - No Ice+1.0 Guy
6	1.2D+1.0W (pattern 4) 0 deg - No Ice+1.0 Guy
7	1.2 Dead+1.0 Wind 30 deg - No Ice+1.0 Guy
8	1.2D+1.0W (pattern 1) 30 deg - No Ice+1.0 Guy
9	1.2D+1.0W (pattern 2) 30 deg - No Ice+1.0 Guy
10	1.2D+1.0W (pattern 3) 30 deg - No Ice+1.0 Guy
11	1.2D+1.0W (pattern 4) 30 deg - No Ice+1.0 Guy
12	1.2 Dead+1.0 Wind 60 deg - No Ice+1.0 Guy
13	1.2D+1.0W (pattern 1) 60 deg - No Ice+1.0 Guy
14	1.2D+1.0W (pattern 2) 60 deg - No Ice+1.0 Guy
15	1.2D+1.0W (pattern 3) 60 deg - No Ice+1.0 Guy
16	1.2D+1.0W (pattern 4) 60 deg - No Ice+1.0 Guy
17	1.2 Dead+1.0 Wind 90 deg - No Ice+1.0 Guy
18	1.2D+1.0W (pattern 1) 90 deg - No Ice+1.0 Guy
19	1.2D+1.0W (pattern 2) 90 deg - No Ice+1.0 Guy
20	1.2D+1.0W (pattern 3) 90 deg - No Ice+1.0 Guy
21	1.2D+1.0W (pattern 4) 90 deg - No Ice+1.0 Guy
22	1.2 Dead+1.0 Wind 120 deg - No Ice+1.0 Guy
23	1.2D+1.0W (pattern 1) 120 deg - No Ice+1.0 Guy
24	1.2D+1.0W (pattern 2) 120 deg - No Ice+1.0 Guy
25	1.2D+1.0W (pattern 3) 120 deg - No Ice+1.0 Guy
26	1.2D+1.0W (pattern 4) 120 deg - No Ice+1.0 Guy
27	1.2 Dead+1.0 Wind 150 deg - No Ice+1.0 Guy
28	1.2D+1.0W (pattern 1) 150 deg - No Ice+1.0 Guy
29	1.2D+1.0W (pattern 2) 150 deg - No Ice+1.0 Guy
30	1.2D+1.0W (pattern 3) 150 deg - No Ice+1.0 Guy
31	1.2D+1.0W (pattern 4) 150 deg - No Ice+1.0 Guy
32	1.2 Dead+1.0 Wind 180 deg - No Ice+1.0 Guy
33	1.2D+1.0W (pattern 1) 180 deg - No Ice+1.0 Guy
34	1.2D+1.0W (pattern 2) 180 deg - No Ice+1.0 Guy
35	1.2D+1.0W (pattern 3) 180 deg - No Ice+1.0 Guy
36	1.2D+1.0W (pattern 4) 180 deg - No Ice+1.0 Guy
37	1.2 Dead+1.0 Wind 210 deg - No Ice+1.0 Guy
38	1.2D+1.0W (pattern 1) 210 deg - No Ice+1.0 Guy
39	1.2D+1.0W (pattern 2) 210 deg - No Ice+1.0 Guy
40	1.2D+1.0W (pattern 3) 210 deg - No Ice+1.0 Guy
41	1.2D+1.0W (pattern 4) 210 deg - No Ice+1.0 Guy

Comb. No.	Description
42	1.2 Dead+1.0 Wind 240 deg - No Ice+1.0 Guy
43	1.2D+1.0W (pattern 1) 240 deg - No Ice+1.0 Guy
44	1.2D+1.0W (pattern 2) 240 deg - No Ice+1.0 Guy
45	1.2D+1.0W (pattern 3) 240 deg - No Ice+1.0 Guy
46	1.2D+1.0W (pattern 4) 240 deg - No Ice+1.0 Guy
47	1.2 Dead+1.0 Wind 270 deg - No Ice+1.0 Guy
48	1.2D+1.0W (pattern 1) 270 deg - No Ice+1.0 Guy
49	1.2D+1.0W (pattern 2) 270 deg - No Ice+1.0 Guy
50	1.2D+1.0W (pattern 3) 270 deg - No Ice+1.0 Guy
51	1.2D+1.0W (pattern 4) 270 deg - No Ice+1.0 Guy
52	1.2 Dead+1.0 Wind 300 deg - No Ice+1.0 Guy
53	1.2D+1.0W (pattern 1) 300 deg - No Ice+1.0 Guy
54	1.2D+1.0W (pattern 2) 300 deg - No Ice+1.0 Guy
55	1.2D+1.0W (pattern 3) 300 deg - No Ice+1.0 Guy
56	1.2D+1.0W (pattern 4) 300 deg - No Ice+1.0 Guy
57	1.2 Dead+1.0 Wind 330 deg - No Ice+1.0 Guy
58	1.2D+1.0W (pattern 1) 330 deg - No Ice+1.0 Guy
59	1.2D+1.0W (pattern 2) 330 deg - No Ice+1.0 Guy
60	1.2D+1.0W (pattern 3) 330 deg - No Ice+1.0 Guy
61	1.2D+1.0W (pattern 4) 330 deg - No Ice+1.0 Guy
62	Dead+Wind 0 deg - Service+Guy
63	Dead+Wind 30 deg - Service+Guy
64	Dead+Wind 60 deg - Service+Guy
65	Dead+Wind 90 deg - Service+Guy
66	Dead+Wind 120 deg - Service+Guy
67	Dead+Wind 150 deg - Service+Guy
68	Dead+Wind 180 deg - Service+Guy
69	Dead+Wind 210 deg - Service+Guy
70	Dead+Wind 240 deg - Service+Guy
71	Dead+Wind 270 deg - Service+Guy
72	Dead+Wind 300 deg - Service+Guy
73	Dead+Wind 330 deg - Service+Guy

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	184.818 - 164.818	Leg	Max Tension	54	39.537	0.815	0.078
			Max. Compression	25	-48.534	-0.528	-0.386
			Max. Mx	18	-9.129	-1.672	0.364
			Max. My	4	13.209	0.589	1.910
			Max. Vy	18	-3.427	-1.672	0.364
			Max. Vx	33	-3.802	0.091	-1.773
		Diagonal	Max Tension	23	6.270	0.000	0.000
			Max. Compression	20	-6.437	0.000	0.000
			Max. Mx	30	2.572	0.003	0.000
			Max. My	4	0.331	0.000	0.000
			Max. Vy	30	-0.003	0.000	0.000
			Max. Vx	4	-0.000	0.000	0.000
		Top Girt	Max Tension	15	0.034	0.000	0.000
			Max. Compression	4	-0.110	0.000	0.000
			Max. Mx	26	-0.045	0.002	0.000
			Max. My	4	-0.069	0.000	-0.000
			Max. Vy	26	-0.002	0.000	0.000
			Max. Vx	4	0.000	0.000	0.000
		Bottom Girt	Max Tension	23	1.364	0.000	0.000
			Max. Compression	34	-0.137	0.000	0.000

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	57	0.052	0.002	0.000
			Max. My	4	0.199	0.000	-0.000
			Max. Vy	57	-0.002	0.000	0.000
			Max. Vx	4	0.000	0.000	0.000
		Guy A	Bottom Tension	28	25.343		
			Top Tension	28	25.533		
			Top Cable Vert	28	21.223		
			Top Cable Norm	28	14.196		
			Top Cable Tan	28	0.026		
			Bot Cable Vert	28	-20.832		
			Bot Cable Norm	28	14.430		
			Bot Cable Tan	28	0.185		
		Guy B	Bottom Tension	58	24.500		
			Top Tension	58	24.691		
			Top Cable Vert	58	20.529		
			Top Cable Norm	58	13.719		
			Top Cable Tan	58	0.042		
			Bot Cable Vert	58	-20.138		
			Bot Cable Norm	58	13.953		
			Bot Cable Tan	58	0.169		
		Guy C	Bottom Tension	18	23.349		
			Top Tension	18	23.540		
			Top Cable Vert	18	19.102		
			Top Cable Norm	18	13.757		
			Top Cable Tan	18	0.017		
			Bot Cable Vert	18	-18.696		
			Bot Cable Norm	18	13.987		
			Bot Cable Tan	18	0.173		
		Top Guy Pull-Off	Max Tension	53	12.413	0.000	0.000
			Max. Compression	23	-10.929	0.000	0.000
			Max. Mx	21	-7.197	0.012	0.000
			Max. My	4	4.607	0.000	-0.000
			Max. Vy	21	-0.014	0.000	0.000
			Max. Vx	4	0.000	0.000	0.000
		Torque Arm Top	Max Tension	18	15.316	0.000	0.000
			Max. Compression	18	-7.540	0.000	0.000
			Max. Mx	53	-5.238	-64.748	-0.000
			Max. My	4	-5.792	-48.840	-0.000
			Max. Vy	53	19.022	-64.748	-0.000
			Max. Vx	4	-0.000	-48.840	-0.000
T2	164.818 - 144.818	Leg	Max Tension	15	3.631	-0.781	0.471
			Max. Compression	25	-48.124	-0.212	-0.236
			Max. Mx	18	-9.127	-1.280	0.268
			Max. My	28	-7.454	-0.279	-1.349
			Max. Vy	18	-3.434	-1.280	0.268
			Max. Vx	33	-3.799	0.071	-1.337
		Diagonal	Max Tension	53	3.441	0.000	0.000
			Max. Compression	53	-3.793	0.000	0.000
			Max. Mx	30	-2.033	0.001	0.000
			Max. My	4	-1.493	0.000	0.000
			Max. Vy	30	-0.002	0.000	0.000
			Max. Vx	4	-0.000	0.000	0.000
		Top Girt	Max Tension	53	1.182	0.000	0.000
			Max. Compression	4	-0.001	0.000	0.000
			Max. Mx	57	1.128	0.002	0.000
			Max. My	4	0.787	0.000	-0.000
			Max. Vy	57	-0.002	0.000	0.000
			Max. Vx	4	0.000	0.000	0.000
		Bottom Girt	Max Tension	4	0.655	0.000	0.000
			Max. Compression	34	-0.239	0.000	0.000

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	36	-0.211	0.002	0.000
			Max. My	4	0.655	0.000	-0.000
			Max. Vy	36	-0.002	0.000	0.000
			Max. Vx	4	0.000	0.000	0.000
T3	144.818 - 124.818	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	24	-47.999	0.372	0.447
			Max. Mx	23	-33.963	1.926	0.448
			Max. My	36	-31.905	-0.142	0.988
			Max. Vy	19	3.490	0.852	-0.105
			Max. Vx	36	3.039	-0.204	0.598
		Diagonal	Max Tension	19	6.201	0.000	0.000
			Max. Compression	19	-5.965	0.000	0.000
			Max. Mx	28	2.834	0.001	0.000
			Max. My	4	-0.429	0.000	0.000
			Max. Vy	28	-0.002	0.000	0.000
			Max. Vx	4	-0.000	0.000	0.000
		Top Girt	Max Tension	59	0.569	0.000	0.000
			Max. Compression	29	-0.368	0.000	0.000
			Max. Mx	50	0.011	0.002	0.000
			Max. My	4	0.477	0.000	-0.000
			Max. Vy	50	-0.002	0.000	0.000
			Max. Vx	4	0.000	0.000	0.000
		Bottom Girt	Max Tension	49	1.683	0.000	0.000
			Max. Compression	21	-1.503	0.000	0.000
			Max. Mx	55	0.539	0.002	0.000
			Max. My	28	1.459	0.000	-0.000
			Max. Vy	55	-0.002	0.000	0.000
			Max. Vx	28	0.000	0.000	0.000
T4	124.818 - 104.818	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	24	-48.794	0.367	-0.120
			Max. Mx	17	-37.942	-1.443	-0.092
			Max. My	2	-40.408	-0.125	1.316
			Max. Vy	19	3.494	0.852	-0.105
			Max. Vx	36	3.048	0.173	-1.274
		Diagonal	Max Tension	25	3.503	0.000	0.000
			Max. Compression	60	-3.623	0.000	0.000
			Max. Mx	23	-0.356	0.001	0.000
			Max. My	4	1.226	0.000	0.000
			Max. Vy	23	-0.002	0.000	0.000
			Max. Vx	4	-0.000	0.000	0.000
		Top Girt	Max Tension	22	0.866	0.000	0.000
			Max. Compression	56	-0.009	0.000	0.000
			Max. Mx	21	0.773	0.002	0.000
			Max. My	28	0.465	0.000	-0.000
			Max. Vy	21	-0.002	0.000	0.000
			Max. Vx	28	0.000	0.000	0.000
		Bottom Girt	Max Tension	3	0.310	0.000	0.000
			Max. Compression	21	-0.149	0.000	0.000
			Max. Mx	16	0.093	0.002	0.000
			Max. My	28	0.212	0.000	-0.000
			Max. Vy	16	-0.002	0.000	0.000
			Max. Vx	28	0.000	0.000	0.000
		Guy A	Bottom Tension	27	15.778		
			Top Tension	27	15.878		
			Top Cable Vert	27	11.797		
			Top Cable Norm	27	10.627		
			Top Cable Tan	27	0.012		
			Bot Cable Vert	27	-11.556		
			Bot Cable Norm	27	10.742		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Bot Cable Tan	27	0.109		
		Guy B	Bottom Tension	57	15.481		
			Top Tension	57	15.581		
			Top Cable Vert	57	11.579		
			Top Cable Norm	57	10.426		
			Top Cable Tan	57	0.017		
			Bot Cable Vert	57	-11.338		
			Bot Cable Norm	57	10.540		
			Bot Cable Tan	57	0.104		
		Guy C	Bottom Tension	17	14.806		
			Top Tension	17	14.905		
			Top Cable Vert	17	10.695		
			Top Cable Norm	17	10.382		
			Top Cable Tan	17	0.009		
			Bot Cable Vert	17	-10.448		
			Bot Cable Norm	17	10.490		
			Bot Cable Tan	17	0.113		
		Top Guy Pull-Off	Max Tension	22	5.561	0.000	0.000
			Max. Compression	56	-0.056	0.000	0.000
			Max. Mx	21	4.964	0.010	0.000
			Max. My	28	2.984	0.000	-0.000
			Max. Vy	21	-0.012	0.000	0.000
			Max. Vx	28	0.000	0.000	0.000
T5	104.818 - 84.8177	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	23	-58.707	0.002	0.307
			Max. Mx	18	-25.784	-0.895	0.065
			Max. My	8	-40.610	-0.361	0.573
			Max. Vy	18	2.119	0.472	-0.119
			Max. Vx	31	1.847	-0.171	0.134
		Diagonal	Max Tension	18	3.683	0.000	0.000
			Max. Compression	18	-3.662	0.000	0.000
			Max. Mx	23	0.147	0.001	0.000
			Max. My	4	0.722	0.000	0.000
			Max. Vy	23	-0.002	0.000	0.000
			Max. Vx	4	-0.000	0.000	0.000
		Top Girt	Max Tension	18	0.384	0.000	0.000
			Max. Compression	3	-0.206	0.000	0.000
			Max. Mx	61	-0.168	0.002	0.000
			Max. My	28	-0.083	0.000	-0.000
			Max. Vy	61	-0.002	0.000	0.000
			Max. Vx	28	0.000	0.000	0.000
		Bottom Girt	Max Tension	26	1.401	0.000	0.000
			Max. Compression	56	-1.132	0.000	0.000
			Max. Mx	42	-0.560	0.002	0.000
			Max. My	50	1.041	0.000	0.000
			Max. Vy	42	-0.002	0.000	0.000
			Max. Vx	50	-0.000	0.000	0.000
T6	84.8177 - 64.8177	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	17	-58.862	-0.426	-0.224
			Max. Mx	21	-41.509	-1.488	-0.217
			Max. My	6	-42.027	0.014	1.389
			Max. Vy	49	2.208	0.759	-0.101
			Max. Vx	29	-2.062	-0.548	-0.680
		Diagonal	Max Tension	29	4.974	0.000	0.000
			Max. Compression	59	-4.937	0.000	0.000
			Max. Mx	23	-2.798	0.002	0.000
			Max. My	50	-2.481	0.000	-0.000
			Max. Vy	23	-0.002	0.000	0.000
			Max. Vx	50	0.000	0.000	0.000

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
		Top Girt	Max Tension	26	0.965	0.000	0.000
			Max. Compression	56	-0.001	0.000	0.000
			Max. Mx	45	0.698	0.002	0.000
			Max. My	50	0.602	0.000	0.000
			Max. Vy	45	-0.002	0.000	0.000
			Max. Vx	50	-0.000	0.000	0.000
		Bottom Girt	Max Tension	52	0.750	0.000	0.000
			Max. Compression	22	-0.536	0.000	0.000
			Max. Mx	50	0.021	0.002	0.000
			Max. My	48	-0.212	0.000	-0.000
			Max. Vy	50	-0.002	0.000	0.000
			Max. Vx	48	0.000	0.000	0.000
		Guy A	Bottom Tension	31	15.514		
			Top Tension	31	15.570		
			Top Cable Vert	31	9.334		
			Top Cable Norm	31	12.462		
			Top Cable Tan	31	0.014		
			Bot Cable Vert	31	-9.177		
			Bot Cable Norm	31	12.508		
			Bot Cable Tan	31	0.089		
		Guy B	Bottom Tension	51	15.774		
			Top Tension	51	15.830		
			Top Cable Vert	51	9.488		
			Top Cable Norm	51	12.672		
			Top Cable Tan	51	0.012		
			Bot Cable Vert	51	-9.332		
			Bot Cable Norm	51	12.718		
			Bot Cable Tan	51	0.087		
		Guy C	Bottom Tension	21	15.581		
			Top Tension	21	15.636		
			Top Cable Vert	21	8.917		
			Top Cable Norm	21	12.845		
			Top Cable Tan	21	0.016		
			Bot Cable Vert	21	-8.755		
			Bot Cable Norm	21	12.888		
			Bot Cable Tan	21	0.092		
		Top Guy Pull-Off	Max Tension	26	6.198	0.000	0.000
			Max. Compression	56	-0.008	0.000	0.000
			Max. Mx	45	4.480	0.011	0.000
			Max. My	50	3.864	0.000	0.000
			Max. Vy	45	-0.013	0.000	0.000
			Max. Vx	50	-0.000	0.000	0.000
T7	64.8177 - 44.8177	Leg	Max Tension	25	5.523	0.003	0.055
			Max. Compression	17	-74.011	0.017	-0.298
			Max. Mx	47	-14.113	-0.859	-0.045
			Max. My	29	-23.962	0.353	0.827
			Max. Vy	49	2.209	0.506	-0.092
			Max. Vx	29	-2.068	-0.407	-0.443
		Diagonal	Max Tension	59	3.284	0.000	0.000
			Max. Compression	29	-3.640	0.000	0.000
			Max. Mx	26	-0.651	0.001	0.000
			Max. My	51	-0.218	0.000	-0.000
			Max. Vy	26	-0.002	0.000	0.000
			Max. Vx	51	0.000	0.000	0.000
		Top Girt	Max Tension	24	0.626	0.000	0.000
			Max. Compression	54	-0.459	0.000	0.000
			Max. Mx	44	-0.177	0.002	0.000
			Max. My	48	0.364	0.000	-0.000
			Max. Vy	44	-0.002	0.000	0.000
			Max. Vx	48	0.000	0.000	0.000

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
		Bottom Girt	Max Tension	59	0.307	0.000	0.000
			Max. Compression	24	-0.087	0.000	0.000
			Max. Mx	15	-0.019	0.002	0.000
			Max. My	51	-0.041	0.000	-0.000
			Max. Vy	15	-0.002	0.000	0.000
			Max. Vx	51	0.000	0.000	0.000
T8	44.8177 - 24.8177	Leg	Max Tension	25	5.725	0.233	0.127
			Max. Compression	17	-74.715	0.221	0.017
			Max. Mx	50	-39.272	-0.586	-0.109
			Max. My	35	-59.882	0.009	0.583
			Max. Vy	25	1.245	0.391	-0.193
			Max. Vx	5	-1.245	0.225	-0.353
		Diagonal	Max Tension	50	1.911	0.000	0.000
			Max. Compression	25	-2.201	0.000	0.000
			Max. Mx	26	1.588	0.001	0.000
			Max. My	51	1.420	0.000	-0.000
			Max. Vy	26	-0.002	0.000	0.000
			Max. Vx	51	0.000	0.000	0.000
		Top Girt	Max Tension	28	0.209	0.000	0.000
			Max. Compression	59	-0.054	0.000	0.000
			Max. Mx	15	0.051	0.002	0.000
			Max. My	51	0.098	0.000	-0.000
			Max. Vy	15	-0.002	0.000	0.000
			Max. Vx	51	0.000	0.000	0.000
		Bottom Girt	Max Tension	25	0.396	0.000	0.000
			Max. Compression	55	-0.292	0.000	0.000
			Max. Mx	42	-0.015	0.002	0.000
			Max. My	51	0.263	0.000	-0.000
			Max. Vy	42	-0.002	0.000	0.000
			Max. Vx	51	0.000	0.000	0.000
T9	24.8177 - 4.81771	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	17	-69.447	-0.323	-0.249
			Max. Mx	51	-44.543	1.562	0.100
			Max. My	31	-45.366	-0.605	-1.349
			Max. Vy	17	3.956	-1.195	0.265
			Max. Vx	42	4.010	0.601	-0.557
		Diagonal	Max Tension	25	3.482	0.000	0.000
			Max. Compression	55	-3.358	0.000	0.000
			Max. Mx	21	1.962	0.001	0.000
			Max. My	51	2.065	0.000	-0.000
			Max. Vy	21	-0.002	0.000	0.000
			Max. Vx	51	0.000	0.000	0.000
		Top Girt	Max Tension	50	0.620	0.000	0.000
			Max. Compression	25	-0.353	0.000	0.000
			Max. Mx	42	0.363	0.002	0.000
			Max. My	51	-0.175	0.000	-0.000
			Max. Vy	42	-0.002	0.000	0.000
			Max. Vx	51	0.000	0.000	0.000
		Bottom Girt	Max Tension	22	1.637	0.000	0.000
			Max. Compression	1	0.000	0.000	0.000
			Max. Mx	12	0.796	0.002	0.000
			Max. My	51	1.024	0.000	-0.000
			Max. Vy	12	-0.002	0.000	0.000
			Max. Vx	51	0.000	0.000	0.000
T10	4.81771 - 0	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	22	-53.151	-0.068	0.107
			Max. Mx	22	-52.653	0.671	-0.467
			Max. My	50	-39.922	-0.258	1.106
			Max. Vy	22	0.706	-0.385	-0.278

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
		Horizontal	Max. Vx	50	-1.014	-0.258	1.106
			Max Tension	22	0.721	-0.097	-0.112
			Max. Compression	21	-0.461	-0.107	-0.302
			Max. Mx	50	-0.018	1.090	-0.079
			Max. My	26	-0.345	0.173	-0.349
			Max. Vy	50	2.201	1.090	-0.079
		Top Girt	Max. Vx	26	-0.479	0.277	0.059
			Max Tension	22	10.389	0.035	0.079
			Max. Compression	1	0.000	0.000	0.000
			Max. Mx	26	8.131	0.931	-0.293
			Max. My	51	7.590	0.573	-0.315
			Max. Vy	26	-0.514	0.931	-0.293
			Max. Vx	51	0.145	-0.434	0.169

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Mast	Max. Vert	22	135.121	-2.508	-1.378
	Max. H_x	50	110.290	3.549	-0.058
	Max. H_z	5	113.390	-0.080	2.922
	Max. M_x	1	0.000	-0.026	-0.008
	Max. M_z	1	0.000	-0.026	-0.008
	Max. Torsion	20	2.052	-3.505	0.109
	Min. Vert	1	86.266	-0.026	-0.008
	Min. H_x	20	114.713	-3.505	0.109
	Min. H_z	35	103.171	0.084	-3.047
	Min. M_x	1	0.000	-0.026	-0.008
	Min. M_z	1	0.000	-0.026	-0.008
	Min. Torsion	50	-2.891	3.549	-0.058
Guy C @ 124 ft Elev 0 ft Azimuth 240 deg	Max. Vert	42	-1.480	-0.774	0.446
	Max. H_x	42	-1.480	-0.774	0.446
	Max. H_z	17	-53.607	-42.660	23.943
	Min. Vert	17	-53.607	-42.660	23.943
	Min. H_x	17	-53.607	-42.660	23.943
	Min. H_z	42	-1.480	-0.774	0.446
Guy B @ 115 ft Elev 0 ft Azimuth 120 deg	Max. Vert	23	-1.434	0.647	0.374
	Max. H_x	57	-58.121	42.089	24.839
	Max. H_z	57	-58.121	42.089	24.839
	Min. Vert	57	-58.121	42.089	24.839
	Min. H_x	23	-1.434	0.647	0.374
	Min. H_z	23	-1.434	0.647	0.374
Guy A @ 115 ft Elev 0 ft Azimuth 0 deg	Max. Vert	3	-1.674	-0.001	-0.915
	Max. H_x	47	-25.503	0.856	-21.536
	Max. H_z	3	-1.674	-0.001	-0.915
	Min. Vert	27	-59.491	-0.497	-49.865
	Min. H_x	17	-35.207	-0.880	-28.958
	Min. H_z	27	-59.491	-0.497	-49.865

Tower Mast Reaction Summary

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead Only	86.266	0.026	0.008	0.000	0.000	0.003
1.2 Dead+1.0 Wind 0 deg - No Ice+1.0 Guy	124.281	0.102	-2.518	0.000	0.000	-0.972
1.2D+1.0W (pattern 1) 0 deg - No Ice+1.0 Guy	121.617	0.103	-1.144	0.000	0.000	-1.007
1.2D+1.0W (pattern 2) 0 deg - No Ice+1.0 Guy	120.017	0.094	-2.677	0.000	0.000	-1.202
1.2D+1.0W (pattern 3) 0 deg - No Ice+1.0 Guy	113.390	0.080	-2.922	0.000	0.000	-0.731
1.2D+1.0W (pattern 4) 0 deg - No Ice+1.0 Guy	114.722	0.103	-2.687	0.000	0.000	-0.756
1.2 Dead+1.0 Wind 30 deg - No Ice+1.0 Guy	114.707	1.501	-2.218	0.000	0.000	-0.710
1.2D+1.0W (pattern 1) 30 deg - No Ice+1.0 Guy	112.661	0.840	-1.041	0.000	0.000	-0.740
1.2D+1.0W (pattern 2) 30 deg - No Ice+1.0 Guy	111.446	1.532	-2.328	0.000	0.000	-0.936
1.2D+1.0W (pattern 3) 30 deg - No Ice+1.0 Guy	106.891	1.574	-2.514	0.000	0.000	-0.465
1.2D+1.0W (pattern 4) 30 deg - No Ice+1.0 Guy	108.403	1.509	-2.320	0.000	0.000	-0.534
1.2 Dead+1.0 Wind 60 deg - No Ice+1.0 Guy	102.338	2.667	-1.596	0.000	0.000	-0.965
1.2D+1.0W (pattern 1) 60 deg - No Ice+1.0 Guy	101.572	1.405	-0.869	0.000	0.000	-0.966
1.2D+1.0W (pattern 2) 60 deg - No Ice+1.0 Guy	101.172	2.729	-1.629	0.000	0.000	-1.152
1.2D+1.0W (pattern 3) 60 deg - No Ice+1.0 Guy	99.962	2.836	-1.662	0.000	0.000	-1.095
1.2D+1.0W (pattern 4) 60 deg - No Ice+1.0 Guy	100.648	2.683	-1.586	0.000	0.000	-1.032
1.2 Dead+1.0 Wind 90 deg - No Ice+1.0 Guy	124.716	3.120	-0.227	0.000	0.000	-1.733
1.2D+1.0W (pattern 1) 90 deg - No Ice+1.0 Guy	122.180	1.526	-0.236	0.000	0.000	-1.727
1.2D+1.0W (pattern 2) 90 deg - No Ice+1.0 Guy	120.876	3.269	-0.193	0.000	0.000	-1.794
1.2D+1.0W (pattern 3) 90 deg - No Ice+1.0 Guy	114.713	3.505	-0.109	0.000	0.000	-2.052
1.2D+1.0W (pattern 4) 90 deg - No Ice+1.0 Guy	115.239	3.280	-0.156	0.000	0.000	-1.915
1.2 Dead+1.0 Wind 120 deg - No Ice+1.0 Guy	135.121	2.508	1.378	0.000	0.000	-0.726
1.2D+1.0W (pattern 1) 120 deg - No Ice+1.0 Guy	131.964	1.144	0.591	0.000	0.000	-0.720
1.2D+1.0W (pattern 2) 120 deg - No Ice+1.0 Guy	130.351	2.682	1.489	0.000	0.000	-0.652
1.2D+1.0W (pattern 3) 120 deg - No Ice+1.0 Guy	122.415	2.944	1.646	0.000	0.000	-0.990
1.2D+1.0W (pattern 4) 120 deg - No Ice+1.0 Guy	122.790	2.720	1.501	0.000	0.000	-0.912
1.2 Dead+1.0 Wind 150 deg - No Ice+1.0 Guy	125.578	1.273	2.521	0.000	0.000	0.891
1.2D+1.0W (pattern 1) 150 deg - No Ice+1.0 Guy	123.139	0.516	1.228	0.000	0.000	0.908

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
1.2D+1.0W (pattern 2) 150 deg - No Ice+1.0 Guy	121.822	1.369	2.639	0.000	0.000	1.055
1.2D+1.0W (pattern 3) 150 deg - No Ice+1.0 Guy	115.300	1.559	2.816	0.000	0.000	0.674
1.2D+1.0W (pattern 4) 150 deg - No Ice+1.0 Guy	115.834	1.417	2.624	0.000	0.000	0.705
1.2 Dead+1.0 Wind 180 deg - No Ice+1.0 Guy	107.021	-0.149	2.832	0.000	0.000	0.931
1.2D+1.0W (pattern 1) 180 deg - No Ice+1.0 Guy	106.106	-0.154	1.444	0.000	0.000	0.942
1.2D+1.0W (pattern 2) 180 deg - No Ice+1.0 Guy	105.535	-0.137	2.915	0.000	0.000	1.157
1.2D+1.0W (pattern 3) 180 deg - No Ice+1.0 Guy	103.171	-0.084	3.047	0.000	0.000	0.610
1.2D+1.0W (pattern 4) 180 deg - No Ice+1.0 Guy	103.789	-0.109	2.855	0.000	0.000	0.672
1.2 Dead+1.0 Wind 210 deg - No Ice+1.0 Guy	112.164	-1.343	2.362	0.000	0.000	0.435
1.2D+1.0W (pattern 1) 210 deg - No Ice+1.0 Guy	110.058	-0.651	1.196	0.000	0.000	0.464
1.2D+1.0W (pattern 2) 210 deg - No Ice+1.0 Guy	109.254	-1.397	2.446	0.000	0.000	0.693
1.2D+1.0W (pattern 3) 210 deg - No Ice+1.0 Guy	105.566	-1.513	2.575	0.000	0.000	0.215
1.2D+1.0W (pattern 4) 210 deg - No Ice+1.0 Guy	106.927	-1.410	2.413	0.000	0.000	0.279
1.2 Dead+1.0 Wind 240 deg - No Ice+1.0 Guy	123.177	-2.361	1.403	0.000	0.000	1.371
1.2D+1.0W (pattern 1) 240 deg - No Ice+1.0 Guy	120.315	-1.117	0.686	0.000	0.000	1.392
1.2D+1.0W (pattern 2) 240 deg - No Ice+1.0 Guy	119.012	-2.487	1.479	0.000	0.000	1.593
1.2D+1.0W (pattern 3) 240 deg - No Ice+1.0 Guy	112.831	-2.698	1.587	0.000	0.000	1.388
1.2D+1.0W (pattern 4) 240 deg - No Ice+1.0 Guy	113.729	-2.509	1.488	0.000	0.000	1.341
1.2 Dead+1.0 Wind 270 deg - No Ice+1.0 Guy	118.339	-3.216	0.006	0.000	0.000	2.733
1.2D+1.0W (pattern 1) 270 deg - No Ice+1.0 Guy	115.701	-1.604	-0.005	0.000	0.000	2.754
1.2D+1.0W (pattern 2) 270 deg - No Ice+1.0 Guy	114.734	-3.350	0.017	0.000	0.000	2.742
1.2D+1.0W (pattern 3) 270 deg - No Ice+1.0 Guy	110.290	-3.549	0.058	0.000	0.000	2.891
1.2D+1.0W (pattern 4) 270 deg - No Ice+1.0 Guy	111.580	-3.328	0.054	0.000	0.000	2.810
1.2 Dead+1.0 Wind 300 deg - No Ice+1.0 Guy	107.841	-2.951	-1.611	0.000	0.000	1.439
1.2D+1.0W (pattern 1) 300 deg - No Ice+1.0 Guy	106.670	-1.528	-0.784	0.000	0.000	1.455
1.2D+1.0W (pattern 2) 300 deg - No Ice+1.0 Guy	105.965	-3.032	-1.672	0.000	0.000	1.316
1.2D+1.0W (pattern 3) 300 deg - No Ice+1.0 Guy	104.038	-3.138	-1.757	0.000	0.000	1.625
1.2D+1.0W (pattern 4) 300 deg - No Ice+1.0 Guy	105.126	-2.963	-1.636	0.000	0.000	1.617
1.2 Dead+1.0 Wind 330 deg - No Ice+1.0 Guy	121.471	-1.508	-2.437	0.000	0.000	-0.718
1.2D+1.0W (pattern 1) 330 deg - No Ice+1.0 Guy	119.032	-0.764	-1.125	0.000	0.000	-0.725
1.2D+1.0W (pattern 2) 330 deg	117.598	-1.562	-2.580	0.000	0.000	-0.914

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+1.0 Guy 1.2D+1.0W (pattern 3) 330 deg	112.116	-1.624	-2.796	0.000	0.000	-0.541
- No Ice+1.0 Guy 1.2D+1.0W (pattern 4) 330 deg	113.626	-1.520	-2.577	0.000	0.000	-0.521
- No Ice+1.0 Guy Dead+Wind 0 deg - Service+Guy	86.436	0.046	-0.801	0.000	0.000	-0.247
Dead+Wind 30 deg - Service+Guy	86.366	0.438	-0.669	0.000	0.000	-0.175
Dead+Wind 60 deg - Service+Guy	86.358	0.763	-0.429	0.000	0.000	-0.268
Dead+Wind 90 deg - Service+Guy	86.381	0.984	-0.013	0.000	0.000	-0.494
Dead+Wind 120 deg - Service+Guy	86.472	0.865	0.476	0.000	0.000	-0.214
Dead+Wind 150 deg - Service+Guy	86.531	0.463	0.771	0.000	0.000	0.224
Dead+Wind 180 deg - Service+Guy	86.597	0.002	0.806	0.000	0.000	0.201
Dead+Wind 210 deg - Service+Guy	86.607	-0.386	0.686	0.000	0.000	0.094
Dead+Wind 240 deg - Service+Guy	86.649	-0.722	0.445	0.000	0.000	0.373
Dead+Wind 270 deg - Service+Guy	86.671	-0.937	0.032	0.000	0.000	0.763
Dead+Wind 300 deg - Service+Guy	86.641	-0.810	-0.459	0.000	0.000	0.423
Dead+Wind 330 deg - Service+Guy	86.537	-0.410	-0.761	0.000	0.000	-0.171

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.000	-28.115	0.000	0.001	28.115	-0.000	0.003%
2	-3.112	-33.445	-41.630	3.112	33.445	41.629	0.002%
3	-3.112	-33.445	-38.205	3.112	33.445	38.204	0.002%
4	-2.989	-33.445	-39.179	2.990	33.445	39.178	0.001%
5	-2.589	-33.445	-36.715	2.589	33.445	36.714	0.003%
6	-2.518	-33.445	-37.784	2.518	33.445	37.784	0.002%
7	17.268	-33.329	-35.344	-17.268	33.329	35.343	0.002%
8	15.609	-33.329	-32.470	-15.609	33.329	32.469	0.002%
9	16.339	-33.329	-33.267	-16.339	33.329	33.266	0.001%
10	15.470	-33.329	-31.163	-15.470	33.329	31.162	0.002%
11	15.754	-33.329	-32.076	-15.754	33.329	32.075	0.002%
12	35.854	-33.207	-18.305	-35.853	33.207	18.306	0.003%
13	32.771	-33.207	-16.525	-32.770	33.207	16.526	0.001%
14	33.854	-33.207	-17.139	-33.853	33.207	17.139	0.002%
15	31.813	-33.207	-16.279	-31.813	33.207	16.279	0.002%
16	32.380	-33.207	-16.956	-32.380	33.207	16.957	0.002%
17	45.346	-33.329	3.689	-45.345	33.329	-3.689	0.002%
18	41.338	-33.329	3.689	-41.337	33.329	-3.689	0.002%
19	42.729	-33.329	3.557	-42.728	33.329	-3.556	0.002%
20	40.187	-33.329	3.054	-40.186	33.329	-3.054	0.003%
21	41.009	-33.329	2.984	-41.009	33.329	-2.984	0.002%
22	40.219	-33.445	25.215	-40.219	33.445	-25.214	0.002%
23	36.702	-33.445	23.184	-36.701	33.445	-23.183	0.002%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
24	37.932	-33.445	23.735	-37.931	33.445	-23.735	0.002%
25	35.619	-33.445	22.132	-35.618	33.445	-22.131	0.002%
26	36.292	-33.445	22.734	-36.290	33.445	-22.733	0.003%
27	23.968	-33.315	39.191	-23.967	33.315	-39.191	0.002%
28	22.086	-33.315	35.933	-22.085	33.315	-35.932	0.002%
29	22.690	-33.315	36.950	-22.689	33.315	-36.949	0.002%
30	21.107	-33.315	34.542	-21.106	33.315	-34.541	0.002%
31	21.419	-33.315	35.415	-21.418	33.315	-35.415	0.002%
32	3.963	-33.185	41.875	-3.962	33.185	-41.874	0.002%
33	3.963	-33.185	38.465	-3.963	33.185	-38.464	0.002%
34	3.868	-33.185	39.526	-3.867	33.185	-39.525	0.002%
35	3.298	-33.185	36.932	-3.297	33.185	-36.932	0.002%
36	3.145	-33.185	37.841	-3.144	33.185	-37.840	0.003%
37	-17.620	-33.302	34.689	17.619	33.302	-34.689	0.002%
38	-15.960	-33.302	31.815	15.959	33.302	-31.814	0.002%
39	-16.642	-33.302	32.682	16.640	33.302	-32.682	0.003%
40	-15.759	-33.302	30.634	15.758	33.302	-30.634	0.003%
41	-16.076	-33.302	31.486	16.075	33.302	-31.486	0.002%
42	-35.567	-33.424	19.099	35.566	33.424	-19.099	0.002%
43	-32.471	-33.424	17.312	32.470	33.424	-17.311	0.002%
44	-33.580	-33.424	17.879	33.579	33.424	-17.879	0.003%
45	-31.578	-33.424	16.965	31.577	33.424	-16.965	0.003%
46	-32.158	-33.424	17.601	32.157	33.424	-17.601	0.002%
47	-44.247	-33.302	-3.323	44.246	33.302	3.324	0.002%
48	-40.239	-33.302	-3.323	40.238	33.302	3.324	0.002%
49	-41.622	-33.302	-3.121	41.621	33.302	3.121	0.002%
50	-39.277	-33.302	-2.758	39.276	33.302	2.759	0.002%
51	-40.168	-33.302	-2.765	40.168	33.302	2.765	0.001%
52	-39.279	-33.185	-24.610	39.279	33.185	24.609	0.002%
53	-35.768	-33.185	-22.583	35.768	33.185	22.582	0.002%
54	-36.943	-33.185	-23.064	36.943	33.185	23.063	0.002%
55	-34.828	-33.185	-21.605	34.829	33.185	21.604	0.002%
56	-35.619	-33.185	-22.357	35.620	33.185	22.356	0.002%
57	-23.087	-33.315	-38.534	23.087	33.315	38.533	0.002%
58	-21.206	-33.315	-35.275	21.206	33.315	35.275	0.002%
59	-21.770	-33.315	-36.208	21.770	33.315	36.207	0.002%
60	-20.367	-33.315	-33.971	20.367	33.315	33.970	0.002%
61	-20.789	-33.315	-35.019	20.789	33.315	35.018	0.001%
62	-0.833	-28.150	-11.140	0.833	28.150	11.140	0.001%
63	4.621	-28.118	-9.458	-4.621	28.118	9.458	0.001%
64	9.594	-28.086	-4.899	-9.594	28.086	4.898	0.001%
65	12.135	-28.118	0.987	-12.134	28.118	-0.987	0.002%
66	10.763	-28.150	6.747	-10.762	28.150	-6.747	0.002%
67	6.414	-28.115	10.488	-6.413	28.115	-10.487	0.001%
68	1.061	-28.080	11.206	-1.061	28.080	-11.205	0.002%
69	-4.715	-28.111	9.283	4.715	28.111	-9.283	0.001%
70	-9.518	-28.144	5.111	9.517	28.144	-5.111	0.002%
71	-11.840	-28.111	-0.889	11.840	28.111	0.889	0.002%
72	-10.511	-28.080	-6.586	10.511	28.080	6.585	0.001%
73	-6.178	-28.115	-10.312	6.178	28.115	10.311	0.001%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	9	0.00000001	0.00007047

2	Yes	20	0.00000001	0.00007698
3	Yes	19	0.00000001	0.00007941
4	Yes	20	0.00000001	0.00005394
5	Yes	19	0.00000001	0.00009543
6	Yes	20	0.00000001	0.00006456
7	Yes	19	0.00000001	0.00008067
8	Yes	18	0.00000001	0.00008108
9	Yes	19	0.00000001	0.00005414
10	Yes	19	0.00000001	0.00005539
11	Yes	19	0.00000001	0.00007638
12	Yes	16	0.00000001	0.00008268
13	Yes	15	0.00000001	0.00004908
14	Yes	15	0.00000001	0.00008463
15	Yes	15	0.00000001	0.00007912
16	Yes	17	0.00000001	0.00006742
17	Yes	20	0.00000001	0.00007168
18	Yes	19	0.00000001	0.00007464
19	Yes	19	0.00000001	0.00009397
20	Yes	19	0.00000001	0.00009345
21	Yes	20	0.00000001	0.00006197
22	Yes	21	0.00000001	0.00006394
23	Yes	20	0.00000001	0.00006470
24	Yes	20	0.00000001	0.00008177
25	Yes	20	0.00000001	0.00007641
26	Yes	20	0.00000001	0.00009178
27	Yes	20	0.00000001	0.00006940
28	Yes	19	0.00000001	0.00007018
29	Yes	19	0.00000001	0.00009077
30	Yes	19	0.00000001	0.00008953
31	Yes	20	0.00000001	0.00005902
32	Yes	18	0.00000001	0.00007417
33	Yes	16	0.00000001	0.00006986
34	Yes	16	0.00000001	0.00008744
35	Yes	16	0.00000001	0.00006870
36	Yes	18	0.00000001	0.00008477
37	Yes	19	0.00000001	0.00007109
38	Yes	18	0.00000001	0.00006754
39	Yes	18	0.00000001	0.00009099
40	Yes	18	0.00000001	0.00009796
41	Yes	19	0.00000001	0.00006933
42	Yes	20	0.00000001	0.00006734
43	Yes	19	0.00000001	0.00006709
44	Yes	19	0.00000001	0.00008774
45	Yes	19	0.00000001	0.00008879
46	Yes	20	0.00000001	0.00005995
47	Yes	20	0.00000001	0.00006001
48	Yes	19	0.00000001	0.00006384
49	Yes	19	0.00000001	0.00008077
50	Yes	19	0.00000001	0.00008458
51	Yes	20	0.00000001	0.00005556
52	Yes	20	0.00000001	0.00005488
53	Yes	17	0.00000001	0.00006928
54	Yes	17	0.00000001	0.00006866
55	Yes	18	0.00000001	0.00005285
56	Yes	20	0.00000001	0.00005626
57	Yes	20	0.00000001	0.00006626
58	Yes	19	0.00000001	0.00007117
59	Yes	19	0.00000001	0.00008853
60	Yes	19	0.00000001	0.00008632
61	Yes	20	0.00000001	0.00005682
62	Yes	13	0.00000001	0.00005740
63	Yes	13	0.00000001	0.00004891
64	Yes	13	0.00000001	0.00004837
65	Yes	13	0.00000001	0.00006498

66	Yes	13	0.00000001	0.00008287
67	Yes	13	0.00000001	0.00005469
68	Yes	12	0.00000001	0.00009951
69	Yes	13	0.00000001	0.00005037
70	Yes	13	0.00000001	0.00006905
71	Yes	13	0.00000001	0.00007043
72	Yes	13	0.00000001	0.00005399
73	Yes	13	0.00000001	0.00005705

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	184.818 - 164.818	2.248	72	0.098	0.263
T2	164.818 - 144.818	1.845	72	0.052	0.241
T3	144.818 - 124.818	1.683	72	0.046	0.304
T4	124.818 - 104.818	1.383	72	0.046	0.285
T5	104.818 - 84.8177	1.249	72	0.026	0.219
T6	84.8177 - 64.8177	1.193	72	0.025	0.259
T7	64.8177 - 44.8177	1.382	71	0.023	0.268
T8	44.8177 - 24.8177	1.375	71	0.043	0.245
T9	24.8177 - 4.81771	0.954	71	0.120	0.188
T10	4.81771 - 0	0.172	71	0.166	0.112

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
184'9-13/16"	Lightning Rod 5/8" x 8'	72	2.248	0.098	0.263	40425
183'	(2) AIR 6419 B77G_2024 w/ Mount Pipe	72	2.204	0.093	0.259	40425
173'	HDX10-59	72	1.980	0.067	0.239	17104
167'4-3/32"	Guy	72	1.879	0.055	0.238	11757
159'	Pipe Mount [PM 601-1]	72	1.789	0.046	0.256	20813
158'	Andrew HSX6-59A	72	1.782	0.045	0.259	25254
150'	Commscope VHLPX3-11W	72	1.729	0.044	0.289	21053
137'	HSX8-59	72	1.572	0.047	0.309	31123
124'2-7/16"	Guy	72	1.376	0.046	0.283	14399
116'	HSX6-59-P3A/B	72	1.306	0.039	0.253	26871
115'	Pipe Mount [PM 601-1]	72	1.300	0.038	0.249	30855
84'2-7/16"	Guy	72	1.196	0.026	0.260	11986

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	184.818 - 164.818	15.128	23	0.523	1.336
T2	164.818 - 144.818	13.240	23	0.347	1.252

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T3	144.818 - 124.818	12.529	22	0.306	1.488
T4	124.818 - 104.818	11.342	22	0.345	1.415
T5	104.818 - 84.8177	10.690	26	0.331	1.106
T6	84.8177 - 64.8177	10.336	26	0.240	1.011
T7	64.8177 - 44.8177	10.425	26	0.185	1.044
T8	44.8177 - 24.8177	9.237	26	0.440	0.953
T9	24.8177 - 4.81771	5.989	26	0.813	0.734
T10	4.81771 - 0	1.056	26	1.024	0.420

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
184'9-13/16"	Lightning Rod 5/8" x 8'	23	15.128	0.523	1.336	10212
183'	(2) AIR 6419 B77G_2024 w/ Mount Pipe	23	14.930	0.506	1.319	10212
173'	HDX10-59	23	13.898	0.416	1.247	4320
167'4-3/32"	Guy	23	13.417	0.368	1.241	2958
159'	Pipe Mount [PM 601-1]	23	12.923	0.300	1.309	3750
158'	Andrew HSX6-59A	23	12.877	0.299	1.322	4068
150'	Commscope VHLPX3-11W	22	12.689	0.300	1.433	3438
137'	HSX8-59	22	12.112	0.313	1.509	3880
124'2-7/16"	Guy	22	11.310	0.346	1.407	3708
116'	HSX6-59-P3A/B	22	10.953	0.351	1.285	5357
115'	Pipe Mount [PM 601-1]	22	10.917	0.350	1.269	5765
84'2-7/16"	Guy	26	10.335	0.237	1.013	3216

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	184.818	Diagonal	A325X	0.500	1	6.437	9.777	0.658	1.05	Gusset Bearing
		Top Girt	A325X	0.500	1	0.841	5.919	0.142	1.05	Member Bearing
		Bottom Girt	A325X	0.500	1	1.364	5.919	0.230	1.05	Member Bearing
		Top Guy Pull-Off@167.341	A325N	0.625	2	6.206	11.061	0.561	1.05	Gusset Bearing
		Torque Arm Top@167.341	A325N	0.875	2	7.658	13.200	0.580	1.05	Gusset Bearing
T2	164.818	Leg	A325X	0.750	4	4.010	30.101	0.133	1.05	Bolt Tension
		Diagonal	A325X	0.500	1	3.441	5.919	0.581	1.05	Member Bearing
		Top Girt	A325X	0.500	1	1.182	5.919	0.200	1.05	Member Bearing
		Bottom Girt	A325X	0.500	1	0.834	5.919	0.141	1.05	Member Bearing
T3	144.818	Leg	A325X	0.750	4	3.284	30.101	0.109	1.05	Bolt Tension
		Diagonal	A325X	0.500	1	6.201	5.919	1.047	1.05	Member Bearing
		Top Girt	A325X	0.500	1	0.831	5.919	0.140	1.05	Member Bearing
		Bottom Girt	A325X	0.500	1	1.683	5.919	0.284	1.05	Member Bearing
T4	124.818	Leg	A325X	0.750	4	4.000	30.101	0.133	1.05	Bolt Tension
		Diagonal	A325X	0.500	1	3.503	5.919	0.592	1.05	Member Bearing

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
		Top Girt	A325X	0.500	1	0.866	5.919	0.146	1.05	Member Bearing
		Bottom Girt	A325X	0.500	1	0.845	5.919	0.143	1.05	Member Bearing
		Top Guy Pull-Off@124.203	A325N	0.750	2	2.780	12.130	0.229	1.05	Gusset Bearing
T5	104.818	Leg	A325X	0.750	4	3.992	30.101	0.133	1.05	Bolt Tension
		Diagonal	A325X	0.500	1	3.683	5.919	0.622	1.05	Member Bearing
		Top Girt	A325X	0.500	1	1.017	5.919	0.172	1.05	Member Bearing
		Bottom Girt	A325X	0.500	1	1.401	5.919	0.237	1.05	Member Bearing
T6	84.8177	Leg	A325X	0.750	4	4.892	30.101	0.163	1.05	Bolt Tension
		Diagonal	A325X	0.500	1	4.974	5.919	0.840	1.05	Member Bearing
		Top Girt	A325X	0.500	1	1.020	5.919	0.172	1.05	Member Bearing
		Bottom Girt	A325X	0.500	1	1.020	5.919	0.172	1.05	Member Bearing
		Top Guy Pull-Off@84.2031	A325N	0.750	2	3.099	12.130	0.255	1.05	Gusset Bearing
T7	64.8177	Leg	A325X	0.750	4	4.906	30.101	0.163	1.05	Bolt Tension
		Diagonal	A325X	0.500	1	3.284	5.919	0.555	1.05	Member Bearing
		Top Girt	A325X	0.500	1	1.282	5.919	0.217	1.05	Member Bearing
		Bottom Girt	A325X	0.500	1	1.282	5.919	0.217	1.05	Member Bearing
T8	44.8177	Leg	A325X	0.750	4	6.168	30.101	0.205	1.05	Bolt Tension
		Diagonal	A325X	0.500	1	1.911	5.919	0.323	1.05	Member Bearing
		Top Girt	A325X	0.500	1	1.294	5.919	0.219	1.05	Member Bearing
		Bottom Girt	A325X	0.500	1	1.294	5.919	0.219	1.05	Member Bearing
T9	24.8177	Leg	A325X	0.750	4	5.787	30.101	0.192	1.05	Bolt Tension
		Diagonal	A325X	0.500	1	3.482	5.919	0.588	1.05	Member Bearing
		Top Girt	A325X	0.500	1	1.203	5.919	0.203	1.05	Member Bearing
		Bottom Girt	A325X	0.500	1	1.637	5.919	0.277	1.05	Member Bearing
T10	4.81771	Leg	A325X	0.750	4	4.429	30.101	0.147	1.05	Bolt Tension

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T_u K	Allowable ϕT_n K	Required S.F.	Actual S.F.
T1	167'4-3/32" (A) (372)	3/4 (ECP - 24000) EHS	8.745	58.300	23.189	36.729	0.952	1.508
	167'4-3/32" (A) (373)	3/4 (ECP - 24000) EHS	8.745	58.300	25.534	36.729	0.952	1.370
	167'4-3/32" (B) (368)	3/4 (ECP - 24000) EHS	8.745	58.300	24.691	36.729	0.952	1.417
	167'4-3/32" (B) (369)	3/4 (ECP - 24000) EHS	8.745	58.300	23.084	36.729	0.952	1.515
	167'4-3/32" (C) (361)	3/4 (ECP - 24000) EHS	8.745	58.300	21.544	36.729	0.952	1.624
	167'4-3/32" (C) (362)	3/4 (ECP - 24000) EHS	8.745	58.300	23.540	36.729	0.952	1.486
T4	124'2-7/16" (A) (381)	5/8 (ECP - 23000) EHS	4.240	42.400	15.878	26.712	0.952	1.602
	124'2-7/16" (B) (380)	5/8 (ECP - 23000) EHS	4.240	42.400	15.581	26.712	0.952	1.633
	124'2-7/16" (C) (376)	5/8 (ECP - 23000) EHS	4.240	42.400	14.905	26.712	0.952	1.707
T6	84'2-7/16" (A)	9/16 (ECP -	3.500	35.000	15.570	22.050	0.952	1.349

Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T_u K	Allowable ϕT_n K	Required S.F.	Actual S.F.
	(387) 84'2-7/16" (B) (386) 84'2-7/16" (C) (382)	23000) EHS 9/16 (ECP - 23000) EHS 9/16 (ECP - 23000) EHS	3.500 3.500	35.000 35.000	15.830 15.636	22.050 22.050	0.952 0.952	1.327 1.343

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	184.818 - 164.818	ROHN 2.5 EH	20'	2'4-29/32"	31.3 K=1.00	2.254	-48.533	94.407	0.514 [1]
T2	164.818 - 144.818	ROHN 2.5 STD	20'	2'4-29/32"	30.5 K=1.00	1.704	-45.677	71.637	0.638 [1]
T3	144.818 - 124.818	ROHN 2.5 STD	20'	2'4-29/32"	61.0 K=2.00	1.704	-45.951	58.406	0.787 [1]
T4	124.818 - 104.818	ROHN 2.5 STD	20'	2'4-29/32"	61.0 K=2.00	1.704	-48.794	58.406	0.835 [1]
T5	104.818 - 84.8177	ROHN 2.5 EH	20'	2'4-29/32"	62.6 K=2.00	2.254	-57.227	76.170	0.751 [1]
T6	84.8177 - 64.8177	ROHN 2.5 EH	20'	2'4-29/32"	62.6 K=2.00	2.254	-56.988	76.170	0.748 [1]
T7	64.8177 - 44.8177	ROHN 2.5 EH	20'	2'4-29/32"	62.6 K=2.00	2.254	-73.365	76.170	0.963 [1]
T8	44.8177 - 24.8177	ROHN 2.5 EH	20'	2'4-29/32"	62.6 K=2.00	2.254	-74.715	76.170	0.981 [1]
T9	24.8177 - 4.81771	ROHN 2.5 EH	20'	2'4-29/32"	62.6 K=2.00	2.254	-68.167	76.170	0.895 [1]
T10	4.81771 - 0	ROHN 2.5 EH	5'2-15/32"	1'3-5/8"	16.9 K=1.00	2.254	-53.151	99.313	0.535 [1]

[1] $P_u / \phi P_n$ controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	184.818 - 164.818	ROHN 1.5 x 11GA	3'8-5/8"	3'8-5/8"	91.1 K=1.00	0.520	-6.437	10.887	0.591 [1]
T2	164.818 - 144.818	ROHN 1.5 x 16GA	3'8-5/8"	3'8-5/8"	87.5 K=1.00	0.263	-3.793	6.208	0.611 [1]
T3	144.818 - 124.818	ROHN 1.5 x 16GA	3'8-5/8"	3'8-5/8"	87.5 K=1.00	0.263	-5.965	6.208	0.961 [1]
T4	124.818 -	ROHN 1.5 x 16GA	3'8-5/8"	3'8-5/8"	87.5	0.263	-3.623	6.208	0.584 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
	104.818				K=1.00				
T5	104.818 - 84.8177	ROHN 1.5 x 16GA	3'8-5/8"	3'8-5/8"	87.5 K=1.00	0.263	-3.662	6.208	0.590 [1]
T6	84.8177 - 64.8177	ROHN 1.5 x 16GA	3'8-5/8"	3'8-5/8"	87.5 K=1.00	0.263	-4.937	6.208	0.795 [1]
T7	64.8177 - 44.8177	ROHN 1.5 x 16GA	3'8-5/8"	3'8-5/8"	87.5 K=1.00	0.263	-3.640	6.208	0.586 [1]
T8	44.8177 - 24.8177	ROHN 1.5 x 16GA	3'8-5/8"	3'8-5/8"	87.5 K=1.00	0.263	-2.201	6.208	0.355 [1]
T9	24.8177 - 4.81771	ROHN 1.5 x 16GA	3'8-5/8"	3'8-5/8"	87.5 K=1.00	0.263	-3.358	6.208	0.541 [1]

[1] P_u / ϕP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T10	4.81771 - 0	L4x4x1/4	2'6-3/4"	2'3-7/8"	77.5 K=2.21	1.940	-0.975	55.154	0.018 [1]

[1] P_u / ϕP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	184.818 - 164.818	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7 K=1.00	0.263	-0.841	7.049	0.119 [1]
T2	164.818 - 144.818	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7 K=1.00	0.263	-0.834	7.049	0.118 [1]
T3	144.818 - 124.818	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7 K=1.00	0.263	-0.831	7.049	0.118 [1]
T4	124.818 - 104.818	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7 K=1.00	0.263	-0.845	7.049	0.120 [1]
T5	104.818 - 84.8177	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7 K=1.00	0.263	-1.017	7.049	0.144 [1]
T6	84.8177 - 64.8177	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7 K=1.00	0.263	-1.020	7.049	0.145 [1]
T7	64.8177 - 44.8177	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7 K=1.00	0.263	-1.282	7.049	0.182 [1]
T8	44.8177 - 24.8177	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7 K=1.00	0.263	-1.294	7.049	0.184 [1]
T9	24.8177 - 4.81771	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7 K=1.00	0.263	-1.203	7.049	0.171 [1]
T10	4.81771 - 0	L4x4x1/4	3'5"	3'2-1/8"	84.0 K=1.75	1.940	-1.203	53.019	0.023 [1]

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	184.818 - 164.818	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7 K=1.00	0.263	-0.841	7.049	0.119 [1]
T2	164.818 - 144.818	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7 K=1.00	0.263	-0.834	7.049	0.118 [1]
T3	144.818 - 124.818	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7 K=1.00	0.263	-1.503	7.049	0.213 [1]
T4	124.818 - 104.818	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7 K=1.00	0.263	-0.845	7.049	0.120 [1]
T5	104.818 - 84.8177	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7 K=1.00	0.263	-1.132	7.049	0.161 [1]
T6	84.8177 - 64.8177	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7 K=1.00	0.263	-1.020	7.049	0.145 [1]
T7	64.8177 - 44.8177	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7 K=1.00	0.263	-1.282	7.049	0.182 [1]
T8	44.8177 - 24.8177	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7 K=1.00	0.263	-1.294	7.049	0.184 [1]
T9	24.8177 - 4.81771	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7 K=1.00	0.263	-1.203	7.049	0.171 [1]

[1] P_u / ϕP_n controls

Top Guy Pull-Off Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	184.818 - 164.818	2L2x2x1/4x3/8 ai/ri > (KL/r)o - 367	3'5"	3'2-1/8"	97.5 K=1.00	1.880	-10.929	46.763	0.234
T4	124.818 - 104.818	4 1/2x3/8 KL/R > 200 (C) - 379	3'5"	3'2-1/8"	352.2 K=1.00	1.688	-0.056	3.074	0.018 [1]
T6	84.8177 - 64.8177	4 1/2x3/8 KL/R > 200 (C) - 385	3'5"	3'2-1/8"	352.2 K=1.00	1.688	-0.008	3.074	0.002

[1] P_u / ϕP_n controls

Top Guy Pull-Off Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
T1	184.818 -	2L2x2x1/4x3/8	0.012	2.001	0.006	0.000	3.392	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
T4	164.818 124.818 - 104.818	4 1/2x3/8	0.000	5.126	0.000	0.000	0.427	0.000
T6	84.8177 - 64.8177	4 1/2x3/8	0.011	5.126	0.002	-0.000	0.427	0.000

Top Guy Pull-Off Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	184.818 - 164.818	2L2x2x1/4x3/8	0.234	0.006	0.000	0.239	1.050	
T4	124.818 - 104.818	4 1/2x3/8	0.018	0.000	0.000	0.018 [1]	1.050	
T6	84.8177 - 64.8177	4 1/2x3/8	0.002	0.002	0.000	0.003	1.050	

[1] P_u / ϕP_n controls

Torque-Arm Top Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	184.818 - 164.818 (363)	C15x33.9	3'5"	3'3-9/16' '	43.8 K=1.00	9.960	-6.671	291.753	0.023
T1	184.818 - 164.818 (364)	C15x33.9	3'5"	3'3-9/16' '	43.8 K=1.00	9.960	-1.186	291.753	0.004
T1	184.818 - 164.818 (370)	C15x33.9	3'5"	3'3-9/16' '	43.8 K=1.00	9.960	-5.342	291.753	0.018
T1	184.818 - 164.818 (371)	C15x33.9	3'5"	3'3-9/16' '	43.8 K=1.00	9.960	-7.540	291.753	0.026
T1	184.818 - 164.818 (374)	C15x33.9	3'5"	3'3-9/16' '	43.8 K=1.00	9.960	-5.238	291.753	0.018
T1	184.818 - 164.818 (375)	C15x33.9	3'5"	3'3-9/16' '	43.8 K=1.00	9.960	-6.558	291.753	0.022

Torque-Arm Top Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
T1	184.818 - 164.818 (363)	C15x33.9	-56.907	136.080	0.418	-0.000	12.595	0.000
T1	184.818 - 164.818 (364)	C15x33.9	-64.532	136.080	0.474	-0.000	12.595	0.000
T1	184.818 -	C15x33.9	-64.668	136.080	0.475	-0.000	12.595	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
T1	164.818 (370) 184.818 - 164.818 (371)	C15x33.9	-62.082	136.080	0.456	0.000	12.595	0.000
T1	184.818 - 164.818 (374)	C15x33.9	-64.748	136.080	0.476	-0.000	12.595	0.000
T1	184.818 - 164.818 (375)	C15x33.9	-63.647	136.080	0.468	0.000	12.595	0.000

Torque-Arm Top Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	184.818 - 164.818 (363)	C15x33.9	0.023	0.418	0.000	0.430	1.050	
T1	184.818 - 164.818 (364)	C15x33.9	0.004	0.474	0.000	0.476	1.050	
T1	184.818 - 164.818 (370)	C15x33.9	0.018	0.475	0.000	0.484	1.050	
T1	184.818 - 164.818 (371)	C15x33.9	0.026	0.456	0.000	0.469	1.050	
T1	184.818 - 164.818 (374)	C15x33.9	0.018	0.476	0.000	0.485	1.050	
T1	184.818 - 164.818 (375)	C15x33.9	0.022	0.468	0.000	0.479	1.050	

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	184.818 - 164.818	ROHN 2.5 EH	20'	2'4-29/32"	31.3	2.254	39.537	101.409	0.390 [1]
T2	164.818 - 144.818	ROHN 2.5 STD	20'	7-3/8"	7.8	1.704	3.631	76.682	0.047 [1]
T7	64.8177 - 44.8177	ROHN 2.5 EH	20'	1-3/8"	1.5	2.254	5.523	101.409	0.054 [1]
T8	44.8177 - 24.8177	ROHN 2.5 EH	20'	2'4-29/32"	31.3	2.254	5.725	101.409	0.056 [1]

[1] P_u / ϕP_n controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	184.818 - 164.818	ROHN 1.5 x 11GA	3'8-5/8"	3'8-5/8"	91.1	0.370	6.270	16.106	0.389 [1]
T2	164.818 - 144.818	ROHN 1.5 x 16GA	3'8-5/8"	3'8-5/8"	87.5	0.190	3.441	8.989	0.383 [1]
T3	144.818 - 124.818	ROHN 1.5 x 16GA	3'8-5/8"	3'8-5/8"	87.5	0.190	6.201	8.989	0.690 [1]
T4	124.818 - 104.818	ROHN 1.5 x 16GA	3'8-5/8"	3'8-5/8"	87.5	0.190	3.503	8.989	0.390 [1]
T5	104.818 - 84.8177	ROHN 1.5 x 16GA	3'8-5/8"	3'8-5/8"	87.5	0.190	3.683	8.989	0.410 [1]
T6	84.8177 - 64.8177	ROHN 1.5 x 16GA	3'8-5/8"	3'8-5/8"	87.5	0.190	4.974	8.989	0.553 [1]
T7	64.8177 - 44.8177	ROHN 1.5 x 16GA	3'8-5/8"	3'8-5/8"	87.5	0.190	3.284	8.989	0.365 [1]
T8	44.8177 - 24.8177	ROHN 1.5 x 16GA	3'8-5/8"	3'8-5/8"	87.5	0.190	1.911	8.989	0.213 [1]
T9	24.8177 - 4.81771	ROHN 1.5 x 16GA	3'8-5/8"	3'8-5/8"	87.5	0.190	3.482	8.989	0.387 [1]

[1] P_u / ϕP_n controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T10	4.81771 - 0	L4x4x1/4	10-1/4"	7-3/8"	5.9	1.940	0.975	62.856	0.016 [1]

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	184.818 - 164.818	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7	0.190	0.841	8.989	0.094 [1]
T2	164.818 - 144.818	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7	0.190	1.182	8.989	0.132 [1]
T3	144.818 - 124.818	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7	0.190	0.831	8.989	0.092 [1]
T4	124.818 - 104.818	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7	0.190	0.866	8.989	0.096 [1]
T5	104.818 - 84.8177	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7	0.190	1.017	8.989	0.113 [1]
T6	84.8177 - 64.8177	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7	0.190	1.020	8.989	0.113 [1]
T7	64.8177 - 44.8177	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7	0.190	1.282	8.989	0.143 [1]
T8	44.8177 - 24.8177	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7	0.190	1.294	8.989	0.144 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T9	24.8177 - 4.81771	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7	0.190	1.203	8.989	0.134 [1]
T10	4.81771 - 0	L4x4x1/4	3'5"	3'2-1/8"	30.5	1.940	10.389	62.856	0.165 [1]

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	184.818 - 164.818	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7	0.190	1.364	8.989	0.152 [1]
T2	164.818 - 144.818	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7	0.190	0.834	8.989	0.093 [1]
T3	144.818 - 124.818	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7	0.190	1.683	8.989	0.187 [1]
T4	124.818 - 104.818	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7	0.190	0.845	8.989	0.094 [1]
T5	104.818 - 84.8177	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7	0.190	1.401	8.989	0.156 [1]
T6	84.8177 - 64.8177	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7	0.190	1.020	8.989	0.113 [1]
T7	64.8177 - 44.8177	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7	0.190	1.282	8.989	0.143 [1]
T8	44.8177 - 24.8177	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7	0.190	1.294	8.989	0.144 [1]
T9	24.8177 - 4.81771	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7	0.190	1.637	8.989	0.182 [1]

[1] P_u / ϕP_n controls

Top Guy Pull-Off Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	184.818 - 164.818	2L2x2x1/4x3/8 ai/ri > (KL/r)o - 367	3'5"	3'2-1/8"	62.6	1.129	12.412	49.101	0.253
T4	124.818 - 104.818	4 1/2x3/8	3'5"	3'2-1/8"	352.2	1.688	5.561	54.675	0.102 [1]
T6	84.8177 - 64.8177	4 1/2x3/8	3'5"	3'2-1/8"	352.2	1.688	6.198	54.675	0.113 [1]

[1] P_u / ϕP_n controls

Top Guy Pull-Off Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
T1	184.818 - 164.818	2L2x2x1/4x3/8	0.012	2.001	0.006	-0.000	3.392	0.000
T4	124.818 - 104.818	4 1/2x3/8	0.000	5.126	0.000	0.000	0.427	0.000
T6	84.8177 - 64.8177	4 1/2x3/8	0.000	5.126	0.000	0.000	0.427	0.000

Top Guy Pull-Off Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	184.818 - 164.818	2L2x2x1/4x3/8	0.253	0.006	0.000	0.258	1.050	
T4	124.818 - 104.818	4 1/2x3/8	0.102	0.000	0.000	0.102 [1]	1.050	
T6	84.8177 - 64.8177	4 1/2x3/8	0.113	0.000	0.000	0.113 [1]	1.050	

[1] $P_u / \phi P_n$ controls

Torque-Arm Top Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	184.818 - 164.818 (363)	C15x33.9	3'5"	3'3-9/16"	43.8	7.170	2.688	311.895	0.009
T1	184.818 - 164.818 (364)	C15x33.9	3'5"	3'3-9/16"	43.8	7.170	4.164	311.895	0.013
T1	184.818 - 164.818 (370)	C15x33.9	3'5"	3'3-9/16"	43.8	7.170	2.604	311.895	0.008
T1	184.818 - 164.818 (371)	C15x33.9	3'5"	3'3-9/16"	43.8	7.170	2.468	311.895	0.008
T1	184.818 - 164.818 (374)	C15x33.9	3'5"	3'3-9/16"	43.8	7.170	4.389	311.895	0.014
T1	184.818 - 164.818 (375)	C15x33.9	3'5"	3'3-9/16"	43.8	7.170	0.467	311.895	0.001

Torque-Arm Top Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
T1	184.818 -	C15x33.9	-63.309	136.080	0.465	-0.000	12.595	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
T1	164.818 (363) 184.818 - 164.818 (364)	C15x33.9	-57.471	136.080	0.422	-0.000	12.595	0.000
T1	184.818 - 164.818 (370)	C15x33.9	-52.857	136.080	0.388	0.000	12.595	0.000
T1	184.818 - 164.818 (371)	C15x33.9	-57.987	136.080	0.426	0.000	12.595	0.000
T1	184.818 - 164.818 (374)	C15x33.9	-52.129	136.080	0.383	-0.000	12.595	0.000
T1	184.818 - 164.818 (375)	C15x33.9	-60.866	136.080	0.447	-0.000	12.595	0.000

Torque-Arm Top Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	184.818 - 164.818 (363)	C15x33.9	0.009	0.465	0.000	0.470	1.050	
T1	184.818 - 164.818 (364)	C15x33.9	0.013	0.422	0.000	0.429	1.050	
T1	184.818 - 164.818 (370)	C15x33.9	0.008	0.388	0.000	0.393	1.050	
T1	184.818 - 164.818 (371)	C15x33.9	0.008	0.426	0.000	0.430	1.050	
T1	184.818 - 164.818 (374)	C15x33.9	0.014	0.383	0.000	0.390	1.050	
T1	184.818 - 164.818 (375)	C15x33.9	0.001	0.447	0.000	0.448	1.050	

Section Capacity Table

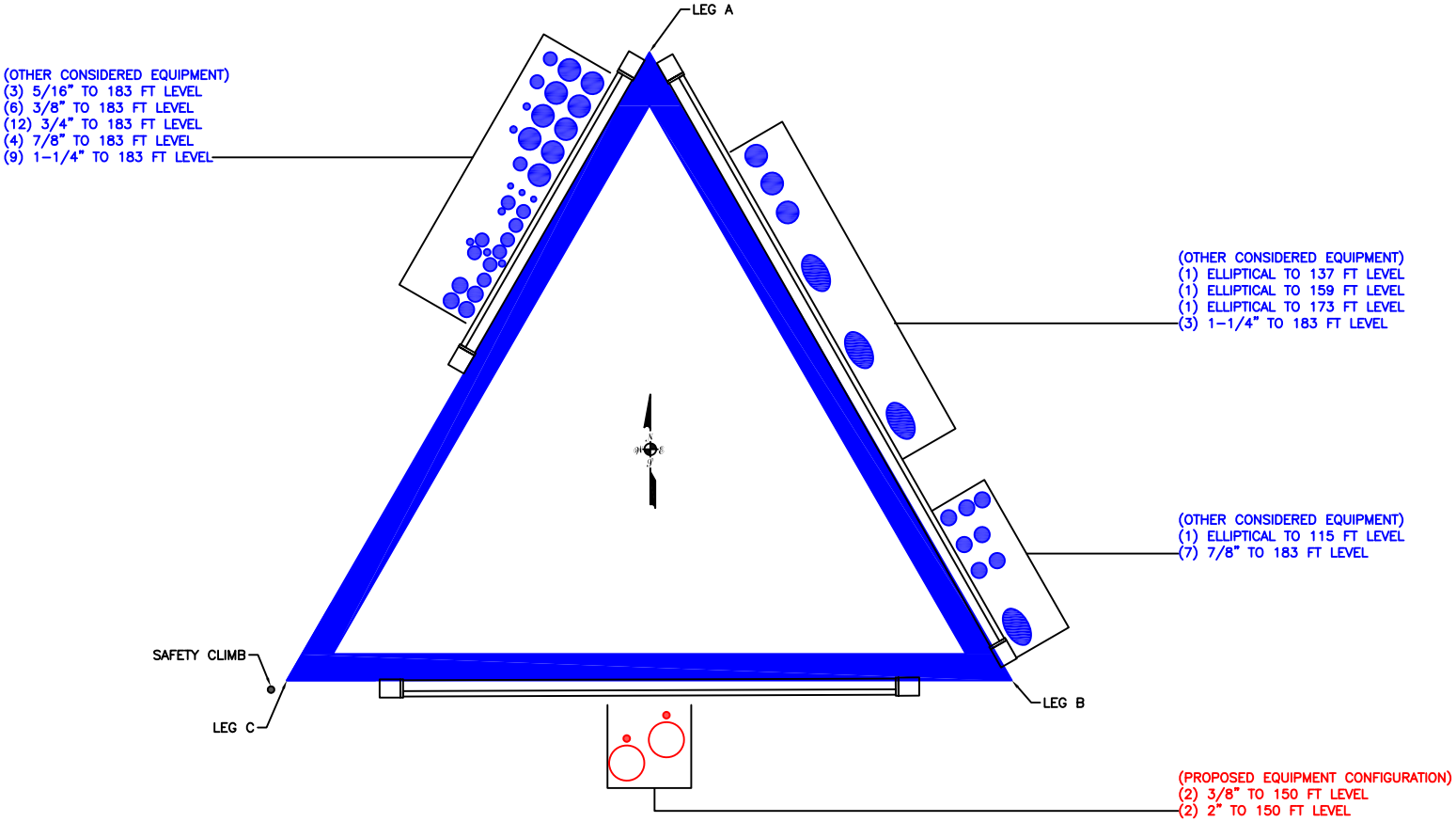
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	184.818 - 164.818	Leg	ROHN 2.5 EH	2	-48.533	99.127	49.0	Pass
T2	164.818 - 144.818	Leg	ROHN 2.5 STD	59	-45.677	75.218	60.7	Pass
T3	144.818 - 124.818	Leg	ROHN 2.5 STD	116	-45.951	61.326	74.9	Pass
T4	124.818 - 104.818	Leg	ROHN 2.5 STD	149	-48.794	61.326	79.6	Pass
T5	104.818 - 84.8177	Leg	ROHN 2.5 EH	182	-57.227	79.978	71.6	Pass
T6	84.8177 - 64.8177	Leg	ROHN 2.5 EH	215	-56.988	79.978	71.3	Pass
T7	64.8177 - 44.8177	Leg	ROHN 2.5 EH	247	-73.365	79.978	91.7	Pass
T8	44.8177 - 24.8177	Leg	ROHN 2.5 EH	280	-74.715	79.978	93.4	Pass
T9	24.8177 - 4.81771	Leg	ROHN 2.5 EH	313	-68.167	79.978	85.2	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T10	4.81771 - 0	Leg	ROHN 2.5 EH	346	-53.151	104.279	51.0	Pass
T1	184.818 - 164.818	Diagonal	ROHN 1.5 x 11GA	23	-6.437	11.431	56.3 62.7 (b)	Pass
T2	164.818 - 144.818	Diagonal	ROHN 1.5 x 16GA	111	-3.793	6.519	58.2	Pass
T3	144.818 - 124.818	Diagonal	ROHN 1.5 x 16GA	127	-5.965	6.519	91.5 99.8 (b)	Pass
T4	124.818 - 104.818	Diagonal	ROHN 1.5 x 16GA	176	-3.623	6.519	55.6 56.4 (b)	Pass
T5	104.818 - 84.8177	Diagonal	ROHN 1.5 x 16GA	193	-3.662	6.519	56.2 59.3 (b)	Pass
T6	84.8177 - 64.8177	Diagonal	ROHN 1.5 x 16GA	242	-4.937	6.519	75.7 80.0 (b)	Pass
T7	64.8177 - 44.8177	Diagonal	ROHN 1.5 x 16GA	278	-3.640	6.519	55.8	Pass
T8	44.8177 - 24.8177	Diagonal	ROHN 1.5 x 16GA	290	-2.201	6.519	33.8	Pass
T9	24.8177 - 4.81771	Diagonal	ROHN 1.5 x 16GA	326	-3.358	6.519	51.5 56.0 (b)	Pass
T10	4.81771 - 0	Horizontal	L4x4x1/4	354	-0.975	61.857	10.8	Pass
T1	184.818 - 164.818	Top Girt	ROHN 1.5 x 16GA	4	-0.841	7.401	11.4 13.5 (b)	Pass
T2	164.818 - 144.818	Top Girt	ROHN 1.5 x 16GA	63	1.182	9.439	12.5 19.0 (b)	Pass
T3	144.818 - 124.818	Top Girt	ROHN 1.5 x 16GA	119	-0.831	7.401	11.2 13.4 (b)	Pass
T4	124.818 - 104.818	Top Girt	ROHN 1.5 x 16GA	151	-0.845	7.401	11.4 13.9 (b)	Pass
T5	104.818 - 84.8177	Top Girt	ROHN 1.5 x 16GA	184	-1.017	7.401	13.7 16.4 (b)	Pass
T6	84.8177 - 64.8177	Top Girt	ROHN 1.5 x 16GA	217	-1.020	7.401	13.8 16.4 (b)	Pass
T7	64.8177 - 44.8177	Top Girt	ROHN 1.5 x 16GA	250	-1.282	7.401	17.3 20.6 (b)	Pass
T8	44.8177 - 24.8177	Top Girt	ROHN 1.5 x 16GA	283	-1.294	7.401	17.5 20.8 (b)	Pass
T9	24.8177 - 4.81771	Top Girt	ROHN 1.5 x 16GA	316	-1.203	7.401	16.3 19.4 (b)	Pass
T10	4.81771 - 0	Top Girt	L4x4x1/4	351	10.389	65.999	15.7	Pass
T1	184.818 - 164.818	Bottom Girt	ROHN 1.5 x 16GA	9	1.364	9.439	14.4 21.9 (b)	Pass
T2	164.818 - 144.818	Bottom Girt	ROHN 1.5 x 16GA	64	-0.834	7.401	11.3 13.4 (b)	Pass
T3	144.818 - 124.818	Bottom Girt	ROHN 1.5 x 16GA	121	-1.503	7.401	20.3 27.1 (b)	Pass
T4	124.818 - 104.818	Bottom Girt	ROHN 1.5 x 16GA	154	-0.845	7.401	11.4 13.6 (b)	Pass
T5	104.818 - 84.8177	Bottom Girt	ROHN 1.5 x 16GA	188	-1.132	7.401	15.3 22.5 (b)	Pass
T6	84.8177 - 64.8177	Bottom Girt	ROHN 1.5 x 16GA	220	-1.020	7.401	13.8 16.4 (b)	Pass
T7	64.8177 - 44.8177	Bottom Girt	ROHN 1.5 x 16GA	253	-1.282	7.401	17.3 20.6 (b)	Pass
T8	44.8177 - 24.8177	Bottom Girt	ROHN 1.5 x 16GA	286	-1.294	7.401	17.5 20.8 (b)	Pass
T9	24.8177 - 4.81771	Bottom Girt	ROHN 1.5 x 16GA	321	1.637	9.439	17.3 26.3 (b)	Pass
T1	184.818 - 164.818	Guy A@167.341	3/4 (ECP - 24000)	373	25.534	36.729	69.5	Pass
T4	124.818 - 104.818	Guy A@124.203	5/8 (ECP - 23000)	381	15.878	26.712	59.4	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T6	84.8177 - 64.8177	Guy A@84.2031	9/16 (ECP - 23000)	387	15.570	22.050	70.6	Pass
T1	184.818 - 164.818	Guy B@167.341	3/4 (ECP - 24000)	368	24.691	36.729	67.2	Pass
T4	124.818 - 104.818	Guy B@124.203	5/8 (ECP - 23000)	380	15.581	26.712	58.3	Pass
T6	84.8177 - 64.8177	Guy B@84.2031	9/16 (ECP - 23000)	386	15.830	22.050	71.8	Pass
T1	184.818 - 164.818	Guy C@167.341	3/4 (ECP - 24000)	362	23.540	36.729	64.1	Pass
T4	124.818 - 104.818	Guy C@124.203	5/8 (ECP - 23000)	376	14.905	26.712	55.8	Pass
T6	84.8177 - 64.8177	Guy C@84.2031	9/16 (ECP - 23000)	382	15.636	22.050	70.9	Pass
T1	184.818 - 164.818	Top Guy Pull-Off@167.341	2L2x2x1/4x3/8	367	12.412	51.556	24.6 53.4 (b)	Pass
T4	124.818 - 104.818	Top Guy Pull-Off@124.203	4 1/2x3/8	379	5.561	57.409	9.7 21.8 (b)	Pass
T6	84.8177 - 64.8177	Top Guy Pull-Off@84.2031	4 1/2x3/8	385	6.198	57.409	10.8 24.3 (b)	Pass
T1	184.818 - 164.818	Torque Arm Top@167.341	C15x33.9	374	-5.238	306.341	46.2 55.3 (b)	Pass
						Summary		
						Leg (T8)	93.4	Pass
						Diagonal (T3)	99.8	Pass
						Horizontal (T10)	10.8	Pass
						Top Girt (T8)	20.8	Pass
						Bottom Girt (T3)	27.1	Pass
						Guy A (T6)	70.6	Pass
						Guy B (T6)	71.8	Pass
						Guy C (T6)	70.9	Pass
						Top Guy Pull-Off (T1)	53.4	Pass
						Torque Arm Top (T1)	55.3	Pass
						Bolt Checks	99.8	Pass
						RATING =	**99.8**	**Pass**

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT:846219

APPENDIX C

ADDITIONAL CALCULATIONS

PROJECT	**25-005927 - FAIRGROUNDS, FL**
SUBJECT	**Guy Pull Off Brackets**
DATE	**08-10-25**

v3.0.3

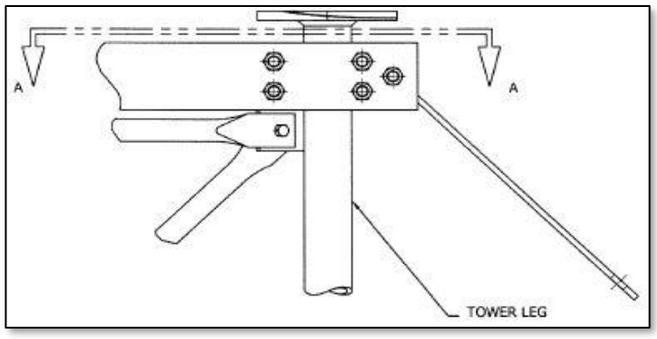
B+T GRP
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630

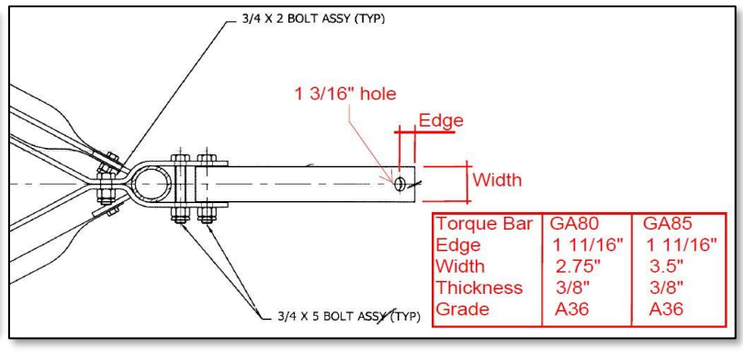
Guy Pull Off Brackets

TIA Rev.	H
Apply TIA-222-H Section 15.5?	Yes

		Units	**Elev. 1**	**Elev. 2**
Guy Wire Details	Elevation	ft	85	125
	Radius	ft	115	115
	Angle	degrees	54	43
	Tension Force	kips	15.88	15.83
	Vertical Force	kips	9.44	11.65
Torque Bar Geometry	Torque Bar P/N		GA80	GA80
	Vertical Capacity of Guy Bracket*	kips	14.9	14.9
	Hole Edge Distance	in	1.69	1.69
	Hole Diameter	in	1.19	1.19
	3/4" Shackle Pin Diameter	in	0.89	0.89
	Plate Thickness	in	0.375	0.375
	Plate Width	in	2.75	2.75
	Plate Grade		A36	A36
	Fy	ksi	36	36
	Fu	ksi	58	58
Bearing & Tearing	Lc	in	1.09	1.09
	ϕ		0.8	0.8
	1.2(Lc+d/4)	in	1.58	1.58
	2.4d	in	2.14	2.14
	φPn = φtFu * Min[1.2(Lc+d/4), 2.4d]	kips	27.5	27.5
Plate Tension	An	in^2	0.59	0.59
	ϕr		0.75	0.75
	φPn = φAnFu	kips	25.5	25.5
	Ag	in^2	1.03	1.03
	ϕy		0.90	0.90
	φPn = φAgFy	kips	33.4	33.4
Bolt Shear	3/4" diameter A325N DS Capacity	kips	39.8	39.8
Controlling Resultant Capacity		kips	25.5	25.5
Bracket Rating	Vertical		60.3%	74.5%
	Resultant		59.3%	59.1%

*This design capacity corresponds to the maximum vertical load component of the guy bracket for which the standard Rohn GA80/GA85 guy bracket is designed.





Pier and Pad Foundation

BU # :	846219
Site Name:	Fairgrounds, FL
App. Number:	708674 Rev. 0

TIA-222 Revision:	H
Tower Type:	Guyed

Top & Bot. Pad Rein. Different?:	☑
Block Foundation?:	☐
Rectangular Pad?:	☐

Superstructure Analysis Reactions		
Compression, P_{comp}:	135.12	kips
Base Shear, Vu_comp:	4	kips
Moment, M_u:	0	ft-kips
Tower Height, **H**:	184	ft
BP Dist. Above Fdn, bp_{dist}:	2	in
Bolt Circle / Bearing Plate Width, **BC**:		in

Pier Properties		
Pier Shape:	Square	
Pier Diameter, **dpier**:	2	ft
Ext. Above Grade, **E**:	0.5	ft
Pier Rebar Size, **Sc**:	6	
Pier Rebar Quantity, **mc**:	8	
Pier Tie/Spiral Size, **St**:	3	
Pier Tie/Spiral Quantity, **mt**:	20	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties		
Depth, **D**:	5	ft
Pad Width, W_1:	8.5	ft
Pad Thickness, **T**:	1.5	ft
Pad Rebar Size (Top dir.2), Sp_{top2}:	5	
Pad Rebar Quantity (Top dir. 2), mp_{top2}:	0	
Pad Rebar Size (Bottom dir. 2), Sp_2:	5	
Pad Rebar Quantity (Bottom dir. 2), mp_2:	10	
Pad Clear Cover, cc_{pad}:	3	

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

Soil Properties		
Total Soil Unit Weight, γ:	119	pcf
Ultimate Net Bearing, Qnet:	12.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	36	degrees
SPT Blow Count, N_{blows}:		
Base Friction, μ:		
Neglected Depth, **N**:	1.00	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	5.2	ft

<--Toggle between Gross and Net

Foundation Analysis Checks	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	56.39	4.00	**6.8%**	**Pass**
Bearing Pressure (ksf)	7.56	2.77	**34.9%**	**Pass**
*Overturning (kip*ft)*	459.29	22.67	**4.9%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	199.75	16.00	**7.6%**	**Pass**
Pier Compression (kip)	1909.44	138.00	**6.9%**	**Pass**
*Pad Flexure (kip*ft)*	191.18	91.91	**45.8%**	**Pass**
Pad Shear - 1-way (kips)	117.85	36.21	**29.3%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.164	0.052	**30.4%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	140.86	9.60	**6.5%**	**Pass**

**Rating per TIA-222-H Section 15.5*

Structural Rating*:	**45.8%**
Soil Rating*:	**34.9%**

Guyed Anchor Block Foundation

Checks capacity of anchor blocks for a guyed tower.

BU#:	846219
Site Name:	Fairgrounds, FL
Order Number:	708674 Rev. 0
Location:	

B2

TIA-222 Revision:	H

Design Reactions		
Shear, **S**:	50.00	kips
Uplift, **Ua**:	59.00	kips
Resultant Force, **Rf**:	77.34	kips
Tower Height, **H**:	184.82	ft
Guy Anchor Radius, **R**:	115.00	ft
Resultant Angle to Horizontal, **θ**:	49.7	deg

Guy Anchor Properties		
Depth to Bottom of Deadman, **Da**:	8	ft
Anchor Width, **Wa**:	6.25	ft
Anchor Thickness, **Ta**:	3	ft
Anchor Length, **La**:	19.5	ft
Concrete Volume, **Vc**:	13.5	yd^3
Toe Width, **toe**:	0	ft
Guyed Anchor Top Rebar Size, **Sat**:	7	
No. of Bars in Top of Block:	7	
Guyed Anchor Front Rebar Size, **Saf**:	7	
No. of Bars in Front of Block:	4	
Stirrup Size:	4	
Anchor Shaft Diameter, **ds**:	1.25	in
Anchor Shaft Quantity. **n**:	2	
Anchor Shaft Area Override:		in^2
Shear Lag Factor, **u**:	1	

Material Properties		
Rebar Grade, **Fy**:	60	ksi
Concrete Strength, **F'c**:	3	ksi
Wt. Avg.Concrete Density, **δx**:	0.113	kcf
Clear Cover, **cc**:	3	in
Anchor Shaft Grade, **Fy'**:	50	ksi
Anchor Shaft Ultimate Strength, **Fu'**:	65	ksi

Design Checks	Capacity	Demand	Rating*	Check
Lateral Capacity (kips):	542.29	50.00	**8.8%**	**Pass**
Uplift Capacity (kips):	308.73	59.00	**18.2%**	**Pass**
*Lateral Flexural Capacity (ft*kips):*	759.00	121.88	**15.3%**	**Pass**
*Uplift Flexural Capacity (ft*kips):*	593.53	143.81	**23.1%**	**Pass**
Anchor Shaft (kips):	98.17	77.34	**75.0%**	**Pass**

**Rating per TIA-222-H Section 15.5*

Anchor Shaft Rating:	**75.0%**
Structural Rating:	**23.1%**
Soil Rating:	**18.2%**

Neglect Depth, **Neg**:	0	ft
Groundwater Level, **gw**:	6.2	ft

Soil Properties: **No. of Soil Layers:** 4

Layer	φ, deg	cu, ksf	δ, pcf	d, ft	Ultimate fs (ksf)	N (blows/ft)
1	0	0.000	120	0.50	0.000	
2	32	0.000	120	4.50		8
3	0	4.000	130	6.50		
4	0	4.000	67.6	8.00		

*key: φ = *Internal Angle of Friction*
cu = Cohesion / Undrained Shear Strength
δ = *Buoyant Soil Unit Weight*
d = Depth to Bottom of Layer
Ultimate fs = Geotechnical Report-provided skin friction / adhesion
N = SPT Blow Count

Version 5.0.1

Guyed Anchor Block Foundation

Checks capacity of anchor blocks for a guyed tower.

BU#:	846219
Site Name:	Fairgrounds, FL
Order Number:	708674 Rev. 0
Location:	*B3*

TIA-222 Revision:	H

Design Reactions		
Shear, **S**:	50.00	kips
Uplift, **Ua**:	59.00	kips
Resultant Force, **Rf**:	77.34	kips
Tower Height, **H**:	184.82	ft
Guy Anchor Radius, **R**:	115.00	ft
Resultant Angle to Horizontal, **θ**:	49.7	deg

Guy Anchor Properties		
Depth to Bottom of Deadman, **Da**:	8	ft
Anchor Width, **Wa**:	6.25	ft
Anchor Thickness, **Ta**:	3	ft
Anchor Length, **La**:	19.5	ft
Concrete Volume, **Vc**:	13.5	yd^3
Toe Width, **toe**:	0	ft
Guyed Anchor Top Rebar Size, **Sat**:	7	
No. of Bars in Top of Block:	7	
Guyed Anchor Front Rebar Size, **Saf**:	7	
No. of Bars in Front of Block:	4	
Stirrup Size:	4	
Anchor Shaft Diameter, **ds**:	1.25	in
Anchor Shaft Quantity. **n**:	2	
Anchor Shaft Area Override:		in^2
Shear Lag Factor, **u**:	1	

Material Properties		
Rebar Grade, **Fy**:	60	ksi
Concrete Strength, **F'c**:	3	ksi
Wt. Avg.Concrete Density, **δx**:	0.129	kcf
Clear Cover, **cc**:	3	in
Anchor Shaft Grade, **Fy'**:	50	ksi
Anchor Shaft Ultimate Strength, **Fu'**:	65	ksi

Design Checks	Capacity	Demand	Rating*	Check
Lateral Capacity (kips):	244.50	50.00	**19.5%**	**Pass**
Uplift Capacity (kips):	212.15	59.00	**26.5%**	**Pass**
*Lateral Flexural Capacity (ft*kips):*	759.00	121.88	**15.3%**	**Pass**
*Uplift Flexural Capacity (ft*kips):*	593.53	143.81	**23.1%**	**Pass**
Anchor Shaft (kips):	98.17	77.34	**75.0%**	**Pass**

**Rating per TIA-222-H Section 15.5*

Anchor Shaft Rating:	**75.0%**
Structural Rating:	**23.1%**
Soil Rating:	**26.5%**

Neglect Depth, **Neg**:	0	ft
Groundwater Level, **gw**:	7	ft

Soil Properties: — **No. of Soil Layers:** 4

Layer	φ, deg	cu, ksf	δ, pcf	d, ft	Ultimate fs (ksf)	N (blows/ft)
1	0	0.000	120	0.50		
2	32	0.000	120	3.00		8
3	34	0.000	120	7.00		17
4	0	2.750	57.6	8.00		

*key: φ = *Internal Angle of Friction*
cu = Cohesion / Undrained Shear Strength
δ = *Buoyant Soil Unit Weight*
d = Depth to Bottom of Layer
Ultimate fs = Geotechnical Report-provided skin friction / adhesion
N = SPT Blow Count

Version 5.0.1

Guyed Anchor Block Foundation

Checks capacity of anchor blocks for a guyed tower.

BU#:	846219
Site Name:	Fairgrounds, FL
Order Number:	708674 Rev. 0
Location:	

B4

TIA-222 Revision:	H

Design Reactions		
Shear, **S**:	50.00	kips
Uplift, **Ua**:	59.00	kips
Resultant Force, **Rf**:	77.34	kips
Tower Height, **H**:	184.82	ft
Guy Anchor Radius, **R**:	115.00	ft
Resultant Angle to Horizontal, **θ**:	49.7	deg

Guy Anchor Properties		
Depth to Bottom of Deadman, **Da**:	8	ft
Anchor Width, **Wa**:	6.25	ft
Anchor Thickness, **Ta**:	3	ft
Anchor Length, **La**:	19.5	ft
Concrete Volume, **Vc**:	13.5	yd^3
Toe Width, **toe**:	0	ft
Guyed Anchor Top Rebar Size, **Sat**:	7	
No. of Bars in Top of Block:	7	
Guyed Anchor Front Rebar Size, **Saf**:	7	
No. of Bars in Front of Block:	4	
Stirrup Size:	4	
Anchor Shaft Diameter, **ds**:	1.25	in
Anchor Shaft Quantity. **n**:	2	
Anchor Shaft Area Override:		in^2
Shear Lag Factor, **u**:	1	

Material Properties		
Rebar Grade, **Fy**:	60	ksi
Concrete Strength, **F'c**:	3	ksi
Wt. Avg.Concrete Density, **δx**:	0.088	kcf
Clear Cover, **cc**:	3	in
Anchor Shaft Grade, **Fy'**:	50	ksi
Anchor Shaft Ultimate Strength, **Fu'**:	65	ksi

Design Checks	Capacity	Demand	Rating*	Check
Lateral Capacity (kips):	288.72	50.00	**16.5%**	**Pass**
Uplift Capacity (kips):	262.88	59.00	**21.4%**	**Pass**
*Lateral Flexural Capacity (ft*kips):*	759.00	121.88	**15.3%**	**Pass**
*Uplift Flexural Capacity (ft*kips):*	593.53	143.81	**23.1%**	**Pass**
Anchor Shaft (kips):	98.17	77.34	**75.0%**	**Pass**

**Rating per TIA-222-H Section 15.5*

Anchor Shaft Rating:	**75.0%**
Structural Rating:	**23.1%**
Soil Rating:	**21.4%**

Neglect Depth, **Neg**:	0	ft
Groundwater Level, **gw**:	5	ft

Soil Properties: **No. of Soil Layers:** 4

Layer	φ, deg	cu, ksf	δ, pcf	d, ft	Ultimate fs (ksf)	N (blows/ft)
1	0	0.000	115	0.50	0.000	
2	30	0.000	115	2.00		5
3	0	1.750	120	5.00		
4	0	1.750	57.6	8.00		

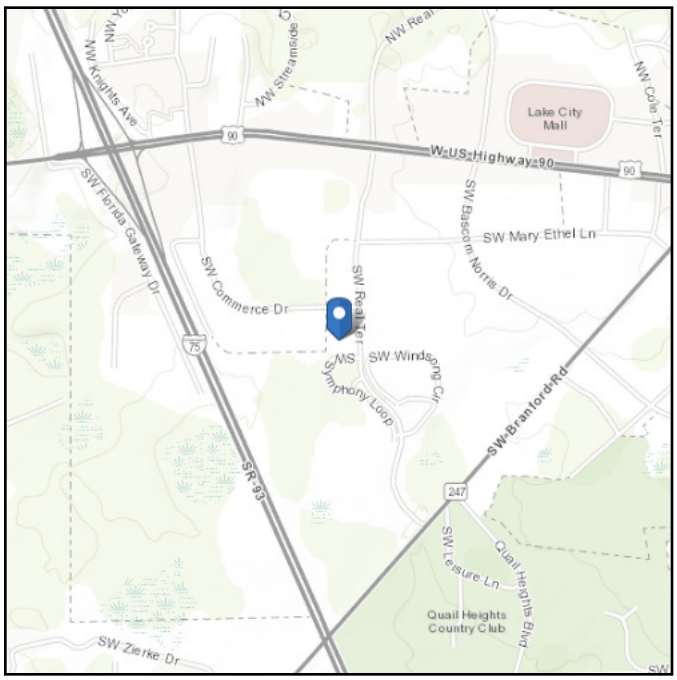
*key: φ = *Internal Angle of Friction*
cu = Cohesion / Undrained Shear Strength
δ = *Buoyant Soil Unit Weight*
d = Depth to Bottom of Layer
Ultimate fs = Geotechnical Report-provided skin friction / adhesion
N = SPT Blow Count

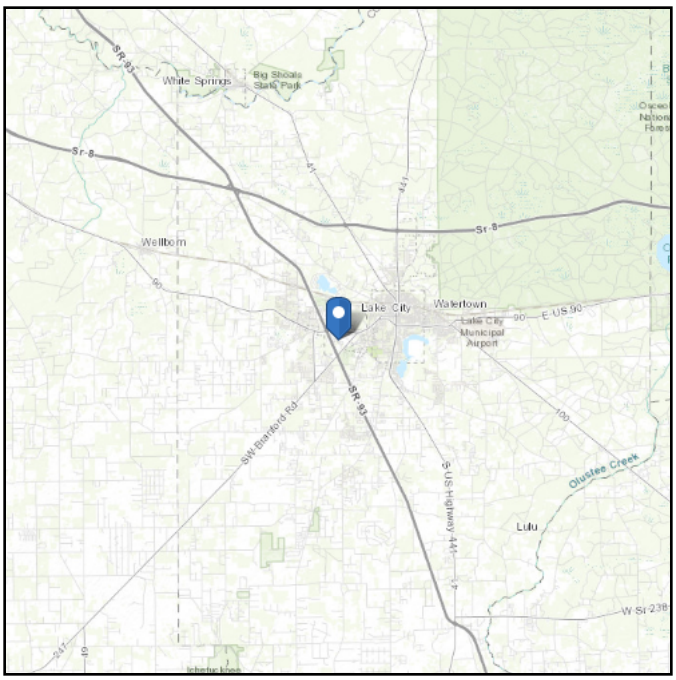
Version 5.0.1

ASCE Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-22	**Latitude:**	30.174008
Risk Category:	II	**Longitude:**	-82.680519
Soil Class:	Default	**Elevation:**	156.0303970763059 ft (NAVD 88)





Wind

Results:

Wind Speed	119 Vmph
10-year MRI	75 Vmph
25-year MRI	83 Vmph
50-year MRI	90 Vmph
100-year MRI	97 Vmph
300-year MRI	109 Vmph
700-year MRI	119 Vmph
1,700-year MRI	128 Vmph
3,000-year MRI	133 Vmph
10,000-year MRI	143 Vmph
100,000-year MRI	153 Vmph
1,000,000-year MRI	166 Vmph

Data Source: ASCE/SEI 7-22, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Thu Aug 07 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 7-22 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years). Values for 10-year MRI, 25-year MRI, 50-year MRI and 100-year MRI are Service Level wind speeds, all other wind speeds are Ultimate wind speeds.

Site is in a hurricane-prone region as defined in ASCE/SEI 7-22 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Seismic

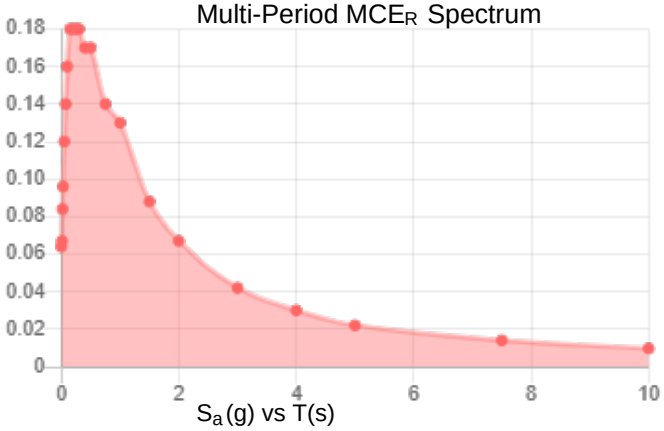
Site Soil Class: Default

Results:

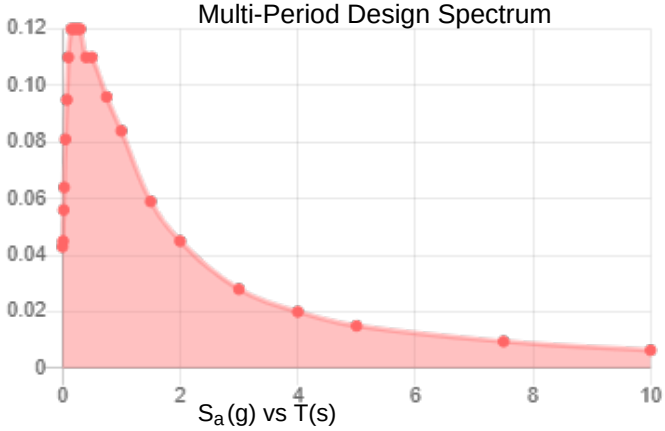
PGA_M :	0.059	T_L :	8
S_{MS} :	0.17	S_S :	0.13
S_{M1} :	0.13	S_1 :	0.059
S_{DS} :	0.11	V_{S30} :	260
S_{D1} :	0.084		

Seismic Design Category: B

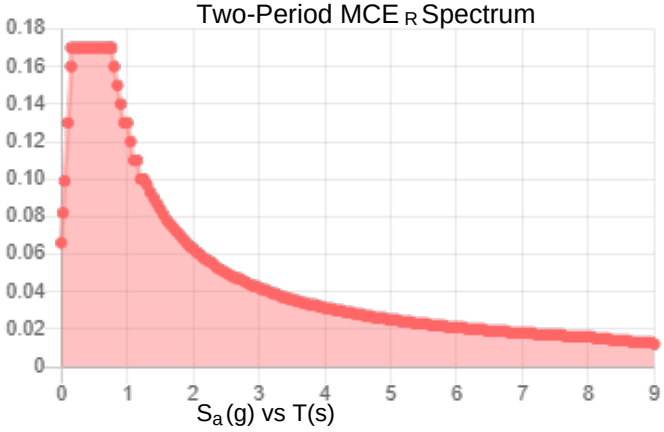
Multi-Period MCE_R Spectrum



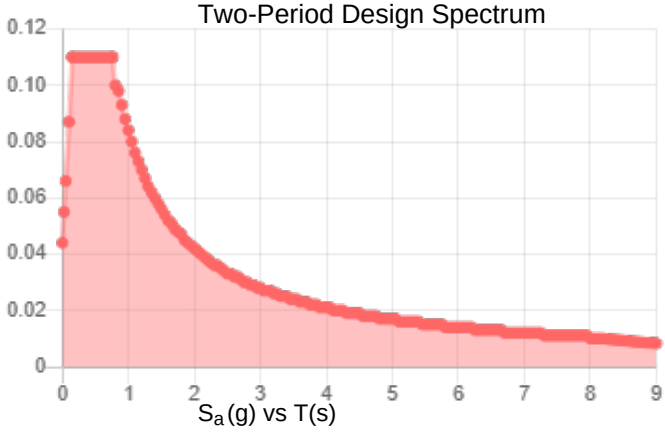
Multi-Period Design Spectrum



Two-Period MCE_R Spectrum



Two-Period Design Spectrum



MCE_R Vertical Response Spectrum

Vertical ground motion data has not yet been made available by USGS.

Design Vertical Response Spectrum

Vertical ground motion data has not yet been made available by USGS.

Data Accessed: **Thu Aug 07 2025**

Date Source:
USGS Seismic Design Maps based on ASCE/SEI 7-22 and ASCE/SEI 7-22 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-22 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness:	N/A
Concurrent Temperature:	N/A
3-s Gust Speed	N/A
Data Source:	Standard ASCE/SEI 7-22, Figs. 10-2 through 10-8
Date Accessed:	Thu Aug 07 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 for 250, 500, 1,000, and 1,400-year mean recurrence intervals along with concurrent 3-s gust speeds and concurrent air temperatures. The shading indicates special icing regions, with elevations above 2,100 ft (640 m) in the east, 6,000 ft (1829 m) in the west, and 1,600 ft (488 m) in Alaska, with sparse weather station data for determining design ice loads. In these regions, as well as in regions with complex terrain causing unusual icing conditions and regions where snow or in-cloud icing results in larger loads, the mapped values should be adjusted based on a combination of local historical records and experience, reanalysis data, and numerical weather prediction systems.