

Date: **January 12, 2024**



Joel Rousseau  
NexTower Development Group, on behalf of T-Mobile  
13577 NW 2<sup>nd</sup> Lane, Suite 20  
Newberry, FL 32669

SMW Engineering Group, Inc.  
158 Business Center Drive  
Birmingham, AL 35244  
(205) 252-6985

**Subject:** **Structural Analysis Report**

**Carrier Designation:** **T-Mobile**  
**Carrier Site Number:** 9JK1918A  
**Carrier Site Name:** White Springs

**NexTower Development Designation:** **NexTower Development Site Number:** NXFL-171  
**NexTower Development Site Name:** SW Hwy 47

**Engineering Firm Designation:** **SMW Engineering Group, Inc. Project Number:** 17-5641.2

**Site Data:** **26972 North US Hwy 441, White Springs, FL 32096 (Columbia County)**  
**Latitude 30.569°, Longitude -82.681°**  
**250 Foot - Self Support Tower**

Dear Joel Rousseau,

SMW Engineering Group, Inc. 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:

Proposed Equipment Configuration

**Sufficient Capacity**

The analysis utilizes an ultimate 3-second gust wind speed of 117 mph as required by the 2023 Florida Building Code, 8th Edition. Applicable standard references and design criteria are listed in Section 2 – Analysis Criteria.

Respectfully submitted by:

Jeremy D. Sharit, P.E.  
Project Engineer  
FL CA #33693

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### 1) INTRODUCTION

This tower is a 250 ft Self Support tower designed by World Tower.

### 2) ANALYSIS CRITERIA

**Building Code:** 2023 Florida Building Code, 8th Edition  
**TIA-222 Revision:** TIA-222-H  
**Risk Category:** II  
**Ultimate Wind Speed:** 117 mph  
**Exposure Category:** C  
**Topographic Factor:** 1  
**Ice Thickness:** 0.25 in  
**Wind Speed with Ice:** 30 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)
230.0	230.0	2	Ceragon	IP20D ODU	1 1	1/2 Coax 55mm Fiber

**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)
250.0	252.0	1	-	Lightning Rod	-	-
	251.0	1	-	Flash Beacon Lighting		
245.0	245.0	1	-	C10857001C Mount [3]	3	1.996 Hybrid
		3	-	Pipe Mount		
		3	-	Radio 4480 B71+B85		
		3	Commscope	FFVV-65C-R3-V1 w/ Mount Pipe		
230.0	230.0	1	-	Pipe Mount	-	-
		1	RFS	SB6-W60C Dish		

### 3) ANALYSIS PROCEDURE

**Table 3 - Documents Provided**

Document	Remarks	Reference	Source
Tower Manufacturer Drawings	World Tower	Dated 11/18/16	T-Mobile
RFDS	T-Mobile	Dated 11/08/23	NexTower Development
Geotechnical Report	Trileaf	Dated 01/18/16	T-Mobile
Structural Analysis	SMW Engineering Group, Inc.	Dated 02/09/22	SMW Engineering Group, Inc.

### 3.1) Analysis Method

tnxTower (version 8.1.1.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

### 3.2) Assumptions

- 1) Tower and structures were built in accordance with the manufacturer's specifications.
- 2) The tower and structures have been maintained in accordance with the manufacturer's specification.
- 3) 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. SMW Engineering Group, Inc. 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 - 240	Leg	1 1/2	2	-4.18	39.03	10.7	Pass
T2	240 - 220	Leg	2	28	-27.62	91.64	30.1	Pass
T3	220 - 200	Leg	P5x.258	78	-47.78	179.55	26.6	Pass
T4	200 - 180	Leg	P6x.28	108	-66.53	238.36	27.9	Pass
T5	180 - 160	Leg	P8x0.25	135	-85.33	287.23	29.7	Pass
T6	160 - 140	Leg	P8x.322	162	-105.16	366.59	28.7	Pass
T7	140 - 120	Leg	P10x.365	189	-122.91	495.59	24.8	Pass
T8	120 - 100	Leg	P10x.365	204	-143.98	495.59	29.1	Pass
T9	100 - 80	Leg	P10x.365	219	-165.72	495.59	33.4	Pass
T10	80 - 60	Leg	P12x.375	234	-188.10	620.91	30.3	Pass
T11	60 - 40	Leg	P12x.375	249	-207.23	620.86	33.4	Pass
T12	40 - 20	Leg	P12x.375	264	-225.07	620.86	36.3	Pass
T13	20 - 0	Leg	P12x.375	279	-242.50	620.86	39.1	Pass
T1	250 - 240	Diagonal	1	12	-2.92	6.57	44.4	Pass
T2	240 - 220	Diagonal	1 1/4	39	-5.58	15.87	35.1	Pass
T3	220 - 200	Diagonal	L2x2x3/16	104	-2.70	17.55	15.4	Pass
T4	200 - 180	Diagonal	L2x2x3/16	113	-2.39	13.81	17.3	Pass
T5	180 - 160	Diagonal	L2x2x1/4	140	-2.80	14.78	19.0	Pass
T6	160 - 140	Diagonal	L2x2x1/4	167	-3.00	11.87	25.3	Pass
T7	140 - 120	Diagonal	L3x3x3/16	194	-4.41	16.38	26.9	Pass
T8	120 - 100	Diagonal	L3x3x3/16	210	-4.77	14.43	33.1	Pass
T9	100 - 80	Diagonal	L3x3x1/4	225	-5.20	16.65	31.2	Pass
T10	80 - 60	Diagonal	L3x3x3/8	240	-6.03	21.72	27.7	Pass
T11	60 - 40	Diagonal	L3x3x1/4	255	-4.72	12.82	36.8	Pass
T12	40 - 20	Diagonal	L3x3x3/8	270	-5.32	15.98	33.3	Pass
T13	20 - 0	Diagonal	L3 1/2x3 1/2x1/4	285	-6.39	14.81	43.2	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T1	250 - 240	Horizontal	1	16	-0.75	10.42	7.2	Pass
T2	240 - 220	Horizontal	1	57	-0.71	10.63	6.7	Pass
T1	250 - 240	Secondary Horizontal	1	13	-0.00	17.56	0.0	Pass
T2	240 - 220	Secondary Horizontal	1	40	-0.00	17.59	0.0	Pass
T1	250 - 240	Top Girt	1 1/8	4	-0.05	15.91	0.3	Pass
T2	240 - 220	Top Girt	1 1/8	33	-1.32	16.15	8.2	Pass
T3	220 - 200	Top Girt	L2x2x1/8	80	-0.83	10.27	8.1	Pass
T1	250 - 240	Bottom Girt	1	9	-1.21	10.42	11.7	Pass
T2	240 - 220	Bottom Girt	1	36	-1.55	10.63	14.6	Pass
							Summary	
						Leg (T13)	39.1	Pass
						Diagonal (T1)	44.4	Pass
						Horizontal (T1)	7.2	Pass
						Secondary Horizontal (T1)	0.0	Pass
						Top Girt (T2)	8.2	Pass
						Bottom Girt (T2)	14.6	Pass
						Rating =	44.4	Pass

**Table 5 - Tower Component Stresses vs. Capacity**

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
	Anchor Rods	0	24.7	Pass
	Base Foundation (Structure)	0	24.7	Pass
	Base Foundation (Soil Interaction)	0	39.1	Pass

<b>Structure Rating (max from all components) =</b>	<b>44.4%</b>
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Notes:

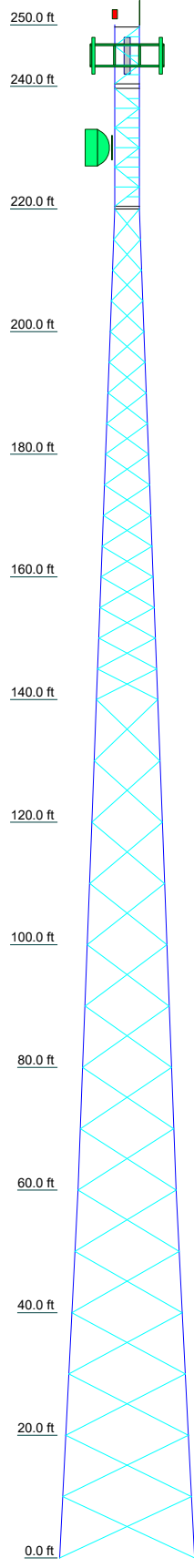
- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

#### 4.1) Recommendations

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

**APPENDIX A**  
**TNXTOWER OUTPUT**

Section	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13
Legs	SR 1 1/2	SR 2	P5x.258	P6x.28	P8x0.25	P8x.322							
Leg Grade	A572-50												
Diagonals	SR 1 1/4												
Diagonal Grade													
Top Girts	SR 1 1/8												
Bottom Girts	SR 1												
Horizontals	SR 1												
Sec. Horizontals	SR 1												
Face Width (ft)	4												
# Panels @ (ft)	6 @ 3.20833												
Weight (K)	0.5												



**DESIGNED APPURTENANCE LOADING**

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod	250	Pipe Mount	245
Flash Beacon Lighting	250	Pipe Mount	245
FFVV-65C-R3-V1 w/ Mount Pipe	245	Pipe Mount	245
FFVV-65C-R3-V1 w/ Mount Pipe	245	C10857001C Mount [3]	245
FFVV-65C-R3-V1 w/ Mount Pipe	245	(2) IP20D ODU	230
Radio 4480 B71+B85	245	Pipe Mount	230
Radio 4480 B71+B85	245	SB6-W60C	230
Radio 4480 B71+B85	245		

**MATERIAL STRENGTH**

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A500-50	50 ksi	62 ksi
A36	36 ksi	58 ksi			

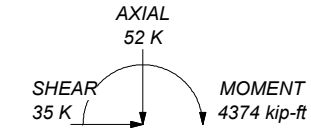
**TOWER DESIGN NOTES**

1. Tower is located in Columbia County, Florida.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 117 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 0.00 ft
7. TOWER RATING: 44.4%

ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:  
DOWN: 247 K  
SHEAR: 23 K

UPLIFT: -203 K  
SHEAR: 19 K



TORQUE 25 kip-ft  
REACTIONS - 117 mph WIND



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Job: <b>9JK1918A</b>		
Project: <b>17-5641.2</b>		
Client: NexTower Development	Drawn by: Joe McAllister	App'd:
Code: TIA-222-H	Date: 01/05/24	Scale: NTS
Path:		Dwg No. E-1

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## Tower Input Data

The main tower is a 3x free standing tower with an overall height of 250.00 ft above the ground line.  
 The base of the tower is set at an elevation of 0.00 ft above the ground line.  
 The face width of the tower is 4.00 ft at the top and 22.00 ft at the base.  
 This tower is designed using the TIA-222-H standard.

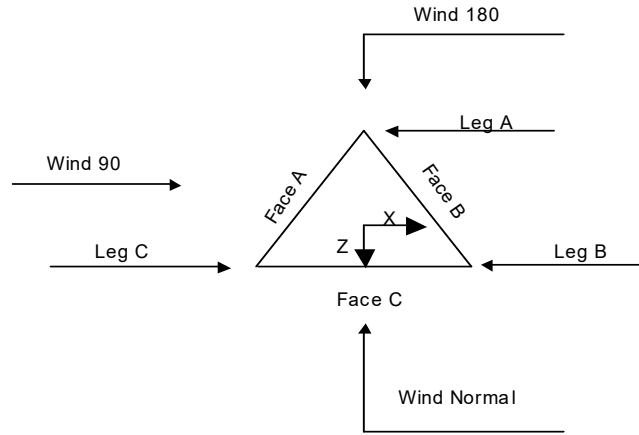
The following design criteria apply:

- Tower is located in Columbia County, Florida.
- Tower base elevation above sea level: 125.00 ft.
- Basic wind speed of 117 mph.
- Risk Category II.
- Exposure Category C.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.00 ft.
- Deflections calculated using a wind speed of 60 mph.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in tower member design is 1.
- Tower analysis based on target reliabilities in accordance with Annex S.
- Load Modification Factors used:  $K_{es}(F_w) = 0.95$ .
- Maximum demand-capacity ratio is: 1.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

## Options

Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification ✓ Use Code Stress Ratios ✓ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile  Include Bolts In Member Capacity  Leg Bolts Are At Top Of Section ✓ Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) ✓ SR Members Have Cut Ends SR Members Are Concentric	Distribute Leg Loads As Uniform Assume Legs Pinned ✓ Assume Rigid Index Plate ✓ Use Clear Spans For Wind Area ✓ Use Clear Spans For KL/r Retension Guys To Initial Tension ✓ Bypass Mast Stability Checks ✓ Use Azimuth Dish Coefficients ✓ Project Wind Area of Appurt.  Autocalc Torque Arm Areas  Add IBC .6D+W Combination ✓ Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder Ignore KL/ry For 60 Deg. Angle Legs	Use ASCE 10 X-Brace Ly Rules ✓ Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation ✓ Consider Feed Line Torque Include Angle Block Shear Check Use TIA-222-H Bracing Resist. Exemption Use TIA-222-H Tension Splice Exemption  <div style="text-align: center; background-color: #e0e0e0; padding: 2px;"><b>Poles</b></div> Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets Pole Without Linear Attachments Pole With Shroud Or No Appurtenances Outside and Inside Corner Radii Are Known
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**Triangular Tower**

**Tower Section Geometry**

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	250.00-240.00			4.00	1	10.00
T2	240.00-220.00			4.00	1	20.00
T3	220.00-200.00			4.00	1	20.00
T4	200.00-180.00			5.50	1	20.00
T5	180.00-160.00			7.00	1	20.00
T6	160.00-140.00			8.50	1	20.00
T7	140.00-120.00			10.00	1	20.00
T8	120.00-100.00			11.50	1	20.00
T9	100.00-80.00			13.00	1	20.00
T10	80.00-60.00			14.50	1	20.00
T11	60.00-40.00			16.00	1	20.00
T12	40.00-20.00			18.00	1	20.00
T13	20.00-0.00			20.00	1	20.00

**Tower Section Geometry (cont'd)**

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	250.00-240.00	3.08	K Brace Left	No	Yes+Steps	4.5000	4.5000
T2	240.00-220.00	3.21	K Brace Left	No	Yes+Steps	4.5000	4.5000
T3	220.00-200.00	5.00	X Brace	No	No	0.0000	0.0000
T4	200.00-180.00	5.00	X Brace	No	No	0.0000	0.0000
T5	180.00-160.00	5.00	X Brace	No	No	0.0000	0.0000
T6	160.00-140.00	5.00	X Brace	No	No	0.0000	0.0000
T7	140.00-120.00	10.00	X Brace	No	No	0.0000	0.0000
T8	120.00-100.00	10.00	X Brace	No	No	0.0000	0.0000
T9	100.00-80.00	10.00	X Brace	No	No	0.0000	0.0000
T10	80.00-60.00	10.00	X Brace	No	No	0.0000	0.0000

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T11	60.00-40.00	10.00	X Brace	No	Yes	0.0000	0.0000
T12	40.00-20.00	10.00	X Brace	No	Yes	0.0000	0.0000
T13	20.00-0.00	10.00	X Brace	No	Yes	0.0000	0.0000

### Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 250.00-240.00	Solid Round	1 1/2	A572-50 (50 ksi)	Solid Round	1	A36 (36 ksi)
T2 240.00-220.00	Solid Round	2	A572-50 (50 ksi)	Solid Round	1 1/4	A36 (36 ksi)
T3 220.00-200.00	Pipe	P5x.258	A500-50 (50 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T4 200.00-180.00	Pipe	P6x.28	A500-50 (50 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T5 180.00-160.00	Pipe	P8x0.25	A500-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T6 160.00-140.00	Pipe	P8x.322	A500-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T7 140.00-120.00	Pipe	P10x.365	A500-50 (50 ksi)	Equal Angle	L3x3x3/16	A36 (36 ksi)
T8 120.00-100.00	Pipe	P10x.365	A500-50 (50 ksi)	Equal Angle	L3x3x3/16	A36 (36 ksi)
T9 100.00-80.00	Pipe	P10x.365	A500-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T10 80.00-60.00	Pipe	P12x.375	A500-50 (50 ksi)	Equal Angle	L3x3x3/8	A36 (36 ksi)
T11 60.00-40.00	Pipe	P12x.375	A500-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T12 40.00-20.00	Pipe	P12x.375	A500-50 (50 ksi)	Equal Angle	L3x3x3/8	A36 (36 ksi)
T13 20.00-0.00	Pipe	P12x.375	A500-50 (50 ksi)	Equal Angle	L3 1/2x3 1/2x1/4	A36 (36 ksi)

### Tower Section Geometry (cont'd)

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 250.00-240.00	Solid Round	1 1/8	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T2 240.00-220.00	Solid Round	1 1/8	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T3 220.00-200.00	Equal Angle	L2x2x1/8	A36 (36 ksi)	Solid Round		A36 (36 ksi)

### Tower Section Geometry (cont'd)

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 250.00-240.00	None	Solid Round		A572-50 (50 ksi)	Solid Round	1	A36 (36 ksi)

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T2 240.00-220.00	None	Equal Angle		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)

**Tower Section Geometry (cont'd)**

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T1 250.00-240.00	Solid Round	1	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T2 240.00-220.00	Solid Round	1	A36 (36 ksi)	Solid Round		A36 (36 ksi)

**Tower Section Geometry (cont'd)**

Tower Elevation ft	Gusset Area (per face) ft <sup>2</sup>	Gusset Thickness in	Gusset Grade	Adjust. Factor A <sub>r</sub>	Adjust. Factor A <sub>r</sub>	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 250.00-240.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T2 240.00-220.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T3 220.00-200.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T4 200.00-180.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T5 180.00-160.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T6 160.00-140.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T7 140.00-120.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T8 120.00-100.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T9 100.00-80.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T10 80.00-60.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T11 60.00-40.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T12 40.00-20.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T13 20.00-0.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000

**Tower Section Geometry (cont'd)**

K Factors<sup>1</sup>

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	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	X Y	X Y	X Y				
T1 250.00-240.00	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
T2 240.00-220.00	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
T3 220.00-200.00	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
T4 200.00-180.00	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
T5 180.00-160.00	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
T6 160.00-140.00	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
T7 140.00-120.00	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
T8 120.00-100.00	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
T9 100.00-80.00	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
T10 80.00-60.00	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
T11 60.00-40.00	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
T12 40.00-20.00	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
T13 20.00-0.00	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	

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

**Tower Section Geometry (cont'd)**

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 250.00-240.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75	0.0000	1
T2 240.00-220.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 220.00-200.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 200.00-180.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 180.00-160.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 160.00-140.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 140.00-120.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 120.00-100.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 100.00-80.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T10 80.00-60.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T11 60.00-40.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T12 40.00-20.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

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
T13 20.00-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 250.00-240.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 240.00-220.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 220.00-200.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 200.00-180.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 180.00-160.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 160.00-140.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 140.00-120.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 120.00-100.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 100.00-80.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T10 80.00-60.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T11 60.00-40.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T12 40.00-20.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T13 20.00-0.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

**Feed Line/Linear Appurtenances - Entered As Round Or Flat**

Description	Face or Shield Leg	Allow No	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
Step Bolts	A	No	No	Ar (CaAa)	250.00 - 0.00	2.0000	0.5	1	1	0.2500	0.1500		0.31
Safety Line	B	No	No	Ar (CaAa)	250.00 - 0.00	3.0000	-0.5	1	1	0.3750	0.3750		0.22
Feedline Ladder (Af) ***	A	No	No	Af (CaAa)	245.00 - 0.00	0.0000	0.35	1	1	3.0000	2.0000		8.40
1.996 Hybrid (T-Mobile) ***	A	No	No	Ar (CaAa)	245.00 - 0.00	0.0000	0.38	3	3	1.5500	1.5500		1.71
LDF4RN-50A (1/2 FOAM) (T-Mobile)	A	No	No	Ar (CaAa)	230.00 - 0.00	0.0000	0.33	1	1	0.6300	0.6300		0.15
55mm MW Fiber (T-Mobile)	A	No	No	Ar (CaAa)	230.00 - 0.00	0.0000	0.3	1	1	2.3500	2.3500		1.22

### Feed Line/Linear Appurtenances Section Areas

Tower Sectio n	Tower Elevation ft	Face	$A_R$ ft <sup>2</sup>	$A_F$ ft <sup>2</sup>	$C_{AA}$ In Face ft <sup>2</sup>	$C_{AA}$ Out Face ft <sup>2</sup>	Weight K
T1	250.00-240.00	A	0.000	0.000	4.142	0.000	0.07
		B	0.000	0.000	0.375	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
T2	240.00-220.00	A	0.000	0.000	19.247	0.000	0.29
		B	0.000	0.000	0.750	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
T3	220.00-200.00	A	0.000	0.000	22.227	0.000	0.30
		B	0.000	0.000	0.750	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
T4	200.00-180.00	A	0.000	0.000	22.227	0.000	0.30
		B	0.000	0.000	0.750	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
T5	180.00-160.00	A	0.000	0.000	22.227	0.000	0.30
		B	0.000	0.000	0.750	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
T6	160.00-140.00	A	0.000	0.000	22.227	0.000	0.30
		B	0.000	0.000	0.750	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
T7	140.00-120.00	A	0.000	0.000	22.227	0.000	0.30
		B	0.000	0.000	0.750	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
T8	120.00-100.00	A	0.000	0.000	22.227	0.000	0.30
		B	0.000	0.000	0.750	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
T9	100.00-80.00	A	0.000	0.000	22.227	0.000	0.30
		B	0.000	0.000	0.750	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
T10	80.00-60.00	A	0.000	0.000	22.227	0.000	0.30
		B	0.000	0.000	0.750	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
T11	60.00-40.00	A	0.000	0.000	22.227	0.000	0.30
		B	0.000	0.000	0.750	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
T12	40.00-20.00	A	0.000	0.000	22.227	0.000	0.30
		B	0.000	0.000	0.750	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
T13	20.00-0.00	A	0.000	0.000	22.227	0.000	0.30
		B	0.000	0.000	0.750	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00

### Feed Line Center of Pressure

Section	Elevation ft	$CP_x$ in	$CP_z$ in	$CP_x$ Ice in	$CP_z$ Ice in
T1	250.00-240.00	-0.7928	-5.4235	-0.7928	-5.4235
T2	240.00-220.00	-1.4923	-8.3589	-1.4923	-8.3589
T3	220.00-200.00	-1.1357	-6.5680	-1.0757	-6.2059
T4	200.00-180.00	-1.3008	-7.8572	-1.1826	-7.1113
T5	180.00-160.00	-1.3299	-8.2432	-1.1972	-7.3845
T6	160.00-140.00	-1.4483	-9.2088	-1.2973	-8.1997
T7	140.00-120.00	-1.4818	-9.5097	-1.3135	-8.3788
T8	120.00-100.00	-1.5971	-10.4010	-1.4088	-9.1128
T9	100.00-80.00	-1.7011	-11.2152	-1.4966	-9.7931
T10	80.00-60.00	-1.6939	-11.2155	-1.4818	-9.7380
T11	60.00-40.00	-1.7918	-11.9885	-1.5652	-10.3872
T12	40.00-20.00	-1.8925	-12.7933	-1.6529	-11.0760
T13	20.00-0.00	-1.8424	-12.6437	-1.6315	-11.0937

### Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
T1	1	Step Bolts	240.00 - 250.00	0.6000	0.6000
T1	2	Safety Line	240.00 - 250.00	0.6000	0.6000
T1	3	Feedline Ladder (Af)	240.00 - 245.00	0.6000	0.6000
T1	5	1.996 Hybrid	240.00 - 245.00	0.6000	0.6000
T2	1	Step Bolts	220.00 - 240.00	0.6000	0.6000
T2	2	Safety Line	220.00 - 240.00	0.6000	0.6000
T2	3	Feedline Ladder (Af)	220.00 - 240.00	0.6000	0.6000
T2	5	1.996 Hybrid	220.00 - 240.00	0.6000	0.6000
T2	7	LDF4RN-50A (1/2 FOAM)	220.00 - 230.00	0.6000	0.6000
T2	8	55mm MW Fiber	220.00 - 230.00	0.6000	0.6000
T3	1	Step Bolts	200.00 - 220.00	0.6000	0.6000
T3	2	Safety Line	200.00 - 220.00	0.6000	0.6000
T3	3	Feedline Ladder (Af)	200.00 - 220.00	0.6000	0.6000
T3	5	1.996 Hybrid	200.00 - 220.00	0.6000	0.6000
T3	7	LDF4RN-50A (1/2 FOAM)	200.00 - 220.00	0.6000	0.6000
T3	8	55mm MW Fiber	200.00 - 220.00	0.6000	0.6000
T4	1	Step Bolts	180.00 - 200.00	0.6000	0.6000
T4	2	Safety Line	180.00 - 200.00	0.6000	0.6000
T4	3	Feedline Ladder (Af)	180.00 - 200.00	0.6000	0.6000
T4	5	1.996 Hybrid	180.00 - 200.00	0.6000	0.6000
T4	7	LDF4RN-50A (1/2 FOAM)	180.00 - 200.00	0.6000	0.6000
T4	8	55mm MW Fiber	180.00 - 200.00	0.6000	0.6000
T5	1	Step Bolts	160.00 - 180.00	0.6000	0.6000
T5	2	Safety Line	160.00 - 180.00	0.6000	0.6000
T5	3	Feedline Ladder (Af)	160.00 - 180.00	0.6000	0.6000
T5	5	1.996 Hybrid	160.00 - 180.00	0.6000	0.6000
T5	7	LDF4RN-50A (1/2 FOAM)	160.00 - 180.00	0.6000	0.6000
T5	8	55mm MW Fiber	160.00 - 180.00	0.6000	0.6000
T6	1	Step Bolts	140.00 - 160.00	0.6000	0.6000
T6	2	Safety Line	140.00 - 160.00	0.6000	0.6000
T6	3	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	$K_a$ No Ice	$K_a$ Ice
T6	5	1.996 Hybrid	140.00 - 160.00	0.6000	0.6000
T6	7	LDF4RN-50A (1/2 FOAM)	140.00 - 160.00	0.6000	0.6000
T6	8	55mm MW Fiber	140.00 - 160.00	0.6000	0.6000
T7	1	Step Bolts	120.00 - 140.00	0.6000	0.6000
T7	2	Safety Line	120.00 - 140.00	0.6000	0.6000
T7	3	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T7	5	1.996 Hybrid	120.00 - 140.00	0.6000	0.6000
T7	7	LDF4RN-50A (1/2 FOAM)	120.00 - 140.00	0.6000	0.6000
T7	8	55mm MW Fiber	120.00 - 140.00	0.6000	0.6000
T8	1	Step Bolts	100.00 - 120.00	0.6000	0.6000
T8	2	Safety Line	100.00 - 120.00	0.6000	0.6000
T8	3	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T8	5	1.996 Hybrid	100.00 - 120.00	0.6000	0.6000
T8	7	LDF4RN-50A (1/2 FOAM)	100.00 - 120.00	0.6000	0.6000
T8	8	55mm MW Fiber	100.00 - 120.00	0.6000	0.6000
T9	1	Step Bolts	80.00 - 100.00	0.6000	0.6000
T9	2	Safety Line	80.00 - 100.00	0.6000	0.6000
T9	3	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T9	5	1.996 Hybrid	80.00 - 100.00	0.6000	0.6000
T9	7	LDF4RN-50A (1/2 FOAM)	80.00 - 100.00	0.6000	0.6000
T9	8	55mm MW Fiber	80.00 - 100.00	0.6000	0.6000
T10	1	Step Bolts	60.00 - 80.00	0.6000	0.6000
T10	2	Safety Line	60.00 - 80.00	0.6000	0.6000
T10	3	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T10	5	1.996 Hybrid	60.00 - 80.00	0.6000	0.6000
T10	7	LDF4RN-50A (1/2 FOAM)	60.00 - 80.00	0.6000	0.6000
T10	8	55mm MW Fiber	60.00 - 80.00	0.6000	0.6000
T11	1	Step Bolts	40.00 - 60.00	0.6000	0.6000
T11	2	Safety Line	40.00 - 60.00	0.6000	0.6000
T11	3	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T11	5	1.996 Hybrid	40.00 - 60.00	0.6000	0.6000
T11	7	LDF4RN-50A (1/2 FOAM)	40.00 - 60.00	0.6000	0.6000
T11	8	55mm MW Fiber	40.00 - 60.00	0.6000	0.6000
T12	1	Step Bolts	20.00 - 40.00	0.6000	0.6000
T12	2	Safety Line	20.00 -	0.6000	0.6000



Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
T12	3	Feedline Ladder (Af)	40.00 20.00 - 40.00	0.6000	0.6000
T12	5	1.996 Hybrid	40.00 20.00 - 40.00	0.6000	0.6000
T12	7	LDF4RN-50A (1/2 FOAM)	40.00 20.00 - 40.00	0.6000	0.6000
T12	8	55mm MW Fiber	40.00 20.00 - 40.00	0.6000	0.6000
T13	1	Step Bolts	0.00 - 20.00	0.6000	0.6000
T13	2	Safety Line	0.00 - 20.00	0.6000	0.6000
T13	3	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T13	5	1.996 Hybrid	0.00 - 20.00	0.6000	0.6000
T13	7	LDF4RN-50A (1/2 FOAM)	0.00 - 20.00	0.6000	0.6000
T13	8	55mm MW Fiber	0.00 - 20.00	0.6000	0.6000

### Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustmen t °	Placement ft		C <sub>AA</sub> Front ft <sup>2</sup>	C <sub>AA</sub> Side ft <sup>2</sup>	Weight K
Lightning Rod	B	From Leg	0.00 0.00 2.00	0.0000	250.00	No Ice	0.75	0.75	0.04
Flash Beacon Lighting	C	From Leg	0.00 0.00 1.00	0.0000	250.00	No Ice	2.70	2.70	0.05
***									
FFVV-65C-R3-V1 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	245.00	No Ice	12.97	6.20	0.18
FFVV-65C-R3-V1 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	245.00	No Ice	12.97	6.20	0.18
FFVV-65C-R3-V1 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	245.00	No Ice	12.97	6.20	0.18
Radio 4480 B71+B85	A	From Leg	3.75 0.00 0.00	0.0000	245.00	No Ice	2.85	1.38	0.09
Radio 4480 B71+B85	B	From Leg	3.75 0.00 0.00	0.0000	245.00	No Ice	2.85	1.38	0.09
Radio 4480 B71+B85	C	From Leg	3.75 0.00 0.00	0.0000	245.00	No Ice	2.85	1.38	0.09
Pipe Mount	A	From Leg	4.00 0.00 0.00	0.0000	245.00	No Ice	1.43	1.43	0.02
Pipe Mount	B	From Leg	4.00 0.00 0.00	0.0000	245.00	No Ice	1.43	1.43	0.02
Pipe Mount	C	From Leg	4.00 0.00 0.00	0.0000	245.00	No Ice	1.43	1.43	0.02
C10857001C Mount [3] ***	C	None		0.0000	245.00	No Ice	29.82	29.82	1.67
(2) IP20D ODU	C	From Leg	0.50	0.0000	230.00	No Ice	0.68	0.29	0.01

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C <sub>AA</sub> Front ft <sup>2</sup>	C <sub>AA</sub> Side ft <sup>2</sup>	Weight K
Pipe Mount	C	From Leg	0.00 0.00 0.50 0.00 0.00	0.0000	230.00	No Ice	1.11	1.11	0.04

### 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 <sup>2</sup>	Weight K
SB6-W60C	C	Paraboloid w/Shroud (HP)	From Leg	1.00 0.00 0.00	-25.0000		230.00	6.00	No Ice	28.27	0.25

### Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	Dead+Wind 0 deg - Service
27	Dead+Wind 30 deg - Service
28	Dead+Wind 60 deg - Service
29	Dead+Wind 90 deg - Service
30	Dead+Wind 120 deg - Service
31	Dead+Wind 150 deg - Service
32	Dead+Wind 180 deg - Service
33	Dead+Wind 210 deg - Service
34	Dead+Wind 240 deg - Service
35	Dead+Wind 270 deg - Service

Comb. No.	Description
36	Dead+Wind 300 deg - Service
37	Dead+Wind 330 deg - Service

### Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft	
T1	250 - 240	Leg	Max Tension	7	3.49	0.24	-0.12	
			Max. Compression	2	-5.70	-0.01	0.12	
			Max. Mx	8	-1.60	0.43	-0.01	
			Max. My	14	-1.19	0.00	0.42	
			Max. Vy	8	1.08	-0.13	0.00	
			Max. Vx	2	-1.05	-0.01	0.12	
		Diagonal	Max Tension	16	2.89	0.00	0.00	
			Max. Compression	4	-2.92	0.00	0.00	
			Max. Mx	4	1.26	0.01	0.00	
			Max. My	6	-0.02	0.00	0.00	
			Max. Vy	4	0.01	0.00	0.00	
			Max. Vx	6	-0.00	0.00	0.00	
			Horizontal	Max Tension	6	0.76	0.00	0.00
				Max. Compression	18	-0.75	0.00	0.00
				Max. Mx	10	0.37	0.01	0.00
				Max. My	6	-0.28	0.00	0.00
		Max. Vy		10	-0.01	0.00	0.00	
		Max. Vx		6	-0.00	0.00	0.00	
		Secondary Horizontal	Max Tension	8	0.00	-0.00	-0.00	
			Max. Compression	20	-0.00	-0.00	-0.00	
			Max. Mx	2	0.00	-0.00	0.00	
			Max. My	2	0.00	-0.00	0.00	
			Max. Vy	2	0.00	-0.00	0.00	
			Max. Vx	2	-0.00	-0.00	0.00	
			Top Girt	Max Tension	22	0.05	0.00	0.00
				Max. Compression	10	-0.05	0.00	0.00
				Max. Mx	10	-0.02	0.01	0.00
				Max. My	6	0.02	0.00	0.00
		Max. Vy		10	-0.01	0.00	0.00	
		Max. Vx		6	-0.00	0.00	0.00	
		Bottom Girt	Max Tension	2	1.24	0.00	0.00	
			Max. Compression	14	-1.21	0.00	0.00	
			Max. Mx	10	-0.61	0.01	0.00	
			Max. My	6	0.63	0.00	0.00	
			Max. Vy	10	-0.01	0.00	0.00	
			Max. Vx	6	-0.00	0.00	0.00	
T2	240 - 220		Leg	Max Tension	7	26.60	0.11	-0.01
				Max. Compression	2	-30.15	-0.25	0.89
				Max. Mx	20	-26.22	0.76	-0.22
				Max. My	2	-30.15	-0.25	0.89
		Max. Vy		20	-2.36	0.76	-0.22	
		Max. Vx		2	-2.71	-0.25	0.89	
		Diagonal	Max Tension	4	5.26	0.00	0.00	
			Max. Compression	4	-5.58	0.00	0.00	
			Max. Mx	4	3.17	0.01	0.00	
			Max. My	6	-0.12	0.00	0.00	
			Max. Vy	4	-0.01	0.00	0.00	
			Max. Vx	6	-0.00	0.00	0.00	
		Horizontal	Max Tension	4	0.81	0.00	0.00	
			Max. Compression	15	-0.71	0.00	0.00	
			Max. Mx	10	0.03	0.01	0.00	
			Max. My	6	-0.20	0.00	0.00	
			Max. Vy	10	-0.01	0.00	0.00	
			Max. Vx	6	-0.00	0.00	0.00	
Secondary Horizontal	Max Tension	8	0.00	-0.00	-0.00			
	Max. Compression	20	-0.00	-0.00	-0.00			
	Max. Mx	2	0.00	-0.00	0.00			

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft	
T3	220 - 200	Top Girt	Max. My	2	0.00	-0.00	0.00	
			Max. Vy	2	0.00	-0.00	0.00	
			Max. Vx	2	-0.00	-0.00	0.00	
			Max Tension	14	1.30	0.00	0.00	
			Max. Compression	2	-1.32	0.00	0.00	
			Max. Mx	10	0.64	0.01	0.00	
			Max. My	6	-0.69	0.00	0.00	
			Max. Vy	10	-0.01	0.00	0.00	
			Max. Vx	6	-0.00	0.00	0.00	
			Max Tension	4	1.59	0.00	0.00	
			Max. Compression	14	-1.55	0.00	0.00	
			Max. Mx	10	-0.42	0.01	0.00	
			Max. My	6	1.34	0.00	0.00	
			Max. Vy	10	-0.01	0.00	0.00	
		Max. Vx	6	-0.00	0.00	0.00		
		Bottom Girt	Max Tension	4	1.59	0.00	0.00	
			Max. Compression	14	-1.55	0.00	0.00	
			Max. Mx	10	-0.42	0.01	0.00	
			Max. My	6	1.34	0.00	0.00	
			Max. Vy	10	-0.01	0.00	0.00	
			Max. Vx	6	-0.00	0.00	0.00	
			Leg	Max Tension	7	43.21	-0.34	0.02
				Max. Compression	2	-47.78	0.45	0.02
				Max. Mx	2	-32.27	0.89	0.25
				Max. My	4	-1.89	-0.02	-0.59
				Max. Vy	2	0.20	0.89	0.25
				Max. Vx	20	-0.13	-0.02	-0.57
				Diagonal	Max Tension	7	2.62	0.00
Max. Compression	2				-2.70	0.00	0.00	
Max. Mx	2	1.16			0.02	0.00		
Max. My	14	-2.18			-0.01	-0.01		
Max. Vy	2	-0.01			0.02	0.00		
Max. Vx	14	0.00			0.00	0.00		
Max Tension	6	0.53			0.00	0.00		
Top Girt	Max. Compression	16		-0.48	0.00	0.00		
	Max. Mx	10	0.08	-0.00	0.00			
	Max. My	6	-0.23	0.00	0.00			
	Max. Vy	10	0.00	0.00	0.00			
	Max. Vx	6	-0.00	0.00	0.00			
	Max Tension	7	60.08	-0.51	0.03			
	Max. Compression	2	-66.53	0.85	0.08			
T4	200 - 180	Leg	Max. Mx	2	-66.53	0.85	0.08	
			Max. My	8	-9.19	0.07	0.81	
			Max. Vy	3	-0.12	0.84	0.08	
			Max. Vx	8	-0.11	0.07	0.81	
			Max Tension	4	2.39	0.00	0.00	
			Max. Compression	4	-2.43	0.00	0.00	
			Max. Mx	2	1.39	0.02	0.00	
		Diagonal	Max. My	6	-2.17	-0.00	0.00	
			Max. Vy	2	-0.01	0.02	0.00	
			Max. Vx	6	-0.00	0.00	0.00	
			Max Tension	7	76.39	-1.00	0.05	
			Max. Compression	2	-85.33	1.01	0.05	
			Max. Mx	2	-71.12	1.05	0.05	
			Max. My	4	-4.24	-0.01	-1.07	
T5	180 - 160	Leg	Max. Vy	6	0.10	-1.04	0.04	
			Max. Vx	20	0.10	-0.06	-0.91	
			Max Tension	4	2.75	0.00	0.00	
			Max. Compression	4	-2.80	0.00	0.00	
			Max. Mx	2	1.82	0.02	0.00	
			Max. My	6	-2.41	0.00	0.00	
			Max. Vy	6	0.01	0.02	0.00	
		Diagonal	Max. Vx	6	-0.00	0.00	0.00	
			Max Tension	7	93.12	-1.01	0.02	
			Max. Compression	2	-105.16	1.55	0.09	
			Max. Mx	2	-105.16	1.55	0.09	
			Max. My	8	-13.05	0.09	1.44	
			Max. Vy	6	0.16	-1.53	0.10	
			Max. Vx	8	-0.23	0.09	1.44	
T6	160 - 140	Leg	Max Tension	4	3.05	0.00	0.00	
			Max. Compression	4	-3.11	0.00	0.00	
			Max. Mx	6	1.70	0.02	0.00	
			Max. My	6	-2.90	0.01	0.00	
			Max. Vy	6	0.01	0.02	0.00	
			Max. Vx	6	-0.00	0.00	0.00	
			Diagonal	Max Tension	7	93.12	-1.01	0.02
		Max. Compression		2	-105.16	1.55	0.09	
		Max. Mx		2	-105.16	1.55	0.09	
		Max. My		8	-13.05	0.09	1.44	
		Max. Vy		6	0.16	-1.53	0.10	
		Max. Vx		8	-0.23	0.09	1.44	
		Max Tension		4	3.05	0.00	0.00	

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft			
T7	140 - 120	Leg	Max Tension	7	107.75	-1.68	0.10			
			Max. Compression	2	-122.91	1.96	0.07			
			Max. Mx	2	-122.91	1.96	0.07			
			Max. My	4	-6.21	-0.05	-2.21			
			Max. Vy	19	-0.17	1.90	-0.05			
			Max. Vx	8	-0.24	0.05	2.20			
		Diagonal	Max Tension	4	4.34	0.00	0.00			
			Max. Compression	4	-4.41	0.00	0.00			
			Max. Mx	2	3.30	0.05	0.00			
			Max. My	6	-3.64	0.01	0.01			
			Max. Vy	6	0.02	0.05	0.01			
			Max. Vx	6	-0.00	0.00	0.00			
			T8	120 - 100	Leg	Max Tension	7	125.06	-1.69	0.06
						Max. Compression	2	-143.98	2.42	0.11
Max. Mx	2	-143.98				2.42	0.11			
Max. My	8	-16.67				0.13	2.12			
Max. Vy	19	-0.21				2.37	-0.14			
Max. Vx	8	-0.20				0.13	2.12			
Diagonal	Max Tension	4			4.64	0.00	0.00			
	Max. Compression	18			-4.77	0.00	0.00			
T9	100 - 80	Leg	Max. Mx	2	3.56	0.05	0.00			
			Max. My	6	-4.20	0.01	0.01			
			Max. Vy	6	0.02	0.05	0.01			
			Max. Vx	6	-0.00	0.00	0.00			
			Max Tension	7	142.75	-1.54	0.04			
			Max. Compression	2	-165.72	2.96	0.12			
		Diagonal	Max. Mx	2	-165.72	2.96	0.12			
			Max. My	8	-18.50	0.17	2.47			
			Max. Vy	18	-0.28	2.91	-0.17			
			Max. Vx	8	-0.22	0.17	2.47			
			Max Tension	4	4.99	0.00	0.00			
			Max. Compression	18	-5.20	0.00	0.00			
			Max. Mx	2	3.90	0.07	0.01			
			Max. My	6	-4.68	0.03	0.01			
T10	80 - 60	Leg	Max. Vy	6	0.03	0.07	0.01			
			Max. Vx	6	-0.00	0.00	0.00			
			Max Tension	7	160.32	-2.50	0.10			
			Max. Compression	2	-188.10	3.08	0.03			
			Max. Mx	2	-188.10	3.08	0.03			
			Max. My	8	-19.62	0.01	3.07			
		Diagonal	Max. Vy	2	-0.21	3.08	0.03			
			Max. Vx	8	0.31	0.01	3.07			
			Max Tension	16	5.64	0.00	0.00			
			Max. Compression	18	-6.03	0.00	0.00			
			Max. Mx	2	4.31	0.11	0.01			
			Max. My	8	-3.32	0.07	0.01			
			Max. Vy	6	0.05	0.11	-0.01			
			Max. Vx	8	-0.00	0.00	0.00			
T11	60 - 40	Leg	Max Tension	7	174.70	-2.27	0.07			
			Max. Compression	2	-207.23	3.41	0.13			
			Max. Mx	2	-207.23	3.41	0.13			
			Max. My	8	-22.66	0.15	3.16			
			Max. Vy	10	-0.26	3.30	0.10			
			Max. Vx	8	-0.28	-0.01	2.83			
		Diagonal	Max Tension	16	4.53	0.00	0.00			
			Max. Compression	18	-4.72	0.00	0.00			
			Max. Mx	6	2.80	0.09	0.01			
			Max. My	6	-3.97	0.05	0.01			
			Max. Vy	6	0.03	0.09	0.01			
			Max. Vx	6	-0.00	0.00	0.00			
			T12	40 - 20	Leg	Max Tension	7	187.60	-2.47	0.06
						Max. Compression	2	-225.07	2.30	0.02
Max. Mx	2	-215.25				3.41	0.13			
Max. My	8	-22.90				0.15	3.16			
Max. Vy	11	0.22				3.29	0.11			
Max. Vx	8	0.25				0.02	2.46			
Diagonal	Max Tension	16			5.12	0.00	0.00			
	Max. Compression	18			-5.32	0.00	0.00			
	Max. Mx	6			3.19	0.14	0.02			

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T13	20 - 0	Leg	Max. My	6	-4.73	0.11	0.02
			Max. Vy	6	0.06	0.14	0.02
			Max. Vx	6	-0.00	0.00	0.00
			Max Tension	7	200.21	-2.53	0.10
			Max. Compression	2	-242.50	-0.00	-0.00
			Max. Mx	6	196.43	-2.59	0.11
			Max. My	8	-25.74	-0.13	3.99
		Diagonal	Max. Vy	6	-0.39	-2.59	0.11
			Max. Vx	8	0.53	-0.13	3.99
			Max Tension	16	5.64	0.00	0.00
			Max. Compression	18	-6.39	0.00	0.00
			Max. Mx	2	4.21	0.14	0.02
			Max. My	6	-1.84	0.11	0.02
			Max. Vy	8	0.05	0.13	0.02
Max. Vx	6	-0.00	0.00	0.00			

### Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	18	242.60	19.27	-11.82
	Max. H <sub>x</sub>	18	242.60	19.27	-11.82
	Max. H <sub>z</sub>	7	-203.42	-16.25	10.07
	Min. Vert	7	-203.42	-16.25	10.07
	Min. H <sub>x</sub>	7	-203.42	-16.25	10.07
	Min. H <sub>z</sub>	18	242.60	19.27	-11.82
Leg B	Max. Vert	10	237.53	-19.11	-11.53
	Max. H <sub>x</sub>	23	-195.39	15.91	9.67
	Max. H <sub>z</sub>	23	-195.39	15.91	9.67
	Min. Vert	23	-195.39	15.91	9.67
	Min. H <sub>x</sub>	10	237.53	-19.11	-11.53
	Min. H <sub>z</sub>	10	237.53	-19.11	-11.53
Leg A	Max. Vert	2	246.99	-0.14	22.79
	Max. H <sub>x</sub>	21	8.59	2.13	0.69
	Max. H <sub>z</sub>	2	246.99	-0.14	22.79
	Min. Vert	15	-197.23	0.15	-18.79
	Min. H <sub>x</sub>	9	22.12	-2.16	1.50
	Min. H <sub>z</sub>	15	-197.23	0.15	-18.79

### Tower Mast Reaction Summary

Load Combination	Vertical K	Shear <sub>x</sub> K	Shear <sub>z</sub> K	Overturning Moment, M <sub>x</sub> kip-ft	Overturning Moment, M <sub>z</sub> kip-ft	Torque kip-ft
Dead Only	43.71	0.00	0.00	-19.58	4.26	-0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	52.45	0.49	-34.62	-4372.65	-108.29	-6.54
0.9 Dead+1.0 Wind 0 deg - No Ice	39.34	0.49	-34.62	-4361.03	-109.38	-6.54
1.2 Dead+1.0 Wind 30 deg - No Ice	52.45	16.08	-27.70	-3551.63	-2051.75	-14.56
0.9 Dead+1.0 Wind 30 deg - No Ice	39.34	16.08	-27.70	-3541.03	-2050.31	-14.54
1.2 Dead+1.0 Wind 60 deg - No Ice	52.45	27.73	-16.41	-2154.84	-3528.06	-23.82
0.9 Dead+1.0 Wind 60 deg - No Ice	39.34	27.73	-16.41	-2146.05	-3524.68	-23.79
1.2 Dead+1.0 Wind 90 deg - No Ice	52.45	32.74	-0.66	-177.72	-4133.37	-25.21
0.9 Dead+1.0 Wind 90 deg - No Ice	39.34	32.74	-0.66	-171.51	-4129.23	-25.18

Load Combination	Vertical K	Shear <sub>x</sub> K	Shear <sub>z</sub> K	Overturning Moment, M <sub>x</sub> kip-ft	Overturning Moment, M <sub>z</sub> kip-ft	Torque kip-ft
No Ice						
1.2 Dead+1.0 Wind 120 deg - No Ice	52.45	29.47	16.96	2072.31	-3644.61	-15.79
0.9 Dead+1.0 Wind 120 deg - No Ice	39.34	29.47	16.96	2075.53	-3641.19	-15.77
1.2 Dead+1.0 Wind 150 deg - No Ice	52.45	15.93	28.33	3553.10	-1961.05	-5.35
0.9 Dead+1.0 Wind 150 deg - No Ice	39.34	15.93	28.33	3554.33	-1959.82	-5.35
1.2 Dead+1.0 Wind 180 deg - No Ice	52.45	-0.40	31.81	4006.97	96.93	6.77
0.9 Dead+1.0 Wind 180 deg - No Ice	39.34	-0.40	31.81	4007.58	95.46	6.76
1.2 Dead+1.0 Wind 210 deg - No Ice	52.45	-15.90	27.43	3440.60	2019.21	14.35
0.9 Dead+1.0 Wind 210 deg - No Ice	39.34	-15.90	27.43	3441.96	2015.26	14.34
1.2 Dead+1.0 Wind 240 deg - No Ice	52.45	-29.65	17.43	2177.92	3695.06	22.95
0.9 Dead+1.0 Wind 240 deg - No Ice	39.34	-29.65	17.43	2180.95	3688.97	22.93
1.2 Dead+1.0 Wind 270 deg - No Ice	52.45	-32.57	0.45	80.43	4103.59	24.03
0.9 Dead+1.0 Wind 270 deg - No Ice	39.34	-32.57	0.45	86.16	4096.93	24.00
1.2 Dead+1.0 Wind 300 deg - No Ice	52.45	-27.39	-15.60	-1968.65	3461.20	15.83
0.9 Dead+1.0 Wind 300 deg - No Ice	39.34	-27.39	-15.60	-1960.20	3455.37	15.81
1.2 Dead+1.0 Wind 330 deg - No Ice	52.45	-15.77	-28.44	-3627.40	1934.36	5.91
0.9 Dead+1.0 Wind 330 deg - No Ice	39.34	-15.77	-28.44	-3616.73	1930.60	5.90
Dead+Wind 0 deg - Service	43.71	0.14	-10.08	-1278.95	-27.08	-1.81
Dead+Wind 30 deg - Service	43.71	4.70	-8.10	-1044.29	-592.82	-4.03
Dead+Wind 60 deg - Service	43.71	8.11	-4.79	-637.31	-1021.80	-6.59
Dead+Wind 90 deg - Service	43.71	9.56	-0.18	-62.26	-1196.77	-6.97
Dead+Wind 120 deg - Service	43.71	8.59	4.94	588.26	-1054.04	-4.37
Dead+Wind 150 deg - Service	43.71	4.66	8.27	1018.46	-567.75	-1.48
Dead+Wind 180 deg - Service	43.71	-0.11	9.30	1151.55	29.66	1.87
Dead+Wind 210 deg - Service	43.71	-4.65	8.02	987.33	589.54	3.97
Dead+Wind 240 deg - Service	43.71	-8.64	5.07	617.47	1073.72	6.35
Dead+Wind 270 deg - Service	43.71	-9.51	0.12	9.12	1194.27	6.65
Dead+Wind 300 deg - Service	43.71	-8.01	-4.57	-585.83	1009.04	4.38
Dead+Wind 330 deg - Service	43.71	-4.61	-8.30	-1065.26	566.10	1.63

## Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-43.71	0.00	0.00	43.71	0.00	0.000%
2	0.49	-52.45	-34.62	-0.49	52.45	34.62	0.001%
3	0.49	-39.34	-34.62	-0.49	39.34	34.62	0.000%
4	16.08	-52.45	-27.70	-16.08	52.45	27.70	0.000%
5	16.08	-39.34	-27.70	-16.08	39.34	27.70	0.000%
6	27.73	-52.45	-16.41	-27.73	52.45	16.41	0.000%
7	27.73	-39.34	-16.41	-27.73	39.34	16.41	0.000%

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
8	32.74	-52.45	-0.66	-32.74	52.45	0.66	0.000%
9	32.74	-39.34	-0.66	-32.74	39.34	0.66	0.000%
10	29.47	-52.45	16.96	-29.47	52.45	-16.96	0.000%
11	29.47	-39.34	16.96	-29.47	39.34	-16.96	0.000%
12	15.93	-52.45	28.33	-15.93	52.45	-28.33	0.000%
13	15.93	-39.34	28.33	-15.93	39.34	-28.33	0.000%
14	-0.40	-52.45	31.81	0.40	52.45	-31.81	0.000%
15	-0.40	-39.34	31.81	0.40	39.34	-31.81	0.000%
16	-15.90	-52.45	27.43	15.90	52.45	-27.43	0.000%
17	-15.90	-39.34	27.43	15.90	39.34	-27.43	0.000%
18	-29.65	-52.45	17.43	29.65	52.45	-17.43	0.000%
19	-29.65	-39.34	17.43	29.65	39.34	-17.43	0.000%
20	-32.57	-52.45	0.45	32.57	52.45	-0.45	0.000%
21	-32.57	-39.34	0.45	32.57	39.34	-0.45	0.000%
22	-27.39	-52.45	-15.60	27.39	52.45	15.60	0.000%
23	-27.39	-39.34	-15.60	27.39	39.34	15.60	0.000%
24	-15.77	-52.45	-28.44	15.77	52.45	28.44	0.000%
25	-15.77	-39.34	-28.44	15.77	39.34	28.44	0.000%
26	0.14	-43.71	-10.08	-0.14	43.71	10.08	0.000%
27	4.70	-43.71	-8.10	-4.70	43.71	8.10	0.000%
28	8.11	-43.71	-4.79	-8.11	43.71	4.79	0.000%
29	9.56	-43.71	-0.18	-9.56	43.71	0.18	0.000%
30	8.59	-43.71	4.94	-8.59	43.71	-4.94	0.000%
31	4.66	-43.71	8.27	-4.66	43.71	-8.27	0.000%
32	-0.11	-43.71	9.30	0.11	43.71	-9.30	0.000%
33	-4.65	-43.71	8.02	4.65	43.71	-8.02	0.000%
34	-8.64	-43.71	5.07	8.64	43.71	-5.07	0.000%
35	-9.51	-43.71	0.12	9.51	43.71	-0.12	0.000%
36	-8.01	-43.71	-4.57	8.01	43.71	4.57	0.000%
37	-4.61	-43.71	-8.30	4.61	43.71	8.30	0.000%

### Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00000001
3	Yes	4	0.00000001	0.00000001
4	Yes	4	0.00000001	0.00000001
5	Yes	4	0.00000001	0.00000001
6	Yes	4	0.00000001	0.00000001
7	Yes	4	0.00000001	0.00000001
8	Yes	4	0.00000001	0.00000001
9	Yes	4	0.00000001	0.00000001
10	Yes	4	0.00000001	0.00000001
11	Yes	4	0.00000001	0.00000001
12	Yes	4	0.00000001	0.00000001
13	Yes	4	0.00000001	0.00000001
14	Yes	4	0.00000001	0.00000001
15	Yes	4	0.00000001	0.00000001
16	Yes	4	0.00000001	0.00000001
17	Yes	4	0.00000001	0.00000001
18	Yes	4	0.00000001	0.00000001
19	Yes	4	0.00000001	0.00000001
20	Yes	4	0.00000001	0.00000001
21	Yes	4	0.00000001	0.00000001
22	Yes	4	0.00000001	0.00000001
23	Yes	4	0.00000001	0.00000001
24	Yes	4	0.00000001	0.00000001
25	Yes	4	0.00000001	0.00000001
26	Yes	4	0.00000001	0.00000001
27	Yes	4	0.00000001	0.00000001
28	Yes	4	0.00000001	0.00000001
29	Yes	4	0.00000001	0.00000001
30	Yes	4	0.00000001	0.00000001



31	Yes	4	0.00000001	0.00000001
32	Yes	4	0.00000001	0.00000001
33	Yes	4	0.00000001	0.00000001
34	Yes	4	0.00000001	0.00000001
35	Yes	4	0.00000001	0.00000001
36	Yes	4	0.00000001	0.00000001
37	Yes	4	0.00000001	0.00000001

### Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	250 - 240	6.031	26	0.2505	0.0542
T2	240 - 220	5.496	26	0.2488	0.0555
T3	220 - 200	4.469	26	0.2260	0.0477
T4	200 - 180	3.580	26	0.1916	0.0365
T5	180 - 160	2.827	26	0.1611	0.0286
T6	160 - 140	2.196	26	0.1333	0.0233
T7	140 - 120	1.668	26	0.1105	0.0185
T8	120 - 100	1.222	26	0.0939	0.0145
T9	100 - 80	0.845	26	0.0766	0.0108
T10	80 - 60	0.544	26	0.0587	0.0081
T11	60 - 40	0.317	26	0.0436	0.0062
T12	40 - 20	0.150	26	0.0286	0.0037
T13	20 - 0	0.047	26	0.0141	0.0020

### Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
250.00	Lightning Rod	26	6.031	0.2505	0.0542	258447
245.00	FFVV-65C-R3-V1 w/ Mount Pipe	26	5.763	0.2502	0.0552	258447
230.00	SB6-W60C	26	4.970	0.2403	0.0529	48144

### Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	250 - 240	20.899	2	0.8781	0.2006
T2	240 - 220	19.022	2	0.8718	0.2016
T3	220 - 200	15.426	2	0.7895	0.1724
T4	200 - 180	12.325	2	0.6655	0.1321
T5	180 - 160	9.714	2	0.5573	0.1036
T6	160 - 140	7.538	2	0.4594	0.0844
T7	140 - 120	5.721	2	0.3799	0.0670
T8	120 - 100	4.188	2	0.3222	0.0525
T9	100 - 80	2.894	2	0.2627	0.0391
T10	80 - 60	1.865	2	0.2009	0.0292
T11	60 - 40	1.087	2	0.1491	0.0225
T12	40 - 20	0.513	2	0.0980	0.0134
T13	20 - 0	0.162	2	0.0481	0.0072

### Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
250.00	Lightning Rod	2	20.899	0.8781	0.2006	70817
245.00	FFVV-65C-R3-V1 w/ Mount Pipe	2	19.959	0.8769	0.2020	70817
230.00	SB6-W60C	2	17.179	0.8410	0.1912	13473

### Compression Checks

### Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	KI/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T1	250 - 240	1 1/2	10.00	3.08	98.7 K=1.00	1.7672	-4.18	39.03	0.107 <sup>1</sup> ✓
T2	240 - 220	2	20.00	3.21	77.0 K=1.00	3.1416	-27.62	91.64	0.301 <sup>1</sup> ✓
T3	220 - 200	P5x.258	20.02	5.00	32.0 K=1.00	4.2999	-47.78	179.55	0.266 <sup>1</sup> ✓
T4	200 - 180	P6x.28	20.02	5.00	26.7 K=1.00	5.5813	-66.53	238.36	0.279 <sup>1</sup> ✓
T5	180 - 160	P8x0.25	20.02	5.00	20.3 K=1.00	6.5777	-85.33	287.23	0.297 <sup>1</sup> ✓
T6	160 - 140	P8x.322	20.02	5.00	20.4 K=1.00	8.3993	-105.16	366.59	0.287 <sup>1</sup> ✓
T7	140 - 120	P10x.365	20.02	10.01	32.7 K=1.00	11.908 3	-122.91	495.59	0.248 <sup>1</sup> ✓
T8	120 - 100	P10x.365	20.02	10.01	32.7 K=1.00	11.908 3	-143.98	495.59	0.291 <sup>1</sup> ✓
T9	100 - 80	P10x.365	20.02	10.01	32.7 K=1.00	11.908 3	-165.72	495.59	0.334 <sup>1</sup> ✓
T10	80 - 60	P12x.375	20.02	10.01	27.4 K=1.00	14.579 0	-188.10	620.91	0.303 <sup>1</sup> ✓
T11	60 - 40	P12x.375	20.03	10.02	27.5 K=1.00	14.579 0	-207.23	620.86	0.334 <sup>1</sup> ✓
T12	40 - 20	P12x.375	20.03	10.02	27.5 K=1.00	14.579 0	-225.07	620.86	0.363 <sup>1</sup> ✓
T13	20 - 0	P12x.375	20.03	10.02	27.5 K=1.00	14.579 0	-242.50	620.86	0.391 <sup>1</sup> ✓

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	KI/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T1	250 - 240	1	5.05	4.89	164.4 K=0.70	0.7854	-2.92	6.57	0.444 <sup>1</sup> ✓
T2	240 - 220	1 1/4	5.13	4.91	132.1 K=0.70	1.2272	-5.58	15.87	0.351 <sup>1</sup> ✓
T3	220 - 200	L2x2x3/16	6.52	3.09	100.6 K=1.07	0.7150	-2.70	17.55	0.154 <sup>1</sup> ✓
T4	200 - 180	L2x2x3/16	8.45	4.00	121.4	0.7150	-2.39	13.81	0.173 <sup>1</sup> ✓

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T5	180 - 160	L2x2x1/4	9.70	4.54	K=1.00 134.8 K=0.97	0.9380	-2.80	14.78	0.190 <sup>1</sup> ✓
T6	160 - 140	L2x2x1/4	11.01	5.21	150.4 K=0.94	0.9380	-3.00	11.87	0.253 <sup>1</sup> ✓
T7	140 - 120	L3x3x3/16	14.96	7.13	138.0 K=0.96	1.0900	-4.41	16.38	0.269 <sup>1</sup> ✓
T8	120 - 100	L3x3x3/16	16.11	7.72	147.1 K=0.95	1.0900	-4.77	14.43	0.331 <sup>1</sup> ✓
T9	100 - 80	L3x3x1/4	17.31	8.33	157.3 K=0.93	1.4400	-5.20	16.65	0.312 <sup>1</sup> ✓
T10	80 - 60	L3x3x3/8	18.55	8.87	166.7 K=0.92	2.1100	-6.03	21.72	0.277 <sup>1</sup> ✓
T11	60 - 40	L3x3x1/4	20.16	9.75	179.3 K=0.91	1.4400	-4.72	12.82	0.368 <sup>1</sup> ✓
T12	40 - 20	L3x3x3/8	21.92	10.64	194.4 K=0.89	2.1100	-5.32	15.98	0.333 <sup>1</sup> ✓
T13	20 - 0	L3 1/2x3 1/2x1/4	23.71	11.55	180.7 K=0.91	1.6900	-6.39	14.81	0.432 <sup>1</sup> ✓

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T1	250 - 240	1	4.00	3.88	130.2 K=0.70	0.7854	-0.75	10.42	0.072 <sup>1</sup> ✓
T2	240 - 220	1	4.00	3.83	128.8 K=0.70	0.7854	-0.71	10.63	0.067 <sup>1</sup> ✓

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Secondary Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T1	250 - 240	1	2.00	1.94	83.9 K=0.90	0.7854	-0.00	17.56	0.000 <sup>1</sup> ✓
T2	240 - 220	1	2.00	1.92	83.7 K=0.91	0.7854	-0.00	17.59	0.000 <sup>1</sup> ✓

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
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Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio P <sub>u</sub> / φP <sub>n</sub>
T1	250 - 240	1 1/8	4.00	3.88	115.7 K=0.70	0.9940	-0.05	15.91	0.003 <sup>1</sup>
T2	240 - 220	1 1/8	4.00	3.83	114.5 K=0.70	0.9940	-1.32	16.15	0.082 <sup>1</sup>
T3	220 - 200	L2x2x1/8	4.00	3.54	113.4 K=1.06	0.4844	-0.83	10.27	0.081 <sup>1</sup>

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

**Bottom Girt Design Data (Compression)**

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio P <sub>u</sub> / φP <sub>n</sub>
T1	250 - 240	1	4.00	3.88	130.2 K=0.70	0.7854	-1.21	10.42	0.117 <sup>1</sup>
T2	240 - 220	1	4.00	3.83	128.8 K=0.70	0.7854	-1.55	10.63	0.146 <sup>1</sup>

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

**Tension Checks**

**Leg Design Data (Tension)**

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio P <sub>u</sub> / φP <sub>n</sub>
T1	250 - 240	1 1/2	10.00	0.38	12.0	1.7672	3.49	79.52	0.044 <sup>1</sup>
T2	240 - 220	2	20.00	0.38	9.0	3.1416	26.60	141.37	0.188 <sup>1</sup>
T3	220 - 200	P5x.258	20.02	5.00	32.0	4.2999	43.21	193.49	0.223 <sup>1</sup>
T4	200 - 180	P6x.28	20.02	5.00	26.7	5.5813	60.08	251.16	0.239 <sup>1</sup>
T5	180 - 160	P8x0.25	20.02	5.00	20.3	6.5777	76.39	296.00	0.258 <sup>1</sup>
T6	160 - 140	P8x.322	20.02	5.00	20.4	8.3993	93.12	377.97	0.246 <sup>1</sup>
T7	140 - 120	P10x.365	20.02	10.01	32.7	11.908 3	107.75	535.87	0.201 <sup>1</sup>
T8	120 - 100	P10x.365	20.02	10.01	32.7	11.908 3	125.06	535.87	0.233 <sup>1</sup>
T9	100 - 80	P10x.365	20.02	10.01	32.7	11.908 3	142.75	535.87	0.266 <sup>1</sup>
T10	80 - 60	P12x.375	20.02	10.01	27.4	14.579 0	160.32	656.05	0.244 <sup>1</sup>
T11	60 - 40	P12x.375	20.03	10.02	27.5	14.579 0	174.70	656.05	0.266 <sup>1</sup>
T12	40 - 20	P12x.375	20.03	10.02	27.5	14.579 0	187.60	656.05	0.286 <sup>1</sup>

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T13	20 - 0	P12x.375	20.03	10.02	27.5	14.579 0	200.21	656.05	0.305 <sup>1</sup> ✓

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T1	250 - 240	1	5.05	4.89	234.8	0.7854	2.89	25.45	0.113 <sup>1</sup> ✓
T2	240 - 220	1 1/4	5.13	4.91	188.7	1.2272	5.26	39.76	0.132 <sup>1</sup> ✓
T3	220 - 200	L2x2x3/16	6.52	3.09	60.1	0.7150	2.62	23.17	0.113 <sup>1</sup> ✓
T4	200 - 180	L2x2x3/16	8.15	3.85	74.9	0.7150	2.39	23.17	0.103 <sup>1</sup> ✓
T5	180 - 160	L2x2x1/4	9.70	4.54	89.5	0.9380	2.75	30.39	0.090 <sup>1</sup> ✓
T6	160 - 140	L2x2x1/4	10.68	5.04	99.4	0.9380	3.05	30.39	0.100 <sup>1</sup> ✓
T7	140 - 120	L3x3x3/16	14.96	7.13	91.1	1.0900	4.34	35.32	0.123 <sup>1</sup> ✓
T8	120 - 100	L3x3x3/16	16.11	7.72	98.7	1.0900	4.64	35.32	0.131 <sup>1</sup> ✓
T9	100 - 80	L3x3x1/4	17.31	8.33	107.5	1.4400	4.99	46.66	0.107 <sup>1</sup> ✓
T10	80 - 60	L3x3x3/8	18.55	8.87	116.6	2.1100	5.64	68.36	0.082 <sup>1</sup> ✓
T11	60 - 40	L3x3x1/4	20.16	9.75	125.9	1.4400	4.53	46.66	0.097 <sup>1</sup> ✓
T12	40 - 20	L3x3x3/8	21.92	10.64	139.9	2.1100	5.12	68.36	0.075 <sup>1</sup> ✓
T13	20 - 0	L3 1/2x3 1/2x1/4	23.71	11.55	127.1	1.6900	5.64	54.76	0.103 <sup>1</sup> ✓

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T1	250 - 240	1	4.00	3.88	186.0	0.7854	0.76	25.45	0.030 <sup>1</sup> ✓
T2	240 - 220	1	4.00	3.83	184.0	0.7854	0.81	25.45	0.032 <sup>1</sup> ✓

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Secondary Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T1	250 - 240	1	2.00	1.94	93.0	0.7854	0.00	25.45	0.000 <sup>1</sup>
T2	240 - 220	1	2.00	1.92	92.0	0.7854	0.00	25.45	0.000 <sup>1</sup>

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T1	250 - 240	1 1/8	4.00	3.88	165.3	0.9940	0.05	32.21	0.002 <sup>1</sup>
T2	240 - 220	1 1/8	4.00	3.83	163.6	0.9940	1.30	32.21	0.040 <sup>1</sup>
T3	220 - 200	L2x2x1/8	4.00	3.54	67.8	0.4844	0.83	15.69	0.053 <sup>1</sup>

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Bottom Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio $\frac{P_u}{\phi P_n}$
T1	250 - 240	1	4.00	3.88	186.0	0.7854	1.24	25.45	0.049 <sup>1</sup>
T2	240 - 220	1	4.00	3.83	184.0	0.7854	1.59	25.45	0.062 <sup>1</sup>

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	φP <sub>allow</sub> K	% Capacity	Pass Fail
T1	250 - 240	Leg	1 1/2	2	-4.18	39.03	10.7	Pass
T2	240 - 220	Leg	2	28	-27.62	91.64	30.1	Pass
T3	220 - 200	Leg	P5x.258	78	-47.78	179.55	26.6	Pass
T4	200 - 180	Leg	P6x.28	108	-66.53	238.36	27.9	Pass
T5	180 - 160	Leg	P8x0.25	135	-85.33	287.23	29.7	Pass
T6	160 - 140	Leg	P8x.322	162	-105.16	366.59	28.7	Pass
T7	140 - 120	Leg	P10x.365	189	-122.91	495.59	24.8	Pass
T8	120 - 100	Leg	P10x.365	204	-143.98	495.59	29.1	Pass
T9	100 - 80	Leg	P10x.365	219	-165.72	495.59	33.4	Pass
T10	80 - 60	Leg	P12x.375	234	-188.10	620.91	30.3	Pass
T11	60 - 40	Leg	P12x.375	249	-207.23	620.86	33.4	Pass
T12	40 - 20	Leg	P12x.375	264	-225.07	620.86	36.3	Pass
T13	20 - 0	Leg	P12x.375	279	-242.50	620.86	39.1	Pass

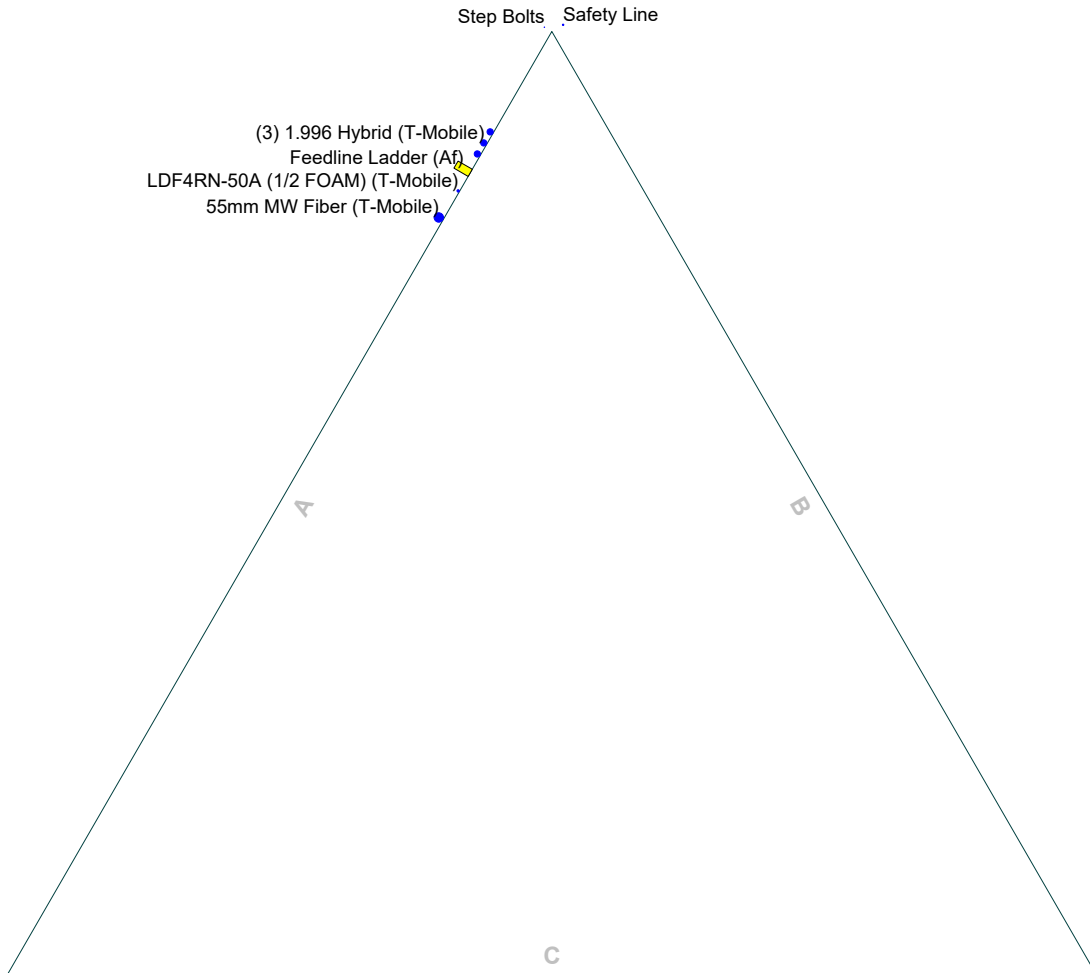
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$\phi P_{allow}$ K	% Capacity	Pass Fail	
T1	250 - 240	Diagonal	1	12	-2.92	6.57	44.4	Pass	
T2	240 - 220	Diagonal	1 1/4	39	-5.58	15.87	35.1	Pass	
T3	220 - 200	Diagonal	L2x2x3/16	104	-2.70	17.55	15.4	Pass	
T4	200 - 180	Diagonal	L2x2x3/16	113	-2.39	13.81	17.3	Pass	
T5	180 - 160	Diagonal	L2x2x1/4	140	-2.80	14.78	19.0	Pass	
T6	160 - 140	Diagonal	L2x2x1/4	167	-3.00	11.87	25.3	Pass	
T7	140 - 120	Diagonal	L3x3x3/16	194	-4.41	16.38	26.9	Pass	
T8	120 - 100	Diagonal	L3x3x3/16	210	-4.77	14.43	33.1	Pass	
T9	100 - 80	Diagonal	L3x3x1/4	225	-5.20	16.65	31.2	Pass	
T10	80 - 60	Diagonal	L3x3x3/8	240	-6.03	21.72	27.7	Pass	
T11	60 - 40	Diagonal	L3x3x1/4	255	-4.72	12.82	36.8	Pass	
T12	40 - 20	Diagonal	L3x3x3/8	270	-5.32	15.98	33.3	Pass	
T13	20 - 0	Diagonal	L3 1/2x3 1/2x1/4	285	-6.39	14.81	43.2	Pass	
T1	250 - 240	Horizontal	1	16	-0.75	10.42	7.2	Pass	
T2	240 - 220	Horizontal	1	57	-0.71	10.63	6.7	Pass	
T1	250 - 240	Secondary Horizontal	1	13	-0.00	17.56	0.0	Pass	
T2	240 - 220	Secondary Horizontal	1	40	-0.00	17.59	0.0	Pass	
T1	250 - 240	Top Girt	1 1/8	4	-0.05	15.91	0.3	Pass	
T2	240 - 220	Top Girt	1 1/8	33	-1.32	16.15	8.2	Pass	
T3	220 - 200	Top Girt	L2x2x1/8	80	-0.83	10.27	8.1	Pass	
T1	250 - 240	Bottom Girt	1	9	-1.21	10.42	11.7	Pass	
T2	240 - 220	Bottom Girt	1	36	-1.55	10.63	14.6	Pass	
							Summary		
							Leg (T13)	39.1	Pass
							Diagonal (T1)	44.4	Pass
							Horizontal (T1)	7.2	Pass
							Secondary Horizontal (T1)	0.0	Pass
							Top Girt (T2)	8.2	Pass
							Bottom Girt (T2)	14.6	Pass
							<b>RATING =</b>	<b>44.4</b>	<b>Pass</b>


**APPENDIX B**  
**BASE LEVEL DRAWING**



# Feed Line Plan

— Round   
 — Flat   
 — App In Face   
 — App Out Face



 ENGINEERING GROUP, INC. <small>TOGETHER PLANNING A BETTER TOMORROW</small> Consulting Engineers	<b>SMW Engineering</b>
	158 Business Center Drive
	Birmingham, AL 35244
	Phone: (205) 252-6985 FAX: (205) 795-7262

Job: <b>9JK1918A</b>		
Project: <b>17-5641.2</b>		
Client: NexTower Development	Drawn by: Joe McAllister	App'd:
Code: TIA-222-H	Date: 01/05/24	Scale: NTS
Path:	Dwg No. E-7	

C:\Work from Home\17-5641.2\9JK1918A\TX Files\17-5641.2\_9JK1918A.White Springs.SA.en

**APPENDIX C**  
**ADDITIONAL CALCULATIONS**

## Self Support Anchor Rod Capacity

Site Info	
BU #	9JK1918A
Site Name	White Springs
Order #	17-5641.2

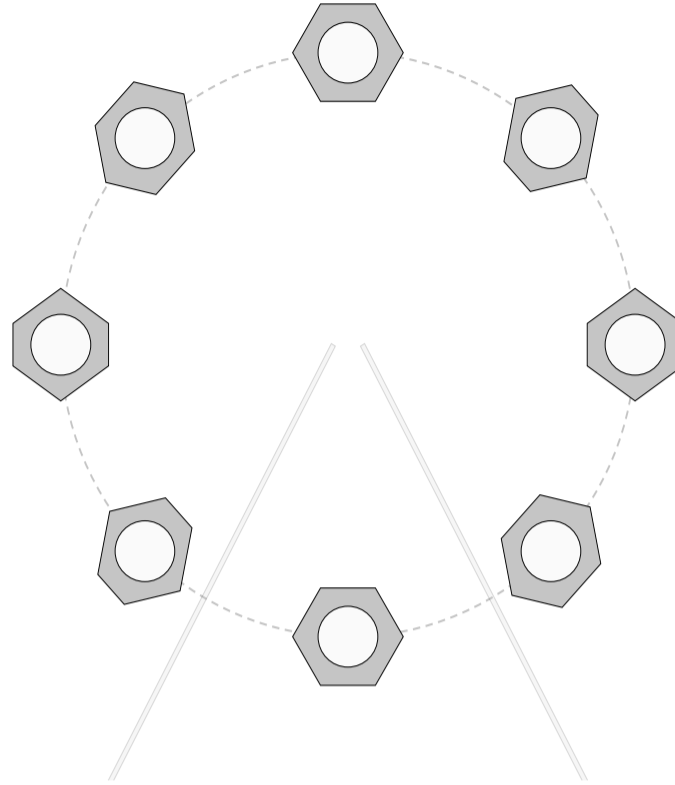
Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
$l_{ar}$ (in)	0

Applied Loads		
	Comp.	Uplift
Axial Force (kips)	247.00	203.00
Shear Force (kips)	23.00	19.00

\*TIA-222-H Section 15.5 Applied

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

\*Anchor Rod Eccentricity Applied



Connection Properties	Analysis Results
-----------------------	------------------

Anchor Rod Data	
(8) 1-1/4" $\phi$ bolts (A354-BC N; $F_y=109$ ksi, $F_u=125$ ksi)	
$l_{ar}$ (in):	0

Anchor Rod Summary		<i>(units of kips, kip-in)</i>
$Pu_c = 30.88$	$\phi Pn_c = 120.39$	<b>Stress Rating</b>
$Vu = 2.88$	$\phi Vn = 54.17$	<b>24.7%</b>
$Mu = n/a$	$\phi Mn = n/a$	<b>Pass</b>

# SST Unit Base Foundation

Site Name: 9JK1918A

TIA-222 Revision: H

Top & Bot. Pad Rein. Different?:	<input type="checkbox"/>
Tower Centroid Offset?:	<input type="checkbox"/>
Block Foundation?:	<input type="checkbox"/>
Rectangular Pad?:	<input type="checkbox"/>

Superstructure Analysis Reactions			
Global Moment, <b>M:</b>	4374	ft-kips	
Global Axial, <b>P:</b>	52	kips	
Global Shear, <b>V:</b>	35	kips	
Leg Compression, <b>P<sub>comp</sub>:</b>	247	kips	
Leg Comp. Shear, <b>V<sub>u,comp</sub>:</b>	23	kips	
Leg Uplift, <b>P<sub>uplift</sub>:</b>	203	kips	
Leg Uplift. Shear, <b>V<sub>u,uplift</sub>:</b>	19	kips	
Tower Height, <b>H:</b>	250	ft	
Base Face Width, <b>BW:</b>	22	ft	
BP Dist. Above Fdn, <b>bp<sub>dist</sub>:</b>	6	in	

Foundation Analysis Checks				
	Capacity	Demand	Rating*	Check
<i>Lateral (Sliding) (kips)</i>	193.58	35.00	17.2%	Pass
<i>Bearing Pressure (ksf)</i>	5.85	0.60	9.7%	Pass
<i>Overturning (kip*ft)</i>	11809.51	4619.00	39.1%	Pass
<i>Pier Flexure (Comp.) (kip*ft)</i>	2347.80	103.50	4.2%	Pass
<i>Pier Flexure (Tension) (kip*ft)</i>	1605.20	85.50	5.1%	Pass
<i>Pier Compression (kip)</i>	12497.26	259.96	2.0%	Pass
<i>Pad Flexure (kip*ft)</i>	6398.93	1167.16	17.4%	Pass
<i>Pad Shear - 1-way (kips)</i>	945.96	145.99	14.7%	Pass
<i>Pad Shear - Comp 2-way (ksi)</i>	0.190	0.049	24.7%	Pass
<i>Flexural 2-way (Comp) (kip*ft)</i>	3183.90	62.10	1.9%	Pass
<i>Pad Shear - Tension 2-way (ksi)</i>	0.190	0.041	20.6%	Pass
<i>Flexural 2-way (Tension) (kip*ft)</i>	3183.90	51.30	1.5%	Pass

\*Rating per TIA-222-H Section 15.5

Structural Rating*:	24.7%
Soil Rating*:	39.1%

Pier Properties			
Pier Shape:	Circular		
Pier Diameter, <b>dpier:</b>	5.0	ft	
Ext. Above Grade, <b>E:</b>	0.50	ft	
Pier Rebar Size, <b>Sc:</b>	8		
Pier Rebar Quantity, <b>mc:</b>	22		
Pier Tie/Spiral Size, <b>St:</b>	4		
Pier Tie/Spiral Quantity, <b>mt:</b>	5		
Pier Reinforcement Type:	Tie		
Pier Clear Cover, <b>cc<sub>pier</sub>:</b>	3	in	

Pad Properties			
Depth, <b>D:</b>	6.00	ft	
Pad Width, <b>W<sub>1</sub>:</b>	44.00	ft	
Pad Thickness, <b>T:</b>	2.00	ft	
Pad Rebar Size (Bottom dir. 2), <b>Sp<sub>2</sub>:</b>	11		
Pad Rebar Quantity (Bottom dir. 2), <b>mp<sub>2</sub>:</b>	52		
Pad Clear Cover, <b>cc<sub>pad</sub>:</b>	3	in	

Material Properties			
Rebar Grade, <b>Fy:</b>	60	ksi	
Concrete Compressive Strength, <b>F'c:</b>	4	ksi	
Dry Concrete Density, <b>δc:</b>	150	pcf	

Soil Properties			
Total Soil Unit Weight, <b>γ:</b>	55	pcf	
Ultimate Gross Bearing, <b>Qult:</b>	7.800	ksf	
Cohesion, <b>Cu:</b>	0.000	ksf	
Friction Angle, <b>φ:</b>	33	degrees	
SPT Blow Count, <b>N<sub>blows</sub>:</b>			
Base Friction, <b>μ:</b>			
Neglected Depth, <b>N:</b>	0.0	ft	
Foundation Bearing on Rock?	No		
Groundwater Depth, <b>gw:</b>	2	ft	

<- Toggle between Gross and Net