Date: **July 06, 2021**

B+T Group
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Tulsa, OK 74119
(918) 587-4630

Subject:	**Structural Analysis Report**	
Carrier Designation:	***Verizon Wireless* Co-Locate**	
	Site Number:	N/A
	Site Name:	AT&T Commerce
Crown Castle Designation:	**BU Number:**	846219
	Site Name:	Fairgrounds
	JDE Job Number:	650367
	Work Order Number:	1980526
	Order Number:	557499 Rev. 0
Engineering Firm Designation:	**B+T Group Project Number:**	100061.007.01
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.

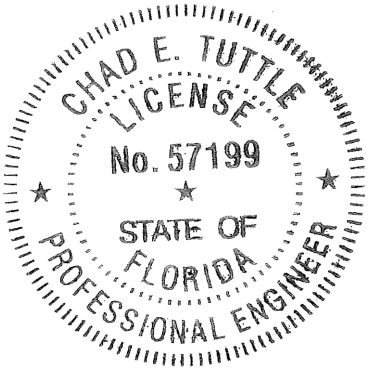
The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC5: Proposed Equipment Configuration **Sufficient Capacity**

This analysis utilizes an ultimate 3-second gust wind speed of 118 mph as required by the 2020 Florida Building Code 7th Edition. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Angela Ashwood

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



Chad E Tuttle

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Date: 2021.07.06 16:34:08 -05'00'

Chad E. Tuttle, P.E.

tnxTower Report - version 8.1.1.0

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: 118 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	152.0	1	Raycap	RHSDC-3315-PF-48	18 1 2	1-5/8 1-1/4 3/8
	150.0	1	Commscope	VHLPX3-11W		
		2	Aviat Networks	ODU600		
		6	Css	X7CQAP-665-VR0		
		3	Ericsson	RRUS 32 B4		
		1	--	Sector Mount [SM 502-3]		

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	183.0	6	Andrew	CBC819-DF	18 12 6 3	7/8 3/4 3/8 5/16
		3	Andrew	DBXLH-9090C-R2M		
		6	Andrew	ETD819H-12UB		
		9	Cci Antennas	BSA-M65R-BUU-H6		
		6	Ericsson	RRUS 11		
		6	Ericsson	RRUS 32		
		6	Ericsson	RRUS 32 B2		
		6	Ericsson	RRUS 32 B66		
		3	Ericsson	RRUS 4478 B14		
		6	Ericsson	RRUS-11		
		3	Raycap	DC6-48-60-18-8C		
		3	Raycap	DC6-48-60-18-8F		
		1	--	Sector Mount [SM 502-3]		
174.0	174.0	1	Andrew	HSX6-59-P3A/B	1	EW52
		1	--	Pipe Mount [PM 601-1]		
158.0	158.0	1	Andrew	HSX6-59A	1	EW52
		1	--	Pipe Mount [PM 601-1]		
138.0	138.0	1	Commscope	HSX8-59	1	EW52

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
		1	--	Pipe Mount [PM 601-1]		
116.0	116.0	1	Andrew	HSX6-59-P3A/B	1	EW52
		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: 05/27/2021	CCI Sites

3.1) Analysis Method

tnxTower (version 8.1.1.0), 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	3	-53.038	99.127	53.5	Pass
T2	164.818 - 144.818	Leg	ROHN 2.5 STD	59	-50.571	75.218	67.2	Pass
T3	144.818 - 124.818	Leg	ROHN 2.5 STD	115	-46.026	61.326	75.1	Pass
T4	124.818 - 104.818	Leg	ROHN 2.5 STD	150	-47.734	61.326	77.8	Pass
T5	104.818 - 84.8177	Leg	ROHN 2.5 EH	183	-49.676	79.978	62.1	Pass
T6	84.8177 - 64.8177	Leg	ROHN 2.5 EH	214	-56.915	79.978	71.2	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T7	64.8177 - 44.8177	Leg	ROHN 2.5 EH	249	-74.317	79.978	92.9	Pass
T8	44.8177 - 24.8177	Leg	ROHN 2.5 EH	282	-75.389	79.978	94.3	Pass
T9	24.8177 - 4.81771	Leg	ROHN 2.5 EH	315	-66.980	79.978	83.7	Pass
T10	4.81771 - 0	Leg	ROHN 2.5 EH	346	-50.993	104.279	48.9	Pass
T1	184.818 - 164.818	Diagonal	ROHN 1.5 x 11GA	10	-5.824	11.431	51.0	Pass
T2	164.818 - 144.818	Diagonal	ROHN 1.5 x 16GA	109	-3.963	6.519	60.8	Pass
T3	144.818 - 124.818	Diagonal	ROHN 1.5 x 16GA	126	-5.376	6.519	82.5	Pass
T4	124.818 - 104.818	Diagonal	ROHN 1.5 x 16GA	176	-3.739	6.519	57.4	Pass
T5	104.818 - 84.8177	Diagonal	ROHN 1.5 x 16GA	190	-3.438	6.519	52.7	Pass
T6	84.8177 - 64.8177	Diagonal	ROHN 1.5 x 16GA	242	-5.232	6.519	80.3	Pass
T7	64.8177 - 44.8177	Diagonal	ROHN 1.5 x 16GA	278	-3.713	6.519	57.0	Pass
T8	44.8177 - 24.8177	Diagonal	ROHN 1.5 x 16GA	291	-2.452	6.519	37.6	Pass
T9	24.8177 - 4.81771	Diagonal	ROHN 1.5 x 16GA	330	-3.564	6.519	54.7	Pass
T10	4.81771 - 0	Horizontal	L4x4x1/4	352	-0.932	61.857	8.0	Pass
T1	184.818 - 164.818	Top Girt	ROHN 1.5 x 16GA	4	-0.083	7.401	1.1	Pass
T2	164.818 - 144.818	Top Girt	ROHN 1.5 x 16GA	62	-0.916	7.401	12.4	Pass
T3	144.818 - 124.818	Top Girt	ROHN 1.5 x 16GA	120	-0.826	7.401	11.2	Pass
T4	124.818 - 104.818	Top Girt	ROHN 1.5 x 16GA	152	-0.827	7.401	11.2	Pass
T5	104.818 - 84.8177	Top Girt	ROHN 1.5 x 16GA	185	-0.896	7.401	12.1	Pass
T6	84.8177 - 64.8177	Top Girt	ROHN 1.5 x 16GA	217	-1.004	7.401	13.6	Pass
T7	64.8177 - 44.8177	Top Girt	ROHN 1.5 x 16GA	251	-1.298	7.401	17.5	Pass
T8	44.8177 - 24.8177	Top Girt	ROHN 1.5 x 16GA	284	-1.306	7.401	17.6	Pass
T9	24.8177 - 4.81771	Top Girt	ROHN 1.5 x 16GA	317	-1.184	7.401	16.0	Pass
T10	4.81771 - 0	Top Girt	L4x4x1/4	349	10.005	65.999	15.2	Pass
T1	184.818 - 164.818	Bottom Girt	ROHN 1.5 x 16GA	8	-0.919	7.401	12.4	Pass
T2	164.818 - 144.818	Bottom Girt	ROHN 1.5 x 16GA	65	-0.916	7.401	12.4	Pass
T3	144.818 - 124.818	Bottom Girt	ROHN 1.5 x 16GA	123	-1.421	7.401	19.2	Pass
T4	124.818 - 104.818	Bottom Girt	ROHN 1.5 x 16GA	155	-0.827	7.401	11.2	Pass
T5	104.818 - 84.8177	Bottom Girt	ROHN 1.5 x 16GA	189	-1.179	7.401	15.9	Pass
T6	84.8177 - 64.8177	Bottom Girt	ROHN 1.5 x 16GA	220	-1.004	7.401	13.6	Pass
T7	64.8177 - 44.8177	Bottom Girt	ROHN 1.5 x 16GA	254	-1.298	7.401	17.5	Pass
T8	44.8177 - 24.8177	Bottom Girt	ROHN 1.5 x 16GA	287	-1.306	7.401	17.6	Pass
T9	24.8177 - 4.81771	Bottom Girt	ROHN 1.5 x 16GA	320	-1.184	7.401	16.0	Pass
T1	184.818 - 164.818	Guy A@167.341	3/4	373	23.706	36.729	64.5	Pass
T4	124.818 - 104.818	Guy A@124.203	5/8	381	14.733	26.712	55.2	Pass
T6	84.8177 - 64.8177	Guy A@84.2031	9/16	387	16.183	22.050	73.4	Pass
T1	184.818 - 164.818	Guy B@167.341	3/4	368	24.333	36.729	66.3	Pass
T4	124.818 - 104.818	Guy B@124.203	5/8	380	15.102	26.712	56.5	Pass
T6	84.8177 - 64.8177	Guy B@84.2031	9/16	386	16.415	22.050	74.4	Pass
T1	184.818 - 164.818	Guy C@167.341	3/4	362	21.752	36.729	59.2	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T4	124.818 - 104.818	Guy C@124.203	5/8	376	13.601	26.712	50.9	Pass
T6	84.8177 - 64.8177	Guy C@84.2031	9/16	382	15.418	22.050	69.9	Pass
T1	184.818 - 164.818	Top Guy Pull-Off@167.341	2L2x2x1/4x3/8	367	12.320	51.556	23.9	Pass
T4	124.818 - 104.818	Top Guy Pull-Off@124.203	4 1/2x3/8	377	4.905	57.409	8.5	Pass
T6	84.8177 - 64.8177	Top Guy Pull-Off@84.2031	4 1/2x3/8	383	6.433	57.409	11.2	Pass
T1	184.818 - 164.818	Torque Arm Top@167.341	C15x33.9	370	-5.421	306.341	45.5	Pass
							Summary	
						Leg (T8)	94.3	Pass
						Diagonal (T3)	82.5	Pass
						Horizontal (T10)	8.0	Pass
						Top Girt (T8)	17.6	Pass
						Bottom Girt (T3)	19.2	Pass
						Guy A (T6)	73.4	Pass
						Guy B (T6)	74.4	Pass
						Guy C (T6)	69.9	Pass
						Top Guy Pull-Off (T1)	23.9	Pass
						Torque Arm Top (T1)	45.5	Pass
						Bolt Checks	83.2	Pass
						Rating =	94.3	Pass

Table 5 - Tower Component Stresses vs. Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Base Foundation (Structure)	Base	43.6	Pass
1,2	Base Foundation (Soil Interaction)	Base	33.6	Pass
1,2	Guy Anchor Shaft	Base	73.7	Pass
1,2	Guy Anchor Foundation (Structure)	Base	22.7	Pass
1,2	Guy Anchor Foundation (Soil Interaction)	Base	26.0	Pass

Structure Rating (max from all components) =	**94.3%**

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 results 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

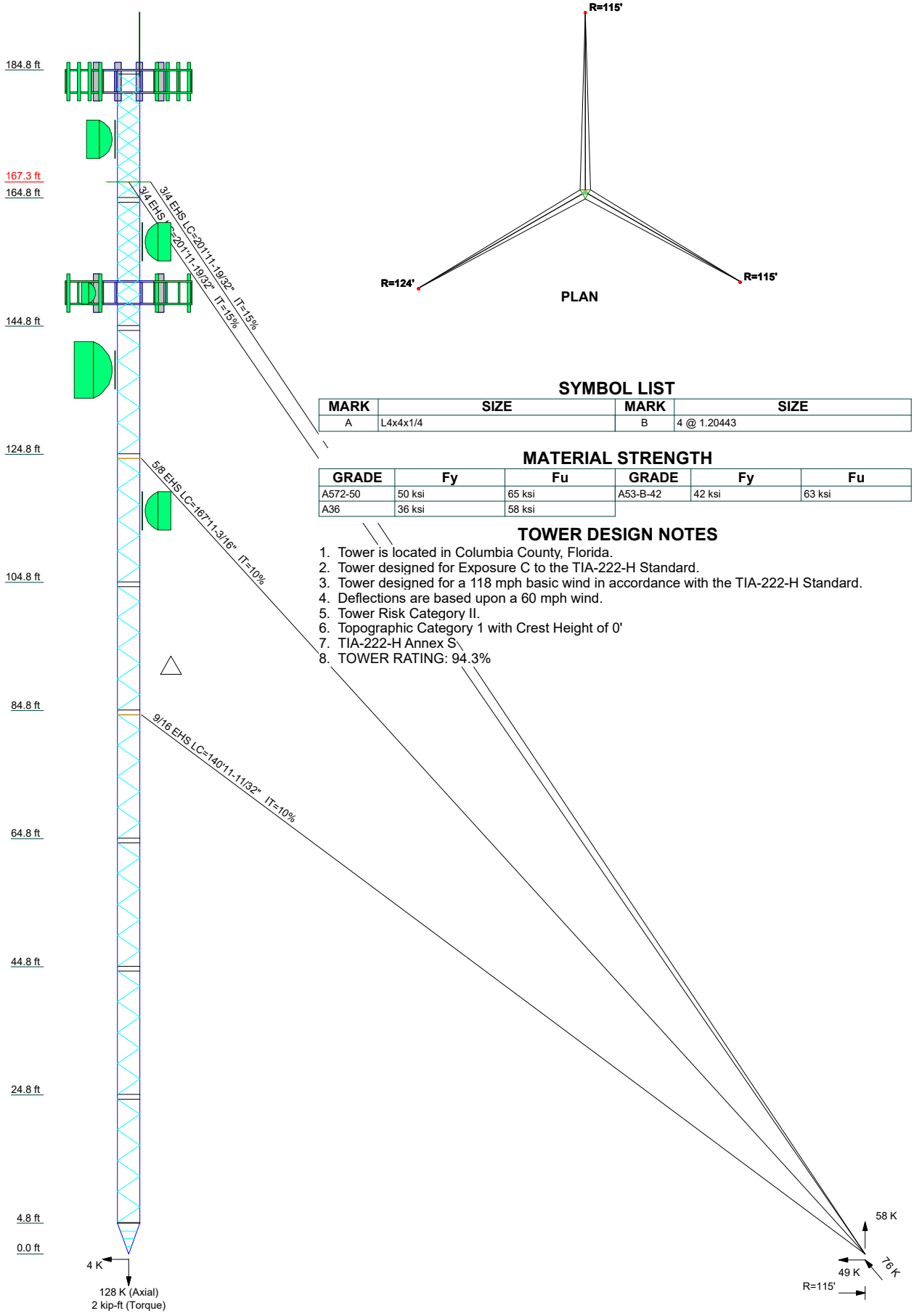
Elevation (ft)	*Dish Model*	*Diameter (ft)*	*Tilt (°)*	*Twist (°)*
150.0	VHLPX3-11W	3.2833	0.359	1.103

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			N.A.	4 1/2x3/8	N.A.	4 1/2x3/8		N.A.		
Face Width (ft)	3.41667			2L2x2x1/4x3/8						
# Panels @ (ft)	72 @ 2.40885									B
Weight (K)	1.6	0.6	0.5	0.5	0.6	0.7	0.6	0.6	0.6	0.3

6.5



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 118 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: 94.3%

ALL REACTIONS ARE FACTORED

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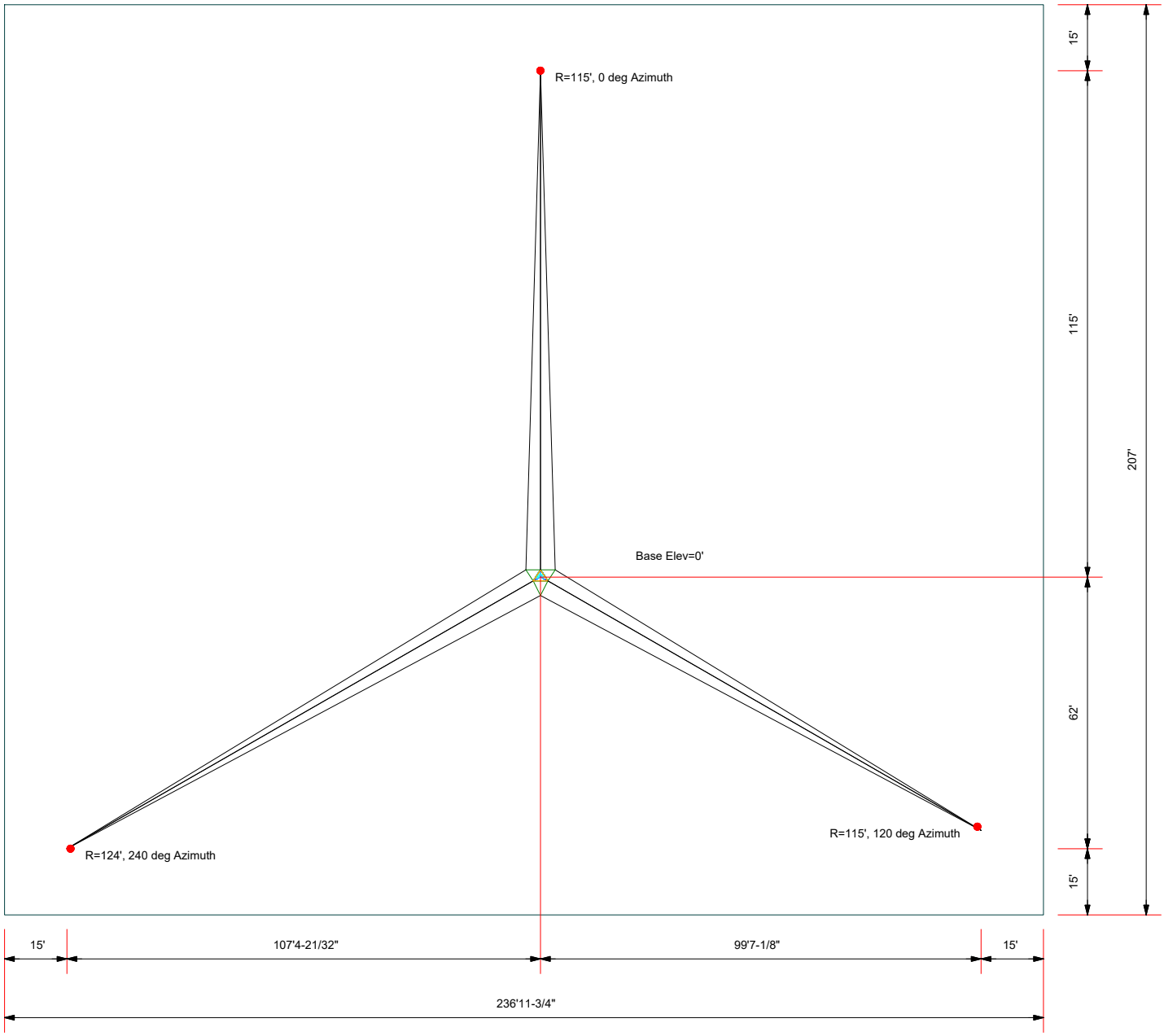
Job: 100061.007.01 - FAIRGROUNDS, FL (BU# 846219			
Project:			
Client: Crown Castle	Drawn by: Vinayak	App'd:	
Code: TIA-222-H	Date: 07/01/21	Scale: NTS	
Path: C:\Users\VINAYAK\Desktop\100061_846219_Fairgrounds-----Vinayak-----PTrix_007_01\100061_007_01_FAIRGROUNDS_FL.eri		Dwg No. E-1	

Plot Plan
Total Area - 1.13 Acres



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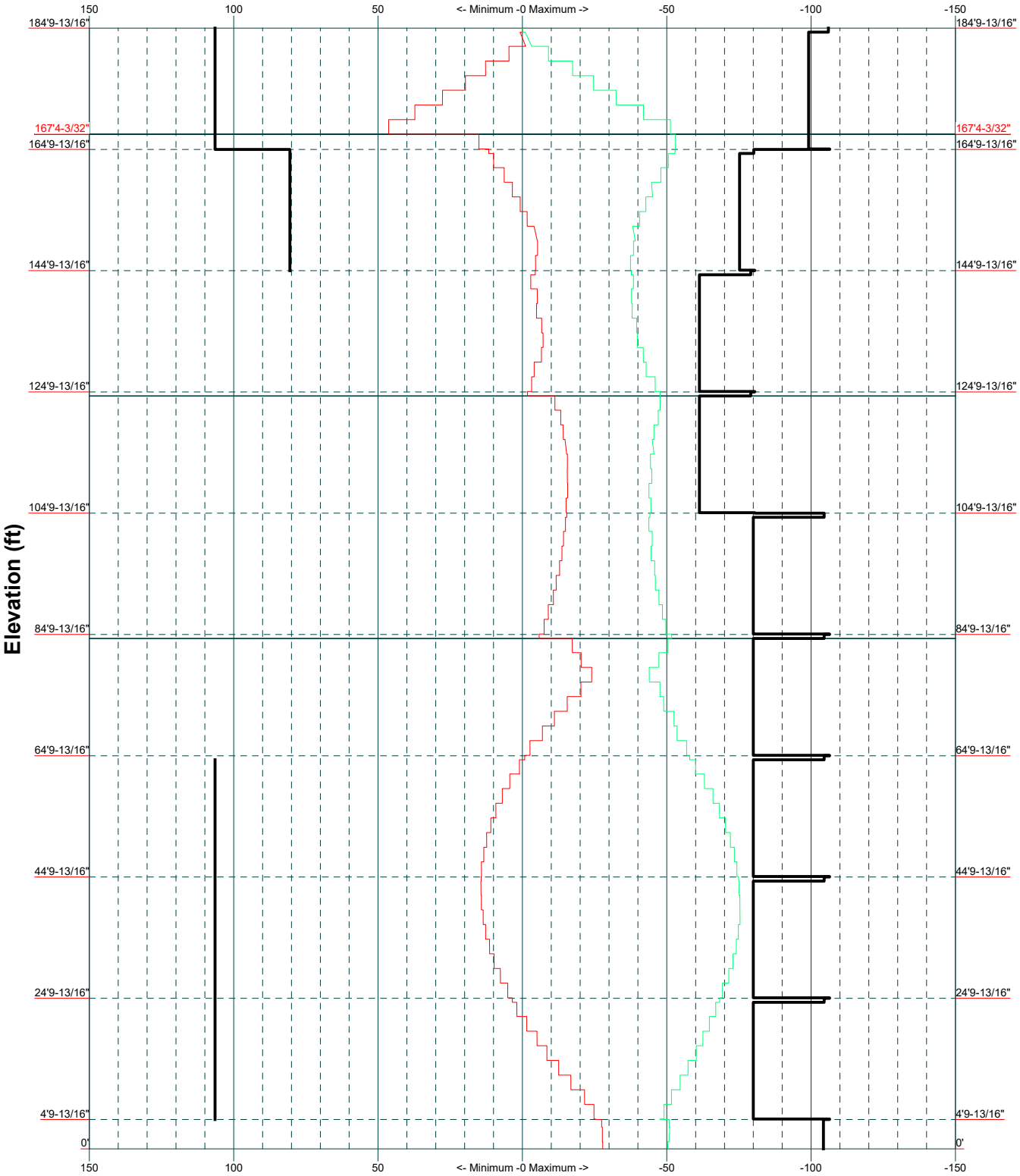
TIA-222-H - 118 mph Exposure C

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



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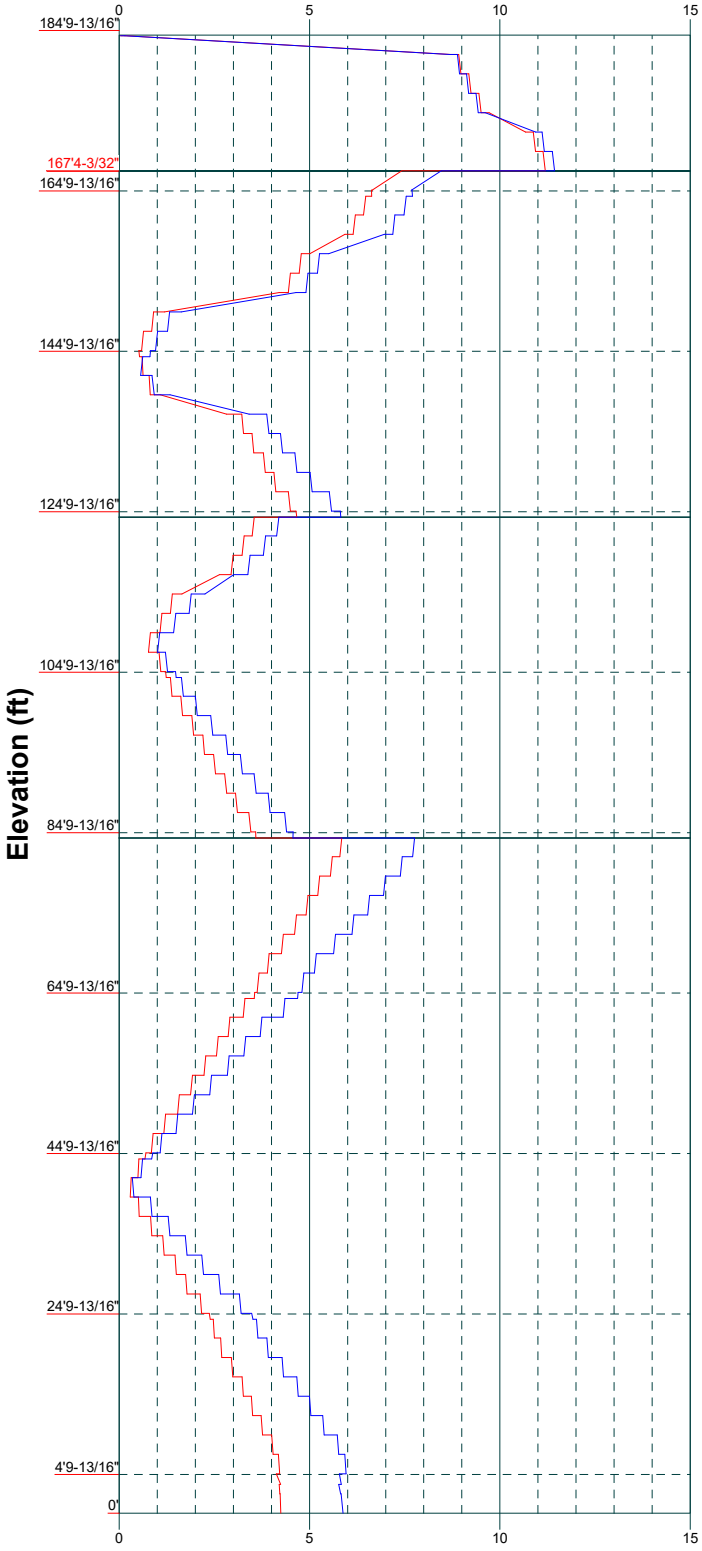
TIA-222-H - 118 mph Exposure C

Vx Vz

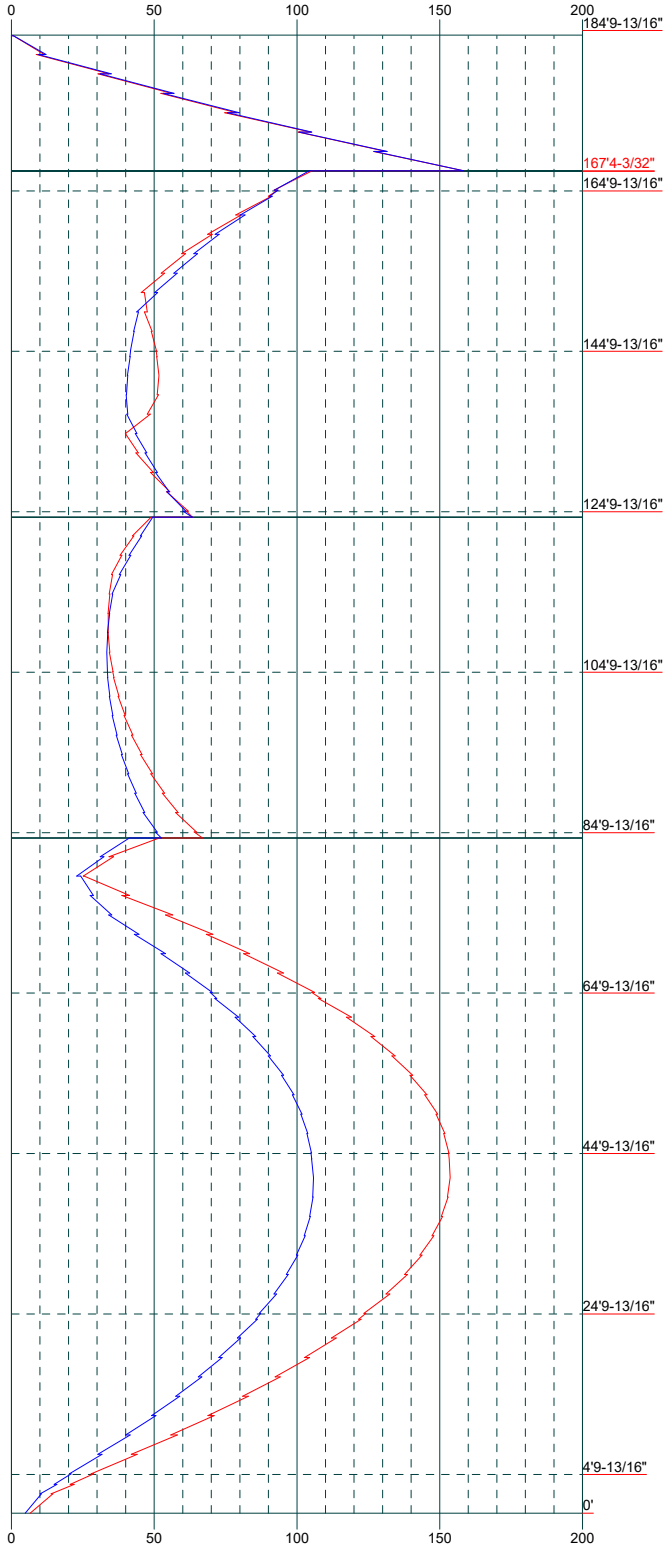
Maximum Values

Mx Mz

Global Mast Shear (K)



Global Mast Moment (kip-ft)



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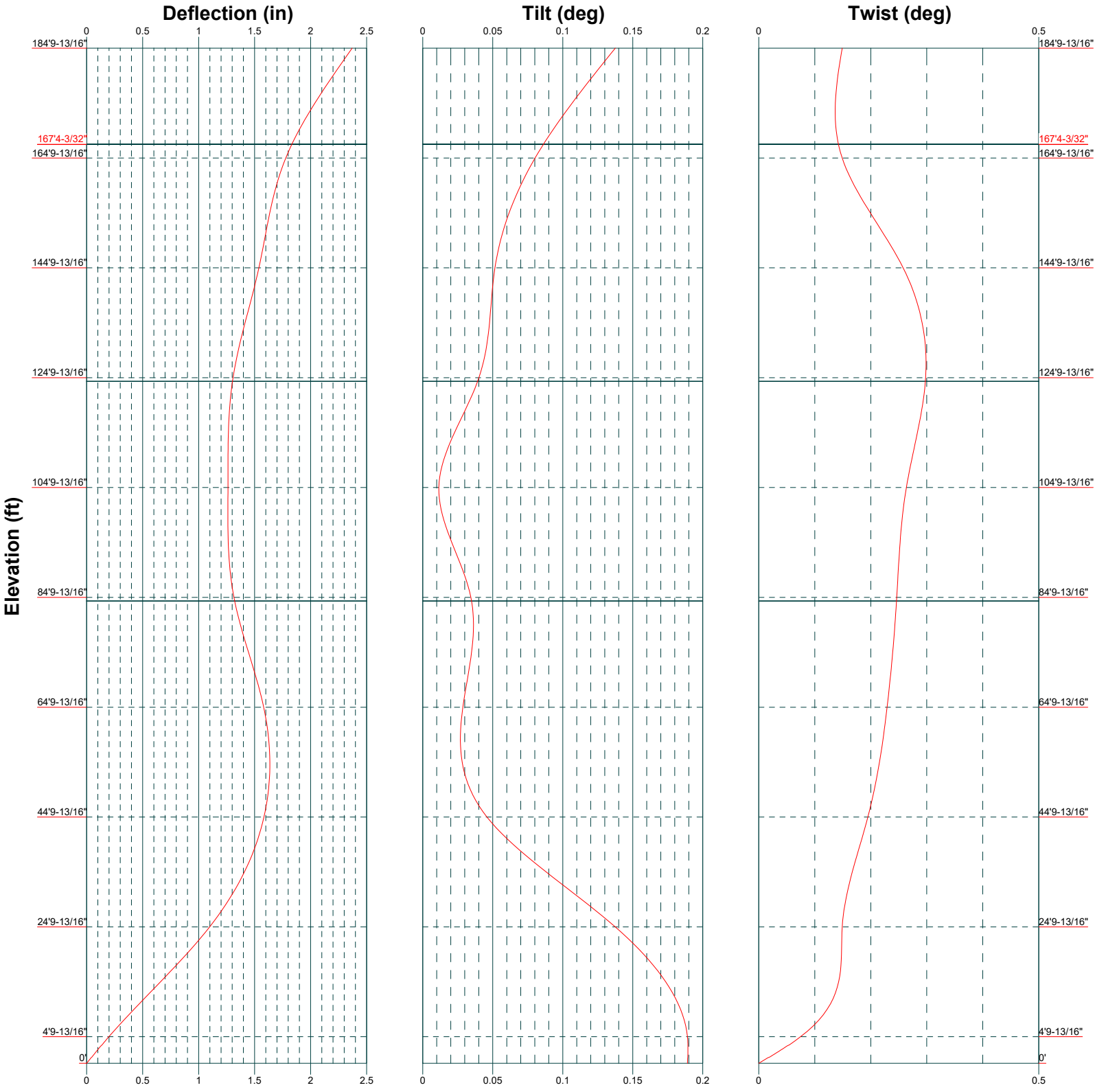
TIA-222-H - Service - 60 mph

Maximum Values



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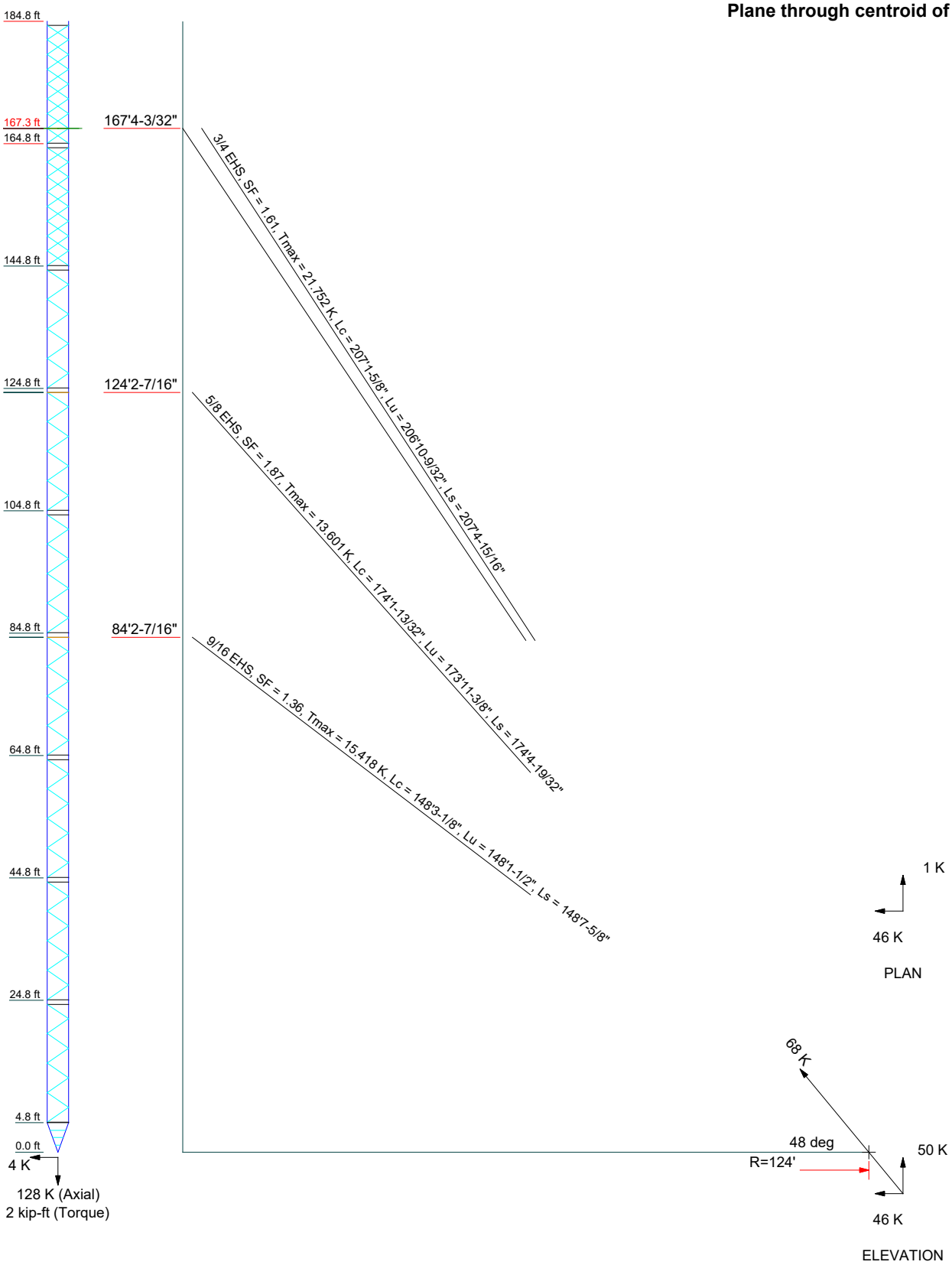
Path: C:\Users\VINAYAK\Desktop\100061_846219_Fairgrounds-----Vinayak-----PiTrix_007_01\100061_007_01_FAIRGROUNDS_FL.eri			Dwg No. E-5

Guy Tensions and Tower Reactions

TIA-222-H - 118 mph Exposure C

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



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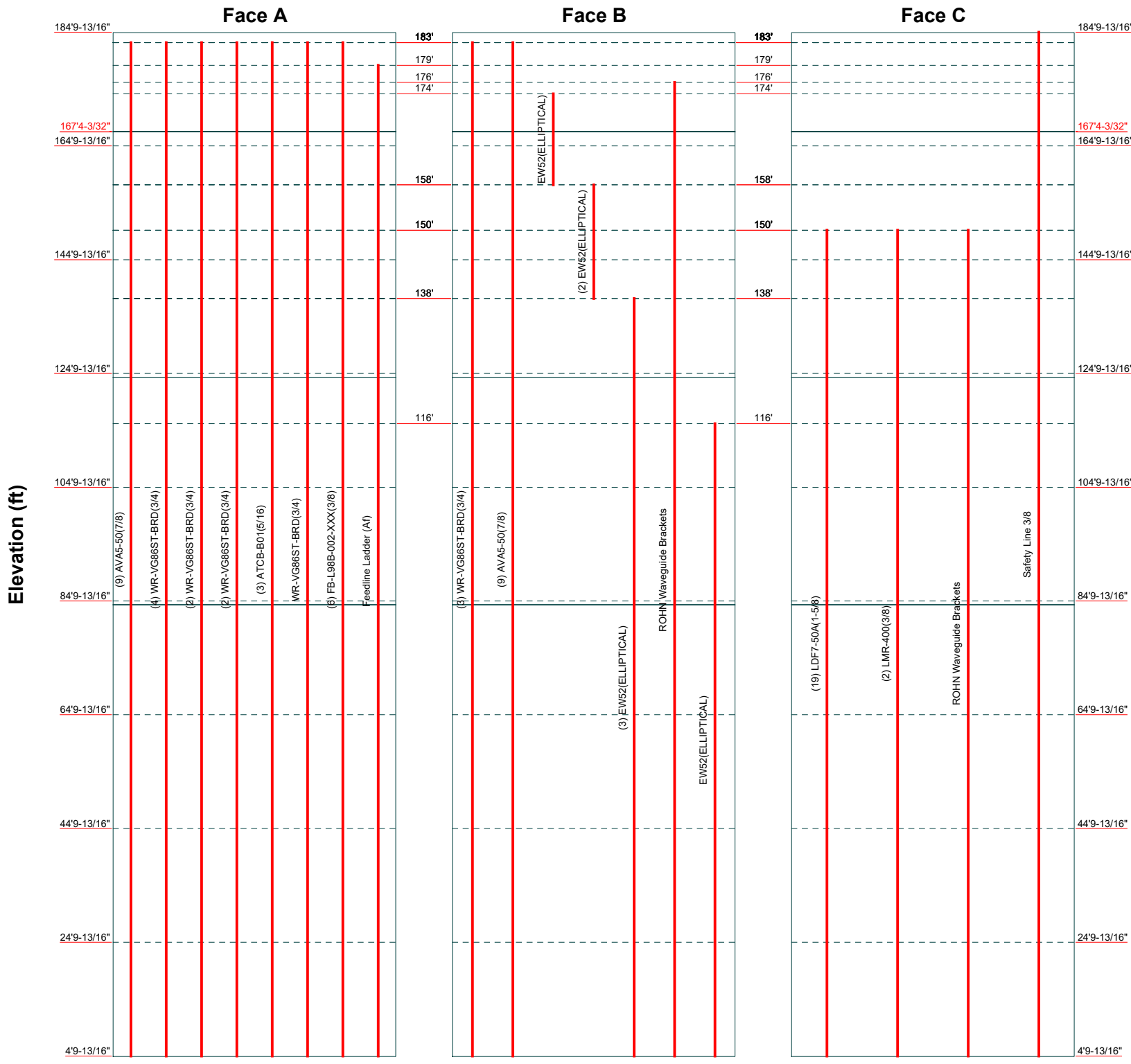
Feed Line Distribution Chart
4'9-13/16" - 184'9-13/16"

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



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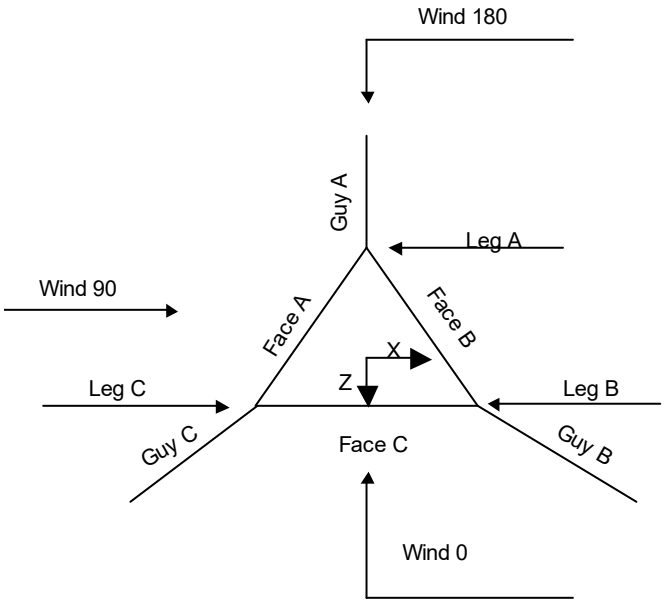
Tower Input Data

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:

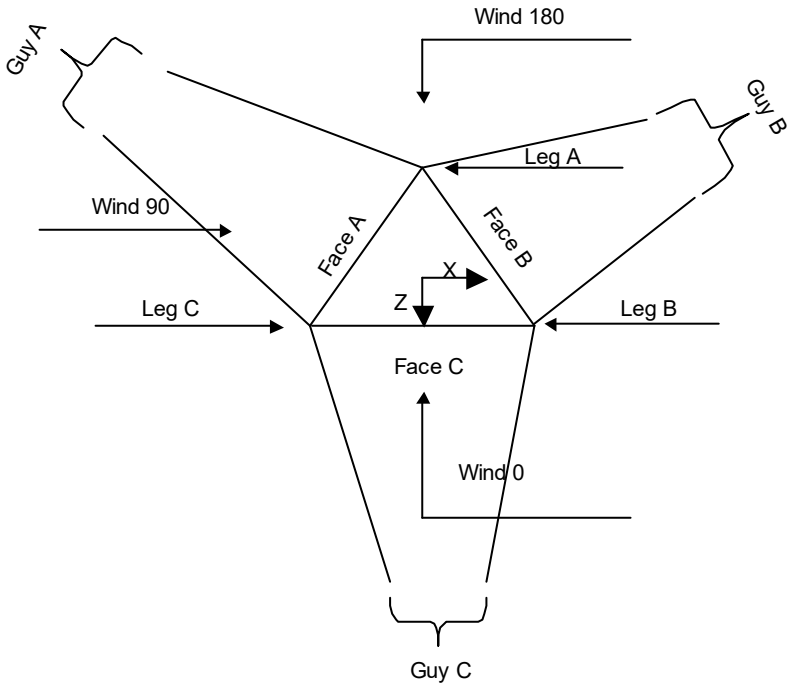
Tower is located in Columbia County, Florida.
Tower base elevation above sea level: 156'.
Basic wind speed of 118 mph.
Risk Category II.
Exposure Category C.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0'.
Deflections calculated 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		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned	√	Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area	√	SR Leg Bolts Resist Compression
√	Use Code Stress Ratios	√	Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys	√	Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients	√	Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-H Bracing Resist. Exemption
	Include Bolts In Member Capacity	√	Autocalc Torque Arm Areas		Use TIA-222-H Tension Splice Exemption
√	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
√	Secondary Horizontal Braces Leg	√	Sort Capacity Reports By Component		Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric		Ignore KL/ry For 60 Deg. Angle Legs		Pole Without Linear Attachments
					Pole With Shroud Or No Appurtenances
					Outside and Inside Corner Radii Are Known



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	1.05	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	1.05	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	1.05	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	1.05	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	1.05	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	1.05	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	1.05	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	1.05	41.000	41.000	41.000
T10 4'9-13/16"-0'	0.000	0.000	A36 (36 ksi)	1.03	1	1.05	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"-1 64'9-13/16"	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T2 164'9-13/16"-1 44'9-13/16"	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T3 144'9-13/16"-1 24'9-13/16"	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T4 124'9-13/16"-1 04'9-13/16"	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T5 104'9-13/16"-8 4'9-13/16"	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T6 84'9-13/16"-64' 9-13/16"	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T7 64'9-13/16"-44' 9-13/16"	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T8 44'9-13/16"-24' 9-13/16"	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T9 24'9-13/16"-4'9 -13/16"	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T10 4'9-13/16"-0'	0.000	0.75	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 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

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.
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

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	8.745	15%	24000.000	1.155	201'8-15/16"	115'	0.000	0'	100%
		B	3/4	8.745	15%	24000.000	1.155	201'8-15/16"	115'	0.000	0'	100%
		C	3/4	8.745	15%	24000.000	1.155	206'10-15/16"	124'	0.000	0'	100%
124.203	EHS	A	5/8	4.240	10%	23000.000	0.813	167'9-21/32"	115'	0.000	0'	100%
		B	5/8	4.240	10%	23000.000	0.813	167'9-21/32"	115'	0.000	0'	100%
		C	5/8	4.240	10%	23000.000	0.813	173'11-13/16"	124'	0.000	0'	100%
84.2031	EHS	A	9/16	3.500	10%	23000.000	0.671	140'10-1/32"	115'	0.000	0'	100%
		B	9/16	3.500	10%	23000.000	0.671	140'10-1/32"	115'	0.000	0'	100%
		C	9/16	3.500	10%	23000.000	0.671	148'1-3/4"	124'	0.000	0'	100%

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)*

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm K_x	Torque Arm K_y	Pull Off K_x	Pull Off K_y	Diagonal K_x	Diagonal 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 Bolt Size in	Torque-Arm Number	Torque-Arm Net Width Deduct in	Torque-Arm U	Pull Off Bolt Size in	Pull Off Number	Pull Off Net Width Deduct in	Pull Off U	Diagonal Bolt Size in	Diagonal Number	Diagonal Net Width Deduct in	Diagonal 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"	0.030		
	B	42'1-7/32"	0.030		
	C	42'1-7/32"	0.030		

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
	C	53.889	8.938 8.745	-4.583	7.262	2.478	28.651	-18.083	0.000
			Sum:	**-0.451**	44.293	**0.261**	**-0.355**	0.000	**-0.615**
124.203	A	47.697	4.341 4.240	0.000	3.241	-2.887	-6.394	0.000	0.000
	B	47.697	4.341 4.240	2.501	3.241	1.444	3.197	0.000	-5.537
	C	45.506	4.341 4.240	-2.604	3.131	1.503	3.088	-0.000	5.349
			Sum:	**-0.103**	9.614	**0.060**	**-0.109**	0.000	**-0.188**
84.2031	A	36.685	3.556 3.500	0.000	2.155	-2.829	-4.251	0.000	0.000
	B	36.685	3.556 3.500	2.450	2.155	1.415	2.126	0.000	-3.682
	C	34.607	3.556 3.500	-2.515	2.053	1.452	2.025	-0.000	3.508
			Sum:	**-0.065**	6.364	**0.037**	**-0.100**	0.000	**-0.173**

Guy-Mast Forces (Excluding Wind) - Service

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
	C	53.889	8.938 / 8.745	-4.583	7.262	2.478	28.651	-18.083	0.000
			Sum:	**-0.451**	44.293	**0.261**	**-0.355**	0.000	**-0.615**
124.203	A	47.697	4.341 / 4.240	0.000	3.241	-2.887	-6.394	0.000	0.000
	B	47.697	4.341 / 4.240	2.501	3.241	1.444	3.197	0.000	-5.537
	C	45.506	4.341 / 4.240	-2.604	3.131	1.503	3.088	-0.000	5.349
			Sum:	**-0.103**	9.614	**0.060**	**-0.109**	0.000	**-0.188**
84.2031	A	36.685	3.556 / 3.500	0.000	2.155	-2.829	-4.251	0.000	0.000
	B	36.685	3.556 / 3.500	2.450	2.155	1.415	2.126	0.000	-3.682
	C	34.607	3.556 / 3.500	-2.515	2.053	1.452	2.025	-0.000	3.508
			Sum:	**-0.065**	6.364	**0.037**	**-0.100**	0.000	**-0.173**

Guy-Tensioning Information

Guy Elevation ft		H ft	V ft	Temperature At Time Of Tensioning: 0 F Initial Tension K	0 F Intercept ft	20 F Initial Tension K	20 F Intercept ft	40 F Initial Tension K	40 F Intercept ft	60 F Initial Tension K	60 F Intercept ft	80 F Initial Tension K	80 F Intercept ft	100 F Initial Tension K	100 F Intercept ft	120 F Initial Tension K	120 F Intercept 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
*													

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 *													
AVA5-50(7/8)	A	No	No	Ar (CaAa)	183' - 0'	0.000	0.15	9	5	0.500	1.102		0.000
WR-VG86ST-BRD(3/4)	A	No	No	Ar (CaAa)	183' - 0'	3.000	0.15	4	4	0.850 0.750	0.795		0.001
WR-VG86ST-BRD(3/4)	A	No	No	Ar (CaAa)	183' - 0'	0.000	-0.2	2	2	0.850 0.750	0.795		0.001
WR-VG86ST-BRD(3/4)	A	No	No	Ar (CaAa)	183' - 0'	0.000	-0.1	2	2	0.850 0.750	0.795		0.001
ATCB-B01(5/16)	A	No	No	Ar (CaAa)	183' - 0'	0.000	-0.05	3	2	0.500	0.315		0.000
WR-VG86ST-BRD(3/4)	A	No	No	Ar (CaAa)	183' - 0'	0.000	0	1	1	0.850 0.750	0.795		0.001
FB-L98B-002-XXX(3/8)	A	No	No	Ar (CaAa)	183' - 0'	0.000	0.04	6	2	0.500	0.394		0.000
Feedline Ladder (Af) *	A	No	No	Af (CaAa)	179' - 0'	0.000	0	1	1	3.000	3.000		0.008
WR-VG86ST-BRD(3/4) *	B	No	No	Ar (CaAa)	183' - 0'	0.000	-0.2	3	3	0.850 0.750	0.795		0.001
Face B *													
AVA5-50(7/8) *	B	No	No	Ar (CaAa)	183' - 0'	0.000	0.25	9	3	0.500	1.102		0.000
EW52(ELLIPTICAL)	B	No	No	Ar (CaAa)	174' - 158'	0.000	0	1	1	1.000 0.750	2.250		0.001
EW52(ELLIPTICAL)	B	No	No	Ar (CaAa)	158' - 138'	0.000	0	2	2	1.000 0.750	2.250		0.001
EW52(ELLIPTICAL)	B	No	No	Ar (CaAa)	138' - 0'	0.000	0	3	3	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
EW52(ELLIPTICAL) *	B	No	No	Ar (CaAa)	116' - 0'	0.000	0.39	1	1	1.000 0.750	2.250		0.001
Face C *													
LDF7-50A(1-5/8)	C	No	No	Ar (CaAa)	150' - 0'	0.000	0	19	10	0.500	1.980		0.001
LMR-400(3/8)	C	No	No	Ar (CaAa)	150' - 0'	2.500	0.27	2	2	0.500	0.405		0.000
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
*								
**Face A*								
*								
Face B								
*								
Face C								
*								

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	44.147	0.000	0.275
		B	0.000	0.000	27.697	0.000	0.101
		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	50.760	0.000	0.339
		B	0.000	0.000	37.905	0.000	0.134
		C	0.000	0.000	22.177	0.000	0.092
T3	144'9-13/16"-124' 9-13/16"	A	0.000	0.000	50.760	0.000	0.339
		B	0.000	0.000	42.405	0.000	0.146
		C	0.000	0.000	83.443	0.000	0.344
T4	124'9-13/16"-104' 9-13/16"	A	0.000	0.000	50.760	0.000	0.339
		B	0.000	0.000	46.455	0.000	0.156
		C	0.000	0.000	83.443	0.000	0.344
T5	104'9-13/16"-84'9-13/16"	A	0.000	0.000	50.760	0.000	0.339
		B	0.000	0.000	48.439	0.000	0.162
		C	0.000	0.000	83.443	0.000	0.344
T6	84'9-13/16"-64'9-1 3/16"	A	0.000	0.000	50.760	0.000	0.339
		B	0.000	0.000	48.439	0.000	0.162
		C	0.000	0.000	83.443	0.000	0.344
T7	64'9-13/16"-44'9-1 3/16"	A	0.000	0.000	50.760	0.000	0.339
		B	0.000	0.000	48.439	0.000	0.162
		C	0.000	0.000	83.443	0.000	0.344
T8	44'9-13/16"-24'9-1 3/16"	A	0.000	0.000	50.760	0.000	0.339
		B	0.000	0.000	48.439	0.000	0.162
		C	0.000	0.000	83.443	0.000	0.344
T9	24'9-13/16"-4'9-13 /16"	A	0.000	0.000	50.760	0.000	0.339
		B	0.000	0.000	48.439	0.000	0.162
		C	0.000	0.000	83.443	0.000	0.344
T10	4'9-13/16"-0'	A	0.000	0.000	12.227	0.000	0.082
		B	0.000	0.000	11.668	0.000	0.039
		C	0.000	0.000	20.100	0.000	0.083

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"-164'9-1 3/16"	-1.140	-3.784	-1.140	-3.784

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
T2	164'9-13/16"-144'9-1 3/16"	-0.607	-3.545	-0.607	-3.545
T3	144'9-13/16"-124'9-1 3/16"	-0.365	-2.206	-0.365	-2.206
T4	124'9-13/16"-104'9-1 3/16"	-0.030	-2.017	-0.030	-2.017
T5	104'9-13/16"-84'9-13 /16"	0.189	-1.935	0.189	-1.935
T6	84'9-13/16"-64'9-13/ 16"	0.183	-1.864	0.183	-1.864
T7	64'9-13/16"-44'9-13/ 16"	0.189	-1.935	0.189	-1.935
T8	44'9-13/16"-24'9-13/ 16"	0.189	-1.935	0.189	-1.935
T9	24'9-13/16"-4'9-13/1 6"	0.189	-1.935	0.189	-1.935
T10	4'9-13/16"-0'	-0.013	-1.699	-0.013	-1.699

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	4	AVA5-50(7/8)	164.82 - 183.00	0.6000	0.6000
T1	5	WR-VG86ST-BRD(3/4)	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-VG86ST-BRD(3/4)	164.82 - 183.00	0.6000	0.6000
T1	8	ATCB-B01(5/16)	164.82 - 183.00	0.6000	0.6000
T1	9	WR-VG86ST-BRD(3/4)	164.82 - 183.00	0.6000	0.6000
T1	10	FB-L98B-002-XXX(3/8)	164.82 - 183.00	0.6000	0.6000
T1	11	Feedline Ladder (Af)	164.82 - 179.00	0.6000	0.6000
T1	13	WR-VG86ST-BRD(3/4)	164.82 - 183.00	0.6000	0.6000
T1	17	AVA5-50(7/8)	164.82 - 183.00	0.6000	0.6000
T1	19	EW52(ELLIPTICAL)	164.82 - 174.00	0.6000	0.6000
T1	22	ROHN Waveguide Brackets	164.82 - 176.00	0.6000	0.6000
T1	32	Safety Line 3/8	164.82 - 184.82	0.6000	0.6000
T2	4	AVA5-50(7/8)	144.82 - 164.82	0.6000	0.6000
T2	5	WR-VG86ST-BRD(3/4)	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-VG86ST-BRD(3/4)	144.82 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			164.82		
T2	8	ATCB-B01(5/16)	144.82 - 164.82	0.6000	0.6000
T2	9	WR-VG86ST-BRD(3/4)	144.82 - 164.82	0.6000	0.6000
T2	10	FB-L98B-002-XXX(3/8)	144.82 - 164.82	0.6000	0.6000
T2	11	Feedline Ladder (Af)	144.82 - 164.82	0.6000	0.6000
T2	13	WR-VG86ST-BRD(3/4)	144.82 - 164.82	0.6000	0.6000
T2	17	AVA5-50(7/8)	144.82 - 164.82	0.6000	0.6000
T2	19	EW52(ELLIPTICAL)	158.00 - 164.82	0.6000	0.6000
T2	20	EW52(ELLIPTICAL)	144.82 - 158.00	0.6000	0.6000
T2	22	ROHN Waveguide Brackets	144.82 - 164.82	0.6000	0.6000
T2	28	LDF7-50A(1-5/8)	144.82 - 150.00	0.6000	0.6000
T2	29	LMR-400(3/8)	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	4	AVA5-50(7/8)	124.82 - 144.82	0.6000	0.6000
T3	5	WR-VG86ST-BRD(3/4)	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-VG86ST-BRD(3/4)	124.82 - 144.82	0.6000	0.6000
T3	8	ATCB-B01(5/16)	124.82 - 144.82	0.6000	0.6000
T3	9	WR-VG86ST-BRD(3/4)	124.82 - 144.82	0.6000	0.6000
T3	10	FB-L98B-002-XXX(3/8)	124.82 - 144.82	0.6000	0.6000
T3	11	Feedline Ladder (Af)	124.82 - 144.82	0.6000	0.6000
T3	13	WR-VG86ST-BRD(3/4)	124.82 - 144.82	0.6000	0.6000
T3	17	AVA5-50(7/8)	124.82 - 144.82	0.6000	0.6000
T3	20	EW52(ELLIPTICAL)	138.00 - 144.82	0.6000	0.6000
T3	21	EW52(ELLIPTICAL)	124.82 - 138.00	0.6000	0.6000
T3	22	ROHN Waveguide Brackets	124.82 - 144.82	0.6000	0.6000
T3	28	LDF7-50A(1-5/8)	124.82 - 144.82	0.6000	0.6000
T3	29	LMR-400(3/8)	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	4	AVA5-50(7/8)	104.82 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			124.82		
T4	5	WR-VG86ST-BRD(3/4)	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-VG86ST-BRD(3/4)	104.82 - 124.82	0.6000	0.6000
T4	8	ATCB-B01(5/16)	104.82 - 124.82	0.6000	0.6000
T4	9	WR-VG86ST-BRD(3/4)	104.82 - 124.82	0.6000	0.6000
T4	10	FB-L98B-002-XXX(3/8)	104.82 - 124.82	0.6000	0.6000
T4	11	Feedline Ladder (Af)	104.82 - 124.82	0.6000	0.6000
T4	13	WR-VG86ST-BRD(3/4)	104.82 - 124.82	0.6000	0.6000
T4	17	AVA5-50(7/8)	104.82 - 124.82	0.6000	0.6000
T4	21	EW52(ELLIPTICAL)	104.82 - 124.82	0.6000	0.6000
T4	22	ROHN Waveguide Brackets	104.82 - 124.82	0.6000	0.6000
T4	24	EW52(ELLIPTICAL)	104.82 - 116.00	0.6000	0.6000
T4	28	LDF7-50A(1-5/8)	104.82 - 124.82	0.6000	0.6000
T4	29	LMR-400(3/8)	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	4	AVA5-50(7/8)	84.82 - 104.82	0.6000	0.6000
T5	5	WR-VG86ST-BRD(3/4)	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-VG86ST-BRD(3/4)	84.82 - 104.82	0.6000	0.6000
T5	8	ATCB-B01(5/16)	84.82 - 104.82	0.6000	0.6000
T5	9	WR-VG86ST-BRD(3/4)	84.82 - 104.82	0.6000	0.6000
T5	10	FB-L98B-002-XXX(3/8)	84.82 - 104.82	0.6000	0.6000
T5	11	Feedline Ladder (Af)	84.82 - 104.82	0.6000	0.6000
T5	13	WR-VG86ST-BRD(3/4)	84.82 - 104.82	0.6000	0.6000
T5	17	AVA5-50(7/8)	84.82 - 104.82	0.6000	0.6000
T5	21	EW52(ELLIPTICAL)	84.82 - 104.82	0.6000	0.6000
T5	22	ROHN Waveguide Brackets	84.82 - 104.82	0.6000	0.6000
T5	24	EW52(ELLIPTICAL)	84.82 - 104.82	0.6000	0.6000
T5	28	LDF7-50A(1-5/8)	84.82 - 104.82	0.6000	0.6000
T5	29	LMR-400(3/8)	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	4	AVA5-50(7/8)	64.82 - 84.82	0.6000	0.6000
T6	5	WR-VG86ST-BRD(3/4)	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-VG86ST-BRD(3/4)	64.82 - 84.82	0.6000	0.6000
T6	8	ATCB-B01(5/16)	64.82 - 84.82	0.6000	0.6000
T6	9	WR-VG86ST-BRD(3/4)	64.82 - 84.82	0.6000	0.6000
T6	10	FB-L98B-002-XXX(3/8)	64.82 - 84.82	0.6000	0.6000
T6	11	Feedline Ladder (Af)	64.82 - 84.82	0.6000	0.6000
T6	13	WR-VG86ST-BRD(3/4)	64.82 - 84.82	0.6000	0.6000
T6	17	AVA5-50(7/8)	64.82 - 84.82	0.6000	0.6000
T6	21	EW52(ELLIPTICAL)	64.82 - 84.82	0.6000	0.6000
T6	22	ROHN Waveguide Brackets	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	24	EW52(ELLIPTICAL)	64.82 - 84.82	0.6000	0.6000
T6	28	LDF7-50A(1-5/8)	64.82 - 84.82	0.6000	0.6000
T6	29	LMR-400(3/8)	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	4	AVA5-50(7/8)	44.82 - 64.82	0.6000	0.6000
T7	5	WR-VG86ST-BRD(3/4)	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-VG86ST-BRD(3/4)	44.82 - 64.82	0.6000	0.6000
T7	8	ATCB-B01(5/16)	44.82 - 64.82	0.6000	0.6000
T7	9	WR-VG86ST-BRD(3/4)	44.82 - 64.82	0.6000	0.6000
T7	10	FB-L98B-002-XXX(3/8)	44.82 - 64.82	0.6000	0.6000
T7	11	Feedline Ladder (Af)	44.82 - 64.82	0.6000	0.6000
T7	13	WR-VG86ST-BRD(3/4)	44.82 - 64.82	0.6000	0.6000
T7	17	AVA5-50(7/8)	44.82 - 64.82	0.6000	0.6000
T7	21	EW52(ELLIPTICAL)	44.82 - 64.82	0.6000	0.6000
T7	22	ROHN Waveguide Brackets	44.82 - 64.82	0.6000	0.6000
T7	24	EW52(ELLIPTICAL)	44.82 - 64.82	0.6000	0.6000
T7	28	LDF7-50A(1-5/8)	44.82 - 64.82	0.6000	0.6000
T7	29	LMR-400(3/8)	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	4	AVA5-50(7/8)	24.82 - 44.82	0.6000	0.6000
T8	5	WR-VG86ST-BRD(3/4)	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-VG86ST-BRD(3/4)	24.82 - 44.82	0.6000	0.6000
T8	8	ATCB-B01(5/16)	24.82 - 44.82	0.6000	0.6000
T8	9	WR-VG86ST-BRD(3/4)	24.82 - 44.82	0.6000	0.6000
T8	10	FB-L98B-002-XXX(3/8)	24.82 - 44.82	0.6000	0.6000
T8	11	Feedline Ladder (Af)	24.82 - 44.82	0.6000	0.6000
T8	13	WR-VG86ST-BRD(3/4)	24.82 - 44.82	0.6000	0.6000
T8	17	AVA5-50(7/8)	24.82 - 44.82	0.6000	0.6000
T8	21	EW52(ELLIPTICAL)	24.82 - 44.82	0.6000	0.6000
T8	22	ROHN Waveguide Brackets	24.82 - 44.82	0.6000	0.6000
T8	24	EW52(ELLIPTICAL)	24.82 - 44.82	0.6000	0.6000
T8	28	LDF7-50A(1-5/8)	24.82 - 44.82	0.6000	0.6000
T8	29	LMR-400(3/8)	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	4	AVA5-50(7/8)	4.82 - 24.82	0.6000	0.6000
T9	5	WR-VG86ST-BRD(3/4)	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-VG86ST-BRD(3/4)	4.82 - 24.82	0.6000	0.6000
T9	8	ATCB-B01(5/16)	4.82 - 24.82	0.6000	0.6000
T9	9	WR-VG86ST-BRD(3/4)	4.82 - 24.82	0.6000	0.6000
T9	10	FB-L98B-002-XXX(3/8)	4.82 - 24.82	0.6000	0.6000
T9	11	Feedline Ladder (Af)	4.82 - 24.82	0.6000	0.6000
T9	13	WR-VG86ST-BRD(3/4)	4.82 - 24.82	0.6000	0.6000
T9	17	AVA5-50(7/8)	4.82 - 24.82	0.6000	0.6000
T9	21	EW52(ELLIPTICAL)	4.82 - 24.82	0.6000	0.6000
T9	22	ROHN Waveguide Brackets	4.82 - 24.82	0.6000	0.6000
T9	24	EW52(ELLIPTICAL)	4.82 - 24.82	0.6000	0.6000
T9	28	LDF7-50A(1-5/8)	4.82 - 24.82	0.6000	0.6000
T9	29	LMR-400(3/8)	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	4	AVA5-50(7/8)	0.00 - 4.82	0.4608	0.4608
T10	5	WR-VG86ST-BRD(3/4)	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-VG86ST-BRD(3/4)	0.00 - 4.82	0.4608	0.4608
T10	8	ATCB-B01(5/16)	0.00 - 4.82	0.4608	0.4608
T10	9	WR-VG86ST-BRD(3/4)	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	10	FB-L98B-002-XXX(3/8)	0.00 - 4.82	0.4608	0.4608
T10	11	Feedline Ladder (Af)	0.00 - 4.82	0.4608	0.4608
T10	13	WR-VG86ST-BRD(3/4)	0.00 - 4.82	0.4608	0.4608
T10	17	AVA5-50(7/8)	0.00 - 4.82	0.4608	0.4608
T10	21	EW52(ELLIPTICAL)	0.00 - 4.82	0.4608	0.4608
T10	22	ROHN Waveguide Brackets	0.00 - 4.82	0.4608	0.4608
T10	24	EW52(ELLIPTICAL)	0.00 - 4.82	0.4608	0.4608
T10	28	LDF7-50A(1-5/8)	0.00 - 4.82	0.4608	0.4608
T10	29	LMR-400(3/8)	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
*									
DBXLH-9090C-R2M w/ Mount Pipe	A	From Leg	4.000 0' 0'	0.000	183'	No Ice	14.060	6.700	0.100
DBXLH-9090C-R2M w/ Mount Pipe	B	From Leg	4.000 0' 0'	0.000	183'	No Ice	14.060	6.700	0.100
DBXLH-9090C-R2M w/ Mount Pipe	C	From Leg	4.000 0' 0'	0.000	183'	No Ice	14.060	6.700	0.100
(3) BSA-M65R-BUU-H6 w/ Mount Pipe	A	From Leg	4.000 0' 0'	0.000	183'	No Ice	17.790	7.650	0.124
(3) BSA-M65R-BUU-H6 w/ Mount Pipe	B	From Leg	4.000 0' 0'	0.000	183'	No Ice	17.790	7.650	0.124
(3) BSA-M65R-BUU-H6 w/ Mount Pipe	C	From Leg	4.000 0' 0'	0.000	183'	No Ice	17.790	7.650	0.124
(2) CBC819-DF	A	From Leg	4.000 0' 0'	0.000	183'	No Ice	0.447	0.070	0.004
(2) CBC819-DF	B	From Leg	4.000 0' 0'	0.000	183'	No Ice	0.447	0.070	0.004
(2) CBC819-DF	C	From Leg	4.000 0' 0'	0.000	183'	No Ice	0.447	0.070	0.004
(2) ETD819H-12UB	A	From Leg	4.000 0' 0'	0.000	183'	No Ice	1.311	0.342	0.019

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) ETD819H-12UB	B	From Leg	4.000 0' 0'	0.000	183'	No Ice	1.311	0.342	0.019
(2) ETD819H-12UB	C	From Leg	4.000 0' 0'	0.000	183'	No Ice	1.311	0.342	0.019
(2) RRUS 32	A	From Leg	4.000 0' 0'	0.000	183'	No Ice	2.857	1.777	0.055
(2) RRUS 32	B	From Leg	4.000 0' 0'	0.000	183'	No Ice	2.857	1.777	0.055
(2) RRUS 32	C	From Leg	4.000 0' 0'	0.000	183'	No Ice	2.857	1.777	0.055
(2) RRUS-11	A	From Leg	4.000 0' 0'	0.000	183'	No Ice	2.784	1.187	0.048
(2) RRUS-11	B	From Leg	4.000 0' 0'	0.000	183'	No Ice	2.784	1.187	0.048
(2) RRUS-11	C	From Leg	4.000 0' 0'	0.000	183'	No Ice	2.784	1.187	0.048
(2) RRUS 32 B2	A	From Leg	4.000 0' 0'	0.000	183'	No Ice	2.731	1.668	0.053
(2) RRUS 32 B2	B	From Leg	4.000 0' 0'	0.000	183'	No Ice	2.731	1.668	0.053
(2) RRUS 32 B2	C	From Leg	4.000 0' 0'	0.000	183'	No Ice	2.731	1.668	0.053
RRUS 4478 B14	A	From Leg	4.000 0' 0'	0.000	183'	No Ice	1.843	1.059	0.060
RRUS 4478 B14	B	From Leg	4.000 0' 0'	0.000	183'	No Ice	1.843	1.059	0.060
RRUS 4478 B14	C	From Leg	4.000 0' 0'	0.000	183'	No Ice	1.843	1.059	0.060
(2) RRUS 32 B66	A	From Leg	4.000 0' 0'	0.000	183'	No Ice	2.743	1.668	0.053
(2) RRUS 32 B66	B	From Leg	4.000 0' 0'	0.000	183'	No Ice	2.743	1.668	0.053
(2) RRUS 32 B66	C	From Leg	4.000 0' 0'	0.000	183'	No Ice	2.743	1.668	0.053
DC6-48-60-18-8C	A	From Leg	4.000 0' 0'	0.000	183'	No Ice	2.737	2.737	0.026
DC6-48-60-18-8C	B	From Leg	4.000 0' 0'	0.000	183'	No Ice	2.737	2.737	0.026

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
DC6-48-60-18-8C	C	From Leg	4.000 0' 0'	0.000	183'	No Ice	2.737	2.737	0.026
(2) RRUS 11	A	From Leg	4.000 0' 0'	0.000	183'	No Ice	2.784	1.187	0.048
(3) RRUS 11	B	From Leg	4.000 0' 0'	0.000	183'	No Ice	2.784	1.187	0.048
RRUS 11	C	From Leg	4.000 0' 0'	0.000	183'	No Ice	2.784	1.187	0.048
DC6-48-60-18-8F	A	From Leg	4.000 0' 0'	0.000	183'	No Ice	1.212	1.212	0.033
DC6-48-60-18-8F	B	From Leg	4.000 0' 0'	0.000	183'	No Ice	1.212	1.212	0.033
DC6-48-60-18-8F	C	From Leg	4.000 0' 0'	0.000	183'	No Ice	1.212	1.212	0.033
6' x 2" Mount Pipe	A	From Leg	2.000 0' 0'	0.000	183'	No Ice	1.425	1.425	0.022
6' x 2" Mount Pipe	B	From Leg	2.000 0' 0'	0.000	183'	No Ice	1.425	1.425	0.022
6' x 2" Mount Pipe	C	From Leg	2.000 0' 0'	0.000	183'	No Ice	1.425	1.425	0.022
Horizontal 12.5' x 2.375" Pipe Mount	A	From Leg	4.000 0' 0'	0.000	183'	No Ice	2.969	2.969	0.036
Horizontal 12.5' x 2.375" Pipe Mount	B	From Leg	4.000 0' 0'	0.000	183'	No Ice	2.969	2.969	0.036
Horizontal 12.5' x 2.375" Pipe Mount	C	From Leg	4.000 0' 0'	0.000	183'	No Ice	2.969	2.969	0.036
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	174'	No Ice	1.320	1.320	0.065
Horizontal 10' x 2" Mount Pipe *	C	From Face	0.500 0' 0'	0.000	174'	No Ice	2.375	2.375	0.037
Pipe Mount [PM 601-1]	B	From Leg	0.500 0' 0'	0.000	158'	No Ice	1.320	1.320	0.065
(2) Horizontal 10' x 2" Mount Pipe *	B	From Face	0.500 0' 0'	0.000	158'	No Ice	2.375	2.375	0.037
(2) X7CQAP-665-VR0 w/ Mount Pipe	A	From Leg	4.000 0'	0.000	150'	No Ice	8.880	6.440	0.089

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'						
(2) X7CQAP-665-VR0 w/ Mount Pipe	B	From Leg	4.000 0' 0'	0.000	150'	No Ice	8.880	6.440	0.089
(2) X7CQAP-665-VR0 w/ Mount Pipe	C	From Leg	4.000 0' 0'	0.000	150'	No Ice	8.880	6.440	0.089
RRUS 32 B4	A	From Leg	4.000 0' 0'	0.000	150'	No Ice	2.731	1.668	0.053
RRUS 32 B4	B	From Leg	4.000 0' 0'	0.000	150'	No Ice	2.731	1.668	0.053
RRUS 32 B4	C	From Leg	4.000 0' 0'	0.000	150'	No Ice	2.731	1.668	0.053
RHSDC-3315-PF-48	A	From Leg	4.000 0' 2'	0.000	150'	No Ice	3.708	2.192	0.032
(2) ODU600	C	From Leg	4.000 0' 0'	0.000	150'	No Ice	0.901	0.425	0.011
(2) 6' x 2" Mount Pipe	A	From Leg	4.000 0' 0'	0.000	150'	No Ice	1.425	1.425	0.022
(2) 6' x 2" Mount Pipe	B	From Leg	4.000 0' 0'	0.000	150'	No Ice	1.425	1.425	0.022
(2) 6' x 2" Mount Pipe	C	From Leg	4.000 0' 0'	0.000	150'	No Ice	1.425	1.425	0.022
Sector Mount [SM 502-3]	C	None		0.000	150'	No Ice	29.820	29.820	1.673
*									
Pipe Mount [PM 601-1]	C	From Leg	0.500 0' 0'	0.000	138'	No Ice	1.320	1.320	0.065
Horizontal 10' x 2" Mount Pipe	A	From Face	0.500 0' 0'	0.000	138'	No Ice	2.375	2.375	0.037
*									
Pipe Mount [PM 601-1]	B	From Leg	0.500 0' 0'	0.000	116'	No Ice	1.320	1.320	0.065
*									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft °	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
HSX6-59-P3A/B	C	Paraboloid w/Shroud (HP)	From Leg	1.000 0' 0'	-90.000		174'	6.000	No Ice	28.270	0.320
*											
Andrew HSX6-59A	B	Paraboloid w/Shroud (HP)	From Leg	1.000 0' 0'	40.000		158'	6.000	No Ice	28.300	0.143
*											
VHLPX3-11W	C	Paraboloid w/Shroud (HP)	From Leg	4.000 0' 0'	13.000		150'	3.283	No Ice	8.467	0.053
*											
HSX8-59	C	Paraboloid w/Shroud (HP)	From Leg	1.000 0' 0'	-90.000		138'	8.875	No Ice	61.862	0.500
*											
HSX6-59-P3A/B	B	Paraboloid w/Shroud (HP)	From Leg	1.000 0' 0'	-60.000		116'	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

Comb. No.	Description
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
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	46.333	-0.813	-0.349
			Max. Compression	5	-53.038	-0.026	0.354
			Max. Mx	49	-3.553	1.806	-0.199
			Max. My	59	-3.935	0.711	1.848
			Max. Vy	53	3.519	1.672	0.652
			Max. Vx	33	-3.729	0.008	-1.785
		Diagonal	Max Tension	8	4.492	0.000	0.000
			Max. Compression	23	-5.824	0.000	0.000
			Max. Mx	20	3.526	0.003	0.000
			Max. My	59	-2.097	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. Vy	20	-0.003	0.000	0.000
			Max. Vx	59	-0.000	0.000	0.000
		Top Girt	Max Tension	35	0.061	0.000	0.000
			Max. Compression	59	-0.083	0.000	0.000
			Max. Mx	46	-0.042	0.002	0.000
			Max. My	59	-0.042	0.000	-0.000
			Max. Vy	46	-0.002	0.000	0.000
			Max. Vx	59	0.000	0.000	0.000
		Bottom Girt	Max Tension	23	1.255	0.000	0.000
			Max. Compression	54	-0.065	0.000	0.000
			Max. Mx	52	-0.025	0.002	0.000
			Max. My	59	0.519	0.000	-0.000
			Max. Vy	52	-0.002	0.000	0.000
			Max. Vx	59	0.000	0.000	0.000
		Guy A	Bottom Tension	28	23.514		
			Top Tension	28	23.706		
			Top Cable Vert	28	19.716		
			Top Cable Norm	28	13.161		
			Top Cable Tan	28	0.043		
			Bot Cable Vert	28	-19.328		
			Bot Cable Norm	28	13.391		
			Bot Cable Tan	28	0.164		
		Guy B	Bottom Tension	58	24.142		
			Top Tension	58	24.333		
			Top Cable Vert	58	20.234		
			Top Cable Norm	58	13.517		
			Top Cable Tan	58	0.038		
			Bot Cable Vert	58	-19.845		
			Bot Cable Norm	58	13.747		
			Bot Cable Tan	58	0.169		
		Guy C	Bottom Tension	18	21.561		
			Top Tension	18	21.752		
			Top Cable Vert	18	17.664		
			Top Cable Norm	18	12.694		
			Top Cable Tan	18	0.039		
			Bot Cable Vert	18	-17.260		
			Bot Cable Norm	18	12.920		
			Bot Cable Tan	18	0.148		
		Top Guy Pull-Off	Max Tension	53	12.320	0.000	0.000
			Max. Compression	3	-10.412	0.000	0.000
			Max. Mx	16	8.183	0.012	0.000
			Max. My	59	0.488	0.000	-0.000
			Max. Vy	16	-0.014	0.000	0.000
			Max. Vx	59	0.000	0.000	0.000
		Torque Arm Top	Max Tension	18	14.026	0.000	0.000
			Max. Compression	18	-6.657	0.000	0.000
			Max. Mx	48	0.107	-64.467	0.000
			Max. My	59	-3.283	-33.588	-0.000
			Max. Vy	48	18.941	-64.467	0.000
			Max. Vx	59	-0.000	-33.588	-0.000
T2	164.818 - 144.818	Leg	Max Tension	15	11.651	-0.874	0.265
			Max. Compression	5	-52.881	0.036	-0.402
			Max. Mx	48	-1.181	1.336	0.113
			Max. My	33	4.832	0.005	-1.357
			Max. Vy	53	3.515	1.268	0.498
			Max. Vx	33	-3.726	0.005	-1.357
		Diagonal	Max Tension	18	3.488	0.000	0.000
			Max. Compression	18	-3.963	0.000	0.000
			Max. Mx	20	-2.396	0.001	0.000
			Max. My	59	1.321	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. Vy	20	-0.002	0.000	0.000
			Max. Vx	59	-0.000	0.000	0.000
		Top Girt	Max Tension	33	1.263	0.000	0.000
			Max. Compression	23	-0.023	0.000	0.000
			Max. Mx	53	1.256	0.002	0.000
			Max. My	59	0.585	0.000	-0.000
			Max. Vy	53	-0.002	0.000	0.000
			Max. Vx	59	0.000	0.000	0.000
		Bottom Girt	Max Tension	58	0.648	0.000	0.000
			Max. Compression	24	-0.227	0.000	0.000
			Max. Mx	46	0.365	0.002	0.000
			Max. My	59	0.576	0.000	-0.000
			Max. Vy	46	-0.002	0.000	0.000
			Max. Vx	59	0.000	0.000	0.000
T3	144.818 - 124.818	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	44	-47.696	-0.244	-0.165
			Max. Mx	6	-28.869	-1.337	0.424
			Max. My	61	-23.663	1.125	-1.327
			Max. Vy	19	2.134	0.486	-0.095
			Max. Vx	36	2.963	-0.223	0.604
		Diagonal	Max Tension	11	4.972	0.000	0.000
			Max. Compression	11	-5.376	0.000	0.000
			Max. Mx	24	2.245	0.001	0.000
			Max. My	59	-1.947	0.000	0.000
			Max. Vy	24	-0.002	0.000	0.000
			Max. Vx	59	-0.000	0.000	0.000
		Top Girt	Max Tension	58	0.779	0.000	0.000
			Max. Compression	31	-0.504	0.000	0.000
			Max. Mx	46	0.403	0.002	0.000
			Max. My	59	0.643	0.000	-0.000
			Max. Vy	46	-0.002	0.000	0.000
			Max. Vx	59	0.000	0.000	0.000
		Bottom Girt	Max Tension	2	1.769	0.000	0.000
			Max. Compression	36	-1.421	0.000	0.000
			Max. Mx	21	0.174	0.002	0.000
			Max. My	58	-1.064	0.000	-0.000
			Max. Vy	21	-0.002	0.000	0.000
			Max. Vx	58	0.000	0.000	0.000
T4	124.818 - 104.818	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	4	-47.734	-0.525	-0.267
			Max. Mx	22	-42.753	-1.149	-0.441
			Max. My	2	-42.765	-0.041	1.356
			Max. Vy	19	2.138	-0.827	-0.088
			Max. Vx	36	2.969	0.127	-1.219
		Diagonal	Max Tension	5	3.342	0.000	0.000
			Max. Compression	5	-3.739	0.000	0.000
			Max. Mx	23	-1.483	0.001	0.000
			Max. My	59	0.535	0.000	0.000
			Max. Vy	23	-0.002	0.000	0.000
			Max. Vx	59	-0.000	0.000	0.000
		Top Girt	Max Tension	2	0.764	0.000	0.000
			Max. Compression	1	0.000	0.000	0.000
			Max. Mx	45	0.162	0.002	0.000
			Max. My	23	0.328	0.000	-0.000
			Max. Vy	45	-0.002	0.000	0.000
			Max. Vx	23	0.000	0.000	0.000
		Bottom Girt	Max Tension	3	0.257	0.000	0.000
			Max. Compression	21	-0.109	0.000	0.000
			Max. Mx	36	0.179	0.002	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. My	58	0.021	0.000	-0.000
			Max. Vy	36	-0.002	0.000	0.000
			Max. Vx	58	0.000	0.000	0.000
		Guy A	Bottom Tension	36	14.633		
			Top Tension	36	14.733		
			Top Cable Vert	36	10.957		
			Top Cable Norm	36	9.849		
			Top Cable Tan	36	0.002		
			Bot Cable Vert	36	-10.713		
			Bot Cable Norm	36	9.967		
			Bot Cable Tan	36	0.002		
		Guy B	Bottom Tension	61	15.003		
			Top Tension	61	15.102		
			Top Cable Vert	61	11.226		
			Top Cable Norm	61	10.103		
			Top Cable Tan	61	0.020		
			Bot Cable Vert	61	-10.987		
			Bot Cable Norm	61	10.215		
			Bot Cable Tan	61	0.099		
		Guy C	Bottom Tension	11	13.501		
			Top Tension	11	13.601		
			Top Cable Vert	11	9.769		
			Top Cable Norm	11	9.464		
			Top Cable Tan	11	0.024		
			Bot Cable Vert	11	-9.523		
			Bot Cable Norm	11	9.570		
			Bot Cable Tan	11	0.097		
		Top Guy Pull-Off	Max Tension	2	4.905	0.000	0.000
			Max. Compression	1	0.000	0.000	0.000
			Max. Mx	45	1.042	0.011	0.000
			Max. My	23	2.109	0.000	-0.000
			Max. Vy	45	-0.012	0.000	0.000
			Max. Vx	23	0.000	0.000	0.000
T5	104.818 - 84.8177	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	3	-51.713	0.373	-0.088
			Max. Mx	56	-31.464	0.776	0.021
			Max. My	6	-37.731	-0.065	-0.604
			Max. Vy	21	1.701	0.380	-0.094
			Max. Vx	36	2.019	-0.175	0.229
		Diagonal	Max Tension	51	3.171	0.000	0.000
			Max. Compression	51	-3.438	0.000	0.000
			Max. Mx	3	0.696	0.001	0.000
			Max. My	58	0.652	0.000	0.000
			Max. Vy	3	-0.002	0.000	0.000
			Max. Vx	58	-0.000	0.000	0.000
		Top Girt	Max Tension	21	0.324	0.000	0.000
			Max. Compression	51	-0.188	0.000	0.000
			Max. Mx	49	-0.063	0.002	0.000
			Max. My	58	0.192	0.000	-0.000
			Max. Vy	49	-0.002	0.000	0.000
			Max. Vx	58	0.000	0.000	0.000
		Bottom Girt	Max Tension	6	1.531	0.000	0.000
			Max. Compression	36	-1.179	0.000	0.000
			Max. Mx	19	0.434	0.002	0.000
			Max. My	40	-0.781	0.000	0.000
			Max. Vy	19	-0.002	0.000	0.000
			Max. Vx	40	-0.000	0.000	0.000
T6	84.8177 - 64.8177	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	60	-57.943	0.049	0.546

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	26	-36.907	-1.307	-0.594
			Max. My	6	-37.397	-0.007	1.675
			Max. Vy	21	1.705	-0.667	0.051
			Max. Vx	59	2.182	0.230	0.866
		Diagonal	Max Tension	29	5.169	0.000	0.000
			Max. Compression	59	-5.232	0.000	0.000
			Max. Mx	35	4.298	0.002	0.000
			Max. My	59	-1.938	0.000	0.000
			Max. Vy	35	-0.002	0.000	0.000
			Max. Vx	59	-0.000	0.000	0.000
		Top Girt	Max Tension	6	1.002	0.000	0.000
			Max. Compression	36	-0.009	0.000	0.000
			Max. Mx	15	0.042	0.002	0.000
			Max. My	40	0.279	0.000	0.000
			Max. Vy	15	-0.002	0.000	0.000
			Max. Vx	40	-0.000	0.000	0.000
		Bottom Girt	Max Tension	35	0.777	0.000	0.000
			Max. Compression	2	-0.498	0.000	0.000
			Max. Mx	15	-0.237	0.002	0.000
			Max. My	58	0.482	0.000	-0.000
			Max. Vy	15	-0.002	0.000	0.000
			Max. Vx	58	0.000	0.000	0.000
		Guy A	Bottom Tension	31	16.127		
			Top Tension	31	16.183		
			Top Cable Vert	31	9.697		
			Top Cable Norm	31	12.956		
			Top Cable Tan	31	0.018		
			Bot Cable Vert	31	-9.542		
			Bot Cable Norm	31	13.001		
			Bot Cable Tan	31	0.091		
		Guy B	Bottom Tension	61	16.359		
			Top Tension	61	16.415		
			Top Cable Vert	61	9.835		
			Top Cable Norm	61	13.143		
			Top Cable Tan	61	0.020		
			Bot Cable Vert	61	-9.679		
			Bot Cable Norm	61	13.188		
			Bot Cable Tan	61	0.093		
		Guy C	Bottom Tension	11	15.362		
			Top Tension	11	15.418		
			Top Cable Vert	11	8.793		
			Top Cable Norm	11	12.665		
			Top Cable Tan	11	0.012		
			Bot Cable Vert	11	-8.633		
			Bot Cable Norm	11	12.707		
			Bot Cable Tan	11	0.087		
		Top Guy Pull-Off	Max Tension	6	6.433	0.000	0.000
			Max. Compression	36	-0.055	0.000	0.000
			Max. Mx	15	0.271	0.011	0.000
			Max. My	40	1.790	0.000	0.000
			Max. Vy	15	-0.013	0.000	0.000
			Max. Vx	40	-0.000	0.000	0.000
T7	64.8177 - 44.8177	Leg	Max Tension	5	14.292	0.053	-0.087
			Max. Compression	35	-74.914	0.247	0.192
			Max. Mx	57	-57.559	-0.691	-0.715
			Max. My	35	-57.823	-0.080	0.907
			Max. Vy	49	1.610	0.380	-0.121
			Max. Vx	59	2.194	0.086	0.616
		Diagonal	Max Tension	59	3.525	0.000	0.000
			Max. Compression	29	-3.713	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	6	-0.837	0.001	0.000
			Max. My	59	-1.174	0.000	0.000
			Max. Vy	6	-0.002	0.000	0.000
			Max. Vx	59	-0.000	0.000	0.000
		Top Girt	Max Tension	2	0.554	0.000	0.000
			Max. Compression	57	-0.510	0.000	0.000
			Max. Mx	15	0.285	0.002	0.000
			Max. My	58	-0.270	0.000	-0.000
			Max. Vy	15	-0.002	0.000	0.000
			Max. Vx	58	0.000	0.000	0.000
		Bottom Girt	Max Tension	52	0.339	0.000	0.000
			Max. Compression	24	-0.086	0.000	0.000
			Max. Mx	15	-0.057	0.002	0.000
			Max. My	41	0.250	0.000	-0.000
			Max. Vy	15	-0.002	0.000	0.000
			Max. Vx	41	0.000	0.000	0.000
T8	44.8177 - 24.8177	Leg	Max Tension	5	14.361	0.061	-0.162
			Max. Compression	35	-75.389	-0.083	0.108
			Max. Mx	46	-3.448	-0.632	0.024
			Max. My	6	3.314	0.293	-0.697
			Max. Vy	46	-1.482	-0.462	0.004
			Max. Vx	6	-1.630	0.226	-0.510
		Diagonal	Max Tension	5	1.995	0.000	0.000
			Max. Compression	6	-2.452	0.000	0.000
			Max. Mx	6	1.841	0.002	0.000
			Max. My	31	1.287	0.000	-0.000
			Max. Vy	6	-0.002	0.000	0.000
			Max. Vx	31	0.000	0.000	0.000
		Top Girt	Max Tension	26	0.191	0.000	0.000
			Max. Compression	59	-0.080	0.000	0.000
			Max. Mx	15	0.082	0.002	0.000
			Max. My	41	-0.042	0.000	-0.000
			Max. Vy	15	-0.002	0.000	0.000
			Max. Vx	41	0.000	0.000	0.000
		Bottom Girt	Max Tension	2	0.419	0.000	0.000
			Max. Compression	35	-0.274	0.000	0.000
			Max. Mx	15	0.132	0.002	0.000
			Max. My	41	-0.194	0.000	-0.000
			Max. Vy	15	-0.002	0.000	0.000
			Max. Vx	41	0.000	0.000	0.000
T9	24.8177 - 4.81771	Leg	Max Tension	5	3.513	0.215	-0.505
			Max. Compression	35	-68.336	0.346	-0.194
			Max. Mx	46	-40.250	1.360	-0.096
			Max. My	6	-25.399	0.164	1.783
			Max. Vy	22	3.966	-0.819	-0.255
			Max. Vx	34	4.278	-0.147	-1.335
		Diagonal	Max Tension	2	3.657	0.000	0.000
			Max. Compression	6	-3.564	0.000	0.000
			Max. Mx	6	2.574	0.002	0.000
			Max. My	41	1.521	0.000	0.000
			Max. Vy	6	-0.002	0.000	0.000
			Max. Vx	41	-0.000	0.000	0.000
		Top Girt	Max Tension	27	0.599	0.000	0.000
			Max. Compression	6	-0.393	0.000	0.000
			Max. Mx	15	-0.085	0.002	0.000
			Max. My	41	0.400	0.000	-0.000
			Max. Vy	15	-0.002	0.000	0.000
			Max. Vx	41	0.000	0.000	0.000
		Bottom Girt	Max Tension	2	1.594	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. Compression	1	0.000	0.000	0.000
			Max. Mx	12	0.736	0.002	0.000
			Max. My	40	1.076	0.000	-0.000
			Max. Vy	12	-0.002	0.000	0.000
			Max. Vx	40	0.000	0.000	0.000
T10	4.81771 - 0	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	2	-50.993	0.003	-0.014
			Max. Mx	2	-50.763	0.684	-0.586
			Max. My	40	-45.360	-0.312	-0.784
			Max. Vy	2	0.710	-0.361	-0.110
			Max. Vx	40	0.762	-0.250	-0.780
		Horizontal	Max Tension	2	0.748	-0.055	-0.108
			Max. Compression	61	-0.469	-0.048	-0.296
			Max. Mx	40	-0.005	0.842	-0.119
			Max. My	6	-0.364	0.369	-0.359
			Max. Vy	40	-1.636	0.842	-0.119
			Max. Vx	6	-0.499	0.045	0.067
		Top Girt	Max Tension	2	10.005	-0.104	0.254
			Max. Compression	1	0.000	0.000	0.000
			Max. Mx	6	6.356	0.971	-0.280
			Max. My	26	7.047	0.693	-0.315
			Max. Vy	6	-0.534	0.956	-0.308
			Max. Vx	27	0.127	-0.534	0.137

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Mast	Max. Vert	2	127.519	-0.045	3.400
	Max. H_x	50	104.885	3.125	-0.010
	Max. H_z	5	116.065	-0.028	3.865
	Max. M_x	1	0.000	-0.011	0.010
	Max. M_z	1	0.000	-0.011	0.010
	Max. Torsion	40	2.031	1.823	-3.163
	Min. Vert	1	83.447	-0.011	0.010
	Min. H_x	20	103.882	-3.170	0.035
	Min. H_z	35	99.909	-0.001	-4.061
	Min. M_x	1	0.000	-0.011	0.010
	Min. M_z	1	0.000	-0.011	0.010
	Min. Torsion	29	-1.908	-1.716	-3.089
Guy C @ 124 ft Elev 0 ft Azimuth 240 deg	Max. Vert	42	-1.395	-0.728	0.421
	Max. H_x	42	-1.395	-0.728	0.421
	Max. H_z	7	-50.482	-39.739	23.517
	Min. Vert	7	-50.482	-39.739	23.517
	Min. H_x	7	-50.482	-39.739	23.517
	Min. H_z	42	-1.395	-0.728	0.421
Guy B @ 115 ft Elev 0 ft Azimuth 120 deg	Max. Vert	23	-1.595	0.755	0.436
	Max. H_x	57	-57.828	42.057	24.831
	Max. H_z	57	-57.828	42.057	24.831
	Min. Vert	57	-57.828	42.057	24.831
	Min. H_x	22	-1.596	0.752	0.435
	Min. H_z	22	-1.596	0.752	0.435

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Guy A @ 115 ft Elev 0 ft Azimuth 0 deg	Max. Vert	2	-1.506	-0.000	-0.802
	Max. H_x	47	-25.455	0.788	-21.091
	Max. H_z	2	-1.506	-0.000	-0.802
	Min. Vert	27	-56.435	-0.463	-47.713
	Min. H_x	17	-29.538	-0.800	-24.063
	Min. H_z	27	-56.435	-0.463	-47.713

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	83.447	0.011	-0.010	0.000	0.000	0.003
1.2 Dead+1.0 Wind 0 deg - No Ice+1.0 Guy	127.519	0.045	-3.400	0.000	0.000	-0.285
1.2D+1.0W (pattern 1) 0 deg - No Ice+1.0 Guy	124.081	0.045	-1.666	0.000	0.000	-0.302
1.2D+1.0W (pattern 2) 0 deg - No Ice+1.0 Guy	122.512	0.049	-3.602	0.000	0.000	-0.534
1.2D+1.0W (pattern 3) 0 deg - No Ice+1.0 Guy	116.065	0.028	-3.865	0.000	0.000	0.002
1.2D+1.0W (pattern 4) 0 deg - No Ice+1.0 Guy	114.842	0.043	-3.640	0.000	0.000	-0.243
1.2 Dead+1.0 Wind 30 deg - No Ice+1.0 Guy	114.882	1.820	-2.844	0.000	0.000	1.465
1.2D+1.0W (pattern 1) 30 deg - No Ice+1.0 Guy	112.360	1.018	-1.423	0.000	0.000	1.480
1.2D+1.0W (pattern 2) 30 deg - No Ice+1.0 Guy	111.233	1.873	-2.966	0.000	0.000	1.241
1.2D+1.0W (pattern 3) 30 deg - No Ice+1.0 Guy	106.582	1.891	-3.167	0.000	0.000	1.710
1.2D+1.0W (pattern 4) 30 deg - No Ice+1.0 Guy	106.511	1.824	-2.977	0.000	0.000	1.482
1.2 Dead+1.0 Wind 60 deg - No Ice+1.0 Guy	98.439	2.789	-1.621	0.000	0.000	1.149
1.2D+1.0W (pattern 1) 60 deg - No Ice+1.0 Guy	97.693	1.501	-0.878	0.000	0.000	1.166
1.2D+1.0W (pattern 2) 60 deg - No Ice+1.0 Guy	97.232	2.854	-1.659	0.000	0.000	0.937
1.2D+1.0W (pattern 3) 60 deg - No Ice+1.0 Guy	96.404	2.930	-1.699	0.000	0.000	0.965
1.2D+1.0W (pattern 4) 60 deg - No Ice+1.0 Guy	96.694	2.780	-1.617	0.000	0.000	1.091
1.2 Dead+1.0 Wind 90 deg - No Ice+1.0 Guy	111.220	2.898	-0.110	0.000	0.000	0.049
1.2D+1.0W (pattern 1) 90 deg - No Ice+1.0 Guy	109.131	1.481	-0.129	0.000	0.000	0.082
1.2D+1.0W (pattern 2) 90 deg - No Ice+1.0 Guy	108.139	3.003	-0.105	0.000	0.000	-0.084
1.2D+1.0W (pattern 3) 90 deg - No Ice+1.0 Guy	103.882	3.170	-0.035	0.000	0.000	-0.286
1.2D+1.0W (pattern 4) 90 deg - No Ice+1.0 Guy	103.231	2.997	-0.054	0.000	0.000	-0.002
1.2 Dead+1.0 Wind 120 deg - No Ice+1.0 Guy	121.242	2.579	1.448	0.000	0.000	0.833

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
1.2D+1.0W (pattern 1) 120 deg - No Ice+1.0 Guy	118.345	1.273	0.692	0.000	0.000	0.873
1.2D+1.0W (pattern 2) 120 deg - No Ice+1.0 Guy	116.984	2.712	1.517	0.000	0.000	0.827
1.2D+1.0W (pattern 3) 120 deg - No Ice+1.0 Guy	111.154	2.899	1.648	0.000	0.000	0.540
1.2D+1.0W (pattern 4) 120 deg - No Ice+1.0 Guy	109.140	2.751	1.549	0.000	0.000	0.775
1.2 Dead+1.0 Wind 150 deg - No Ice+1.0 Guy	116.677	1.629	2.981	0.000	0.000	1.766
1.2D+1.0W (pattern 1) 150 deg - No Ice+1.0 Guy	114.011	0.784	1.547	0.000	0.000	1.794
1.2D+1.0W (pattern 2) 150 deg - No Ice+1.0 Guy	112.850	1.716	3.089	0.000	0.000	1.908
1.2D+1.0W (pattern 3) 150 deg - No Ice+1.0 Guy	108.315	1.860	3.232	0.000	0.000	1.527
1.2D+1.0W (pattern 4) 150 deg - No Ice+1.0 Guy	107.822	1.751	3.060	0.000	0.000	1.693
1.2 Dead+1.0 Wind 180 deg - No Ice+1.0 Guy	102.959	-0.016	3.854	0.000	0.000	-0.073
1.2D+1.0W (pattern 1) 180 deg - No Ice+1.0 Guy	101.738	-0.013	2.057	0.000	0.000	-0.070
1.2D+1.0W (pattern 2) 180 deg - No Ice+1.0 Guy	101.166	-0.026	3.949	0.000	0.000	0.189
1.2D+1.0W (pattern 3) 180 deg - No Ice+1.0 Guy	99.909	0.001	4.061	0.000	0.000	-0.282
1.2D+1.0W (pattern 4) 180 deg - No Ice+1.0 Guy	100.455	-0.009	3.856	0.000	0.000	-0.133
1.2 Dead+1.0 Wind 210 deg - No Ice+1.0 Guy	114.272	-1.638	2.934	0.000	0.000	-1.931
1.2D+1.0W (pattern 1) 210 deg - No Ice+1.0 Guy	111.624	-0.809	1.528	0.000	0.000	-1.958
1.2D+1.0W (pattern 2) 210 deg - No Ice+1.0 Guy	110.113	-1.736	3.044	0.000	0.000	-1.711
1.2D+1.0W (pattern 3) 210 deg - No Ice+1.0 Guy	107.154	-1.823	3.163	0.000	0.000	-2.031
1.2D+1.0W (pattern 4) 210 deg - No Ice+1.0 Guy	106.534	-1.743	3.000	0.000	0.000	-1.936
1.2 Dead+1.0 Wind 240 deg - No Ice+1.0 Guy	120.508	-2.491	1.422	0.000	0.000	-0.996
1.2D+1.0W (pattern 1) 240 deg - No Ice+1.0 Guy	117.611	-1.222	0.689	0.000	0.000	-1.039
1.2D+1.0W (pattern 2) 240 deg - No Ice+1.0 Guy	115.844	-2.633	1.503	0.000	0.000	-0.778
1.2D+1.0W (pattern 3) 240 deg - No Ice+1.0 Guy	110.992	-2.791	1.600	0.000	0.000	-0.920
1.2D+1.0W (pattern 4) 240 deg - No Ice+1.0 Guy	108.534	-2.663	1.521	0.000	0.000	-0.986
1.2 Dead+1.0 Wind 270 deg - No Ice+1.0 Guy	111.441	-2.863	-0.016	0.000	0.000	-0.143
1.2D+1.0W (pattern 1) 270 deg - No Ice+1.0 Guy	109.245	-1.447	-0.032	0.000	0.000	-0.189
1.2D+1.0W (pattern 2) 270 deg - No Ice+1.0 Guy	107.881	-2.981	0.007	0.000	0.000	0.069
1.2D+1.0W (pattern 3) 270 deg - No Ice+1.0 Guy	104.885	-3.125	0.010	0.000	0.000	0.130
1.2D+1.0W (pattern 4) 270 deg - No Ice+1.0 Guy	103.803	-2.961	0.036	0.000	0.000	-0.076
1.2 Dead+1.0 Wind 300 deg - No Ice+1.0 Guy	102.325	-2.799	-1.575	0.000	0.000	-1.056
1.2D+1.0W (pattern 1) 300 deg	101.383	-1.475	-0.812	0.000	0.000	-1.081

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) 300 deg - No Ice+1.0 Guy	100.894	-2.873	-1.607	0.000	0.000	-0.926
1.2D+1.0W (pattern 3) 300 deg - No Ice+1.0 Guy	99.227	-2.960	-1.704	0.000	0.000	-0.762
1.2D+1.0W (pattern 4) 300 deg - No Ice+1.0 Guy	99.517	-2.794	-1.588	0.000	0.000	-0.930
1.2 Dead+1.0 Wind 330 deg - No Ice+1.0 Guy	118.608	-1.748	-2.842	0.000	0.000	-1.754
1.2D+1.0W (pattern 1) 330 deg - No Ice+1.0 Guy	115.930	-0.931	-1.399	0.000	0.000	-1.785
1.2D+1.0W (pattern 2) 330 deg - No Ice+1.0 Guy	114.747	-1.799	-2.976	0.000	0.000	-1.935
1.2D+1.0W (pattern 3) 330 deg - No Ice+1.0 Guy	109.503	-1.859	-3.195	0.000	0.000	-1.502
1.2D+1.0W (pattern 4) 330 deg - No Ice+1.0 Guy	109.143	-1.758	-2.999	0.000	0.000	-1.681
Dead+Wind 0 deg - Service+Guy	83.685	0.020	-1.108	0.000	0.000	-0.082
Dead+Wind 30 deg - Service+Guy	83.549	0.526	-0.874	0.000	0.000	0.415
Dead+Wind 60 deg - Service+Guy	83.533	0.790	-0.461	0.000	0.000	0.306
Dead+Wind 90 deg - Service+Guy	83.534	0.870	-0.016	0.000	0.000	0.016
Dead+Wind 120 deg - Service+Guy	83.603	0.821	0.450	0.000	0.000	0.235
Dead+Wind 150 deg - Service+Guy	83.711	0.525	0.876	0.000	0.000	0.481
Dead+Wind 180 deg - Service+Guy	83.823	0.008	1.084	0.000	0.000	-0.030
Dead+Wind 210 deg - Service+Guy	83.852	-0.501	0.855	0.000	0.000	-0.543
Dead+Wind 240 deg - Service+Guy	83.838	-0.777	0.441	0.000	0.000	-0.289
Dead+Wind 270 deg - Service+Guy	83.803	-0.843	0.007	0.000	0.000	-0.044
Dead+Wind 300 deg - Service+Guy	83.797	-0.783	-0.461	0.000	0.000	-0.273
Dead+Wind 330 deg - Service+Guy	83.723	-0.495	-0.891	0.000	0.000	-0.488

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.000	-25.296	0.000	0.001	25.296	-0.000	0.003%
2	-1.056	-30.060	-46.466	1.056	30.060	46.465	0.002%
3	-1.056	-30.060	-42.035	1.056	30.060	42.034	0.002%
4	-1.199	-30.060	-43.577	1.199	30.060	43.576	0.002%
5	-0.675	-30.060	-41.400	0.675	30.060	41.399	0.002%
6	-0.883	-30.060	-41.503	0.883	30.060	41.502	0.002%
7	19.648	-29.946	-38.269	-19.648	29.946	38.268	0.003%
8	17.630	-29.946	-34.774	-17.630	29.946	34.774	0.002%
9	18.191	-29.946	-35.981	-18.191	29.946	35.980	0.002%
10	18.016	-29.946	-34.043	-18.016	29.946	34.042	0.002%
11	17.498	-29.946	-34.033	-17.498	29.946	34.032	0.003%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
12	35.166	-29.826	-20.052	-35.165	29.826	20.052	0.001%
13	32.032	-29.826	-18.243	-32.032	29.826	18.243	0.001%
14	33.005	-29.826	-18.805	-33.005	29.826	18.805	0.001%
15	31.576	-29.826	-18.021	-31.575	29.826	18.021	0.001%
16	31.036	-29.826	-17.726	-31.035	29.826	17.726	0.001%
17	40.264	-29.946	1.201	-40.263	29.946	-1.201	0.002%
18	36.801	-29.946	1.201	-36.800	29.946	-1.201	0.002%
19	37.897	-29.946	1.319	-37.896	29.946	-1.318	0.002%
20	36.057	-29.946	0.783	-36.056	29.946	-0.782	0.003%
21	35.417	-29.946	1.031	-35.416	29.946	-1.030	0.002%
22	36.177	-30.060	21.943	-36.176	30.060	-21.942	0.002%
23	32.933	-30.060	20.070	-32.932	30.060	-20.070	0.002%
24	33.967	-30.060	20.832	-33.966	30.060	-20.831	0.003%
25	32.444	-30.060	19.370	-32.443	30.060	-19.369	0.003%
26	31.960	-30.060	19.352	-31.959	30.060	-19.352	0.002%
27	22.283	-29.933	38.395	-22.282	29.933	-38.395	0.002%
28	20.214	-29.933	34.813	-20.214	29.933	-34.812	0.002%
29	20.915	-29.933	36.105	-20.914	29.933	-36.105	0.002%
30	19.911	-29.933	34.273	-19.910	29.933	-34.273	0.002%
31	19.801	-29.933	34.113	-19.801	29.933	-34.113	0.001%
32	0.569	-29.805	45.466	-0.570	29.805	-45.466	0.002%
33	0.569	-29.805	41.043	-0.570	29.805	-41.042	0.002%
34	0.797	-29.805	42.565	-0.798	29.805	-42.564	0.001%
35	0.267	-29.805	40.705	-0.269	29.805	-40.704	0.002%
36	0.426	-29.805	40.604	-0.427	29.805	-40.604	0.002%
37	-20.379	-29.920	37.693	20.379	29.920	-37.693	0.001%
38	-18.362	-29.920	34.198	18.361	29.920	-34.198	0.002%
39	-18.854	-29.920	35.341	18.854	29.920	-35.341	0.002%
40	-18.593	-29.920	33.695	18.592	29.920	-33.695	0.002%
41	-18.160	-29.920	33.523	18.158	29.920	-33.522	0.003%
42	-35.006	-30.039	20.812	35.005	30.039	-20.812	0.002%
43	-31.859	-30.039	18.995	31.859	30.039	-18.995	0.002%
44	-32.762	-30.039	19.517	32.761	30.039	-19.516	0.002%
45	-31.536	-30.039	18.609	31.535	30.039	-18.608	0.003%
46	-30.916	-30.039	18.410	30.915	30.039	-18.410	0.002%
47	-40.576	-29.920	-2.006	40.575	29.920	2.007	0.002%
48	-37.113	-29.920	-2.006	37.112	29.920	2.007	0.002%
49	-38.120	-29.920	-2.151	38.119	29.920	2.152	0.003%
50	-36.356	-29.920	-1.331	36.355	29.920	1.332	0.002%
51	-35.707	-29.920	-1.743	35.706	29.920	1.743	0.002%
52	-36.870	-29.805	-22.529	36.870	29.805	22.530	0.001%
53	-33.637	-29.805	-20.662	33.636	29.805	20.662	0.001%
54	-34.607	-29.805	-21.486	34.607	29.805	21.485	0.001%
55	-32.970	-29.805	-19.720	32.969	29.805	19.721	0.002%
56	-32.587	-29.805	-19.865	32.586	29.805	19.866	0.002%
57	-22.576	-29.933	-39.383	22.576	29.933	39.383	0.002%
58	-20.508	-29.933	-35.801	20.508	29.933	35.800	0.002%
59	-21.277	-29.933	-37.054	21.277	29.933	37.053	0.002%
60	-20.067	-29.933	-34.989	20.067	29.933	34.987	0.002%
61	-20.047	-29.933	-35.018	20.047	29.933	35.017	0.001%
62	-0.287	-25.331	-12.648	0.287	25.331	12.648	0.001%
63	5.348	-25.299	-10.417	-5.348	25.299	10.417	0.002%
64	9.572	-25.267	-5.458	-9.572	25.267	5.458	0.001%
65	10.960	-25.299	0.327	-10.960	25.299	-0.327	0.001%
66	9.848	-25.331	5.973	-9.847	25.331	-5.973	0.002%
67	6.066	-25.296	10.452	-6.065	25.296	-10.451	0.002%
68	0.155	-25.261	12.376	-0.155	25.261	-12.376	0.001%
69	-5.547	-25.292	10.260	5.547	25.292	-10.260	0.002%
70	-9.529	-25.325	5.665	9.529	25.325	-5.665	0.002%
71	-11.045	-25.292	-0.546	11.045	25.292	0.546	0.001%
72	-10.036	-25.261	-6.133	10.036	25.261	6.132	0.001%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
73	-6.145	-25.296	-10.720	6.145	25.296	10.720	0.002%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	9	0.00000001	0.00006322
2	Yes	21	0.00000001	0.00005651
3	Yes	20	0.00000001	0.00006198
4	Yes	20	0.00000001	0.00007608
5	Yes	20	0.00000001	0.00006788
6	Yes	20	0.00000001	0.00008256
7	Yes	19	0.00000001	0.00009752
8	Yes	19	0.00000001	0.00005553
9	Yes	19	0.00000001	0.00006882
10	Yes	19	0.00000001	0.00007159
11	Yes	19	0.00000001	0.00009208
12	Yes	15	0.00000001	0.00007641
13	Yes	14	0.00000001	0.00007951
14	Yes	15	0.00000001	0.00006286
15	Yes	15	0.00000001	0.00007394
16	Yes	15	0.00000001	0.00008025
17	Yes	19	0.00000001	0.00006704
18	Yes	18	0.00000001	0.00006207
19	Yes	18	0.00000001	0.00008381
20	Yes	18	0.00000001	0.00009179
21	Yes	19	0.00000001	0.00006809
22	Yes	20	0.00000001	0.00006608
23	Yes	19	0.00000001	0.00006617
24	Yes	19	0.00000001	0.00008489
25	Yes	19	0.00000001	0.00008534
26	Yes	20	0.00000001	0.00005744
27	Yes	20	0.00000001	0.00005960
28	Yes	19	0.00000001	0.00006457
29	Yes	19	0.00000001	0.00008067
30	Yes	19	0.00000001	0.00007985
31	Yes	20	0.00000001	0.00005277
32	Yes	19	0.00000001	0.00005082
33	Yes	16	0.00000001	0.00007462
34	Yes	16	0.00000001	0.00005314
35	Yes	18	0.00000001	0.00006640
36	Yes	19	0.00000001	0.00005671
37	Yes	20	0.00000001	0.00005327
38	Yes	19	0.00000001	0.00005806
39	Yes	19	0.00000001	0.00006865
40	Yes	19	0.00000001	0.00007740
41	Yes	19	0.00000001	0.00009610
42	Yes	20	0.00000001	0.00006432
43	Yes	19	0.00000001	0.00006430
44	Yes	19	0.00000001	0.00007944
45	Yes	19	0.00000001	0.00008615
46	Yes	20	0.00000001	0.00005572
47	Yes	19	0.00000001	0.00007322
48	Yes	18	0.00000001	0.00007004
49	Yes	18	0.00000001	0.00008734
50	Yes	19	0.00000001	0.00005203

51	Yes	19	0.00000001	0.00007355
52	Yes	16	0.00000001	0.00005548
53	Yes	15	0.00000001	0.00004895
54	Yes	15	0.00000001	0.00007421
55	Yes	16	0.00000001	0.00008024
56	Yes	16	0.00000001	0.00005941
57	Yes	20	0.00000001	0.00006692
58	Yes	19	0.00000001	0.00007299
59	Yes	19	0.00000001	0.00009205
60	Yes	19	0.00000001	0.00008507
61	Yes	20	0.00000001	0.00005767
62	Yes	14	0.00000001	0.00004822
63	Yes	13	0.00000001	0.00006792
64	Yes	13	0.00000001	0.00004984
65	Yes	13	0.00000001	0.00005162
66	Yes	13	0.00000001	0.00006808
67	Yes	13	0.00000001	0.00006911
68	Yes	13	0.00000001	0.00006279
69	Yes	13	0.00000001	0.00007384
70	Yes	13	0.00000001	0.00007297
71	Yes	13	0.00000001	0.00005496
72	Yes	13	0.00000001	0.00004953
73	Yes	13	0.00000001	0.00006945

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	184.818 - 164.818	2.371	72	0.138	0.150
T2	164.818 - 144.818	1.778	72	0.083	0.149
T3	144.818 - 124.818	1.538	68	0.054	0.257
T4	124.818 - 104.818	1.307	68	0.038	0.297
T5	104.818 - 84.8177	1.262	62	0.012	0.266
T6	84.8177 - 64.8177	1.315	62	0.035	0.247
T7	64.8177 - 44.8177	1.581	62	0.028	0.228
T8	44.8177 - 24.8177	1.583	62	0.048	0.196
T9	24.8177 - 4.81771	1.098	62	0.138	0.146
T10	4.81771 - 0	0.198	62	0.190	0.075

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	2.371	0.138	0.150	32536
183'	DBXLH-9090C-R2M w/ Mount Pipe	72	2.309	0.133	0.147	32536
174'	HSX6-59-P3A/B	72	2.014	0.106	0.137	15038
167'4-3/32"	Guy	72	1.833	0.089	0.143	9434
158'	Andrew HSX6-59A	72	1.668	0.070	0.180	14458
150'	VHLPX3-11W	68	1.583	0.060	0.229	59208
138'	HSX8-59	68	1.458	0.049	0.283	61914
124'2-7/16"	Guy	68	1.302	0.037	0.296	14713
116'	HSX6-59-P3A/B	68	1.266	0.025	0.290	27215

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
84'2-7/16"	Guy	62	1.321	0.035	0.247	12154

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	184.818 - 164.818	13.824	3	0.669	0.817
T2	164.818 - 144.818	11.722	3	0.465	0.814
T3	144.818 - 124.818	11.209	2	0.333	1.207
T4	124.818 - 104.818	10.632	2	0.278	1.340
T5	104.818 - 84.8177	10.890	6	0.225	1.188
T6	84.8177 - 64.8177	11.043	6	0.189	1.050
T7	64.8177 - 44.8177	11.435	6	0.149	0.927
T8	44.8177 - 24.8177	10.236	6	0.474	0.755
T9	24.8177 - 4.81771	6.660	6	0.900	0.542
T10	4.81771 - 0	1.175	6	1.139	0.290

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'	3	13.824	0.669	0.817	8478
183'	DBXLH-9090C-R2M w/ Mount Pipe	3	13.601	0.649	0.806	8478
174'	HSX6-59-P3A/B	3	12.551	0.553	0.770	3919
167'4-3/32"	Guy	3	11.914	0.488	0.789	2453
158'	Andrew HSX6-59A	2	11.378	0.411	0.928	3048
150'	VHLPX3-11W	2	11.283	0.359	1.103	4183
138'	HSX8-59	2	11.023	0.304	1.299	4056
124'2-7/16"	Guy	2	10.622	0.277	1.338	3374
116'	HSX6-59-P3A/B	2	10.563	0.260	1.288	4911
84'2-7/16"	Guy	6	11.054	0.188	1.046	3381

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	5.824	9.777	0.596 ✔	1.05	Gusset Bearing
		Top Girt	A325X	0.500	1	0.083	7.016	0.012 ✔	1.05	Member Bearing
		Bottom Girt	A325X	0.500	1	1.255	5.919	0.212 ✔	1.05	Member Bearing
		Top Guy Pull-Off@167.341	A325N	0.625	2	6.160	11.061	0.557 ✔	1.05	Gusset 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
		Torque Arm Top@167.341	A325N	0.875	2	7.013	13.200	0.531 ✔	1.05	Gusset Bearing
T2	164.818	Leg	A325X	0.750	4	4.407	30.101	0.146 ✔	1.05	Bolt Tension
		Diagonal	A325X	0.500	1	3.488	5.919	0.589 ✔	1.05	Member Bearing
		Top Girt	A325X	0.500	1	1.263	5.919	0.213 ✔	1.05	Member Bearing
		Bottom Girt	A325X	0.500	1	0.916	5.919	0.155 ✔	1.05	Member Bearing
T3	144.818	Leg	A325X	0.750	4	3.146	30.101	0.105 ✔	1.05	Bolt Tension
		Diagonal	A325X	0.500	1	4.972	5.919	0.840 ✔	1.05	Member Bearing
		Top Girt	A325X	0.500	1	0.826	5.919	0.140 ✔	1.05	Member Bearing
		Bottom Girt	A325X	0.500	1	1.769	5.919	0.299 ✔	1.05	Member Bearing
T4	124.818	Leg	A325X	0.750	4	3.975	30.101	0.132 ✔	1.05	Bolt Tension
		Diagonal	A325X	0.500	1	3.342	5.919	0.565 ✔	1.05	Member Bearing
		Top Girt	A325X	0.500	1	0.827	5.919	0.140 ✔	1.05	Member Bearing
		Bottom Girt	A325X	0.500	1	0.827	5.919	0.140 ✔	1.05	Member Bearing
		Top Guy Pull-Off@124.203	A325N	0.750	2	2.452	12.130	0.202 ✔	1.05	Gusset Bearing
T5	104.818	Leg	A325X	0.750	4	3.686	30.101	0.122 ✔	1.05	Bolt Tension
		Diagonal	A325X	0.500	1	3.171	5.919	0.536 ✔	1.05	Member Bearing
		Top Girt	A325X	0.500	1	0.896	5.919	0.151 ✔	1.05	Member Bearing
		Bottom Girt	A325X	0.500	1	1.531	5.919	0.259 ✔	1.05	Member Bearing
T6	84.8177	Leg	A325X	0.750	4	4.310	30.101	0.143 ✔	1.05	Bolt Tension
		Diagonal	A325X	0.500	1	5.169	5.919	0.873 ✔	1.05	Member Bearing
		Top Girt	A325X	0.500	1	1.004	5.919	0.170 ✔	1.05	Member Bearing
		Bottom Girt	A325X	0.500	1	1.004	5.919	0.170 ✔	1.05	Member Bearing
		Top Guy Pull-Off@84.2031	A325N	0.750	2	3.216	12.130	0.265 ✔	1.05	Gusset Bearing
T7	64.8177	Leg	A325X	0.750	4	4.829	30.101	0.160 ✔	1.05	Bolt Tension
		Diagonal	A325X	0.500	1	3.525	5.919	0.596 ✔	1.05	Member Bearing
		Top Girt	A325X	0.500	1	1.298	5.919	0.219 ✔	1.05	Member Bearing
		Bottom Girt	A325X	0.500	1	1.298	5.919	0.219 ✔	1.05	Member Bearing
T8	44.8177	Leg	A325X	0.750	4	6.243	30.101	0.207 ✔	1.05	Bolt Tension
		Diagonal	A325X	0.500	1	2.452	7.016	0.349 ✔	1.05	Member Bearing
		Top Girt	A325X	0.500	1	1.306	5.919	0.221 ✔	1.05	Member Bearing
		Bottom Girt	A325X	0.500	1	1.306	5.919	0.221 ✔	1.05	Member Bearing
T9	24.8177	Leg	A325X	0.750	4	5.695	30.101	0.189 ✔	1.05	Bolt Tension
		Diagonal	A325X	0.500	1	3.657	5.919	0.618 ✔	1.05	Member Bearing
		Top Girt	A325X	0.500	1	1.184	5.919	0.200 ✔	1.05	Member Bearing
		Bottom Girt	A325X	0.500	1	1.594	5.919	0.269 ✔	1.05	Member Bearing
T10	4.81771	Leg	A325X	0.750	4	4.237	30.101	0.141 ✔	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 EHS	8.745	58.300	22.238	36.729	0.952	1.573 ✔
	167'4-3/32" (A) (373)	3/4 EHS	8.745	58.300	23.706	36.729	0.952	1.476 ✔
	167'4-3/32" (B) (368)	3/4 EHS	8.745	58.300	24.333	36.729	0.952	1.438 ✔
	167'4-3/32" (B) (369)	3/4 EHS	8.745	58.300	22.630	36.729	0.952	1.546 ✔
	167'4-3/32" (C) (361)	3/4 EHS	8.745	58.300	21.278	36.729	0.952	1.644 ✔
	167'4-3/32" (C) (362)	3/4 EHS	8.745	58.300	21.752	36.729	0.952	1.608 ✔
T4	124'2-7/16" (A) (381)	5/8 EHS	4.240	42.400	14.733	26.712	0.952	1.727 ✔
	124'2-7/16" (B) (380)	5/8 EHS	4.240	42.400	15.102	26.712	0.952	1.684 ✔
	124'2-7/16" (C) (376)	5/8 EHS	4.240	42.400	13.601	26.712	0.952	1.870 ✔
T6	84'2-7/16" (A) (387)	9/16 EHS	3.500	35.000	16.183	22.050	0.952	1.298 ✔
	84'2-7/16" (B) (386)	9/16 EHS	3.500	35.000	16.415	22.050	0.952	1.279 ✔
	84'2-7/16" (C) (382)	9/16 EHS	3.500	35.000	15.418	22.050	0.952	1.362 ✔

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	-53.038	94.407	0.562 [1] ✔
T2	164.818 - 144.818	ROHN 2.5 STD	20'	2'4-29/32"	30.5 K=1.00	1.704	-50.571	71.637	0.706 [1] ✔
T3	144.818 - 124.818	ROHN 2.5 STD	20'	2'4-29/32"	61.0 K=2.00	1.704	-46.026	58.406	0.788 [1] ✔
T4	124.818 - 104.818	ROHN 2.5 STD	20'	2'4-29/32"	61.0 K=2.00	1.704	-47.734	58.406	0.817 [1] ✔
T5	104.818 - 84.8177	ROHN 2.5 EH	20'	2'4-29/32"	62.6 K=2.00	2.254	-49.676	76.170	0.652 [1] ✔
T6	84.8177 - 64.8177	ROHN 2.5 EH	20'	2'4-29/32"	62.6 K=2.00	2.254	-56.915	76.170	0.747 [1] ✔
T7	64.8177 -	ROHN 2.5 EH	20'	2'4-29/3	62.6	2.254	-74.317	76.170	0.976 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
	44.8177			2"	K=2.00				✔
T8	44.8177 - 24.8177	ROHN 2.5 EH	20'	2'4-29/32"	62.6 K=2.00	2.254	-75.389	76.170	0.990 [1] ✔
T9	24.8177 - 4.81771	ROHN 2.5 EH	20'	2'4-29/32"	62.6 K=2.00	2.254	-66.980	76.170	0.879 [1] ✔
T10	4.81771 - 0	ROHN 2.5 EH	5'2-15/32"	1'3-5/8"	16.9 K=1.00	2.254	-50.993	99.313	0.513 [1] ✔

[1] P_u / ϕP_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	-5.824	10.887	0.535 [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	-3.963	6.208	0.638 [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	-5.376	6.208	0.866 [1] ✔
T4	124.818 - 104.818	ROHN 1.5 x 16GA	3'8-5/8"	3'8-5/8"	87.5 K=1.00	0.263	-3.739	6.208	0.602 [1] ✔
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	-3.438	6.208	0.554 [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	-5.232	6.208	0.843 [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	-3.713	6.208	0.598 [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	-2.452	6.208	0.395 [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	-3.564	6.208	0.574 [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	-0.935	55.154	0.017 [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	-0.083	7.049	0.012 [1] ✔
T2	164.818 - 144.818	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7 K=1.00	0.263	-0.916	7.049	0.130 [1] ✔
T3	144.818 - 124.818	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7 K=1.00	0.263	-0.826	7.049	0.117 [1] ✔
T4	124.818 - 104.818	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7 K=1.00	0.263	-0.827	7.049	0.117 [1] ✔
T5	104.818 - 84.8177	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7 K=1.00	0.263	-0.896	7.049	0.127 [1] ✔
T6	84.8177 - 64.8177	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7 K=1.00	0.263	-1.004	7.049	0.142 [1] ✔
T7	64.8177 - 44.8177	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7 K=1.00	0.263	-1.298	7.049	0.184 [1] ✔
T8	44.8177 - 24.8177	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7 K=1.00	0.263	-1.306	7.049	0.185 [1] ✔
T9	24.8177 - 4.81771	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7 K=1.00	0.263	-1.184	7.049	0.168 [1] ✔
T10	4.81771 - 0	L4x4x1/4	3'5"	3'2-1/8"	84.0 K=1.75	1.940	-0.935	53.019	0.018 [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	-0.919	7.049	0.130 [1] ✔
T2	164.818 - 144.818	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7 K=1.00	0.263	-0.916	7.049	0.130 [1] ✔
T3	144.818 - 124.818	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7 K=1.00	0.263	-1.421	7.049	0.202 [1] ✔
T4	124.818 - 104.818	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7 K=1.00	0.263	-0.827	7.049	0.117 [1] ✔
T5	104.818 - 84.8177	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7 K=1.00	0.263	-1.179	7.049	0.167 [1] ✔
T6	84.8177 - 64.8177	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7 K=1.00	0.263	-1.004	7.049	0.142 [1] ✔
T7	64.8177 - 44.8177	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7 K=1.00	0.263	-1.298	7.049	0.184 [1] ✔
T8	44.8177 - 24.8177	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7 K=1.00	0.263	-1.306	7.049	0.185 [1] ✔
T9	24.8177 -	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7	0.263	-1.184	7.049	0.168 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
	4.81771				K=1.00				✔

[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	3'5"	3'2-1/8"	104.8 K=1.00	1.880	-10.412	43.618	0.239 [1]
T6	84.8177 - 64.8177	2L 'a' > 18.358 in - 365 4 1/2x3/8 KL/R > 200 (C) - 383	3'5"	3'2-1/8"	352.2 K=1.00	1.688	-0.055	3.074	0.018 [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	0.000	2.001	0.000	0.000	3.392	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	0.239	0.000	0.000	0.239 [1] ✔	1.050	4.8.1 ✔
T6	84.8177 - 64.8177	4 1/2x3/8	0.018	0.000	0.000	0.018 [1] ✔	1.050	4.8.1 ✔

[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	-3.776	291.753	0.013
T1	184.818 - 164.818 (364)	C15x33.9	3'5"	3'3-9/16"	43.8 K=1.00	9.960	-4.902	291.753	0.017
T1	184.818 - 164.818 (370)	C15x33.9	3'5"	3'3-9/16"	43.8 K=1.00	9.960	-5.421	291.753	0.019
T1	184.818 - 164.818 (371)	C15x33.9	3'5"	3'3-9/16"	43.8 K=1.00	9.960	-6.657	291.753	0.023
T1	184.818 - 164.818 (374)	C15x33.9	3'5"	3'3-9/16"	43.8 K=1.00	9.960	-4.681	291.753	0.016
T1	184.818 - 164.818 (375)	C15x33.9	3'5"	3'3-9/16"	43.8 K=1.00	9.960	-4.770	291.753	0.016

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	-57.724	136.080	0.424	0.000	12.595	0.000
T1	184.818 - 164.818 (364)	C15x33.9	-62.690	136.080	0.461	0.000	12.595	0.000
T1	184.818 - 164.818 (370)	C15x33.9	-63.786	136.080	0.469	-0.000	12.595	0.000
T1	184.818 - 164.818 (371)	C15x33.9	-58.634	136.080	0.431	0.000	12.595	0.000
T1	184.818 - 164.818 (374)	C15x33.9	-63.855	136.080	0.469	-0.000	12.595	0.000
T1	184.818 - 164.818 (375)	C15x33.9	-62.616	136.080	0.460	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	0.013	0.424	0.000	0.431 ✔	1.050	4.8.1 ✔
T1	184.818 - 164.818 (364)	C15x33.9	0.017	0.461	0.000	0.469 ✔	1.050	4.8.1 ✔
T1	184.818 - 164.818 (370)	C15x33.9	0.019	0.469	0.000	0.478 ✔	1.050	4.8.1 ✔
T1	184.818 - 164.818 (371)	C15x33.9	0.023	0.431	0.000	0.442 ✔	1.050	4.8.1 ✔
T1	184.818 - 164.818 (374)	C15x33.9	0.016	0.469	0.000	0.477 ✔	1.050	4.8.1 ✔
T1	184.818 - 164.818 (375)	C15x33.9	0.016	0.460	0.000	0.468 ✔	1.050	4.8.1 ✔

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	46.333	101.409	0.457 [1] ✔
T2	164.818 - 144.818	ROHN 2.5 STD	20'	7-3/8"	7.8	1.704	11.651	76.682	0.152 [1] ✔
T7	64.8177 - 44.8177	ROHN 2.5 EH	20'	1-3/8"	1.5	2.254	14.291	101.409	0.141 [1] ✔
T8	44.8177 - 24.8177	ROHN 2.5 EH	20'	2'4-29/32"	31.3	2.254	14.361	101.409	0.142 [1] ✔
T9	24.8177 - 4.81771	ROHN 2.5 EH	20'	7-3/8"	8.0	2.254	3.513	101.409	0.035 [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	0.520	4.492	16.856	0.266 [1] ✔
T2	164.818 - 144.818	ROHN 1.5 x 16GA	3'8-5/8"	3'8-5/8"	87.5	0.263	3.488	9.932	0.351 [1] ✔
T3	144.818 - 124.818	ROHN 1.5 x 16GA	3'8-5/8"	3'8-5/8"	87.5	0.263	4.972	9.932	0.501 [1] ✔
T4	124.818 - 104.818	ROHN 1.5 x 16GA	3'8-5/8"	3'8-5/8"	87.5	0.263	3.342	9.932	0.337 [1] ✔
T5	104.818 - 84.8177	ROHN 1.5 x 16GA	3'8-5/8"	3'8-5/8"	87.5	0.263	3.171	9.932	0.319 [1] ✔
T6	84.8177 - 64.8177	ROHN 1.5 x 16GA	3'8-5/8"	3'8-5/8"	87.5	0.263	5.169	9.932	0.520 [1] ✔
T7	64.8177 - 44.8177	ROHN 1.5 x 16GA	3'8-5/8"	3'8-5/8"	87.5	0.263	3.525	9.932	0.355 [1] ✔
T8	44.8177 - 24.8177	ROHN 1.5 x 16GA	3'8-5/8"	3'8-5/8"	87.5	0.263	1.995	9.932	0.201 [1] ✔
T9	24.8177 - 4.81771	ROHN 1.5 x 16GA	3'8-5/8"	3'8-5/8"	87.5	0.263	3.657	9.932	0.368 [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	2'6-3/4"	2'3-7/8"	22.3	1.940	0.935	62.856	0.015 [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	0.263	0.061	9.932	0.006 [1] ✔
T2	164.818 - 144.818	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7	0.263	1.263	9.932	0.127 [1] ✔
T3	144.818 - 124.818	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7	0.263	0.826	9.932	0.083 [1] ✔
T4	124.818 - 104.818	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7	0.263	0.827	9.932	0.083 [1] ✔
T5	104.818 - 84.8177	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7	0.263	0.896	9.932	0.090 [1] ✔
T6	84.8177 - 64.8177	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7	0.263	1.004	9.932	0.101 [1] ✔
T7	64.8177 - 44.8177	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7	0.263	1.298	9.932	0.131 [1] ✔
T8	44.8177 - 24.8177	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7	0.263	1.306	9.932	0.131 [1] ✔
T9	24.8177 - 4.81771	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7	0.263	1.184	9.932	0.119 [1] ✔
T10	4.81771 - 0	L4x4x1/4	3'5"	3'2-1/8"	30.5	1.940	10.005	62.856	0.159 [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	0.263	1.255	9.932	0.126 [1] ✔
T2	164.818 - 144.818	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7	0.263	0.916	9.932	0.092 [1] ✔
T3	144.818 - 124.818	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7	0.263	1.769	9.932	0.178 [1] ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T4	124.818 - 104.818	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7	0.263	0.827	9.932	0.083 [1] ✔
T5	104.818 - 84.8177	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7	0.263	1.531	9.932	0.154 [1] ✔
T6	84.8177 - 64.8177	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7	0.263	1.004	9.932	0.101 [1] ✔
T7	64.8177 - 44.8177	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7	0.263	1.298	9.932	0.131 [1] ✔
T8	44.8177 - 24.8177	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7	0.263	1.306	9.932	0.131 [1] ✔
T9	24.8177 - 4.81771	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7	0.263	1.594	9.932	0.161 [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 2L 'a' > 18.358 in - 367	3'5"	3'2-1/8"	62.6	1.129	12.320	49.101	0.251 [1]
T4	124.818 - 104.818	4 1/2x3/8	3'5"	3'2-1/8"	352.2	1.688	4.905	54.675	0.090 [1]
T6	84.8177 - 64.8177	4 1/2x3/8	3'5"	3'2-1/8"	352.2	1.688	6.433	54.675	0.118 [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	0.000	2.001	0.000	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	0.251	0.000	0.000	0.251 [1] ✔	1.050	4.8.1 ✔
T4	124.818 - 104.818	4 1/2x3/8	0.090	0.000	0.000	0.090 [1] ✔	1.050	4.8.1 ✔
T6	84.8177 - 64.8177	4 1/2x3/8	0.118	0.000	0.000	0.118 [1] ✔	1.050	4.8.1 ✔

[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	7.170	1.498	311.895	0.005
T1	184.818 - 164.818 (364)	C15x33.9	3'5"	3'3-9/16"	43.8	7.170	4.357	311.895	0.014
T1	184.818 - 164.818 (370)	C15x33.9	3'5"	3'3-9/16"	43.8	7.170	4.536	311.895	0.015
T1	184.818 - 164.818 (371)	C15x33.9	3'5"	3'3-9/16"	43.8	7.170	1.109	311.895	0.004
T1	184.818 - 164.818 (374)	C15x33.9	3'5"	3'3-9/16"	43.8	7.170	0.107	311.895	0.000
T1	184.818 - 164.818 (375)	C15x33.9	3'5"	3'3-9/16"	43.8	7.170	4.668	311.895	0.015

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	-60.183	136.080	0.442	-0.000	12.595	0.000
T1	184.818 - 164.818 (364)	C15x33.9	-54.479	136.080	0.400	-0.000	12.595	0.000
T1	184.818 - 164.818 (370)	C15x33.9	-55.367	136.080	0.407	0.000	12.595	0.000
T1	184.818 - 164.818 (371)	C15x33.9	-58.034	136.080	0.426	0.000	12.595	0.000
T1	184.818 - 164.818 (374)	C15x33.9	-64.467	136.080	0.474	0.000	12.595	0.000
T1	184.818 - 164.818 (375)	C15x33.9	-52.214	136.080	0.384	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	0.005	0.442	0.000	0.445 ✔	1.050	4.8.1 ✔
T1	184.818 - 164.818 (364)	C15x33.9	0.014	0.400	0.000	0.407 ✔	1.050	4.8.1 ✔
T1	184.818 - 164.818 (370)	C15x33.9	0.015	0.407	0.000	0.414 ✔	1.050	4.8.1 ✔
T1	184.818 - 164.818 (371)	C15x33.9	0.004	0.426	0.000	0.428 ✔	1.050	4.8.1 ✔
T1	184.818 - 164.818 (374)	C15x33.9	0.000	0.474	0.000	0.474 ✔	1.050	4.8.1 ✔
T1	184.818 - 164.818 (375)	C15x33.9	0.015	0.384	0.000	0.391 ✔	1.050	4.8.1 ✔

Section Capacity Table

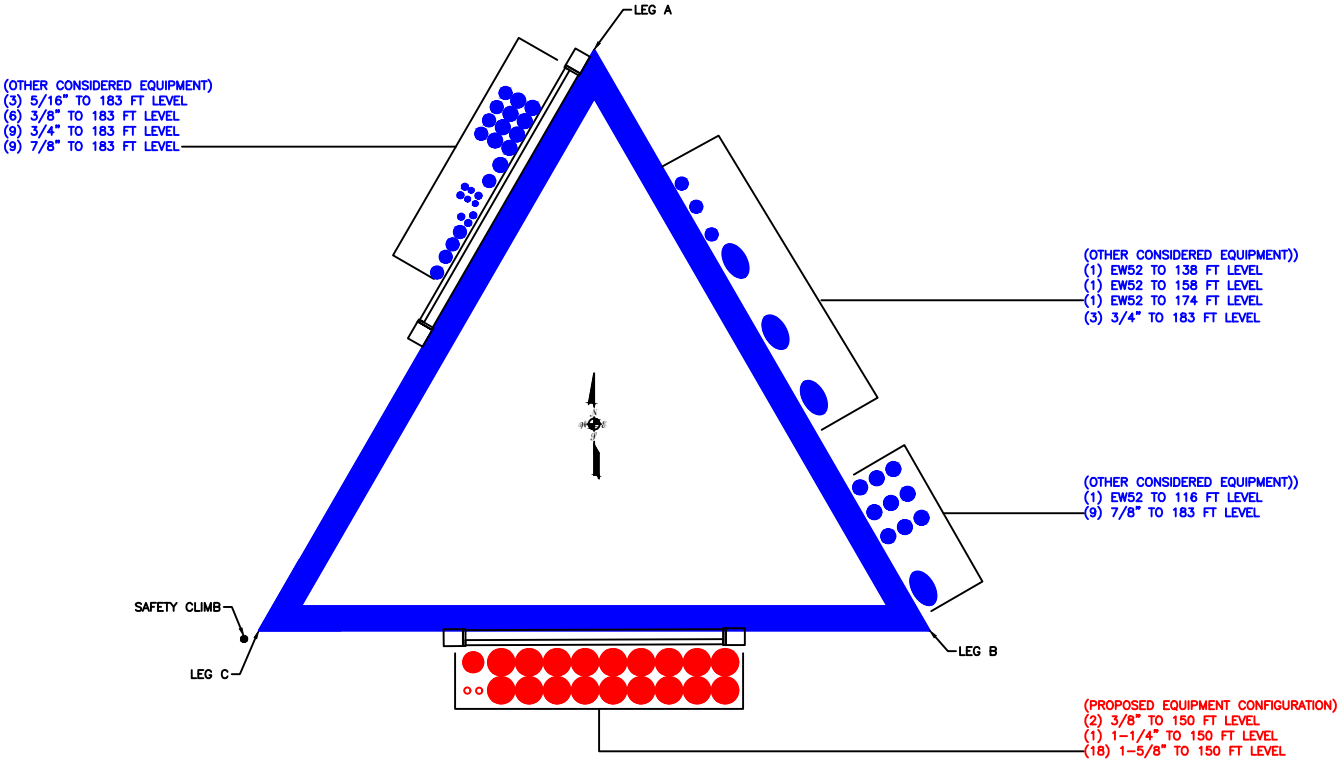
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	184.818 - 164.818	Leg	ROHN 2.5 EH	3	-53.038	99.127	53.5	Pass
T2	164.818 - 144.818	Leg	ROHN 2.5 STD	59	-50.571	75.218	67.2	Pass
T3	144.818 - 124.818	Leg	ROHN 2.5 STD	115	-46.026	61.326	75.1	Pass
T4	124.818 - 104.818	Leg	ROHN 2.5 STD	150	-47.734	61.326	77.8	Pass
T5	104.818 - 84.8177	Leg	ROHN 2.5 EH	183	-49.676	79.978	62.1	Pass
T6	84.8177 - 64.8177	Leg	ROHN 2.5 EH	214	-56.915	79.978	71.2	Pass
T7	64.8177 - 44.8177	Leg	ROHN 2.5 EH	249	-74.317	79.978	92.9	Pass
T8	44.8177 - 24.8177	Leg	ROHN 2.5 EH	282	-75.389	79.978	94.3	Pass
T9	24.8177 - 4.81771	Leg	ROHN 2.5 EH	315	-66.980	79.978	83.7	Pass
T10	4.81771 - 0	Leg	ROHN 2.5 EH	346	-50.993	104.279	48.9	Pass
T1	184.818 - 164.818	Diagonal	ROHN 1.5 x 11GA	10	-5.824	11.431	51.0	Pass
T2	164.818 - 144.818	Diagonal	ROHN 1.5 x 16GA	109	-3.963	6.519	60.8	Pass
T3	144.818 - 124.818	Diagonal	ROHN 1.5 x 16GA	126	-5.376	6.519	82.5	Pass
T4	124.818 - 104.818	Diagonal	ROHN 1.5 x 16GA	176	-3.739	6.519	57.4	Pass
T5	104.818 - 84.8177	Diagonal	ROHN 1.5 x 16GA	190	-3.438	6.519	52.7	Pass
T6	84.8177 - 64.8177	Diagonal	ROHN 1.5 x 16GA	242	-5.232	6.519	80.3	Pass
T7	64.8177 - 44.8177	Diagonal	ROHN 1.5 x 16GA	278	-3.713	6.519	57.0	Pass
T8	44.8177 - 24.8177	Diagonal	ROHN 1.5 x 16GA	291	-2.452	6.519	37.6	Pass
T9	24.8177 - 4.81771	Diagonal	ROHN 1.5 x 16GA	330	-3.564	6.519	54.7	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T10	4.81771 - 0	Horizontal	L4x4x1/4	352	-0.932	61.857	8.0	Pass
T1	184.818 - 164.818	Top Girt	ROHN 1.5 x 16GA	4	-0.083	7.401	1.1	Pass
T2	164.818 - 144.818	Top Girt	ROHN 1.5 x 16GA	62	-0.916	7.401	12.4	Pass
T3	144.818 - 124.818	Top Girt	ROHN 1.5 x 16GA	120	-0.826	7.401	11.2	Pass
T4	124.818 - 104.818	Top Girt	ROHN 1.5 x 16GA	152	-0.827	7.401	11.2	Pass
T5	104.818 - 84.8177	Top Girt	ROHN 1.5 x 16GA	185	-0.896	7.401	12.1	Pass
T6	84.8177 - 64.8177	Top Girt	ROHN 1.5 x 16GA	217	-1.004	7.401	13.6	Pass
T7	64.8177 - 44.8177	Top Girt	ROHN 1.5 x 16GA	251	-1.298	7.401	17.5	Pass
T8	44.8177 - 24.8177	Top Girt	ROHN 1.5 x 16GA	284	-1.306	7.401	17.6	Pass
T9	24.8177 - 4.81771	Top Girt	ROHN 1.5 x 16GA	317	-1.184	7.401	16.0	Pass
T10	4.81771 - 0	Top Girt	L4x4x1/4	349	10.005	65.999	15.2	Pass
T1	184.818 - 164.818	Bottom Girt	ROHN 1.5 x 16GA	8	-0.919	7.401	12.4	Pass
T2	164.818 - 144.818	Bottom Girt	ROHN 1.5 x 16GA	65	-0.916	7.401	12.4	Pass
T3	144.818 - 124.818	Bottom Girt	ROHN 1.5 x 16GA	123	-1.421	7.401	19.2	Pass
T4	124.818 - 104.818	Bottom Girt	ROHN 1.5 x 16GA	155	-0.827	7.401	11.2	Pass
T5	104.818 - 84.8177	Bottom Girt	ROHN 1.5 x 16GA	189	-1.179	7.401	15.9	Pass
T6	84.8177 - 64.8177	Bottom Girt	ROHN 1.5 x 16GA	220	-1.004	7.401	13.6	Pass
T7	64.8177 - 44.8177	Bottom Girt	ROHN 1.5 x 16GA	254	-1.298	7.401	17.5	Pass
T8	44.8177 - 24.8177	Bottom Girt	ROHN 1.5 x 16GA	287	-1.306	7.401	17.6	Pass
T9	24.8177 - 4.81771	Bottom Girt	ROHN 1.5 x 16GA	320	-1.184	7.401	16.0	Pass
T1	184.818 - 164.818	Guy A@167.341	3/4	373	23.706	36.729	64.5	Pass
T4	124.818 - 104.818	Guy A@124.203	5/8	381	14.733	26.712	55.2	Pass
T6	84.8177 - 64.8177	Guy A@84.2031	9/16	387	16.183	22.050	73.4	Pass
T1	184.818 - 164.818	Guy B@167.341	3/4	368	24.333	36.729	66.3	Pass
T4	124.818 - 104.818	Guy B@124.203	5/8	380	15.102	26.712	56.5	Pass
T6	84.8177 - 64.8177	Guy B@84.2031	9/16	386	16.415	22.050	74.4	Pass
T1	184.818 - 164.818	Guy C@167.341	3/4	362	21.752	36.729	59.2	Pass
T4	124.818 - 104.818	Guy C@124.203	5/8	376	13.601	26.712	50.9	Pass
T6	84.8177 - 64.8177	Guy C@84.2031	9/16	382	15.418	22.050	69.9	Pass
T1	184.818 - 164.818	Top Guy Pull-Off@167.341	2L2x2x1/4x3/8	367	12.320	51.556	23.9	Pass
T4	124.818 - 104.818	Top Guy Pull-Off@124.203	4 1/2x3/8	377	4.905	57.409	8.5	Pass
T6	84.8177 -	Top Guy	4 1/2x3/8	383	6.433	57.409	11.2	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	64.8177 184.818 - 164.818	Pull-Off@84.2031 Torque Arm Top@167.341	C15x33.9	370	-5.421	306.341	45.5	Pass
							Summary	
						Leg (T8)	94.3	Pass
						Diagonal (T3)	82.5	Pass
						Horizontal (T10)	8.0	Pass
						Top Girt (T8)	17.6	Pass
						Bottom Girt (T3)	19.2	Pass
						Guy A (T6)	73.4	Pass
						Guy B (T6)	74.4	Pass
						Guy C (T6)	69.9	Pass
						Top Guy Pull-Off (T1)	23.9	Pass
						Torque Arm Top (T1)	45.5	Pass
						Bolt Checks	83.2	Pass
						RATING =	**94.3**	**Pass**

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 846219

APPENDIX C

ADDITIONAL CALCULATIONS

Pier and Pad Foundation

BU # :	846219
Site Name:	Fairgrounds, FL
App. Number:	557499 Rev# 0

TIA-222 Revision:	H
Tower Type:	Guyed

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

Superstructure Analysis Reactions		
Compression, P_{comp}:	128	kips
Base Shear, Vu_comp:	4	kips
Moment, M_u:	0	ft-kips
Tower Height, **H**:	184.818	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	in

Material Properties		
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)	54.96	4.00	**6.9%**	**Pass**
Bearing Pressure (ksf)	7.56	2.67	**33.6%**	**Pass**
*Overturning (kip*ft)*	452.46	22.67	**5.0%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	197.63	16.00	**7.7%**	**Pass**
Pier Compression (kip)	1909.44	130.88	**6.5%**	**Pass**
*Pad Flexure (kip*ft)*	191.18	87.48	**43.6%**	**Pass**
Pad Shear - 1-way (kips)	117.85	34.46	**27.9%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.164	0.050	**28.9%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	140.86	9.60	**6.5%**	**Pass**

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

Structural Rating*:	**43.6%**
Soil Rating*:	**33.6%**

Guyed Anchor Block Foundation

Checks capacity of anchor blocks for a guyed tower.

BU#:	846219
Site Name:	Fairgrounds, FL
Order Number:	557499 Rev# 0
Location:	

TIA-222 Revision:	H

Design Reactions		
Shear, **S**:	49.00	kips
Uplift, **Ua**:	58.00	kips
Resultant Force, **Rf**:	75.93	kips
Tower Height, **H**:	184.82	ft
Guy Anchor Radius, **R**:	115.00	ft
Resultant Angle to Horizontal, **θ**:	49.8	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):	244.52	49.00	**19.1%**	**Pass**
Uplift Capacity (kips):	212.16	58.00	**26.0%**	**Pass**
*Lateral Flexural Capacity (ft*kips):*	759.00	119.44	**15.0%**	**Pass**
*Uplift Flexural Capacity (ft*kips):*	593.53	141.38	**22.7%**	**Pass**
Anchor Shaft (kips):	98.17	75.93	**73.7%**	**Pass**

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

Anchor Shaft Rating:	**73.7%**
Structural Rating:	**22.7%**
Soil Rating:	**26.0%**

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

Soil Properties:			No. of Soil Layers:	4		
Layer	**φ, deg**	**cu, ksf**	**δ, pcf**		**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	62.6	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

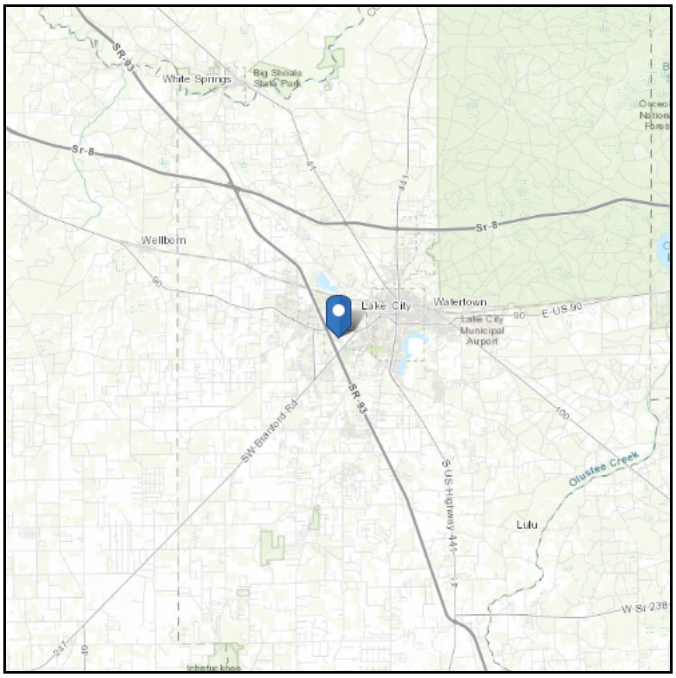
Version 4.0.0

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Default (see Section 11.4.3)

Elevation: 155.97 ft (NAVD 88)
Latitude: 30.174008
Longitude: -82.680519



Wind

Results:

Wind Speed:	118 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	97 Vmph

Data Source:	ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed:	Wed Jun 30 2021

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

Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

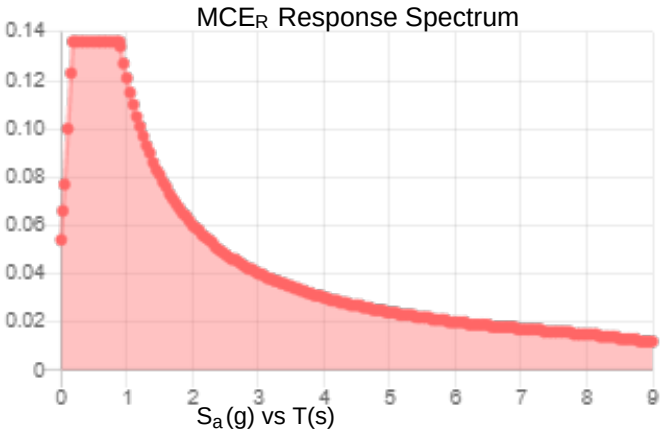
Seismic

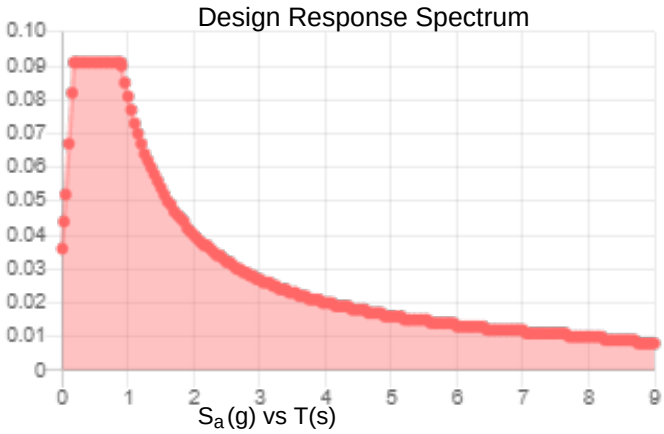
Site Soil Class: D - Default (see Section 11.4.3)

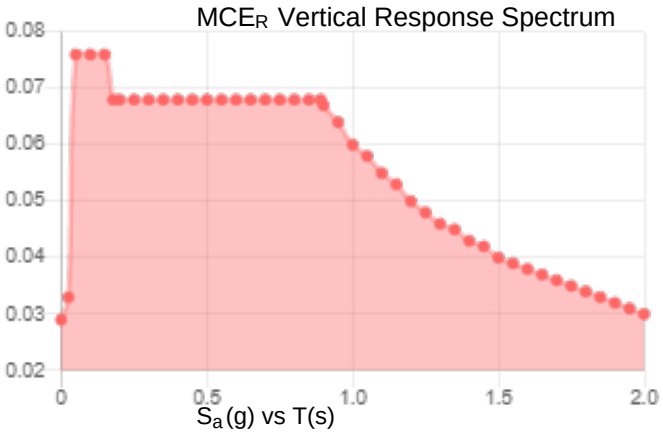
Results:

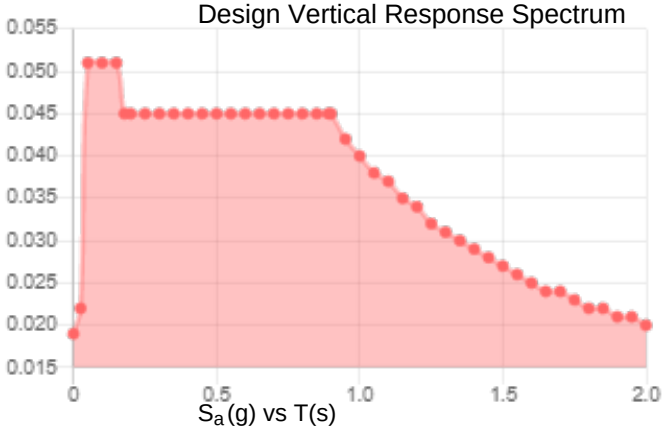
S_S :	0.085	S_{D1} :	0.081
S_1 :	0.05	T_L :	8
F_a :	1.6	PGA :	0.04
F_v :	2.4	PGA_M :	0.065
S_{MS} :	0.136	F_{PGA} :	1.6
S_{M1} :	0.121	I_e :	1
S_{DS} :	0.091	C_v :	0.7

Seismic Design Category B









Data Accessed: Wed Jun 30 2021

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

Ice

Results:

Ice Thickness:	0.25 in.
Concurrent Temperature:	25 F
Gust Speed:	30 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Wed Jun 30 2021

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

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