

Date: **September 18, 2025**



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

Subject: **Structural Analysis Report**

Carrier Designation: **AT&T Mobility Co-Locate**
Site Number: 10091913
Site Name: COLUMBIA CITY
FA Number: 10091913

Crown Castle Designation: **BU Number:** 846217
Site Name: COLUMBIA CITY
JDE Job Number: 2156724
Work Order Number: 2423281
Order Number: 713794 Rev. 1

Engineering Firm Designation: **Crown Castle Project Number** 2423281

Site Data: **340 Southwest Kyle Way, Lake City, Columbia County, FL**
Latitude: 30° 1' 46.44" Longitude: -82° 36' 43"
290.0 ft - Guyed Tower

Crown Castle is pleased to submit this “**Structural Analysis Report**” to determine the structural integrity of the above-mentioned tower.

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

LC5: Proposed Equipment Configuration **Sufficient Capacity**

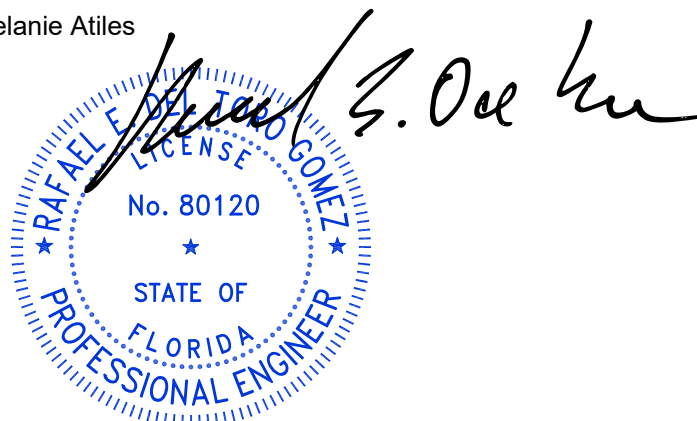
***The structure has sufficient capacity once the loading changes, described in the Recommendations section of this report, are completed.**

This analysis has been performed in accordance with the 2023 Florida Building Code 8th Edition based upon an ultimate 3-second gust wind speed of 120 mph. Applicable Standard references and design criteria are listed in Section 2 – Analysis Criteria.

Structural analysis prepared by: Melanie Atilas

Respectfully submitted by:

Rafael E. Del Toro Gomez, P.E.
Senior Project Engineer



This item has been digitally signed and sealed by Rafael E. Del Toro, P.E. on the date adjacent to the seal.

Signature must be verified on any electronic copies.

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1) INTRODUCTION

This tower is a 290.0 ft Guyed Tower designed by Rohn.

2) ANALYSIS CRITERIA

TIA-222 Revision: TIA-222-H
Risk Category: II
Wind Speed: 120 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)	
266	268	3	ericsson	4890 B25/B66	4 2 3 3 7	7/8 3/4 3/8 5/16 1-5/8	
		3	ericsson	RADIO 4478 B14			
		3	ericsson	Radio 4490 B5/B12A			
		3	ericsson	RRUS-32 B30			
	266	266	3	ericsson			AIR 6472 B77G B77M_20240625 w/ Mount Pipe
			6	ericsson			KRE 101 2526/1 w/ Mount Pipe
			1	raycap			DC6-48-60-18-8C
			2	raycap			DC6-48-60-18-8F
			1	tower mounts			Mount Modifications
			1	tower mounts			Sector Mount [10.5' SM 401-3]

Table 2 - Non-Carrier Equipment To Be Conditionally Removed

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
221	221	1	andrew	PARX6-59W	1	Elliptical
		1	tower mounts	Pipe Mount [PM 601-1]		
202	202	1	andrew	HSX8-59A	1	Elliptical
		1	tower mounts	Pipe Mount [PM 601-1]		
184	184	1	andrew	PARX8-59-PXA/A	1	Elliptical
		2	tower mounts	Pipe Mount [PM 601-1]		
173	173	1	andrew	HSX6-59-P3A/B	1	Elliptical
		1	tower mounts	Pipe Mount [PM 601-1]		

Table 3 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
285	285	1	tower mounts	Side Arm Mount [SO 602-3]	-	-

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	4720736	CCISITES
4-GEOTECHNICAL REPORTS	4552431	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	5167255	CCISITES
4-TOWER MANUFACTURER DRAWINGS	4720735	CCISITES

3.1) Analysis Method

tnxTower (version 8.3.1.2), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

3.2) Assumptions

- 1) 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, 2, and 3 and the referenced drawings.

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

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass/Fail
T1	290 - 270	Leg	ROHN 2.5 EH	3	-21.121	106.463	19.8	Pass
T2	270 - 250	Leg	ROHN 2.5 STD	60	-36.083	75.218	48.0	Pass
T3	250 - 230	Leg	ROHN 2.5 STD	116	-37.794	61.326	61.6	Pass
T4	230 - 210	Leg	ROHN 2.5 STD	148	-32.772	61.326	53.4	Pass
T5	210 - 190	Leg	ROHN 2.5 X-STR	181	-39.104	79.978	48.9	Pass
T6	190 - 170	Leg	ROHN 2.5 X-STR	215	-40.836	79.978	51.1	Pass
T7	170 - 150	Leg	ROHN 2.5 STD	248	-34.499	61.326	56.3	Pass
T8	150 - 130	Leg	ROHN 2.5 STD	281	-36.880	61.326	60.1	Pass
T9	130 - 110	Leg	ROHN 2.5 STD	313	-35.428	61.326	57.8	Pass
T10	110 - 90	Leg	ROHN 2.5 STD	346	-36.995	61.326	60.3	Pass
T11	90 - 70	Leg	ROHN 2.5 STD	380	-38.792	61.326	63.3	Pass
T12	70 - 50	Leg	ROHN 2.5 STD	413	-39.871	61.326	65.0	Pass
T13	50 - 35	Leg	ROHN 2.5 X-STR	447	-41.218	80.554	51.2	Pass
T14	35 - 20	Leg	ROHN 2.5 X-STR	474	-40.592	80.554	50.4	Pass
T15	20 - 4.81771	Leg	ROHN 2.5 X-STR	501	-35.578	79.978	44.5	Pass
T16	4.81771 - 0	Leg	ROHN 2.5 X-STR	526	-30.675	104.279	29.4	Pass
T1	290 - 270	Diagonal	ROHN TS1.5x11 ga	11	-5.584	11.828	47.2	Pass
T2	270 - 250	Diagonal	ROHN TS1.5x16 ga	110	-4.878	6.241	78.2	Pass
T3	250 - 230	Diagonal	ROHN TS1.5x16 ga	125	-3.192	6.241	51.1	Pass
T4	230 - 210	Diagonal	ROHN TS1.5x11 ga	158	-4.303	11.828	36.4	Pass
T5	210 - 190	Diagonal	ROHN TS1.5x11 ga	191	-5.344	11.828	45.2	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass/Fail
T6	190 - 170	Diagonal	ROHN TS1.5x16 ga	241	-4.863	6.241	77.9	Pass
T7	170 - 150	Diagonal	ROHN TS1.5x16 ga	277	-3.946	6.241	63.2	Pass
T8	150 - 130	Diagonal	ROHN TS1.5x16 ga	310	-2.199	6.241	35.2	Pass
T9	130 - 110	Diagonal	ROHN TS1.5x16 ga	323	-2.725	6.241	43.7	Pass
T10	110 - 90	Diagonal	ROHN TS1.5x16 ga	356	-3.667	6.241	58.8	Pass
T11	90 - 70	Diagonal	ROHN TS1.5x16 ga	403	-3.535	6.241	56.6	Pass
T12	70 - 50	Diagonal	ROHN TS1.5x16 ga	442	-2.808	6.241	45.0	Pass
T13	50 - 35	Diagonal	ROHN TS1.5x16 ga	469	-1.221	6.268	19.5	Pass
T14	35 - 20	Diagonal	ROHN TS1.5x16 ga	482	-1.423	6.268	22.7	Pass
T15	20 - 4.81771	Diagonal	ROHN TS1.5x16 ga	512	-1.643	6.241	26.3	Pass
T16	4.81771 - 0	Horizontal	L4x4x1/4	534	-1.196	61.857	6.6	Pass
T1	290 - 270	Top Girt	ROHN TS1.5x11 ga	5	-0.366	14.231	2.6	Pass
T2	270 - 250	Top Girt	ROHN TS1.5x16 ga	61	0.894	9.439	9.5	Pass
T3	250 - 230	Top Girt	ROHN TS1.5x16 ga	118	-0.996	7.401	13.5	Pass
T4	230 - 210	Top Girt	ROHN TS1.5x11 ga	152	-1.318	14.231	9.3	Pass
T5	210 - 190	Top Girt	ROHN TS1.5x11 ga	185	-1.890	14.231	13.3	Pass
T6	190 - 170	Top Girt	ROHN TS1.5x16 ga	218	0.925	9.439	9.8	Pass
T7	170 - 150	Top Girt	ROHN TS1.5x16 ga	250	-1.207	7.401	16.3	Pass
T8	150 - 130	Top Girt	ROHN TS1.5x16 ga	283	-0.690	7.401	9.3	Pass
T9	130 - 110	Top Girt	ROHN TS1.5x16 ga	318	-0.619	7.401	8.4	Pass
T10	110 - 90	Top Girt	ROHN TS1.5x16 ga	350	-0.930	7.401	12.6	Pass
T11	90 - 70	Top Girt	ROHN TS1.5x16 ga	382	-0.672	7.401	9.1	Pass
T12	70 - 50	Top Girt	ROHN TS1.5x16 ga	415	-0.862	7.401	11.6	Pass
T13	50 - 35	Top Girt	ROHN TS1.5x16 ga	449	-0.714	7.401	9.6	Pass
T14	35 - 20	Top Girt	ROHN TS1.5x16 ga	476	-0.707	7.401	9.6	Pass
T15	20 - 4.81771	Top Girt	ROHN TS1.5x16 ga	503	-0.628	7.401	8.5	Pass
T16	4.81771 - 0	Top Girt	L4x4x1/4	529	5.576	65.999	8.4	Pass
T1	290 - 270	Bottom Girt	ROHN TS1.5x11 ga	9	1.510	16.911	8.9	Pass
T2	270 - 250	Bottom Girt	ROHN TS1.5x16 ga	65	-0.634	7.401	8.6	Pass
T3	250 - 230	Bottom Girt	ROHN TS1.5x16 ga	122	-1.246	7.401	16.8	Pass
T4	230 - 210	Bottom Girt	ROHN TS1.5x11 ga	155	-1.805	14.231	12.7	Pass
T5	210 - 190	Bottom Girt	ROHN TS1.5x11 ga	188	-2.340	14.231	16.4	Pass
T6	190 - 170	Bottom Girt	ROHN TS1.5x16 ga	220	-1.284	7.401	17.3	Pass
T7	170 - 150	Bottom Girt	ROHN TS1.5x16 ga	253	-0.688	7.401	9.3	Pass
T8	150 - 130	Bottom Girt	ROHN TS1.5x16 ga	286	-0.639	7.401	8.6	Pass
T9	130 - 110	Bottom Girt	ROHN TS1.5x16 ga	320	-0.851	7.401	11.5	Pass
T10	110 - 90	Bottom Girt	ROHN TS1.5x16 ga	353	-1.396	7.401	18.9	Pass
T11	90 - 70	Bottom Girt	ROHN TS1.5x16 ga	385	-0.919	7.401	12.4	Pass
T12	70 - 50	Bottom Girt	ROHN TS1.5x16 ga	419	-0.697	7.401	9.4	Pass
T13	50 - 35	Bottom Girt	ROHN TS1.5x16 ga	452	-0.714	7.401	9.6	Pass
T14	35 - 20	Bottom Girt	ROHN TS1.5x16 ga	479	-0.707	7.401	9.6	Pass
T15	20 - 4.81771	Bottom Girt	ROHN TS1.5x16 ga	507	1.105	9.439	11.7	Pass
T1	290 - 270	Guy A@272.523	5/8 (ECP - 23000)	565	13.414	26.712	50.2	Pass
T6	190 - 170	Guy A@189.385	5/8 (ECP - 23000)	552	15.750	26.712	59.0	Pass
T11	90 - 70	Guy A@89.3854	1/2 (ECP - 23000)	546	9.893	16.947	58.4	Pass
T1	290 - 270	Guy B@272.523	5/8 (ECP - 23000)	560	13.917	26.712	52.1	Pass
T6	190 - 170	Guy B@189.385	5/8 (ECP - 23000)	551	15.628	26.712	58.5	Pass
T11	90 - 70	Guy B@89.3854	1/2 (ECP - 23000)	545	9.896	16.947	58.4	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass/Fail
T1	290 - 270	Guy C@272.523	5/8 (ECP - 23000)	554	13.817	26.712	51.7	Pass
T6	190 - 170	Guy C@189.385	5/8 (ECP - 23000)	547	15.622	26.712	58.5	Pass
T11	90 - 70	Guy C@89.3854	1/2 (ECP - 23000)	541	9.893	16.947	58.4	Pass
T1	290 - 270	Top Guy Pull-Off@272.523	2L2x2x1/4x3/8	557	5.699	51.556	11.1	Pass
T6	190 - 170	Top Guy Pull-Off@189.385	4 1/2x3/8	549	5.941	57.409	10.3	Pass
T11	90 - 70	Top Guy Pull-Off@89.3854	4 1/2x3/8	543	4.674	57.409	8.1	Pass
T1	290 - 270	Torque Arm Top@272.523	C15x33.9	562	-2.353	306.341	24.7	Pass
							Summary	
						Leg (T12)	65.0	Pass
						Diagonal (T2)	78.2	Pass
						Horizontal (T16)	6.6	Pass
						Top Girt (T7)	16.3	Pass
						Bottom Girt (T10)	18.9	Pass
						Guy A (T6)	59.0	Pass
						Guy B (T6)	58.5	Pass
						Guy C (T6)	58.5	Pass
						Top Guy Pull-Off (T1)	11.1	Pass
						Torque Arm Top (T1)	24.7	Pass
						Bolt Checks	78.8	Pass
						RATING =	78.8	Pass

Table 6 - Tower Component Stresses vs. Capacity - LC5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Base Foundation (Structural)	0	18.8	Pass
1	Base Foundation (Soil)	0	15.9	Pass
1	Guy Anchor Shaft	0	48.8	Pass
1	Guy Anchor Foundation (Structural)	0	21.4	Pass
1	Guy Anchor Foundation (Soil)	0	22.5	Pass

Structure Rating (max from all components) =	78.8%
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Notes:

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

4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the considered equipment configuration. No modifications are required at this time. In order for the results of this analysis to be considered valid, the loading modification, as follows, must be completed.

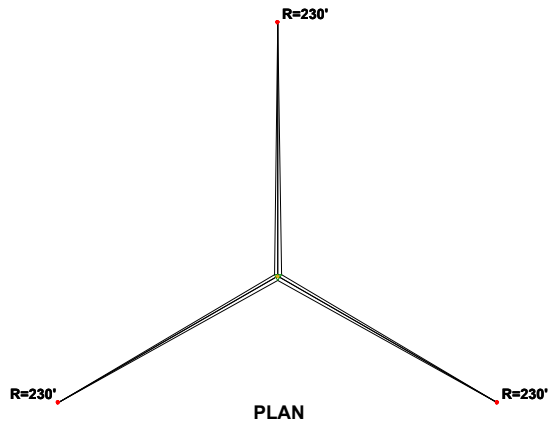
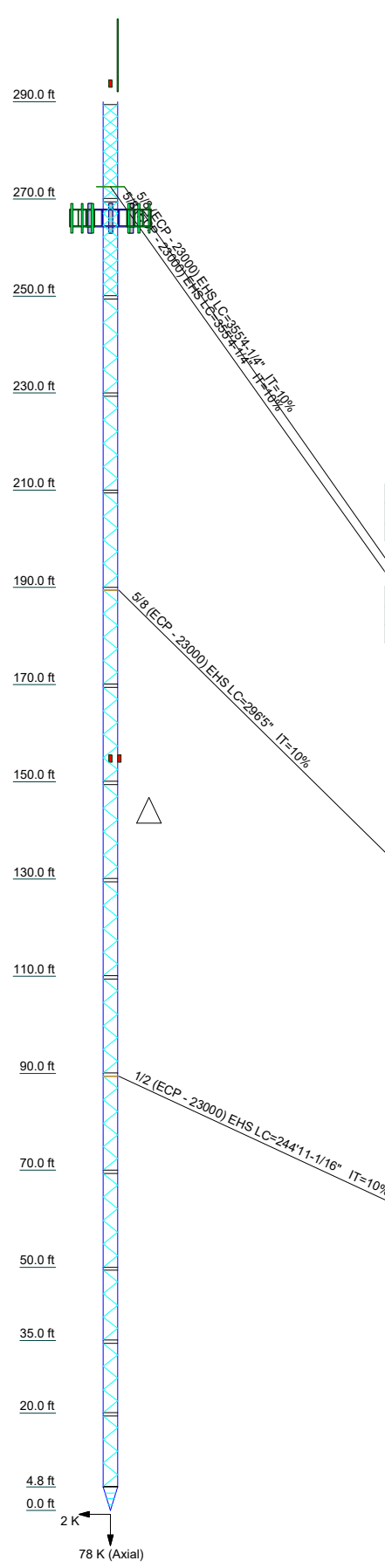
Loading Changes:

- a) Removal of the equipment and feedlines at the 221ft, 202ft, 184ft, and 173ft levels

No structural modifications are required at this time provided that the above-listed changes are completed.

APPENDIX A
TNXTOWER OUTPUT

Section	T16	T15	T14	T13	T12	T11	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs	ROHN 2.5 X-STR		ROHN 2.5 X-STR		ROHN 2.5 STD		ROHN 2.5 STD		ROHN 2.5 X-STR		ROHN 2.5 X-STR		ROHN 2.5 STD		ROHN 2.5 EH	
Leg Grade	N.A.		N.A.		N.A.		N.A.		N.A.		N.A.		N.A.		2L2x2x1/4x3/8	
Diagonals	N.A.		N.A.		N.A.		N.A.		N.A.		N.A.		N.A.		A500-42	
Diagonal Grade	N.A.		N.A.		N.A.		N.A.		N.A.		N.A.		N.A.		A500-42	
Top Girts	N.A.		N.A.		N.A.		N.A.		N.A.		N.A.		N.A.		ROHN TS1.5x11 ga	
Bottom Girts	N.A.		N.A.		N.A.		N.A.		N.A.		N.A.		N.A.		ROHN TS1.5x16 ga	
Horizontal	N.A.		N.A.		N.A.		N.A.		N.A.		N.A.		N.A.		ROHN TS1.5x11 ga	
Top Guy Pull-Offs	N.A.		N.A.		N.A.		N.A.		N.A.		N.A.		N.A.		N.A.	
Face Width (ft)	N.A.		N.A.		N.A.		N.A.		N.A.		N.A.		N.A.		N.A.	
# Panels @ (ft)	9.1		12 @ 2.37847		96 @ 2.40885		12 @ 2.37847		96 @ 2.40885		12 @ 2.37847		96 @ 2.40885		3.41667	
Weight (K)	9.1		0.3		0.4		0.4		0.4		0.4		0.4		0.4	



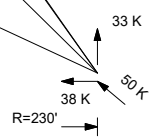
SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	ROHN TS1.5x11 ga	C	L4x4x1/4
B	N.A.	D	4 @ 1.20443

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A53-B-42	42 ksi	63 ksi
A500-42	42 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 120 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. TOWER RATING: 78.8%



ALL REACTIONS ARE FACTORED

<p>CROWN CASTLE The Pathway to Possible</p>	<p>Crown Castle 2000 Corporate Drive Canonsburg, PA 15317 Phone: (724) 416-2000 FAX:</p>		<p>Job: BU# 846217</p>	
	<p>Project:</p>		<p>Client: Crown Castle</p>	<p>Drawn by: MAtiles</p>
	<p>Code: TIA-222-H</p>		<p>Date: 09/18/25</p>	<p>App'd:</p>
	<p>Path: C:\SAPI Work Area\846217\WO 2423281 - SAIProd\846217.dwg</p>		<p>Scale: NTS</p>	<p>Dwg No. E-1</p>

Tower Input Data

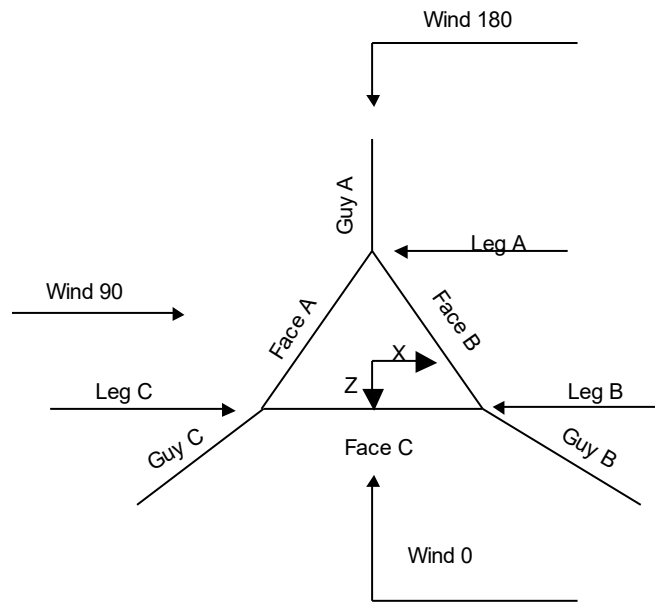
The main tower is a 3x guyed tower with an overall height of 290' above the ground line.
 The base of the tower is set at an elevation of 0' above the ground line.
 The face width of the tower is 3'5" at the top and tapered at the base.
 This tower is designed using the TIA-222-H standard.

The following design criteria apply:

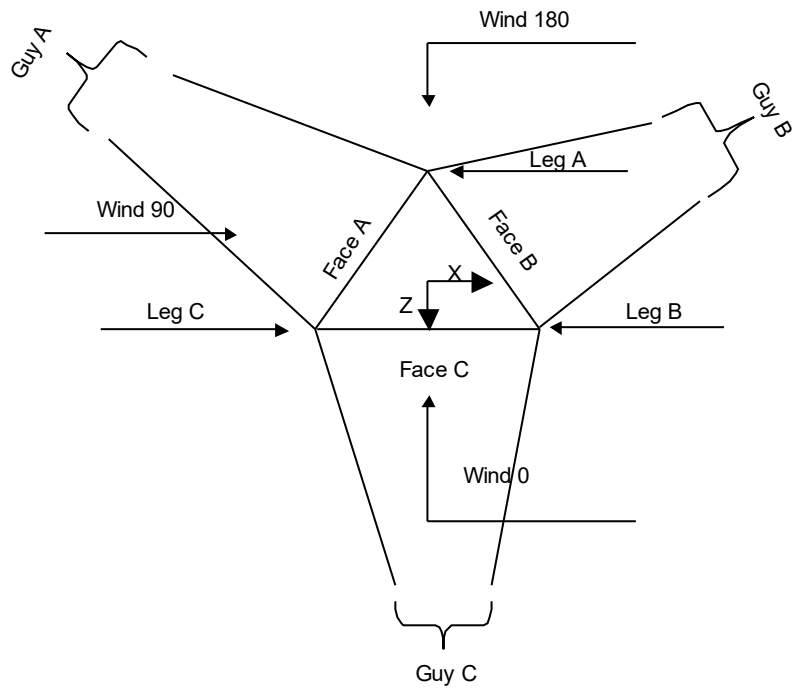
- Tower is located in Columbia County, Florida.
- Tower base elevation above sea level: 116'.
- Basic wind speed of 120 mph.
- Risk Category II.
- Exposure Category C.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0'.
- Deflections calculated using a wind speed of 60 mph.
- 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

- | | | |
|--|---|--|
| <ul style="list-style-type: none"> Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification ✓ Use Code Stress Ratios ✓ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Kz In Exposure D Hurricane Region Include Bolts In Member Capacity ✓ Leg Bolts Are At Top Of Section ✓ Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) SR Members Have Cut Ends SR Members Are Concentric Distribute Leg Loads As Uniform Use Special Wind Profile | <ul style="list-style-type: none"> Assume Legs Pinned ✓ Assume Rigid Index Plate ✓ Use Clear Spans For Wind Area ✓ Use Clear Spans For KL/r ✓ Retension Guys To Initial Tension ✓ Bypass Mast Stability Checks ✓ Use Azimuth Dish Coefficients ✓ Project Wind Area of Appurtenances ✓ Alternative Appurt. EPA Calculation ✓ Autocalc Torque Arm Areas Add IBC .6D+W Combination ✓ Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder Ignore KL/ry For 60 Deg. Angle Legs Use ASCE 10 X-Brace Ly Rules | <ul style="list-style-type: none"> ✓ Calculate Redundant Bracing Forces Ignore Redundant Members in FEA ✓ SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation ✓ Consider Feed Line Torque ✓ Include Angle Block Shear Check Use TIA-222-H Bracing Resist. Exemption Use TIA-222-H Tension Splice Exemption <div style="background-color: #e0e0e0; text-align: center; padding: 2px; font-weight: bold;">Poles</div> <ul style="list-style-type: none"> Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets 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

<i>Tower Section</i>	<i>Tower Elevation</i>	<i>Assembly Database</i>	<i>Description</i>	<i>Section Width</i>	<i>Number of Sections</i>	<i>Section Length</i>
	<i>ft</i>			<i>ft</i>		<i>ft</i>
T1	290'-270'			3'5"	1	20'
T2	270'-250'			3'5"	1	20'
T3	250'-230'			3'5"	1	20'
T4	230'-210'			3'5"	1	20'
T5	210'-190'			3'5"	1	20'
T6	190'-170'			3'5"	1	20'
T7	170'-150'			3'5"	1	20'
T8	150'-130'			3'5"	1	20'
T9	130'-110'			3'5"	1	20'
T10	110'-90'			3'5"	1	20'
T11	90'-70'			3'5"	1	20'
T12	70'-50'			3'5"	1	20'
T13	50'-35'			3'5"	1	15'
T14	35'-20'			3'5"	1	15'
T15	20'-4'9-13/16"			3'5"	1	15'2-3/16"
T16	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	290'-270'	2'4-29/32"	CX Brace	No	No	7.3750	1.3750
T2	270'-250'	2'4-29/32"	CX Brace	No	No	7.3750	1.3750
T3	250'-230'	2'4-29/32"	K Brace Left	No	No	7.3750	1.3750
T4	230'-210'	2'4-29/32"	K Brace Left	No	No	7.3750	1.3750
T5	210'-190'	2'4-29/32"	K Brace Left	No	No	7.3750	1.3750
T6	190'-170'	2'4-29/32"	K Brace Left	No	No	7.3750	1.3750
T7	170'-150'	2'4-29/32"	K Brace Left	No	No	7.3750	1.3750
T8	150'-130'	2'4-29/32"	K Brace Left	No	No	7.3750	1.3750
T9	130'-110'	2'4-29/32"	K Brace Left	No	No	7.3750	1.3750
T10	110'-90'	2'4-29/32"	K Brace Left	No	No	7.3750	1.3750
T11	90'-70'	2'4-29/32"	K Brace Left	No	No	7.3750	1.3750
T12	70'-50'	2'4-29/32"	K Brace Left	No	No	7.3750	1.3750
T13	50'-35'	2'4-17/32"	K Brace Left	No	No	7.3750	1.3750
T14	35'-20'	2'4-17/32"	K Brace Left	No	No	7.3750	1.3750
T15	20'-4'9-13/16"	2'4-29/32"	K Brace Left	No	No	7.3750	1.3750
T16	4'9-13/16"-0'	1'2-7/16"	X Brace	No	Yes	0.0000	0.0000

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 290'-270'	Pipe	ROHN 2.5 EH	A572-50 (50 ksi)	Pipe	ROHN TS1.5x11 ga	A500-42 (42 ksi)
T2 270'-250'	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T3 250'-230'	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T4 230'-210'	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	ROHN TS1.5x11 ga	A500-42 (42 ksi)
T5 210'-190'	Pipe	ROHN 2.5 X-STR	A572-50 (50 ksi)	Pipe	ROHN TS1.5x11 ga	A500-42 (42 ksi)
T6 190'-170'	Pipe	ROHN 2.5 X-STR	A572-50 (50 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T7 170'-150'	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T8 150'-130'	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T9 130'-110'	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T10 110'-90'	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T11 90'-70'	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T12 70'-50'	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T13 50'-35'	Pipe	ROHN 2.5 X-STR	A572-50 (50 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T14 35'-20'	Pipe	ROHN 2.5 X-STR	A572-50 (50 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T15 20'-4'9-13/16"	Pipe	ROHN 2.5 X-STR	A572-50 (50 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T16 4'9-13/16"-0'	Pipe	ROHN 2.5 X-STR	A572-50 (50 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 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 290'-270'	Pipe	ROHN TS1.5x11 ga	A500-42 (42 ksi)	Pipe	ROHN TS1.5x11 ga	A500-42 (42 ksi)
T2 270'-250'	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T3 250'-230'	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T4 230'-210'	Pipe	ROHN TS1.5x11 ga	A500-42 (42 ksi)	Pipe	ROHN TS1.5x11 ga	A500-42 (42 ksi)
T5 210'-190'	Pipe	ROHN TS1.5x11 ga	A500-42 (42 ksi)	Pipe	ROHN TS1.5x11 ga	A500-42 (42 ksi)
T6 190'-170'	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T7 170'-150'	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T8 150'-130'	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T9 130'-110'	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T10 110'-90'	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T11 90'-70'	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T12 70'-50'	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T13 50'-35'	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T14 35'-20'	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T15 20'-4'9-13/16"	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T16 4'9-13/16"-0'	Single Angle	L4x4x1/4	A36 (36 ksi)	Equal Angle	L 4 x 4 x 1/4	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
T16 4'9-13/16"-0'	None	Flat Bar		A36 (36 ksi)	Equal Angle	L4x4x1/4	A36 (36 ksi)

Tower Section Geometry (cont'd)

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_r	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals	Double Angle Stitch Bolt Spacing Redundants
ft	ft ²	in					in	in	in
T1 290'-270'	0.000	0.1757	A36 (36 ksi)	1	1.02	1.03	41.0000	41.0000	36.0000
T2 270'-250'	0.000	0.3750	A36 (36 ksi)	1	1.02	1.03	41.0000	41.0000	36.0000
T3 250'-230'	0.000	0.3750	A36 (36 ksi)	1	1.02	1.03	41.0000	41.0000	36.0000
T4 230'-210'	0.000	0.1757	A36 (36 ksi)	1	1.02	1.03	41.0000	41.0000	36.0000
T5 210'-190'	0.000	0.1757	A36 (36 ksi)	1	1.02	1.03	41.0000	41.0000	36.0000
T6 190'-170'	0.000	0.3750	A36 (36 ksi)	1	1.02	1.03	41.0000	41.0000	36.0000
T7 170'-150'	0.000	0.3750	A36 (36 ksi)	1	1.02	1.03	41.0000	41.0000	36.0000
T8 150'-130'	0.000	0.3750	A36 (36 ksi)	1	1.02	1.03	41.0000	41.0000	36.0000
T9 130'-110'	0.000	0.3750	A36 (36 ksi)	1	1.02	1.03	41.0000	41.0000	36.0000
T10 110'-90'	0.000	0.3750	A36 (36 ksi)	1	1.02	1.03	41.0000	41.0000	36.0000
T11 90'-70'	0.000	0.3750	A36 (36 ksi)	1	1.02	1.03	41.0000	41.0000	36.0000
T12 70'-50'	0.000	0.3750	A36 (36 ksi)	1	1.02	1.03	41.0000	41.0000	36.0000
T13 50'-35'	0.000	0.3750	A36 (36 ksi)	1	1.02	1.03	41.0000	41.0000	36.0000
T14 35'-20'	0.000	0.3750	A36 (36 ksi)	1	1.02	1.03	41.0000	41.0000	36.0000
T15 20'-4'-13/16"	0.000	0.3750	A36 (36 ksi)	1	1.02	1.03	41.0000	41.0000	36.0000
T16 4'-13/16"-0'	0.000	0.0000	A36 (36 ksi)	1	1.02	1.03	41.0000	41.0000	36.0000

Tower Section Geometry (cont'd)

Tower Elevation	Calc K Single Angles	Calc K Solid Rounds	K Factors ¹								
			Legs	X Brace Diags	K Brace Diags	Single Diags	Girts	Horiz.	Sec. Horiz.	Inner Brace	
											X
ft			Y	Y	Y	Y	Y	Y	Y	Y	
T1 290'-270'	Yes	Yes	1	1	1	1	1	1	1	1	1
T2 270'-250'	Yes	Yes	1	1	1	1	1	1	1	1	1
T3 250'-230'	Yes	Yes	1	1	1	1	1	1	1	1	1
T4 230'-210'	Yes	Yes	1	1	1	1	1	1	1	1	1
T5 210'-190'	Yes	Yes	1	1	1	1	1	1	1	1	1
T6 190'-170'	Yes	Yes	1	1	1	1	1	1	1	1	1
T7 170'-150'	Yes	Yes	1	1	1	1	1	1	1	1	1
T8 150'-130'	Yes	Yes	1	1	1	1	1	1	1	1	1

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Legs	K Factors ¹							
				X Brace Diags	X Brace Diags	Single Diags	Girts	Horiz.	Sec. Horiz.	Inner Brace	
				X Y	X Y	X Y	X Y	X Y	X Y	X Y	
T9 130'-110'	Yes	Yes	1	1	1	1	1	1	1	1	1
T10 110'-90'	Yes	Yes	1	1	1	1	1	1	1	1	1
T11 90'-70'	Yes	Yes	1	1	1	1	1	1	1	1	1
T12 70'-50'	Yes	Yes	1	1	1	1	1	1	1	1	1
T13 50'-35'	Yes	Yes	1	1	1	1	1	1	1	1	1
T14 35'-20'	Yes	Yes	1	1	1	1	1	1	1	1	1
T15 20'-4'-13/16"	Yes	Yes	1	1	1	1	1	1	1	1	1
T16 4'-13/16"-0'	Yes	Yes	1	1	1	1	1	1	1	1	1

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

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 290'-270'	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 270'-250'	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 250'-230'	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 230'-210'	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 210'-190'	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 190'-170'	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 170'-150'	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 150'-130'	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 130'-110'	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75
T10 110'-90'	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75
T11 90'-70'	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75
T12 70'-50'	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75
T13 50'-35'	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75
T14 35'-20'	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75
T15 20'-4'-13/16"	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75
T16 4'-13/16"-0'	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	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 290'-270'	0.0000	0.75 (1)	0.0000	0.75 (1)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
T2 270'-250'	0.0000	0.75 (1)	0.0000	0.75 (1)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
T3 250'-230'	0.0000	0.75 (1)	0.0000	0.75 (1)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
T4 230'-210'	0.0000	0.75 (1)	0.0000	0.75 (1)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
T5 210'-190'	0.0000	0.75 (1)	0.0000	0.75 (1)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
T6 190'-170'	0.0000	0.75 (1)	0.0000	0.75 (1)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
T7 170'-150'	0.0000	0.75 (1)	0.0000	0.75 (1)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
T8 150'-130'	0.0000	0.75 (1)	0.0000	0.75 (1)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)

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
T9 130'-110'	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
	0.0000	0.75 (1)	0.0000	0.75 (1)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)
T10 110'-90'	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
	0.0000	0.75 (1)	0.0000	0.75 (1)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)
T11 90'-70'	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
	0.0000	0.75 (1)	0.0000	0.75 (1)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)
T12 70'-50'	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
	0.0000	0.75 (1)	0.0000	0.75 (1)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)
T13 50'-35'	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
	0.0000	0.75 (1)	0.0000	0.75 (1)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)
T14 35'-20'	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
	0.0000	0.75 (1)	0.0000	0.75 (1)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)
T15 20'-4'-13/16"	0.0000	0.75 (1)	0.0000	0.75 (1)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T16 4'9-13/16"-0'	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
	0.0000	0.75 (1)	0.0000	0.75 (1)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)

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 290'-270'	Flange	0.0000	0	0.5000	1	0.5000	1	0.5000	1	0.6250	0	0.0000	0	0.6250	0
		A325X		A325X		A325X		A325X		A325N		A325N		A325N	
T2 270'-250'	Flange	0.7500	4	0.5000	1	0.5000	1	0.5000	1	0.6250	0	0.0000	0	0.6250	0
		A325X		A325X		A325X		A325X		A325N		A325N		A325N	
T3 250'-230'	Flange	0.7500	4	0.5000	1	0.5000	1	0.5000	1	0.6250	0	0.0000	0	0.6250	0
		A325X		A325X		A325X		A325X		A325N		A325N		A325N	
T4 230'-210'	Flange	0.7500	4	0.5000	1	0.5000	1	0.5000	1	0.6250	0	0.0000	0	0.6250	0
		A325X		A325X		A325X		A325X		A325N		A325N		A325N	
T5 210'-190'	Flange	0.7500	4	0.5000	1	0.5000	1	0.5000	1	0.6250	0	0.0000	0	0.6250	0
		A325X		A325X		A325X		A325X		A325N		A325N		A325N	
T6 190'-170'	Flange	0.7500	4	0.5000	1	0.5000	1	0.5000	1	0.6250	0	0.0000	0	0.6250	0
		A325X		A325X		A325X		A325X		A325N		A325N		A325N	
T7 170'-150'	Flange	0.7500	4	0.5000	1	0.5000	1	0.5000	1	0.6250	0	0.0000	0	0.6250	0
		A325X		A325X		A325X		A325X		A325N		A325N		A325N	
T8 150'-130'	Flange	0.7500	4	0.5000	1	0.5000	1	0.5000	1	0.6250	0	0.0000	0	0.6250	0
		A325X		A325X		A325X		A325X		A325N		A325N		A325N	
T9 130'-110'	Flange	0.7500	4	0.5000	1	0.5000	1	0.5000	1	0.6250	0	0.0000	0	0.6250	0
		A325X		A325X		A325X		A325X		A325N		A325N		A325N	
T10 110'-90'	Flange	0.7500	4	0.5000	1	0.5000	1	0.5000	1	0.6250	0	0.0000	0	0.6250	0
		A325X		A325X		A325X		A325X		A325N		A325N		A325N	
T11 90'-70'	Flange	0.7500	4	0.5000	1	0.5000	1	0.5000	1	0.6250	0	0.0000	0	0.6250	0
		A325X		A325X		A325X		A325X		A325N		A325N		A325N	
T12 70'-50'	Flange	0.7500	4	0.5000	1	0.5000	1	0.5000	1	0.6250	0	0.0000	0	0.6250	0
		A325X		A325X		A325X		A325X		A325N		A325N		A325N	
T13 50'-35'	Flange	0.7500	4	0.5000	1	0.5000	1	0.5000	1	0.6250	0	0.0000	0	0.6250	0
		A325X		A325X		A325X		A325X		A325N		A325N		A325N	

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.
T14 35'-20'	Flange	0.7500 A325X	4	0.5000 A325X	1	0.5000 A325X	1	0.5000 A325X	1	0.6250 A325N	0	0.0000 A325N	0	0.6250 A325N	0
T15 20'-4'-9- 13/16"	Flange	0.7500 A325X	4	0.5000 A325X	1	0.5000 A325X	1	0.5000 A325X	1	0.6250 A325N	0	0.0000 A325N	0	0.6250 A325N	0
T16 4'-9- 13/16"-0'	Flange	0.7500 A325X	4	0.5000 A325X	1	0.5000 A325X	1	0.5000 A325X	1	0.6250 A325N	0	0.0000 A325N	0	0.6250 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 %
89.3854	EHS	A 1/2 (ECP - 23000)	2.690	10%	23000	0.517	244'-8-31/32"	230'	0.0000	0'	100%
		B 23000)	2.690	10%	23000	0.517	31/32"	230'	0.0000	0'	100%
		C 1/2 (ECP - 23000)	2.690	10%	23000	0.517	244'-8-31/32"	230'	0.0000	0'	100%
189.385	EHS	A 5/8 (ECP - 23000)	4.240	10%	23000	0.813	296'-2-7/16"	230'	0.0000	0'	100%
		B 23000)	4.240	10%	23000	0.813	296'-2-7/16"	230'	0.0000	0'	100%
		C 5/8 (ECP - 23000)	4.240	10%	23000	0.813	296'-2-7/16"	230'	0.0000	0'	100%
272.523	EHS	A 5/8 (ECP - 23000)	4.240	10%	23000	0.813	355'-1-5/32"	230'	0.0000	0'	100%
		B 23000)	4.240	10%	23000	0.813	355'-1-5/32"	230'	0.0000	0'	100%
		C 5/8 (ECP - 23000)	4.240	10%	23000	0.813	355'-1-5/32"	230'	0.0000	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
89.3854	Corner						
189.385	Corner						
272.523	Torque Arm	6'10"	0.0000	Channel	A36 (36 ksi)	Channel	C15x33.9

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
89'4-5/8"	A36 (36 ksi)	Solid Round			Yes	A36 (36 ksi)	Flat Bar	4 1/2x3/8
189'4-5/8"	A36 (36 ksi)	Solid Round			Yes	A36 (36 ksi)	Flat Bar	4 1/2x3/8
272'6-9/32"	A36 (36 ksi)	Solid Round			No	A36 (36 ksi)	Double Angle	2L2x2x1/4x3/8

Guy Data (cont'd)

Guy Elevation ft	Cable Weight		Cable Weight		Tower Intercept		Tower Intercept	
	A K	B K	C K	D K	A ft	B ft	C ft	D ft
89.3854	0.127	0.127	0.127		5'8-9/16" 4.1 sec/pulse	5'8-9/16" 4.1 sec/pulse	5'8-9/16" 4.1 sec/pulse	
189.385	0.241	0.241	0.241		8'3-1/4" 5.0 sec/pulse	8'3-1/4" 5.0 sec/pulse	8'3-1/4" 5.0 sec/pulse	
272.523	0.289	0.289	0.289		11'9-17/32" 5.9 sec/pulse	11'9-17/32" 5.9 sec/pulse	11'9-17/32" 5.9 sec/pulse	

Guy Data (cont'd)

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm		Pull Off		Diagonal	
			K _x	K _y	K _x	K _y	K _x	K _y
89.3854	No	No			1	1	1	1
189.385	No	No			1	1	1	1
272.523	No	No	1	1	1	1	1	1

Guy Data (cont'd)

Guy Elevation ft	Torque-Arm				Pull Off				Diagonal			
	Bolt Size in	Number	Net Width Deduct in	U	Bolt Size in	Number	Net Width Deduct in	U	Bolt Size in	Number	Net Width Deduct in	U
89.3854	0.0000 A325N	0	0.0000	0.75	0.7500 A325N	0	0.0000	1	0.6250 A325N	0	0.0000	1
189.385	0.0000 A325N	0	0.0000	0.75	0.7500 A325N	0	0.0000	1	0.6250 A325N	0	0.0000	1
272.523	0.0000 A325N	0	0.0000	0.75	0.6250 A325N	2	0.0000	0.75	0.6250 A325N	0	0.0000	1

Guy Pressures

Guy Elevation ft	Guy Location	z ft	q _z ksf	q _z Ice ksf	Ice Thickness in
89.3854	A	44'8-5/16"	0.032		
	B	44'8-5/16"	0.032		
	C	44'8-5/16"	0.032		
189.385	A	94'8-5/16"	0.037		
	B	94'8-5/16"	0.037		
	C	94'8-5/16"	0.037		
272.523	A	136'3-5/32"	0.040		
	B	136'3-5/32"	0.040		
	C	136'3-5/32"	0.040		

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
89.3854	A	21.4049	2.736	0.000	1.053	-2.525	-2.078	0.000	0.000
			2.690						
	B	21.4049	2.736	2.187	1.053	1.263	1.039	0.000	-1.799
			2.690						
C	21.4049	2.736	-2.187	1.053	1.263	1.039	-0.000	1.799	
		2.690							
189.385	A	39.7109	4.394	0.000	3.160	0.000	0.000	0.000	0.000
			4.240		2.878	-3.320	-5.678	0.000	0.000
	B	39.7109	4.394	2.875	2.878	1.660	2.839	0.000	-4.917
			4.240						
C	39.7109	4.394	-2.875	2.878	1.660	2.839	-0.000	4.917	
		4.240							
272.523	A	50.0767	4.461	0.000	8.635	0.000	0.000	0.000	0.000
			4.240	-0.042	3.481	-2.791	-6.866	9.617	-11.892
	A	50.0767	4.461	0.042	3.481	-2.791	-6.866	-9.617	11.892
			4.240						
	B	50.0767	4.461	2.438	3.481	1.359	13.732	9.617	0.000
			4.240						
	B	50.0767	4.461	2.396	3.481	1.431	-6.866	-9.617	-11.892
			4.240						
	C	50.0767	4.461	-2.396	3.481	1.431	-6.866	9.617	11.892
			4.240						
	C	50.0767	4.461	-2.438	3.481	1.359	13.732	-9.617	0.000
			4.240						
			Sum:	0.000	20.884	0.000	-0.000	0.000	0.000

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
89.3854	A	21.4049	2.736	0.000	1.053	-2.525	-2.078	0.000	0.000
			2.690						
	B	21.4049	2.736	2.187	1.053	1.263	1.039	0.000	-1.799

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom K	F _x	F _y	F _z	M _x	M _y	M _z
ft		°		K	K	K	kip-ft	kip-ft	kip-ft
			2.690						
	C	21.4049	2.736	-2.187	1.053	1.263	1.039	-0.000	1.799
			2.690						
			Sum:	0.000	3.160	0.000	0.000	0.000	0.000
189.385	A	39.7109	4.394	0.000	2.878	-3.320	-5.678	0.000	0.000
			4.240						
	B	39.7109	4.394	2.875	2.878	1.660	2.839	0.000	-4.917
			4.240						
	C	39.7109	4.394	-2.875	2.878	1.660	2.839	-0.000	4.917
			4.240						
			Sum:	0.000	8.635	0.000	0.000	0.000	0.000
272.523	A	50.0767	4.461	-0.042	3.481	-2.791	-6.866	9.617	-11.892
			4.240						
	A	50.0767	4.461	0.042	3.481	-2.791	-6.866	-9.617	11.892
			4.240						
	B	50.0767	4.461	2.438	3.481	1.359	13.732	9.617	0.000
			4.240						
	B	50.0767	4.461	2.396	3.481	1.431	-6.866	-9.617	-11.892
			4.240						
	C	50.0767	4.461	-2.396	3.481	1.431	-6.866	9.617	11.892
			4.240						
	C	50.0767	4.461	-2.438	3.481	1.359	13.732	-9.617	0.000
			4.240						
			Sum:	0.000	20.884	0.000	-0.000	0.000	0.000

Guy-Tensioning Information

Temperature At Time Of Tensioning																	
Guy Elevation	H	V	0 F		20 F		40 F		60 F		80 F		100 F		120 F		
			Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept			
ft	ft	ft	K	ft	K	ft	ft	K	ft	K	ft	K	ft	K	ft	ft	
89.3854	A	228.03	89.39	3.726	4.13	3.369	4.57	3.022	5.09	2.690	5.71	2.377	6.46	2.089	7.34	1.833	8.35
	B	228.03	89.39	3.726	4.13	3.369	4.57	3.022	5.09	2.690	5.71	2.377	6.46	2.089	7.34	1.833	8.35
	C	228.03	89.39	3.726	4.13	3.369	4.57	3.022	5.09	2.690	5.71	2.377	6.46	2.089	7.34	1.833	8.35
189.385	A	228.03	189.39	5.340	6.59	4.964	7.08	4.596	7.64	4.240	8.27	3.898	8.98	3.572	9.79	3.267	10.68
	B	228.03	189.39	5.340	6.59	4.964	7.08	4.596	7.64	4.240	8.27	3.898	8.98	3.572	9.79	3.267	10.68
	C	228.03	189.39	5.340	6.59	4.964	7.08	4.596	7.64	4.240	8.27	3.898	8.98	3.572	9.79	3.267	10.68
272.523	A	228.03	272.52	4.999	10.04	4.741	10.57	4.488	11.16	4.240	11.79	3.999	12.49	3.766	13.24	3.541	14.06
	B	228.05	272.52	4.999	10.04	4.741	10.57	4.488	11.16	4.240	11.79	3.999	12.49	3.766	13.24	3.541	14.06
	C	228.05	272.52	4.999	10.04	4.741	10.57	4.488	11.16	4.240	11.79	3.999	12.49	3.766	13.24	3.541	14.06

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement	Face Offset	Lateral Offset	#	# Per Row	Clear Spacing	Width or Diameter	Perimeter	Weight
					ft	in	(Frac FW)			in	in	in	plf
Safety Line 3/8 ***	A	No	No	Ar (CaAa)	290' - 5'	0.0000	0.5	1	1	0.3750	0.3750		0.220
Lighting Cable	C	No	No	Ar (CaAa)	154' - 5'	0.0000	0.5	2	2	0.1000	0.3937		0.064
Lighting Cable ***	C	No	No	Ar (CaAa)	290' - 154'	0.0000	0.5	1	1	0.1000	0.3937		0.064
LDF7-50A(1-5/8")	C	No	No	Ar (CaAa)	266' - 8'	0.0000	0	7	3	0.5000	1.9800		0.820

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 plf
6-8AWG 3 PAIR(7/8)	C	No	No	Ar (CaAa)	266' - 0'	0.0000	0.3	4	2	0.9000	0.9000		0.680
FB-L98B-002-XXX(3/8")	C	No	No	Ar (CaAa)	266' - 8'	2.5000	0.32	2	2	0.3937	0.3937		0.065
ATCB-B01(5/16)	C	No	No	Ar (CaAa)	266' - 8'	0.0000	-0.3	3	3	0.3150	0.3150		0.075
FB-L98B-002-XXX(3/8)	C	No	No	Ar (CaAa)	266' - 8'	1.0000	-0.25	1	1	0.3937	0.3937		0.065
WR-VG865T-BRD(3/4)	C	No	No	Ar (CaAa)	266' - 8'	0.0000	-0.25	2	2	0.5000	0.7950		0.584
* * ***													
ROHN Waveguide Brackets	C	No	No	Af (CaAa)	285' - 5'	0.0000	0	1	1	1.7500	1.7500		1.267

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	C _A A _A ft ² /ft	Weight plf

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
T1	290'-270'	A	0.000	0.000	0.750	0.000	0.004
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	5.162	0.000	0.020
T2	270'-250'	A	0.000	0.000	0.750	0.000	0.004
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	40.502	0.000	0.187
T3	250'-230'	A	0.000	0.000	0.750	0.000	0.004
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	48.973	0.000	0.228
T4	230'-210'	A	0.000	0.000	0.750	0.000	0.004
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	48.973	0.000	0.228
T5	210'-190'	A	0.000	0.000	0.750	0.000	0.004
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	48.973	0.000	0.228
T6	190'-170'	A	0.000	0.000	0.750	0.000	0.004
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	48.973	0.000	0.228
T7	170'-150'	A	0.000	0.000	0.750	0.000	0.004
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	49.130	0.000	0.228

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
T8	150'-130'	A	0.000	0.000	0.750	0.000	0.004
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	49.760	0.000	0.229
T9	130'-110'	A	0.000	0.000	0.750	0.000	0.004
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	49.760	0.000	0.229
T10	110'-90'	A	0.000	0.000	0.750	0.000	0.004
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	49.760	0.000	0.229
T11	90'-70'	A	0.000	0.000	0.750	0.000	0.004
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	49.760	0.000	0.229
T12	70'-50'	A	0.000	0.000	0.750	0.000	0.004
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	49.760	0.000	0.229
T13	50'-35'	A	0.000	0.000	0.562	0.000	0.003
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	37.320	0.000	0.172
T14	35'-20'	A	0.000	0.000	0.562	0.000	0.003
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	37.320	0.000	0.172
T15	20'-4'9"-13/16"	A	0.000	0.000	0.562	0.000	0.003
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	32.113	0.000	0.150
T16	4'9"-13/16"-0'	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	1.734	0.000	0.013

Feed Line Center of Pressure

Section	Elevation ft	CP _x in	CP _z in	CP _x Ice in	CP _z Ice in
T1	290'-270'	-0.3215	0.6637	-0.3215	0.6637
T2	270'-250'	-0.6409	5.1921	-0.6409	5.1921
T3	250'-230'	-0.7609	6.5027	-0.7609	6.5027
T4	230'-210'	-0.7609	6.5027	-0.7609	6.5027
T5	210'-190'	-0.7609	6.5027	-0.7609	6.5027
T6	190'-170'	-0.7171	6.1766	-0.7171	6.1766
T7	170'-150'	-0.8030	6.5058	-0.8030	6.5058
T8	150'-130'	-0.9697	6.5181	-0.9697	6.5181
T9	130'-110'	-0.9697	6.5181	-0.9697	6.5181
T10	110'-90'	-0.9697	6.5181	-0.9697	6.5181
T11	90'-70'	-0.9145	6.1920	-0.9145	6.1920
T12	70'-50'	-0.9697	6.5181	-0.9697	6.5181
T13	50'-35'	-0.9632	6.4719	-0.9632	6.4719
T14	35'-20'	-0.9632	6.4719	-0.9632	6.4719
T15	20'-4'9"-13/16"	-1.1621	5.9063	-1.1621	5.9063
T16	4'9"-13/16"-0'	-0.5279	1.2304	-0.5279	1.2304

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _o No Ice	K _o Ice

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	1	Safety Line 3/8	270.00 - 290.00	0.6000	0.6000
T1	4	Lighting Cable	270.00 - 290.00	0.6000	0.6000
T1	19	ROHN Waveguide Brackets	270.00 - 285.00	0.6000	0.6000
T2	1	Safety Line 3/8	250.00 - 270.00	0.6000	0.6000
T2	4	Lighting Cable	250.00 - 270.00	0.6000	0.6000
T2	6	LDF7-50A(1-5/8")	250.00 - 266.00	0.6000	0.6000
T2	7	6-8AWG 3 PAIR(7/8)	250.00 - 266.00	0.6000	0.6000
T2	8	FB-L98B-002-XXX(3/8")	250.00 - 266.00	0.6000	0.6000
T2	9	ATCB-B01(5/16)	250.00 - 266.00	0.6000	0.6000
T2	10	FB-L98B-002-XXX(3/8)	250.00 - 266.00	0.6000	0.6000
T2	11	WR-VG86ST-BRD(3/4)	250.00 - 266.00	0.6000	0.6000
T2	19	ROHN Waveguide Brackets	250.00 - 270.00	0.6000	0.6000
T3	1	Safety Line 3/8	230.00 - 250.00	0.6000	0.6000
T3	4	Lighting Cable	230.00 - 250.00	0.6000	0.6000
T3	6	LDF7-50A(1-5/8")	230.00 - 250.00	0.6000	0.6000
T3	7	6-8AWG 3 PAIR(7/8)	230.00 - 250.00	0.6000	0.6000
T3	8	FB-L98B-002-XXX(3/8")	230.00 - 250.00	0.6000	0.6000
T3	9	ATCB-B01(5/16)	230.00 - 250.00	0.6000	0.6000
T3	10	FB-L98B-002-XXX(3/8)	230.00 - 250.00	0.6000	0.6000
T3	11	WR-VG86ST-BRD(3/4)	230.00 - 250.00	0.6000	0.6000
T3	19	ROHN Waveguide Brackets	230.00 - 250.00	0.6000	0.6000
T4	1	Safety Line 3/8	210.00 - 230.00	0.6000	0.6000
T4	4	Lighting Cable	210.00 - 230.00	0.6000	0.6000
T4	6	LDF7-50A(1-5/8")	210.00 - 230.00	0.6000	0.6000
T4	7	6-8AWG 3 PAIR(7/8)	210.00 - 230.00	0.6000	0.6000
T4	8	FB-L98B-002-XXX(3/8")	210.00 - 230.00	0.6000	0.6000
T4	9	ATCB-B01(5/16)	210.00 - 230.00	0.6000	0.6000
T4	10	FB-L98B-002-XXX(3/8)	210.00 - 230.00	0.6000	0.6000
T4	11	WR-VG86ST-BRD(3/4)	210.00 - 230.00	0.6000	0.6000
T4	19	ROHN Waveguide Brackets	210.00 - 230.00	0.6000	0.6000
T5	1	Safety Line 3/8	190.00 - 210.00	0.6000	0.6000
T5	4	Lighting Cable	190.00 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			210.00		
T5	6	LDF7-50A(1-5/8")	190.00 -	0.6000	0.6000
			210.00		
T5	7	6-8AWG 3 PAIR(7/8)	190.00 -	0.6000	0.6000
			210.00		
T5	8	FB-L98B-002-XXX(3/8")	190.00 -	0.6000	0.6000
			210.00		
T5	9	ATCB-B01(5/16)	190.00 -	0.6000	0.6000
			210.00		
T5	10	FB-L98B-002-XXX(3/8)	190.00 -	0.6000	0.6000
			210.00		
T5	11	WR-VG86ST-BRD(3/4)	190.00 -	0.6000	0.6000
			210.00		
T5	19	ROHN Waveguide Brackets	190.00 -	0.6000	0.6000
			210.00		
T6	1	Safety Line 3/8	170.00 -	0.6000	0.6000
			190.00		
T6	4	Lighting Cable	170.00 -	0.6000	0.6000
			190.00		
T6	6	LDF7-50A(1-5/8")	170.00 -	0.6000	0.6000
			190.00		
T6	7	6-8AWG 3 PAIR(7/8)	170.00 -	0.6000	0.6000
			190.00		
T6	8	FB-L98B-002-XXX(3/8")	170.00 -	0.6000	0.6000
			190.00		
T6	9	ATCB-B01(5/16)	170.00 -	0.6000	0.6000
			190.00		
T6	10	FB-L98B-002-XXX(3/8)	170.00 -	0.6000	0.6000
			190.00		
T6	11	WR-VG86ST-BRD(3/4)	170.00 -	0.6000	0.6000
			190.00		
T6	19	ROHN Waveguide Brackets	170.00 -	0.6000	0.6000
			190.00		
T7	1	Safety Line 3/8	150.00 -	0.6000	0.6000
			170.00		
T7	3	Lighting Cable	150.00 -	0.6000	0.6000
			154.00		
T7	4	Lighting Cable	154.00 -	0.6000	0.6000
			170.00		
T7	6	LDF7-50A(1-5/8")	150.00 -	0.6000	0.6000
			170.00		
T7	7	6-8AWG 3 PAIR(7/8)	150.00 -	0.6000	0.6000
			170.00		
T7	8	FB-L98B-002-XXX(3/8")	150.00 -	0.6000	0.6000
			170.00		
T7	9	ATCB-B01(5/16)	150.00 -	0.6000	0.6000
			170.00		
T7	10	FB-L98B-002-XXX(3/8)	150.00 -	0.6000	0.6000
			170.00		
T7	11	WR-VG86ST-BRD(3/4)	150.00 -	0.6000	0.6000
			170.00		
T7	19	ROHN Waveguide Brackets	150.00 -	0.6000	0.6000
			170.00		
T8	1	Safety Line 3/8	130.00 -	0.6000	0.6000
			150.00		
T8	3	Lighting Cable	130.00 -	0.6000	0.6000
			150.00		
T8	6	LDF7-50A(1-5/8")	130.00 -	0.6000	0.6000
			150.00		
T8	7	6-8AWG 3 PAIR(7/8)	130.00 -	0.6000	0.6000
			150.00		
T8	8	FB-L98B-002-XXX(3/8")	130.00 -	0.6000	0.6000
			150.00		

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T8	9	ATCB-B01(5/16)	130.00 - 150.00	0.6000	0.6000
T8	10	FB-L98B-002-XXX(3/8)	130.00 - 150.00	0.6000	0.6000
T8	11	WR-VG86ST-BRD(3/4)	130.00 - 150.00	0.6000	0.6000
T8	19	ROHN Waveguide Brackets	130.00 - 150.00	0.6000	0.6000
T9	1	Safety Line 3/8	110.00 - 130.00	0.6000	0.6000
T9	3	Lighting Cable	110.00 - 130.00	0.6000	0.6000
T9	6	LDF7-50A(1-5/8")	110.00 - 130.00	0.6000	0.6000
T9	7	6-8AWG 3 PAIR(7/8)	110.00 - 130.00	0.6000	0.6000
T9	8	FB-L98B-002-XXX(3/8")	110.00 - 130.00	0.6000	0.6000
T9	9	ATCB-B01(5/16)	110.00 - 130.00	0.6000	0.6000
T9	10	FB-L98B-002-XXX(3/8)	110.00 - 130.00	0.6000	0.6000
T9	11	WR-VG86ST-BRD(3/4)	110.00 - 130.00	0.6000	0.6000
T9	19	ROHN Waveguide Brackets	110.00 - 130.00	0.6000	0.6000
T10	1	Safety Line 3/8	90.00 - 110.00	0.6000	0.6000
T10	3	Lighting Cable	90.00 - 110.00	0.6000	0.6000
T10	6	LDF7-50A(1-5/8")	90.00 - 110.00	0.6000	0.6000
T10	7	6-8AWG 3 PAIR(7/8)	90.00 - 110.00	0.6000	0.6000
T10	8	FB-L98B-002-XXX(3/8")	90.00 - 110.00	0.6000	0.6000
T10	9	ATCB-B01(5/16)	90.00 - 110.00	0.6000	0.6000
T10	10	FB-L98B-002-XXX(3/8)	90.00 - 110.00	0.6000	0.6000
T10	11	WR-VG86ST-BRD(3/4)	90.00 - 110.00	0.6000	0.6000
T10	19	ROHN Waveguide Brackets	90.00 - 110.00	0.6000	0.6000
T11	1	Safety Line 3/8	70.00 - 90.00	0.6000	0.6000
T11	3	Lighting Cable	70.00 - 90.00	0.6000	0.6000
T11	6	LDF7-50A(1-5/8")	70.00 - 90.00	0.6000	0.6000
T11	7	6-8AWG 3 PAIR(7/8)	70.00 - 90.00	0.6000	0.6000
T11	8	FB-L98B-002-XXX(3/8")	70.00 - 90.00	0.6000	0.6000
T11	9	ATCB-B01(5/16)	70.00 - 90.00	0.6000	0.6000
T11	10	FB-L98B-002-XXX(3/8)	70.00 - 90.00	0.6000	0.6000
T11	11	WR-VG86ST-BRD(3/4)	70.00 - 90.00	0.6000	0.6000
T11	19	ROHN Waveguide Brackets	70.00 - 90.00	0.6000	0.6000
T12	1	Safety Line 3/8	50.00 - 70.00	0.6000	0.6000
T12	3	Lighting Cable	50.00 - 70.00	0.6000	0.6000
T12	6	LDF7-50A(1-5/8")	50.00 - 70.00	0.6000	0.6000
T12	7	6-8AWG 3 PAIR(7/8)	50.00 - 70.00	0.6000	0.6000
T12	8	FB-L98B-002-XXX(3/8")	50.00 - 70.00	0.6000	0.6000
T12	9	ATCB-B01(5/16)	50.00 - 70.00	0.6000	0.6000
T12	10	FB-L98B-002-XXX(3/8)	50.00 - 70.00	0.6000	0.6000
T12	11	WR-VG86ST-BRD(3/4)	50.00 - 70.00	0.6000	0.6000
T12	19	ROHN Waveguide Brackets	50.00 - 70.00	0.6000	0.6000
T13	1	Safety Line 3/8	35.00 - 50.00	0.6000	0.6000
T13	3	Lighting Cable	35.00 - 50.00	0.6000	0.6000
T13	6	LDF7-50A(1-5/8")	35.00 - 50.00	0.6000	0.6000
T13	7	6-8AWG 3 PAIR(7/8)	35.00 - 50.00	0.6000	0.6000
T13	8	FB-L98B-002-XXX(3/8")	35.00 - 50.00	0.6000	0.6000
T13	9	ATCB-B01(5/16)	35.00 - 50.00	0.6000	0.6000
T13	10	FB-L98B-002-XXX(3/8)	35.00 - 50.00	0.6000	0.6000
T13	11	WR-VG86ST-BRD(3/4)	35.00 - 50.00	0.6000	0.6000
T13	19	ROHN Waveguide Brackets	35.00 - 50.00	0.6000	0.6000
T14	1	Safety Line 3/8	20.00 - 35.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _g No Ice	K _g Ice
T14	3	Lighting Cable	20.00 - 35.00	0.6000	0.6000
T14	6	LDF7-50A(1-5/8")	20.00 - 35.00	0.6000	0.6000
T14	7	6-8AWG 3 PAIR(7/8)	20.00 - 35.00	0.6000	0.6000
T14	8	FB-L98B-002-XXX(3/8")	20.00 - 35.00	0.6000	0.6000
T14	9	ATCB-B01(5/16)	20.00 - 35.00	0.6000	0.6000
T14	10	FB-L98B-002-XXX(3/8)	20.00 - 35.00	0.6000	0.6000
T14	11	WR-VG86ST-BRD(3/4)	20.00 - 35.00	0.6000	0.6000
T14	19	ROHN Waveguide Brackets	20.00 - 35.00	0.6000	0.6000
T15	1	Safety Line 3/8	5.00 - 20.00	0.6000	0.6000
T15	3	Lighting Cable	5.00 - 20.00	0.6000	0.6000
T15	6	LDF7-50A(1-5/8")	8.00 - 20.00	0.6000	0.6000
T15	7	6-8AWG 3 PAIR(7/8)	4.82 - 20.00	0.6000	0.6000
T15	8	FB-L98B-002-XXX(3/8")	8.00 - 20.00	0.6000	0.6000
T15	9	ATCB-B01(5/16)	8.00 - 20.00	0.6000	0.6000
T15	10	FB-L98B-002-XXX(3/8)	8.00 - 20.00	0.6000	0.6000
T15	11	WR-VG86ST-BRD(3/4)	8.00 - 20.00	0.6000	0.6000
T15	19	ROHN Waveguide Brackets	5.00 - 20.00	0.6000	0.6000
T16	7	6-8AWG 3 PAIR(7/8)	0.00 - 4.82	0.4635	0.4635

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
Lighting Rod 5/8" x 5'	B	From Leg	0.000 0' 9'6"	0.0000	290'
7'x2 1/2" Pipe Mount	A	From Leg	0.000 0' 3'6"	0.0000	290'
4' x 2" Pipe Mount	B	From Leg	0.000 0' 2'	0.0000	290'
Flash Beacon Lighting	A	From Leg	0.500 0' 3'	0.0000	290'

Side Arm Mount [SO 602-3]	C	None		0.0000	285'
8' horizontal x 2" Pipe Mount	A	From Face	6.000 0' 1'6"	0.0000	285'
8' horizontal x 2" Pipe Mount	B	From Face	6.000 0' 1'6"	0.0000	285'
8' horizontal x 2" Pipe Mount	C	From Face	6.000 0' 1'6"	0.0000	285'
8' horizontal x 2" Pipe Mount	A	From Face	6.000 0' -1'6"	0.0000	285'
8' horizontal x 2" Pipe Mount	B	From Face	6.000 0'	0.0000	285'

Description	Face or Leg	Offset Type	Offsets:			Azimuth Adjustment	Placement
			Horz Lateral	Vert			
			ft	ft	°	ft	
8' horizontal x 2" Pipe Mount	C	From Face	6.000	0'	0.0000	285'	
			-1'6"				
			0'				
			-1'6"				

Sector Mount [10.5' SM 401-3]	C	None			0.0000	266'	
Miscellaneous [NA 509-1]	A	From Leg	2.000	0'	0.0000	266'	
Miscellaneous [NA 509-1]	B	From Leg	2.000	0'	0.0000	266'	
Miscellaneous [NA 509-1]	C	From Leg	2.000	0'	0.0000	266'	
12' horizontal x 3" Pipe Mount	A	From Leg	4.000	0'	0.0000	266'	
12' horizontal x 3" Pipe Mount	B	From Leg	4.000	0'	0.0000	266'	
12' horizontal x 3" Pipe Mount	C	From Leg	4.000	0'	0.0000	266'	
8' x 2" Mount Pipe	A	From Leg	4.000	0'	0.0000	266'	
8' x 2" Mount Pipe	B	From Leg	4.000	0'	0.0000	266'	
8' x 2" Mount Pipe	C	From Leg	4.000	0'	0.0000	266'	
(2) 10' x 2" Mount Pipe	A	From Leg	2.000	0'	0.0000	266'	
(2) 10' x 2" Mount Pipe	B	From Leg	2.000	0'	0.0000	266'	
(2) 10' x 2" Mount Pipe	C	From Leg	2.000	0'	0.0000	266'	
AIR 6472 B77G B77M_20240625 w/ Mount Pipe	A	From Leg	4.000	0'	0.0000	266'	
AIR 6472 B77G B77M_20240625 w/ Mount Pipe	B	From Leg	4.000	0'	0.0000	266'	
AIR 6472 B77G B77M_20240625 w/ Mount Pipe	C	From Leg	4.000	0'	0.0000	266'	
(2) KRE 101 2526/1 w/ Mount Pipe	A	From Leg	4.000	0'	0.0000	266'	
(2) KRE 101 2526/1 w/ Mount Pipe	B	From Leg	4.000	0'	0.0000	266'	
			0'				

Description	Face or Leg	Offset Type	Offsets:			Azimuth Adjustment	Placement
			Horz Lateral	Vert			
			ft	ft	ft	°	ft
(2) KRE 101 2526/1 w/ Mount Pipe	C	From Leg	4.000	0'	0'	0.0000	266'
4890 B25/B66	A	From Leg	4.000	0'	2'	0.0000	266'
4890 B25/B66	B	From Leg	4.000	0'	2'	0.0000	266'
4890 B25/B66	C	From Leg	4.000	0'	2'	0.0000	266'
RADIO 4478 B14	A	From Leg	4.000	0'	2'	0.0000	266'
RADIO 4478 B14	B	From Leg	4.000	0'	2'	0.0000	266'
RADIO 4478 B14	C	From Leg	4.000	0'	2'	0.0000	266'
RRUS-32 B30	A	From Leg	4.000	0'	2'	0.0000	266'
RRUS-32 B30	B	From Leg	4.000	0'	2'	0.0000	266'
RRUS-32 B30	C	From Leg	4.000	0'	2'	0.0000	266'
Radio 4490 B5/B12A	A	From Leg	4.000	0'	2'	0.0000	266'
Radio 4490 B5/B12A	B	From Leg	4.000	0'	2'	0.0000	266'
Radio 4490 B5/B12A	C	From Leg	4.000	0'	2'	0.0000	266'
DC6-48-60-18-8C	A	From Leg	4.000	0'	0'	0.0000	266'
(2) DC6-48-60-18-8F	A	From Leg	4.000	0'	0'	0.0000	266'

Side Lighting	A	From Leg	0.500	0'	0'	0.0000	154'
Side Lighting	B	From Leg	0.500	0'	0'	0.0000	154'

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
**										
**										
**										

Load Combinations

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

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

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	290 - 270	Leg	Max Tension	14	6.841	-0.088	0.014
			Max. Compression	36	-21.121	0.051	-0.828
			Max. Mx	48	-8.811	1.319	0.061
			Max. My	34	-20.234	0.079	-1.225
			Max. Vy	54	3.324	1.263	0.121
		Diagonal	Max. Vx	34	-3.251	0.079	-1.225
			Max Tension	49	4.244	0.000	0.000
			Max. Compression	49	-5.584	0.000	0.000
			Max. Mx	41	2.281	0.004	0.000
			Max. My	26	0.300	0.000	-0.000
		Top Girt	Max. Vy	41	-0.004	0.000	0.000
			Max. Vx	26	0.000	0.000	0.000
			Max Tension	45	0.068	0.000	0.000
			Max. Compression	55	-0.065	0.000	0.000
			Max. Mx	40	0.059	0.003	0.000
		Bottom Girt	Max. My	26	-0.034	0.000	-0.000
			Max. Vy	40	-0.004	0.000	0.000
			Max. Vx	26	0.000	0.000	0.000
			Max Tension	24	1.510	0.000	0.000
			Max. Compression	34	-0.541	0.000	0.000
		Max. Mx	46	1.442	0.003	0.000	
		Max. My	26	0.159	0.000	-0.000	
		Max. Vy	46	-0.004	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		
T2	270 - 250	Guy A	Max. Vx	26	0.000	0.000	0.000		
			Bottom Tension	34	13.194				
			Top Tension	34	13.414				
			Top Cable Vert	34	10.468				
			Top Cable Norm	34	8.388				
			Top Cable Tan	34	0.004				
			Bot Cable Vert	34	-9.894				
			Bot Cable Norm	34	8.728				
			Bot Cable Tan	34	0.005				
			Guy B	Bottom Tension	54	13.697			
				Top Tension	54	13.917			
				Top Cable Vert	54	10.852			
				Top Cable Norm	54	8.713			
				Top Cable Tan	54	0.006			
				Bot Cable Vert	54	-10.278			
		Bot Cable Norm		54	9.053				
		Bot Cable Tan		54	0.003				
		Guy C		Bottom Tension	14	13.597			
			Top Tension	14	13.817				
			Top Cable Vert	14	10.776				
			Top Cable Norm	14	8.648				
			Top Cable Tan	14	0.005				
			Bot Cable Vert	14	-10.202				
			Bot Cable Norm	14	8.989				
			Bot Cable Tan	14	0.003				
			Top Guy Pull-Off	Max Tension	34	5.699	0.000	0.000	
		Max. Compression		23	-4.626	0.000	0.000		
		Max. Mx		46	-4.024	0.012	0.000		
		Max. My		26	2.990	0.000	-0.000		
		Max. Vy		6	-0.014	0.000	0.000		
		Max. Vx		26	0.000	0.000	0.000		
		Torque Arm Top		Max Tension	49	8.613	-7.681	-0.000	
				Max. Compression	49	-3.296	-33.225	0.000	
				Max. Mx	54	-2.353	-34.727	-0.000	
				Max. My	26	2.417	-24.713	0.000	
				Max. Vy	54	10.236	-34.727	-0.000	
				Max. Vx	26	0.000	-24.713	0.000	
				Leg	Max Tension	46	10.040	0.298	0.248
					Max. Compression	34	-36.604	0.110	0.074
					Max. Mx	54	-20.151	-1.157	-0.199
		Max. My	34		-20.236	-0.063	1.147		
		Max. Vy	54		3.322	0.883	0.071		
		Max. Vx	34		-3.256	0.057	-0.852		
		Diagonal	Max Tension		49	4.584	0.000	0.000	
			Max. Compression		49	-4.878	0.000	0.000	
Max. Mx	41		2.786		0.002	0.000			
Max. My	26		1.101		0.000	-0.000			
Max. Vy	41		-0.002		0.000	0.000			
Max. Vx	26		0.000		0.000	0.000			
Top Girt	Max Tension		34		0.894	0.000	0.000		
	Max. Compression		23		-0.542	0.000	0.000		
	Max. Mx		46		-0.528	0.002	0.000		
	Max. My	26	0.487	0.000	0.000				
	Max. Vy	46	-0.002	0.000	0.000				
	Max. Vx	26	-0.000	0.000	0.000				
	Bottom Girt	Max Tension	48	0.484	0.000	0.000			
		Max. Compression	14	-0.118	0.000	0.000			
		Max. Mx	34	0.233	0.002	0.000			
Max. My		26	-0.037	0.000	0.000				
Max. Vy		34	-0.002	0.000	0.000				
Max. Vx		26	-0.000	0.000	0.000				
T3		250 - 230	Leg	Max Tension	26	11.410	0.075	-0.000	

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T4	230 - 210	Diagonal	Max. Compression	54	-37.794	-0.116	-0.047
			Max. Mx	24	-25.521	0.426	0.053
			Max. My	19	-33.115	-0.162	-0.447
			Max. Vy	19	1.190	0.273	-0.020
			Max. Vx	54	-1.162	-0.285	-0.354
			Max Tension	56	3.206	0.000	0.000
			Max. Compression	24	-3.192	0.000	0.000
			Max. Mx	6	-0.117	0.002	0.000
			Max. My	54	2.063	0.000	0.000
			Max. Vy	6	-0.002	0.000	0.000
		Top Girt	Max. Vx	54	-0.000	0.000	0.000
			Max Tension	54	1.012	0.000	0.000
			Max. Compression	19	-0.996	0.000	0.000
			Max. Mx	25	-0.797	0.002	0.000
			Max. My	26	-0.668	0.000	0.000
			Max. Vy	25	-0.002	0.000	0.000
			Max. Vx	26	-0.000	0.000	0.000
			Max Tension	24	1.232	0.000	0.000
			Max. Compression	56	-1.246	0.000	0.000
			Max. Mx	46	-0.648	0.002	0.000
		Bottom Girt	Max. My	19	0.382	0.000	0.000
			Max. Vy	46	-0.002	0.000	0.000
			Max. Vx	19	-0.000	0.000	0.000
			Max Tension	46	6.460	0.022	-0.322
			Max. Compression	34	-32.848	0.048	-0.140
			Max. Mx	49	-15.311	0.557	-0.029
			Max. My	36	-16.011	0.067	0.519
			Max. Vy	19	1.476	0.346	0.077
			Max. Vx	29	1.472	0.056	0.311
			Max Tension	56	4.192	0.000	0.000
		Diagonal	Max. Compression	24	-4.303	0.000	0.000
			Max. Mx	39	3.601	0.004	0.000
			Max. My	54	1.766	0.000	0.000
			Max. Vy	39	-0.004	0.000	0.000
			Max. Vx	54	-0.000	0.000	0.000
			Max Tension	56	1.507	0.000	0.000
			Max. Compression	24	-1.318	0.000	0.000
			Max. Mx	26	-0.524	0.003	0.000
			Max. My	19	-0.275	0.000	0.000
			Max. Vy	26	-0.004	0.000	0.000
Top Girt	Max. Vx	19	-0.000	0.000	0.000		
	Max Tension	24	1.892	0.000	0.000		
	Max. Compression	56	-1.805	0.000	0.000		
	Max. Mx	45	-0.668	0.003	0.000		
	Max. My	19	-0.362	0.000	0.000		
	Max. Vy	45	-0.004	0.000	0.000		
	Max. Vx	19	-0.000	0.000	0.000		
	Max Tension	32	14.421	0.058	0.512		
	Max. Compression	2	-40.774	0.054	-0.097		
	Max. Mx	49	-15.496	0.650	-0.085		
Diagonal	Max. My	59	-14.388	0.216	0.618		
	Max. Vy	47	-1.925	-0.155	-0.273		
	Max. Vx	36	2.234	0.035	0.265		
	Max Tension	59	5.216	0.000	0.000		
	Max. Compression	29	-5.344	0.000	0.000		
	Max. Mx	39	3.753	0.004	0.000		
	Max. My	54	1.523	0.000	0.000		
	Max. Vy	39	-0.004	0.000	0.000		
	Max. Vx	54	-0.000	0.000	0.000		
	Max Tension	56	1.977	0.000	0.000		
Top Girt	Max. Compression	24	-1.890	0.000	0.000		
	Max. Mx	45	0.755	0.003	0.000		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft	
T6	190 - 170	Bottom Girt	Max. My	19	0.518	0.000	0.000	
			Max. Vy	45	-0.004	0.000	0.000	
			Max. Vx	19	-0.000	0.000	0.000	
			Max Tension	24	2.714	0.000	0.000	
			Max. Compression	54	-2.340	0.000	0.000	
			Max. Mx	50	-1.193	0.003	0.000	
			Max. My	19	-1.093	0.000	0.000	
			Max. Vy	50	-0.004	0.000	0.000	
			Max. Vx	19	-0.000	0.000	0.000	
			Leg	Max Tension	32	14.421	0.036	0.257
		Max. Compression		24	-40.836	0.082	-0.291	
		Max. Mx		52	3.751	1.037	0.460	
		Max. My		32	2.674	-0.080	-1.115	
		Max. Vy		47	-1.928	1.027	0.103	
		Max. Vx		36	2.246	-0.080	-1.114	
		Diagonal		Max Tension	50	4.896	0.000	0.000
				Max. Compression	20	-4.863	0.000	0.000
				Max. Mx	9	-0.484	0.002	0.000
				Max. My	54	1.602	0.000	0.000
		Top Girt	Max. Vy	9	-0.002	0.000	0.000	
			Max. Vx	54	-0.000	0.000	0.000	
			Max Tension	42	0.925	0.000	0.000	
			Max. Compression	13	-0.008	0.000	0.000	
		Bottom Girt	Max. Mx	7	0.088	0.002	0.000	
			Max. My	19	0.278	0.000	0.000	
			Max. Vy	7	-0.002	0.000	0.000	
			Max. Vx	19	-0.000	0.000	0.000	
		Guy A	Max Tension	13	1.395	0.000	0.000	
			Max. Compression	50	-1.284	0.000	0.000	
			Max. Mx	42	-0.166	0.002	0.000	
			Max. My	25	-0.276	0.000	0.000	
		Guy B	Max. Vy	42	-0.002	0.000	0.000	
			Max. Vx	25	-0.000	0.000	0.000	
			Bottom Tension	33	15.597			
			Top Tension	33	15.750			
		Guy C	Top Cable Vert	33	10.201			
			Top Cable Norm	33	12.000			
			Top Cable Tan	33	0.001			
			Bot Cable Vert	33	-9.777			
		Top Guy Pull-Off	Bot Cable Norm	33	12.152			
			Bot Cable Tan	33	0.001			
			Bottom Tension	53	15.475			
			Top Tension	53	15.628			
		Top Guy Pull-Off	Top Cable Vert	53	10.124			
			Top Cable Norm	53	11.906			
			Top Cable Tan	53	0.005			
			Bot Cable Vert	53	-9.700			
		Top Guy Pull-Off	Bot Cable Norm	53	12.058			
			Bot Cable Tan	53	0.005			
			Bottom Tension	13	15.469			
Top Tension	13		15.622					
Top Guy Pull-Off	Top Cable Vert	13	10.120					
	Top Cable Norm	13	11.901					
	Top Cable Tan	13	0.004					
	Bot Cable Vert	13	-9.696					
Top Guy Pull-Off	Bot Cable Norm	13	12.053					
	Bot Cable Tan	13	0.004					
	Max Tension	42	5.941	0.000	0.000			
	Max. Compression	13	-0.054	0.000	0.000			
Top Guy Pull-Off	Max. Mx	7	0.567	0.010	0.000			
	Max. My	19	1.786	0.000	0.000			
	Max. Vy	7	-0.012	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
T7	170 - 150	Leg	Max. Vx	19	-0.000	0.000	0.000
			Max Tension	5	0.617	-0.028	0.173
			Max. Compression	35	-34.569	0.131	0.003
			Max. Mx	20	-23.499	0.557	0.051
			Max. My	33	-20.016	-0.039	0.478
			Max. Vy	50	1.759	0.535	0.001
		Diagonal	Max. Vx	5	1.294	-0.060	0.394
			Max Tension	18	3.799	0.000	0.000
			Max. Compression	48	-3.946	0.000	0.000
			Max. Mx	5	1.876	0.002	0.000
			Max. My	54	1.245	0.000	0.000
			Max. Vy	5	-0.002	0.000	0.000
		Top Girt	Max. Vx	54	-0.000	0.000	0.000
			Max Tension	47	1.308	0.000	0.000
			Max. Compression	18	-1.207	0.000	0.000
			Max. Mx	42	0.316	0.002	0.000
			Max. My	25	0.312	0.000	0.000
			Max. Vy	42	-0.002	0.000	0.000
		Bottom Girt	Max. Vx	25	-0.000	0.000	0.000
			Max Tension	13	0.864	0.000	0.000
			Max. Compression	50	-0.688	0.000	0.000
			Max. Mx	55	-0.480	0.002	0.000
			Max. My	48	-0.679	0.000	0.000
			Max. Vy	55	-0.002	0.000	0.000
T8	150 - 130	Leg	Max. Vx	48	-0.000	0.000	0.000
			Max Tension	5	3.002	-0.017	-0.087
			Max. Compression	55	-36.880	-0.029	0.024
			Max. Mx	20	-32.892	0.325	0.020
			Max. My	33	-33.273	0.025	0.292
			Max. Vy	53	0.855	0.237	0.030
		Diagonal	Max. Vx	23	0.605	0.042	0.259
			Max Tension	18	1.936	0.000	0.000
			Max. Compression	53	-2.199	0.000	0.000
			Max. Mx	38	0.969	0.002	0.000
			Max. My	53	0.944	0.000	0.000
			Max. Vy	38	-0.002	0.000	0.000
		Top Girt	Max. Vx	53	-0.000	0.000	0.000
			Max Tension	53	0.743	0.000	0.000
			Max. Compression	18	-0.690	0.000	0.000
			Max. Mx	20	-0.330	0.002	0.000
			Max. My	48	0.715	0.000	0.000
			Max. Vy	20	-0.002	0.000	0.000
		Bottom Girt	Max. Vx	48	-0.000	0.000	0.000
			Max Tension	23	0.601	0.000	0.000
			Max. Compression	55	-0.475	0.000	0.000
			Max. Mx	5	-0.005	0.002	0.000
			Max. My	23	0.601	0.000	-0.000
			Max. Vy	5	-0.002	0.000	0.000
T9	130 - 110	Leg	Max. Vx	23	0.000	0.000	0.000
			Max Tension	5	2.007	0.022	-0.094
			Max. Compression	35	-35.735	0.088	0.013
			Max. Mx	55	-25.138	-0.406	-0.284
			Max. My	35	-26.262	0.029	0.456
			Max. Vy	21	0.906	0.241	-0.148
		Diagonal	Max. Vx	3	-1.120	0.081	-0.233
			Max Tension	58	2.584	0.000	0.000
			Max. Compression	28	-2.725	0.000	0.000
			Max. Mx	38	2.365	0.002	0.000
			Max. My	53	0.694	0.000	0.000
			Max. Vy	38	-0.002	0.000	0.000
		Top Girt	Max. Vx	53	-0.000	0.000	0.000
			Max Tension	55	0.658	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	
T10	110 - 90	Bottom Girt	Max. Compression	23	-0.559	0.000	0.000	
			Max. Mx	5	0.208	0.002	0.000	
			Max. My	23	-0.559	0.000	-0.000	
			Max. Vy	5	-0.002	0.000	0.000	
			Max. Vx	23	0.000	0.000	0.000	
			Max Tension	23	1.004	0.000	0.000	
			Max. Compression	58	-0.851	0.000	0.000	
			Max. Mx	34	0.189	0.002	0.000	
			Max. My	23	1.004	0.000	-0.000	
			Max. Vy	34	-0.002	0.000	0.000	
		Leg	Max. Vx	23	0.000	0.000	0.000	
			Max Tension	1	0.000	0.000	0.000	
			Max. Compression	23	-38.591	-0.033	0.205	
			Max. Mx	48	-20.658	0.378	-0.085	
			Max. My	8	-17.620	-0.161	0.457	
			Max. Vy	55	-1.506	-0.142	-0.178	
			Max. Vx	35	1.679	0.011	0.205	
			Diagonal	Max Tension	58	3.512	0.000	0.000
				Max. Compression	28	-3.667	0.000	0.000
				Max. Mx	38	2.570	0.002	0.000
		Max. My		53	0.457	0.000	0.000	
		Top Girt	Max. Vy	38	-0.002	0.000	0.000	
			Max. Vx	53	-0.000	0.000	0.000	
			Max Tension	58	1.005	0.000	0.000	
			Max. Compression	23	-0.930	0.000	0.000	
			Max. Mx	34	-0.092	0.002	0.000	
			Max. My	23	-0.930	0.000	-0.000	
		Bottom Girt	Max. Vy	34	-0.002	0.000	0.000	
			Max. Vx	23	0.000	0.000	0.000	
			Max Tension	23	1.653	0.000	0.000	
			Max. Compression	58	-1.396	0.000	0.000	
			Max. Mx	34	0.295	0.002	0.000	
Max. My	23		1.653	0.000	-0.000			
Max. Vy	34		-0.002	0.000	0.000			
Max. Vx	23		0.000	0.000	0.000			
Leg	Max Tension		1	0.000	0.000	0.000		
	Max. Compression		23	-38.792	0.094	-0.234		
	Max. Mx	21	-34.928	-0.884	-0.115			
	Max. My	6	-35.638	0.137	0.908			
	Max. Vy	55	-1.503	0.780	0.321			
	Max. Vx	35	1.683	0.001	-0.828			
	Diagonal	Max Tension	17	3.591	0.000	0.000		
		Max. Compression	47	-3.535	0.000	0.000		
		Max. Mx	3	-1.226	0.002	0.000		
		Max. My	53	0.694	0.000	0.000		
Top Girt	Max. Vy	3	-0.002	0.000	0.000			
	Max. Vx	53	-0.000	0.000	0.000			
	Max Tension	46	0.728	0.000	0.000			
	Max. Compression	1	0.000	0.000	0.000			
	Max. Mx	34	0.097	0.002	0.000			
	Max. My	23	0.186	0.000	-0.000			
Bottom Girt	Max. Vy	34	-0.002	0.000	0.000			
	Max. Vx	23	0.000	0.000	0.000			
	Max Tension	12	1.055	0.000	0.000			
	Max. Compression	47	-0.919	0.000	0.000			
	Max. Mx	34	-0.124	0.002	0.000			
	Max. My	23	-0.072	0.000	-0.000			
Guy A	Max. Vy	34	-0.002	0.000	0.000			
	Max. Vx	23	0.000	0.000	0.000			
	Bottom Tension	31	9.847					
	Top Tension	31	9.893					
	Top Cable Vert	31	3.685					

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft	
T12	70 - 50	Guy B	Top Cable Norm	31	9.181			
			Top Cable Tan	31	0.032			
			Bot Cable Vert	31	-3.501			
			Bot Cable Norm	31	9.203			
			Bot Cable Tan	31	0.065			
			Bottom Tension	61	9.850			
			Top Tension	61	9.896			
			Top Cable Vert	61	3.686			
			Top Cable Norm	61	9.183			
			Top Cable Tan	61	0.032			
			Bot Cable Vert	61	-3.502			
			Bot Cable Norm	61	9.206			
			Bot Cable Tan	61	0.065			
			Bottom Tension	11	9.847			
		Top Tension	11	9.893				
		Guy C	Top Cable Vert	11	3.685			
			Top Cable Norm	11	9.181			
			Top Cable Tan	11	0.030			
			Bot Cable Vert	11	-3.501			
			Bot Cable Norm	11	9.203			
			Bot Cable Tan	11	0.067			
			Top Guy Pull-Off	Max Tension	46	4.674	0.000	0.000
				Max. Compression	1	0.000	0.000	0.000
				Max. Mx	34	0.623	0.010	0.000
				Max. My	23	1.196	0.000	-0.000
				Max. Vy	34	-0.012	0.000	0.000
				Max. Vx	23	0.000	0.000	0.000
				Leg	Max Tension	1	0.000	0.000
		Max. Compression	34		-40.223	0.116	0.080	
		Max. Mx	17		-27.260	0.452	-0.040	
		Max. My	32		-26.935	0.004	0.450	
		Max. Vy	47		1.237	0.345	-0.057	
		Max. Vx	36		-0.997	0.144	-0.163	
		Diagonal	Max Tension		17	2.627	0.000	0.000
			Max. Compression		47	-2.808	0.000	0.000
			Max. Mx		6	-0.618	0.002	0.000
			Max. My		54	0.432	0.000	0.000
			Max. Vy		6	-0.002	0.000	0.000
		Top Girt	Max. Vx		54	-0.000	0.000	0.000
			Max Tension		47	0.997	0.000	0.000
			Max. Compression	17	-0.862	0.000	0.000	
			Max. Mx	34	0.186	0.002	0.000	
			Max. My	23	0.196	0.000	-0.000	
		Bottom Girt	Max. Vy	34	-0.002	0.000	0.000	
			Max. Vx	23	0.000	0.000	0.000	
			Max Tension	16	0.497	0.000	0.000	
			Max. Compression	51	-0.342	0.000	0.000	
Max. Mx	34		-0.004	0.002	0.000			
Leg	Max. My	25	0.072	0.000	-0.000			
	Max. Vy	34	-0.002	0.000	0.000			
	Max. Vx	25	0.000	0.000	0.000			
	Max Tension	1	0.000	0.000	0.000			
	Max. Compression	34	-41.218	0.008	0.036			
	Max. Mx	52	-36.987	-0.276	0.034			
	Max. My	32	-37.365	0.045	0.268			
	Max. Vy	47	0.534	0.119	-0.037			
	Max. Vx	36	-0.356	0.116	0.050			
	Diagonal	Max Tension	21	1.038	0.000	0.000		
Max. Compression		47	-1.221	0.000	0.000			
Max. Mx		6	0.224	0.002	0.000			
Max. My		54	0.327	0.000	0.000			
Max. Vy		6	-0.002	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	
T14	35 - 20	Top Girt	Max. Vx	54	-0.000	0.000	0.000	
			Max Tension	48	0.435	0.000	0.000	
			Max. Compression	21	-0.320	0.000	0.000	
			Max. Mx	34	0.047	0.002	0.000	
			Max. My	25	-0.022	0.000	-0.000	
			Max. Vy	34	-0.002	0.000	0.000	
		Bottom Girt	Max. Vx	25	0.000	0.000	0.000	
			Max Tension	25	0.285	0.000	0.000	
			Max. Compression	45	-0.154	0.000	0.000	
			Max. Mx	33	0.054	0.002	0.000	
			Max. My	25	0.285	0.000	-0.000	
			Max. Vy	33	-0.002	0.000	0.000	
		Leg	Max. Vx	25	0.000	0.000	0.000	
			Max Tension	1	0.000	0.000	0.000	
			Max. Compression	34	-40.833	0.095	0.071	
			Max. Mx	54	-36.069	-0.323	-0.159	
			Max. My	34	-36.268	0.035	0.346	
			Max. Vy	14	0.595	0.208	-0.179	
			Max. Vx	5	-0.677	0.072	-0.152	
			Diagonal	Max Tension	59	1.277	0.000	0.000
				Max. Compression	29	-1.423	0.000	0.000
				Max. Mx	5	1.112	0.002	0.000
				Max. My	54	0.202	0.000	0.000
				Max. Vy	5	-0.002	0.000	0.000
				Max. Vx	54	-0.000	0.000	0.000
			Top Girt	Max Tension	54	0.337	0.000	0.000
		Max. Compression		25	-0.228	0.000	0.000	
		Max. Mx		33	0.029	0.002	0.000	
Max. My	25	-0.228		0.000	-0.000			
Max. Vy	33	-0.002		0.000	0.000			
Max. Vx	25	0.000		0.000	0.000			
Bottom Girt	Max Tension	25	0.489	0.000	0.000			
	Max. Compression	59	-0.369	0.000	0.000			
	Max. Mx	33	0.098	0.002	0.000			
	Max. My	25	0.489	0.000	-0.000			
	Max. Vy	33	-0.002	0.000	0.000			
	Max. Vx	25	0.000	0.000	0.000			
	T15	20 - 4.81771	Leg	Max Tension	1	0.000	0.000	0.000
				Max. Compression	34	-36.272	0.129	-0.107
				Max. Mx	54	-27.544	0.812	0.301
				Max. My	24	-26.893	-0.120	-0.934
Max. Vy				19	2.802	-0.611	0.189	
Max. Vx				44	2.783	-0.011	-0.828	
Diagonal			Max Tension	29	1.685	0.000	0.000	
			Max. Compression	59	-1.643	0.000	0.000	
			Max. Mx	5	1.439	0.002	0.000	
			Max. My	54	0.047	0.000	0.000	
			Max. Vy	5	-0.002	0.000	0.000	
			Max. Vx	54	-0.000	0.000	0.000	
Top Girt			Max Tension	59	0.518	0.000	0.000	
			Max. Compression	25	-0.430	0.000	0.000	
	Max. Mx	33	-0.005	0.002	0.000			
	Max. My	25	-0.429	0.000	-0.000			
	Max. Vy	33	-0.002	0.000	0.000			
	Max. Vx	25	0.000	0.000	0.000			
Bottom Girt	Max Tension	19	1.105	0.000	0.000			
	Max. Compression	1	0.000	0.000	0.000			
	Max. Mx	33	0.684	0.002	0.000			
	Max. My	25	0.989	0.000	-0.000			
	Max. Vy	33	-0.002	0.000	0.000			
	Max. Vx	25	0.000	0.000	0.000			
	T16	4.81771 - 0	Leg	Max Tension	1	0.000	0.000	0.000

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	22	-30.675	-1.981	0.039
			Max. Mx	54	-21.115	-2.567	-0.033
			Max. My	25	-20.109	1.424	0.640
			Max. Vy	54	3.623	-2.533	-0.044
			Max. Vx	25	0.512	1.424	0.640
		Horizontal	Max Tension	24	0.502	0.669	-0.300
			Max. Compression	54	-1.415	1.444	-0.577
			Max. Mx	54	-1.127	1.989	-0.733
			Max. My	54	-1.415	1.879	-0.805
			Max. Vy	25	1.354	1.849	-0.625
			Max. Vx	50	0.298	0.859	-0.424
		Top Girt	Max Tension	2	5.576	-0.011	0.039
			Max. Compression	1	0.000	0.000	0.000
			Max. Mx	24	4.111	0.557	-0.126
			Max. My	54	3.289	0.540	-0.200
			Max. Vy	25	-0.173	0.545	-0.117
			Max. Vx	50	-0.044	0.020	-0.030

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K	
Mast	Max. Vert	2	77.645	0.003	1.228	
	Max. H _x	49	72.761	1.560	0.042	
	Max. H _z	4	73.984	0.001	1.624	
	Max. M _x	1	0.000	-0.002	0.012	
	Max. M _z	1	0.000	-0.002	0.012	
	Max. Torsion	1	0.000	-0.002	0.012	
	Min. Vert	1	49.468	-0.002	0.012	
	Min. H _x	19	72.755	-1.565	0.041	
	Min. H _z	34	71.633	0.002	-1.665	
	Min. M _x	1	0.000	-0.002	0.012	
	Min. M _z	1	0.000	-0.002	0.012	
	Min. Torsion	1	0.000	-0.002	0.012	
	Guy C @ 230 ft Elev 0 ft Azimuth 240 deg	Max. Vert	42	-2.189	-1.479	0.855
		Max. H _x	42	-2.189	-1.479	0.855
Max. H _z		7	-31.462	-32.017	19.139	
Min. Vert		12	-32.514	-33.046	19.054	
Min. H _x		12	-32.514	-33.046	19.054	
Min. H _z		42	-2.189	-1.479	0.855	
Guy B @ 230 ft Elev 0 ft Azimuth 120 deg	Max. Vert	22	-2.191	1.480	0.856	
	Max. H _x	52	-32.527	33.063	19.059	
	Max. H _z	57	-31.469	32.026	19.137	
	Min. Vert	52	-32.527	33.063	19.059	
	Min. H _x	22	-2.191	1.480	0.856	
Guy A @ 230 ft Elev 0 ft Azimuth 0 deg	Max. Vert	2	-2.180	-0.000	-1.696	
	Max. H _x	47	-17.465	1.283	-19.996	
	Max. H _z	2	-2.180	-0.000	-1.696	
	Min. Vert	32	-32.641	0.004	-38.332	
	Min. H _x	17	-17.463	-1.283	-19.992	
	Min. H _z	32	-32.641	0.004	-38.332	

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
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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	49.468	0.002	-0.012	0.000	0.000	0.000
1.2 Dead+1.0 Wind 0 deg - No Ice+1.0 Guy	77.645	-0.003	-1.228	0.000	0.000	-0.000
1.2D+1.0W (pattern 1) 0 deg - No Ice+1.0 Guy	76.749	-0.002	-0.372	0.000	0.000	-0.000
1.2D+1.0W (pattern 2) 0 deg - No Ice+1.0 Guy	73.984	-0.001	-1.624	0.000	0.000	-0.000
1.2D+1.0W (pattern 3) 0 deg - No Ice+1.0 Guy	70.304	-0.002	-1.447	0.000	0.000	-0.000
1.2D+1.0W (pattern 4) 0 deg - No Ice+1.0 Guy	75.581	-0.003	-1.235	0.000	0.000	-0.000
1.2 Dead+1.0 Wind 30 deg - No Ice+1.0 Guy	76.044	0.751	-1.064	0.000	0.000	-0.000
1.2D+1.0W (pattern 1) 30 deg - No Ice+1.0 Guy	75.317	0.326	-0.324	0.000	0.000	-0.000
1.2D+1.0W (pattern 2) 30 deg - No Ice+1.0 Guy	73.238	0.869	-1.388	0.000	0.000	-0.000
1.2D+1.0W (pattern 3) 30 deg - No Ice+1.0 Guy	70.711	0.767	-1.226	0.000	0.000	-0.000
1.2D+1.0W (pattern 4) 30 deg - No Ice+1.0 Guy	74.579	0.752	-1.064	0.000	0.000	-0.000
1.2 Dead+1.0 Wind 60 deg - No Ice+1.0 Guy	72.818	1.221	-0.692	0.000	0.000	0.000
1.2D+1.0W (pattern 1) 60 deg - No Ice+1.0 Guy	72.541	0.491	-0.274	0.000	0.000	0.000
1.2D+1.0W (pattern 2) 60 deg - No Ice+1.0 Guy	71.624	1.447	-0.829	0.000	0.000	0.000
1.2D+1.0W (pattern 3) 60 deg - No Ice+1.0 Guy	70.028	1.268	-0.721	0.000	0.000	0.000
1.2D+1.0W (pattern 4) 60 deg - No Ice+1.0 Guy	72.046	1.216	-0.689	0.000	0.000	0.000
1.2 Dead+1.0 Wind 90 deg - No Ice+1.0 Guy	75.357	1.239	-0.082	0.000	0.000	0.000
1.2D+1.0W (pattern 1) 90 deg - No Ice+1.0 Guy	74.684	0.423	-0.094	0.000	0.000	0.000
1.2D+1.0W (pattern 2) 90 deg - No Ice+1.0 Guy	72.755	1.565	-0.041	0.000	0.000	0.000
1.2D+1.0W (pattern 3) 90 deg - No Ice+1.0 Guy	70.212	1.377	-0.021	0.000	0.000	0.000
1.2D+1.0W (pattern 4) 90 deg - No Ice+1.0 Guy	73.902	1.238	-0.083	0.000	0.000	0.000
1.2 Dead+1.0 Wind 120 deg - No Ice+1.0 Guy	77.432	1.026	0.620	0.000	0.000	0.000
1.2D+1.0W (pattern 1) 120 deg - No Ice+1.0 Guy	76.553	0.297	0.190	0.000	0.000	0.000
1.2D+1.0W (pattern 2) 120 deg - No Ice+1.0 Guy	73.831	1.369	0.803	0.000	0.000	0.000
1.2D+1.0W (pattern 3) 120 deg - No Ice+1.0 Guy	70.179	1.213	0.725	0.000	0.000	0.000
1.2D+1.0W (pattern 4) 120 deg - No Ice+1.0 Guy	75.378	1.031	0.623	0.000	0.000	0.000
1.2 Dead+1.0 Wind 150 deg - No Ice+1.0 Guy	76.092	0.528	1.164	0.000	0.000	0.000

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 1) 150 deg - No Ice+1.0 Guy	75.367	0.101	0.425	0.000	0.000	0.000
1.2D+1.0W (pattern 2) 150 deg - No Ice+1.0 Guy	73.288	0.751	1.426	0.000	0.000	0.000
1.2D+1.0W (pattern 3) 150 deg - No Ice+1.0 Guy	70.764	0.660	1.258	0.000	0.000	0.000
1.2D+1.0W (pattern 4) 150 deg - No Ice+1.0 Guy	74.628	0.528	1.165	0.000	0.000	0.000
1.2 Dead+1.0 Wind 180 deg - No Ice+1.0 Guy	72.862	-0.003	1.397	0.000	0.000	0.000
1.2D+1.0W (pattern 1) 180 deg - No Ice+1.0 Guy	72.573	-0.002	0.545	0.000	0.000	0.000
1.2D+1.0W (pattern 2) 180 deg - No Ice+1.0 Guy	71.633	-0.002	1.665	0.000	0.000	0.000
1.2D+1.0W (pattern 3) 180 deg - No Ice+1.0 Guy	70.037	-0.003	1.453	0.000	0.000	0.000
1.2D+1.0W (pattern 4) 180 deg - No Ice+1.0 Guy	72.087	-0.003	1.391	0.000	0.000	0.000
1.2 Dead+1.0 Wind 210 deg - No Ice+1.0 Guy	76.082	-0.531	1.158	0.000	0.000	0.000
1.2D+1.0W (pattern 1) 210 deg - No Ice+1.0 Guy	75.355	-0.103	0.420	0.000	0.000	0.000
1.2D+1.0W (pattern 2) 210 deg - No Ice+1.0 Guy	73.274	-0.752	1.422	0.000	0.000	0.000
1.2D+1.0W (pattern 3) 210 deg - No Ice+1.0 Guy	70.741	-0.663	1.252	0.000	0.000	0.000
1.2D+1.0W (pattern 4) 210 deg - No Ice+1.0 Guy	74.614	-0.531	1.158	0.000	0.000	0.000
1.2 Dead+1.0 Wind 240 deg - No Ice+1.0 Guy	77.434	-1.024	0.614	0.000	0.000	0.000
1.2D+1.0W (pattern 1) 240 deg - No Ice+1.0 Guy	76.554	-0.295	0.185	0.000	0.000	0.000
1.2D+1.0W (pattern 2) 240 deg - No Ice+1.0 Guy	73.831	-1.366	0.799	0.000	0.000	0.000
1.2D+1.0W (pattern 3) 240 deg - No Ice+1.0 Guy	70.171	-1.211	0.719	0.000	0.000	0.000
1.2D+1.0W (pattern 4) 240 deg - No Ice+1.0 Guy	75.378	-1.030	0.616	0.000	0.000	0.000
1.2 Dead+1.0 Wind 270 deg - No Ice+1.0 Guy	75.364	-1.234	-0.083	0.000	0.000	-0.000
1.2D+1.0W (pattern 1) 270 deg - No Ice+1.0 Guy	74.691	-0.418	-0.094	0.000	0.000	-0.000
1.2D+1.0W (pattern 2) 270 deg - No Ice+1.0 Guy	72.761	-1.560	-0.042	0.000	0.000	-0.000
1.2D+1.0W (pattern 3) 270 deg - No Ice+1.0 Guy	70.219	-1.373	-0.023	0.000	0.000	-0.000
1.2D+1.0W (pattern 4) 270 deg - No Ice+1.0 Guy	73.909	-1.233	-0.084	0.000	0.000	-0.000
1.2 Dead+1.0 Wind 300 deg - No Ice+1.0 Guy	72.849	-1.218	-0.689	0.000	0.000	-0.000
1.2D+1.0W (pattern 1) 300 deg - No Ice+1.0 Guy	72.574	-0.487	-0.271	0.000	0.000	-0.000
1.2D+1.0W (pattern 2) 300 deg - No Ice+1.0 Guy	71.660	-1.443	-0.826	0.000	0.000	-0.000
1.2D+1.0W (pattern 3) 300 deg - No Ice+1.0 Guy	70.063	-1.264	-0.718	0.000	0.000	-0.000
1.2D+1.0W (pattern 4) 300 deg - No Ice+1.0 Guy	72.077	-1.213	-0.686	0.000	0.000	-0.000
1.2 Dead+1.0 Wind 330 deg - No Ice+1.0 Guy	76.061	-0.753	-1.062	0.000	0.000	-0.000
1.2D+1.0W (pattern 1) 330 deg - No Ice+1.0 Guy	75.335	-0.326	-0.322	0.000	0.000	-0.000

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) 330 deg - No Ice+1.0 Guy	73.259	-0.869	-1.385	0.000	0.000	-0.000
1.2D+1.0W (pattern 3) 330 deg - No Ice+1.0 Guy	70.739	-0.768	-1.223	0.000	0.000	-0.000
1.2D+1.0W (pattern 4) 330 deg - No Ice+1.0 Guy	74.599	-0.754	-1.062	0.000	0.000	-0.000
Dead+Wind 0 deg - Service+Guy	50.454	0.002	-0.446	0.000	0.000	-0.000
Dead+Wind 30 deg - Service+Guy	50.503	0.214	-0.383	0.000	0.000	-0.000
Dead+Wind 60 deg - Service+Guy	50.613	0.364	-0.220	0.000	0.000	0.000
Dead+Wind 90 deg - Service+Guy	50.493	0.412	-0.009	0.000	0.000	0.000
Dead+Wind 120 deg - Service+Guy	50.461	0.372	0.203	0.000	0.000	0.000
Dead+Wind 150 deg - Service+Guy	50.510	0.216	0.357	0.000	0.000	0.000
Dead+Wind 180 deg - Service+Guy	50.610	0.001	0.411	0.000	0.000	0.000
Dead+Wind 210 deg - Service+Guy	50.505	-0.213	0.357	0.000	0.000	0.000
Dead+Wind 240 deg - Service+Guy	50.458	-0.368	0.203	0.000	0.000	0.000
Dead+Wind 270 deg - Service+Guy	50.494	-0.408	-0.009	0.000	0.000	-0.000
Dead+Wind 300 deg - Service+Guy	50.619	-0.360	-0.220	0.000	0.000	-0.000
Dead+Wind 330 deg - Service+Guy	50.509	-0.210	-0.383	0.000	0.000	-0.000

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.000	-19.630	0.000	0.000	19.630	-0.000	0.001%
2	-0.000	-23.263	-32.502	0.000	23.262	32.498	0.010%
3	-0.000	-23.263	-30.380	0.000	23.262	30.377	0.009%
4	-0.000	-23.263	-29.426	0.000	23.262	29.424	0.007%
5	-0.000	-23.263	-27.857	0.000	23.262	27.854	0.008%
6	-0.000	-23.263	-31.353	0.000	23.262	31.349	0.009%
7	16.219	-22.989	-28.092	-16.219	22.989	28.091	0.004%
8	15.164	-22.989	-26.265	-15.164	22.989	26.263	0.003%
9	14.684	-22.989	-25.434	-14.685	22.989	25.433	0.004%
10	13.896	-22.989	-24.069	-13.897	22.989	24.068	0.003%
11	15.646	-22.989	-27.100	-15.646	22.989	27.098	0.004%
12	27.878	-22.715	-16.096	-27.880	22.715	16.095	0.004%
13	26.079	-22.715	-15.057	-26.080	22.715	15.056	0.003%
14	25.257	-22.715	-14.582	-25.257	22.715	14.582	0.003%
15	23.880	-22.715	-13.787	-23.881	22.715	13.786	0.003%
16	26.887	-22.715	-15.523	-26.888	22.715	15.522	0.004%
17	31.625	-22.989	0.000	-31.624	22.989	0.000	0.002%
18	29.607	-22.989	0.000	-29.606	22.989	0.000	0.002%
19	28.688	-22.989	0.000	-28.688	22.989	0.000	0.002%
20	27.079	-22.989	0.000	-27.079	22.989	0.000	0.002%
21	30.479	-22.989	0.000	-30.478	22.989	0.000	0.002%
22	27.940	-23.263	16.131	-27.939	23.262	-16.131	0.002%
23	26.127	-23.263	15.084	-26.126	23.262	-15.084	0.002%
24	25.310	-23.263	14.613	-25.309	23.262	-14.613	0.002%
25	23.941	-23.263	13.822	-23.940	23.262	-13.822	0.002%

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
26	26.945	-23.263	15.556	-26.944	23.262	-15.556	0.002%
27	16.219	-22.989	28.092	-16.218	22.989	-28.092	0.003%
28	15.164	-22.989	26.265	-15.163	22.989	-26.264	0.002%
29	14.684	-22.989	25.434	-14.683	22.989	-25.434	0.002%
30	13.896	-22.989	24.069	-13.896	22.989	-24.069	0.002%
31	15.646	-22.989	27.100	-15.645	22.989	-27.099	0.003%
32	0.000	-22.715	32.431	0.002	22.715	-32.431	0.004%
33	0.000	-22.715	30.325	0.001	22.715	-30.325	0.004%
34	0.000	-22.715	29.364	0.001	22.715	-29.365	0.003%
35	0.000	-22.715	27.787	0.001	22.715	-27.786	0.003%
36	0.000	-22.715	31.287	0.002	22.715	-31.286	0.004%
37	-16.219	-22.989	28.092	16.217	22.989	-28.092	0.004%
38	-15.164	-22.989	26.265	15.163	22.989	-26.264	0.003%
39	-14.684	-22.989	25.434	14.683	22.989	-25.434	0.004%
40	-13.896	-22.989	24.069	13.895	22.989	-24.069	0.003%
41	-15.646	-22.989	27.100	15.644	22.989	-27.099	0.004%
42	-27.940	-23.263	16.131	27.938	23.262	-16.131	0.003%
43	-26.127	-23.263	15.084	26.126	23.262	-15.084	0.003%
44	-25.310	-23.263	14.613	25.309	23.262	-14.613	0.002%
45	-23.941	-23.263	13.822	23.940	23.262	-13.822	0.003%
46	-26.945	-23.263	15.556	26.943	23.262	-15.556	0.003%
47	-31.625	-22.989	0.000	31.624	22.989	0.000	0.002%
48	-29.607	-22.989	0.000	29.606	22.989	0.000	0.002%
49	-28.688	-22.989	0.000	28.688	22.989	0.000	0.002%
50	-27.079	-22.989	0.000	27.079	22.989	0.000	0.002%
51	-30.479	-22.989	0.000	30.478	22.989	0.000	0.002%
52	-27.878	-22.715	-16.096	27.879	22.715	16.095	0.003%
53	-26.079	-22.715	-15.057	26.080	22.715	15.056	0.003%
54	-25.257	-22.715	-14.582	25.257	22.715	14.582	0.002%
55	-23.880	-22.715	-13.787	23.880	22.715	13.786	0.003%
56	-26.887	-22.715	-15.523	26.888	22.715	15.522	0.003%
57	-16.219	-22.989	-28.092	16.219	22.989	28.091	0.003%
58	-15.164	-22.989	-26.265	15.164	22.989	26.264	0.002%
59	-14.684	-22.989	-25.434	14.685	22.989	25.433	0.002%
60	-13.896	-22.989	-24.069	13.897	22.989	24.069	0.002%
61	-15.646	-22.989	-27.100	15.646	22.989	27.099	0.003%
62	-0.000	-19.702	-8.555	0.000	19.702	8.554	0.007%
63	4.269	-19.630	-7.394	-4.269	19.630	7.393	0.004%
64	7.338	-19.558	-4.237	-7.338	19.557	4.237	0.004%
65	8.324	-19.630	0.000	-8.324	19.629	0.000	0.003%
66	7.354	-19.702	4.246	-7.354	19.702	-4.246	0.002%
67	4.269	-19.630	7.394	-4.269	19.630	-7.394	0.003%
68	0.000	-19.558	8.537	0.000	19.558	-8.535	0.007%
69	-4.269	-19.630	7.394	4.268	19.630	-7.394	0.004%
70	-7.354	-19.702	4.246	7.354	19.701	-4.246	0.004%
71	-8.324	-19.630	0.000	8.324	19.629	0.000	0.003%
72	-7.338	-19.558	-4.237	7.338	19.557	4.237	0.003%
73	-4.269	-19.630	-7.394	4.269	19.630	7.394	0.003%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	8	0.00000001	0.00006324
2	Yes	27	0.00009706	0.00009974
3	Yes	27	0.00009012	0.00009012
4	Yes	27	0.00008086	0.00006923
5	Yes	27	0.00009878	0.00008698

6	Yes	27	0.00009709	0.00009782
7	Yes	29	0.00004372	0.00007892
8	Yes	29	0.00000001	0.00007132
9	Yes	28	0.00000001	0.00007479
10	Yes	29	0.00000001	0.00006732
11	Yes	29	0.00004373	0.00007784
12	Yes	20	0.00000001	0.00009812
13	Yes	20	0.00000001	0.00007347
14	Yes	19	0.00000001	0.00009059
15	Yes	20	0.00000001	0.00008911
16	Yes	20	0.00000001	0.00009624
17	Yes	31	0.00000001	0.00006978
18	Yes	30	0.00000001	0.00009042
19	Yes	29	0.00000001	0.00008972
20	Yes	30	0.00000001	0.00008518
21	Yes	31	0.00000001	0.00006795
22	Yes	31	0.00000001	0.00007742
23	Yes	31	0.00000001	0.00007162
24	Yes	30	0.00000001	0.00008437
25	Yes	31	0.00000001	0.00006900
26	Yes	31	0.00000001	0.00007496
27	Yes	30	0.00000001	0.00008030
28	Yes	30	0.00000001	0.00007265
29	Yes	29	0.00000001	0.00007657
30	Yes	30	0.00000001	0.00006833
31	Yes	30	0.00000001	0.00007879
32	Yes	15	0.00000001	0.00009675
33	Yes	15	0.00000001	0.00007017
34	Yes	16	0.00000001	0.00005424
35	Yes	16	0.00000001	0.00005581
36	Yes	15	0.00000001	0.00009129
37	Yes	29	0.00004372	0.00007908
38	Yes	29	0.00000001	0.00007140
39	Yes	28	0.00000001	0.00007493
40	Yes	29	0.00000001	0.00006759
41	Yes	29	0.00004373	0.00007799
42	Yes	30	0.00000001	0.00009749
43	Yes	30	0.00000001	0.00009016
44	Yes	30	0.00000001	0.00007130
45	Yes	30	0.00000001	0.00008718
46	Yes	30	0.00000001	0.00009467
47	Yes	31	0.00000001	0.00006965
48	Yes	30	0.00000001	0.00009027
49	Yes	29	0.00000001	0.00008962
50	Yes	30	0.00000001	0.00008506
51	Yes	31	0.00000001	0.00006784
52	Yes	21	0.00000001	0.00009630
53	Yes	20	0.00000001	0.00009906
54	Yes	20	0.00000001	0.00007175
55	Yes	21	0.00000001	0.00008494
56	Yes	21	0.00000001	0.00009454
57	Yes	30	0.00000001	0.00008023
58	Yes	30	0.00000001	0.00007257
59	Yes	29	0.00000001	0.00007638
60	Yes	30	0.00000001	0.00006821
61	Yes	30	0.00000001	0.00007874
62	Yes	16	0.00000001	0.00007467
63	Yes	16	0.00000001	0.00006588
64	Yes	16	0.00000001	0.00008939
65	Yes	17	0.00000001	0.00007326
66	Yes	18	0.00000001	0.00005443
67	Yes	17	0.00000001	0.00005231
68	Yes	13	0.00000001	0.00007719
69	Yes	16	0.00000001	0.00006621
70	Yes	17	0.00000001	0.00008774
71	Yes	17	0.00000001	0.00007422

72	Yes	17	0.00000001	0.00006243
73	Yes	17	0.00000001	0.00005247

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	290 - 270	1.722	64	0.1170	0.2463
T2	270 - 250	2.098	68	0.1220	0.2593
T3	250 - 230	2.421	68	0.0682	0.3880
T4	230 - 210	2.456	68	0.0190	0.6256
T5	210 - 190	2.281	68	0.0463	0.7414
T6	190 - 170	2.093	68	0.0153	0.8355
T7	170 - 150	2.153	68	0.0318	1.0193
T8	150 - 130	2.225	62	0.0077	1.1761
T9	130 - 110	2.167	62	0.0471	1.3015
T10	110 - 90	1.906	62	0.0750	1.3943
T11	90 - 70	1.572	62	0.0574	1.4562
T12	70 - 50	1.420	62	0.0427	1.5469
T13	50 - 35	1.210	62	0.0735	1.6128
T14	35 - 20	0.941	62	0.0998	1.6460
T15	20 - 4.81771	0.579	62	0.1237	1.6641
T16	4.81771 - 0	0.141	62	0.1374	1.6653

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
290'	Lighting Rod 5/8" x 5'	64	1.722	0.1170	0.2463	Inf
285'	Side Arm Mount [SO 602-3]	64	1.812	0.1214	0.2446	Inf
272'6-9/32"	Guy	68	2.049	0.1241	0.2533	534953
266'	Sector Mount [10.5' SM 401-3]	68	2.175	0.1160	0.2730	58223
189'4-5/8"	Guy	68	2.092	0.0146	0.8400	13321
154'	Side Lighting	62	2.212	0.0111	1.1482	26816
89'4-5/8"	Guy	62	1.564	0.0566	1.4586	15278

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	290 - 270	13.157	4	0.5991	1.1141
T2	270 - 250	14.126	3	0.6117	1.1586
T3	250 - 230	15.634	3	0.3869	1.5808
T4	230 - 210	15.985	3	0.2748	2.3503
T5	210 - 190	15.497	2	0.4086	2.7130
T6	190 - 170	14.921	2	0.3218	2.9926
T7	170 - 150	15.256	6	0.2969	3.6125
T8	150 - 130	15.489	6	0.1969	4.1411
T9	130 - 110	14.766	6	0.4034	4.5476
T10	110 - 90	13.048	6	0.5507	4.8296

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T11	90 - 70	10.891	6	0.4997	4.9936
T12	70 - 50	9.368	6	0.3995	5.3271
T13	50 - 35	7.620	5	0.5405	5.5780
T14	35 - 20	5.766	5	0.6548	5.7035
T15	20 - 4.81771	3.478	5	0.7653	5.7736
T16	4.81771 - 0	0.844	5	0.8266	5.7875

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
290'	Lighting Rod 5/8" x 5'	4	13.157	0.5991	1.1141	132809
285'	Side Arm Mount [SO 602-3]	4	13.363	0.6157	1.1090	132809
272'6-9/32"	Guy	3	13.904	0.6219	1.1386	39531
266'	Sector Mount [10.5' SM 401-3]	3	14.476	0.5849	1.2038	11925
189'4-5/8"	Guy	2	14.917	0.3176	3.0071	3386
154'	Side Lighting	6	15.508	0.1712	4.0482	4829
89'4-5/8"	Guy	6	10.835	0.4961	5.0013	3873

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	290	Diagonal	A325X	0.5000	1	5.584	9.783	0.571	1.05	Gusset Bearing
		Top Girt	A325X	0.5000	1	0.366	9.783	0.037	1.05	Gusset Bearing
		Bottom Girt	A325X	0.5000	1	1.510	9.783	0.154	1.05	Gusset Bearing
		Top Guy Pull-Off@272.523	A325N	0.6250	2	2.849	11.067	0.257	1.05	Gusset Bearing
T2	270	Leg	A325X	0.7500	4	1.760	30.101	0.058	1.05	Bolt Tension
		Diagonal	A325X	0.5000	1	4.584	9.783	0.774	1.05	Member Bearing
		Top Girt	A325X	0.5000	1	0.894	5.919	0.151	1.05	Member Bearing
		Bottom Girt	A325X	0.5000	1	0.634	5.919	0.107	1.05	Member Bearing
T3	250	Leg	A325X	0.7500	4	3.050	30.101	0.101	1.05	Bolt Tension
		Diagonal	A325X	0.5000	1	3.206	5.919	0.542	1.05	Member Bearing
		Top Girt	A325X	0.5000	1	1.012	5.919	0.171	1.05	Member Bearing
		Bottom Girt	A325X	0.5000	1	1.232	5.919	0.208	1.05	Member Bearing
T4	230	Leg	A325X	0.7500	4	2.737	30.101	0.091	1.05	Bolt Tension
		Diagonal	A325X	0.5000	1	4.303	9.783	0.440	1.05	Gusset Bearing
		Top Girt	A325X	0.5000	1	1.507	9.783	0.154	1.05	Gusset Bearing
		Bottom Girt	A325X	0.5000	1	1.892	9.783	0.193	1.05	Gusset Bearing
T5	210	Leg	A325X	0.7500	4	1.579	30.101	0.052	1.05	Bolt Tension
		Diagonal	A325X	0.5000	1	5.344	9.783	0.546	1.05	Gusset Bearing
		Top Girt	A325X	0.5000	1	1.977	9.783	0.202	1.05	Gusset Bearing
		Bottom Girt	A325X	0.5000	1	2.714	9.783	0.277	1.05	Gusset Bearing
T6	190	Leg	A325X	0.7500	4	3.605	30.101	0.120	1.05	Bolt Tension
		Diagonal	A325X	0.5000	1	4.896	5.919	0.827	1.05	Member Bearing
		Top Girt	A325X	0.5000	1	0.925	5.919	0.156	1.05	Member Bearing
		Bottom Girt	A325X	0.5000	1	1.395	5.919	0.236	1.05	Member Bearing
T7	170	Leg	A325X	0.7500	4	2.280	30.101	0.076	1.05	Bolt Tension
		Diagonal	A325X	0.5000	1	3.799	5.919	0.642	1.05	Member Bearing
		Top Girt	A325X	0.5000	1	1.308	5.919	0.221	1.05	Member Bearing

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load Allowable	Allowable Ratio	Criteria
T8	150	Bottom Girt	A325X	0.5000	1	0.864	5.919	0.146	1.05	Member Bearing
		Leg	A325X	0.7500	4	2.881	30.101	0.096	1.05	Bolt Tension
		Diagonal	A325X	0.5000	1	1.936	5.919	0.327	1.05	Member Bearing
T9	130	Top Girt	A325X	0.5000	1	0.743	5.919	0.126	1.05	Member Bearing
		Bottom Girt	A325X	0.5000	1	0.639	5.919	0.108	1.05	Member Bearing
		Leg	A325X	0.7500	4	2.978	30.101	0.099	1.05	Bolt Tension
T10	110	Diagonal	A325X	0.5000	1	2.584	5.919	0.437	1.05	Member Bearing
		Top Girt	A325X	0.5000	1	0.658	5.919	0.111	1.05	Member Bearing
		Bottom Girt	A325X	0.5000	1	1.004	5.919	0.170	1.05	Member Bearing
T11	90	Leg	A325X	0.7500	4	2.181	30.101	0.072	1.05	Bolt Tension
		Diagonal	A325X	0.5000	1	3.512	5.919	0.593	1.05	Member Bearing
		Top Girt	A325X	0.5000	1	1.005	5.919	0.170	1.05	Member Bearing
T12	70	Bottom Girt	A325X	0.5000	1	1.653	5.919	0.279	1.05	Member Bearing
		Leg	A325X	0.7500	4	3.216	30.101	0.107	1.05	Bolt Tension
		Diagonal	A325X	0.5000	1	3.591	5.919	0.607	1.05	Member Bearing
T13	50	Top Girt	A325X	0.5000	1	0.728	5.919	0.123	1.05	Member Bearing
		Bottom Girt	A325X	0.5000	1	1.055	5.919	0.178	1.05	Member Bearing
		Leg	A325X	0.7500	4	2.565	30.101	0.085	1.05	Bolt Tension
T14	35	Diagonal	A325X	0.5000	1	2.627	5.919	0.444	1.05	Member Bearing
		Top Girt	A325X	0.5000	1	0.997	5.919	0.168	1.05	Member Bearing
		Bottom Girt	A325X	0.5000	1	0.697	5.919	0.118	1.05	Member Bearing
T15	20	Leg	A325X	0.7500	4	3.352	30.101	0.111	1.05	Bolt Tension
		Diagonal	A325X	0.5000	1	1.038	5.919	0.175	1.05	Member Bearing
		Top Girt	A325X	0.5000	1	0.714	5.919	0.121	1.05	Member Bearing
T16	4.81771	Bottom Girt	A325X	0.5000	1	0.714	5.919	0.121	1.05	Member Bearing
		Leg	A325X	0.7500	4	3.403	30.101	0.113	1.05	Bolt Tension
		Diagonal	A325X	0.5000	1	1.277	5.919	0.216	1.05	Member Bearing
T15	20	Top Girt	A325X	0.5000	1	0.707	5.919	0.119	1.05	Member Bearing
		Bottom Girt	A325X	0.5000	1	0.707	5.919	0.119	1.05	Member Bearing
		Leg	A325X	0.7500	4	3.023	30.101	0.100	1.05	Bolt Tension
T16	4.81771	Diagonal	A325X	0.5000	1	1.685	5.919	0.285	1.05	Member Bearing
		Top Girt	A325X	0.5000	1	0.628	5.919	0.106	1.05	Member Bearing
		Bottom Girt	A325X	0.5000	1	1.105	5.919	0.187	1.05	Member Bearing
T16	4.81771	Leg	A325X	0.7500	4	2.536	30.101	0.084	1.05	Bolt Tension
		Top Girt	A325X	0.5000	1	5.576	11.045	0.505	1.05	Bolt Shear

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	272'6-9/32"	(A) (564) 5/8 (ECP - 23000) EHS	4.240	42.400	13.233	26.712	0.952	1.922
		(A) (565) 5/8 (ECP - 23000) EHS	4.240	42.400	13.414	26.712	0.952	1.897
		(B) (560) 5/8 (ECP - 23000) EHS	4.240	42.400	13.917	26.712	0.952	1.828
		(B) (561) 5/8 (ECP - 23000) EHS	4.240	42.400	12.711	26.712	0.952	2.001
		(C) (553) 5/8 (ECP - 23000) EHS	4.240	42.400	12.803	26.712	0.952	1.987
		(C) (554) 5/8 (ECP - 23000) EHS	4.240	42.400	13.817	26.712	0.952	1.841
		T6	189'4-5/8"	(A) (552) 5/8 (ECP - 23000) EHS	4.240	42.400	15.750	26.712
(B) 5/8 (ECP - 23000) EHS	4.240			42.400	15.628	26.712	0.952	1.628

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.
T11	(551)	23000 EHS						
	189'4-5/8" (C) (547)	5/8 (ECP - 23000) EHS	4.240	42.400	15.622	26.712	0.952	1.628
	89'4-5/8" (A) (546)	1/2 (ECP - 23000) EHS	2.690	26.900	9.893	16.947	0.952	1.631
	89'4-5/8" (B) (545)	1/2 (ECP - 23000) EHS	2.690	26.900	9.896	16.947	0.952	1.631
	89'4-5/8" (C) (541)	1/2 (ECP - 23000) EHS	2.690	26.900	9.893	16.947	0.952	1.631

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	290 - 270	ROHN 2.5 EH	20'	1-3/8"	1.5 K=1.00	2.2535	-21.121	101.393	0.208 ¹
T2	270 - 250	ROHN 2.5 STD	20'	2'4- 29/32"	30.5 K=1.00	1.7040	-36.083	71.637	0.504 ¹
T3	250 - 230	ROHN 2.5 STD	20'	2'4- 29/32"	61.0 K=2.00	1.7040	-37.794	58.406	0.647 ¹
T4	230 - 210	ROHN 2.5 STD	20'	2'4- 29/32"	61.0 K=2.00	1.7040	-32.772	58.406	0.561 ¹
T5	210 - 190	ROHN 2.5 X-STR	20'	2'4- 29/32"	62.6 K=2.00	2.2535	-39.104	76.170	0.513 ¹
T6	190 - 170	ROHN 2.5 X-STR	20'	2'4- 29/32"	62.6 K=2.00	2.2535	-40.836	76.170	0.536 ¹
T7	170 - 150	ROHN 2.5 STD	20'	2'4- 29/32"	61.0 K=2.00	1.7040	-34.499	58.406	0.591 ¹
T8	150 - 130	ROHN 2.5 STD	20'	2'4- 29/32"	61.0 K=2.00	1.7040	-36.880	58.406	0.631 ¹
T9	130 - 110	ROHN 2.5 STD	20'	2'4- 29/32"	61.0 K=2.00	1.7040	-35.428	58.406	0.607 ¹
T10	110 - 90	ROHN 2.5 STD	20'	2'4- 29/32"	61.0 K=2.00	1.7040	-36.995	58.406	0.633 ¹
T11	90 - 70	ROHN 2.5 STD	20'	2'4- 29/32"	61.0 K=2.00	1.7040	-38.792	58.406	0.664 ¹
T12	70 - 50	ROHN 2.5 STD	20'	2'4- 29/32"	61.0 K=2.00	1.7040	-39.871	58.406	0.683 ¹
T13	50 - 35	ROHN 2.5 X-STR	15'	2'4- 17/32"	61.8 K=2.00	2.2535	-41.218	76.718	0.537 ¹
T14	35 - 20	ROHN 2.5 X-STR	15'	2'4- 17/32"	61.8 K=2.00	2.2535	-40.592	76.718	0.529 ¹
T15	20 - 4.81771	ROHN 2.5 X-STR	15'2- 3/16"	2'4- 29/32"	62.6 K=2.00	2.2535	-35.578	76.170	0.467 ¹
T16	4.81771 - 0	ROHN 2.5 X-STR	5'2- 15/32"	1'3-5/8"	16.9 K=1.00	2.2535	-30.675	99.313	0.309 ¹

¹ $P_u / \phi P_n$ controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
T1	290 - 270	ROHN TS1.5x11 ga	4'2- 5/32"	3'10- 21/32"	95.2 K=1.00	0.5202	-5.584	11.264	0.496 ¹
T2	270 - 250	ROHN TS1.5x16 ga	4'2- 5/32"	3'10- 21/32"	91.4 K=1.00	0.2627	-4.878	5.944	0.821 ¹
T3	250 - 230	ROHN TS1.5x16 ga	4'2- 5/32"	3'10- 21/32"	91.4 K=1.00	0.2627	-3.192	5.944	0.537 ¹
T4	230 - 210	ROHN TS1.5x11 ga	4'2- 5/32"	3'10- 21/32"	95.2 K=1.00	0.5202	-4.303	11.264	0.382 ¹
T5	210 - 190	ROHN TS1.5x11 ga	4'2- 5/32"	3'10- 21/32"	95.2 K=1.00	0.5202	-5.344	11.264	0.474 ¹
T6	190 - 170	ROHN TS1.5x16 ga	4'2- 5/32"	3'10- 21/32"	91.4 K=1.00	0.2627	-4.863	5.944	0.818 ¹
T7	170 - 150	ROHN TS1.5x16 ga	4'2- 5/32"	3'10- 21/32"	91.4 K=1.00	0.2627	-3.946	5.944	0.664 ¹
T8	150 - 130	ROHN TS1.5x16 ga	4'2- 5/32"	3'10- 21/32"	91.4 K=1.00	0.2627	-2.199	5.944	0.370 ¹
T9	130 - 110	ROHN TS1.5x16 ga	4'2- 5/32"	3'10- 21/32"	91.4 K=1.00	0.2627	-2.725	5.944	0.458 ¹
T10	110 - 90	ROHN TS1.5x16 ga	4'2- 5/32"	3'10- 21/32"	91.4 K=1.00	0.2627	-3.667	5.944	0.617 ¹
T11	90 - 70	ROHN TS1.5x16 ga	4'2- 5/32"	3'10- 21/32"	91.4 K=1.00	0.2627	-3.535	5.944	0.595 ¹
T12	70 - 50	ROHN TS1.5x16 ga	4'2- 5/32"	3'10- 21/32"	91.4 K=1.00	0.2627	-2.808	5.944	0.472 ¹
T13	50 - 35	ROHN TS1.5x16 ga	4'1- 31/32"	3'10- 7/16"	91.0 K=1.00	0.2627	-1.221	5.970	0.205 ¹
T14	35 - 20	ROHN TS1.5x16 ga	4'1- 31/32"	3'10- 7/16"	91.0 K=1.00	0.2627	-1.423	5.970	0.238 ¹
T15	20 - 4.81771	ROHN TS1.5x16 ga	4'2- 5/32"	3'10- 21/32"	91.4 K=1.00	0.2627	-1.643	5.944	0.276 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 P _u / φP _n
T16	4.81771 - 0	L4x4x1/4	10-1/4"	7-3/8"	64.6 K=6.97	1.9400	-1.415	58.911	0.024 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 P _u / φP _n
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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
T1	290 - 270	ROHN TS1.5x11 ga	3'5"	3'2-1/8"	77.8 K=1.00	0.5202	-0.366	13.554	0.027 ¹
T2	270 - 250	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	74.7 K=1.00	0.2627	-0.634	7.049	0.090 ¹
T3	250 - 230	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	74.7 K=1.00	0.2627	-0.996	7.049	0.141 ¹
T4	230 - 210	ROHN TS1.5x11 ga	3'5"	3'2-1/8"	77.8 K=1.00	0.5202	-1.318	13.554	0.097 ¹
T5	210 - 190	ROHN TS1.5x11 ga	3'5"	3'2-1/8"	77.8 K=1.00	0.5202	-1.890	13.554	0.139 ¹
T6	190 - 170	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	74.7 K=1.00	0.2627	-0.707	7.049	0.100 ¹
T7	170 - 150	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	74.7 K=1.00	0.2627	-1.207	7.049	0.171 ¹
T8	150 - 130	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	74.7 K=1.00	0.2627	-0.690	7.049	0.098 ¹
T9	130 - 110	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	74.7 K=1.00	0.2627	-0.619	7.049	0.088 ¹
T10	110 - 90	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	74.7 K=1.00	0.2627	-0.930	7.049	0.132 ¹
T11	90 - 70	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	74.7 K=1.00	0.2627	-0.672	7.049	0.095 ¹
T12	70 - 50	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	74.7 K=1.00	0.2627	-0.862	7.049	0.122 ¹
T13	50 - 35	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	74.7 K=1.00	0.2627	-0.714	7.049	0.101 ¹
T14	35 - 20	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	74.7 K=1.00	0.2627	-0.707	7.049	0.100 ¹
T15	20 - 4.81771	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	74.7 K=1.00	0.2627	-0.628	7.049	0.089 ¹
T16	4.81771 - 0	L4x4x1/4	3'5"	2'11-1/8"	82.1 K=1.86	1.9400	-0.628	53.661	0.012 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 P _u / φP _n
T1	290 - 270	ROHN TS1.5x11 ga	3'5"	3'2-1/8"	77.8 K=1.00	0.5202	-0.541	13.554	0.040 ¹
T2	270 - 250	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	74.7 K=1.00	0.2627	-0.634	7.049	0.090 ¹
T3	250 - 230	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	74.7 K=1.00	0.2627	-1.246	7.049	0.177 ¹
T4	230 - 210	ROHN TS1.5x11 ga	3'5"	3'2-1/8"	77.8 K=1.00	0.5202	-1.805	13.554	0.133 ¹
T5	210 - 190	ROHN TS1.5x11 ga	3'5"	3'2-1/8"	77.8 K=1.00	0.5202	-2.340	13.554	0.173 ¹
T6	190 - 170	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	74.7 K=1.00	0.2627	-1.284	7.049	0.182 ¹
T7	170 - 150	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	74.7 K=1.00	0.2627	-0.688	7.049	0.098 ¹
T8	150 - 130	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	74.7 K=1.00	0.2627	-0.639	7.049	0.091 ¹
T9	130 - 110	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	74.7	0.2627	-0.851	7.049	0.121 ¹

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
T10	110 - 90	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	K=1.00 74.7	0.2627	-1.396	7.049	0.198 ¹
T11	90 - 70	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	K=1.00 74.7	0.2627	-0.919	7.049	0.130 ¹
T12	70 - 50	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	K=1.00 74.7	0.2627	-0.697	7.049	0.099 ¹
T13	50 - 35	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	K=1.00 74.7	0.2627	-0.714	7.049	0.101 ¹
T14	35 - 20	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	K=1.00 74.7	0.2627	-0.707	7.049	0.100 ¹
T15	20 - 4.81771	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	K=1.00 74.7	0.2627	-0.628	7.049	0.089 ¹

¹ P_u / φP_n controls

Top Guy Pull-Off Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
T1	290 - 270	2L2x2x1/4x3/8	3'5"	3'2-1/8"	97.5 K=1.00	1.8800	-4.626	46.763	0.099 ¹
T6	190 - 170	ai/ri > (KL/r) _o - 559 4 1/2x3/8	3'5"	3'2-1/8"	352.2 K=1.00	1.6875	-0.054	3.074	0.018 ¹
		KL/R > 200 (C) - 549							

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 M _{ux} / φM _{nx}	M _{uy} kip-ft	φM _{ny} kip-ft	Ratio M _{uy} / φM _{ny}
T1	290 - 270	2L2x2x1/4x3/8	0.000	2.001	0.000	0.000	3.392	0.000
T6	190 - 170	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 P _u / φP _n	Ratio M _{ux} / φM _{nx}	Ratio M _{uy} / φM _{ny}	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	290 - 270	2L2x2x1/4x3/8	0.099	0.000	0.000	0.099 ¹	1.050	
T6	190 - 170	4 1/2x3/8	0.018	0.000	0.000	0.018 ¹	1.050	

¹ P_u / φP_n controls

Torque-Arm Top Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	KI/r	A in ²	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	290 - 270 (555)	C15x33.9	3'5"	3'3- 9/16"	43.8 K=1.00	9.9600	-1.367	291.753	0.005
T1	290 - 270 (556)	C15x33.9	3'5"	3'3- 9/16"	43.8 K=1.00	9.9600	-1.907	291.753	0.007
T1	290 - 270 (562)	C15x33.9	3'5"	3'3- 9/16"	43.8 K=1.00	9.9600	-2.353	291.753	0.008
T1	290 - 270 (563)	C15x33.9	3'5"	3'3- 9/16"	43.8 K=1.00	9.9600	-2.267	291.753	0.008
T1	290 - 270 (566)	C15x33.9	3'5"	3'3- 9/16"	43.8 K=1.00	9.9600	-1.283	291.753	0.004
T1	290 - 270 (567)	C15x33.9	3'5"	3'3- 9/16"	43.8 K=1.00	9.9600	-1.746	291.753	0.006

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	290 - 270 (555)	C15x33.9	-34.369	136.080	0.253	0.000	12.595	0.000
T1	290 - 270 (556)	C15x33.9	-34.534	136.080	0.254	0.000	12.595	0.000
T1	290 - 270 (562)	C15x33.9	-34.727	136.080	0.255	-0.000	12.595	0.000
T1	290 - 270 (563)	C15x33.9	-34.675	136.080	0.255	0.000	12.595	0.000
T1	290 - 270 (566)	C15x33.9	-34.364	136.080	0.253	-0.000	12.595	0.000
T1	290 - 270 (567)	C15x33.9	-34.474	136.080	0.253	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	290 - 270 (555)	C15x33.9	0.005	0.253	0.000	0.255	1.050	
T1	290 - 270 (556)	C15x33.9	0.007	0.254	0.000	0.257	1.050	
T1	290 - 270 (562)	C15x33.9	0.008	0.255	0.000	0.259	1.050	
T1	290 - 270 (563)	C15x33.9	0.008	0.255	0.000	0.259	1.050	
T1	290 - 270 (566)	C15x33.9	0.004	0.253	0.000	0.255	1.050	
T1	290 - 270 (567)	C15x33.9	0.006	0.253	0.000	0.256	1.050	

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
T1	290 - 270	ROHN 2.5 EH	20'	2'4- 29/32"	31.3	2.2535	6.841	101.409	0.067 ¹
T2	270 - 250	ROHN 2.5 STD	20'	1-3/8"	1.5	1.7040	10.040	76.682	0.131 ¹
T3	250 - 230	ROHN 2.5 STD	20'	2'4- 29/32"	30.5	1.7040	11.410	76.682	0.149 ¹
T4	230 - 210	ROHN 2.5 STD	20'	2'4- 29/32"	30.5	1.7040	6.460	76.682	0.084 ¹
T5	210 - 190	ROHN 2.5 X-STR	20'	1-3/8"	1.5	2.2535	14.421	101.409	0.142 ¹
T6	190 - 170	ROHN 2.5 X-STR	20'	7-3/8"	8.0	2.2535	14.421	101.409	0.142 ¹
T7	170 - 150	ROHN 2.5 STD	20'	1-3/8"	1.5	1.7040	0.617	76.682	0.008 ¹
T8	150 - 130	ROHN 2.5 STD	20'	2'4- 29/32"	30.5	1.7040	3.002	76.682	0.039 ¹
T9	130 - 110	ROHN 2.5 STD	20'	7-3/8"	7.8	1.7040	2.007	76.682	0.026 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 P _u / φP _n
T1	290 - 270	ROHN TS1.5x11 ga	4'2- 5/32"	3'10- 21/32"	95.2	0.3702	4.244	16.106	0.263 ¹
T2	270 - 250	ROHN TS1.5x16 ga	4'2- 5/32"	3'10- 21/32"	91.4	0.1902	4.584	8.989	0.510 ¹
T3	250 - 230	ROHN TS1.5x16 ga	4'2- 5/32"	3'10- 21/32"	91.4	0.1902	3.206	8.989	0.357 ¹
T4	230 - 210	ROHN TS1.5x11 ga	4'2- 5/32"	3'10- 21/32"	95.2	0.3702	4.192	16.106	0.260 ¹
T5	210 - 190	ROHN TS1.5x11 ga	4'2- 5/32"	3'10- 21/32"	95.2	0.3702	5.216	16.106	0.324 ¹
T6	190 - 170	ROHN TS1.5x16 ga	4'2- 5/32"	3'10- 21/32"	91.4	0.1902	4.896	8.989	0.545 ¹
T7	170 - 150	ROHN TS1.5x16 ga	4'2- 5/32"	3'10- 21/32"	91.4	0.1902	3.799	8.989	0.423 ¹
T8	150 - 130	ROHN TS1.5x16 ga	4'2- 5/32"	3'10- 21/32"	91.4	0.1902	1.936	8.989	0.215 ¹
T9	130 - 110	ROHN TS1.5x16 ga	4'2- 5/32"	3'10- 21/32"	91.4	0.1902	2.584	8.989	0.287 ¹
T10	110 - 90	ROHN TS1.5x16 ga	4'2- 5/32"	3'10- 21/32"	91.4	0.1902	3.512	8.989	0.391 ¹
T11	90 - 70	ROHN TS1.5x16 ga	4'2- 5/32"	3'10- 21/32"	91.4	0.1902	3.591	8.989	0.400 ¹
T12	70 - 50	ROHN TS1.5x16 ga	4'2- 5/32"	3'10- 21/32"	91.4	0.1902	2.627	8.989	0.292 ¹
T13	50 - 35	ROHN TS1.5x16 ga	4'1- 31/32"	3'10- 7/16"	91.0	0.1902	1.038	8.989	0.115 ¹
T14	35 - 20	ROHN TS1.5x16 ga	4'1- 31/32"	3'10- 7/16"	91.0	0.1902	1.277	8.989	0.142 ¹
T15	20 - 4.81771	ROHN TS1.5x16 ga	4'2- 5/32"	3'10- 21/32"	91.4	0.1902	1.685	8.989	0.187 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 $\frac{P_u}{\phi P_n}$
T16	4.81771 - 0	L4x4x1/4	10-1/4"	7-3/8"	5.9	1.9400	0.562	62.856	0.009 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	290 - 270	ROHN TS1.5x11 ga	3'5"	3'2-1/8"	77.8	0.3702	0.366	16.106	0.023 ¹
T2	270 - 250	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	74.7	0.1902	0.894	8.989	0.099 ¹
T3	250 - 230	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	74.7	0.1902	1.012	8.989	0.113 ¹
T4	230 - 210	ROHN TS1.5x11 ga	3'5"	3'2-1/8"	77.8	0.3702	1.507	16.106	0.094 ¹
T5	210 - 190	ROHN TS1.5x11 ga	3'5"	3'2-1/8"	77.8	0.3702	1.977	16.106	0.123 ¹
T6	190 - 170	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	74.7	0.1902	0.925	8.989	0.103 ¹
T7	170 - 150	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	74.7	0.1902	1.308	8.989	0.145 ¹
T8	150 - 130	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	74.7	0.1902	0.743	8.989	0.083 ¹
T9	130 - 110	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	74.7	0.1902	0.658	8.989	0.073 ¹
T10	110 - 90	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	74.7	0.1902	1.005	8.989	0.112 ¹
T11	90 - 70	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	74.7	0.1902	0.728	8.989	0.081 ¹
T12	70 - 50	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	74.7	0.1902	0.997	8.989	0.111 ¹
T13	50 - 35	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	74.7	0.1902	0.714	8.989	0.079 ¹
T14	35 - 20	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	74.7	0.1902	0.707	8.989	0.079 ¹
T15	20 - 4.81771	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	74.7	0.1902	0.628	8.989	0.070 ¹
T16	4.81771 - 0	L4x4x1/4	3'5"	2'11-1/8"	30.5	1.9400	5.576	62.856	0.089 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	290 - 270	ROHN TS1.5x11 ga	3'5"	3'2-1/8"	77.8	0.3702	1.510	16.106	0.094 ¹
T2	270 - 250	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	74.7	0.1902	0.634	8.989	0.071 ¹
T3	250 - 230	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	74.7	0.1902	1.232	8.989	0.137 ¹
T4	230 - 210	ROHN TS1.5x11 ga	3'5"	3'2-1/8"	77.8	0.3702	1.892	16.106	0.117 ¹
T5	210 - 190	ROHN TS1.5x11 ga	3'5"	3'2-1/8"	77.8	0.3702	2.714	16.106	0.169 ¹
T6	190 - 170	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	74.7	0.1902	1.395	8.989	0.155 ¹
T7	170 - 150	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	74.7	0.1902	0.864	8.989	0.096 ¹
T8	150 - 130	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	74.7	0.1902	0.639	8.989	0.071 ¹
T9	130 - 110	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	74.7	0.1902	1.004	8.989	0.112 ¹
T10	110 - 90	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	74.7	0.1902	1.653	8.989	0.184 ¹
T11	90 - 70	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	74.7	0.1902	1.055	8.989	0.117 ¹
T12	70 - 50	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	74.7	0.1902	0.697	8.989	0.078 ¹
T13	50 - 35	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	74.7	0.1902	0.714	8.989	0.079 ¹
T14	35 - 20	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	74.7	0.1902	0.707	8.989	0.079 ¹
T15	20 - 4.81771	ROHN TS1.5x16 ga	3'5"	3'2-1/8"	74.7	0.1902	1.105	8.989	0.123 ¹

¹ $P_u / \phi P_n$ 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	290 - 270	2L2x2x1/4x3/8 ai/ri > (KL/r) _o - 557	3'5"	3'2-1/8"	62.6	1.1287	5.699	49.101	0.116 ¹
T6	190 - 170	4 1/2x3/8	3'5"	3'2-1/8"	352.2	1.6875	5.941	54.675	0.109 ¹
T11	90 - 70	4 1/2x3/8	3'5"	3'2-1/8"	352.2	1.6875	4.674	54.675	0.085 ¹

¹ $P_u / \phi P_n$ 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	290 - 270	2L2x2x1/4x3/8	0.000	2.001	0.000	0.000	3.392	0.000
T6	190 - 170	4 1/2x3/8	0.000	5.126	0.000	0.000	0.427	0.000
T11	90 - 70	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	290 - 270	2L2x2x1/4x3/8	0.116	0.000	0.000	0.116 ¹	1.050	
T6	190 - 170	4 1/2x3/8	0.109	0.000	0.000	0.109 ¹	1.050	
T11	90 - 70	4 1/2x3/8	0.085	0.000	0.000	0.085 ¹	1.050	

¹ $P_u / \phi P_n$ controls

Torque-Arm Top Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	290 - 270 (555)	C15x33.9	3'5"	3'3-9/16"	43.8	9.9600	1.119	322.704	0.003
T1	290 - 270 (556)	C15x33.9	3'5"	3'3-9/16"	43.8	9.9600	0.059	322.704	0.000
T1	290 - 270 (562)	C15x33.9	3'5"	3'3-9/16"	43.8	9.9600	0.060	322.704	0.000
T1	290 - 270 (563)	C15x33.9	3'5"	3'3-9/16"	43.8	9.9600	0.223	322.704	0.001

Section No.	Elevation ft	Size	L ft	L_u ft	KI/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	290 - 270 (566)	C15x33.9	3'5"	3'3-9/16"	43.8	9.9600	1.119	322.704	0.003
T1	290 - 270 (567)	C15x33.9	3'5"	3'3-9/16"	43.8	9.9600	0.223	322.704	0.001

Torque-Arm Top Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
T1	290 - 270 (555)	C15x33.9	-33.252	136.080	0.244	0.000	12.595	0.000
T1	290 - 270 (556)	C15x33.9	-32.629	136.080	0.240	0.000	12.595	0.000
T1	290 - 270 (562)	C15x33.9	-32.609	136.080	0.240	-0.000	12.595	0.000
T1	290 - 270 (563)	C15x33.9	-32.697	136.080	0.240	0.000	12.595	0.000
T1	290 - 270 (566)	C15x33.9	-33.250	136.080	0.244	-0.000	12.595	0.000
T1	290 - 270 (567)	C15x33.9	-32.713	136.080	0.240	-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	290 - 270 (555)	C15x33.9	0.003	0.244	0.000	0.246	1.050	
T1	290 - 270 (556)	C15x33.9	0.000	0.240	0.000	0.240	1.050	
T1	290 - 270 (562)	C15x33.9	0.000	0.240	0.000	0.240	1.050	
T1	290 - 270 (563)	C15x33.9	0.001	0.240	0.000	0.241	1.050	
T1	290 - 270 (566)	C15x33.9	0.003	0.244	0.000	0.246	1.050	
T1	290 - 270 (567)	C15x33.9	0.001	0.240	0.000	0.241	1.050	

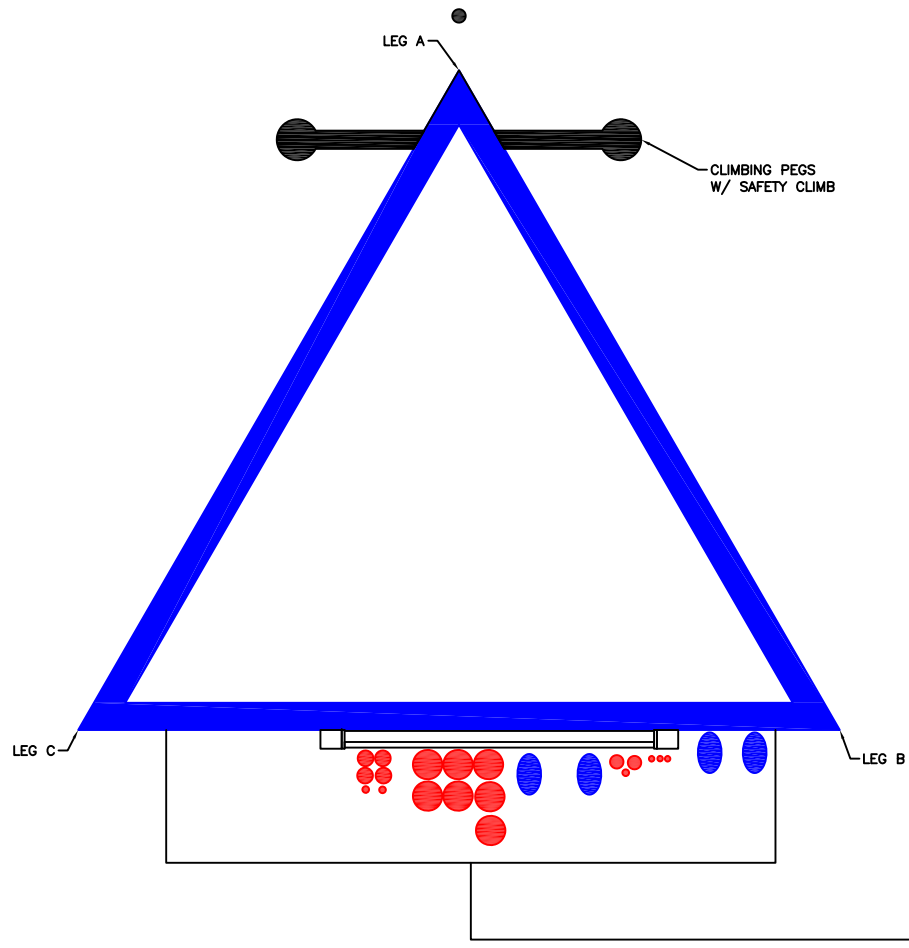
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	290 - 270	Leg	ROHN 2.5 EH	3	-21.121	106.463	19.8	Pass
T2	270 - 250	Leg	ROHN 2.5 STD	60	-36.083	75.218	48.0	Pass
T3	250 - 230	Leg	ROHN 2.5 STD	116	-37.794	61.326	61.6	Pass
T4	230 - 210	Leg	ROHN 2.5 STD	148	-32.772	61.326	53.4	Pass
T5	210 - 190	Leg	ROHN 2.5 X-STR	181	-39.104	79.978	48.9	Pass
T6	190 - 170	Leg	ROHN 2.5 X-STR	215	-40.836	79.978	51.1	Pass
T7	170 - 150	Leg	ROHN 2.5 STD	248	-34.499	61.326	56.3	Pass
T8	150 - 130	Leg	ROHN 2.5 STD	281	-36.880	61.326	60.1	Pass
T9	130 - 110	Leg	ROHN 2.5 STD	313	-35.428	61.326	57.8	Pass
T10	110 - 90	Leg	ROHN 2.5 STD	346	-36.995	61.326	60.3	Pass
T11	90 - 70	Leg	ROHN 2.5 STD	380	-38.792	61.326	63.3	Pass
T12	70 - 50	Leg	ROHN 2.5 STD	413	-39.871	61.326	65.0	Pass
T13	50 - 35	Leg	ROHN 2.5 X-STR	447	-41.218	80.554	51.2	Pass
T14	35 - 20	Leg	ROHN 2.5 X-STR	474	-40.592	80.554	50.4	Pass
T15	20 - 4.81771	Leg	ROHN 2.5 X-STR	501	-35.578	79.978	44.5	Pass
T16	4.81771 - 0	Leg	ROHN 2.5 X-STR	526	-30.675	104.279	29.4	Pass
T1	290 - 270	Diagonal	ROHN TS1.5x11 ga	11	-5.584	11.828	47.2	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T2	270 - 250	Diagonal	ROHN TS1.5x16 ga	110	-4.878	6.241	78.2	Pass
T3	250 - 230	Diagonal	ROHN TS1.5x16 ga	125	-3.192	6.241	51.1	Pass
T4	230 - 210	Diagonal	ROHN TS1.5x11 ga	158	-4.303	11.828	36.4	Pass
T5	210 - 190	Diagonal	ROHN TS1.5x11 ga	191	-5.344	11.828	45.2	Pass
T6	190 - 170	Diagonal	ROHN TS1.5x16 ga	241	-4.863	6.241	77.9	Pass
T7	170 - 150	Diagonal	ROHN TS1.5x16 ga	277	-3.946	6.241	63.2	Pass
T8	150 - 130	Diagonal	ROHN TS1.5x16 ga	310	-2.199	6.241	35.2	Pass
T9	130 - 110	Diagonal	ROHN TS1.5x16 ga	323	-2.725	6.241	43.7	Pass
T10	110 - 90	Diagonal	ROHN TS1.5x16 ga	356	-3.667	6.241	58.8	Pass
T11	90 - 70	Diagonal	ROHN TS1.5x16 ga	403	-3.535	6.241	56.6	Pass
T12	70 - 50	Diagonal	ROHN TS1.5x16 ga	442	-2.808	6.241	45.0	Pass
T13	50 - 35	Diagonal	ROHN TS1.5x16 ga	469	-1.221	6.268	19.5	Pass
T14	35 - 20	Diagonal	ROHN TS1.5x16 ga	482	-1.423	6.268	22.7	Pass
T15	20 - 4.81771	Diagonal	ROHN TS1.5x16 ga	512	-1.643	6.241	26.3	Pass
T16	4.81771 - 0	Horizontal	L4x4x1/4	534	-1.196	61.857	6.6	Pass
T1	290 - 270	Top Girt	ROHN TS1.5x11 ga	5	-0.366	14.231	2.6	Pass
T2	270 - 250	Top Girt	ROHN TS1.5x16 ga	61	0.894	9.439	9.5	Pass
T3	250 - 230	Top Girt	ROHN TS1.5x16 ga	118	-0.996	7.401	13.5	Pass
T4	230 - 210	Top Girt	ROHN TS1.5x11 ga	152	-1.318	14.231	9.3	Pass
T5	210 - 190	Top Girt	ROHN TS1.5x11 ga	185	-1.890	14.231	13.3	Pass
T6	190 - 170	Top Girt	ROHN TS1.5x16 ga	218	0.925	9.439	9.8	Pass
T7	170 - 150	Top Girt	ROHN TS1.5x16 ga	250	-1.207	7.401	16.3	Pass
T8	150 - 130	Top Girt	ROHN TS1.5x16 ga	283	-0.690	7.401	9.3	Pass
T9	130 - 110	Top Girt	ROHN TS1.5x16 ga	318	-0.619	7.401	8.4	Pass
T10	110 - 90	Top Girt	ROHN TS1.5x16 ga	350	-0.930	7.401	12.6	Pass
T11	90 - 70	Top Girt	ROHN TS1.5x16 ga	382	-0.672	7.401	9.1	Pass
T12	70 - 50	Top Girt	ROHN TS1.5x16 ga	415	-0.862	7.401	11.6	Pass
T13	50 - 35	Top Girt	ROHN TS1.5x16 ga	449	-0.714	7.401	9.6	Pass
T14	35 - 20	Top Girt	ROHN TS1.5x16 ga	476	-0.707	7.401	9.6	Pass
T15	20 - 4.81771	Top Girt	ROHN TS1.5x16 ga	503	-0.628	7.401	8.5	Pass
T16	4.81771 - 0	Top Girt	L4x4x1/4	529	5.576	65.999	8.4	Pass
T1	290 - 270	Bottom Girt	ROHN TS1.5x11 ga	9	1.510	16.911	8.9	Pass
T2	270 - 250	Bottom Girt	ROHN TS1.5x16 ga	65	-0.634	7.401	8.6	Pass
T3	250 - 230	Bottom Girt	ROHN TS1.5x16 ga	122	-1.246	7.401	16.8	Pass
T4	230 - 210	Bottom Girt	ROHN TS1.5x11 ga	155	-1.805	14.231	12.7	Pass
T5	210 - 190	Bottom Girt	ROHN TS1.5x11 ga	188	-2.340	14.231	16.4	Pass
T6	190 - 170	Bottom Girt	ROHN TS1.5x16 ga	220	-1.284	7.401	17.3	Pass
T7	170 - 150	Bottom Girt	ROHN TS1.5x16 ga	253	-0.688	7.401	9.3	Pass
T8	150 - 130	Bottom Girt	ROHN TS1.5x16 ga	286	-0.639	7.401	8.6	Pass
T9	130 - 110	Bottom Girt	ROHN TS1.5x16 ga	320	-0.851	7.401	11.5	Pass
T10	110 - 90	Bottom Girt	ROHN TS1.5x16 ga	353	-1.396	7.401	18.9	Pass
T11	90 - 70	Bottom Girt	ROHN TS1.5x16 ga	385	-0.919	7.401	12.4	Pass
T12	70 - 50	Bottom Girt	ROHN TS1.5x16 ga	419	-0.697	7.401	9.4	Pass
T13	50 - 35	Bottom Girt	ROHN TS1.5x16 ga	452	-0.714	7.401	9.6	Pass
T14	35 - 20	Bottom Girt	ROHN TS1.5x16 ga	479	-0.707	7.401	9.6	Pass
T15	20 - 4.81771	Bottom Girt	ROHN TS1.5x16 ga	507	1.105	9.439	11.7	Pass
T1	290 - 270	Guy A@272.523	5/8 (ECP - 23000)	565	13.414	26.712	50.2	Pass
T6	190 - 170	Guy A@189.385	5/8 (ECP - 23000)	552	15.750	26.712	59.0	Pass
T11	90 - 70	Guy A@89.3854	1/2 (ECP - 23000)	546	9.893	16.947	58.4	Pass
T1	290 - 270	Guy B@272.523	5/8 (ECP - 23000)	560	13.917	26.712	52.1	Pass
T6	190 - 170	Guy B@189.385	5/8 (ECP - 23000)	551	15.628	26.712	58.5	Pass
T11	90 - 70	Guy B@89.3854	1/2 (ECP - 23000)	545	9.896	16.947	58.4	Pass
T1	290 - 270	Guy C@272.523	5/8 (ECP - 23000)	554	13.817	26.712	51.7	Pass
T6	190 - 170	Guy C@189.385	5/8 (ECP - 23000)	547	15.622	26.712	58.5	Pass
T11	90 - 70	Guy C@89.3854	1/2 (ECP - 23000)	541	9.893	16.947	58.4	Pass
T1	290 - 270	Top Guy Pull-Off@272.523	2L2x2x1/4x3/8	557	5.699	51.556	11.1	Pass
T6	190 - 170	Top Guy Pull-Off@189.385	4 1/2x3/8	549	5.941	57.409	10.3	Pass
T11	90 - 70	Top Guy Pull-Off@89.3854	4 1/2x3/8	543	4.674	57.409	8.1	Pass
T1	290 - 270	Torque Arm Top@272.523	C15x33.9	562	-2.353	306.341	24.7	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
							Summary	
						Leg (T12)	65.0	Pass
						Diagonal (T2)	78.2	Pass
						Horizontal (T16)	6.6	Pass
						Top Girt (T7)	16.3	Pass
						Bottom Girt (T10)	18.9	Pass
						Guy A (T6)	59.0	Pass
						Guy B (T6)	58.5	Pass
						Guy C (T6)	58.5	Pass
						Top Guy	11.1	Pass
						Pull-Off (T1)		
						Torque Arm	24.7	Pass
						Top (T1)		
						Bolt Checks	78.8	Pass
						RATING =	78.8	Pass

APPENDIX B
BASE LEVEL DRAWING



(PROPOSED EQUIPMENT CONFIGURATION)

- (3) 5/16" TO 266 FT LEVEL
- (3) 3/8" TO 266 FT LEVEL
- (2) 3/4" TO 266 FT LEVEL
- (4) 7/8" TO 266 FT LEVEL
- (7) 1-5/8" TO 266 FT LEVEL

(EQUIPMENT TO BE REMOVED)

- (1) EW52 TO 173 FT LEVEL
- (1) EW52 TO 184 FT LEVEL
- (1) EW52 TO 202 FT LEVEL
- (1) EW52 TO 221 FT LEVEL

APPENDIX C
ADDITIONAL CALCULATIONS

Pier and Pad Foundation



BU #: 846217
Site Name: COLUMBIA CITY
App. Number: 713794, Rev. 0

TIA-222 Revision: H
Tower Type: Guyed

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

Superstructure Analysis Reactions		
Compression, P_{comp} :	77.64	kips
Base Shear, Vu_{comp} :	1.23	kips
Moment, M_u :	0	ft-kips
Tower Height, H :	290	ft
BP Dist. Above Fdn, bp_{dist} :	3	in
Bolt Circle / Bearing Plate Width, BC :	12	in

Foundation Analysis Checks				
	Capacity	Demand	Rating*	Check
<i>Lateral (Sliding) (kips)</i>	49.71	1.23	2.4%	Pass
<i>Bearing Pressure (ksf)</i>	11.89	1.98	15.9%	Pass
<i>Overturning (kip*ft)</i>	413.38	8.30	2.0%	Pass
<i>Pier Flexure (Comp.) (kip*ft)</i>	175.10	6.15	3.3%	Pass
<i>Pier Compression (kip)</i>	1499.67	80.35	5.1%	Pass
<i>Pad Flexure (kip*ft)</i>	238.60	46.86	18.7%	Pass
<i>Pad Shear - 1-way (kips)</i>	109.43	19.23	16.7%	Pass
<i>Pad Shear - 2-way (Comp) (ksi)</i>	0.164	0.032	18.8%	Pass
<i>Flexural 2-way (Comp) (kip*ft)</i>	371.31	3.69	0.9%	Pass

Pier Properties		
Pier Shape:	Circular	
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 :	5	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier} :	3	in

*Rating per TIA-222-H Section 15.5

Structural Rating*:	18.8%
Soil Rating*:	15.9%

Pad Properties		
Depth, D :	6	ft
Pad Width, W_1 :	8	ft
Pad Thickness, T :	1.5	ft
Pad Rebar Size (Bottom dir. 2), Sp_2 :	6	
Pad Rebar Quantity (Bottom dir. 2), mp_2 :	9	
Pad Clear Cover, cc_{pad} :	3	

Material Properties		
Pier Rebar Grade, F_y :	60	ksi
Concrete Compressive Strength, F'_c :	3	ksi
Dry Concrete Density, δ_c :	150	pcf

Soil Properties		
Total Soil Unit Weight, γ :	108	pcf
Ultimate Net Bearing, Q_{net} :	19.300	ksf
Cohesion, C_u :		ksf
Friction Angle, ϕ :	40	degrees
SPT Blow Count, N_{blows} :		
Base Friction, μ :	0.5	
Neglected Depth, N :	1.00	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, gw :	4	ft

<--Toggle between Gross and Net

Guyed Anchor Block Foundation

Checks capacity of anchor blocks for a guyed tower.



BU#:	846217
Site Name:	COLUMBIA CITY
Order Number:	713794, Rev. 1
Location:	Guy A @ 230 ft (Elev 0 ft)

TIA-222 Revision: H

Design Reactions		
Shear, S:	38.33	kips
Uplift, Ua:	32.64	kips
Resultant Force, Rf:	50.35	kips
Tower Height, H:	290.00	ft
Guy Anchor Radius, R:	230.00	ft
Resultant Angle to Horizontal, θ:	40.4	deg

Guy Anchor Properties		
Depth to Bottom of Deadman, Da:	9	ft
Anchor Width, Wa:	3.25	ft
Anchor Thickness, Ta:	3	ft
Anchor Length, La:	22.75	ft
Concrete Volume, Vc:	8.2	yd ³
Toe Width, toe:	0	ft
Guyed Anchor Top Rebar Size, Sat:	8	
No. of Bars in Top of Block:	4	
Guyed Anchor Front Rebar Size, Saf:	8	
No. of Bars in Front of Block:	4	
Stirrup Size:	3	
Anchor Shaft Diameter, ds:	1.25	in
Anchor Shaft Quantity, n:	2	
Anchor Shaft Area Override:		in ²
Shear Lag Factor, u:	1	

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

Design Checks				
	Capacity	Demand	Rating*	Check
<i>Lateral Capacity (kips):</i>	246.60	38.33	14.8%	Pass
<i>Uplift Capacity (kips):</i>	138.29	32.64	22.5%	Pass
<i>Lateral Flexural Capacity (ft*kips):</i>	484.79	109.01	21.4%	Pass
<i>Uplift Flexural Capacity (ft*kips):</i>	443.26	92.82	19.9%	Pass
<i>Anchor Shaft (kips):</i>	98.17	50.35	48.8%	Pass

*Rating per TIA-222-H Section 15.5

Anchor Shaft Rating:	48.8%
Structural Rating:	21.4%
Soil Rating:	22.5%

Neglect Depth, Neg:	0	ft
Groundwater Level, gw:	2	ft

Soil Properties:		No. of Soil Layers:				
Layer	φ, deg	cu, ksf	δ, pcf	d, ft	Ultimate fs (ksf)	N (blows/ft)
1	29		108	2.00		
2	30		51	4.00		
3	38		54	6.00		
4	40		54	8.00		
5		4.500	53	9.00		

*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

Guyed Anchor Block Foundation

Checks capacity of anchor blocks for a guyed tower.



BU#:	846217
Site Name:	COLUMBIA CITY
Order Number:	713794, Rev. 1
Location:	Guy B @ 230 ft (Elev 0 ft)

TIA-222 Revision: H

Design Reactions		
Shear, S:	38.16	kips
Uplift, Ua:	32.53	kips
Resultant Force, Rf:	50.14	kips
Tower Height, H:	290.00	ft
Guy Anchor Radius, R:	230.00	ft
Resultant Angle to Horizontal, θ:	40.4	deg

Guy Anchor Properties		
Depth to Bottom of Deadman, Da:	9	ft
Anchor Width, Wa:	3.25	ft
Anchor Thickness, Ta:	3	ft
Anchor Length, La:	22.75	ft
Concrete Volume, Vc:	8.2	yd ³
Toe Width, toe:	0	ft
Guyed Anchor Top Rebar Size, Sat:	8	
No. of Bars in Top of Block:	4	
Guyed Anchor Front Rebar Size, Saf:	8	
No. of Bars in Front of Block:	4	
Stirrup Size:	3	
Anchor Shaft Diameter, ds:	1.25	in
Anchor Shaft Quantity, n:	2	
Anchor Shaft Area Override:		in ²
Shear Lag Factor, u:	1	

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

Design Checks				
	Capacity	Demand	Rating*	Check
<i>Lateral Capacity (kips):</i>	411.64	38.16	8.8%	Pass
<i>Uplift Capacity (kips):</i>	205.80	32.53	15.1%	Pass
<i>Lateral Flexural Capacity (ft*kips):</i>	484.79	108.53	21.3%	Pass
<i>Uplift Flexural Capacity (ft*kips):</i>	443.26	92.50	19.9%	Pass
<i>Anchor Shaft (kips):</i>	98.17	50.14	48.6%	Pass

*Rating per TIA-222-H Section 15.5

Anchor Shaft Rating:	48.6%
Structural Rating:	21.3%
Soil Rating:	15.1%

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

Soil Properties:		No. of Soil Layers:				
Layer	φ, deg	cu, ksf	δ, pcf	d, ft	Ultimate fs (ksf)	N (blows/ft)
1	29		108	2.00		
2	30		112	4.00		
3	40		54	6.00		
4		4.500	53	8.00		
5	45		54	9.00		

*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

Guyed Anchor Block Foundation

Checks capacity of anchor blocks for a guyed tower.



BU#:	846217
Site Name:	COLUMBIA CITY
Order Number:	713794, Rev. 1
Location:	Guy C @ 230 ft (Elev 0 ft)

TIA-222 Revision: H

Design Reactions		
Shear, S:	38.15	kips
Uplift, Ua:	32.51	kips
Resultant Force, Rf:	50.12	kips
Tower Height, H:	290.00	ft
Guy Anchor Radius, R:	230.00	ft
Resultant Angle to Horizontal, θ:	40.4	deg

Guy Anchor Properties		
Depth to Bottom of Deadman, Da:	9	ft
Anchor Width, Wa:	3.25	ft
Anchor Thickness, Ta:	3	ft
Anchor Length, La:	22.75	ft
Concrete Volume, Vc:	8.2	yd ³
Toe Width, toe:	0	ft
Guyed Anchor Top Rebar Size, Sat:	8	
No. of Bars in Top of Block:	4	
Guyed Anchor Front Rebar Size, Saf:	8	
No. of Bars in Front of Block:	4	
Stirrup Size:	3	
Anchor Shaft Diameter, ds:	1.25	in
Anchor Shaft Quantity, n:	2	
Anchor Shaft Area Override:		in ²
Shear Lag Factor, u:	1	

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

Design Checks				
	Capacity	Demand	Rating*	Check
<i>Lateral Capacity (kips):</i>	511.40	38.15	7.1%	Pass
<i>Uplift Capacity (kips):</i>	234.66	32.51	13.2%	Pass
<i>Lateral Flexural Capacity (ft*kips):</i>	484.79	108.48	21.3%	Pass
<i>Uplift Flexural Capacity (ft*kips):</i>	443.26	92.46	19.9%	Pass
<i>Anchor Shaft (kips):</i>	98.17	50.12	48.6%	Pass

*Rating per TIA-222-H Section 15.5

Anchor Shaft Rating:	48.6%
Structural Rating:	21.3%
Soil Rating:	13.2%

Neglect Depth, Neg:	0	ft
Groundwater Level, gw:	2	ft

Soil Properties:		No. of Soil Layers:				
Layer	φ, deg	cu, ksf	δ, pcf	d, ft	Ultimate fs (ksf)	N (blows/ft)
1	31		109	2.00		
2	34		54	4.00		
3	40		54	6.00		
4		4.500	53	8.50		
5		4.500	53	9.00		

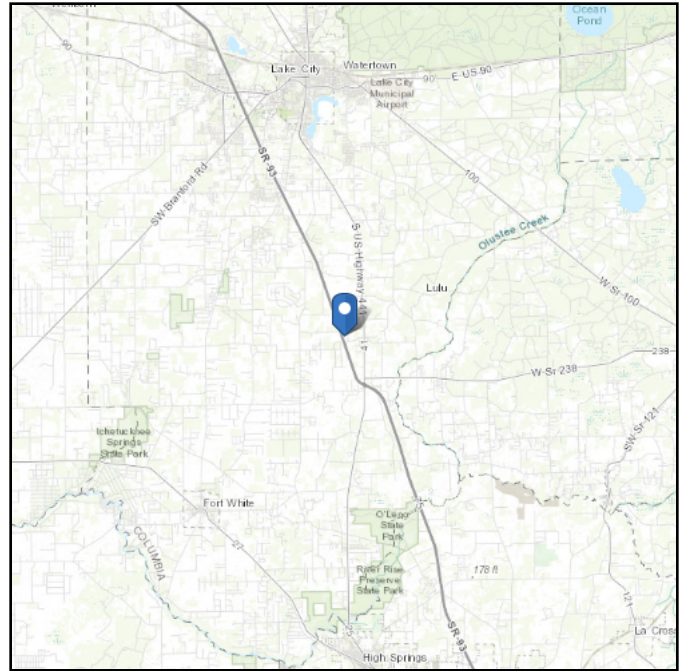
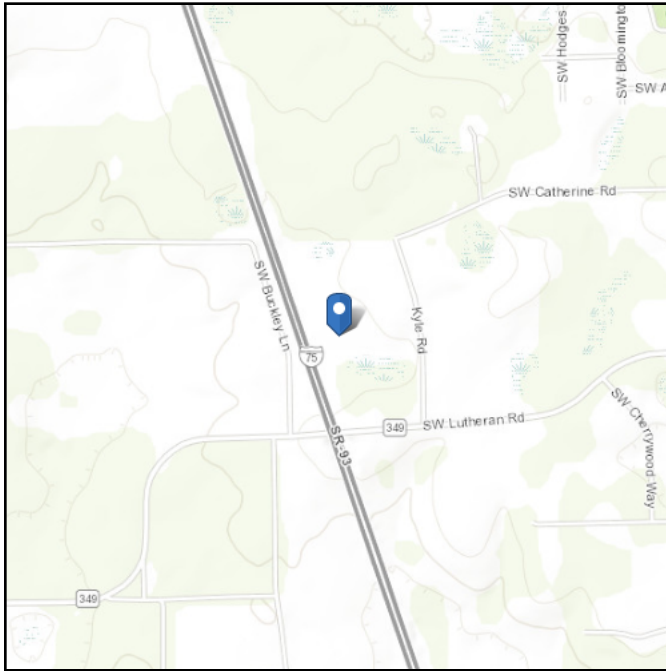
*key: φ = Internal Angle of Friction
 cu = Cohesion / Undrained Shear Strength
 δ = Buoyant Soil Unit Weight
 d = Depth to Bottom of Layer
 Ultimate fs = Geotechnical Report-provided skin friction / adhesion
 N = SPT Blow Count

ASCE Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-22
Risk Category: II
Soil Class: Default

Latitude: 30.029567
Longitude: -82.611944
Elevation: 115.7211230600312 ft (NAVD 88)



Wind

Results:

Wind Speed	120 Vmph
10-year MRI	75 Vmph
25-year MRI	83 Vmph
50-year MRI	90 Vmph
100-year MRI	98 Vmph
300-year MRI	110 Vmph
700-year MRI	120 Vmph
1,700-year MRI	130 Vmph
3,000-year MRI	136 Vmph
10,000-year MRI	145 Vmph
100,000-year MRI	154 Vmph
1,000,000-year MRI	167 Vmph

Data Source: ASCE/SEI 7-22, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Tue Sep 02 2025



Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-22 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years). Values for 10-year MRI, 25-year MRI, 50-year MRI and 100-year MRI are Service Level wind speeds, all other wind speeds are Ultimate wind speeds.

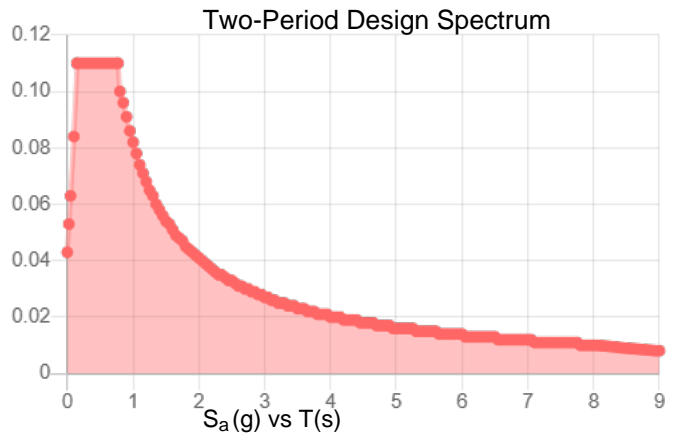
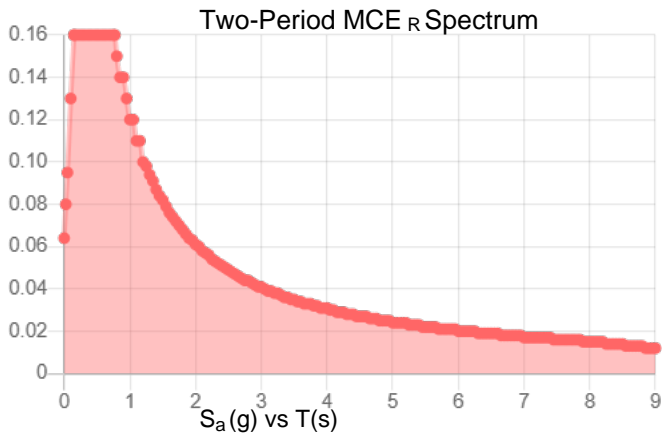
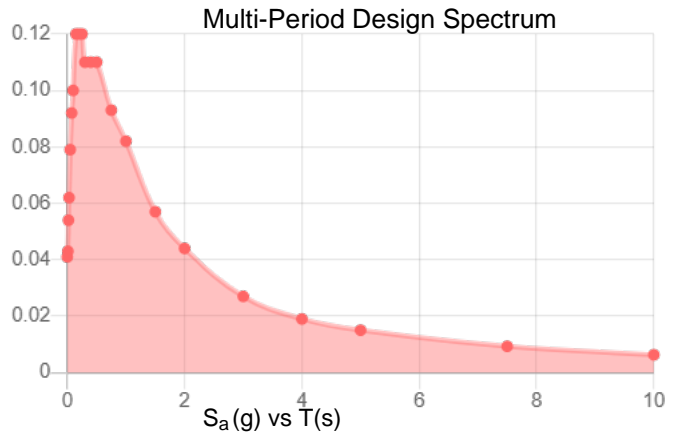
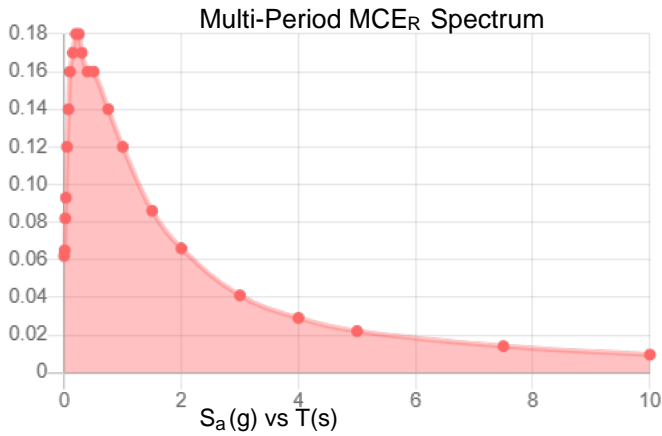
Site is in a hurricane-prone region as defined in ASCE/SEI 7-22 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Site Soil Class: Default

Results:

PGA _M :	0.057	T _L :	8
S _{MS} :	0.16	S _s :	0.12
S _{M1} :	0.12	S ₁ :	0.057
S _{DS} :	0.11	V _{S30} :	260
S _{D1} :	0.082		

Seismic Design Category: B



MCE_R Vertical Response Spectrum

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

Design Vertical Response Spectrum

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



Data Accessed: Tue Sep 02 2025

Date Source:

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

Ice

Results:

Ice Thickness: N/A
Concurrent Temperature: N/A
3-s Gust Speed N/A

Data Source: Standard ASCE/SEI 7-22, Figs. 10-2 through 10-8

Date Accessed: Tue Sep 02 2025

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

Values provided are equivalent radial ice thicknesses due to freezing rain for 250, 500, 1,000, and 1,400-year mean recurrence intervals along with concurrent 3-s gust speeds and concurrent air temperatures. The shading indicates special icing regions, with elevations above 2,100 ft (640 m) in the east, 6,000 ft (1829 m) in the west, and 1,600 ft (488 m) in Alaska, with sparse weather station data for determining design ice loads. In these regions, as well as in regions with complex terrain causing unusual icing conditions and regions where snow or in-cloud icing results in larger loads, the mapped values should be adjusted based on a combination of local historical records and experience, reanalysis data, and numerical weather prediction systems.

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