

Date: **September 05, 2025**



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

Subject: **Structural Analysis Report**

Carrier Designation: **Verizon Wireless Co-Locate**
Site Number: 5000078299
Site Name: MYRTIS

Crown Castle Designation: **BU Number:** 809329
Site Name: COLUMBIA J-FL-012-094
JDE Job Number: 2115980
Work Order Number: 2423966
Order Number: 671090 Rev. 4

Engineering Firm Designation: **B+T Group Project Number:** 25-006681

Site Data: **1307 SW ENGLISH ST, Lake City, Columbia County, FL**
Latitude 30° 2' 57.8", Longitude -82° 37' 12.4"
250.365 Foot - Guyed Tower

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

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

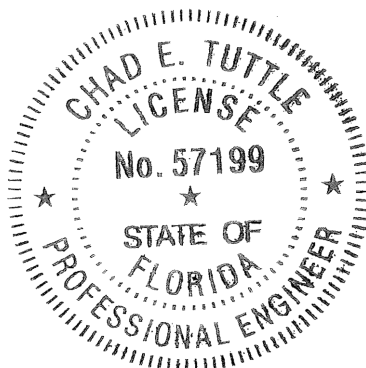
LC5: Proposed Equipment Configuration

Sufficient Capacity

This analysis utilizes an ultimate 3-second gust wind speed of 120 mph as required by the 2023 Florida Building Code, 8th Edition. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Truett Fowler

Respectfully submitted by: B+T Engineering, Inc.



9/6/2025

Chad E. Tuttle, P.E.

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1) INTRODUCTION

This tower is a 250.365 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
Ice Thickness:	0 in
Wind Speed with Ice:	0 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
238.0	238.0	1	Commscope	VHLPX3-11W	1 2	2 3/8
		2	Aviat Networks	ODU600		
		3	Commscope	NNSS-65C-HG-R2B_20241102		
		3	Ericsson	AIR 3283 B25 B66		
		3	Ericsson	AIR 6419 B77D		
		3	Ericsson	RADIO 4490HP 44B5 44B13 C		
		1	Raycap	RVZDC-6627-PF-48_CCIV2		
		3	VZWSMART	SFK 1		
		1	--	Sector Mount [SM 502-3]		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
246.0	247.0	3	Commscope	FFVV-65C-R3-V1_TMO	11	1-5/8
		3	Ericsson	AIR6449 B41_T-MOBILE		
		3	Ericsson	RADIO 4460 B2/B25 B66_TMO		
		3	Ericsson	RADIO 4480 B71_TMO		
	246.0	1	--	Sector Mount [SM 502-3]		
162.0	162.0	1	Comsat RSI	P-24A72GN-S	1	1-5/8
150.0	150.0	2	Ceragon	ODU 5-11 GHZ	2	3/8
		1	Radiowaves	HP2-11		
		2	--	Pipe Mount [PM 602-1]		
	149.0	1	Radiowaves	HP4-11		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
Tower Manufacturer Drawing	192569	CCI Sites
Foundation Drawing	121252	CCI Sites
Geotech Report	121215	CCI Sites
Crown CAD Package	Date: 09/01/2025	CCI Sites

3.1) Analysis Method

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

3.2) Assumptions

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

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T1	250.365 - 230.365	Leg	ROHN 2.5 X-STR	1	-31.947	99.127	32.2	Pass
T2	230.365 - 210.365	Leg	ROHN 2.5 X-STR	58	-36.586	99.127	36.9	Pass
T3	210.365 - 190.365	Leg	ROHN 2.5 X-STR	115	-46.894	99.127	47.3	Pass
T4	190.365 - 170.365	Leg	ROHN 3 EHH	172	-67.150	189.167	35.5	Pass
T5	170.365 - 150.365	Leg	ROHN 3 EHH	229	-62.049	189.167	32.8	Pass
T6	150.365 - 130.365	Leg	ROHN 3 X-STR	286	-43.111	117.932	36.6	Pass
T7	130.365 - 110.365	Leg	ROHN 3 X-STR	319	-41.289	117.932	35.0	Pass
T8	110.365 - 90.3646	Leg	ROHN 3 X-STR	353	-44.012	135.917	32.4	Pass
T9	90.3646 - 70.3646	Leg	ROHN 3 X-STR	409	-50.184	135.917	36.9	Pass
T10	70.3646 - 50.3646	Leg	ROHN 3 EHH	466	-63.651	162.289	39.2	Pass
T11	50.3646 - 35.1823	Leg	ROHN 3 EHH	499	-65.077	162.289	40.1	Pass
T12	35.1823 - 20	Leg	ROHN 3 EHH	526	-63.315	162.289	39.0	Pass
T13	20 - 4.81771	Leg	ROHN 3 EHH	553	-54.845	162.289	33.8	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T14	4.81771 - 0	Leg	ROHN 3 EHH	581	-38.214	196.249	24.2	Pass
T1	250.365 - 230.365	Diagonal	L2x2x1/4	17	3.550	25.709	13.8 20.6 (b)	Pass
T2	230.365 - 210.365	Diagonal	ROHN 1.5 x 16GA	114	-0.948	6.519	14.5	Pass
T3	210.365 - 190.365	Diagonal	ROHN 1.5 x 11GA	124	-1.735	12.400	14.0 16.9 (b)	Pass
T4	190.365 - 170.365	Diagonal	L2x2x1/4	185	-5.110	30.264	16.9	Pass
T5	170.365 - 150.365	Diagonal	ROHN 1.5 x 16GA	284	-2.620	6.519	40.2	Pass
T6	150.365 - 130.365	Diagonal	ROHN 1.5 x 16GA	316	-2.034	6.519	31.2	Pass
T7	130.365 - 110.365	Diagonal	ROHN 1.5 x 16GA	330	-2.121	6.519	32.5	Pass
T8	110.365 - 90.3646	Diagonal	ROHN 1.5 x 16GA	361	-2.917	6.519	44.7	Pass
T9	90.3646 - 70.3646	Diagonal	ROHN 1.5 x 16GA	460	-2.452	6.519	37.6	Pass
T10	70.3646 - 50.3646	Diagonal	ROHN 1.5 x 11GA	496	-2.522	12.400	20.3 21.7 (b)	Pass
T11	50.3646 - 35.1823	Diagonal	ROHN 1.5 x 16GA	509	-1.027	6.519	15.8	Pass
T12	35.1823 - 20	Diagonal	ROHN 1.5 x 16GA	535	-1.813	6.519	27.8	Pass
T13	20 - 4.81771	Diagonal	ROHN 1.5 x 11GA	566	-2.171	12.400	17.5 19.0 (b)	Pass
T14	4.81771 - 0	Horizontal	L4x4x1/4	583	5.146	65.999	19.6	Pass
T1	250.365 - 230.365	Top Girt	L2x2x1/4	4	-0.593	23.702	2.5 3.4 (b)	Pass
T2	230.365 - 210.365	Top Girt	ROHN 1.5 x 16GA	62	0.961	9.439	10.2 15.5 (b)	Pass
T3	210.365 - 190.365	Top Girt	ROHN 1.5 x 11GA	118	-0.841	14.231	5.9 8.2 (b)	Pass
T4	190.365 - 170.365	Top Girt	L2x2x1/4	175	-1.163	23.884	4.9 6.7 (b)	Pass
T5	170.365 - 150.365	Top Girt	ROHN 1.5 x 16GA	232	-1.124	7.484	15.0 18.1 (b)	Pass
T6	150.365 - 130.365	Top Girt	ROHN 1.5 x 16GA	289	-0.764	7.484	10.2 12.3 (b)	Pass
T7	130.365 - 110.365	Top Girt	ROHN 1.5 x 16GA	322	-0.717	7.484	9.6 11.5 (b)	Pass
T8	110.365 - 90.3646	Top Girt	ROHN 1.5 x 16GA	355	-0.762	7.484	10.2 12.3 (b)	Pass
T9	90.3646 - 70.3646	Top Girt	ROHN 1.5 x 16GA	412	-0.903	7.484	12.1 14.5 (b)	Pass
T10	70.3646 - 50.3646	Top Girt	ROHN 1.5 x 11GA	469	-1.112	14.405	7.7 9.6 (b)	Pass
T11	50.3646 - 35.1823	Top Girt	ROHN 1.5 x 16GA	502	-1.127	7.484	15.1 18.1 (b)	Pass
T12	35.1823 - 20	Top Girt	ROHN 1.5 x 16GA	529	-1.107	7.484	14.8 17.8 (b)	Pass
T13	20 - 4.81771	Top Girt	ROHN 1.5 x 11GA	556	-0.972	14.405	6.7 8.4 (b)	Pass
T1	250.365 - 230.365	Bottom Girt	L2x2x1/4	8	1.616	25.709	6.3 9.4 (b)	Pass
T2	230.365 - 210.365	Bottom Girt	ROHN 1.5 x 16GA	64	-0.648	7.401	8.8 10.4 (b)	Pass
T3	210.365 -	Bottom Girt	ROHN 1.5 x 11GA	121	-0.841	14.231	5.9	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
	190.365						8.2 (b)	
T4	190.365 - 170.365	Bottom Girt	L2x2x1/4	178	-1.163	23.884	4.9 7.2 (b)	Pass
T5	170.365 - 150.365	Bottom Girt	ROHN 1.5 x 16GA	235	-1.124	7.484	15.0 18.1 (b)	Pass
T6	150.365 - 130.365	Bottom Girt	ROHN 1.5 x 16GA	292	-0.764	7.484	10.2 12.3 (b)	Pass
T7	130.365 - 110.365	Bottom Girt	ROHN 1.5 x 16GA	325	-0.717	7.484	9.6 11.5 (b)	Pass
T8	110.365 - 90.3646	Bottom Girt	ROHN 1.5 x 16GA	358	-0.762	7.484	10.2 12.3 (b)	Pass
T9	90.3646 - 70.3646	Bottom Girt	ROHN 1.5 x 16GA	415	-0.903	7.484	12.1 14.5 (b)	Pass
T10	70.3646 - 50.3646	Bottom Girt	ROHN 1.5 x 11GA	472	-1.112	14.405	7.7 9.6 (b)	Pass
T11	50.3646 - 35.1823	Bottom Girt	ROHN 1.5 x 16GA	505	-1.127	7.484	15.1 18.1 (b)	Pass
T12	35.1823 - 20	Bottom Girt	ROHN 1.5 x 16GA	532	-1.107	7.484	14.8 17.8 (b)	Pass
T13	20 - 4.81771	Bottom Girt	ROHN 1.5 x 11GA	560	1.855	16.911	11.0 16.0 (b)	Pass
T1	250.365 - 230.365	Guy A@232.888	3/4 (ROHN E=23000 ksi)	627	15.852	36.729	43.2	Pass
T4	190.365 - 170.365	Guy A@172.888	3/4 (ROHN E=23000 ksi)	612	12.231	36.729	33.3	Pass
T8	110.365 - 90.3646	Guy A@92.888	3/4 (ROHN E=23000 ksi)	600	13.989	36.729	38.1	Pass
T1	250.365 - 230.365	Guy B@232.888	3/4 (ROHN E=23000 ksi)	624	15.882	36.729	43.2	Pass
T4	190.365 - 170.365	Guy B@172.888	3/4 (ROHN E=23000 ksi)	609	12.570	36.729	34.2	Pass
T8	110.365 - 90.3646	Guy B@92.888	3/4 (ROHN E=23000 ksi)	599	14.008	36.729	38.1	Pass
T1	250.365 - 230.365	Guy C@232.888	3/4 (ROHN E=23000 ksi)	617	16.341	36.729	44.5	Pass
T4	190.365 - 170.365	Guy C@172.888	3/4 (ROHN E=23000 ksi)	601	13.106	36.729	35.7	Pass
T8	110.365 - 90.3646	Guy C@92.888	3/4 (ROHN E=23000 ksi)	595	14.877	36.729	40.5	Pass
T1	250.365 - 230.365	Top Guy Pull-Off@232.888	2L2x2x1/4x3/8	621	8.265	51.556	16.0 23.3 (b)	Pass
T4	190.365 - 170.365	Top Guy Pull-Off@172.888	2L2x2x1/4x3/8	606	7.455	51.556	14.5 21.1 (b)	Pass
T8	110.365 - 90.3646	Top Guy Pull-Off@92.888	2L2x2x1/4x3/8	597	6.660	51.556	12.9 23.7 (b)	Pass
T1	250.365 - 230.365	Torque Arm Top@232.888	C15x33.9	626	-2.377	306.341	29.8	Pass
T4	190.365 - 170.365	Torque Arm Top@172.888	C15x33.9	611	-1.466	306.827	20.3	Pass
							Summary	
						Leg (T3)	47.3	Pass
						Diagonal (T8)	44.7	Pass
						Horizontal (T14)	19.6	Pass
						Top Girt (T11)	18.1	Pass
						Bottom Girt	18.1	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
						(T11)		
						Guy A (T1)	43.2	Pass
						Guy B (T1)	43.2	Pass
						Guy C (T1)	44.5	Pass
						Top Guy Pull-Off (T8)	23.7	Pass
						Torque Arm Top (T1)	29.8	Pass
						Bolt Checks	39.6	Pass
						Rating =	47.3	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Base Foundation (Compared w/ Design Loads)	Base	39.1	Pass
1,2	Guy Anchor Foundation (Comp. w/ Design Loads)	Base	41.0	Pass

Structure Rating (max from all components) =	47.3%
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Notes:

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

4.1) Recommendations

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

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

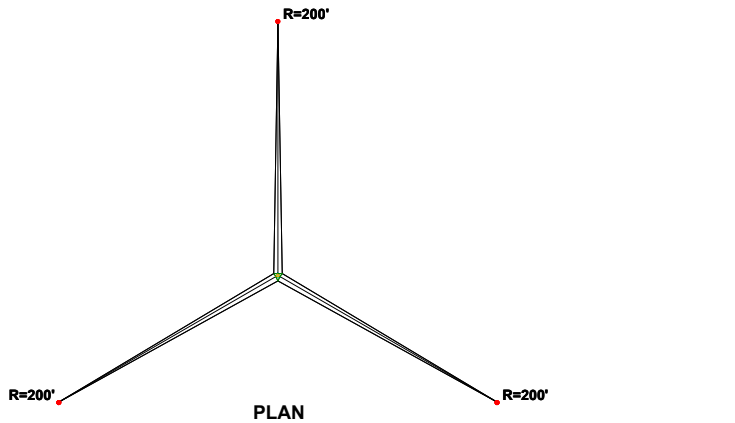
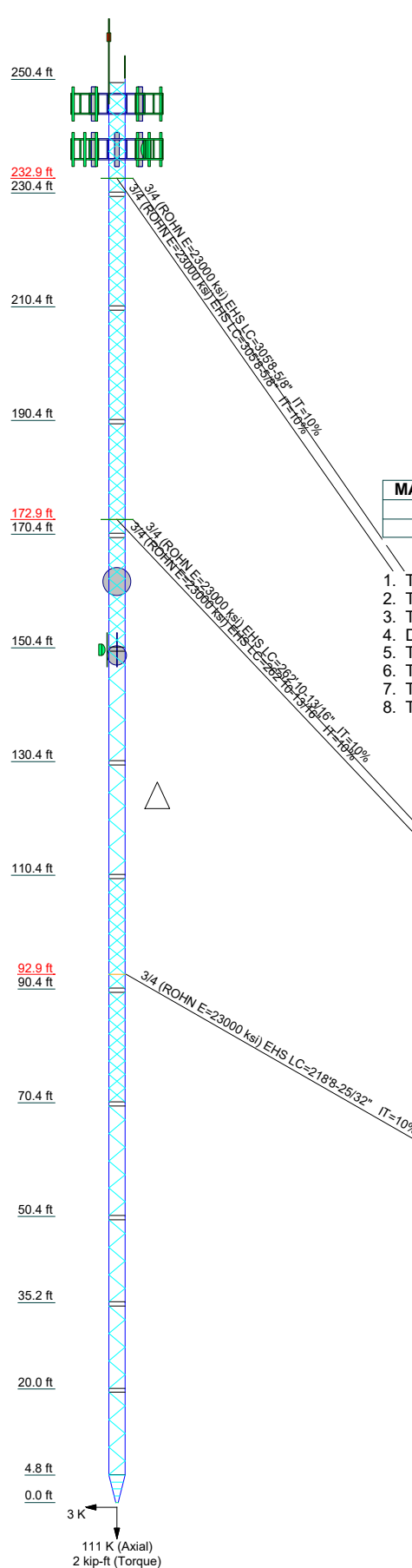
Table 6 – Proposed Equipment Tilt-Sway Results for 60 mph Service Wind – LC5

Elevation (ft)	Dish Model	Diameter (ft)	Tilt (°)	Twist (°)
238	VHLPX3-11W	3.283	0.089	0.048

APPENDIX A

TNXTOWER OUTPUT

Section	T14	T13	T12	ROHN 3 EHH			ROHN 3 X-STR			ROHN 3 EHH				ROHN 2.5 X-STR			T1
Legs																	
Leg Grade	A572-50																
Diagonals	N.A.	A	ROHN 1.5 x 16GA	ROHN 1.5 x 11GA	ROHN 1.5 x 16GA	ROHN 1.5 x 16GA	A53-B-42	A36	L2x2x1/4	ROHN 1.5 x 11GA	ROHN 1.5 x 16GA	ROHN 1.5 x 16GA	ROHN 1.5 x 16GA	ROHN 1.5 x 16GA	L2x2x1/4		
Diagonal Grade	N.A.	A500-42	A53-B-42	A500-42	ROHN 1.5 x 16GA	ROHN 1.5 x 16GA	ROHN 1.5 x 16GA	A500-42	A36	A500-42	A53-B-42	A53-B-42	A53-B-42	A53-B-42	A36		
Top Girts	N.A.	A	ROHN 1.5 x 16GA	ROHN 1.5 x 11GA	ROHN 1.5 x 16GA	ROHN 1.5 x 16GA	ROHN 1.5 x 16GA	ROHN 1.5 x 16GA	L2x2x1/4	ROHN 1.5 x 11GA	ROHN 1.5 x 16GA	ROHN 1.5 x 16GA	ROHN 1.5 x 16GA	ROHN 1.5 x 16GA	L2x2x1/4		
Bottom Girts	N.A.	A	ROHN 1.5 x 16GA	ROHN 1.5 x 11GA	ROHN 1.5 x 16GA	ROHN 1.5 x 16GA	ROHN 1.5 x 16GA	ROHN 1.5 x 16GA	L2x2x1/4	ROHN 1.5 x 11GA	ROHN 1.5 x 16GA	ROHN 1.5 x 16GA	ROHN 1.5 x 16GA	ROHN 1.5 x 16GA	L2x2x1/4		
Horizontals	B	N.A.															
Top Guy Pull-Offs	N.A.				2L2x2x1/4x3/8				N.A.				N.A.			2L2x2x1/4x3/8	
Face Width (ft)	0.5																
# Panels @ (ft)	98 @ 2.40885																
Weight (K)	14.1	0.4	0.8	0.8	0.8	1.1	0.8	0.9	0.7	0.7	1.1	2.4	0.9	0.7	1.9		

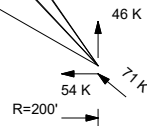


MARK	SIZE	MARK	SIZE
A	ROHN 1.5 x 11GA	C	4 @ 1.20443
B	L4x4x1/4		

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. TIA-222-H Annex S
8. TOWER RATING: 47.3%

ALL REACTIONS ARE FACTORED

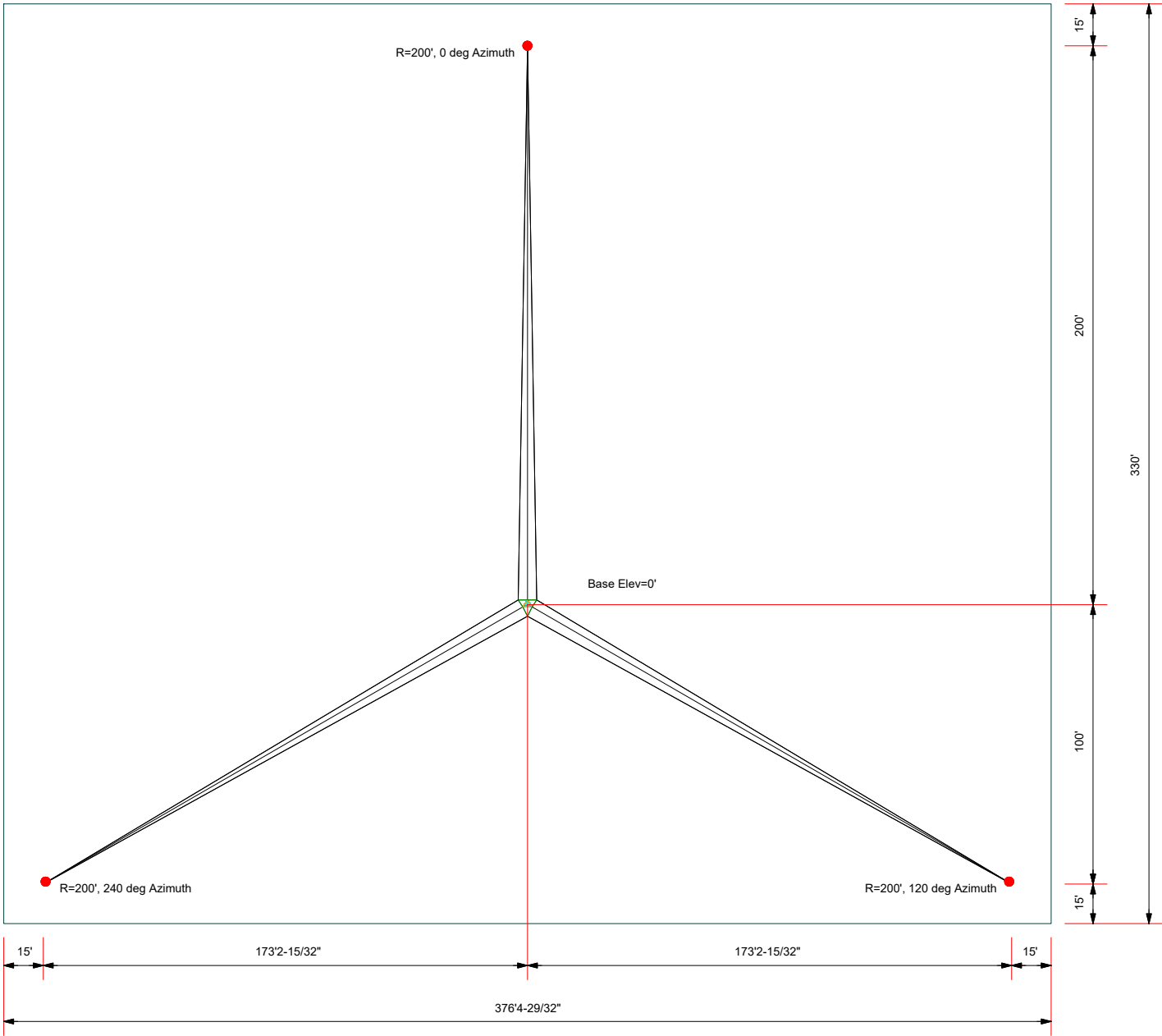




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Job: 25-006681 - COLUMBIA J-FL-012-094, FL (BU# 8093)		
Project:		
Client: Crown Castle	Drawn by: SK	App'd:
Code: TIA-222-H	Date: 09/03/25	Scale: NTS
Path:		Dwg No. E-1

Plot Plan
Total Area - 2.85 Acres



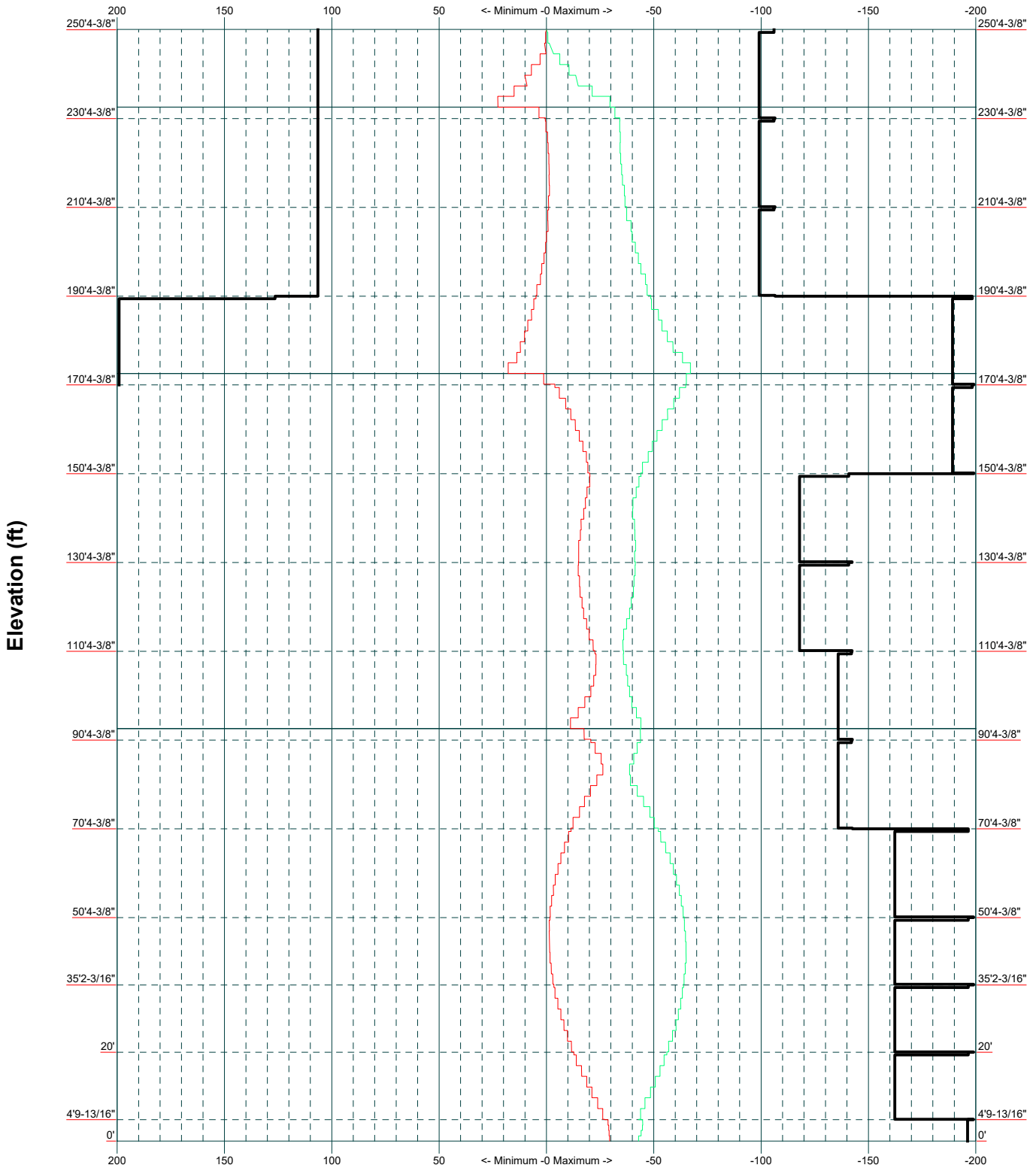
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Job: 25-006681 - COLUMBIA J-FL-012-094, FL (BU# 80932)		
Project:		
Client: Crown Castle	Drawn by: SK	App'd:
Code: TIA-222-H	Date: 09/03/25	Scale: NTS
Path:	Dwg No. E-2	

TIA-222-H - 120 mph Exposure C

Leg Capacity ———

Leg Compression (K)



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Project:		
Client: Crown Castle	Drawn by: SK	App'd:
Code: TIA-222-H	Date: 09/03/25	Scale: NTS
Path:	Dwg No. E-3	

TIA-222-H - 120 mph Exposure C

Maximum Values

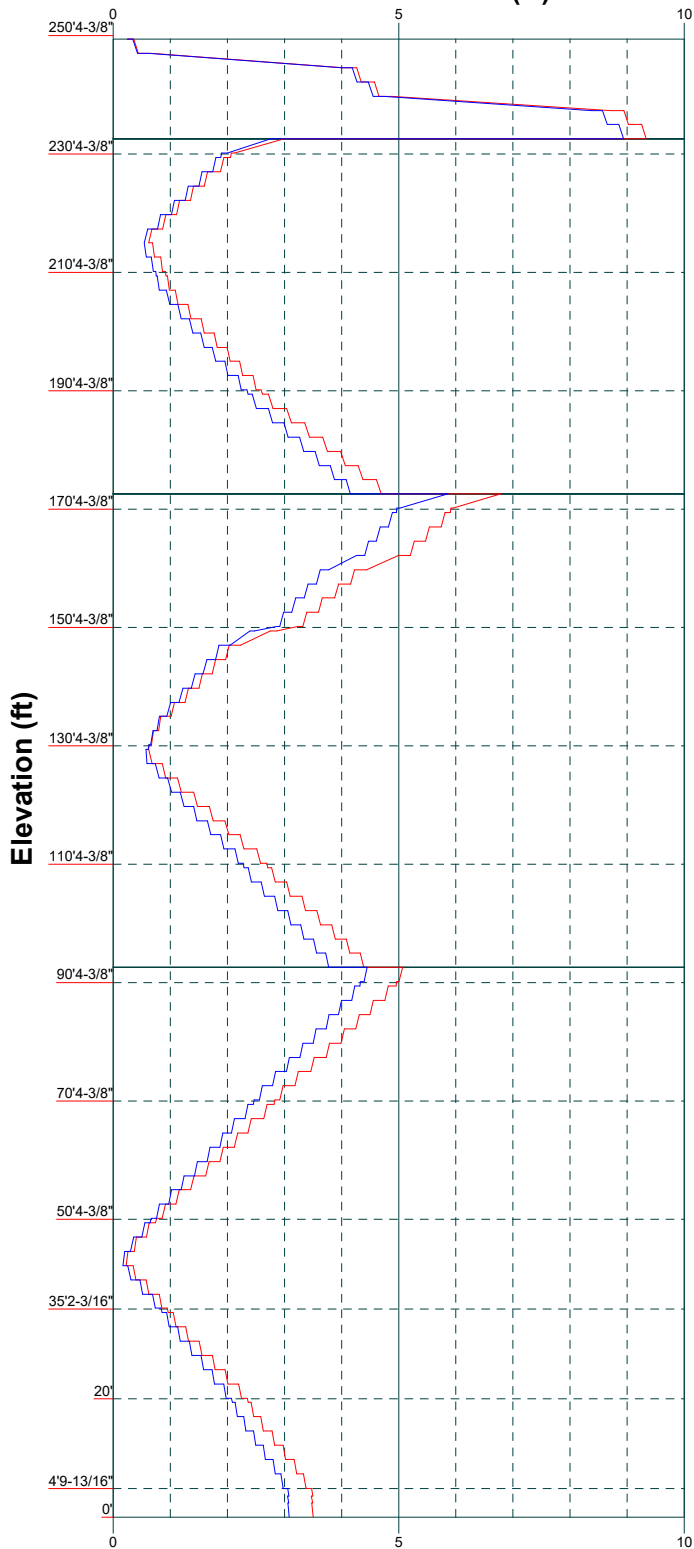
Vx

Vz

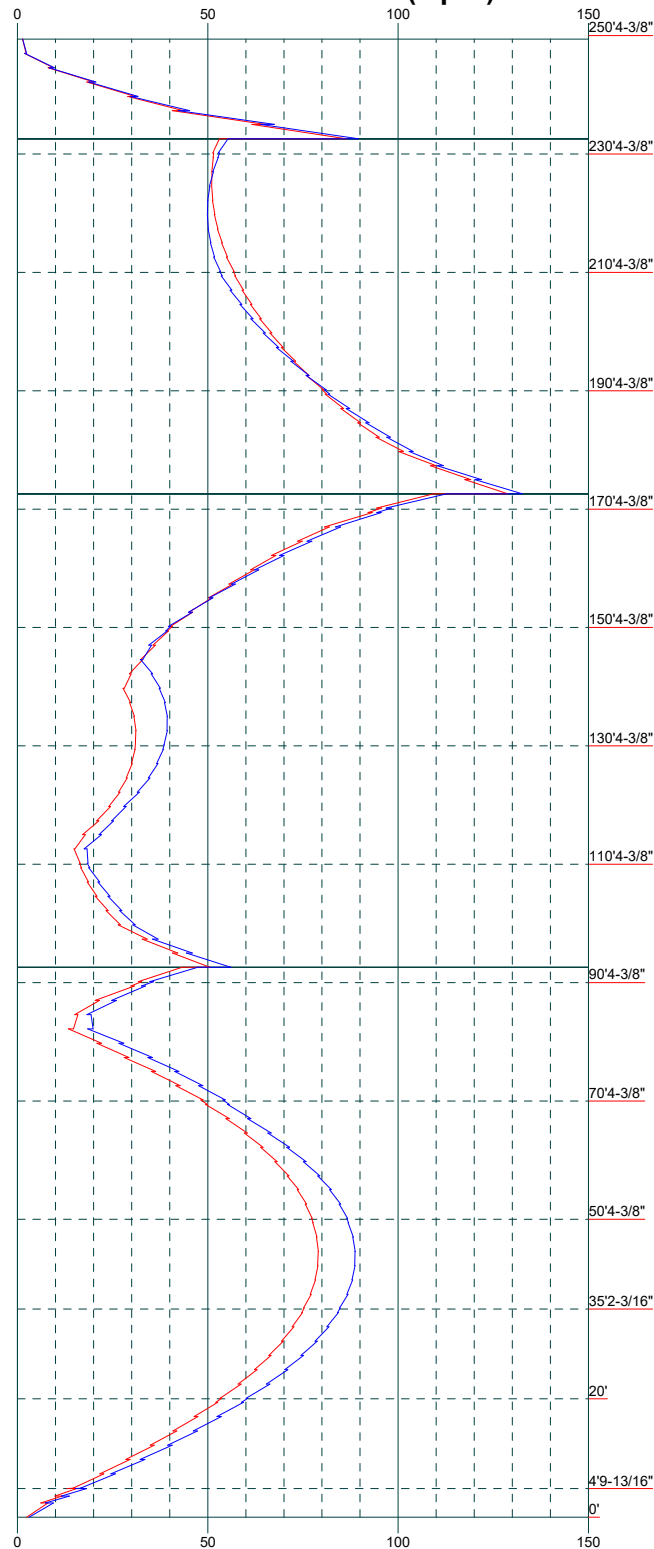
Mx

Mz

Global Mast Shear (K)

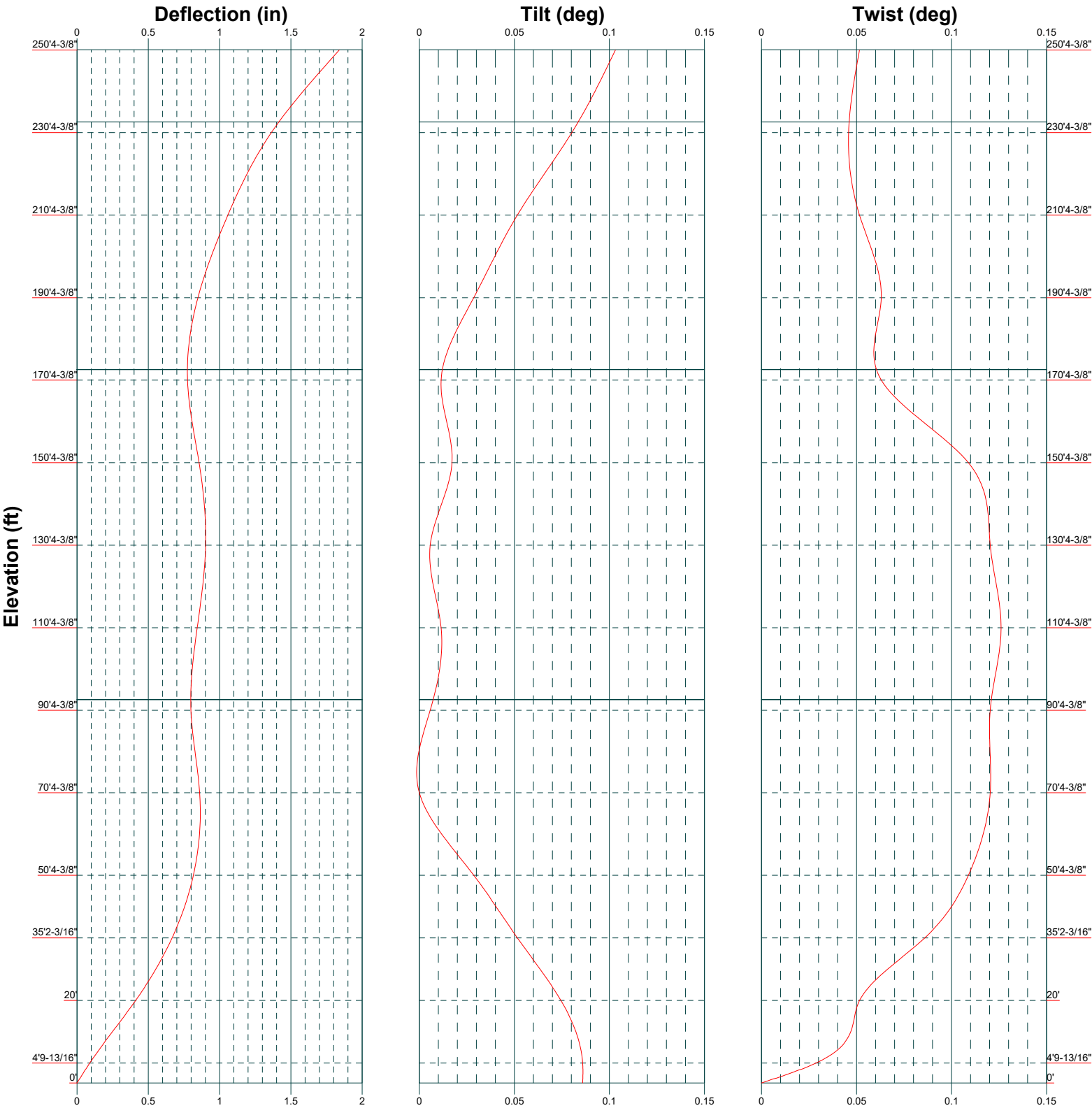


Global Mast Moment (kip-ft)



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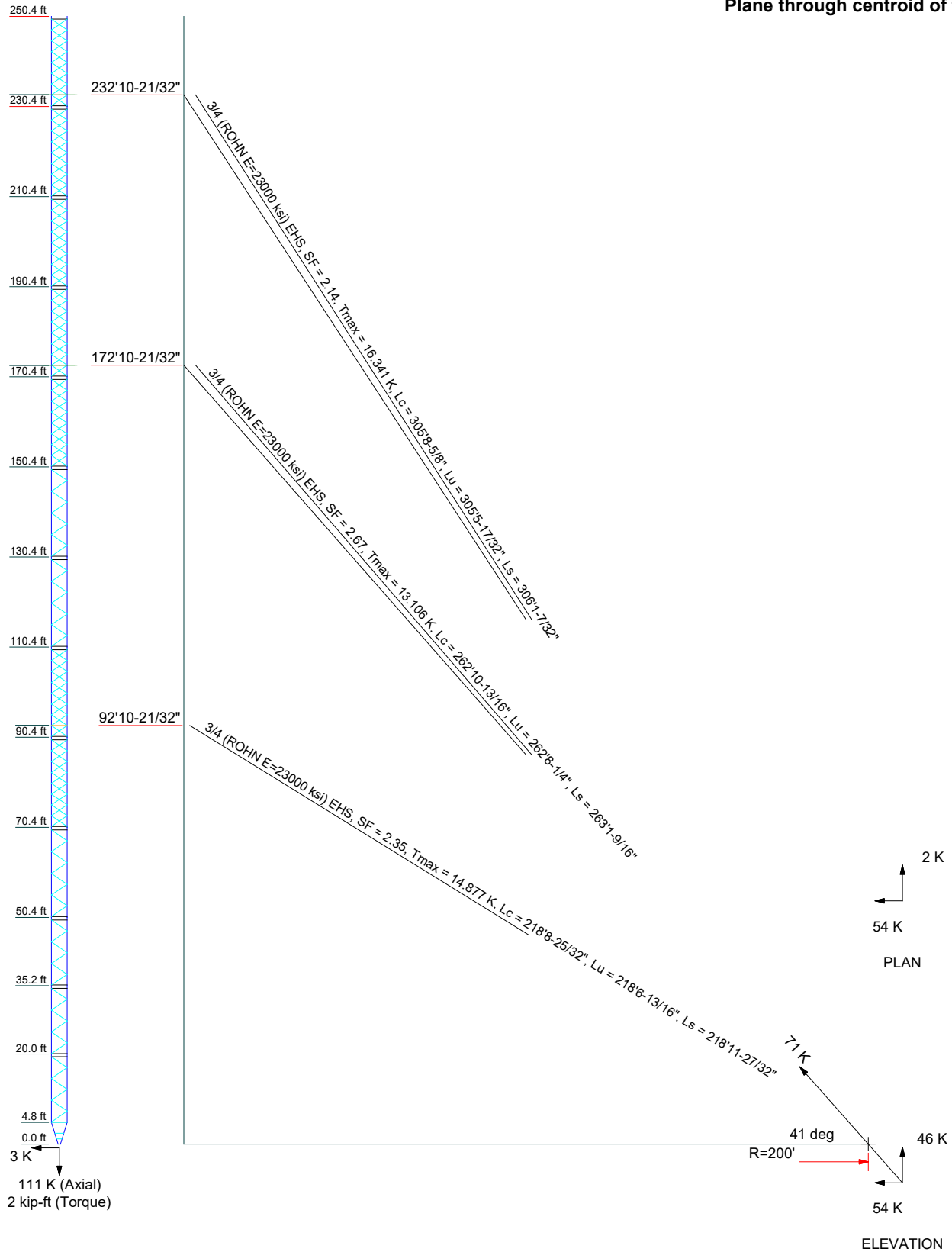
Job: 25-006681 - COLUMBIA J-FL-012-094, FL (BU# 80932)		
Project:		
Client: Crown Castle	Drawn by: SK	App'd:
Code: TIA-222-H	Date: 09/03/25	Scale: NTS
Path:	Dwg No. E-4	



Guy Tensions and Tower Reactions

TIA-222-H - 120 mph Exposure C

Maximum Values
Anchor 'C' @ 200 ft Azimuth 240 deg Elev 0 ft
Plane through centroid of tower

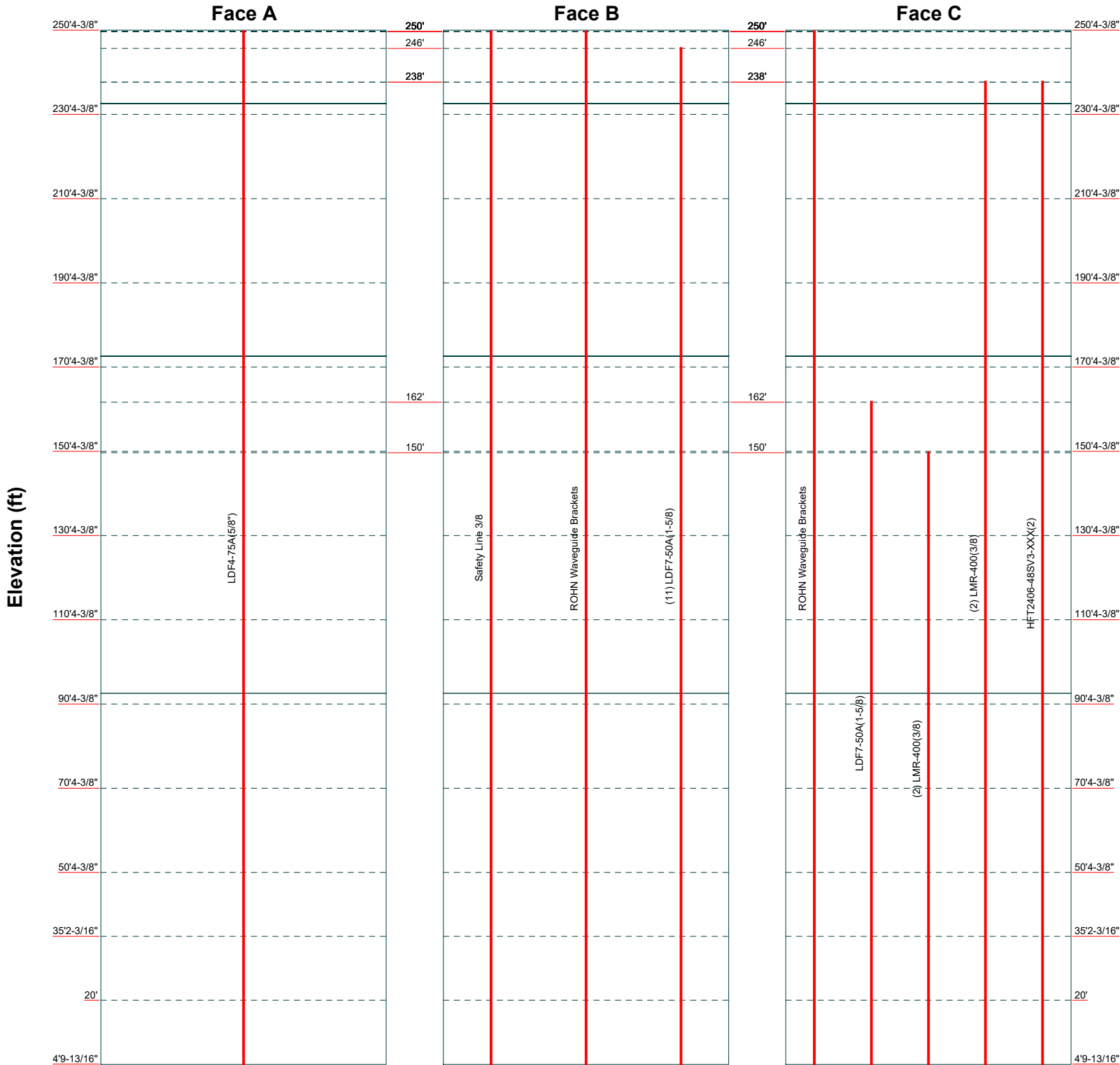


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Job:	25-006681 - COLUMBIA J-FL-012-094, FL (BU# 80932)		
Project:			
Client:	Crown Castle	Drawn by:	SK
Code:	TIA-222-H	Date:	09/03/25
Path:			
		App'd:	
		Scale:	NTS
		Dwg No.	E-6

Feed Line Distribution Chart
4'9-13/16" - 250'4-3/8"

Round Flat App In Face App Out Face Truss Leg



tnxTower B+T Group 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 587-4630	Job 25-006681 - COLUMBIA J-FL-012-094, FL (BU# 809329)	Page 1 of 59
	Project	Date 17:58:37 09/03/25
	Client Crown Castle	Designed by SK

Tower Input Data

The main tower is a 3x guyed tower with an overall height of 250'4-3/8" 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 6" 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: 151'.

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.

TIA-222-H Annex S.

Pressures are calculated at each section.

Stress ratio used in tower member design is 1.

Safety factor used in guy design is 1.

Tower analysis based on target reliabilities in accordance with Annex S.

Load Modification Factors used: $K_{cs}(F_w) = 0.95$.

Maximum demand-capacity ratio is: 1.05.

Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

tnxTower

B+T Group
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Tulsa, OK 74119
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Job

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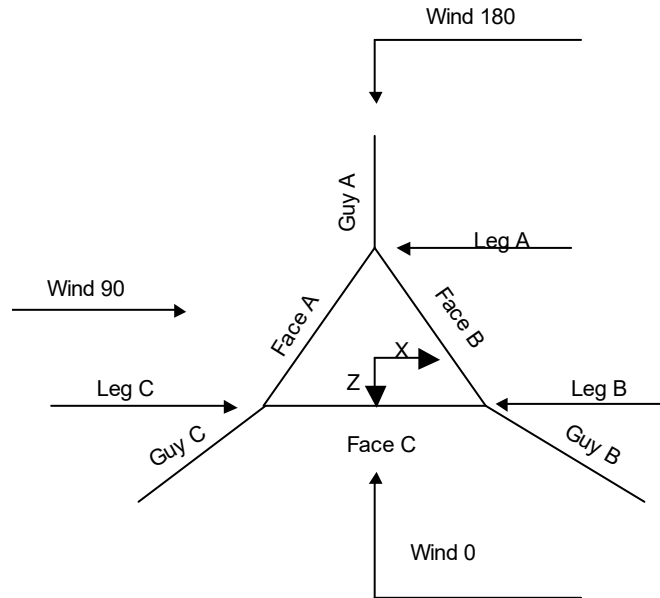
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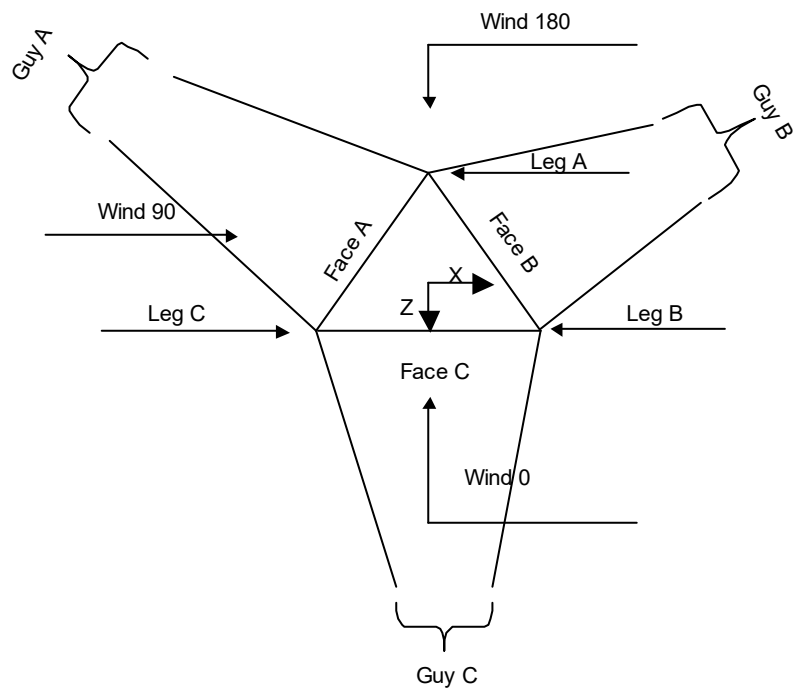
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Corner & Starmount Guyed Tower

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Face Guyed

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	250'4-3/8"-230'4-3/8"			3'5"	1	20'
T2	230'4-3/8"-210'4-3/8"			3'5"	1	20'
T3	210'4-3/8"-190'4-3/8"			3'5"	1	20'
T4	190'4-3/8"-170'4-3/8"			3'5"	1	20'
T5	170'4-3/8"-150'4-3/8"			3'5"	1	20'
T6	150'4-3/8"-130'4-3/8"			3'5"	1	20'
T7	130'4-3/8"-110'4-3/8"			3'5"	1	20'
T8	110'4-3/8"-90'4-3/8"			3'5"	1	20'

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Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T9	90'4-3/8"-70'4-3/8"			3'5"	1	20'
T10	70'4-3/8"-50'4-3/8"			3'5"	1	20'
T11	50'4-3/8"-35'2-3/16"			3'5"	1	15'2-3/16"
T12	35'2-3/16"-20'			3'5"	1	15'2-3/16"
T13	20'-4'9-13/16"			3'5"	1	15'2-3/16"
T14	4'9-13/16"-0'			3'5"	1	4'9-13/16"

Tower Section Geometry (cont'd)

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	250'4-3/8"-230'4-3/8"	2'4-29/32"	X Brace	No	No	7.375	1.375
T2	230'4-3/8"-210'4-3/8"	2'4-29/32"	CX Brace	No	No	7.375	1.375
T3	210'4-3/8"-190'4-3/8"	2'4-29/32"	CX Brace	No	No	7.375	1.375
T4	190'4-3/8"-170'4-3/8"	2'4-29/32"	X Brace	No	No	7.375	1.375
T5	170'4-3/8"-150'4-3/8"	2'4-29/32"	CX Brace	No	No	7.375	1.375
T6	150'4-3/8"-130'4-3/8"	2'4-29/32"	K Brace Left	No	No	7.375	1.375
T7	130'4-3/8"-110'4-3/8"	2'4-29/32"	K Brace Left	No	No	7.375	1.375
T8	110'4-3/8"-90'4-3/8"	2'4-29/32"	CX Brace	No	No	7.375	1.375
T9	90'4-3/8"-70'4-3/8"	2'4-29/32"	CX Brace	No	No	7.375	1.375
T10	70'4-3/8"-50'4-3/8"	2'4-29/32"	K Brace Left	No	No	7.375	1.375
T11	50'4-3/8"-35'2-3/16"	2'4-29/32"	K Brace Left	No	No	7.375	1.375
T12	35'2-3/16"-20'	2'4-29/32"	K Brace Left	No	No	7.375	1.375
T13	20'-4'9-13/16"	2'4-29/32"	K Brace Left	No	No	7.375	1.375
T14	4'9-13/16"-0'	1'2-7/16"	X Brace	No	Yes	0.000	0.000

Tower Section Geometry (cont'd)

Tower Elevation	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
ft						
T1 250'4-3/8"-230'4-3/8"	Pipe	ROHN 2.5 X-STR	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T2 230'4-3/8"-210'4-	Pipe	ROHN 2.5 X-STR	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)

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Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
3/8" T3 210'4-3/8"-190'4-3/8"	Pipe	ROHN 2.5 X-STR	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)
3/8" T4 190'4-3/8"-170'4-3/8"	Pipe	ROHN 3 EHH	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
3/8" T5 170'4-3/8"-150'4-3/8"	Pipe	ROHN 3 EHH	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
3/8" T6 150'4-3/8"-130'4-3/8"	Pipe	ROHN 3 X-STR	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
3/8" T7 130'4-3/8"-110'4-3/8"	Pipe	ROHN 3 X-STR	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
3/8" T8 110'4-3/8"-90'4-3/8"	Pipe	ROHN 3 X-STR	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
8" T9 90'4-3/8"-70'4-3/8"	Pipe	ROHN 3 X-STR	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
8" T10 70'4-3/8"-50'4-3/8"	Pipe	ROHN 3 EHH	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)
8" T11 50'4-3/8"-35'2-3/16"	Pipe	ROHN 3 EHH	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
16" T12 35'2-3/16"-20'	Pipe	ROHN 3 EHH	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
16" T13 20'-4'9-13/16"	Pipe	ROHN 3 EHH	A572-50 (50 ksi)	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)
0" T14 4'9-13/16"-0'	Pipe	ROHN 3 EHH	A572-50 (50 ksi)	Pipe		A500-42 (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 250'4-3/8"-230'4-3/8"	Equal Angle	L2x2x1/4	A36 (36 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T2 230'4-3/8"-210'4-3/8"	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
T3 210'4-3/8"-190'4-3/8"	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)
T4 190'4-3/8"-170'4-3/8"	Equal Angle	L2x2x1/4	A36 (36 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T5 170'4-3/8"-150'4-3/8"	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
T6	Pipe	ROHN 1.5 x 16GA	A53-B-42	Pipe	ROHN 1.5 x 16GA	A53-B-42

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Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
150'4-3/8"-130'4-3/8"			(42 ksi)			(42 ksi)
T7	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
130'4-3/8"-110'4-3/8"						
T8	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
110'4-3/8"-90'4-3/8"						
T9	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
90'4-3/8"-70'4-3/8"						
T10	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)
70'4-3/8"-50'4-3/8"						
T11	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
50'4-3/8"-35'2-3/16"						
T12	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)	Pipe	ROHN 1.5 x 16GA	A53-B-42 (42 ksi)
35'2-3/16"-20'						
T13	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)	Pipe	ROHN 1.5 x 11GA	A500-42 (42 ksi)
20'-4'9-13/16"						

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
T14 4'9-13/16"-0'	None	Single Angle		A36 (36 ksi)	Equal Angle	L4x4x1/4	A36 (36 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	Gusset Area (per face) ft ²	Gusset Thickness in	Gusset Grade	Adjust. Factor A _f	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 250'4-3/8"-230'4-3/8"	0.000	0.375	A36 (36 ksi)	1.07	1	1.05	41.000	41.000	41.000
T2 230'4-3/8"-210'4-3/8"	0.000	0.176	A36 (36 ksi)	1	1.03	1.05	41.000	41.000	41.000
T3 210'4-3/8"-190'4-3/8"	0.000	0.176	A36 (36 ksi)	1	1.03	1.05	41.000	41.000	41.000
T4 190'4-3/8"-170'4-3/8"	0.000	0.375	A36 (36 ksi)	1.07	1	1.05	41.000	41.000	41.000
T5	0.000	0.212	A36	1	1.03	1.05	41.000	41.000	41.000

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Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
ft	ft ²	in							
170'4-3/8"-150'4-3/8"			(36 ksi)						
T6	0.000	0.212	A36	1	1.03	1.05	41.000	41.000	41.000
150'4-3/8"-130'4-3/8"			(36 ksi)						
T7	0.000	0.212	A36	1	1.03	1.05	41.000	41.000	41.000
130'4-3/8"-110'4-3/8"			(36 ksi)						
T8	0.000	0.212	A36	1	1.03	1.05	41.000	41.000	41.000
110'4-3/8"-90'4-3/8"			(36 ksi)						
T9	0.000	0.212	A36	1	1.03	1.05	41.000	41.000	41.000
90'4-3/8"-70'4-3/8"			(36 ksi)						
T10	0.000	0.212	A36	1	1.03	1.05	41.000	41.000	41.000
70'4-3/8"-50'4-3/8"			(36 ksi)						
T11	0.000	0.212	A36	1	1.03	1.05	41.000	41.000	41.000
50'4-3/8"-35'2-3/16"			(36 ksi)						
T12	0.000	0.212	A36	1	1.03	1.05	41.000	41.000	41.000
35'2-3/16"-20'4-3/8"			(36 ksi)						
T13	0.000	0.212	A36	1	1.03	1.05	41.000	41.000	41.000
20'4-9-13/16"			(36 ksi)						
T14	0.000	0.000	A36	1	1	1.05	41.000	41.000	41.000
4'9-13/16"-0'			(36 ksi)						

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 Y	X Y	X Y	X Y	X Y	X Y	X Y
ft										
T1	Yes	No	1	1	1	1	1	1	1	1
250'4-3/8"-230'4-3/8"				1	1	1	1	1	1	1
T2	No	No	1	1	1	1	1	1	1	1
230'4-3/8"-210'4-3/8"				1	1	1	1	1	1	1
T3	No	No	1	1	1	1	1	1	1	1
210'4-3/8"-190'4-3/8"				1	1	1	1	1	1	1
T4	Yes	No	1	1	1	1	1	1	1	1
190'4-3/8"-170'4-3/8"				1	1	1	1	1	1	1
T5	No	No	1	1	1	1	1	1	1	1
170'4-3/8"-150'4-3/8"				1	1	1	1	1	1	1
T6	No	No	1	1	1	1	1	1	1	1
150'4-3/8"-130'4-3/8"				1	1	1	1	1	1	1
T7	No	No	1	1	1	1	1	1	1	1
130'4-3/8"-110'4-3/8"				1	1	1	1	1	1	1

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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
T8 110'4-3/8"-90'4-3/8"	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75
T9 90'4-3/8"-70'4-3/8"	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75
T10 70'4-3/8"-50'4-3/8"	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75
T11 50'4-3/8"-35'2-3/16"	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75
T12 35'2-3/16"-20'	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75
T13 20'-4'9-13/16"	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75
T14 4'9-13/16"-0'	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical	Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	Net Width Deduct in	U	Net Width Deduct in	U
T1 250'4-3/8"-230'4-3/8"	0.000	0.75 (1)	0.000	0.75 (1)	0.000	0.75	0.000	0.75	0.000	0.75		0.000	0.75 (1)
	0.000	0.75 (2)	0.000	0.75 (2)						0.000	0.75 (2)	0.000	0.75 (2)
	0.000	0.75 (3)	0.000	0.75 (3)						0.000	0.75 (3)	0.000	0.75 (3)
	0.000	0.75 (4)	0.000	0.75 (4)						0.000	0.75 (4)	0.000	0.75 (4)
T2 230'4-3/8"-210'4-3/8"	0.000	0.75 (1)	0.000	0.75 (1)	0.000	0.75	0.000	0.75	0.000	0.75		0.000	0.75 (1)
	0.000	0.75 (2)	0.000	0.75 (2)						0.000	0.75 (2)	0.000	0.75 (2)
	0.000	0.75 (3)	0.000	0.75 (3)						0.000	0.75 (3)	0.000	0.75 (3)
	0.000	0.75 (4)	0.000	0.75 (4)						0.000	0.75 (4)	0.000	0.75 (4)
T3 210'4-3/8"-190'4-3/8"	0.000	0.75 (1)	0.000	0.75 (1)	0.000	0.75	0.000	0.75	0.000	0.75		0.000	0.75 (1)
	0.000	0.75 (2)	0.000	0.75 (2)						0.000	0.75 (2)	0.000	0.75 (2)
	0.000	0.75 (3)	0.000	0.75 (3)						0.000	0.75 (3)	0.000	0.75 (3)
	0.000	0.75 (4)	0.000	0.75 (4)						0.000	0.75 (4)	0.000	0.75 (4)

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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	Net Width Deduct in	U	Net Width Deduct in	U
T4 190'4-3/8"-170' 4-3/8"	0.000	0.75 (1)	0.000	0.75 (1)	0.000	0.75	0.000	0.75	0.000	0.75	0.75 (1)	0.000	0.75 (1)
	0.000	0.75 (2)	0.000	0.75 (2)						0.000	0.75 (2)	0.000	0.75 (2)
	0.000	0.75 (3)	0.000	0.75 (3)						0.000	0.75 (3)	0.000	0.75 (3)
	0.000	0.75 (4)	0.000	0.75 (4)						0.000	0.75 (4)	0.000	0.75 (4)
T5 170'4-3/8"-150' 4-3/8"	0.000	0.75 (1)	0.000	0.75 (1)	0.000	0.75	0.000	0.75	0.000	0.75	0.75 (1)	0.000	0.75 (1)
	0.000	0.75 (2)	0.000	0.75 (2)						0.000	0.75 (2)	0.000	0.75 (2)
	0.000	0.75 (3)	0.000	0.75 (3)						0.000	0.75 (3)	0.000	0.75 (3)
	0.000	0.75 (4)	0.000	0.75 (4)						0.000	0.75 (4)	0.000	0.75 (4)
T6 150'4-3/8"-130' 4-3/8"	0.000	0.75 (1)	0.000	0.75 (1)	0.000	0.75	0.000	0.75	0.000	0.75	0.75 (1)	0.000	0.75 (1)
	0.000	0.75 (2)	0.000	0.75 (2)						0.000	0.75 (2)	0.000	0.75 (2)
	0.000	0.75 (3)	0.000	0.75 (3)						0.000	0.75 (3)	0.000	0.75 (3)
	0.000	0.75 (4)	0.000	0.75 (4)						0.000	0.75 (4)	0.000	0.75 (4)
T7 130'4-3/8"-110' 4-3/8"	0.000	0.75 (1)	0.000	0.75 (1)	0.000	0.75	0.000	0.75	0.000	0.75	0.75 (1)	0.000	0.75 (1)
	0.000	0.75 (2)	0.000	0.75 (2)						0.000	0.75 (2)	0.000	0.75 (2)
	0.000	0.75 (3)	0.000	0.75 (3)						0.000	0.75 (3)	0.000	0.75 (3)
	0.000	0.75 (4)	0.000	0.75 (4)						0.000	0.75 (4)	0.000	0.75 (4)
T8 110'4-3/8"-90'4 -3/8"	0.000	0.75 (1)	0.000	0.75 (1)	0.000	0.75	0.000	0.75	0.000	0.75	0.75 (1)	0.000	0.75 (1)
	0.000	0.75 (2)	0.000	0.75 (2)						0.000	0.75 (2)	0.000	0.75 (2)
	0.000	0.75 (3)	0.000	0.75 (3)						0.000	0.75 (3)	0.000	0.75 (3)
	0.000	0.75 (4)	0.000	0.75 (4)						0.000	0.75 (4)	0.000	0.75 (4)
T9 90'4-3/8"-70'4- 3/8"	0.000	0.75 (1)	0.000	0.75 (1)	0.000	0.75	0.000	0.75	0.000	0.75	0.75 (1)	0.000	0.75 (1)
	0.000	0.75 (2)	0.000	0.75 (2)						0.000	0.75 (2)	0.000	0.75 (2)
	0.000	0.75 (3)	0.000	0.75 (3)						0.000	0.75 (3)	0.000	0.75 (3)
	0.000	0.75 (4)	0.000	0.75 (4)						0.000	0.75 (4)	0.000	0.75 (4)
T10 70'4-3/8"-50'4- 3/8"	0.000	0.75 (1)	0.000	0.75 (1)	0.000	0.75	0.000	0.75	0.000	0.75	0.75 (1)	0.000	0.75 (1)

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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
T11 50'4-3/8"-35'2- 3/16"	0.000	0.75 (2)	0.000	0.75 (2)							0.000	0.75 (2)	0.000	0.75 (2)
	0.000	0.75 (3)	0.000	0.75 (3)							0.000	0.75 (3)	0.000	0.75 (3)
	0.000	0.75 (4)	0.000	0.75 (4)							0.000	0.75 (4)	0.000	0.75 (4)
	0.000	0.75 (1)	0.000	0.75 (1)	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75 (1)	0.000	0.75 (1)
	0.000	0.75 (2)	0.000	0.75 (2)							0.000	0.75 (2)	0.000	0.75 (2)
	0.000	0.75 (3)	0.000	0.75 (3)							0.000	0.75 (3)	0.000	0.75 (3)
T12 35'2-3/16"-20'	0.000	0.75 (4)	0.000	0.75 (4)							0.000	0.75 (4)	0.000	0.75 (4)
	0.000	0.75 (1)	0.000	0.75 (1)	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75 (1)	0.000	0.75 (1)
	0.000	0.75 (2)	0.000	0.75 (2)							0.000	0.75 (2)	0.000	0.75 (2)
	0.000	0.75 (3)	0.000	0.75 (3)							0.000	0.75 (3)	0.000	0.75 (3)
T13 20'-4'-9-13/16"	0.000	0.75 (4)	0.000	0.75 (4)							0.000	0.75 (4)	0.000	0.75 (4)
	0.000	0.75 (1)	0.000	0.75 (1)	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75 (1)	0.000	0.75 (1)
	0.000	0.75 (2)	0.000	0.75 (2)							0.000	0.75 (2)	0.000	0.75 (2)
	0.000	0.75 (3)	0.000	0.75 (3)							0.000	0.75 (3)	0.000	0.75 (3)
T14 4'-9-13/16"-0'	0.000	0.75 (4)	0.000	0.75 (4)							0.000	0.75 (4)	0.000	0.75 (4)
	0.000	0.75 (1)	0.000	0.75 (1)	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75 (1)	0.000	0.75 (1)
	0.000	0.75 (2)	0.000	0.75 (2)							0.000	0.75 (2)	0.000	0.75 (2)
	0.000	0.75 (3)	0.000	0.75 (3)							0.000	0.75 (3)	0.000	0.75 (3)
	0.000	0.75 (4)	0.000	0.75 (4)							0.000	0.75 (4)	0.000	0.75 (4)

Tower Section Geometry (cont'd)

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Tower Elevation	Connection Offsets							
	Diagonal				K-Bracing			
	Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.	Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.
ft	in	in	in	in	in	in	in	in
T1 250'4-3/8"-230' 4-3/8"	0.000	3.500	0.000	3.500	0.000	0.000	0.000	0.000
T2 230'4-3/8"-210' 4-3/8"	0.000	3.500	0.000	3.500	0.000	0.000	0.000	0.000
T3 210'4-3/8"-190' 4-3/8"	0.000	3.500	0.000	3.500	0.000	0.000	0.000	0.000
T4 190'4-3/8"-170' 4-3/8"	0.000	3.500	0.000	3.500	0.000	0.000	0.000	0.000
T5 170'4-3/8"-150' 4-3/8"	0.000	3.500	0.000	3.500	0.000	0.000	0.000	0.000
T6 150'4-3/8"-130' 4-3/8"	0.000	3.500	0.000	3.500	0.000	0.000	0.000	0.000
T7 130'4-3/8"-110' 4-3/8"	0.000	3.500	0.000	3.500	0.000	0.000	0.000	0.000
T8 110'4-3/8"-90'4 -3/8"	0.000	3.500	0.000	3.500	0.000	0.000	0.000	0.000
T9 90'4-3/8"-70'4- 3/8"	0.000	3.500	0.000	3.500	0.000	0.000	0.000	0.000
T10 70'4-3/8"-50'4- 3/8"	0.000	3.500	0.000	3.500	0.000	0.000	0.000	0.000
T11 50'4-3/8"-35'2- 3/16"	0.000	3.500	0.000	3.500	0.000	0.000	0.000	0.000
T12 35'2-3/16"-20'	0.000	3.500	0.000	3.500	0.000	0.000	0.000	0.000
T13 20'-4'9-13/16"	0.000	3.500	0.000	3.500	0.000	0.000	0.000	0.000
T14 4'9-13/16"-0'	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 250'4-3/8"-230' 4-3/8"	Flange	0.000 A325X	0	0.625 A325X	2	0.625 A325X	2	0.625 A325X	2	0.625 A325N	0	0.000 A325X	0	0.625 A325N	0

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172.888	EHS	A	3/4 (ROHN	5.830	10%	23000.000	1.155	262'8-19/32"	200'	0.000	0'	100%
		B	E=23000	5.830	10%	23000.000	1.155	262'8-19/32"	200'	0.000	0'	100%
		C	ksi)	5.830	10%	23000.000	1.155	262'8-19/32"	200'	0.000	0'	100%
			3/4 (ROHN									
			E=23000									
			ksi)									
			3/4 (ROHN									
			E=23000									
			ksi)									
232.888	EHS	A	3/4 (ROHN	5.830	10%	23000.000	1.155	305'6"	200'	0.000	0'	100%
		B	E=23000	5.830	10%	23000.000	1.155	305'6"	200'	0.000	0'	100%
		C	ksi)	5.830	10%	23000.000	1.155	305'6"	200'	0.000	0'	100%
			3/4 (ROHN									
			E=23000									
			ksi)									
			3/4 (ROHN									
			E=23000									
			ksi)									

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
92.888	Corner						
172.888	Torque Arm	6'10"	0.000	Channel	A36 (36 ksi)	Channel	C15x33.9
232.888	Torque Arm	6'10"	0.000	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
92'10-21/3 2"	A53-B-42 (42 ksi)	Pipe			No	A36 (36 ksi)	Double Equal Angle	2L2x2x1/4x3/8
172'10-21/ 32"	A53-B-42 (42 ksi)	Pipe			No	A36 (36 ksi)	Double Equal Angle	2L2x2x1/4x3/8
232'10-21/ 32"	A53-B-42 (42 ksi)	Pipe			No	A36 (36 ksi)	Double Equal Angle	2L2x2x1/4x3/8

Guy Data (cont'd)

Guy Elevation ft	Cable Weight A K	Cable Weight B K	Cable Weight C K	Cable Weight D K	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft
92.888	0.252	0.252	0.252		4'8-5/16"	4'8-5/16"	4'8-5/16"	

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Guy Elevation ft	Cable Weight A K	Cable Weight B K	Cable Weight C K	Cable Weight D K	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft
172.888	0.303	0.303	0.303		3.7 sec/pulse 6'8-3/4"	3.7 sec/pulse 6'8-3/4"	3.7 sec/pulse 6'8-3/4"	
232.888	0.353	0.353	0.353		4.5 sec/pulse 9'17/32"	4.5 sec/pulse 9'17/32"	4.5 sec/pulse 9'17/32"	
					5.2 sec/pulse	5.2 sec/pulse	5.2 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
92.888	Yes	No			1	1	1	1
172.888	Yes	No	1	1	1	1	1	1
232.888	Yes	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
92.888	0.750 A325N	8	0.000	1	0.625 A325N	2	0.000	0.75	0.000 A325N	0	0.000	1
172.888	0.875 A325N	2	0.000	0.75	0.625 A325N	2	0.000	0.75	0.000 A325N	0	0.000	1
232.888	0.875 A325N	2	0.000	0.75	0.625 A325N	2	0.000	0.75	0.000 A325N	0	0.000	1

Guy Pressures

Guy Elevation ft	Guy Location	z ft	q _z ksf	q _z Ice ksf	Ice Thickness in
92.888	A	46'5-5/16"	0.032		
	B	46'5-5/16"	0.032		
	C	46'5-5/16"	0.032		
172.888	A	86'5-5/16"	0.036		
	B	86'5-5/16"	0.036		
	C	86'5-5/16"	0.036		
232.888	A	116'5-5/16"	0.039		
	B	116'5-5/16"	0.039		
	C	116'5-5/16"	0.039		

Guy-Mast Forces (Excluding Wind) - No Ice

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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
92.888	A	25.130	5.937	0.000	2.625	-5.326	-5.177	0.000	0.000
			5.830						
	B	25.130	5.937	4.612	2.625	2.663	2.589	0.000	-4.484
			5.830						
	C	25.130	5.937	-4.612	2.625	2.663	2.589	-0.000	4.484
			5.830						
172.888			Sum:	0.000	7.874	0.000	0.000	0.000	0.000
	A	41.118	6.030	-0.077	4.051	-4.465	-7.991	15.408	-13.841
			5.830						
	A	41.118	6.030	0.077	4.051	-4.465	-7.991	-15.408	13.841
			5.830						
	B	41.118	6.030	3.906	4.051	2.166	15.982	15.408	0.000
			5.830						
	B	41.118	6.030	3.829	4.051	2.299	-7.991	-15.408	-13.841
			5.830						
	C	41.118	6.030	-3.829	4.051	2.299	-7.991	15.408	13.841
			5.830						
	C	41.118	6.030	-3.906	4.051	2.166	15.982	-15.408	0.000
			5.830						
232.888			Sum:	0.000	24.306	0.000	-0.000	0.000	0.000
	A	49.621	6.099	-0.067	4.720	-3.862	-9.310	13.327	-16.125
			5.830						
	A	49.621	6.099	0.067	4.720	-3.862	-9.310	-13.327	16.125
			5.830						
	B	49.621	6.099	3.378	4.720	1.873	18.620	13.327	0.000
			5.830						
	B	49.621	6.099	3.311	4.720	1.989	-9.310	-13.327	-16.125
			5.830						
	C	49.621	6.099	-3.311	4.720	1.989	-9.310	13.327	16.125
			5.830						
	C	49.621	6.099	-3.378	4.720	1.873	18.620	-13.327	0.000
			5.830						
			Sum:	0.000	28.318	0.000	-0.000	0.000	0.000

Guy-Mast Forces (Excluding Wind) - Service

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom K	F _x	F _y	F _z	M _x	M _y	M _z
ft		°		K	K	K	kip-ft	kip-ft	kip-ft
92.888	A	25.130	5.937	0.000	2.625	-5.326	-5.177	0.000	0.000
			5.830						
	B	25.130	5.937	4.612	2.625	2.663	2.589	0.000	-4.484
			5.830						
	C	25.130	5.937	-4.612	2.625	2.663	2.589	-0.000	4.484
			5.830						
172.888			Sum:	0.000	7.874	0.000	0.000	0.000	0.000
	A	41.118	6.030	-0.077	4.051	-4.465	-7.991	15.408	-13.841
			5.830						
	A	41.118	6.030	0.077	4.051	-4.465	-7.991	-15.408	13.841
			5.830						
	B	41.118	6.030	3.906	4.051	2.166	15.982	15.408	0.000

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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
232.888	B	41.118	5.830						
			6.030	3.829	4.051	2.299	-7.991	-15.408	-13.841
	C	41.118	5.830						
			6.030	-3.829	4.051	2.299	-7.991	15.408	13.841
	C	41.118	5.830						
			6.030	-3.906	4.051	2.166	15.982	-15.408	0.000
	A	49.621	5.830						
			Sum:	0.000	24.306	0.000	-0.000	0.000	0.000
	A	49.621	6.099	-0.067	4.720	-3.862	-9.310	13.327	-16.125
			5.830						
	B	49.621	6.099	0.067	4.720	-3.862	-9.310	-13.327	16.125
			5.830						
	B	49.621	6.099	3.378	4.720	1.873	18.620	13.327	0.000
			5.830						
	C	49.621	6.099	3.311	4.720	1.989	-9.310	-13.327	-16.125
			5.830						
	C	49.621	6.099	-3.311	4.720	1.989	-9.310	13.327	16.125
			5.830						
	C	49.621	6.099	-3.378	4.720	1.873	18.620	-13.327	0.000
			5.830						
			Sum:	0.000	28.318	0.000	-0.000	0.000	0.000

Guy-Tensioning Information

Temperature At Time Of Tensioning																
Guy Elevation ft	H ft	V ft	0 F		20 F		40 F		60 F		80 F		100 F		120 F	
			Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft	Initial Tension K	Intercept ft
92.888	A	198.03	92.89	8.071	3.40	7.303	3.75	6.553	4.18	5.830	4.69	5.143	5.31	4.506	6.06	3.933
	B	198.03	92.89	8.071	3.40	7.303	3.75	6.553	4.18	5.830	4.69	5.143	5.31	4.506	6.06	3.933
	C	198.03	92.89	8.071	3.40	7.303	3.75	6.553	4.18	5.830	4.69	5.143	5.31	4.506	6.06	3.933
172.888	A	198.06	172.89	7.365	5.34	6.841	5.75	6.329	6.20	5.830	6.73	5.348	7.32	4.888	8.00	4.453
	B	198.06	172.89	7.365	5.34	6.841	5.75	6.329	6.20	5.830	6.73	5.348	7.32	4.888	8.00	4.453
	C	198.06	172.89	7.365	5.34	6.841	5.75	6.329	6.20	5.830	6.73	5.348	7.32	4.888	8.00	4.453
232.888	A	198.06	232.89	6.959	7.60	6.575	8.04	6.199	8.52	5.830	9.04	5.470	9.63	5.122	10.27	4.786
	B	198.06	232.89	6.959	7.60	6.575	8.04	6.199	8.52	5.830	9.04	5.470	9.63	5.122	10.27	4.786
	C	198.06	232.89	6.959	7.60	6.575	8.04	6.199	8.52	5.830	9.04	5.470	9.63	5.122	10.27	4.786

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
Safety Line 3/8	B	No	No	Ar (CaAa)	250' - 0'	0.000	0.5	1	1	0.375	0.375		0.000
ROHN Waveguide Brackets	B	No	No	Af (CaAa)	250' - 0'	0.000	0	1	1	1.750	1.750		0.001
ROHN Waveguide	C	No	No	Af (CaAa)	250' - 0'	0.000	0	1	1	1.750	1.750		0.001

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Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
Brackets													
*													
LDF4-75A(5/8")	A	No	No	Ar (CaAa)	250' - 0'	0.000	-0.49	1	1	0.500	0.630		0.000
*													
LDF7-50A(1-5/8)	C	No	No	Ar (CaAa)	162' - 0'	0.000	0.35	1	1	0.500	1.980		0.001
*													
LMR-400(3/8)	C	No	No	Ar (CaAa)	150' - 0'	0.000	0.3	2	2	0.500	0.405		0.000
*													
LMR-400(3/8)	C	No	No	Ar (CaAa)	238' - 0'	0.000	-0.1	2	2	0.500	0.405		0.000
HFT2406-48S	C	No	No	Ar (CaAa)	238' - 0'	0.000	-0.4	1	1	0.500	2.000		0.003
V3-XXX(2)													
*													
LDF7-50A(1-5/8)	B	No	No	Ar (CaAa)	246' - 0'	0.000	-0.05	11	11	0.500	1.980		0.001
*													

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 klf
*								

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	250'4-3/8"-230'4-3/8"	A	0.000	0.000	1.237	0.000	0.003
		B	0.000	0.000	40.517	0.000	0.170
		C	0.000	0.000	7.873	0.000	0.050
T2	230'4-3/8"-210'4-3/8"	A	0.000	0.000	1.260	0.000	0.003
		B	0.000	0.000	50.143	0.000	0.210
		C	0.000	0.000	11.453	0.000	0.090
T3	210'4-3/8"-190'4-3/8"	A	0.000	0.000	1.260	0.000	0.003
		B	0.000	0.000	50.143	0.000	0.210
		C	0.000	0.000	11.453	0.000	0.090
T4	190'4-3/8"-170'4-3/8"	A	0.000	0.000	1.260	0.000	0.003
		B	0.000	0.000	50.143	0.000	0.210
		C	0.000	0.000	11.453	0.000	0.090
T5	170'4-3/8"-150'4-3/8"	A	0.000	0.000	1.260	0.000	0.003
		B	0.000	0.000	50.143	0.000	0.210
		C	0.000	0.000	13.757	0.000	0.100
T6	150'4-3/8"-130'4-3/8"	A	0.000	0.000	1.260	0.000	0.003
		B	0.000	0.000	50.143	0.000	0.210
		C	0.000	0.000	17.004	0.000	0.109
T7	130'4-3/8"-110'4-3/8"	A	0.000	0.000	1.260	0.000	0.003

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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
	/8"	B	0.000	0.000	50.143	0.000	0.210
		C	0.000	0.000	17.033	0.000	0.109
T8	110'4-3/8"-90'4-3/8"	A	0.000	0.000	1.260	0.000	0.003
		B	0.000	0.000	50.143	0.000	0.210
		C	0.000	0.000	17.033	0.000	0.109
T9	90'4-3/8"-70'4-3/8"	A	0.000	0.000	1.260	0.000	0.003
		B	0.000	0.000	50.143	0.000	0.210
		C	0.000	0.000	17.033	0.000	0.109
T10	70'4-3/8"-50'4-3/8"	A	0.000	0.000	1.260	0.000	0.003
		B	0.000	0.000	50.143	0.000	0.210
		C	0.000	0.000	17.033	0.000	0.109
T11	50'4-3/8"-35'2-3/16"	A	0.000	0.000	0.956	0.000	0.002
		B	0.000	0.000	38.065	0.000	0.160
		C	0.000	0.000	12.930	0.000	0.083
T12	35'2-3/16"-20'	A	0.000	0.000	0.956	0.000	0.002
		B	0.000	0.000	38.065	0.000	0.160
		C	0.000	0.000	12.930	0.000	0.083
T13	20'-4'9-13/16"	A	0.000	0.000	0.956	0.000	0.002
		B	0.000	0.000	38.065	0.000	0.160
		C	0.000	0.000	12.930	0.000	0.083
T14	4'9-13/16"-0'	A	0.000	0.000	0.304	0.000	0.001
		B	0.000	0.000	12.079	0.000	0.051
		C	0.000	0.000	4.103	0.000	0.026

Feed Line Center of Pressure

Section	Elevation ft	CP _x in	CP _z in	CP _x Ice in	CP _z Ice in
T1	250'4-3/8"-230'4-3/8"	2.309	-1.885	2.309	-1.885
T2	230'4-3/8"-210'4-3/8"	3.932	-2.354	3.932	-2.354
T3	210'4-3/8"-190'4-3/8"	3.932	-2.354	3.932	-2.354
T4	190'4-3/8"-170'4-3/8"	2.908	-1.948	2.901	-1.944
T5	170'4-3/8"-150'4-3/8"	3.270	-1.950	3.260	-1.945
T6	150'4-3/8"-130'4-3/8"	2.904	-1.718	2.895	-1.714
T7	130'4-3/8"-110'4-3/8"	2.895	-1.714	2.890	-1.712
T8	110'4-3/8"-90'4-3/8"	2.606	-1.580	2.605	-1.580
T9	90'4-3/8"-70'4-3/8"	2.657	-1.601	2.657	-1.601
T10	70'4-3/8"-50'4-3/8"	2.890	-1.712	2.890	-1.712
T11	50'4-3/8"-35'2-3/16"	2.875	-1.705	2.875	-1.705
T12	35'2-3/16"-20'	2.875	-1.705	2.875	-1.705
T13	20'-4'9-13/16"	2.875	-1.705	2.875	-1.705
T14	4'9-13/16"-0'	1.215	-0.795	1.215	-0.795

Shielding Factor Ka

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Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T1	1	Safety Line 3/8	230.36 - 250.00	0.6000	0.6000
T1	2	ROHN Waveguide Brackets	230.36 - 250.00	0.6000	0.6000
T1	3	ROHN Waveguide Brackets	230.36 - 250.00	0.6000	0.6000
T1	5	LDF4-75A(5/8")	230.36 - 250.00	0.6000	0.6000
T1	11	LMR-400(3/8)	230.36 - 238.00	0.6000	0.6000
T1	12	HFT2406-48SV3-XXX(2)	230.36 - 238.00	0.6000	0.6000
T1	14	LDF7-50A(1-5/8)	230.36 - 246.00	0.6000	0.6000
T2	1	Safety Line 3/8	210.36 - 230.36	0.6000	0.6000
T2	2	ROHN Waveguide Brackets	210.36 - 230.36	0.6000	0.6000
T2	3	ROHN Waveguide Brackets	210.36 - 230.36	0.6000	0.6000
T2	5	LDF4-75A(5/8")	210.36 - 230.36	0.6000	0.6000
T2	11	LMR-400(3/8)	210.36 - 230.36	0.6000	0.6000
T2	12	HFT2406-48SV3-XXX(2)	210.36 - 230.36	0.6000	0.6000
T2	14	LDF7-50A(1-5/8)	210.36 - 230.36	0.6000	0.6000
T3	1	Safety Line 3/8	190.36 - 210.36	0.6000	0.6000
T3	2	ROHN Waveguide Brackets	190.36 - 210.36	0.6000	0.6000
T3	3	ROHN Waveguide Brackets	190.36 - 210.36	0.6000	0.6000
T3	5	LDF4-75A(5/8")	190.36 - 210.36	0.6000	0.6000
T3	11	LMR-400(3/8)	190.36 - 210.36	0.6000	0.6000
T3	12	HFT2406-48SV3-XXX(2)	190.36 - 210.36	0.6000	0.6000
T3	14	LDF7-50A(1-5/8)	190.36 - 210.36	0.6000	0.6000
T4	1	Safety Line 3/8	170.36 - 190.36	0.6000	0.6000
T4	2	ROHN Waveguide Brackets	170.36 - 190.36	0.6000	0.6000
T4	3	ROHN Waveguide Brackets	170.36 - 190.36	0.6000	0.6000
T4	5	LDF4-75A(5/8")	170.36 - 190.36	0.6000	0.6000
T4	11	LMR-400(3/8)	170.36 - 190.36	0.6000	0.6000
T4	12	HFT2406-48SV3-XXX(2)	170.36 - 190.36	0.6000	0.6000
T4	14	LDF7-50A(1-5/8)	170.36 - 190.36	0.6000	0.6000
T5	1	Safety Line 3/8	150.36 - 170.36	0.6000	0.6000
T5	2	ROHN Waveguide Brackets	150.36 - 170.36	0.6000	0.6000
T5	3	ROHN Waveguide Brackets	150.36 -	0.6000	0.6000

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Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _o No Ice	K _o Ice
T5	5	LDF4-75A(5/8")	170.36 - 150.36	0.6000	0.6000
T5	7	LDF7-50A(1-5/8)	170.36 - 162.00	0.6000	0.6000
T5	11	LMR-400(3/8)	150.36 - 170.36	0.6000	0.6000
T5	12	HFT2406-48SV3-XXX(2)	150.36 - 170.36	0.6000	0.6000
T5	14	LDF7-50A(1-5/8)	150.36 - 170.36	0.6000	0.6000
T6	1	Safety Line 3/8	130.36 - 150.36	0.6000	0.6000
T6	2	ROHN Waveguide Brackets	130.36 - 150.36	0.6000	0.6000
T6	3	ROHN Waveguide Brackets	130.36 - 150.36	0.6000	0.6000
T6	5	LDF4-75A(5/8")	130.36 - 150.36	0.6000	0.6000
T6	7	LDF7-50A(1-5/8)	130.36 - 150.36	0.6000	0.6000
T6	9	LMR-400(3/8)	130.36 - 150.00	0.6000	0.6000
T6	11	LMR-400(3/8)	130.36 - 150.36	0.6000	0.6000
T6	12	HFT2406-48SV3-XXX(2)	130.36 - 150.36	0.6000	0.6000
T6	14	LDF7-50A(1-5/8)	130.36 - 150.36	0.6000	0.6000
T7	1	Safety Line 3/8	110.36 - 130.36	0.6000	0.6000
T7	2	ROHN Waveguide Brackets	110.36 - 130.36	0.6000	0.6000
T7	3	ROHN Waveguide Brackets	110.36 - 130.36	0.6000	0.6000
T7	5	LDF4-75A(5/8")	110.36 - 130.36	0.6000	0.6000
T7	7	LDF7-50A(1-5/8)	110.36 - 130.36	0.6000	0.6000
T7	9	LMR-400(3/8)	110.36 - 130.36	0.6000	0.6000
T7	11	LMR-400(3/8)	110.36 - 130.36	0.6000	0.6000
T7	12	HFT2406-48SV3-XXX(2)	110.36 - 130.36	0.6000	0.6000
T7	14	LDF7-50A(1-5/8)	110.36 - 130.36	0.6000	0.6000
T8	1	Safety Line 3/8	90.36 - 110.36	0.6000	0.6000
T8	2	ROHN Waveguide Brackets	90.36 - 110.36	0.6000	0.6000
T8	3	ROHN Waveguide Brackets	90.36 - 110.36	0.6000	0.6000
T8	5	LDF4-75A(5/8")	90.36 - 110.36	0.6000	0.6000
T8	7	LDF7-50A(1-5/8)	90.36 - 110.36	0.6000	0.6000
T8	9	LMR-400(3/8)	90.36 - 110.36	0.6000	0.6000
T8	11	LMR-400(3/8)	90.36 - 110.36	0.6000	0.6000
T8	12	HFT2406-48SV3-XXX(2)	90.36 - 110.36	0.6000	0.6000
T8	14	LDF7-50A(1-5/8)	90.36 - 110.36	0.6000	0.6000
T9	1	Safety Line 3/8	70.36 - 90.36	0.6000	0.6000
T9	2	ROHN Waveguide Brackets	70.36 - 90.36	0.6000	0.6000
T9	3	ROHN Waveguide Brackets	70.36 - 90.36	0.6000	0.6000
T9	5	LDF4-75A(5/8")	70.36 - 90.36	0.6000	0.6000
T9	7	LDF7-50A(1-5/8)	70.36 - 90.36	0.6000	0.6000
T9	9	LMR-400(3/8)	70.36 - 90.36	0.6000	0.6000

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Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _o No Ice	K _o Ice
T9	11	LMR-400(3/8)	70.36 - 90.36	0.6000	0.6000
T9	12	HFT2406-48SV3-XXX(2)	70.36 - 90.36	0.6000	0.6000
T9	14	LDF7-50A(1-5/8)	70.36 - 90.36	0.6000	0.6000
T10	1	Safety Line 3/8	50.36 - 70.36	0.6000	0.6000
T10	2	ROHN Waveguide Brackets	50.36 - 70.36	0.6000	0.6000
T10	3	ROHN Waveguide Brackets	50.36 - 70.36	0.6000	0.6000
T10	5	LDF4-75A(5/8")	50.36 - 70.36	0.6000	0.6000
T10	7	LDF7-50A(1-5/8)	50.36 - 70.36	0.6000	0.6000
T10	9	LMR-400(3/8)	50.36 - 70.36	0.6000	0.6000
T10	11	LMR-400(3/8)	50.36 - 70.36	0.6000	0.6000
T10	12	HFT2406-48SV3-XXX(2)	50.36 - 70.36	0.6000	0.6000
T10	14	LDF7-50A(1-5/8)	50.36 - 70.36	0.6000	0.6000
T11	1	Safety Line 3/8	35.18 - 50.36	0.6000	0.6000
T11	2	ROHN Waveguide Brackets	35.18 - 50.36	0.6000	0.6000
T11	3	ROHN Waveguide Brackets	35.18 - 50.36	0.6000	0.6000
T11	5	LDF4-75A(5/8")	35.18 - 50.36	0.6000	0.6000
T11	7	LDF7-50A(1-5/8)	35.18 - 50.36	0.6000	0.6000
T11	9	LMR-400(3/8)	35.18 - 50.36	0.6000	0.6000
T11	11	LMR-400(3/8)	35.18 - 50.36	0.6000	0.6000
T11	12	HFT2406-48SV3-XXX(2)	35.18 - 50.36	0.6000	0.6000
T11	14	LDF7-50A(1-5/8)	35.18 - 50.36	0.6000	0.6000
T12	1	Safety Line 3/8	20.00 - 35.18	0.6000	0.6000
T12	2	ROHN Waveguide Brackets	20.00 - 35.18	0.6000	0.6000
T12	3	ROHN Waveguide Brackets	20.00 - 35.18	0.6000	0.6000
T12	5	LDF4-75A(5/8")	20.00 - 35.18	0.6000	0.6000
T12	7	LDF7-50A(1-5/8)	20.00 - 35.18	0.6000	0.6000
T12	9	LMR-400(3/8)	20.00 - 35.18	0.6000	0.6000
T12	11	LMR-400(3/8)	20.00 - 35.18	0.6000	0.6000
T12	12	HFT2406-48SV3-XXX(2)	20.00 - 35.18	0.6000	0.6000
T12	14	LDF7-50A(1-5/8)	20.00 - 35.18	0.6000	0.6000
T13	1	Safety Line 3/8	4.82 - 20.00	0.6000	0.6000
T13	2	ROHN Waveguide Brackets	4.82 - 20.00	0.6000	0.6000
T13	3	ROHN Waveguide Brackets	4.82 - 20.00	0.6000	0.6000
T13	5	LDF4-75A(5/8")	4.82 - 20.00	0.6000	0.6000
T13	7	LDF7-50A(1-5/8)	4.82 - 20.00	0.6000	0.6000
T13	9	LMR-400(3/8)	4.82 - 20.00	0.6000	0.6000
T13	11	LMR-400(3/8)	4.82 - 20.00	0.6000	0.6000
T13	12	HFT2406-48SV3-XXX(2)	4.82 - 20.00	0.6000	0.6000
T13	14	LDF7-50A(1-5/8)	4.82 - 20.00	0.6000	0.6000
T14	1	Safety Line 3/8	0.00 - 4.82	0.4785	0.4785
T14	2	ROHN Waveguide Brackets	0.00 - 4.82	0.4785	0.4785
T14	3	ROHN Waveguide Brackets	0.00 - 4.82	0.4785	0.4785
T14	5	LDF4-75A(5/8")	0.00 - 4.82	0.4785	0.4785
T14	7	LDF7-50A(1-5/8)	0.00 - 4.82	0.4785	0.4785
T14	9	LMR-400(3/8)	0.00 - 4.82	0.4785	0.4785
T14	11	LMR-400(3/8)	0.00 - 4.82	0.4785	0.4785
T14	12	HFT2406-48SV3-XXX(2)	0.00 - 4.82	0.4785	0.4785
T14	14	LDF7-50A(1-5/8)	0.00 - 4.82	0.4785	0.4785

Discrete Tower Loads

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
Lightning Rod 5/8" x 4'	C	From Leg	0.000 0' 9"	0.000	250'	No Ice	0.250	0.250	0.031
7'x2" Antenna Mount Pipe	C	From Leg	0.000 0' 3'6"	0.000	250'	No Ice	1.663	1.663	0.026
Flash Beacon Lighting	C	From Leg	0.000 0' 7"	0.000	250'	No Ice	2.700	2.700	0.050
5' x 2" Pipe Mount	B	From Leg	0.000 0' 2'6"	0.000	250'	No Ice	1.188	1.188	0.018

FFVV-65C-R3-V1_TMO w/ Mount Pipe	A	From Leg	4.000 0' 1'	0.000	246'	No Ice	12.969	6.196	0.157
FFVV-65C-R3-V1_TMO w/ Mount Pipe	B	From Leg	4.000 0' 1'	0.000	246'	No Ice	12.969	6.196	0.157
FFVV-65C-R3-V1_TMO w/ Mount Pipe	C	From Leg	4.000 0' 1'	0.000	246'	No Ice	12.969	6.196	0.157
AIR6449 B41_T-MOBILE w/ Mount Pipe	A	From Leg	4.000 0' 1'	0.000	246'	No Ice	5.187	2.705	0.128
AIR6449 B41_T-MOBILE w/ Mount Pipe	B	From Leg	4.000 0' 1'	0.000	246'	No Ice	5.187	2.705	0.128
AIR6449 B41_T-MOBILE w/ Mount Pipe	C	From Leg	4.000 0' 1'	0.000	246'	No Ice	5.187	2.705	0.128
RADIO 4460 B2/B25 B66_TMO	A	From Leg	4.000 0' 1'	0.000	246'	No Ice	2.139	1.686	0.109
RADIO 4460 B2/B25 B66_TMO	B	From Leg	4.000 0' 1'	0.000	246'	No Ice	2.139	1.686	0.109
RADIO 4460 B2/B25 B66_TMO	C	From Leg	4.000 0' 1'	0.000	246'	No Ice	2.139	1.686	0.109
RADIO 4480 B71_TMO	A	From Leg	4.000 0' 1'	0.000	246'	No Ice	2.852	1.383	0.093
RADIO 4480 B71_TMO	B	From Leg	4.000 0' 1'	0.000	246'	No Ice	2.852	1.383	0.093
RADIO 4480 B71_TMO	C	From Leg	4.000 0' 1'	0.000	246'	No Ice	2.852	1.383	0.093
(2) 8' x 2" Mount Pipe	A	From Leg	4.000 0' 0'	0.000	246'	No Ice	1.900	1.900	0.029
(2) 8' x 2" Mount Pipe	B	From Leg	4.000 0' 0'	0.000	246'	No Ice	1.900	1.900	0.029
(2) 8' x 2" Mount Pipe	C	From Leg	4.000 0' 0'	0.000	246'	No Ice	1.900	1.900	0.029

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
Sector Mount [SM 502-3] *	C	None	0'	0.000	246'	No Ice	29.820	29.820	1.673
(2) ODU600	B	From Leg	4.000 0'	0.000	238'	No Ice	0.901	0.425	0.011
NNSS-65C-HG-R2B_202411 02 w/ Mount Pipe	A	From Leg	4.000 0'	0.000	238'	No Ice	9.700	5.090	0.140
NNSS-65C-HG-R2B_202411 02 w/ Mount Pipe	B	From Leg	4.000 0'	0.000	238'	No Ice	9.700	5.090	0.140
NNSS-65C-HG-R2B_202411 02 w/ Mount Pipe	C	From Leg	4.000 0'	0.000	238'	No Ice	9.700	5.090	0.140
AIR 3283 B25 B66 w/ Mount Pipe	A	From Leg	4.000 0'	0.000	238'	No Ice	8.111	5.747	0.122
AIR 3283 B25 B66 w/ Mount Pipe	B	From Leg	4.000 0'	0.000	238'	No Ice	8.111	5.747	0.122
AIR 3283 B25 B66 w/ Mount Pipe	C	From Leg	4.000 0'	0.000	238'	No Ice	8.111	5.747	0.122
AIR 6419 B77D w/ Mount Pipe	A	From Leg	4.000 0'	0.000	238'	No Ice	3.430	1.950	0.078
AIR 6419 B77D w/ Mount Pipe	B	From Leg	4.000 0'	0.000	238'	No Ice	3.430	1.950	0.078
AIR 6419 B77D w/ Mount Pipe	C	From Leg	4.000 0'	0.000	238'	No Ice	3.430	1.950	0.078
RADIO 4490HP 44B5 44B13 C	A	From Leg	4.000 0'	0.000	238'	No Ice	2.217	0.994	0.068
RADIO 4490HP 44B5 44B13 C	B	From Leg	4.000 0'	0.000	238'	No Ice	2.217	0.994	0.068
RADIO 4490HP 44B5 44B13 C	C	From Leg	4.000 0'	0.000	238'	No Ice	2.217	0.994	0.068
RVZDC-6627-PF-48_CCIV2	A	From Leg	4.000 0'	0.000	238'	No Ice	4.056	3.098	0.032
8' x 2" Mount Pipe	A	From Leg	4.000 0'	0.000	238'	No Ice	1.900	1.900	0.029
8' x 2" Mount Pipe	B	From Leg	4.000 0'	0.000	238'	No Ice	1.900	1.900	0.029
8' x 2" Mount Pipe	C	From Leg	4.000 0'	0.000	238'	No Ice	1.900	1.900	0.029
6' x 2" Horizontal Mount Pipe	B	From Leg	4.000 0'	0.000	238'	No Ice	1.140	0.010	0.016

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
10' x 2.375" Horizontal Mount Pipe	A	From Leg	4.000 0' 0'	0.000	238'	No Ice	2.380	0.010	0.037
10' x 2.375" Horizontal Mount Pipe	B	From Leg	4.000 0' 0'	0.000	238'	No Ice	2.380	0.010	0.037
10' x 2.375" Horizontal Mount Pipe	C	From Leg	4.000 0' 0'	0.000	238'	No Ice	2.380	0.010	0.037
Sector Mount [SM 502-3] *	C	None		0.000	238'	No Ice	29.820	29.820	1.673
4' x 2" Horizontal Face Mount Pipe *	A	From Leg	0.500 0' 0'	0.000	162'	No Ice	0.870	0.010	0.015
ODU 5-11 GHZ	A	From Leg	1.000 0' 0'	0.000	150'	No Ice	0.585	0.705	0.018
ODU 5-11 GHZ	C	From Leg	1.000 0' 0'	0.000	150'	No Ice	0.585	0.705	0.018
7'X2" Horizontal Pipe	B	From Leg	4.000 0' 0'	0.000	150'	No Ice	1.330	0.010	0.019
Pipe Mount [PM 602-1]	A	From Leg	0.500 0' 0'	0.000	150'	No Ice	2.780	2.780	0.093
Pipe Mount [PM 602-1]	C	From Leg	0.500 0' 0'	0.000	150'	No Ice	2.780	2.780	0.093
*									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft ²	Weight K
Commscope VHLPX3-11W *	B	Paraboloid w/Shroud (HP)	From Leg	4.000 0' 0'	-17.000		238'	3.283	No Ice 8.467	0.053
P-24A72GN-S *	A	Grid	From Leg	1.000 0' 0'	-55.000		162'	6.000	No Ice 28.300	0.128
HP4-11	A	Paraboloid w/Shroud (HP)	From Leg	1.000 0' -1'	-72.000		150'	4.167	No Ice 13.635	0.085
HP2-11	C	Paraboloid	From	1.000	-90.000		150'	2.042	No Ice 3.270	0.030

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Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft ²	Weight K
		w/Shroud (HP)	Leg	0' 0'						
*										

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
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

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Comb. No.	Description
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	250.365 - 230.365	Leg	Max Tension	14	22.658	0.795	-0.417
			Max. Compression	45	-34.212	-0.393	0.172
			Max. Mx	49	-3.361	1.514	-0.373
			Max. My	4	9.273	-0.129	1.535
			Max. Vy	50	-1.561	0.726	0.255
			Max. Vx	41	-1.539	0.124	-0.891
		Diagonal	Max Tension	44	3.550	0.020	-0.002
			Max. Compression	50	-3.432	0.000	0.000
			Max. Mx	45	3.112	0.052	0.006
			Max. My	50	-3.427	-0.031	0.016
			Max. Vy	45	-0.031	0.052	0.006
			Max. Vx	50	0.008	0.000	0.000
		Top Girt	Max Tension	13	0.027	0.000	0.000
			Max. Compression	35	-0.043	0.000	0.000
			Max. Mx	16	-0.002	-0.006	0.000
			Max. My	9	-0.041	0.000	0.000
			Max. Vy	16	0.007	0.000	0.000
			Max. Vx	9	-0.000	0.000	0.000
		Bottom Girt	Max Tension	44	1.616	0.000	0.000
			Max. Compression	1	0.000	0.000	0.000
			Max. Mx	16	0.543	-0.006	0.000
			Max. My	9	0.803	0.000	0.000
			Max. Vy	16	0.007	0.000	0.000
			Max. Vx	9	-0.000	0.000	0.000
		Guy A	Bottom Tension	34	15.584		
			Top Tension	34	15.852		
			Top Cable Vert	34	12.273		

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T2	230.365 - 210.365	Guy B	Top Cable Norm	34	10.032		
			Top Cable Tan	34	0.005		
			Bot Cable Vert	34	-11.637		
			Bot Cable Norm	34	10.365		
			Bot Cable Tan	34	0.005		
			Bottom Tension	54	15.615		
			Top Tension	54	15.882		
			Top Cable Vert	54	12.296		
			Top Cable Norm	54	10.052		
			Top Cable Tan	54	0.004		
		Guy C	Bot Cable Vert	54	-11.660		
			Bot Cable Norm	54	10.385		
			Bot Cable Tan	54	0.005		
			Bottom Tension	14	16.073		
			Top Tension	14	16.341		
			Top Cable Vert	14	12.644		
			Top Cable Norm	14	10.351		
			Top Cable Tan	14	0.005		
			Bot Cable Vert	14	-12.008		
			Bot Cable Norm	14	10.684		
			Bot Cable Tan	14	0.005		
		Top Guy Pull-Off	Max Tension	14	8.265	0.000	0.000
			Max. Compression	44	-5.313	0.000	0.000
			Max. Mx	16	5.817	0.012	0.000
			Max. My	9	0.875	0.000	-0.000
			Max. Vy	16	-0.014	0.000	0.000
		Torque Arm Top	Max. Vx	9	0.000	0.000	0.000
			Max Tension	49	9.838	0.000	0.000
			Max. Compression	49	-3.489	0.000	0.000
			Max. Mx	14	-2.205	-42.105	0.000
			Max. My	9	-0.909	-22.887	0.000
		Leg	Max. Vy	14	12.396	-42.105	0.000
			Max. Vx	9	0.000	-22.887	0.000
			Max Tension	15	0.548	-0.491	0.328
			Max. Compression	45	-37.417	-0.043	-0.008
			Max. Mx	19	-3.980	-0.723	0.229
			Max. My	39	-4.052	0.215	-0.737
			Max. Vy	16	-1.427	-0.655	0.418
			Max. Vx	41	-1.542	0.103	-0.715
		Diagonal	Max Tension	13	0.760	0.000	0.000
			Max. Compression	14	-0.948	0.000	0.000
			Max. Mx	44	-0.499	0.001	0.000
			Max. My	4	-0.165	0.000	-0.000
			Max. Vy	44	-0.002	0.000	0.000
		Top Girt	Max. Vx	4	0.000	0.000	0.000
			Max Tension	14	0.961	0.000	0.000
			Max. Compression	1	0.000	0.000	0.000
			Max. Mx	46	0.345	0.002	0.000
			Max. My	9	0.574	0.000	-0.000
		Bottom Girt	Max. Vy	46	-0.002	0.000	0.000
			Max. Vx	9	0.000	0.000	0.000
			Max Tension	15	0.310	0.000	0.000
			Max. Compression	45	-0.018	0.000	0.000
			Max. Mx	56	0.199	0.002	0.000
T3	210.365 - 190.365	Leg	Max. My	9	0.204	0.000	-0.000
			Max. Vy	56	-0.002	0.000	0.000
			Max. Vx	9	0.000	0.000	0.000
			Max Tension	15	4.930	0.103	-0.018
			Max. Compression	45	-48.579	-0.063	0.014

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T4	190.365 - 170.365	Diagonal	Max. Mx	42	-6.011	0.487	-0.088
			Max. My	37	-4.262	0.109	-0.446
			Max. Vy	42	-1.319	-0.120	0.046
			Max. Vx	7	-1.125	-0.017	-0.107
			Max Tension	42	1.228	0.000	0.000
			Max. Compression	42	-1.735	0.000	0.000
		Top Girt	Max. Mx	44	0.028	0.003	0.000
			Max. My	9	-0.125	0.000	-0.000
			Max. Vy	44	-0.003	0.000	0.000
			Max. Vx	9	0.000	0.000	0.000
			Max Tension	55	0.393	0.000	0.000
			Max. Compression	1	0.000	0.000	0.000
		Bottom Girt	Max. Mx	56	0.254	0.003	0.000
			Max. My	9	0.234	0.000	-0.000
			Max. Vy	56	-0.004	0.000	0.000
			Max. Vx	9	0.000	0.000	0.000
			Max Tension	15	0.536	0.000	0.000
			Max. Compression	45	-0.195	0.000	0.000
		Leg	Max. Mx	14	0.490	0.003	0.000
			Max. My	19	0.284	0.000	-0.000
			Max. Vy	14	-0.004	0.000	0.000
			Max. Vx	19	0.000	0.000	0.000
			Max Tension	12	17.800	0.178	-0.064
			Max. Compression	42	-67.150	-0.036	0.084
		Diagonal	Max. Mx	48	-6.897	1.490	0.731
			Max. My	38	-6.719	0.474	-1.574
			Max. Vy	13	-2.663	-1.457	1.042
			Max. Vx	38	-2.819	0.474	-1.574
			Max Tension	42	1.939	-0.005	0.005
			Max. Compression	42	-5.110	0.050	0.011
		Top Girt	Max. Mx	42	1.783	0.064	0.001
			Max. My	18	-4.663	-0.003	-0.013
			Max. Vy	42	-0.037	0.064	0.001
			Max. Vx	18	-0.007	0.000	0.000
			Max Tension	55	0.529	0.000	0.000
			Max. Compression	1	0.000	0.000	0.000
		Bottom Girt	Max. Mx	14	0.376	-0.006	0.000
			Max. My	19	0.356	0.000	0.000
			Max. Vy	14	0.007	0.000	0.000
			Max. Vx	19	-0.000	0.000	0.000
			Max Tension	18	1.243	0.000	0.000
			Max. Compression	1	0.000	0.000	0.000
		Guy A	Max. Mx	52	0.676	-0.006	0.000
			Max. My	19	0.920	0.000	0.000
			Max. Vy	52	0.007	0.000	0.000
			Max. Vx	19	-0.000	0.000	0.000
			Bottom Tension	33	12.032		
			Top Tension	33	12.231		
		Guy B	Top Cable Vert	33	8.220		
			Top Cable Norm	33	9.057		
			Top Cable Tan	33	0.004		
			Bot Cable Vert	33	-7.718		
			Bot Cable Norm	33	9.230		
			Bot Cable Tan	33	0.003		
			Bottom Tension	48	12.371		
			Top Tension	48	12.570		
			Top Cable Vert	48	8.441		
			Top Cable Norm	48	9.313		
			Top Cable Tan	48	0.114		
			Bot Cable Vert	48	-7.940		

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T5	170.365 - 150.365	Guy C	Bot Cable Norm	48	9.485		
			Bot Cable Tan	48	0.126		
			Bottom Tension	13	12.907		
			Top Tension	13	13.106		
			Top Cable Vert	13	8.794		
			Top Cable Norm	13	9.718		
			Top Cable Tan	13	0.003		
			Bot Cable Vert	13	-8.292		
			Bot Cable Norm	13	9.891		
			Bot Cable Tan	13	0.004		
		Top Guy Pull-Off	Max Tension	12	7.455	0.000	0.000
			Max. Compression	42	-5.448	0.000	0.000
			Max. Mx	26	-3.927	0.012	0.000
			Max. My	19	1.820	0.000	-0.000
			Max. Vy	26	-0.014	0.000	0.000
		Torque Arm Top	Max. Vx	19	0.000	0.000	0.000
			Max Tension	47	8.863	0.000	0.000
			Max. Compression	42	-3.379	0.000	0.000
			Max. Mx	16	-1.466	-28.705	-0.000
			Max. My	19	-0.470	-16.382	-0.000
			Max. Vy	16	8.474	-28.705	-0.000
			Max. Vx	19	-0.000	-16.382	-0.000
			Max Tension	1	0.000	0.000	0.000
		Diagonal	Max. Compression	42	-64.867	-0.436	0.306
			Max. Mx	48	-6.898	1.192	0.561
			Max. My	38	-6.721	0.400	-1.251
			Max. Vy	13	-2.663	-1.152	0.827
			Max. Vx	38	-2.819	0.400	-1.251
			Max Tension	45	2.300	0.000	0.000
			Max. Compression	45	-2.620	0.000	0.000
			Max. Mx	49	-0.985	0.001	0.000
			Max. My	21	0.820	0.000	0.000
			Max. Vy	49	-0.002	0.000	0.000
		Top Girt	Max. Vx	21	-0.000	0.000	0.000
			Max Tension	12	0.828	0.000	0.000
			Max. Compression	1	0.000	0.000	0.000
			Max. Mx	52	0.793	0.002	0.000
			Max. Vy	52	-0.002	0.000	0.000
		Bottom Girt	Max. Vx	19	0.000	0.000	0.000
			Max Tension	38	0.504	0.000	0.000
			Max. Compression	10	-0.179	0.000	0.000
			Max. Mx	22	0.353	0.002	0.000
			Max. Vy	22	-0.002	0.000	0.000
T6	150.365 - 130.365	Leg	Max. Vx	21	-0.000	0.000	0.000
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	44	-44.081	-0.117	-0.126
			Max. Mx	42	-33.876	0.579	-0.442
			Max. My	2	-33.418	0.183	0.604
		Diagonal	Max. Vy	45	1.432	0.571	-0.435
			Max. Vx	40	-1.202	0.233	-0.397
			Max Tension	45	1.760	0.000	0.000
			Max. Compression	45	-2.034	0.000	0.000
			Max. Mx	46	1.250	0.001	0.000
			Max. My	51	0.745	0.000	-0.000
			Max. Vy	46	-0.002	0.000	0.000
			Max. Vx	51	0.000	0.000	0.000
		Top Girt	Max Tension	42	0.567	0.000	0.000
			Max. Compression	45	-0.314	0.000	0.000
			Max. Mx	22	0.256	0.002	0.000
			Max. Compression	44	-44.081	-0.117	-0.126
			Max. Mx	42	-33.876	0.579	-0.442
			Max. My	2	-33.418	0.183	0.604
			Max. Vy	45	1.432	0.571	-0.435
			Max. Vx	40	-1.202	0.233	-0.397
			Max Tension	45	1.760	0.000	0.000
			Max. Compression	45	-2.034	0.000	0.000
			Max. Mx	46	1.250	0.001	0.000
			Max. My	51	0.745	0.000	-0.000
			Max. Vy	46	-0.002	0.000	0.000
			Max. Vx	51	0.000	0.000	0.000
			Max Tension	42	0.567	0.000	0.000
			Max. Compression	45	-0.314	0.000	0.000
			Max. Mx	22	0.256	0.002	0.000

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T7	130.365 - 110.365	Bottom Girt	Max. Vy	22	-0.002	0.000	0.000
			Max. Vx	21	-0.000	0.000	0.000
			Max Tension	8	0.193	0.000	0.000
			Max. Compression	1	0.000	0.000	0.000
			Max. Mx	14	0.120	0.002	0.000
		Leg	Max. Vy	14	-0.002	0.000	0.000
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	13	-41.378	0.104	-0.240
			Max. Mx	21	-25.514	0.457	0.057
			Max. My	41	-30.278	-0.079	0.477
		Diagonal	Max. Vy	21	1.313	0.262	-0.121
			Max. Vx	41	1.314	-0.016	0.327
			Max Tension	41	1.912	0.000	0.000
			Max. Compression	11	-2.121	0.000	0.000
			Max. Mx	18	1.387	0.001	0.000
		Top Girt	Max. My	18	-0.962	0.000	0.000
			Max. Vy	18	-0.002	0.000	0.000
			Max. Vx	18	-0.000	0.000	0.000
			Max Tension	51	0.203	0.000	0.000
			Max. Compression	1	0.000	0.000	0.000
T8	110.365 - 90.3646	Bottom Girt	Max. Mx	44	0.099	0.002	0.000
			Max. Vy	44	-0.002	0.000	0.000
			Max. Vx	18	0.000	0.000	0.000
			Max Tension	11	0.576	0.000	0.000
			Max. Compression	41	-0.312	0.000	0.000
		Leg	Max. Mx	54	0.168	0.002	0.000
			Max. My	18	-0.203	0.000	-0.000
			Max. Vy	54	-0.002	0.000	0.000
			Max. Vx	18	0.000	0.000	0.000
			Max Tension	1	0.000	0.000	0.000
		Diagonal	Max. Compression	17	-44.012	-0.411	-0.025
			Max. Mx	17	-24.504	-0.915	0.232
			Max. My	39	-26.875	0.218	-0.913
			Max. Vy	12	-2.331	-0.911	0.497
			Max. Vx	37	-2.336	0.214	-0.913
		Top Girt	Max Tension	41	1.571	0.000	0.000
			Max. Compression	17	-2.917	0.000	0.000
			Max. Mx	18	1.027	0.001	0.000
			Max. My	18	0.365	0.000	0.000
			Max. Vy	18	-0.002	0.000	0.000
		Bottom Girt	Max. Vx	18	-0.000	0.000	0.000
			Max Tension	16	0.559	0.000	0.000
			Max. Compression	46	-0.054	0.000	0.000
			Max. Mx	54	0.209	0.002	0.000
			Max. My	18	0.043	0.000	-0.000
		Guy A	Max. Vy	54	-0.002	0.000	0.000
			Max. Vx	18	0.000	0.000	0.000
			Max Tension	44	0.461	0.000	0.000
			Max. Compression	1	0.000	0.000	0.000
			Max. Mx	12	0.398	0.002	0.000
		Top Cable Vert	Max. My	9	0.353	0.000	0.000
			Max. Vy	12	-0.002	0.000	0.000
			Max. Vx	9	-0.000	0.000	0.000
			Bottom Tension	41	13.882		
			Top Tension	41	13.989		
		Top Cable Norm	Top Cable Vert	41	6.082		
			Top Cable Norm	41	12.597		
			Top Cable Tan	41	0.058		
		Bot Cable Vert	Top Cable Tan	41	0.058		
			Bot Cable Vert	41	-5.737		

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T9	90.3646 - 70.3646	Guy B	Bot Cable Norm	41	12.640		
			Bot Cable Tan	41	0.079		
			Bottom Tension	51	13.901		
			Top Tension	51	14.008		
			Top Cable Vert	51	6.090		
			Top Cable Norm	51	12.615		
			Top Cable Tan	51	0.059		
			Bot Cable Vert	51	-5.746		
			Bot Cable Norm	51	12.658		
			Bot Cable Tan	51	0.079		
		Guy C	Bottom Tension	16	14.770		
			Top Tension	16	14.877		
			Top Cable Vert	16	6.448		
			Top Cable Norm	16	13.407		
			Top Cable Tan	16	0.001		
			Bot Cable Vert	16	-6.123		
			Bot Cable Norm	16	13.441		
			Bot Cable Tan	16	0.001		
			Max Tension	46	6.660	0.000	0.000
			Max. Compression	1	0.000	0.000	0.000
		Top Guy Pull-Off	Max. Mx	46	6.660	0.012	0.000
			Max. My	9	4.295	0.000	0.000
			Max. Vy	46	-0.014	0.000	0.000
			Max. Vx	9	-0.000	0.000	0.000
			Max Tension	1	0.000	0.000	0.000
		Leg	Max. Compression	14	-52.133	-0.230	-0.004
			Max. Mx	12	-29.088	-0.821	0.454
			Max. My	37	-30.671	0.089	-0.829
			Max. Vy	12	-2.332	-0.644	0.351
			Max. Vx	39	-2.338	0.157	-0.646
		Diagonal	Max Tension	21	1.899	0.000	0.000
			Max. Compression	17	-2.452	0.000	0.000
			Max. Mx	44	1.433	0.001	0.000
			Max. My	9	0.962	0.000	-0.000
			Max. Vy	44	-0.002	0.000	0.000
			Max. Vx	9	0.000	0.000	0.000
		Top Girt	Max Tension	12	0.863	0.000	0.000
			Max. Compression	1	0.000	0.000	0.000
			Max. Mx	16	0.342	0.002	0.000
			Max. My	9	0.490	0.000	0.000
			Max. Vy	16	-0.002	0.000	0.000
			Max. Vx	9	-0.000	0.000	0.000
		Bottom Girt	Max Tension	14	0.521	0.000	0.000
			Max. Compression	46	-0.019	0.000	0.000
			Max. Mx	45	-0.014	0.002	0.000
			Max. Vy	45	-0.002	0.000	0.000
		Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-64.176	0.077	-0.316
			Max. Mx	17	-47.729	0.711	-0.244
			Max. My	39	-49.907	-0.127	0.726
			Max. Vy	17	-1.554	-0.243	-0.101
			Max. Vx	37	-1.434	0.184	-0.159
		Diagonal	Max Tension	21	2.257	0.000	0.000
			Max. Compression	47	-2.522	0.000	0.000
			Max. Mx	21	-1.349	0.003	0.000
			Max. My	9	0.662	0.000	-0.000
			Max. Vy	21	-0.003	0.000	0.000
			Max. Vx	9	0.000	0.000	0.000
		Top Girt	Max Tension	47	0.826	0.000	0.000
T10	70.3646 - 50.3646	Leg	Max. Compression	14	-64.176	0.077	-0.316
			Max. Mx	17	-47.729	0.711	-0.244
			Max. My	39	-49.907	-0.127	0.726
			Max. Vy	17	-1.554	-0.243	-0.101
			Max. Vx	37	-1.434	0.184	-0.159
		Diagonal	Max Tension	21	2.257	0.000	0.000
			Max. Compression	47	-2.522	0.000	0.000
			Max. Mx	21	-1.349	0.003	0.000
			Max. My	9	0.662	0.000	-0.000
			Max. Vy	21	-0.003	0.000	0.000
			Max. Vx	9	0.000	0.000	0.000
		Top Girt	Max Tension	47	0.826	0.000	0.000

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T11	50.3646 - 35.1823	Bottom Girt	Max. Compression	21	-0.477	0.000	0.000
			Max. Mx	54	0.233	0.003	0.000
			Max. My	9	0.799	0.000	0.000
			Max. Vy	54	-0.004	0.000	0.000
			Max. Vx	9	-0.000	0.000	0.000
			Max Tension	12	0.302	0.000	0.000
			Max. Compression	1	0.000	0.000	0.000
			Max. Mx	24	0.265	0.003	0.000
			Max. My	11	0.032	0.000	-0.000
			Max. Vy	24	-0.004	0.000	0.000
		Leg	Max. Vx	11	0.000	0.000	0.000
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-65.077	0.032	-0.046
			Max. Mx	49	-59.604	-0.462	-0.109
			Max. My	39	-60.325	0.066	0.446
			Max. Vy	51	0.669	0.097	-0.054
			Max. Vx	9	-0.611	-0.180	-0.183
			Max Tension	9	0.736	0.000	0.000
		Diagonal	Max. Compression	39	-1.027	0.000	0.000
			Max. Mx	41	-0.075	0.001	0.000
			Max. My	11	0.553	0.000	-0.000
			Max. Vy	41	-0.002	0.000	0.000
			Max. Vx	11	0.000	0.000	0.000
			Max Tension	45	0.154	0.000	0.000
		Top Girt	Max. Compression	1	0.000	0.000	0.000
			Max. Mx	24	0.127	0.002	0.000
			Max. My	11	0.135	0.000	-0.000
			Max. Vy	24	-0.002	0.000	0.000
			Max. Vx	11	0.000	0.000	0.000
			Max Tension	39	0.206	0.000	0.000
		Bottom Girt	Max. Compression	1	0.000	0.000	0.000
			Max. Mx	43	0.148	0.002	0.000
			Max. My	41	0.100	0.000	-0.000
			Max. Vy	43	-0.002	0.000	0.000
			Max. Vx	41	0.000	0.000	0.000
T12	35.1823 - 20	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-63.907	-0.010	-0.304
			Max. Mx	14	-25.828	0.502	-0.088
			Max. My	9	-16.838	-0.029	-0.511
			Max. Vy	44	-1.309	-0.301	-0.100
			Max. Vx	34	1.115	-0.017	0.304
		Diagonal	Max Tension	44	1.483	0.000	0.000
			Max. Compression	44	-1.813	0.000	0.000
			Max. Mx	41	0.885	0.001	0.000
			Max. My	41	0.648	0.000	0.000
			Max. Vy	41	-0.002	0.000	0.000
			Max. Vx	41	-0.000	0.000	0.000
		Top Girt	Max Tension	9	0.289	0.000	0.000
			Max. Compression	39	-0.042	0.000	0.000
			Max. Mx	43	0.178	0.002	0.000
			Max. My	41	0.141	0.000	-0.000
			Max. Vy	43	-0.002	0.000	0.000
			Max. Vx	41	0.000	0.000	0.000
		Bottom Girt	Max Tension	44	0.235	0.000	0.000
			Max. Compression	14	-0.027	0.000	0.000
			Max. Mx	56	0.119	0.002	0.000
			Max. My	41	0.009	0.000	-0.000
			Max. Vy	56	-0.002	0.000	0.000
			Max. Vx	41	0.000	0.000	0.000
T13	20 - 4.81771	Leg	Max Tension	1	0.000	0.000	0.000

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T14	4.81771 - 0	Diagonal	Max. Compression	14	-56.130	-0.384	-0.207
			Max. Mx	50	-41.258	1.349	0.174
			Max. My	40	-41.278	0.312	-1.140
			Max. Vy	14	4.216	-1.016	0.767
			Max. Vx	39	4.070	0.261	-1.097
			Max Tension	44	2.206	0.000	0.000
			Max. Compression	4	-2.171	0.000	0.000
			Max. Mx	41	0.927	0.003	0.000
			Max. My	41	1.383	0.000	0.000
			Max. Vy	41	-0.003	0.000	0.000
			Max. Vx	41	-0.000	0.000	0.000
			Max Tension	9	0.499	0.000	0.000
		Top Girt	Max. Compression	39	-0.174	0.000	0.000
			Max. Mx	56	0.069	0.003	0.000
			Max. My	41	0.316	0.000	-0.000
			Max. Vy	56	-0.004	0.000	0.000
			Max. Vx	41	0.000	0.000	0.000
			Max Tension	37	1.855	0.000	0.000
		Bottom Girt	Max. Compression	1	0.000	0.000	0.000
			Max. Mx	54	1.346	0.003	0.000
			Max. My	11	1.486	0.000	-0.000
			Max. Vy	54	-0.004	0.000	0.000
			Max. Vx	11	0.000	0.000	0.000
			Max Tension	1	0.000	0.000	0.000
		Leg	Max. Compression	12	-44.855	0.128	0.079
			Max. Mx	44	-33.013	-0.922	-0.133
			Max. My	9	-38.214	-0.311	1.221
			Max. Vy	44	1.009	-0.922	-0.133
			Max. Vx	9	-0.937	-0.311	1.221
			Max Tension	37	6.381	-0.306	0.032
		Horizontal	Max. Compression	7	-0.232	0.218	-0.156
			Max. Mx	9	-0.192	0.660	-0.184
			Max. My	10	5.426	0.539	-0.258
			Max. Vy	9	0.916	0.660	-0.184
			Max. Vx	45	0.220	-0.345	0.061
			Max Tension	1	0.000	0.000	0.000
		Base Beam	Max. Compression	12	-14.350	0.192	-0.060
			Max. Mx	12	-40.454	-11.486	-0.079
			Max. My	9	-36.207	-10.763	-0.796
			Max. Vy	12	-40.454	-11.486	-0.079
			Max. Vx	9	-0.966	-10.763	-0.796

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Guy C @ 200 ft Elev 0 ft Azimuth 240 deg	Max. Vert	42	-3.113	-2.763	1.595
	Max. H _x	42	-3.113	-2.763	1.595
	Max. H _z	12	-46.116	-46.636	26.924
	Min. Vert	12	-46.116	-46.636	26.924
	Min. H _x	12	-46.116	-46.636	26.924
	Min. H _z	42	-3.113	-2.763	1.595
Guy B @ 200 ft Elev 0 ft	Max. Vert	22	-4.374	4.130	2.378

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Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Azimuth 120 deg	Max. H _x	47	-43.302	44.110	24.718
	Max. H _z	52	-43.529	43.597	25.183
	Min. Vert	52	-43.529	43.597	25.183
	Min. H _x	22	-4.374	4.130	2.378
	Min. H _z	22	-4.374	4.130	2.378
Guy A @ 200 ft Elev 0 ft Azimuth 0 deg	Max. Vert	2	-4.611	0.005	-5.045
Mast	Max. H _x	47	-24.966	1.648	-28.671
	Max. H _z	2	-4.611	0.005	-5.045
	Min. Vert	32	-43.087	-0.015	-49.858
	Min. H _x	17	-25.390	-1.651	-29.199
	Min. H _z	37	-42.803	0.652	-50.047
	Max. Vert	12	110.870	-2.426	1.450
	Max. H _x	49	108.749	3.039	-0.060
	Max. H _z	9	108.516	-1.479	2.684
	Max. M _x	1	0.000	-0.103	-0.000
	Max. M _z	1	0.000	-0.103	-0.000
	Max. Torsion	39	1.770	1.593	-2.635
	Min. Vert	1	85.582	-0.103	-0.000
	Min. H _x	19	108.804	-3.005	-0.044
	Min. H _z	39	108.574	1.593	-2.635
	Min. M _x	1	0.000	-0.103	-0.000
	Min. M _z	1	0.000	-0.103	-0.000
	Min. Torsion	9	-1.810	-1.479	2.684

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	85.582	0.103	0.000	0.000	0.000	0.014
1.2 Dead+1.0 Wind 0 deg - No Ice+1.0 Guy	104.415	0.004	-2.391	0.000	0.000	1.296
1.2D+1.0W (pattern 1) 0 deg - No Ice+1.0 Guy	104.134	0.003	-1.316	0.000	0.000	1.301
1.2D+1.0W (pattern 2) 0 deg - No Ice+1.0 Guy	104.490	-0.003	-2.517	0.000	0.000	1.317
1.2D+1.0W (pattern 3) 0 deg - No Ice+1.0 Guy	103.464	0.004	-2.414	0.000	0.000	1.292
1.2D+1.0W (pattern 4) 0 deg - No Ice+1.0 Guy	100.845	0.004	-2.308	0.000	0.000	1.285
1.2 Dead+1.0 Wind 30 deg - No Ice+1.0 Guy	110.006	1.393	-2.496	0.000	0.000	1.723
1.2D+1.0W (pattern 1) 30 deg - No Ice+1.0 Guy	109.416	0.726	-1.346	0.000	0.000	1.733
1.2D+1.0W (pattern 2) 30 deg - No Ice+1.0 Guy	108.516	1.479	-2.684	0.000	0.000	1.810
1.2D+1.0W (pattern 3) 30 deg - No Ice+1.0 Guy	107.821	1.414	-2.557	0.000	0.000	1.722
1.2D+1.0W (pattern 4) 30 deg - No Ice+1.0 Guy	106.540	1.381	-2.467	0.000	0.000	1.718
1.2 Dead+1.0 Wind 60 deg - No Ice+1.0 Guy	110.870	2.426	-1.450	0.000	0.000	0.242
1.2D+1.0W (pattern 1) 60 deg - No Ice+1.0 Guy	110.555	1.274	-0.777	0.000	0.000	0.239

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Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
1.2D+1.0W (pattern 2) 60 deg - No Ice+1.0 Guy	109.788	2.606	-1.525	0.000	0.000	0.354
1.2D+1.0W (pattern 3) 60 deg - No Ice+1.0 Guy	109.461	2.471	-1.476	0.000	0.000	0.244
1.2D+1.0W (pattern 4) 60 deg - No Ice+1.0 Guy	108.619	2.390	-1.441	0.000	0.000	0.239
1.2 Dead+1.0 Wind 90 deg - No Ice+1.0 Guy	110.499	2.783	0.014	0.000	0.000	-1.375
1.2D+1.0W (pattern 1) 90 deg - No Ice+1.0 Guy	109.885	1.470	0.018	0.000	0.000	-1.386
1.2D+1.0W (pattern 2) 90 deg - No Ice+1.0 Guy	108.804	3.005	0.044	0.000	0.000	-1.258
1.2D+1.0W (pattern 3) 90 deg - No Ice+1.0 Guy	108.185	2.850	0.029	0.000	0.000	-1.373
1.2D+1.0W (pattern 4) 90 deg - No Ice+1.0 Guy	106.856	2.753	0.011	0.000	0.000	-1.383
1.2 Dead+1.0 Wind 120 deg - No Ice+1.0 Guy	104.651	2.037	1.186	0.000	0.000	-0.809
1.2D+1.0W (pattern 1) 120 deg - No Ice+1.0 Guy	104.344	1.106	0.649	0.000	0.000	-0.813
1.2D+1.0W (pattern 2) 120 deg - No Ice+1.0 Guy	104.669	2.154	1.253	0.000	0.000	-0.706
1.2D+1.0W (pattern 3) 120 deg - No Ice+1.0 Guy	103.624	2.057	1.198	0.000	0.000	-0.802
1.2D+1.0W (pattern 4) 120 deg - No Ice+1.0 Guy	100.923	1.962	1.143	0.000	0.000	-0.802
1.2 Dead+1.0 Wind 150 deg - No Ice+1.0 Guy	106.525	0.934	1.585	0.000	0.000	-0.071
1.2D+1.0W (pattern 1) 150 deg - No Ice+1.0 Guy	106.427	0.498	0.839	0.000	0.000	-0.072
1.2D+1.0W (pattern 2) 150 deg - No Ice+1.0 Guy	106.173	1.010	1.701	0.000	0.000	-0.010
1.2D+1.0W (pattern 3) 150 deg - No Ice+1.0 Guy	105.542	0.954	1.615	0.000	0.000	-0.070
1.2D+1.0W (pattern 4) 150 deg - No Ice+1.0 Guy	103.799	0.892	1.552	0.000	0.000	-0.065
1.2 Dead+1.0 Wind 180 deg - No Ice+1.0 Guy	109.238	-0.034	2.229	0.000	0.000	-1.329
1.2D+1.0W (pattern 1) 180 deg - No Ice+1.0 Guy	109.033	-0.033	1.179	0.000	0.000	-1.332
1.2D+1.0W (pattern 2) 180 deg - No Ice+1.0 Guy	108.484	-0.022	2.385	0.000	0.000	-1.334
1.2D+1.0W (pattern 3) 180 deg - No Ice+1.0 Guy	108.196	-0.035	2.271	0.000	0.000	-1.328
1.2D+1.0W (pattern 4) 180 deg - No Ice+1.0 Guy	107.187	-0.039	2.194	0.000	0.000	-1.322
1.2 Dead+1.0 Wind 210 deg - No Ice+1.0 Guy	110.072	-1.471	2.467	0.000	0.000	-1.675
1.2D+1.0W (pattern 1) 210 deg - No Ice+1.0 Guy	109.481	-0.808	1.315	0.000	0.000	-1.685
1.2D+1.0W (pattern 2) 210 deg - No Ice+1.0 Guy	108.574	-1.593	2.635	0.000	0.000	-1.770
1.2D+1.0W (pattern 3) 210 deg - No Ice+1.0 Guy	107.861	-1.514	2.516	0.000	0.000	-1.675
1.2D+1.0W (pattern 4) 210 deg - No Ice+1.0 Guy	106.542	-1.452	2.442	0.000	0.000	-1.672
1.2 Dead+1.0 Wind 240 deg - No Ice+1.0 Guy	107.340	-2.596	1.508	0.000	0.000	-0.206
1.2D+1.0W (pattern 1) 240 deg - No Ice+1.0 Guy	106.492	-1.439	0.840	0.000	0.000	-0.207
1.2D+1.0W (pattern 2) 240 deg	106.074	-2.775	1.604	0.000	0.000	-0.330

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Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
- No Ice+1.0 Guy						
1.2D+1.0W (pattern 3) 240 deg	105.012	-2.648	1.539	0.000	0.000	-0.215
- No Ice+1.0 Guy						
1.2D+1.0W (pattern 4) 240 deg	102.459	-2.568	1.493	0.000	0.000	-0.204
- No Ice+1.0 Guy						
1.2 Dead+1.0 Wind 270 deg -	110.297	-2.826	0.046	0.000	0.000	1.366
No Ice+1.0 Guy						
1.2D+1.0W (pattern 1) 270 deg	109.721	-1.511	0.047	0.000	0.000	1.376
- No Ice+1.0 Guy						
1.2D+1.0W (pattern 2) 270 deg	108.749	-3.039	0.060	0.000	0.000	1.260
- No Ice+1.0 Guy						
1.2D+1.0W (pattern 3) 270 deg	108.076	-2.890	0.059	0.000	0.000	1.363
- No Ice+1.0 Guy						
1.2D+1.0W (pattern 4) 270 deg	106.689	-2.793	0.041	0.000	0.000	1.374
- No Ice+1.0 Guy						
1.2 Dead+1.0 Wind 300 deg -	109.465	-1.924	-1.102	0.000	0.000	0.793
No Ice+1.0 Guy						
1.2D+1.0W (pattern 1) 300 deg	109.256	-1.016	-0.578	0.000	0.000	0.795
- No Ice+1.0 Guy						
1.2D+1.0W (pattern 2) 300 deg	108.652	-2.067	-1.185	0.000	0.000	0.709
- No Ice+1.0 Guy						
1.2D+1.0W (pattern 3) 300 deg	108.406	-1.961	-1.123	0.000	0.000	0.791
- No Ice+1.0 Guy						
1.2D+1.0W (pattern 4) 300 deg	107.353	-1.893	-1.085	0.000	0.000	0.792
- No Ice+1.0 Guy						
1.2 Dead+1.0 Wind 330 deg -	106.448	-0.886	-1.633	0.000	0.000	0.029
No Ice+1.0 Guy						
1.2D+1.0W (pattern 1) 330 deg	106.361	-0.459	-0.883	0.000	0.000	0.030
- No Ice+1.0 Guy						
1.2D+1.0W (pattern 2) 330 deg	106.115	-0.960	-1.748	0.000	0.000	-0.009
- No Ice+1.0 Guy						
1.2D+1.0W (pattern 3) 330 deg	105.523	-0.902	-1.665	0.000	0.000	0.027
- No Ice+1.0 Guy						
1.2D+1.0W (pattern 4) 330 deg	103.827	-0.877	-1.583	0.000	0.000	0.024
- No Ice+1.0 Guy						
Dead+Wind 0 deg -	86.544	-0.007	-0.609	0.000	0.000	0.348
Service+Guy						
Dead+Wind 30 deg -	86.467	0.382	-0.667	0.000	0.000	0.456
Service+Guy						
Dead+Wind 60 deg -	86.428	0.658	-0.392	0.000	0.000	0.072
Service+Guy						
Dead+Wind 90 deg -	86.466	0.747	-0.009	0.000	0.000	-0.348
Service+Guy						
Dead+Wind 120 deg -	86.541	0.511	0.302	0.000	0.000	-0.206
Service+Guy						
Dead+Wind 150 deg -	86.441	0.226	0.434	0.000	0.000	-0.013
Service+Guy						
Dead+Wind 180 deg -	86.383	-0.016	0.620	0.000	0.000	-0.341
Service+Guy						
Dead+Wind 210 deg -	86.465	-0.393	0.674	0.000	0.000	-0.432
Service+Guy						
Dead+Wind 240 deg -	86.543	-0.675	0.387	0.000	0.000	-0.052
Service+Guy						
Dead+Wind 270 deg -	86.470	-0.772	-0.003	0.000	0.000	0.358
Service+Guy						
Dead+Wind 300 deg -	86.387	-0.544	-0.307	0.000	0.000	0.211
Service+Guy						
Dead+Wind 330 deg -	86.450	-0.230	-0.391	0.000	0.000	0.022
Service+Guy						

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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	-29.794	0.000	-0.114	29.794	-0.000	0.384%
2	-0.415	-35.192	-37.016	0.415	35.192	37.019	0.006%
3	-0.415	-35.192	-34.573	0.415	35.192	34.575	0.003%
4	-0.294	-35.192	-33.799	0.294	35.192	33.799	0.001%
5	-0.415	-35.192	-34.338	0.415	35.192	34.332	0.012%
6	-0.371	-35.192	-33.104	0.370	35.191	33.067	0.076%
7	20.986	-34.813	-36.257	-20.993	34.813	36.241	0.033%
8	19.440	-34.813	-33.581	-19.439	34.814	33.585	0.009%
9	19.062	-34.813	-32.895	-19.062	34.814	32.901	0.012%
10	19.370	-34.813	-33.458	-19.379	34.813	33.436	0.045%
11	18.952	-34.813	-32.802	-18.959	34.813	32.780	0.044%
12	36.664	-34.435	-20.573	-36.689	34.436	20.603	0.071%
13	33.991	-34.435	-19.030	-34.011	34.435	19.048	0.051%
14	33.170	-34.435	-18.722	-33.202	34.436	18.738	0.069%
15	33.883	-34.435	-18.968	-33.909	34.436	18.999	0.078%
16	33.160	-34.435	-18.622	-33.176	34.436	18.657	0.076%
17	42.338	-34.813	0.288	-42.326	34.813	-0.272	0.036%
18	39.281	-34.813	0.288	-39.285	34.814	-0.292	0.010%
19	38.285	-34.813	0.199	-38.291	34.814	-0.202	0.013%
20	39.122	-34.813	0.288	-39.106	34.813	-0.269	0.047%
21	38.278	-34.813	0.263	-38.263	34.813	-0.245	0.046%
22	32.543	-35.192	18.714	-32.546	35.192	-18.716	0.007%
23	30.430	-35.192	17.494	-30.431	35.192	-17.495	0.004%
24	29.615	-35.192	17.036	-29.616	35.192	-17.036	0.002%
25	30.224	-35.192	17.376	-30.219	35.192	-17.373	0.013%
26	29.099	-35.192	16.744	-29.063	35.191	-16.723	0.084%
27	17.091	-34.813	28.707	-17.094	34.814	-28.709	0.009%
28	16.092	-34.813	26.977	-16.094	34.813	-26.978	0.005%
29	15.572	-34.813	26.307	-15.573	34.813	-26.310	0.007%
30	15.987	-34.813	26.794	-15.988	34.813	-26.796	0.005%
31	15.150	-34.813	25.474	-15.137	34.813	-25.473	0.030%
32	0.442	-34.435	36.545	-0.441	34.435	-36.566	0.040%
33	0.442	-34.435	34.111	-0.443	34.435	-34.126	0.031%
34	0.310	-34.435	33.346	-0.312	34.435	-33.367	0.044%
35	0.442	-34.435	33.946	-0.441	34.435	-33.968	0.045%
36	0.397	-34.435	32.716	-0.393	34.435	-32.733	0.037%
37	-21.109	-34.813	36.166	21.092	34.813	-36.164	0.033%
38	-19.564	-34.813	33.489	19.569	34.814	-33.491	0.010%
39	-19.144	-34.813	32.832	19.149	34.814	-32.836	0.013%
40	-19.493	-34.813	33.367	19.470	34.813	-33.363	0.045%
41	-19.068	-34.813	32.718	19.045	34.813	-32.713	0.044%
42	-37.047	-35.192	20.820	37.028	35.191	-20.809	0.040%
43	-34.366	-35.192	19.272	34.373	35.192	-19.276	0.016%
44	-33.580	-35.192	18.955	33.588	35.192	-18.959	0.017%
45	-34.197	-35.192	19.174	34.171	35.191	-19.160	0.056%
46	-33.438	-35.192	18.827	33.412	35.191	-18.812	0.057%
47	-42.294	-34.813	-0.329	42.285	34.813	0.342	0.029%
48	-39.237	-34.813	-0.329	39.241	34.814	0.325	0.010%
49	-38.293	-34.813	-0.230	38.299	34.814	0.227	0.013%
50	-39.078	-34.813	-0.329	39.064	34.813	0.346	0.041%
51	-38.200	-34.813	-0.297	38.186	34.813	0.313	0.043%
52	-32.189	-34.435	-18.539	32.206	34.435	18.549	0.039%
53	-30.083	-34.435	-17.323	30.095	34.435	17.330	0.029%
54	-29.285	-34.435	-16.854	29.303	34.435	16.864	0.043%
55	-29.939	-34.435	-17.240	29.957	34.435	17.251	0.043%
56	-28.786	-34.435	-16.602	28.799	34.435	16.611	0.035%

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Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
57	-17.117	-34.813	-28.695	17.118	34.813	28.699	0.008%
58	-16.119	-34.813	-26.965	16.119	34.813	26.968	0.005%
59	-15.617	-34.813	-26.308	15.619	34.813	26.310	0.007%
60	-16.014	-34.813	-26.783	16.015	34.813	26.784	0.004%
61	-15.149	-34.813	-25.454	15.154	34.813	25.443	0.026%
62	-0.109	-29.893	-9.746	0.109	29.893	9.738	0.026%
63	5.525	-29.794	-9.546	-5.533	29.794	9.538	0.035%
64	9.653	-29.694	-5.417	-9.660	29.694	5.421	0.025%
65	11.147	-29.794	0.076	-11.144	29.794	-0.065	0.034%
66	8.569	-29.893	4.928	-8.562	29.893	-4.924	0.025%
67	4.500	-29.794	7.559	-4.490	29.794	-7.563	0.036%
68	0.116	-29.694	9.623	-0.116	29.694	-9.636	0.044%
69	-5.558	-29.794	9.522	5.547	29.794	-9.525	0.035%
70	-9.754	-29.893	5.482	9.741	29.893	-5.474	0.047%
71	-11.135	-29.794	-0.087	11.132	29.794	0.097	0.034%
72	-8.475	-29.694	-4.881	8.487	29.694	4.888	0.042%
73	-4.507	-29.794	-7.556	4.483	29.794	7.513	0.158%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	16	0.00000001	0.00000000
2	Yes	17	0.00000001	0.00005149
3	Yes	17	0.00000001	0.00005675
4	Yes	17	0.00000001	0.00006237
5	Yes	16	0.00000001	0.00008166
6	Yes	16	0.00000001	0.00008044
7	Yes	17	0.00000001	0.00005467
8	Yes	17	0.00000001	0.00004527
9	Yes	17	0.00000001	0.00005280
10	Yes	17	0.00000001	0.00005862
11	Yes	18	0.00000001	0.00005200
12	Yes	14	0.00000001	0.00009046
13	Yes	13	0.00000001	0.00006998
14	Yes	14	0.00000001	0.00008308
15	Yes	14	0.00000001	0.00009544
16	Yes	14	0.00000001	0.00009811
17	Yes	17	0.00000001	0.00005808
18	Yes	17	0.00000001	0.00004846
19	Yes	17	0.00000001	0.00005561
20	Yes	17	0.00000001	0.00006126
21	Yes	18	0.00000001	0.00005516
22	Yes	17	0.00000001	0.00005433
23	Yes	17	0.00000001	0.00006015
24	Yes	17	0.00000001	0.00006544
25	Yes	16	0.00000001	0.00008679
26	Yes	16	0.00000001	0.00008785
27	Yes	16	0.00000001	0.00006773
28	Yes	16	0.00000001	0.00007016
29	Yes	16	0.00000001	0.00007649
30	Yes	16	0.00000001	0.00004930
31	Yes	15	0.00000001	0.00004466
32	Yes	14	0.00000001	0.00005042
33	Yes	13	0.00000001	0.00004777
34	Yes	14	0.00000001	0.00005464

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35	Yes	14	0.00000001	0.00005395
36	Yes	14	0.00000001	0.00004580
37	Yes	17	0.00000001	0.00005475
38	Yes	17	0.00000001	0.00004592
39	Yes	17	0.00000001	0.00005376
40	Yes	17	0.00000001	0.00005846
41	Yes	18	0.00000001	0.00005244
42	Yes	17	0.00000001	0.00006979
43	Yes	17	0.00000001	0.00007079
44	Yes	17	0.00000001	0.00008182
45	Yes	17	0.00000001	0.00006803
46	Yes	18	0.00000001	0.00005750
47	Yes	17	0.00000001	0.00005275
48	Yes	17	0.00000001	0.00004880
49	Yes	17	0.00000001	0.00005522
50	Yes	17	0.00000001	0.00005513
51	Yes	18	0.00000001	0.00005092
52	Yes	14	0.00000001	0.00004821
53	Yes	13	0.00000001	0.00004000
54	Yes	14	0.00000001	0.00005194
55	Yes	14	0.00000001	0.00005200
56	Yes	14	0.00000001	0.00004257
57	Yes	16	0.00000001	0.00006424
58	Yes	16	0.00000001	0.00006641
59	Yes	16	0.00000001	0.00007214
60	Yes	16	0.00000001	0.00004627
61	Yes	15	0.00000001	0.00004044
62	Yes	12	0.00000001	0.00004431
63	Yes	12	0.00000001	0.00005485
64	Yes	12	0.00000001	0.00004213
65	Yes	12	0.00000001	0.00005377
66	Yes	12	0.00000001	0.00004354
67	Yes	11	0.00000001	0.00007771
68	Yes	11	0.00000001	0.00008737
69	Yes	12	0.00000001	0.00005507
70	Yes	12	0.00000001	0.00006787
71	Yes	12	0.00000001	0.00005351
72	Yes	11	0.00000001	0.00008516
73	Yes	20	0.00000001	0.00000000

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	250.365 - 230.365	1.839	64	0.104	0.049
T2	230.365 - 210.365	1.363	64	0.080	0.047
T3	210.365 - 190.365	1.058	64	0.053	0.054
T4	190.365 - 170.365	0.848	64	0.027	0.060
T5	170.365 - 150.365	0.775	64	0.010	0.065
T6	150.365 - 130.365	0.856	64	0.020	0.110
T7	130.365 - 110.365	0.902	64	0.004	0.122
T8	110.365 - 90.3646	0.843	64	0.013	0.124
T9	90.3646 - 70.3646	0.799	70	0.006	0.122
T10	70.3646 - 50.3646	0.860	70	0.002	0.118
T11	50.3646 - 35.1823	0.816	70	0.026	0.107
T12	35.1823 - 20	0.667	70	0.051	0.084
T13	20 - 4.81771	0.411	70	0.073	0.052
T14	4.81771 - 0	0.089	70	0.086	0.029

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Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
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Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
250'	Lightning Rod 5/8" x 4'	64	1.830	0.103	0.049	77410
246'	FFVV-65C-R3-V1_TMO w/ Mount Pipe	64	1.727	0.099	0.049	77410
238'	Commscope VHLPX3-11W	64	1.529	0.089	0.048	31303
232'10-21/32"	Guy	64	1.414	0.083	0.048	22380
172'10-21/32"	Guy	64	0.774	0.010	0.062	23442
162'	P-24A72GN-S	64	0.799	0.015	0.082	49895
150'	HP2-11	64	0.857	0.020	0.110	61269
149'	HP4-11	64	0.862	0.019	0.112	56035
92'10-21/32"	Guy	70	0.797	0.007	0.123	28254

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	250.365 - 230.365	11.240	44	0.678	0.273
T2	230.365 - 210.365	7.932	44	0.582	0.268
T3	210.365 - 190.365	5.890	18	0.469	0.299
T4	190.365 - 170.365	4.510	18	0.321	0.325
T5	170.365 - 150.365	3.906	16	0.157	0.342
T6	150.365 - 130.365	4.238	21	0.130	0.505
T7	130.365 - 110.365	4.475	21	0.091	0.534
T8	110.365 - 90.3646	4.257	46	0.118	0.514
T9	90.3646 - 70.3646	4.224	46	0.119	0.512
T10	70.3646 - 50.3646	4.386	46	0.059	0.499
T11	50.3646 - 35.1823	4.001	46	0.151	0.452
T12	35.1823 - 20	3.200	46	0.262	0.342
T13	20 - 4.81771	1.945	46	0.354	0.203
T14	4.81771 - 0	0.420	46	0.405	0.111

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
250'	Lightning Rod 5/8" x 4'	44	11.177	0.676	0.273	20211
246'	FFVV-65C-R3-V1_TMO w/ Mount Pipe	44	10.486	0.658	0.272	20211
238'	Commscope VHLPX3-11W	44	9.137	0.620	0.269	8173
232'10-21/32"	Guy	44	8.318	0.595	0.268	5822
172'10-21/32"	Guy	13	3.935	0.177	0.330	4273
162'	P-24A72GN-S	16	4.002	0.115	0.406	6278

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Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
150'	HP2-11	21	4.247	0.130	0.507	11992
149'	HP4-11	21	4.270	0.129	0.513	12063
92'10-21/32"	Guy	46	4.213	0.118	0.514	6890

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	250.365	Diagonal	A325X	0.625	2	1.775	8.224	0.216	1.05	Member Block Shear
		Top Girt	A325X	0.625	2	0.296	8.224	0.036	1.05	Member Block Shear
		Bottom Girt	A325X	0.625	2	0.808	8.224	0.098	1.05	Member Block Shear
		Top Guy Pull-Off@232.888	A325N	0.625	2	4.132	16.856	0.245	1.05	Member Block Shear
		Torque Arm Top@232.888	A325N	0.875	2	4.919	27.059	0.182	1.05	Bolt Shear
T2	230.365	Leg	A325X	0.750	4	2.851	30.101	0.095	1.05	Bolt Tension
		Diagonal	A325X	0.500	1	0.948	7.016	0.135	1.05	Member Bearing
		Top Girt	A325X	0.500	1	0.961	5.919	0.162	1.05	Member Bearing
		Bottom Girt	A325X	0.500	1	0.648	5.919	0.109	1.05	Member Bearing
T3	210.365	Leg	A325X	0.750	4	3.118	30.101	0.104	1.05	Bolt Tension
		Diagonal	A325X	0.500	1	1.735	9.777	0.177	1.05	Gusset Bearing
		Top Girt	A325X	0.500	1	0.841	9.777	0.086	1.05	Gusset Bearing
		Bottom Girt	A325X	0.500	1	0.841	9.777	0.086	1.05	Gusset Bearing
T4	190.365	Leg	A325X	0.750	4	4.049	30.101	0.135	1.05	Bolt Tension
		Diagonal	A325X	0.625	2	2.555	17.257	0.148	1.05	Bolt Shear
		Top Girt	A325X	0.625	2	0.582	8.224	0.071	1.05	Member Block Shear
		Bottom Girt	A325X	0.625	2	0.621	8.224	0.076	1.05	Member Block Shear
		Top Guy Pull-Off@172.888	A325N	0.625	2	3.728	16.856	0.221	1.05	Member Block Shear
T5	170.365	Torque Arm Top@172.888	A325N	0.875	2	4.432	27.059	0.164	1.05	Bolt Shear
		Leg	A325X	0.750	4	5.406	30.101	0.180	1.05	Bolt Tension
		Diagonal	A325X	0.500	1	2.300	5.919	0.389	1.05	Member Bearing
		Top Girt	A325X	0.500	1	1.124	5.919	0.190	1.05	Member Bearing
		Bottom Girt	A325X	0.500	1	1.124	5.919	0.190	1.05	Member Bearing
T6	150.365	Leg	A325X	0.750	4	3.673	30.101	0.122	1.05	Bolt Tension
		Diagonal	A325X	0.500	1	1.760	5.919	0.297	1.05	Member Bearing
		Top Girt	A325X	0.500	1	0.764	5.919	0.129	1.05	Member Bearing
		Bottom Girt	A325X	0.500	1	0.764	5.919	0.129	1.05	Member Bearing
T7	130.365	Leg	A325X	0.750	4	3.448	30.101	0.115	1.05	Bolt Tension
		Diagonal	A325X	0.500	1	1.912	5.919	0.323	1.05	Member Bearing
		Top Girt	A325X	0.500	1	0.717	5.919	0.121	1.05	Member Bearing
		Bottom Girt	A325X	0.500	1	0.717	5.919	0.121	1.05	Member Bearing
T8	110.365	Leg	A325X	0.750	4	2.989	30.101	0.099	1.05	Bolt Tension
		Diagonal	A325X	0.500	1	2.917	7.016	0.416	1.05	Member Bearing
		Top Girt	A325X	0.500	1	0.762	5.919	0.129	1.05	Member Bearing
		Bottom Girt	A325X	0.500	1	0.762	5.919	0.129	1.05	Member Bearing

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Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load Allowable	Allowable Ratio	Criteria
T9	90.3646	Top Guy	A325N	0.625	2	3.330	13.365	0.249	1.05	Gusset Bearing
		Pull-Off@92.888								
		Leg	A325X	0.750	4	3.651	30.101	0.121	1.05	Bolt Tension
T10	70.3646	Diagonal	A325X	0.500	1	2.452	7.016	0.349	1.05	Member Bearing
		Top Girt	A325X	0.500	1	0.903	5.919	0.153	1.05	Member Bearing
		Bottom Girt	A325X	0.500	1	0.903	5.919	0.153	1.05	Member Bearing
T11	50.3646	Leg	A325X	0.750	4	4.345	30.101	0.144	1.05	Bolt Tension
		Diagonal	A325X	0.500	1	2.522	11.045	0.228	1.05	Bolt Shear
		Top Girt	A325X	0.500	1	1.112	11.045	0.101	1.05	Bolt Shear
T12	35.1823	Bottom Girt	A325X	0.500	1	1.112	11.045	0.101	1.05	Bolt Shear
		Leg	A325X	0.750	4	5.349	30.101	0.178	1.05	Bolt Tension
		Diagonal	A325X	0.500	1	1.027	7.016	0.146	1.05	Member Bearing
T13	20	Top Girt	A325X	0.500	1	1.127	5.919	0.190	1.05	Member Bearing
		Bottom Girt	A325X	0.500	1	1.127	5.919	0.190	1.05	Member Bearing
		Leg	A325X	0.750	4	5.326	30.101	0.177	1.05	Bolt Tension
T14	4.81771	Diagonal	A325X	0.500	1	1.813	7.016	0.258	1.05	Member Bearing
		Top Girt	A325X	0.500	1	1.107	5.919	0.187	1.05	Member Bearing
		Bottom Girt	A325X	0.500	1	1.107	5.919	0.187	1.05	Member Bearing
T15		Leg	A325X	0.750	4	4.678	30.101	0.155	1.05	Bolt Tension
		Diagonal	A325X	0.500	1	2.206	11.045	0.200	1.05	Bolt Shear
		Top Girt	A325X	0.500	1	0.972	11.045	0.088	1.05	Bolt Shear
T16		Bottom Girt	A325X	0.500	1	1.855	11.045	0.168	1.05	Bolt Shear
		Leg	A325X	0.875	4	3.738	41.556	0.090	1.05	Bolt Tension

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T_u K	Allowable ϕT_n K	Required S.F.	Actual S.F.
T1	232'10-21/32" (A) (627)	3/4 (ROHN E=23000 ksi) EHS	5.830	58.300	15.852	36.729	0.952	2.207
	232'10-21/32" (A) (628)	3/4 (ROHN E=23000 ksi) EHS	5.830	58.300	15.480	36.729	0.952	2.260
	232'10-21/32" (B) (623)	3/4 (ROHN E=23000 ksi) EHS	5.830	58.300	15.689	36.729	0.952	2.230
	232'10-21/32" (B) (624)	3/4 (ROHN E=23000 ksi) EHS	5.830	58.300	15.882	36.729	0.952	2.202
	232'10-21/32" (C) (616)	3/4 (ROHN E=23000 ksi) EHS	5.830	58.300	16.261	36.729	0.952	2.151
	232'10-21/32" (C) (617)	3/4 (ROHN E=23000 ksi) EHS	5.830	58.300	16.341	36.729	0.952	2.141
	172'10-21/32" (A) (612)	3/4 (ROHN E=23000 ksi) EHS	5.830	58.300	12.231	36.729	0.952	2.860
T4	172'10-21/32" (A) (613)	3/4 (ROHN E=23000 ksi) EHS	5.830	58.300	11.787	36.729	0.952	2.968
	172'10-21/32"	3/4 (ROHN E=23000 ksi) EHS	5.830	58.300	11.921	36.729	0.952	2.934

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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.
T8	(B) (608)	E=23000 ksi) EHS						
	172'10-21/32" (B) (609)	3/4 (ROHN E=23000 ksi) EHS	5.830	58.300	12.570	36.729	0.952	2.783
	172'10-21/32" (C) (601)	3/4 (ROHN E=23000 ksi) EHS	5.830	58.300	13.106	36.729	0.952	2.669
	172'10-21/32" (C) (602)	3/4 (ROHN E=23000 ksi) EHS	5.830	58.300	12.944	36.729	0.952	2.702
	92'10-21/32" (A) (600)	3/4 (ROHN E=23000 ksi) EHS	5.830	58.300	13.989	36.729	0.952	2.501
	92'10-21/32" (B) (599)	3/4 (ROHN E=23000 ksi) EHS	5.830	58.300	14.008	36.729	0.952	2.497
	92'10-21/32" (C) (595)	3/4 (ROHN E=23000 ksi) EHS	5.830	58.300	14.877	36.729	0.952	2.351

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	250.365 - 230.365	ROHN 2.5 X-STR	20'	2'4-29/3 2"	31.3 K=1.00	2.254	-31.947	94.407	0.338 ¹
T2	230.365 - 210.365	ROHN 2.5 X-STR	20'	2'4-29/3 2"	31.3 K=1.00	2.254	-36.586	94.407	0.388 ¹
T3	210.365 - 190.365	ROHN 2.5 X-STR	20'	2'4-29/3 2"	31.3 K=1.00	2.254	-46.894	94.407	0.497 ¹
T4	190.365 - 170.365	ROHN 3 EHH	20'	2'4-29/3 2"	26.4 K=1.00	4.213	-67.150	180.159	0.373 ¹
T5	170.365 - 150.365	ROHN 3 EHH	20'	2'4-29/3 2"	26.4 K=1.00	4.213	-62.049	180.159	0.344 ¹
T6	150.365 - 130.365	ROHN 3 X-STR	20'	2'4-29/3 2"	50.9 K=2.00	3.016	-43.111	112.316	0.384 ¹
T7	130.365 - 110.365	ROHN 3 X-STR	20'	2'4-29/3 2"	50.9 K=2.00	3.016	-41.289	112.316	0.368 ¹
T8	110.365 - 90.3646	ROHN 3 X-STR	20'	2'4-29/3 2"	25.4 K=1.00	3.016	-44.012	129.445	0.340 ¹
T9	90.3646 - 70.3646	ROHN 3 X-STR	20'	2'4-29/3 2"	25.4 K=1.00	3.016	-50.184	129.445	0.388 ¹
T10	70.3646 - 50.3646	ROHN 3 EHH	20'	2'4-29/3 2"	52.9 K=2.00	4.213	-63.651	154.561	0.412 ¹
T11	50.3646 - 35.1823	ROHN 3 EHH	15'2-3/1 6"	2'4-29/3 2"	52.9 K=2.00	4.213	-65.077	154.561	0.421 ¹
T12	35.1823 - 20	ROHN 3 EHH	15'2-3/1 6"	2'4-29/3 2"	52.9 K=2.00	4.213	-63.315	154.561	0.410 ¹
T13	20 - 4.81771	ROHN 3 EHH	15'2-3/1	2'4-29/3	52.9	4.213	-54.845	154.561	0.355 ¹

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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 $\frac{P_u}{\phi P_n}$
T14	4.81771 - 0	ROHN 3 EHH	6" 5'1-1/4"	2" 1'3-5/16"	K=2.00 14.0 K=1.00	4.213	-38.214	186.904	0.204

¹ P_u / φP_n controls

Leg Bending Design Data (Compression)

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	250.365 - 230.365	ROHN 2.5 X-STR	0.000	7.018	0.000	0.000	7.018	0.000
T2	230.365 - 210.365	ROHN 2.5 X-STR	0.000	7.018	0.000	0.000	7.018	0.000
T3	210.365 - 190.365	ROHN 2.5 X-STR	0.000	7.018	0.000	0.000	7.018	0.000
T4	190.365 - 170.365	ROHN 3 EHH	0.000	15.505	0.000	0.000	15.505	0.000
T5	170.365 - 150.365	ROHN 3 EHH	0.000	15.505	0.000	0.000	15.505	0.000
T6	150.365 - 130.365	ROHN 3 X-STR	0.000	11.554	0.000	0.000	11.554	0.000
T7	130.365 - 110.365	ROHN 3 X-STR	0.000	11.554	0.000	0.000	11.554	0.000
T8	110.365 - 90.3646	ROHN 3 X-STR	0.000	11.554	0.000	0.000	11.554	0.000
T9	90.3646 - 70.3646	ROHN 3 X-STR	0.000	11.554	0.000	0.000	11.554	0.000
T10	70.3646 - 50.3646	ROHN 3 EHH	0.000	15.505	0.000	0.000	15.505	0.000
T11	50.3646 - 35.1823	ROHN 3 EHH	0.000	15.505	0.000	0.000	15.505	0.000
T12	35.1823 - 20	ROHN 3 EHH	0.000	15.505	0.000	0.000	15.505	0.000
T13	20 - 4.81771	ROHN 3 EHH	0.000	15.505	0.000	0.000	15.505	0.000
T14	4.81771 - 0	ROHN 3 EHH	1.260	15.505	0.081	0.000	15.505	0.000

Leg Interaction Design Data (Compression)

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	250.365 - 230.365	ROHN 2.5 X-STR	0.338	0.000	0.000	0.338 ¹	1.050	
T2	230.365 - 210.365	ROHN 2.5 X-STR	0.388	0.000	0.000	0.388 ¹	1.050	
T3	210.365 - 190.365	ROHN 2.5 X-STR	0.497	0.000	0.000	0.497 ¹	1.050	
T4	190.365 - 170.365	ROHN 3 EHH	0.373	0.000	0.000	0.373 ¹	1.050	
T5	170.365 - 150.365	ROHN 3 EHH	0.344	0.000	0.000	0.344 ¹	1.050	

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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
T6	150.365 - 130.365	ROHN 3 X-STR	0.384	0.000	0.000	0.384 ¹	1.050	
T7	130.365 - 110.365	ROHN 3 X-STR	0.368	0.000	0.000	0.368 ¹	1.050	
T8	110.365 - 90.3646	ROHN 3 X-STR	0.340	0.000	0.000	0.340 ¹	1.050	
T9	90.3646 - 70.3646	ROHN 3 X-STR	0.388	0.000	0.000	0.388 ¹	1.050	
T10	70.3646 - 50.3646	ROHN 3 EHH	0.412	0.000	0.000	0.412 ¹	1.050	
T11	50.3646 - 35.1823	ROHN 3 EHH	0.421	0.000	0.000	0.421 ¹	1.050	
T12	35.1823 - 20	ROHN 3 EHH	0.410	0.000	0.000	0.410 ¹	1.050	
T13	20 - 4.81771	ROHN 3 EHH	0.355	0.000	0.000	0.355 ¹	1.050	
T14	4.81771 - 0	ROHN 3 EHH	0.204	0.081	0.000	0.254	1.050	

¹ $P_u / \phi P_n$ controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in ²	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	250.365 - 230.365	L2x2x1/4	3'8-5/8"	1'7-15/16"	68.2 K=1.34	0.938	-3.432	28.823	0.119 ¹
T2	230.365 - 210.365	ROHN 1.5 x 16GA	3'8-5/8"	3'8-5/8"	87.5 K=1.00	0.263	-0.948	6.208	0.153 ¹
T3	210.365 - 190.365	ROHN 1.5 x 11GA	3'8-5/8"	3'8-5/8"	91.1 K=1.00	0.520	-1.735	11.809	0.147 ¹
T4	190.365 - 170.365	L2x2x1/4	3'8-5/8"	1'7-15/16"	68.2 K=1.34	0.938	-5.110	28.823	0.177 ¹
T5	170.365 - 150.365	ROHN 1.5 x 16GA	3'8-5/8"	3'8-5/8"	87.5 K=1.00	0.263	-2.620	6.208	0.422 ¹
T6	150.365 - 130.365	ROHN 1.5 x 16GA	3'8-5/8"	3'8-5/8"	87.5 K=1.00	0.263	-2.034	6.208	0.328 ¹
T7	130.365 - 110.365	ROHN 1.5 x 16GA	3'8-5/8"	3'8-5/8"	87.5 K=1.00	0.263	-2.121	6.208	0.342 ¹
T8	110.365 - 90.3646	ROHN 1.5 x 16GA	3'8-5/8"	3'8-5/8"	87.5 K=1.00	0.263	-2.917	6.208	0.470 ¹
T9	90.3646 - 70.3646	ROHN 1.5 x 16GA	3'8-5/8"	3'8-5/8"	87.5 K=1.00	0.263	-2.452	6.208	0.395 ¹
T10	70.3646 - 50.3646	ROHN 1.5 x 11GA	3'8-5/8"	3'8-5/8"	91.1 K=1.00	0.520	-2.522	11.809	0.214 ¹
T11	50.3646 - 35.1823	ROHN 1.5 x 16GA	3'8-5/8"	3'8-5/8"	87.5 K=1.00	0.263	-1.027	6.208	0.165 ¹
T12	35.1823 - 20	ROHN 1.5 x 16GA	3'8-5/8"	3'8-5/8"	87.5 K=1.00	0.263	-1.813	6.208	0.292 ¹
T13	20 - 4.81771	ROHN 1.5 x 11GA	3'8-5/8"	3'8-5/8"	91.1 K=1.00	0.520	-2.171	11.809	0.184 ¹

¹ $P_u / \phi P_n$ controls

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Horizontal Design Data (Compression)

Section No.	Elevation	Size	L	L _u	Kl/r	A	P _u	φP _n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in ²	K	K	
T14	4.81771 - 0	L4x4x1/4	1'2-3/4"	11-1/4"	67.1 K=4.74	1.940	-0.786	58.253	0.013

Horizontal Bending Design Data

Section No.	Elevation	Size	M _{ux}	φM _{nx}	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M _{uy}	φM _{ny}	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
	ft		kip-ft	kip-ft		kip-ft	kip-ft	
T14	4.81771 - 0	L4x4x1/4	0.494	6.932	0.071	0.386	3.463	0.112

Horizontal Interaction Design Data

Section No.	Elevation	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
	ft							
T14	4.81771 - 0	L4x4x1/4	0.013	0.071	0.112	0.190	1.050	

Top Girt Design Data (Compression)

Section No.	Elevation	Size	L	L _u	Kl/r	A	P _u	φP _n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in ²	K	K	
T1	250.365 - 230.365	L2x2x1/4	3'5"	2'9-3/8"	102.7 K=1.20	0.938	-0.593	22.573	0.026 ¹
T2	230.365 - 210.365	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7 K=1.00	0.263	-0.648	7.049	0.092 ¹
T3	210.365 - 190.365	ROHN 1.5 x 11GA	3'5"	3'2-1/8"	77.8 K=1.00	0.520	-0.841	13.554	0.062 ¹
T4	190.365 - 170.365	L2x2x1/4	3'5"	2'8-3/4"	101.9 K=1.22	0.938	-1.163	22.747	0.051 ¹
T5	170.365 - 150.365	ROHN 1.5 x 16GA	3'5"	3'1-1/2"	73.5 K=1.00	0.263	-1.124	7.128	0.158 ¹
T6	150.365 - 130.365	ROHN 1.5 x 16GA	3'5"	3'1-1/2"	73.5 K=1.00	0.263	-0.764	7.128	0.107 ¹
T7	130.365 - 110.365	ROHN 1.5 x 16GA	3'5"	3'1-1/2"	73.5 K=1.00	0.263	-0.717	7.128	0.101 ¹
T8	110.365 - 90.3646	ROHN 1.5 x 16GA	3'5"	3'1-1/2"	73.5 K=1.00	0.263	-0.762	7.128	0.107 ¹
T9	90.3646 - 70.3646	ROHN 1.5 x 16GA	3'5"	3'1-1/2"	73.5 K=1.00	0.263	-0.903	7.128	0.127 ¹
T10	70.3646 - 50.3646	ROHN 1.5 x 11GA	3'5"	3'1-1/2"	76.6 K=1.00	0.520	-1.112	13.719	0.081 ¹
T11	50.3646 - 35.1823	ROHN 1.5 x 16GA	3'5"	3'1-1/2"	73.5 K=1.00	0.263	-1.127	7.128	0.158 ¹
T12	35.1823 - 20	ROHN 1.5 x 16GA	3'5"	3'1-1/2"	73.5	0.263	-1.107	7.128	0.155 ¹

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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 $\frac{P_u}{\phi P_n}$
T13	20 - 4.81771	ROHN 1.5 x 11GA	3'5"	3'1-1/2"	K=1.00 76.6 K=1.00	0.520	-0.972	13.719	0.071 ¹

¹ P_u / φP_n controls

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	250.365 - 230.365	L2x2x1/4	3'5"	2'9-3/8"	102.7 K=1.20	0.938	-0.593	22.573	0.026 ¹
T2	230.365 - 210.365	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7 K=1.00	0.263	-0.648	7.049	0.092 ¹
T3	210.365 - 190.365	ROHN 1.5 x 11GA	3'5"	3'2-1/8"	77.8 K=1.00	0.520	-0.841	13.554	0.062 ¹
T4	190.365 - 170.365	L2x2x1/4	3'5"	2'8-3/4"	101.9 K=1.22	0.938	-1.163	22.747	0.051 ¹
T5	170.365 - 150.365	ROHN 1.5 x 16GA	3'5"	3'1-1/2"	73.5 K=1.00	0.263	-1.124	7.128	0.158 ¹
T6	150.365 - 130.365	ROHN 1.5 x 16GA	3'5"	3'1-1/2"	73.5 K=1.00	0.263	-0.764	7.128	0.107 ¹
T7	130.365 - 110.365	ROHN 1.5 x 16GA	3'5"	3'1-1/2"	73.5 K=1.00	0.263	-0.717	7.128	0.101 ¹
T8	110.365 - 90.3646	ROHN 1.5 x 16GA	3'5"	3'1-1/2"	73.5 K=1.00	0.263	-0.762	7.128	0.107 ¹
T9	90.3646 - 70.3646	ROHN 1.5 x 16GA	3'5"	3'1-1/2"	73.5 K=1.00	0.263	-0.903	7.128	0.127 ¹
T10	70.3646 - 50.3646	ROHN 1.5 x 11GA	3'5"	3'1-1/2"	76.6 K=1.00	0.520	-1.112	13.719	0.081 ¹
T11	50.3646 - 35.1823	ROHN 1.5 x 16GA	3'5"	3'1-1/2"	73.5 K=1.00	0.263	-1.127	7.128	0.158 ¹
T12	35.1823 - 20	ROHN 1.5 x 16GA	3'5"	3'1-1/2"	73.5 K=1.00	0.263	-1.107	7.128	0.155 ¹
T13	20 - 4.81771	ROHN 1.5 x 11GA	3'5"	3'1-1/2"	76.6 K=1.00	0.520	-0.972	13.719	0.071 ¹

¹ P_u / φP_n controls

Top Guy Pull-Off Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	250.365 - 230.365	2L2x2x1/4x3/8	3'5"	2'9-1/4"	85.0 K=1.00	1.880	-5.313	51.562	0.103 ¹
T4	190.365 - 170.365	ai/ri > (KL/r) _o - 621 2L2x2x1/4x3/8 ai/ri > (KL/r) _o - 606	3'5"	2'8-5/8"	83.4 K=1.00	1.880	-5.448	52.128	0.105 ¹

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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 $\frac{P_u}{\phi P_n}$
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¹ P_u / φP_n controls

Top Guy Pull-Off Bending Design Data

Section No.	Elevation ft	Size	M _{ux} kip-ft	φM _{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M _{uy} kip-ft	φM _{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
T1	250.365 - 230.365	2L2x2x1/4x3/8	0.000	2.001	0.000	0.000	3.392	0.000
T4	190.365 - 170.365	2L2x2x1/4x3/8	0.000	2.001	0.000	0.000	3.392	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	250.365 - 230.365	2L2x2x1/4x3/8	0.103	0.000	0.000	0.103 ¹	1.050	
T4	190.365 - 170.365	2L2x2x1/4x3/8	0.105	0.000	0.000	0.105 ¹	1.050	

¹ P_u / φP_n controls

Torque-Arm Top Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	250.365 - 230.365 (618)	C15x33.9	3'5"	3'3-9/16'	43.8 K=1.00	9.960	-2.205	291.753	0.008
T1	250.365 - 230.365 (619)	C15x33.9	3'5"	3'3-9/16'	43.8 K=1.00	9.960	-1.735	291.753	0.006
T1	250.365 - 230.365 (625)	C15x33.9	3'5"	3'3-9/16'	43.8 K=1.00	9.960	-1.938	291.753	0.007
T1	250.365 - 230.365 (626)	C15x33.9	3'5"	3'3-9/16'	43.8 K=1.00	9.960	-2.377	291.753	0.008
T1	250.365 - 230.365 (629)	C15x33.9	3'5"	3'3-9/16'	43.8 K=1.00	9.960	-2.077	291.753	0.007
T1	250.365 - 230.365 (630)	C15x33.9	3'5"	3'3-9/16'	43.8 K=1.00	9.960	-2.148	291.753	0.007
T4	190.365 - 170.365 (603)	C15x33.9	3'5"	3'3-1/4"	43.4 K=1.00	9.960	-1.483	292.216	0.005
T4	190.365 - 170.365 (604)	C15x33.9	3'5"	3'3-1/4"	43.4 K=1.00	9.960	-2.763	292.216	0.009
T4	190.365 -	C15x33.9	3'5"	3'3-1/4"	43.4	9.960	-2.716	292.216	0.009

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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 $\frac{P_u}{\phi P_n}$
T4	170.365 (610)	C15x33.9	3'5"	3'3-1/4"	K=1.00	9.960	-1.466	292.216	0.005
	190.365 - 170.365 (611)				43.4				
T4	190.365 - 170.365 (614)	C15x33.9	3'5"	3'3-1/4"	K=1.00	9.960	-1.147	292.216	0.004
T4	190.365 - 170.365 (615)	C15x33.9	3'5"	3'3-1/4"	K=1.00	9.960	-1.071	292.216	0.004

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	250.365 - 230.365 (618)	C15x33.9	-42.105	136.080	0.309	0.000	12.595	0.000
T1	250.365 - 230.365 (619)	C15x33.9	-40.546	136.080	0.298	-0.000	12.595	0.000
T1	250.365 - 230.365 (625)	C15x33.9	-40.844	136.080	0.300	0.000	12.595	0.000
T1	250.365 - 230.365 (626)	C15x33.9	-42.095	136.080	0.309	0.000	12.595	0.000
T1	250.365 - 230.365 (629)	C15x33.9	-40.843	136.080	0.300	0.000	12.595	0.000
T1	250.365 - 230.365 (630)	C15x33.9	-40.539	136.080	0.298	-0.000	12.595	0.000
T4	190.365 - 170.365 (603)	C15x33.9	-28.625	136.080	0.210	-0.000	12.595	0.000
T4	190.365 - 170.365 (604)	C15x33.9	-26.288	136.080	0.193	0.000	12.595	0.000
T4	190.365 - 170.365 (610)	C15x33.9	-26.632	136.080	0.196	-0.000	12.595	0.000
T4	190.365 - 170.365 (611)	C15x33.9	-28.705	136.080	0.211	-0.000	12.595	0.000
T4	190.365 - 170.365 (614)	C15x33.9	-26.830	136.080	0.197	0.000	12.595	0.000
T4	190.365 - 170.365 (615)	C15x33.9	-26.490	136.080	0.195	-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	250.365 - 230.365 (618)	C15x33.9	0.008	0.309	0.000	0.313	1.050	
T1	250.365 - 230.365 (619)	C15x33.9	0.006	0.298	0.000	0.301	1.050	
T1	250.365 - 230.365 (625)	C15x33.9	0.007	0.300	0.000	0.303	1.050	
T1	250.365 - 230.365 (626)	C15x33.9	0.008	0.309	0.000	0.313	1.050	
T1	250.365 -	C15x33.9	0.007	0.300	0.000	0.304	1.050	

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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	230.365 (629) 250.365 - 230.365 (630)	C15x33.9	0.007	0.298	0.000	0.302	1.050	
T4	190.365 - 170.365 (603)	C15x33.9	0.005	0.210	0.000	0.213	1.050	
T4	190.365 - 170.365 (604)	C15x33.9	0.009	0.193	0.000	0.198	1.050	
T4	190.365 - 170.365 (610)	C15x33.9	0.009	0.196	0.000	0.200	1.050	
T4	190.365 - 170.365 (611)	C15x33.9	0.005	0.211	0.000	0.213	1.050	
T4	190.365 - 170.365 (614)	C15x33.9	0.004	0.197	0.000	0.199	1.050	
T4	190.365 - 170.365 (615)	C15x33.9	0.004	0.195	0.000	0.196	1.050	

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in ²	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	250.365 - 230.365	ROHN 2.5 X-STR	20'	2'4-29/32"	31.3	2.254	22.658	101.409	0.223 ¹
T2	230.365 - 210.365	ROHN 2.5 X-STR	20'	7-3/8"	8.0	2.254	0.548	101.409	0.005 ¹
T3	210.365 - 190.365	ROHN 2.5 X-STR	20'	1-3/8"	1.5	2.254	4.930	101.409	0.049 ¹
T4	190.365 - 170.365	ROHN 3 EHH	20'	2'4-29/32"	26.4	4.213	17.800	189.601	0.094 ¹

¹ $P_u / \phi P_n$ controls

Leg Bending Design Data (Tension)

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	250.365 - 230.365	ROHN 2.5 X-STR	0.000	7.018	0.000	0.000	7.018	0.000
T2	230.365 - 210.365	ROHN 2.5 X-STR	0.000	7.018	0.000	0.000	7.018	0.000
T3	210.365 - 190.365	ROHN 2.5 X-STR	0.000	7.018	0.000	0.000	7.018	0.000
T4	190.365 - 170.365	ROHN 3 EHH	0.000	15.505	0.000	0.000	15.505	0.000

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Leg Interaction Design Data (Tension)

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	250.365 - 230.365	ROHN 2.5 X-STR	0.223	0.000	0.000	0.223 ¹	1.050	
T2	230.365 - 210.365	ROHN 2.5 X-STR	0.005	0.000	0.000	0.005 ¹	1.050	
T3	210.365 - 190.365	ROHN 2.5 X-STR	0.049	0.000	0.000	0.049 ¹	1.050	
T4	190.365 - 170.365	ROHN 3 EHH	0.094	0.000	0.000	0.094 ¹	1.050	

¹ $P_u / \phi P_n$ controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	250.365 - 230.365	L2x2x1/4	3'8-5/8"	1'7-15/16"	36.6	0.563	3.550	24.485	0.145 ¹
T2	230.365 - 210.365	ROHN 1.5 x 16GA	3'8-5/8"	3'8-5/8"	87.5	0.190	0.760	8.989	0.085 ¹
T3	210.365 - 190.365	ROHN 1.5 x 11GA	3'8-5/8"	3'8-5/8"	91.1	0.370	1.228	16.106	0.076 ¹
T4	190.365 - 170.365	L2x2x1/4	3'8-5/8"	1'7-15/16"	36.6	0.563	1.939	24.485	0.079 ¹
T5	170.365 - 150.365	ROHN 1.5 x 16GA	3'8-5/8"	3'8-5/8"	87.5	0.190	2.300	8.989	0.256 ¹
T6	150.365 - 130.365	ROHN 1.5 x 16GA	3'8-5/8"	3'8-5/8"	87.5	0.190	1.760	8.989	0.196 ¹
T7	130.365 - 110.365	ROHN 1.5 x 16GA	3'8-5/8"	3'8-5/8"	87.5	0.190	1.912	8.989	0.213 ¹
T8	110.365 - 90.3646	ROHN 1.5 x 16GA	3'8-5/8"	3'8-5/8"	87.5	0.190	1.571	8.989	0.175 ¹
T9	90.3646 - 70.3646	ROHN 1.5 x 16GA	3'8-5/8"	3'8-5/8"	87.5	0.190	1.899	8.989	0.211 ¹
T10	70.3646 - 50.3646	ROHN 1.5 x 11GA	3'8-5/8"	3'8-5/8"	91.1	0.370	2.257	16.106	0.140 ¹
T11	50.3646 - 35.1823	ROHN 1.5 x 16GA	3'8-5/8"	3'8-5/8"	87.5	0.190	0.736	8.989	0.082 ¹
T12	35.1823 - 20	ROHN 1.5 x 16GA	3'8-5/8"	3'8-5/8"	87.5	0.190	1.483	8.989	0.165 ¹
T13	20 - 4.81771	ROHN 1.5 x 11GA	3'8-5/8"	3'8-5/8"	91.1	0.370	2.206	16.106	0.137 ¹

¹ $P_u / \phi P_n$ controls

Horizontal Design Data (Tension)

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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 $\frac{P_u}{\phi P_n}$
T14	4.81771 - 0	L4x4x1/4	3'5"	3'1-1/2"	30.0	1.940	5.146	62.856	0.082

Horizontal 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 $\frac{M_{uy}}{\phi M_{ny}}$
T14	4.81771 - 0	L4x4x1/4	0.576	6.932	0.083	0.283	3.463	0.082

Horizontal 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
T14	4.81771 - 0	L4x4x1/4	0.082	0.083	0.082	0.206	1.050	

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	250.365 - 230.365	L2x2x1/4	3'5"	2'9-3/8"	62.6	0.563	0.593	24.485	0.024 ¹
T2	230.365 - 210.365	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7	0.190	0.961	8.989	0.107 ¹
T3	210.365 - 190.365	ROHN 1.5 x 11GA	3'5"	3'2-1/8"	77.8	0.370	0.841	16.106	0.052 ¹
T4	190.365 - 170.365	L2x2x1/4	3'5"	2'8-3/4"	61.6	0.563	1.163	24.485	0.048 ¹
T5	170.365 - 150.365	ROHN 1.5 x 16GA	3'5"	3'1-1/2"	73.5	0.190	1.124	8.989	0.125 ¹
T6	150.365 - 130.365	ROHN 1.5 x 16GA	3'5"	3'1-1/2"	73.5	0.190	0.764	8.989	0.085 ¹
T7	130.365 - 110.365	ROHN 1.5 x 16GA	3'5"	3'1-1/2"	73.5	0.190	0.717	8.989	0.080 ¹
T8	110.365 - 90.3646	ROHN 1.5 x 16GA	3'5"	3'1-1/2"	73.5	0.190	0.762	8.989	0.085 ¹
T9	90.3646 - 70.3646	ROHN 1.5 x 16GA	3'5"	3'1-1/2"	73.5	0.190	0.903	8.989	0.100 ¹
T10	70.3646 - 50.3646	ROHN 1.5 x 11GA	3'5"	3'1-1/2"	76.6	0.370	1.112	16.106	0.069 ¹
T11	50.3646 - 35.1823	ROHN 1.5 x 16GA	3'5"	3'1-1/2"	73.5	0.190	1.127	8.989	0.125 ¹
T12	35.1823 - 20	ROHN 1.5 x 16GA	3'5"	3'1-1/2"	73.5	0.190	1.107	8.989	0.123 ¹
T13	20 - 4.81771	ROHN 1.5 x 11GA	3'5"	3'1-1/2"	76.6	0.370	0.972	16.106	0.060 ¹

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¹ $P_u / \phi P_n$ 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	250.365 - 230.365	L2x2x1/4	3'5"	2'9-3/8"	62.6	0.563	1.616	24.485	0.066 ¹
T2	230.365 - 210.365	ROHN 1.5 x 16GA	3'5"	3'2-1/8"	74.7	0.190	0.648	8.989	0.072 ¹
T3	210.365 - 190.365	ROHN 1.5 x 11GA	3'5"	3'2-1/8"	77.8	0.370	0.841	16.106	0.052 ¹
T4	190.365 - 170.365	L2x2x1/4	3'5"	2'8-3/4"	61.6	0.563	1.243	24.485	0.051 ¹
T5	170.365 - 150.365	ROHN 1.5 x 16GA	3'5"	3'1-1/2"	73.5	0.190	1.124	8.989	0.125 ¹
T6	150.365 - 130.365	ROHN 1.5 x 16GA	3'5"	3'1-1/2"	73.5	0.190	0.764	8.989	0.085 ¹
T7	130.365 - 110.365	ROHN 1.5 x 16GA	3'5"	3'1-1/2"	73.5	0.190	0.717	8.989	0.080 ¹
T8	110.365 - 90.3646	ROHN 1.5 x 16GA	3'5"	3'1-1/2"	73.5	0.190	0.762	8.989	0.085 ¹
T9	90.3646 - 70.3646	ROHN 1.5 x 16GA	3'5"	3'1-1/2"	73.5	0.190	0.903	8.989	0.100 ¹
T10	70.3646 - 50.3646	ROHN 1.5 x 11GA	3'5"	3'1-1/2"	76.6	0.370	1.112	16.106	0.069 ¹
T11	50.3646 - 35.1823	ROHN 1.5 x 16GA	3'5"	3'1-1/2"	73.5	0.190	1.127	8.989	0.125 ¹
T12	35.1823 - 20	ROHN 1.5 x 16GA	3'5"	3'1-1/2"	73.5	0.190	1.107	8.989	0.123 ¹
T13	20 - 4.81771	ROHN 1.5 x 11GA	3'5"	3'1-1/2"	76.6	0.370	1.855	16.106	0.115 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	250.365 - 230.365	2L2x2x1/4x3/8	3'5"	2'9-1/4"	62.6	1.129	8.265	49.101	0.168 ¹
T4	190.365 - 170.365	ai/ri > (KL/r) _o - 621 2L2x2x1/4x3/8	3'5"	2'8-5/8"	61.6	1.129	7.455	49.101	0.152 ¹
T8	110.365 - 90.3646	ai/ri > (KL/r) _o - 606 2L2x2x1/4x3/8 ai/ri > (KL/r) _o - 597	3'5"	2'8-5/8"	61.6	1.129	6.660	49.101	0.136 ¹

¹ $P_u / \phi P_n$ controls

Top Guy Pull-Off Bending Design Data

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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	250.365 - 230.365	2L2x2x1/4x3/8	0.000	2.001	0.000	0.000	3.392	0.000
T4	190.365 - 170.365	2L2x2x1/4x3/8	0.000	2.001	0.000	0.000	3.392	0.000
T8	110.365 - 90.3646	2L2x2x1/4x3/8	0.000	2.001	0.000	0.000	3.392	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	250.365 - 230.365	2L2x2x1/4x3/8	0.168	0.000	0.000	0.168 ¹	1.050	
T4	190.365 - 170.365	2L2x2x1/4x3/8	0.152	0.000	0.000	0.152 ¹	1.050	
T8	110.365 - 90.3646	2L2x2x1/4x3/8	0.136	0.000	0.000	0.136 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	250.365 - 230.365 (618)	C15x33.9	3'5"	3'3-9/16'	43.8	7.170	0.418	311.895	0.001
T1	250.365 - 230.365 (619)	C15x33.9	3'5"	3'3-9/16'	43.8	7.170	0.833	311.895	0.003
T1	250.365 - 230.365 (625)	C15x33.9	3'5"	3'3-9/16'	43.8	7.170	0.629	311.895	0.002
T1	250.365 - 230.365 (626)	C15x33.9	3'5"	3'3-9/16'	43.8	7.170	0.244	311.895	0.001
T1	250.365 - 230.365 (629)	C15x33.9	3'5"	3'3-9/16'	43.8	7.170	0.358	311.895	0.001
T1	250.365 - 230.365 (630)	C15x33.9	3'5"	3'3-9/16'	43.8	7.170	0.356	311.895	0.001
T4	190.365 - 170.365 (603)	C15x33.9	3'5"	3'3-1/4"	43.4	7.170	0.576	311.895	0.002
T4	190.365 - 170.365 (604)	C15x33.9	3'5"	3'3-1/4"	43.4	7.170	0.123	311.895	0.000
T4	190.365 - 170.365 (610)	C15x33.9	3'5"	3'3-1/4"	43.4	7.170	1.292	311.895	0.004
T4	190.365 - 170.365 (611)	C15x33.9	3'5"	3'3-1/4"	43.4	7.170	0.735	311.895	0.002
T4	190.365 - 170.365 (614)	C15x33.9	3'5"	3'3-1/4"	43.4	7.170	0.431	311.895	0.001
T4	190.365 - 170.365 (615)	C15x33.9	3'5"	3'3-1/4"	43.4	7.170	0.782	311.895	0.003

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Section No.	Elevation	Size	L	L _u	Kl/r	A	P _u	φP _n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in ²	K	K	

Torque-Arm Top Bending Design Data

Section No.	Elevation	Size	M _{ux}	φM _{nx}	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M _{uy}	φM _{ny}	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
	ft		kip-ft	kip-ft		kip-ft	kip-ft	
T1	250.365 - 230.365 (618)	C15x33.9	-40.532	136.080	0.298	0.000	12.595	0.000
T1	250.365 - 230.365 (619)	C15x33.9	-37.945	136.080	0.279	0.000	12.595	0.000
T1	250.365 - 230.365 (625)	C15x33.9	-38.100	136.080	0.280	-0.000	12.595	0.000
T1	250.365 - 230.365 (626)	C15x33.9	-40.277	136.080	0.296	-0.000	12.595	0.000
T1	250.365 - 230.365 (629)	C15x33.9	-40.668	136.080	0.299	-0.000	12.595	0.000
T1	250.365 - 230.365 (630)	C15x33.9	-40.180	136.080	0.295	0.000	12.595	0.000
T4	190.365 - 170.365 (603)	C15x33.9	-26.972	136.080	0.198	0.000	12.595	0.000
T4	190.365 - 170.365 (604)	C15x33.9	-24.701	136.080	0.182	-0.000	12.595	0.000
T4	190.365 - 170.365 (610)	C15x33.9	-24.164	136.080	0.178	-0.000	12.595	0.000
T4	190.365 - 170.365 (611)	C15x33.9	-26.796	136.080	0.197	-0.000	12.595	0.000
T4	190.365 - 170.365 (614)	C15x33.9	-27.120	136.080	0.199	-0.000	12.595	0.000
T4	190.365 - 170.365 (615)	C15x33.9	-26.801	136.080	0.197	0.000	12.595	0.000

Torque-Arm Top Interaction Design Data

Section No.	Elevation	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
	ft							
T1	250.365 - 230.365 (618)	C15x33.9	0.001	0.298	0.000	0.299	1.050	
T1	250.365 - 230.365 (619)	C15x33.9	0.003	0.279	0.000	0.280	1.050	
T1	250.365 - 230.365 (625)	C15x33.9	0.002	0.280	0.000	0.281	1.050	
T1	250.365 - 230.365 (626)	C15x33.9	0.001	0.296	0.000	0.296	1.050	
T1	250.365 - 230.365 (629)	C15x33.9	0.001	0.299	0.000	0.299	1.050	
T1	250.365 - 230.365 (630)	C15x33.9	0.001	0.295	0.000	0.296	1.050	
T4	190.365 - 170.365 (603)	C15x33.9	0.002	0.198	0.000	0.199	1.050	
T4	190.365 - 170.365 (604)	C15x33.9	0.000	0.182	0.000	0.182	1.050	

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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
T4	190.365 - 170.365 (610)	C15x33.9	0.004	0.178	0.000	0.180	1.050	
T4	190.365 - 170.365 (611)	C15x33.9	0.002	0.197	0.000	0.198	1.050	
T4	190.365 - 170.365 (614)	C15x33.9	0.001	0.199	0.000	0.200	1.050	
T4	190.365 - 170.365 (615)	C15x33.9	0.003	0.197	0.000	0.198	1.050	

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	250.365 - 230.365	Leg	ROHN 2.5 X-STR	1	-31.947	99.127	32.2	Pass
T2	230.365 - 210.365	Leg	ROHN 2.5 X-STR	58	-36.586	99.127	36.9	Pass
T3	210.365 - 190.365	Leg	ROHN 2.5 X-STR	115	-46.894	99.127	47.3	Pass
T4	190.365 - 170.365	Leg	ROHN 3 EHH	172	-67.150	189.167	35.5	Pass
T5	170.365 - 150.365	Leg	ROHN 3 EHH	229	-62.049	189.167	32.8	Pass
T6	150.365 - 130.365	Leg	ROHN 3 X-STR	286	-43.111	117.932	36.6	Pass
T7	130.365 - 110.365	Leg	ROHN 3 X-STR	319	-41.289	117.932	35.0	Pass
T8	110.365 - 90.3646	Leg	ROHN 3 X-STR	353	-44.012	135.917	32.4	Pass
T9	90.3646 - 70.3646	Leg	ROHN 3 X-STR	409	-50.184	135.917	36.9	Pass
T10	70.3646 - 50.3646	Leg	ROHN 3 EHH	466	-63.651	162.289	39.2	Pass
T11	50.3646 - 35.1823	Leg	ROHN 3 EHH	499	-65.077	162.289	40.1	Pass
T12	35.1823 - 20	Leg	ROHN 3 EHH	526	-63.315	162.289	39.0	Pass
T13	20 - 4.81771	Leg	ROHN 3 EHH	553	-54.845	162.289	33.8	Pass
T14	4.81771 - 0	Leg	ROHN 3 EHH	581	-38.214	196.249	24.2	Pass
T1	250.365 - 230.365	Diagonal	L2x2x1/4	17	3.550	25.709	13.8	Pass
T2	230.365 - 210.365	Diagonal	ROHN 1.5 x 16GA	114	-0.948	6.519	20.6 (b) 14.5	Pass
T3	210.365 - 190.365	Diagonal	ROHN 1.5 x 11GA	124	-1.735	12.400	14.0	Pass
T4	190.365 - 170.365	Diagonal	L2x2x1/4	185	-5.110	30.264	16.9 (b) 16.9	Pass
T5	170.365 - 150.365	Diagonal	ROHN 1.5 x 16GA	284	-2.620	6.519	40.2	Pass
T6	150.365 - 130.365	Diagonal	ROHN 1.5 x 16GA	316	-2.034	6.519	31.2	Pass
T7	130.365 - 110.365	Diagonal	ROHN 1.5 x 16GA	330	-2.121	6.519	32.5	Pass
T8	110.365 - 90.3646	Diagonal	ROHN 1.5 x 16GA	361	-2.917	6.519	44.7	Pass
T9	90.3646 - 70.3646	Diagonal	ROHN 1.5 x 16GA	460	-2.452	6.519	37.6	Pass

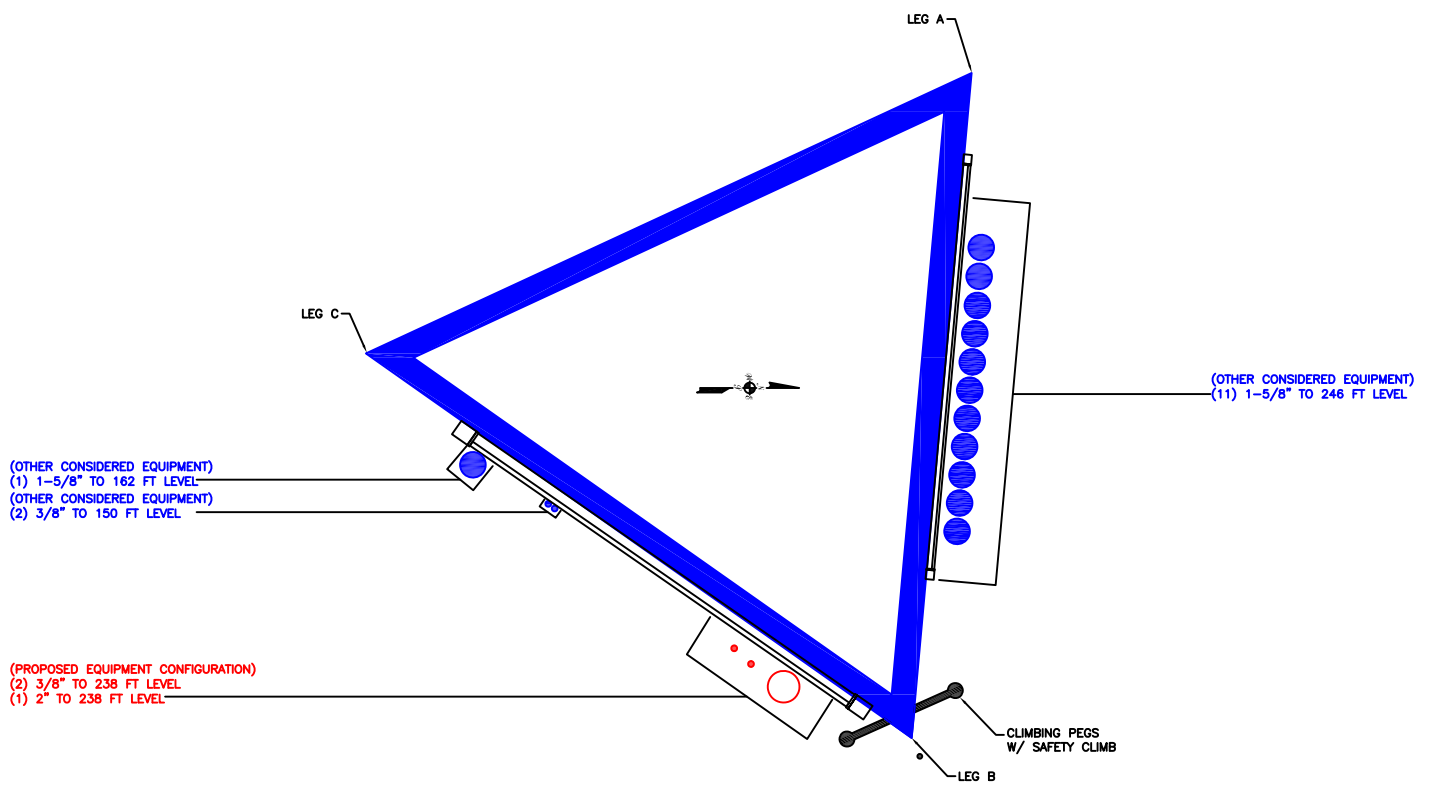
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Section No.	Elevation ft	Component Type	Size	Critical Element	P K	σP_{allow} K	% Capacity	Pass Fail
T10	70.3646 - 50.3646	Diagonal	ROHN 1.5 x 11GA	496	-2.522	12.400	20.3	Pass
T11	50.3646 - 35.1823	Diagonal	ROHN 1.5 x 16GA	509	-1.027	6.519	21.7 (b) 15.8	Pass
T12	35.1823 - 20	Diagonal	ROHN 1.5 x 16GA	535	-1.813	6.519	27.8	Pass
T13	20 - 4.81771	Diagonal	ROHN 1.5 x 11GA	566	-2.171	12.400	17.5 19.0 (b)	Pass
T14	4.81771 - 0	Horizontal	L4x4x1/4	583	5.146	65.999	19.6	Pass
T1	250.365 - 230.365	Top Girt	L2x2x1/4	4	-0.593	23.702	2.5 3.4 (b)	Pass
T2	230.365 - 210.365	Top Girt	ROHN 1.5 x 16GA	62	0.961	9.439	10.2 15.5 (b)	Pass
T3	210.365 - 190.365	Top Girt	ROHN 1.5 x 11GA	118	-0.841	14.231	5.9 8.2 (b)	Pass
T4	190.365 - 170.365	Top Girt	L2x2x1/4	175	-1.163	23.884	4.9 6.7 (b)	Pass
T5	170.365 - 150.365	Top Girt	ROHN 1.5 x 16GA	232	-1.124	7.484	15.0 18.1 (b)	Pass
T6	150.365 - 130.365	Top Girt	ROHN 1.5 x 16GA	289	-0.764	7.484	10.2 12.3 (b)	Pass
T7	130.365 - 110.365	Top Girt	ROHN 1.5 x 16GA	322	-0.717	7.484	9.6 11.5 (b)	Pass
T8	110.365 - 90.3646	Top Girt	ROHN 1.5 x 16GA	355	-0.762	7.484	10.2 12.3 (b)	Pass
T9	90.3646 - 70.3646	Top Girt	ROHN 1.5 x 16GA	412	-0.903	7.484	12.1 14.5 (b)	Pass
T10	70.3646 - 50.3646	Top Girt	ROHN 1.5 x 11GA	469	-1.112	14.405	7.7 9.6 (b)	Pass
T11	50.3646 - 35.1823	Top Girt	ROHN 1.5 x 16GA	502	-1.127	7.484	15.1 18.1 (b)	Pass
T12	35.1823 - 20	Top Girt	ROHN 1.5 x 16GA	529	-1.107	7.484	14.8 17.8 (b)	Pass
T13	20 - 4.81771	Top Girt	ROHN 1.5 x 11GA	556	-0.972	14.405	6.7 8.4 (b)	Pass
T1	250.365 - 230.365	Bottom Girt	L2x2x1/4	8	1.616	25.709	6.3 9.4 (b)	Pass
T2	230.365 - 210.365	Bottom Girt	ROHN 1.5 x 16GA	64	-0.648	7.401	8.8 10.4 (b)	Pass
T3	210.365 - 190.365	Bottom Girt	ROHN 1.5 x 11GA	121	-0.841	14.231	5.9 8.2 (b)	Pass
T4	190.365 - 170.365	Bottom Girt	L2x2x1/4	178	-1.163	23.884	4.9 7.2 (b)	Pass
T5	170.365 - 150.365	Bottom Girt	ROHN 1.5 x 16GA	235	-1.124	7.484	15.0 18.1 (b)	Pass
T6	150.365 - 130.365	Bottom Girt	ROHN 1.5 x 16GA	292	-0.764	7.484	10.2 12.3 (b)	Pass
T7	130.365 - 110.365	Bottom Girt	ROHN 1.5 x 16GA	325	-0.717	7.484	9.6 11.5 (b)	Pass
T8	110.365 - 90.3646	Bottom Girt	ROHN 1.5 x 16GA	358	-0.762	7.484	10.2 12.3 (b)	Pass
T9	90.3646 - 70.3646	Bottom Girt	ROHN 1.5 x 16GA	415	-0.903	7.484	12.1 14.5 (b)	Pass
T10	70.3646 - 50.3646	Bottom Girt	ROHN 1.5 x 11GA	472	-1.112	14.405	7.7 9.6 (b)	Pass
T11	50.3646 - 35.1823	Bottom Girt	ROHN 1.5 x 16GA	505	-1.127	7.484	15.1 18.1 (b)	Pass
T12	35.1823 - 20	Bottom Girt	ROHN 1.5 x 16GA	532	-1.107	7.484	14.8 17.8 (b)	Pass
T13	20 - 4.81771	Bottom Girt	ROHN 1.5 x 11GA	560	1.855	16.911	11.0 16.0 (b)	Pass
T1	250.365 -	Guy A@232.888	3/4 (ROHN E=23000 ksi)	627	15.852	36.729	43.2	Pass

tnxTower B+T Group 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 587-4630	Job	Page
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	Project	Date
	Client	Designed by
	Crown Castle	SK

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T4	230.365 - 190.365	Guy A@172.888	3/4 (ROHN E=23000 ksi)	612	12.231	36.729	33.3	Pass
T8	110.365 - 90.3646	Guy A@92.888	3/4 (ROHN E=23000 ksi)	600	13.989	36.729	38.1	Pass
T1	250.365 - 230.365	Guy B@232.888	3/4 (ROHN E=23000 ksi)	624	15.882	36.729	43.2	Pass
T4	190.365 - 170.365	Guy B@172.888	3/4 (ROHN E=23000 ksi)	609	12.570	36.729	34.2	Pass
T8	110.365 - 90.3646	Guy B@92.888	3/4 (ROHN E=23000 ksi)	599	14.008	36.729	38.1	Pass
T1	250.365 - 230.365	Guy C@232.888	3/4 (ROHN E=23000 ksi)	617	16.341	36.729	44.5	Pass
T4	190.365 - 170.365	Guy C@172.888	3/4 (ROHN E=23000 ksi)	601	13.106	36.729	35.7	Pass
T8	110.365 - 90.3646	Guy C@92.888	3/4 (ROHN E=23000 ksi)	595	14.877	36.729	40.5	Pass
T1	250.365 - 230.365	Top Guy Pull-Off@232.888	2L2x2x1/4x3/8	621	8.265	51.556	16.0	Pass
T4	190.365 - 170.365	Top Guy Pull-Off@172.888	2L2x2x1/4x3/8	606	7.455	51.556	23.3 (b)	Pass
T8	110.365 - 90.3646	Top Guy Pull-Off@92.888	2L2x2x1/4x3/8	597	6.660	51.556	14.5	Pass
T1	250.365 - 230.365	Torque Arm Top@232.888	C15x33.9	626	-2.377	306.341	21.1 (b)	Pass
T4	190.365 - 170.365	Torque Arm Top@172.888	C15x33.9	611	-1.466	306.827	12.9	Pass
						Summary		
						Leg (T3)	47.3	Pass
						Diagonal (T8)	44.7	Pass
						Horizontal (T14)	19.6	Pass
						Top Girt (T11)	18.1	Pass
						Bottom Girt (T11)	18.1	Pass
						Guy A (T1)	43.2	Pass
						Guy B (T1)	43.2	Pass
						Guy C (T1)	44.5	Pass
						Top Guy Pull-Off (T8)	23.7	Pass
						Torque Arm Top (T1)	29.8	Pass
						Bolt Checks	39.6	Pass
						RATING =	47.3	Pass

APPENDIX B
BASE LEVEL DRAWING



BUSINESS UNIT: 809329

APPENDIX C
ADDITIONAL CALCULATIONS

Guyed Tower Anchor & Base Reaction Comparison Test (4.0.3)



BU # :	809329
Site Name:	COLUMBIA J-FL-012-094
Order Number:	671090, Rev# 4
TIA-222 Design:	F
TIA-222 Current:	H
Component Type:	Guyed Tower Anchor & Base
Reference Doc ID:	192569

☒ Apply H Section 15.5

TIA-222-F Compared To TIA-222-H

GUYED TOWER BASE FOUNDATION

REACTIONS PER LEG	DESIGN REACTIONS	*MODIFIED DESIGN REACTIONS	CURRENT REACTIONS	% CAPACITY
COMPRESSION (kips)	200.1	270.1	111.0	39.1%

GUYED TOWER INNER ANCHOR FOUNDATION

REACTIONS PER ANCHOR	DESIGN REACTIONS	*MODIFIED DESIGN REACTIONS	CURRENT REACTIONS	% CAPACITY
UPLIFT (kips)	80.9	109.2	46.0	40.1%
SHEAR (kips)	92.9	125.4	54.0	41.0%

Design loads from: CClsites Doc #192569

*Design loads were multiplied by 1.35 for comparison as allowed by TIA-222-H, Section 15.6.

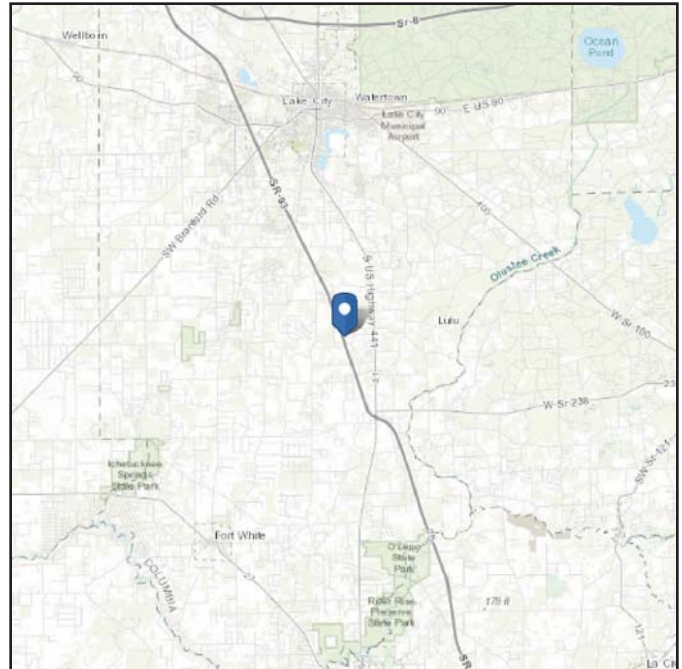
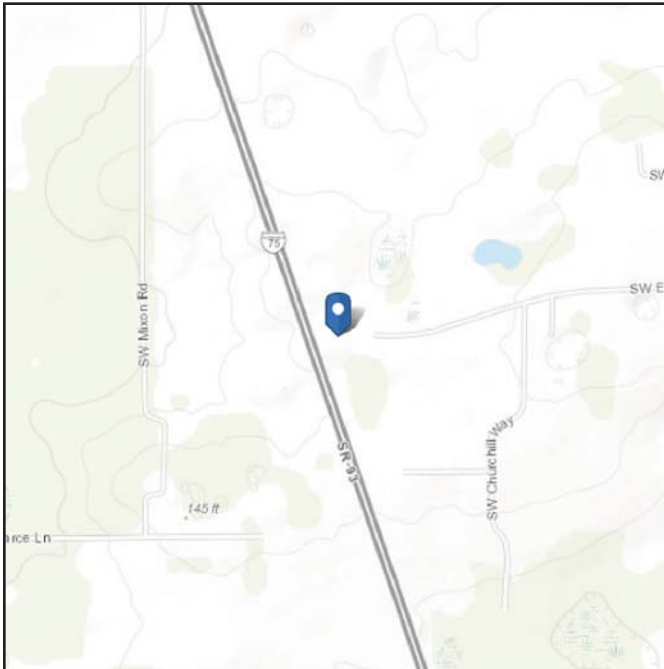
% Capacity per TIA-222-H Section 15.5

ASCE Hazards Report

Address:
No Address at This Location

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

Latitude: 30.049389
Longitude: -82.620111
Elevation: 151.35433901656702 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	135 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.

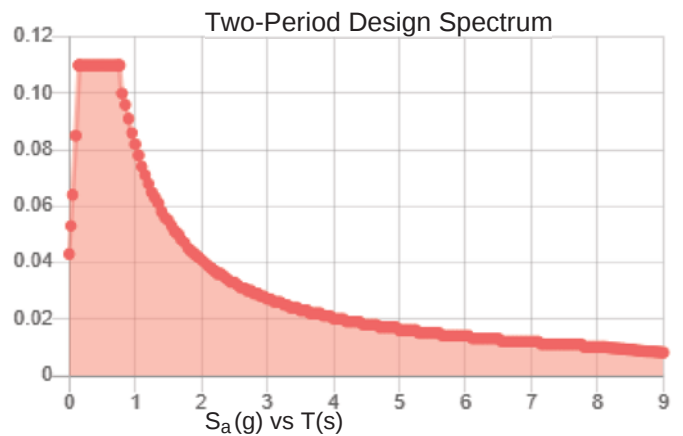
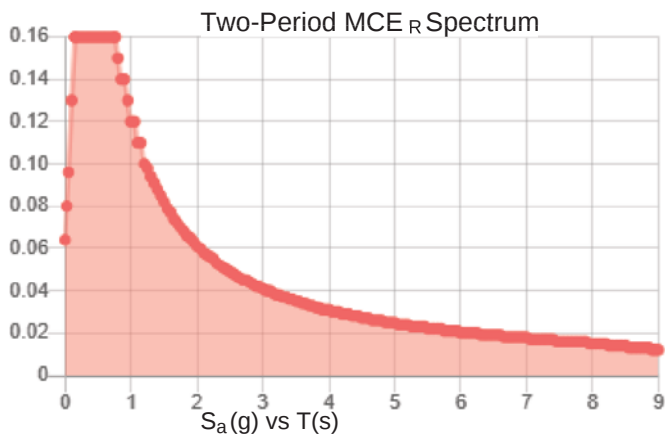
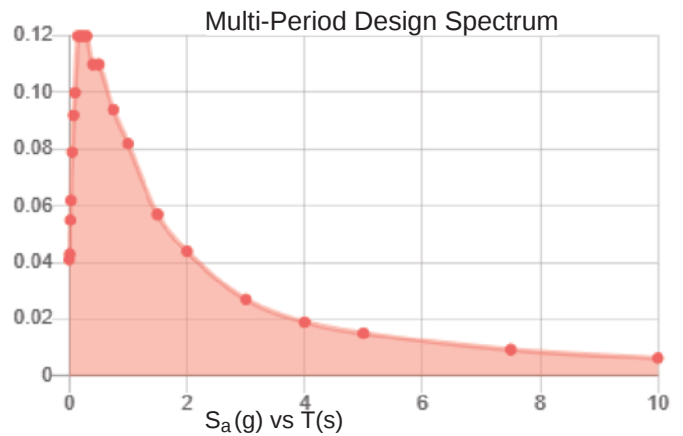
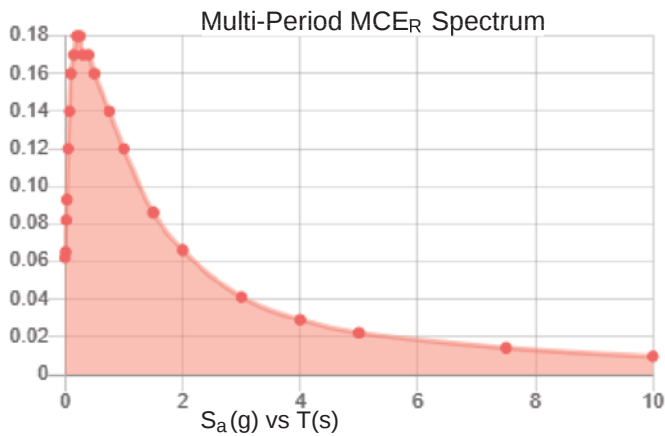
Site is in a hurricane-prone region as defined in ASCE/SEI 7-22 Section 26.2. Glazed openings need not be protected against wind-borne debris.

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.

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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