



B+T GRP

B+T Group
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Tulsa, OK 74119
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Date: **November 26, 2025**

Subject: **Structural Analysis Report**

Carrier Designation: **Verizon Wireless Co-Locate**

Site Number: 5000080217
Site Name: Ebenezer - C

Vertical Bridge Designation: **Site Number:** US-FL-5391
Site Name: Ebenezer

Engineering Firm Designation: **B+T Group Project Number:** 25-009244

Site Data: **6295 SE County Rd 245, Lake City, FL 32025, Columbia County**
Latitude 30° 6' 10.7892", Longitude -82° 34' 26.9508"
250 Foot - Self Support 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:

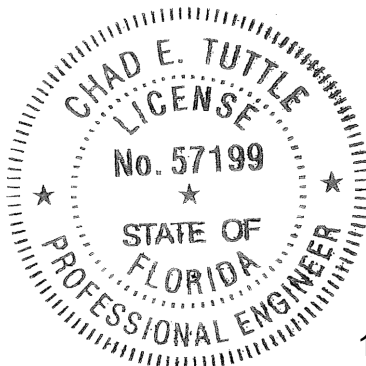
Proposed Equipment Configuration

Sufficient Capacity

The jurisdiction has adopted the 2021 International Building Code. This analysis has been performed in accordance with the TIA-222-H Standard.

Structural analysis prepared by: Sheharyar Malik

Respectfully submitted by: B+T Engineering, Inc.



11/26/2025

Chad E. Tuttle, P.E.

tnxTower Report - version 8.3.1.2

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1) INTRODUCTION

This tower is a 250 ft. Self-Support tower designed by Arcosa Telecom Structures.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	120 mph
Exposure Category:	C
Topographic Factor:	1
Seismic Ss:	0.13
Seismic S1:	0.058
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)
245.0	245.0	2	Commscope	OVP-12	2	2" Hybrid
		6	Commscope	NHH-65C-HG-R2B		
		3	Ericsson	4490		
		3	Ericsson	AIR 6419		
		3	Ericsson	AIR3283		
		3	--	Sector Mount		
200.0	200.0	1	Commscope	VHLPX3-11W	2	1.3
		2	Aviat Networks	ODU600		
		1	--	Side Arm Mount		

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)
230.0	230.0	1	Andrew	Crng & Stnd UBR100 Int	3	2" Hybrid 0.6" Fiber 0.325"
		1	Ceragon	IP-20A		
		3	Commscope	FFVV-65C-R3N23 (Octo)		
		3	Ericsson	4460		
		3	Ericsson	4480		
		3	Ericsson	AIR 6419 B41		
		3	Site Pro1	VFA12-HD Sector Mount		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
Tower Data	Tower Manufacturer Drawing by Arcosa Telecom Structures, Job No. 9749	Date: 09/21/2022	Vertical Bridge
Foundation Data	Foundation Drawing by Arcosa Telecom Structures, Project No. 165690.001.01	Date: 09/21/2022	Vertical Bridge
Soil Properties	Geotechnical Report by EGSci, Project No. 20-US-FL-5391	Date: 01/22/2020	Vertical Bridge
Existing/Reserved Loading	Structural Analysis by B+T Group, Project No. 174774.001.01.0002	Date: 06/18/2025	On File
Proposed Loading	Colocation Application P-084761, Version 1	Date: 11/06/2025	Vertical Bridge

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.

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 - 240	Leg	1 3/4	3	-5.690	35.601	16.0	Pass
T2	240 - 220	Leg	2 1/4	21	-37.347	84.331	44.3	Pass
T3	220 - 200	Leg	2 3/4	48	-68.820	161.540	42.6	Pass
T4	200 - 180	Leg	3 1/4	75	-98.170	260.312	37.7	Pass
T5	180 - 160	Leg	3 1/2	102	-126.628	317.273	39.9	Pass
T6	160 - 140	Leg	3 1/2	129	-154.929	317.273	48.8	Pass
T7	140 - 120	Leg	3 3/4	156	-183.951	379.106	48.5	Pass
T8	120 - 100	Leg	4	183	-214.061	445.717	48.0	Pass
T9	100 - 80	Leg	4 1/4	210	-245.501	517.034	47.5	Pass
T10	80 - 60	Leg	4 1/4	237	-277.763	517.034	53.7	Pass
T11	60 - 40	Leg	4 1/2	264	-306.307	593.004	51.7	Pass
T12	40 - 20	Leg	4 3/4	303	-338.381	673.582	50.2	Pass
T13	20 - 0	Leg	4 3/4	342	-370.042	673.582	54.9	Pass
T1	250 - 240	Diagonal	L1 3/4x1 3/4x3/16	9	-3.172	15.362	20.7 34.0 (b)	Pass
T2	240 - 220	Diagonal	L1 3/4x1 3/4x3/16	24	-4.607	11.425	40.3 50.0 (b)	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail	
T3	220 - 200	Diagonal	L2x2x3/16	51	-4.346	12.802	34.0 44.4 (b)	Pass	
T4	200 - 180	Diagonal	L2x2x3/16	81	-4.614	9.679	47.7	Pass	
T5	180 - 160	Diagonal	L2 1/2x2 1/2x3/16	108	-5.057	14.870	34.0 39.5 (b)	Pass	
T6	160 - 140	Diagonal	L2 1/2x2 1/2x3/16	132	-5.469	11.709	46.7	Pass	
T7	140 - 120	Diagonal	L3x3x3/16	159	-6.207	16.564	37.5 44.5 (b)	Pass	
T8	120 - 100	Diagonal	L3x3x3/16	186	-6.969	13.622	51.2	Pass	
T9	100 - 80	Diagonal	L3x3x1/4	213	-7.899	14.834	53.3	Pass	
T10	80 - 60	Diagonal	L3x3x1/4	240	-8.571	12.533	68.4	Pass	
T11	60 - 40	Diagonal	2L2 1/2x2 1/2x3/16x3/8	269	-9.929	19.794	50.2	Pass	
T12	40 - 20	Diagonal	2L2 1/2x2 1/2x3/16x3/8	308	-10.448	17.534	59.6	Pass	
T13	20 - 0	Diagonal	2L3x3x3/16x3/8	347	-10.892	26.343	41.3	Pass	
T11	60 - 40	Horizontal	2L2x2x3/16x3/8	271	-5.458	12.584	43.4	Pass	
T12	40 - 20	Horizontal	2L2 1/2x2 1/2x3/16x3/8	310	-6.016	21.141	28.5	Pass	
T13	20 - 0	Horizontal	2L2 1/2x2 1/2x3/16x3/8	349	-6.566	18.392	35.7	Pass	
T1	250 - 240	Top Girt	L1 3/4x1 3/4x3/16	6	-1.154	12.811	9.0 12.2 (b)	Pass	
T11	60 - 40	Inner Bracing	L1 3/4x1 3/4x3/16	275	-0.004	1.596	0.3	Pass	
T12	40 - 20	Inner Bracing	L1 3/4x1 3/4x3/16	314	-0.005	1.372	0.4	Pass	
T13	20 - 0	Inner Bracing	L1 3/4x1 3/4x3/16	371	-0.006	1.273	0.5	Pass	
							Summary		
							Leg (T13)	54.9	Pass
							Diagonal (T10)	68.4	Pass
							Horizontal (T11)	43.4	Pass
							Top Girt (T1)	12.2	Pass
							Inner Bracing (T13)	0.5	Pass
							Bolt Checks	50.1	Pass
							Rating =	68.4	Pass

Table 5 - Tower Component Stresses vs. Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	Base	38.3	Pass
1	Base Foundation (Structure)	Base	35.6	Pass
1	Base Foundation (Soil Interaction)	Base	59.7	Pass

Structure Rating (max from all components) =	68.4%
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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 foundations have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

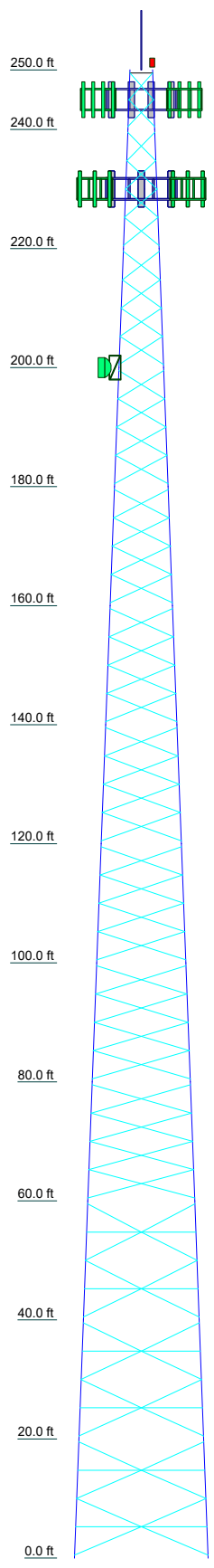
The results of the tilt and twist values for a 60 mph 3-second gust service wind speed per the TIA-222-H Standard are given below:

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

<i>Elevation (ft)</i>	<i>Dish Model</i>	<i>Diameter (ft)</i>	<i>Tilt (°)</i>	<i>Twist (°)</i>
200.0	VHLPX3- 11W	3.275	0.180	0.029

APPENDIX A
TNXTOWER OUTPUT

Section	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	
Legs	SR 1 3/4	SR 2 1/4	SR 2 3/4	SR 3 1/4	SR 3 1/2	SR 3 3/4	SR 4	SR 4 1/4	SR 4 1/4	SR 4 1/2	SR 4 3/4	SR 4 3/4	SR 4 3/4	
Leg Grade	A529-50													
Diagonals	L1 3/4x1 3/4x3/16													
Diagonal Grade	A36M-50													
Top Girts	N.A.													
Horizontals	N.A.													
Inner Bracing	N.A.													
Face Width (ft)	22.5	21	19.5	18	16.5	15	13.5	12	10.5	9	7.5	6	4.5	3.75
# Panels @ (ft)	48 @ 4.75													
Weight (K)	49.0	7.0	6.4	5.7	5.3	5.1	4.1	3.6	3.0	2.9	2.4	1.8	1.2	0.4



SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	L1 3/4x1 3/4x3/16		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A529-50	50 ksi	65 ksi	A36M-50	50 ksi	65 ksi

TOWER DESIGN NOTES

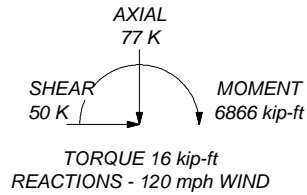
1. Tower is located in Columbia County, Florida.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 120 mph basic wind in accordance with the TIA-222-H Standard.
4. Deflections are based upon a 60 mph wind.
5. Tower Risk Category II.
6. Topographic Category 1 with Crest Height of 0.000 ft
7. TOWER RATING: 68.4%

ALL REACTIONS
ARE FACTORED

MAX. CORNER REACTIONS AT BASE:

DOWN: 378 K
SHEAR: 30 K

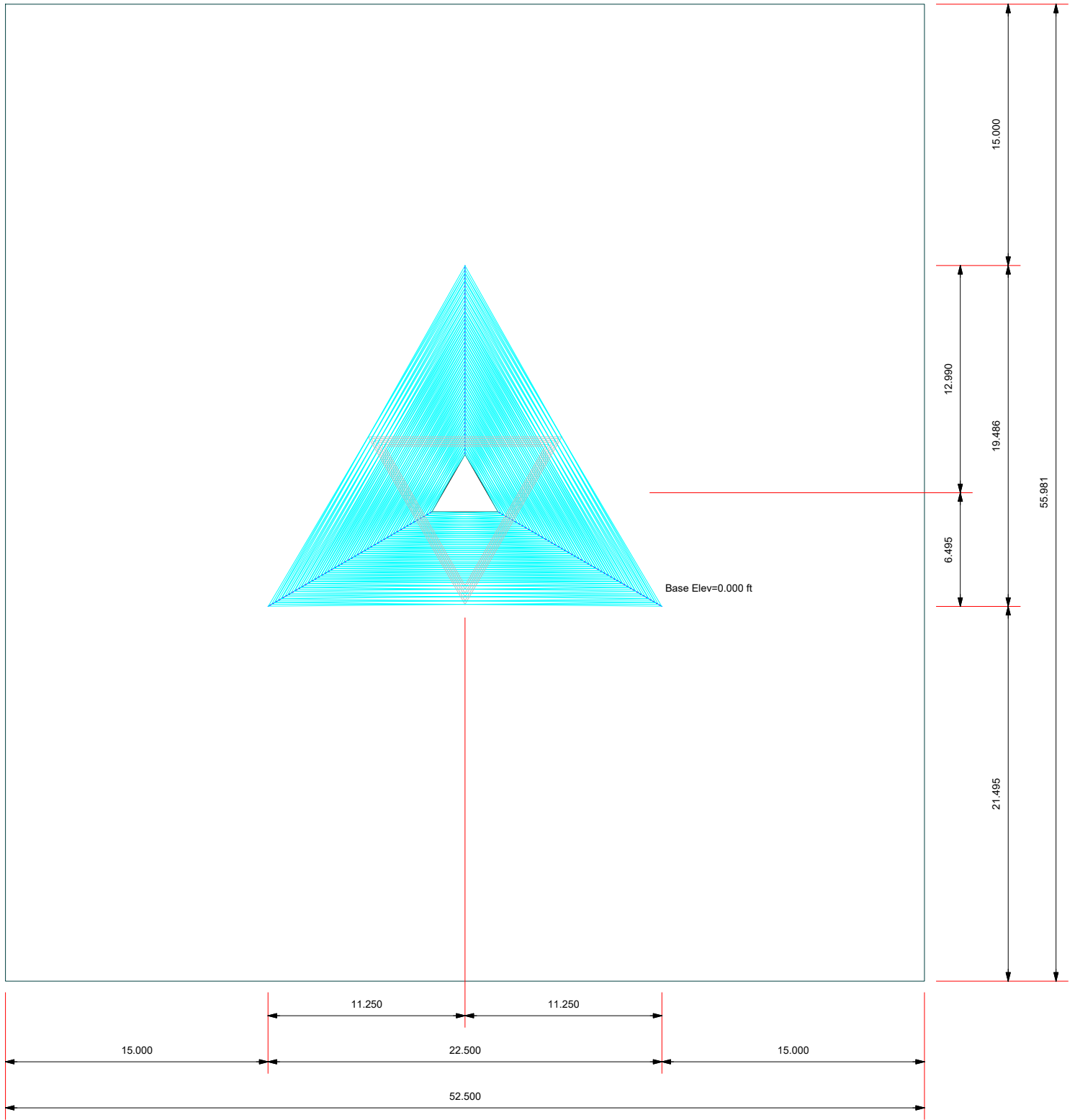
UPLIFT: -304 K
SHEAR: 25 K



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Job: 25-009244 - Ebenezer, FL (Site# US-FL-539)		
Project:	Client: Vertical Bridge	Drawn by: Akshay Kumar
Code: TIA-222-H	Date: 11/22/25	App'd: NTS
Path:		Dwg No: E-1

Plot Plan
Total Area - 0.07 Acres



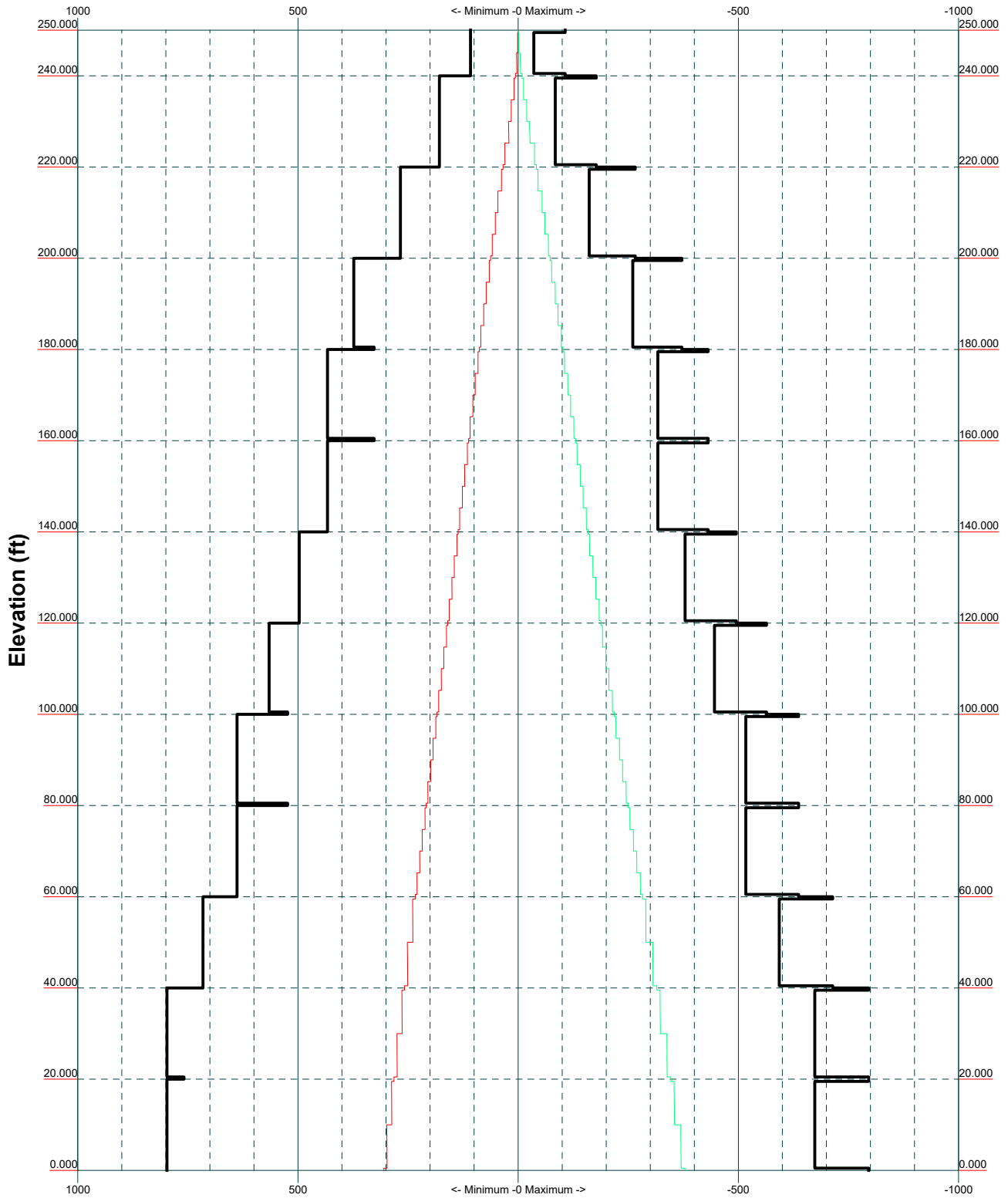
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Job: 25-009244 - Ebenezer, FL (Site# US-FL-539)		
Project:		
Client: Vertical Bridge	Drawn by: Akshay Kumar	App'd:
Code: TIA-222-H	Date: 11/22/25	Scale: NTS
Path:		Dwg No: E-2

TIA-222-H - 120 mph Exposure C

Leg Capacity ———

Leg Compression (K)



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Project:	Client: Vertical Bridge	Drawn by: Akshay Kumar
Code: TIA-222-H	Date: 11/22/25	App'd: Scale: NTS
Path:		Dwg No: E-3

TIA-222-H - 120 mph Exposure C

Maximum Values

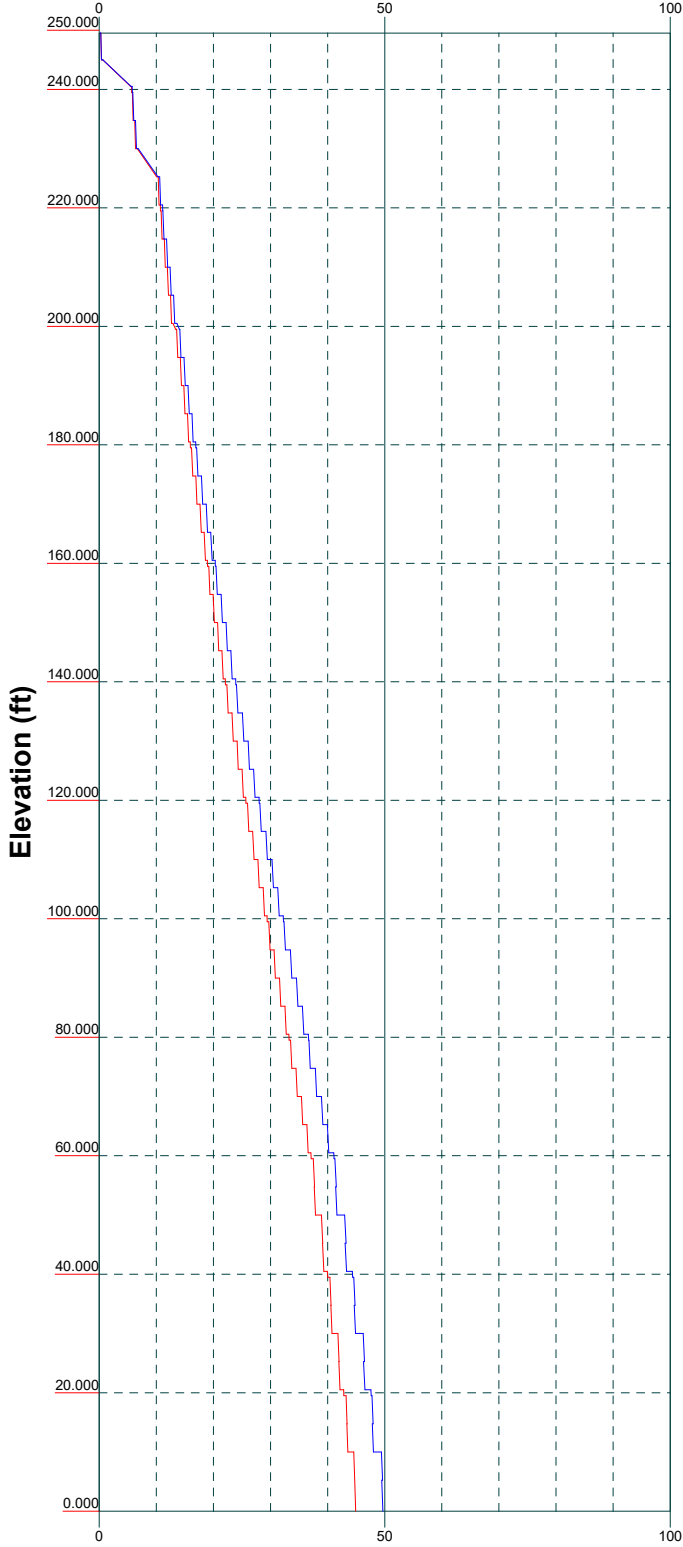
Vx

Vz

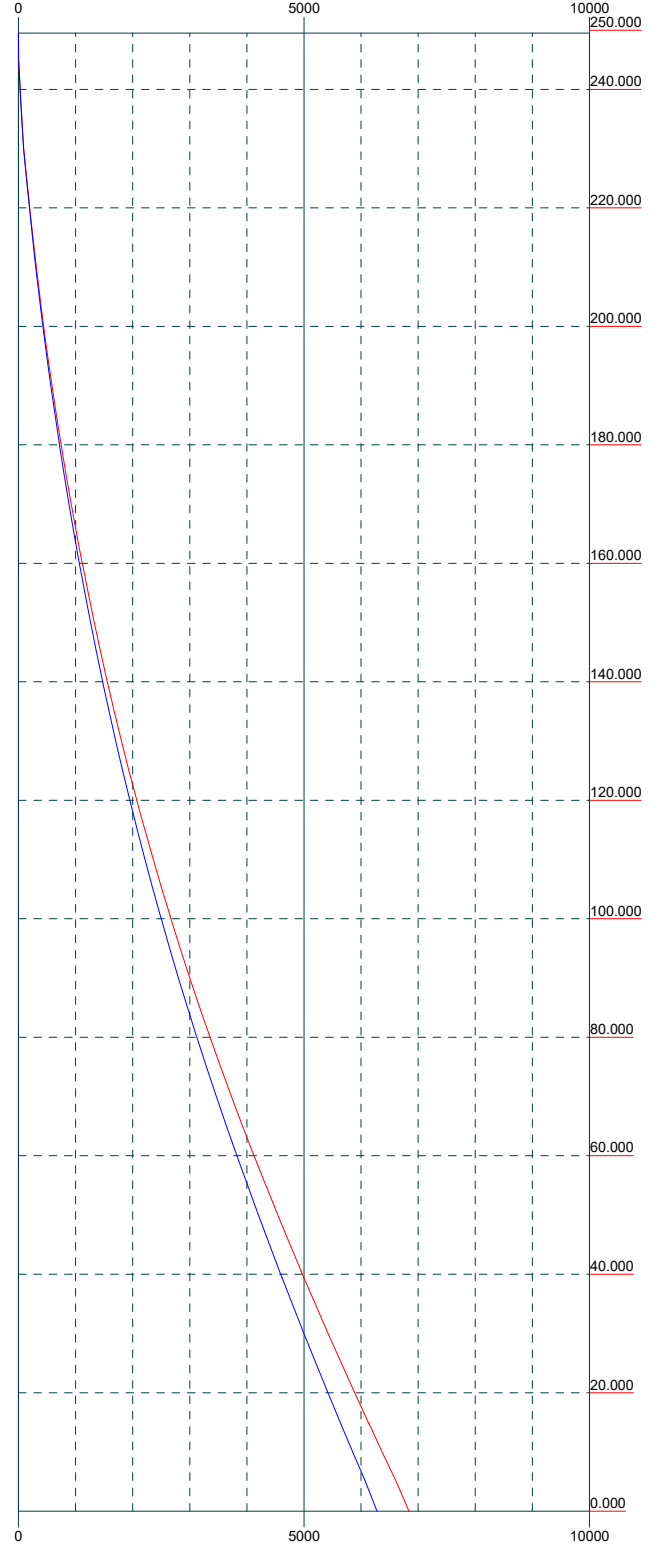
Mx


Mz

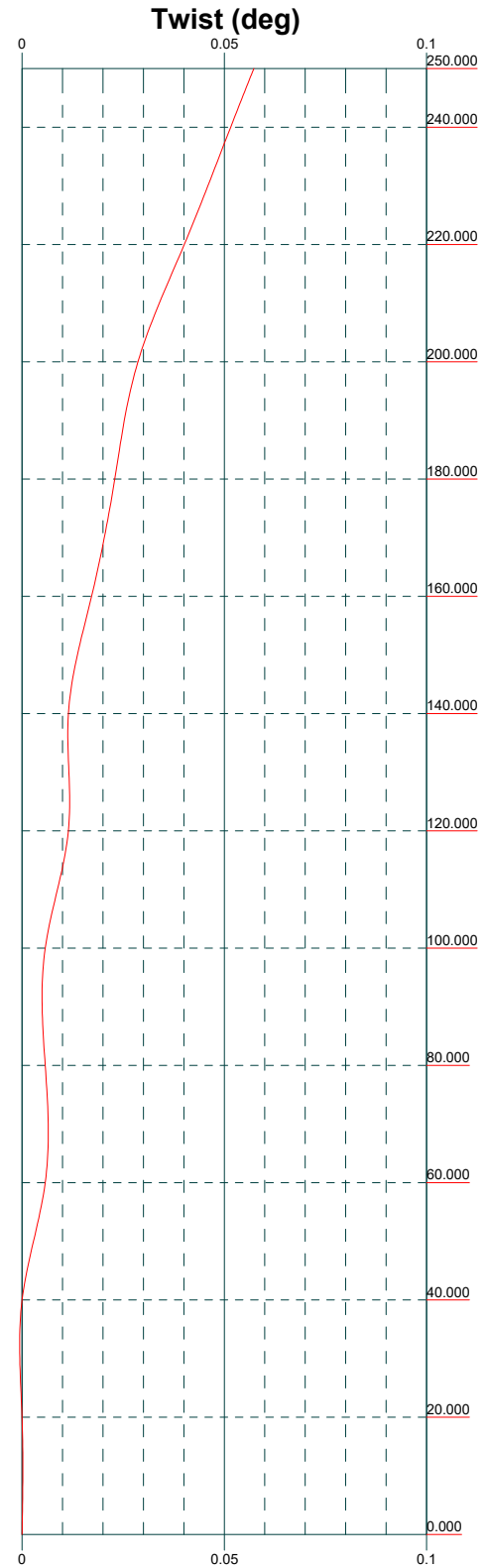
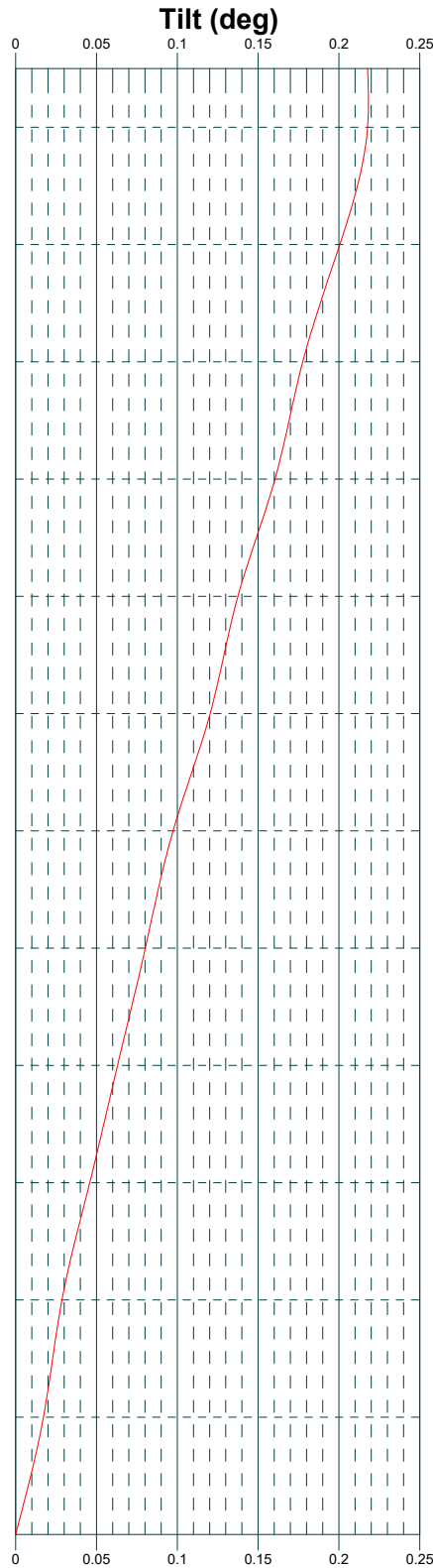
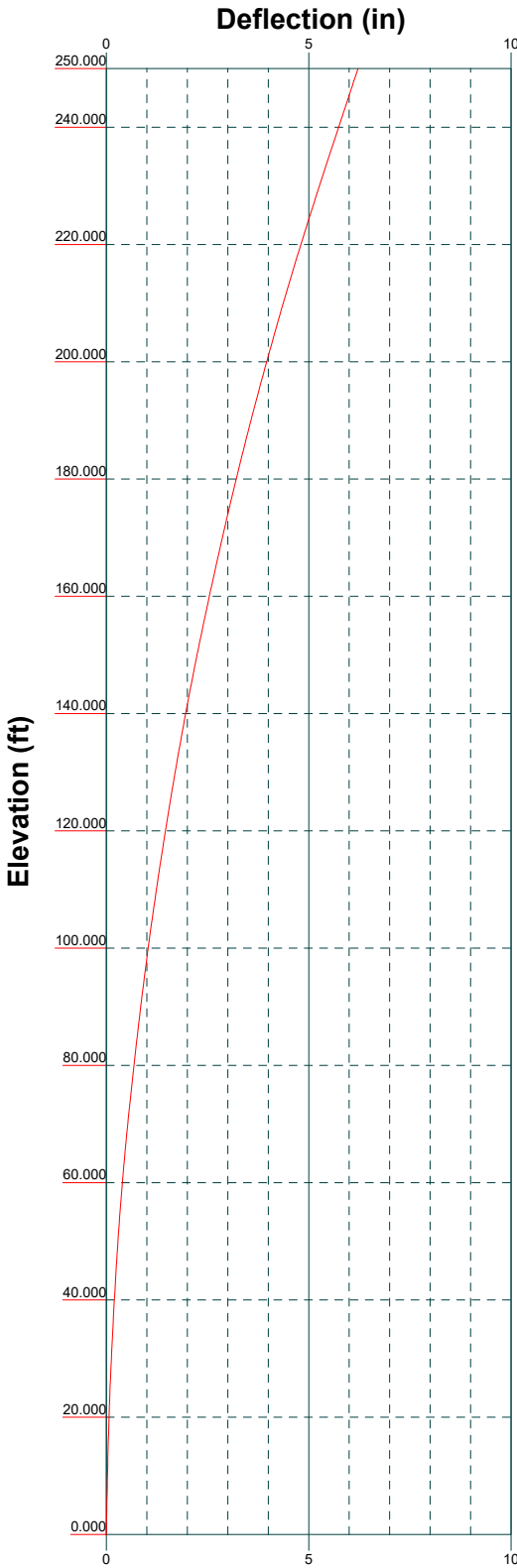
Global Mast Shear (K)




Global Mast Moment (kip-ft)



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Job: 25-009244 - Ebenezer, FL (Site# US-FL-539)			
Project:			
Client: Vertical Bridge	Drawn by: Akshay Kumar	App'd:	
Code: TIA-222-H	Date: 11/22/25	Scale: NTS	
Path:	Dwg No: E-4		



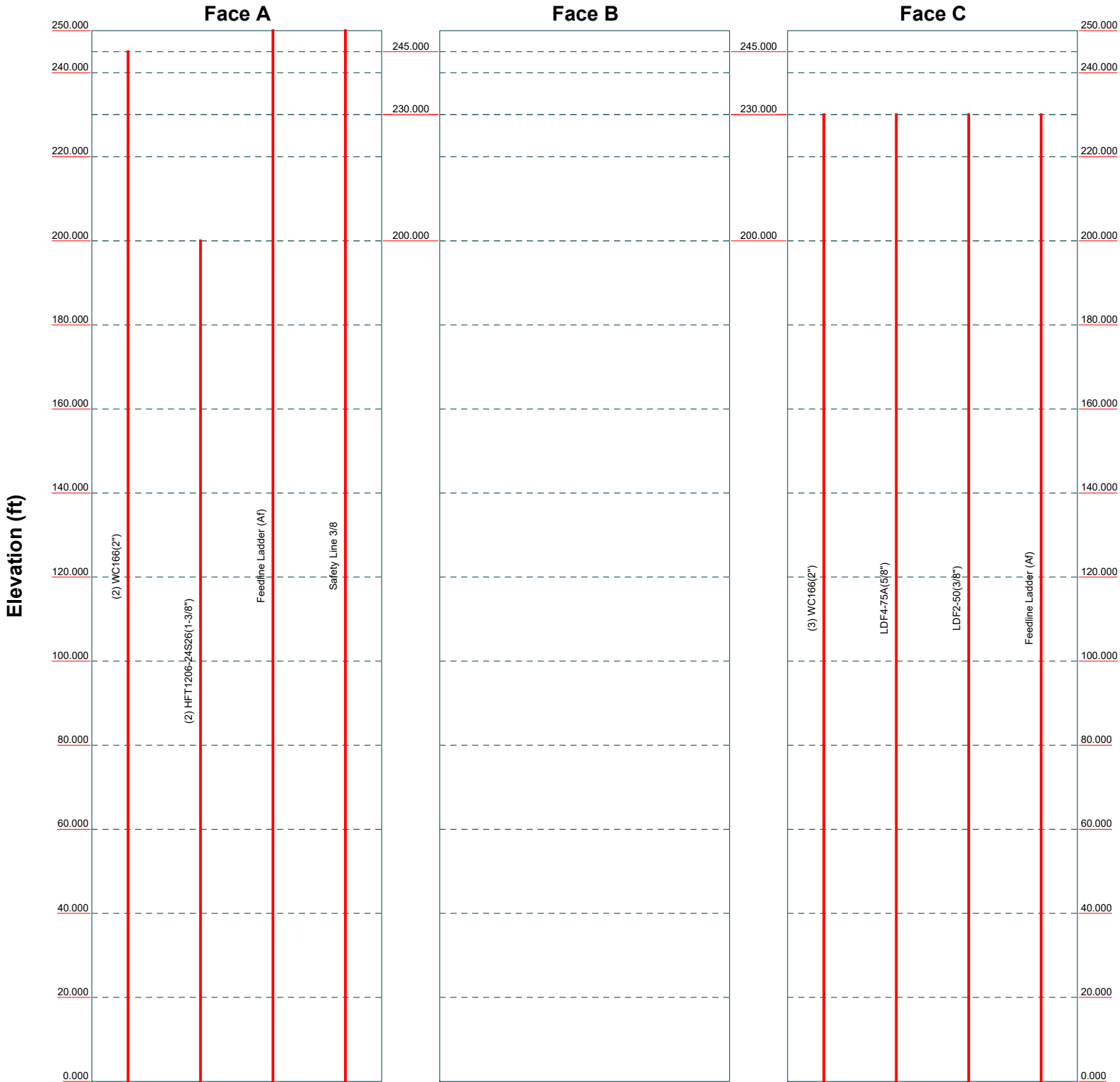

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Job: 25-009244 - Ebenezer, FL (Site# US-FL-539)		
Project:		
Client: Vertical Bridge	Drawn by: Akshay Kumar	App'd:
Code: TIA-222-H	Date: 11/22/25	Scale: NTS
Path:		Dwg No: E-5

Feed Line Distribution Chart

0' - 250'

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




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Job: 25-009244 - Ebenezer, FL (Site# US-FL-539)		
Project:		
Client: Vertical Bridge	Drawn by: Akshay Kumar	App'd:
Code: TIA-222-H	Date: 11/22/25	Scale: NTS
Path:		Dwg No: E-7

tnxTower B+T Group 1717 S. Boulder Ave, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job 25-009244 - Ebenezer, FL (Site# US-FL-5391)	Page 1 of 31
	Project	Date 16:27:57 11/22/25
	Client Vertical Bridge	Designed by Akshay Kumar

Tower Input Data

The main tower is a 3x free standing tower with an overall height of 250.000 ft above the ground line.

The base of the tower is set at an elevation of 0.000 ft above the ground line.

The face width of the tower is 3.750 ft at the top and 22.500 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: 148.000 ft.

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: 0.000 ft.

Deflections calculated using a wind speed of 60 mph.

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: $K_{es}(F_w) = 0.95$.

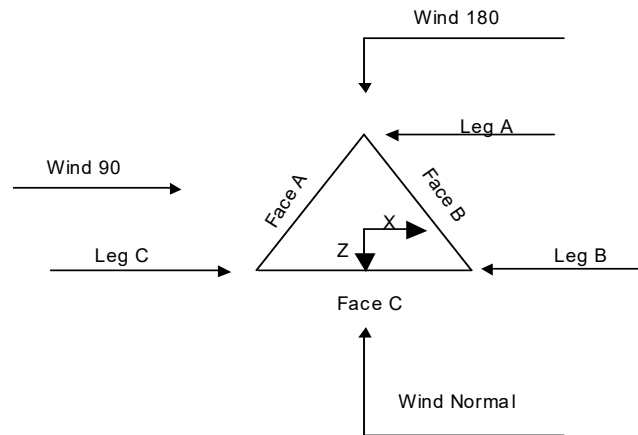
Maximum demand-capacity ratio is: 1.

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

Options

- | | | |
|--|---|--|
| <ul style="list-style-type: none"> Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification √ Use Code Stress Ratios √ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Kz In Exposure D Hurricane Region √ Include Bolts In Member Capacity Leg Bolts Are At Top Of Section √ Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) SR Members Have Cut Ends SR Members Are Concentric Distribute Leg Loads As Uniform Use Special Wind Profile | <ul style="list-style-type: none"> Assume Legs Pinned √ Assume Rigid Index Plate √ Use Clear Spans For Wind Area √ Use Clear Spans For KL/r Retension Guys To Initial Tension √ Bypass Mast Stability Checks √ Use Azimuth Dish Coefficients √ Project Wind Area of Appurtenances Alternative Appurt. EPA Calculation Autocalc Torque Arm Areas Add IBC .6D+W Combination √ Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder Ignore KL/ry For 60 Deg. Angle Legs Use ASCE 10 X-Brace Ly Rules | <ul style="list-style-type: none"> √ Calculate Redundant Bracing Forces Ignore Redundant Members in FEA √ SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation √ Consider Feed Line Torque √ Include Angle Block Shear Check Use TIA-222-H Bracing Resist. Exemption Use TIA-222-H Tension Splice Exemption <div style="text-align: center; background-color: #e0e0e0; padding: 2px; margin: 5px 0;">Poles</div> <ul style="list-style-type: none"> Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets Pole Without Linear Attachments Pole With Shroud Or No Appurtenances Outside and Inside Corner Radii Are Known |
|--|---|--|

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	Project	Date 16:27:57 11/22/25
	Client Vertical Bridge	Designed by Akshay Kumar



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	<i>ft</i>			<i>ft</i>		<i>ft</i>
T1	250.000-240.000			3.750	1	10.000
T2	240.000-220.000			4.500	1	20.000
T3	220.000-200.000			6.000	1	20.000
T4	200.000-180.000			7.500	1	20.000
T5	180.000-160.000			9.000	1	20.000
T6	160.000-140.000			10.500	1	20.000
T7	140.000-120.000			12.000	1	20.000
T8	120.000-100.000			13.500	1	20.000
T9	100.000-80.000			15.000	1	20.000
T10	80.000-60.000			16.500	1	20.000
T11	60.000-40.000			18.000	1	20.000
T12	40.000-20.000			19.500	1	20.000
T13	20.000-0.000			21.000	1	20.000

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
	<i>ft</i>	<i>ft</i>				<i>in</i>	<i>in</i>
T1	250.000-240.000	4.500	X Brace	No	No	6.000	6.000
T2	240.000-220.000	4.750	X Brace	No	No	6.000	6.000

<p style="text-align: center;">tnxTower</p> <p style="text-align: center;">B+T Group 1717 S. Boulder Ave, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265</p>	Job	Page	
		25-009244 - Ebenezer, FL (Site# US-FL-5391)	3 of 31
	Project		Date
		16:27:57 11/22/25	
Client	Vertical Bridge	Designed by	
		Akshay Kumar	

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
T3	220.000-200.000	4.750	X Brace	No	No	6.000	6.000
T4	200.000-180.000	4.750	X Brace	No	No	6.000	6.000
T5	180.000-160.000	4.750	X Brace	No	No	6.000	6.000
T6	160.000-140.000	4.750	X Brace	No	No	6.000	6.000
T7	140.000-120.000	4.750	X Brace	No	No	6.000	6.000
T8	120.000-100.000	4.750	X Brace	No	No	6.000	6.000
T9	100.000-80.000	4.750	X Brace	No	No	6.000	6.000
T10	80.000-60.000	4.750	X Brace	No	No	6.000	6.000
T11	60.000-40.000	4.750	Double K	No	Yes	6.000	6.000
T12	40.000-20.000	4.750	Double K	No	Yes	6.000	6.000
T13	20.000-0.000	4.750	Double K	No	Yes	6.000	6.000

Tower Section Geometry (cont'd)

Tower Elevation	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
ft						
250.000-240.000	T1 Solid Round	1 3/4	A529-50 (50 ksi)	Equal Angle	L1 3/4x1 3/4x3/16	A36M-50 (50 ksi)
240.000-220.000	T2 Solid Round	2 1/4	A529-50 (50 ksi)	Equal Angle	L1 3/4x1 3/4x3/16	A36M-50 (50 ksi)
220.000-200.000	T3 Solid Round	2 3/4	A529-50 (50 ksi)	Equal Angle	L2x2x3/16	A36M-50 (50 ksi)
200.000-180.000	T4 Solid Round	3 1/4	A529-50 (50 ksi)	Equal Angle	L2x2x3/16	A36M-50 (50 ksi)
180.000-160.000	T5 Solid Round	3 1/2	A529-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36M-50 (50 ksi)
160.000-140.000	T6 Solid Round	3 1/2	A529-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36M-50 (50 ksi)
140.000-120.000	T7 Solid Round	3 3/4	A529-50 (50 ksi)	Equal Angle	L3x3x3/16	A36M-50 (50 ksi)
120.000-100.000	T8 Solid Round	4	A529-50 (50 ksi)	Equal Angle	L3x3x3/16	A36M-50 (50 ksi)
100.000-80.000	T9 Solid Round	4 1/4	A529-50 (50 ksi)	Equal Angle	L3x3x1/4	A36M-50 (50 ksi)
80.000-60.000	T10 Solid Round	4 1/4	A529-50 (50 ksi)	Equal Angle	L3x3x1/4	A36M-50 (50 ksi)
60.000-40.000	T11 Solid Round	4 1/2	A529-50 (50 ksi)	Double Angle	2L2 1/2x2 1/2x3/16x3/8	A36M-50 (50 ksi)
40.000-20.000	T12 Solid Round	4 3/4	A529-50 (50 ksi)	Double Angle	2L2 1/2x2 1/2x3/16x3/8	A36M-50 (50 ksi)
T13 20.000-0.000	T13 Solid Round	4 3/4	A529-50 (50 ksi)	Double Angle	2L3x3x3/16x3/8	A36M-50 (50 ksi)

Tower Section Geometry (cont'd)

Tower Elevation	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
ft						
250.000-240.000	T1 Equal Angle	L1 3/4x1 3/4x3/16	A36M-50 (50 ksi)	Solid Round		A529-50 (50 ksi)

tnxTower B+T Group 1717 S. Boulder Ave, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job 25-009244 - Ebenezer, FL (Site# US-FL-5391)	Page 4 of 31
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Tower Section Geometry (cont'd)

Tower Elevation	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
ft							
T11 60.000-40.000	None	Flat Bar		A36 (36 ksi)	Double Angle	2L2x2x3/16x3/8	A36M-50 (50 ksi)
T12 40.000-20.000	None	Flat Bar		A36 (36 ksi)	Double Angle	2L2 1/2x2 1/2x3/16x3/8	A36M-50 (50 ksi)
T13 20.000-0.000	None	Flat Bar		A36 (36 ksi)	Double Angle	2L2 1/2x2 1/2x3/16x3/8	A36M-50 (50 ksi)

Tower Section Geometry (cont'd)

Tower Elevation	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
ft						
T11 60.000-40.000	Solid Round		A572-50 (50 ksi)	Single Angle	L1 3/4x1 3/4x3/16	A36M-50 (50 ksi)
T12 40.000-20.000	Solid Round		A572-50 (50 ksi)	Single Angle	L1 3/4x1 3/4x3/16	A36M-50 (50 ksi)
T13 20.000-0.000	Solid Round		A572-50 (50 ksi)	Single Angle	L1 3/4x1 3/4x3/16	A36M-50 (50 ksi)

Tower Section Geometry (cont'd)

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_j	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							
T1 250.000-240.000	0.000	0.375	A36M-50 (50 ksi)	1.05	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T2 240.000-220.000	0.000	0.375	A36M-50 (50 ksi)	1.05	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T3 220.000-200.000	0.000	0.375	A36M-50 (50 ksi)	1.05	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T4 200.000-180.000	0.000	0.375	A36M-50 (50 ksi)	1.05	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T5 180.000-160.000	0.000	0.375	A36M-50 (50 ksi)	1.05	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T6 00	0.000	0.375	A36M-50	1.05	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt

tnxTower

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Job	25-009244 - Ebenezer, FL (Site# US-FL-5391)	Page	7 of 31
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Client	Vertical Bridge	Designed by	Akshay Kumar

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 20.000-0.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 250.000-240.000	0.000	0.75 (1)	0.000	0.75 (1)	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75 (1)	0.000	0.75 (1)
	0.000	0.75 (2)	0.000	0.75 (2)							0.000	0.75 (2)	0.000	0.75 (2)
	0.000	0.75 (3)	0.000	0.75 (3)							0.000	0.75 (3)	0.000	0.75 (3)
	0.000	0.75 (4)	0.000	0.75 (4)							0.000	0.75 (4)	0.000	0.75 (4)
T2 240.000-220.000	0.000	0.75 (1)	0.000	0.75 (1)	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75 (1)	0.000	0.75 (1)
	0.000	0.75 (2)	0.000	0.75 (2)							0.000	0.75 (2)	0.000	0.75 (2)
	0.000	0.75 (3)	0.000	0.75 (3)							0.000	0.75 (3)	0.000	0.75 (3)
	0.000	0.75 (4)	0.000	0.75 (4)							0.000	0.75 (4)	0.000	0.75 (4)
T3 220.000-200.000	0.000	0.75 (1)	0.000	0.75 (1)	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75 (1)	0.000	0.75 (1)
	0.000	0.75 (2)	0.000	0.75 (2)							0.000	0.75 (2)	0.000	0.75 (2)
	0.000	0.75 (3)	0.000	0.75 (3)							0.000	0.75 (3)	0.000	0.75 (3)
	0.000	0.75 (4)	0.000	0.75 (4)							0.000	0.75 (4)	0.000	0.75 (4)
T4 200.000-180.000	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)
T5 180.000-160.000	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)

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Client	Vertical Bridge	Designed by	Akshay Kumar

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
T6 160.000-140.000	0.000	0.75 (1)	0.000	0.75 (1)	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75 (1)	0.000	0.75 (1)
	0.000	0.75 (2)	0.000	0.75 (2)							0.000	0.75 (2)	0.000	0.75 (2)
	0.000	0.75 (3)	0.000	0.75 (3)							0.000	0.75 (3)	0.000	0.75 (3)
	0.000	0.75 (4)	0.000	0.75 (4)							0.000	0.75 (4)	0.000	0.75 (4)
T7 140.000-120.000	0.000	0.75 (1)	0.000	0.75 (1)	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75 (1)	0.000	0.75 (1)
	0.000	0.75 (2)	0.000	0.75 (2)							0.000	0.75 (2)	0.000	0.75 (2)
	0.000	0.75 (3)	0.000	0.75 (3)							0.000	0.75 (3)	0.000	0.75 (3)
	0.000	0.75 (4)	0.000	0.75 (4)							0.000	0.75 (4)	0.000	0.75 (4)
T8 120.000-100.000	0.000	0.75 (1)	0.000	0.75 (1)	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75 (1)	0.000	0.75 (1)
	0.000	0.75 (2)	0.000	0.75 (2)							0.000	0.75 (2)	0.000	0.75 (2)
	0.000	0.75 (3)	0.000	0.75 (3)							0.000	0.75 (3)	0.000	0.75 (3)
	0.000	0.75 (4)	0.000	0.75 (4)							0.000	0.75 (4)	0.000	0.75 (4)
T9 100.000-80.000	0.000	0.75 (1)	0.000	0.75 (1)	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75 (1)	0.000	0.75 (1)
	0.000	0.75 (2)	0.000	0.75 (2)							0.000	0.75 (2)	0.000	0.75 (2)
	0.000	0.75 (3)	0.000	0.75 (3)							0.000	0.75 (3)	0.000	0.75 (3)
	0.000	0.75 (4)	0.000	0.75 (4)							0.000	0.75 (4)	0.000	0.75 (4)
T10 80.000-60.000	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)
T11 60.000-40.000	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)
T12 40.000-20.000	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)

<p>tnxTower</p> <p>B+T Group 1717 S. Boulder Ave, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265</p>	<p>Job</p> <p>25-009244 - Ebenezer, FL (Site# US-FL-5391)</p>	<p>Page</p> <p>9 of 31</p>
	<p>Project</p>	<p>Date</p> <p>16:27:57 11/22/25</p>
	<p>Client</p> <p>Vertical Bridge</p>	<p>Designed by</p> <p>Akshay Kumar</p>

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
T13 20.000-0.000	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)
	0.000	0.75 (4)	0.000	0.75 (4)							0.000	0.75 (4)	0.000	0.75 (4)

Tower Section Geometry (cont'd)

Tower Elevation 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.
250.000-240.000	Flange	0.750 A325N	6	0.625 A325X	1	0.625 A325X	1	0.000 A325N	0	0.625 A325N	0	0.000 A325X	0	0.625 A325N	0
240.000-220.000	Flange	0.750 A325N	6	0.625 A325X	1	0.000 A325X	0	0.000 A325N	0	0.625 A325N	0	0.000 A325X	0	0.625 A325N	0
220.000-200.000	Flange	1.000 A325N	6	0.625 A325X	1	0.000 A325X	0	0.000 A325N	0	0.625 A325N	0	0.000 A325X	0	0.625 A325N	0
200.000-180.000	Flange	1.000 A325N	6	0.625 A325X	1	0.000 A325X	0	0.000 A325N	0	0.625 A325N	0	0.000 A325X	0	0.625 A325N	0
180.000-160.000	Flange	1.000 A325N	6	0.625 A325X	1	0.000 A325X	0	0.000 A325N	0	0.625 A325N	0	0.000 A325X	0	0.625 A325N	0
160.000-140.000	Flange	1.250 A325N	6	0.625 A325X	1	0.000 A325X	0	0.000 A325N	0	0.625 A325N	0	0.000 A325X	0	0.625 A325N	0
140.000-120.000	Flange	1.250 A325N	6	0.625 A325X	1	0.000 A325X	0	0.000 A325N	0	0.625 A325N	0	0.000 A325X	0	0.625 A325N	0
120.000-100.000	Flange	1.250 A325N	6	0.625 A325X	1	0.000 A325X	0	0.000 A325N	0	0.625 A325N	0	0.000 A325X	0	0.625 A325N	0

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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.
T9 100.000-80.000 0	Flange	1.250 A325N	6	0.625 A325X	1	0.000 A325X	0	0.000 A325N	0	0.625 A325N	0	0.000 A325X	0	0.625 A325N	0
T10 80.000-60.000	Flange	1.500 A325N	6	0.625 A325X	1	0.000 A325X	0	0.000 A325N	0	0.625 A325N	0	0.000 A325X	0	0.625 A325N	0
T11 60.000-40.000	Flange	1.500 A325N	6	0.625 A325X	1	0.000 A325X	0	0.000 A325N	0	0.625 A325N	0	0.625 A325X	1	0.625 A325N	0
T12 40.000-20.000	Flange	1.500 A325N	6	0.625 A325X	1	0.000 A325X	0	0.000 A325N	0	0.625 A325N	0	0.625 A325X	1	0.625 A325N	0
T13 20.000-0.000	Flange	0.000 F1554-105	0	0.625 A325X	1	0.000 A325X	0	0.000 A325N	0	0.625 A325N	0	0.625 A325X	1	0.625 A325N	0

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
WC166(2")	A	No	No	Ar (CaAa)	245.000 - 0.000	0.000	0.45	2	2	0.850 0.750	2.000		0.003
HFT1206-24S 26(1-3/8") Feedline Ladder (Af) *	A	No	No	Ar (CaAa)	200.000 - 0.000	0.000	0.42	2	2	0.850 0.750	1.430		0.002
	A	No	No	Af (CaAa)	250.000 - 0.000	0.000	0.4	1	1	3.000	3.000		0.008
WC166(2")	C	No	No	Ar (CaAa)	230.000 - 0.000	0.000	0	3	3	0.850 0.750	2.000		0.003
LDF4-75A(5/8")	C	No	No	Ar (CaAa)	230.000 - 0.000	0.000	0.02	1	1	0.500	0.630		0.000
LDF2-50(3/8")	C	No	No	Ar (CaAa)	230.000 - 0.000	0.000	0.03	1	1	0.400	0.440		0.000
Feedline Ladder (Af) *	C	No	No	Af (CaAa)	230.000 - 0.000	0.000	-0.03	1	1	3.000	3.000		0.008
Safety Line 3/8 *	A	No	No	Ar (CaAa)	250.000 - 0.000	0.000	0.5	1	1	0.375	0.375		0.000

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	C _{AA} ft ² /ft	Weight klf
*								

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	Client Vertical Bridge	Designed by Akshay Kumar

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R	A_F	C_{AA} In Face	C_{AA} Out Face	Weight K
			ft^2	ft^2	ft^2	ft^2	
T1	250.000-240.000	A	0.000	0.000	7.375	0.000	0.114
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.000
T2	240.000-220.000	A	0.000	0.000	18.750	0.000	0.284
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	12.070	0.000	0.170
T3	220.000-200.000	A	0.000	0.000	18.750	0.000	0.284
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	24.140	0.000	0.340
T4	200.000-180.000	A	0.000	0.000	24.470	0.000	0.349
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	24.140	0.000	0.340
T5	180.000-160.000	A	0.000	0.000	24.470	0.000	0.349
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	24.140	0.000	0.340
T6	160.000-140.000	A	0.000	0.000	24.470	0.000	0.349
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	24.140	0.000	0.340
T7	140.000-120.000	A	0.000	0.000	24.470	0.000	0.349
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	24.140	0.000	0.340
T8	120.000-100.000	A	0.000	0.000	24.470	0.000	0.349
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	24.140	0.000	0.340
T9	100.000-80.000	A	0.000	0.000	24.470	0.000	0.349
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	24.140	0.000	0.340
T10	80.000-60.000	A	0.000	0.000	24.470	0.000	0.349
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	24.140	0.000	0.340
T11	60.000-40.000	A	0.000	0.000	24.470	0.000	0.349
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	24.140	0.000	0.340
T12	40.000-20.000	A	0.000	0.000	24.470	0.000	0.349
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	24.140	0.000	0.340
T13	20.000-0.000	A	0.000	0.000	24.470	0.000	0.349
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	24.140	0.000	0.340

Feed Line Center of Pressure

Section	Elevation ft	CP_x	CP_z	CP_x Ice	CP_z Ice
		in	in	in	in
T1	250.000-240.000	-0.555	-5.426	-0.555	-5.426
T2	240.000-220.000	-0.523	-5.066	-0.523	-5.066
T3	220.000-200.000	-0.406	-3.326	-0.406	-3.326
T4	200.000-180.000	-0.576	-5.948	-0.576	-5.948
T5	180.000-160.000	-0.546	-5.910	-0.544	-5.888
T6	160.000-140.000	-0.566	-6.330	-0.564	-6.313
T7	140.000-120.000	-0.528	-6.076	-0.525	-6.044
T8	120.000-100.000	-0.536	-6.306	-0.533	-6.257
T9	100.000-80.000	-0.544	-6.503	-0.539	-6.439
T10	80.000-60.000	-0.552	-6.694	-0.548	-6.640

tnxTower B+T Group 1717 S. Boulder Ave, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job 25-009244 - Ebenezer, FL (Site# US-FL-5391)	Page 12 of 31
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	Client Vertical Bridge	Designed by Akshay Kumar

Section	Elevation	CP _x	CP _z	CP _x	CP _z
	ft	in	in	Ice in	Ice in
T11	60.000-40.000	-0.733	-8.902	-0.723	-8.777
T12	40.000-20.000	-0.718	-8.827	-0.710	-8.709
T13	20.000-0.000	-0.677	-8.426	-0.673	-8.368

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T1	1	WC166(2")	240.00 - 245.00	0.6000	0.6000
T1	3	Feedline Ladder (Af)	240.00 - 250.00	0.6000	0.6000
T1	10	Safety Line 3/8	240.00 - 250.00	0.6000	0.6000
T2	1	WC166(2")	220.00 - 240.00	0.6000	0.6000
T2	3	Feedline Ladder (Af)	220.00 - 240.00	0.6000	0.6000
T2	5	WC166(2")	220.00 - 230.00	0.6000	0.6000
T2	6	LDF4-75A(5/8")	220.00 - 230.00	0.6000	0.6000
T2	7	LDF2-50(3/8")	220.00 - 230.00	0.6000	0.6000
T2	8	Feedline Ladder (Af)	220.00 - 230.00	0.6000	0.6000
T2	10	Safety Line 3/8	220.00 - 240.00	0.6000	0.6000
T3	1	WC166(2")	200.00 - 220.00	0.6000	0.6000
T3	3	Feedline Ladder (Af)	200.00 - 220.00	0.6000	0.6000
T3	5	WC166(2")	200.00 - 220.00	0.6000	0.6000
T3	6	LDF4-75A(5/8")	200.00 - 220.00	0.6000	0.6000
T3	7	LDF2-50(3/8")	200.00 - 220.00	0.6000	0.6000
T3	8	Feedline Ladder (Af)	200.00 - 220.00	0.6000	0.6000
T3	10	Safety Line 3/8	200.00 - 220.00	0.6000	0.6000
T4	1	WC166(2")	180.00 - 200.00	0.6000	0.6000
T4	2	HFT1206-24S26(1-3/8")	180.00 - 200.00	0.6000	0.6000
T4	3	Feedline Ladder (Af)	180.00 - 200.00	0.6000	0.6000
T4	5	WC166(2")	180.00 - 200.00	0.6000	0.6000
T4	6	LDF4-75A(5/8")	180.00 - 200.00	0.6000	0.6000
T4	7	LDF2-50(3/8")	180.00 - 200.00	0.6000	0.6000
T4	8	Feedline Ladder (Af)	180.00 -	0.6000	0.6000

tnxTower

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Job	25-009244 - Ebenezer, FL (Site# US-FL-5391)	Page	13 of 31
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Client	Vertical Bridge	Designed by	Akshay Kumar

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			200.00		
T4	10	Safety Line 3/8	180.00 - 200.00	0.6000	0.6000
T5	1	WC166(2")	160.00 - 180.00	0.6000	0.6000
T5	2	HFT1206-24S26(1-3/8")	160.00 - 180.00	0.6000	0.6000
T5	3	Feedline Ladder (Af)	160.00 - 180.00	0.6000	0.6000
T5	5	WC166(2")	160.00 - 180.00	0.6000	0.6000
T5	6	LDF4-75A(5/8")	160.00 - 180.00	0.6000	0.6000
T5	7	LDF2-50(3/8")	160.00 - 180.00	0.6000	0.6000
T5	8	Feedline Ladder (Af)	160.00 - 180.00	0.6000	0.6000
T5	10	Safety Line 3/8	160.00 - 180.00	0.6000	0.6000
T6	1	WC166(2")	140.00 - 160.00	0.6000	0.6000
T6	2	HFT1206-24S26(1-3/8")	140.00 - 160.00	0.6000	0.6000
T6	3	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T6	5	WC166(2")	140.00 - 160.00	0.6000	0.6000
T6	6	LDF4-75A(5/8")	140.00 - 160.00	0.6000	0.6000
T6	7	LDF2-50(3/8")	140.00 - 160.00	0.6000	0.6000
T6	8	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T6	10	Safety Line 3/8	140.00 - 160.00	0.6000	0.6000
T7	1	WC166(2")	120.00 - 140.00	0.6000	0.6000
T7	2	HFT1206-24S26(1-3/8")	120.00 - 140.00	0.6000	0.6000
T7	3	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T7	5	WC166(2")	120.00 - 140.00	0.6000	0.6000
T7	6	LDF4-75A(5/8")	120.00 - 140.00	0.6000	0.6000
T7	7	LDF2-50(3/8")	120.00 - 140.00	0.6000	0.6000
T7	8	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T7	10	Safety Line 3/8	120.00 - 140.00	0.6000	0.6000
T8	1	WC166(2")	100.00 - 120.00	0.6000	0.6000
T8	2	HFT1206-24S26(1-3/8")	100.00 - 120.00	0.6000	0.6000
T8	3	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T8	5	WC166(2")	100.00 - 120.00	0.6000	0.6000
T8	6	LDF4-75A(5/8")	100.00 - 120.00	0.6000	0.6000
T8	7	LDF2-50(3/8")	100.00 - 120.00	0.6000	0.6000

Job	25-009244 - Ebenezer, FL (Site# US-FL-5391)	Page	14 of 31
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Client	Vertical Bridge	Designed by	Akshay Kumar

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			120.00		
T8	8	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T8	10	Safety Line 3/8	100.00 - 120.00	0.6000	0.6000
T9	1	WC166(2")	80.00 - 100.00	0.6000	0.6000
T9	2	HFT1206-24S26(1-3/8")	80.00 - 100.00	0.6000	0.6000
T9	3	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T9	5	WC166(2")	80.00 - 100.00	0.6000	0.6000
T9	6	LDF4-75A(5/8")	80.00 - 100.00	0.6000	0.6000
T9	7	LDF2-50(3/8")	80.00 - 100.00	0.6000	0.6000
T9	8	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T9	10	Safety Line 3/8	80.00 - 100.00	0.6000	0.6000
T10	1	WC166(2")	60.00 - 80.00	0.6000	0.6000
T10	2	HFT1206-24S26(1-3/8")	60.00 - 80.00	0.6000	0.6000
T10	3	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T10	5	WC166(2")	60.00 - 80.00	0.6000	0.6000
T10	6	LDF4-75A(5/8")	60.00 - 80.00	0.6000	0.6000
T10	7	LDF2-50(3/8")	60.00 - 80.00	0.6000	0.6000
T10	8	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T10	10	Safety Line 3/8	60.00 - 80.00	0.6000	0.6000
T11	1	WC166(2")	40.00 - 60.00	0.6000	0.6000
T11	2	HFT1206-24S26(1-3/8")	40.00 - 60.00	0.6000	0.6000
T11	3	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T11	5	WC166(2")	40.00 - 60.00	0.6000	0.6000
T11	6	LDF4-75A(5/8")	40.00 - 60.00	0.6000	0.6000
T11	7	LDF2-50(3/8")	40.00 - 60.00	0.6000	0.6000
T11	8	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T11	10	Safety Line 3/8	40.00 - 60.00	0.6000	0.6000
T12	1	WC166(2")	20.00 - 40.00	0.6000	0.6000
T12	2	HFT1206-24S26(1-3/8")	20.00 - 40.00	0.6000	0.6000
T12	3	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T12	5	WC166(2")	20.00 - 40.00	0.6000	0.6000
T12	6	LDF4-75A(5/8")	20.00 - 40.00	0.6000	0.6000
T12	7	LDF2-50(3/8")	20.00 - 40.00	0.6000	0.6000
T12	8	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T12	10	Safety Line 3/8	20.00 - 40.00	0.6000	0.6000
T13	1	WC166(2")	0.00 - 20.00	0.6000	0.6000
T13	2	HFT1206-24S26(1-3/8")	0.00 - 20.00	0.6000	0.6000
T13	3	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T13	5	WC166(2")	0.00 - 20.00	0.6000	0.6000
T13	6	LDF4-75A(5/8")	0.00 - 20.00	0.6000	0.6000
T13	7	LDF2-50(3/8")	0.00 - 20.00	0.6000	0.6000
T13	8	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T13	10	Safety Line 3/8	0.00 - 20.00	0.6000	0.6000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	Placement	C_{AA} Front	C_{AA} Side	Weight
			ft	°	ft	ft ²	ft ²	K
			ft					
			ft					

tnxTower

B+T Group
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Job	25-009244 - Ebenezer, FL (Site# US-FL-5391)	Page	15 of 31
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Client	Vertical Bridge	Designed by	Akshay Kumar

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	CAA Front ft ²	CAA Side ft ²	Weight K	
Lightning Rod 1"x10'	A	From Leg	0.000 0.000 5.000	0.000	250.000	No Ice	1.000	1.000	0.040
Flash Beacon Lighting	B	From Leg	0.000 0.000 0.500	0.000	250.000	No Ice	2.700	2.700	0.050
*									
(2) NHH-65C-HG-R2B_TIA w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	245.000	No Ice	11.585	9.783	0.087
(2) NHH-65C-HG-R2B_TIA w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	245.000	No Ice	11.585	9.783	0.087
(2) NHH-65C-HG-R2B_TIA w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	245.000	No Ice	11.585	9.783	0.087
AIR 6419_TIA w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	245.000	No Ice	4.380	2.760	0.069
AIR 6419_TIA w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	245.000	No Ice	4.380	2.760	0.069
AIR 6419_TIA w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	245.000	No Ice	4.380	2.760	0.069
AIR3283_TIA w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	245.000	No Ice	8.104	5.748	0.128
AIR3283_TIA w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	245.000	No Ice	8.104	5.748	0.128
AIR3283_TIA w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	245.000	No Ice	8.104	5.748	0.128
4490	A	From Leg	4.000 0.000 0.000	0.000	245.000	No Ice	2.217	0.994	0.068
4490	B	From Leg	4.000 0.000 0.000	0.000	245.000	No Ice	2.217	0.994	0.068
4490	C	From Leg	4.000 0.000 0.000	0.000	245.000	No Ice	2.217	0.994	0.068
Commscope OVP-12	A	From Leg	2.000 0.000 0.000	0.000	245.000	No Ice	3.792	2.514	0.032
Commscope OVP-12	B	From Leg	2.000 0.000 0.000	0.000	245.000	No Ice	3.792	2.514	0.032
8' x 2" Mount Pipe	A	From Leg	2.000 0.000 0.000	0.000	245.000	No Ice	1.900	1.900	0.029
8' x 2" Mount Pipe	B	From Leg	2.000 0.000 0.000	0.000	245.000	No Ice	1.900	1.900	0.029
8' x 2" Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	245.000	No Ice	1.900	1.900	0.029

<p>tnxTower</p> <p>B+T Group 1717 S. Boulder Ave, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265</p>	Job		25-009244 - Ebenezer, FL (Site# US-FL-5391)		Page		16 of 31	
	Project				Date		16:27:57 11/22/25	
	Client		Vertical Bridge		Designed by		Akshay Kumar	

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
8' x 2" Mount Pipe	B	From Leg	0.000 4.000 0.000	0.000	245.000	No Ice	1.900	1.900	0.029
8' x 2" Mount Pipe	C	From Leg	0.000 4.000 0.000	0.000	245.000	No Ice	1.900	1.900	0.029
Sector Mount [SM 503-3] *	C	None	0.000	0.000	245.000	No Ice	30.430	30.430	1.690
FFVV-65C-R3N23 (Octo)_TIA w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	230.000	No Ice	19.052	10.493	0.136
FFVV-65C-R3N23 (Octo)_TIA w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	230.000	No Ice	19.052	10.493	0.136
FFVV-65C-R3N23 (Octo)_TIA w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	230.000	No Ice	19.052	10.493	0.136
AIR 6419 B41 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	230.000	No Ice	6.048	3.336	0.083
AIR 6419 B41 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	230.000	No Ice	6.048	3.336	0.083
AIR 6419 B41 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	230.000	No Ice	6.048	3.336	0.083
4460	A	From Leg	4.000 0.000 0.000	0.000	230.000	No Ice	2.125	1.700	0.109
4460	B	From Leg	4.000 0.000 0.000	0.000	230.000	No Ice	2.125	1.700	0.109
4460	C	From Leg	4.000 0.000 0.000	0.000	230.000	No Ice	2.125	1.700	0.109
4480	A	From Leg	4.000 0.000 0.000	0.000	230.000	No Ice	2.750	2.200	0.093
4480	B	From Leg	4.000 0.000 0.000	0.000	230.000	No Ice	2.750	2.200	0.093
4480	C	From Leg	4.000 0.000 0.000	0.000	230.000	No Ice	2.750	2.200	0.093
IP- 20A	A	From Leg	4.000 0.000 0.000	0.000	230.000	No Ice	0.675	0.285	0.014
6' x 2" Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	230.000	No Ice	1.425	1.425	0.022
Site Pro1 VFA12-HD	A	From Leg	2.000 0.000 0.000	0.000	230.000	No Ice	13.200	9.200	0.658
Site Pro1 VFA12-HD	B	From Leg	2.000 0.000 0.000	0.000	230.000	No Ice	13.200	9.200	0.658

tnxTower B+T Group 1717 S. Boulder Ave, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job 25-009244 - Ebenezer, FL (Site# US-FL-5391)	Page 17 of 31
	Project	Date 16:27:57 11/22/25
	Client Vertical Bridge	Designed by Akshay Kumar

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
Site Pro1 VFA12-HD	C	From Leg	0.000 2.000 0.000 0.000	0.000	230.000	No Ice 13.200	9.200	0.658
* *(2) ODU600	C	From Leg	1.500 0.000 0.000	0.000	200.000	No Ice 0.901	0.425	0.011
Side Arm Mount [SO 201-1]	C	From Leg	0.750 0.000 0.000	0.000	200.000	No Ice 1.780	2.610	0.096
* *								

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
Crgn & Stnd UBR100 Int	A	Paraboloid w/Shroud (HP)	From Leg	4.000 0.000 0.000	0.000		230.000	1.047	No Ice 0.860	0.027
* Commscope VHLPX3-11W	C	Paraboloid w/Shroud (HP)	From Leg	1.500 0.000 0.000	74.500		200.000	3.283	No Ice 8.467	0.053
*										

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

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Comb. No.	Description
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
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	6.250	0.715	-0.002
			Max. Compression	2	-9.033	0.482	-0.019
			Max. Mx	10	-5.585	-0.769	-0.034
			Max. My	22	-5.296	-0.380	0.287
			Max. Vy	10	-2.505	0.484	0.027
			Max. Vx	10	1.565	-0.103	0.042
		Diagonal	Max Tension	12	3.266	0.000	0.000
			Max. Compression	12	-3.172	0.000	0.000
			Max. Mx	2	-0.132	0.024	-0.000
			Max. My	12	-3.160	-0.000	0.022
			Max. Vy	2	0.010	0.024	-0.000
			Max. Vx	12	-0.007	0.000	0.000
		Top Girt	Max Tension	14	1.169	0.000	0.000
			Max. Compression	10	-1.154	0.000	0.000
			Max. Mx	10	-1.154	-0.005	0.000
			Max. My	24	-0.987	0.000	0.000
			Max. Vy	10	0.005	0.000	0.000
			Max. Vx	24	-0.000	0.000	0.000
T2	240 - 220	Leg	Max Tension	23	34.242	1.128	0.053
			Max. Compression	2	-41.416	0.717	-0.010
			Max. Mx	10	-8.938	1.734	0.088
			Max. My	10	2.056	-0.843	0.753
			Max. Vy	10	-4.014	0.718	0.036
			Max. Vx	22	1.807	0.339	-0.281
		Diagonal	Max Tension	12	4.796	0.000	0.000
			Max. Compression	12	-4.607	0.000	0.000
			Max. Mx	2	0.251	0.014	-0.001
			Max. My	12	-3.429	0.001	0.012
			Max. Vy	24	0.007	0.013	-0.003

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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
T3	220 - 200	Leg	Max. Vx	12	-0.004	0.000	0.000
			Max Tension	23	62.429	1.348	0.026
			Max. Compression	2	-72.555	0.683	-0.027
			Max. Mx	10	-40.990	2.714	0.136
			Max. My	22	-22.293	1.278	-1.184
			Max. Vy	2	-4.508	0.683	-0.027
			Max. Vx	22	1.808	1.278	-1.184
		Diagonal	Max Tension	12	4.768	0.000	0.000
			Max. Compression	12	-4.969	0.000	0.000
			Max. Mx	24	1.949	0.020	-0.001
			Max. My	12	-4.942	-0.002	0.015
			Max. Vy	24	0.010	0.020	-0.001
			Max. Vx	12	-0.004	0.000	0.000
			Max. Vx	15	88.221	1.880	0.044
T4	200 - 180	Leg	Max Tension	2	-101.937	0.458	0.010
			Max. Compression	10	-71.978	3.005	0.056
			Max. Mx	18	28.877	-1.382	-1.080
			Max. My	10	-5.303	0.460	0.005
			Max. Vy	14	1.855	0.208	-0.230
			Max. Vx	4	4.671	0.000	0.000
			Max. Vx	4	-4.808	0.000	0.000
		Diagonal	Max. Mx	12	1.692	0.017	0.001
			Max. My	16	-4.753	0.001	-0.008
			Max. Vy	12	0.010	0.017	0.001
			Max. Vx	16	0.002	0.000	0.000
			Max Tension	15	112.517	2.497	0.050
			Max. Compression	2	-130.459	0.104	-0.001
			Max. Mx	10	-101.425	3.109	0.024
T5	180 - 160	Leg	Max. My	2	41.906	-1.426	1.159
			Max. Vy	10	-6.159	0.104	0.003
			Max. Vx	20	2.106	-0.002	-0.114
			Max Tension	16	5.145	0.000	0.000
			Max. Compression	16	-5.057	0.000	0.000
			Max. Mx	12	1.957	0.029	0.002
			Max. My	4	-4.871	0.002	0.008
		Diagonal	Max. Vy	12	0.015	0.029	0.002
			Max. Vx	4	-0.002	0.000	0.000
			Max Tension	15	136.189	2.452	0.040
			Max. Compression	2	-158.769	0.581	0.007
			Max. Mx	10	-129.889	3.186	0.049
			Max. My	20	-8.265	0.029	-1.170
			Max. Vy	10	-7.131	0.582	0.013
T6	160 - 140	Leg	Max. Vx	20	2.449	0.003	-0.312
			Max Tension	12	5.562	0.000	0.000
			Max. Compression	12	-5.469	0.000	0.000
			Max. Mx	12	2.204	0.032	0.002
			Max. My	4	-5.204	0.006	0.008
			Max. Vy	12	0.016	0.032	0.002
			Max. Vx	4	-0.002	0.000	0.000
		Diagonal	Max Tension	15	159.970	2.914	0.042
			Max. Compression	2	-188.006	0.590	0.004
			Max. Mx	10	-158.076	4.143	0.083
			Max. My	20	-10.016	0.035	-1.540
			Max. Vy	2	-8.331	0.590	0.004
			Max. Vx	20	2.842	0.002	-0.286
			Max Tension	12	6.309	0.000	0.000
T7	140 - 120	Leg	Max. Compression	12	-6.207	0.000	0.000
			Max. Mx	12	2.568	0.046	0.003
			Max. My	16	-5.820	0.009	-0.009
			Max. Vy	12	0.022	0.046	0.003
			Max. Vx	16	0.002	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			
T8	120 - 100	Leg	Max Tension	15	184.130	3.234	0.038			
			Max. Compression	2	-218.309	0.800	0.008			
			Max. Mx	2	-188.037	4.753	0.055			
			Max. My	20	-11.968	0.043	-1.711			
			Max. Vy	2	-9.572	0.800	0.008			
			Max. Vx	20	3.255	0.009	-0.454			
		Diagonal	Max Tension	12	7.024	0.000	0.000			
			Max. Compression	12	-6.969	0.000	0.000			
			Max. Mx	12	2.935	0.049	0.004			
			Max. My	16	-6.479	0.017	-0.009			
			Max. Vy	12	0.024	0.049	0.004			
			Max. Vx	16	0.002	0.000	0.000			
			T9	100 - 80	Leg	Max Tension	15	208.676	4.211	0.045
						Max. Compression	2	-250.002	0.179	-0.001
Max. Mx	2	-218.344				5.581	0.058			
Max. My	20	-14.065				0.061	-2.085			
Max. Vy	2	-10.871				0.179	-0.001			
Diagonal	Max. Vx	20			3.688	-0.000	-0.169			
	Max Tension	12			8.016	0.000	0.000			
	Max. Compression	12			-7.899	0.000	0.000			
T10	80 - 60	Leg	Max. Mx	12	3.322	0.070	0.006			
			Max. My	16	-7.551	0.040	-0.011			
			Max. Vy	12	0.034	0.070	0.006			
			Max. Vx	16	0.002	0.000	0.000			
			Max Tension	15	233.445	4.096	0.034			
			Max. Compression	2	-282.283	0.748	0.011			
		Diagonal	Max. Mx	2	-250.036	5.618	0.048			
			Max. My	20	-16.523	0.066	-2.017			
			Max. Vy	2	-11.940	0.748	0.011			
			Max. Vx	20	4.330	-0.024	-0.857			
			Max Tension	12	8.652	0.000	0.000			
			Max. Compression	12	-8.571	0.000	0.000			
			Max. Mx	24	3.442	0.081	-0.007			
			Max. My	16	-8.155	0.051	-0.013			
T11	60 - 40	Leg	Max. Vy	24	0.036	0.081	-0.007			
			Max. Vx	16	0.002	0.000	0.000			
			Max Tension	15	258.090	4.966	0.041			
			Max. Compression	2	-314.898	0.110	0.004			
			Max. Mx	2	-282.321	6.715	0.059			
			Max. My	20	-19.259	0.047	-3.025			
		Diagonal	Max. Vy	2	-12.720	0.110	0.004			
			Max. Vx	20	4.439	-0.037	-0.585			
			Max Tension	13	9.737	0.000	0.000			
			Max. Compression	12	-9.929	0.000	0.000			
			Max. Mx	24	9.670	0.102	0.000			
			Max. My	10	-0.016	0.000	0.003			
			Max. Vy	24	-0.038	0.000	0.000			
			Max. Vx	10	-0.001	0.000	0.000			
Horizontal	Max Tension	10	1.455	-0.071	0.001					
	Max. Compression	23	-1.264	-0.052	0.002					
	Max. Mx	22	0.414	-0.071	0.000					
	Max. My	14	0.493	-0.061	0.005					
	Max. Vy	22	0.037	-0.071	-0.000					
	Max. Vx	14	0.001	-0.061	0.005					
	Inner Bracing	Max Tension	1	0.000	0.000	0.000				
		Max. Compression	10	-0.004	0.000	0.000				
		Max. Mx	6	-0.002	-0.030	0.000				
		Max. My	2	-0.004	0.000	-0.000				
Max. Vy		6	0.013	0.000	0.000					
Max. Vx		2	0.000	0.000	0.000					
T12	40 - 20	Leg	Max Tension	15	281.846	5.655	0.042			

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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
T13	20 - 0	Diagonal	Max. Compression	2	-347.073	-0.372	0.002
			Max. Mx	2	-347.032	-7.192	-0.046
			Max. My	20	-21.739	0.046	-2.808
			Max. Vy	2	-13.630	-0.372	0.002
			Max. Vx	20	4.524	-0.043	-0.473
			Max Tension	13	10.127	0.000	0.000
			Max. Compression	12	-10.448	0.000	0.000
			Max. Mx	24	10.042	0.116	0.000
			Max. My	10	0.207	0.000	0.003
			Max. Vy	24	-0.040	0.000	0.000
			Max. Vx	10	-0.001	0.000	0.000
			Max Tension	10	1.657	-0.103	0.001
			Max. Compression	23	-1.399	-0.076	0.003
			Max. Mx	22	0.478	-0.104	-0.000
			Max. My	14	0.469	-0.090	0.006
			Max. Vy	22	0.050	-0.104	-0.000
			Max. Vx	14	0.001	-0.090	0.006
			Max Tension	1	0.000	0.000	0.000
		Max. Compression	16	-0.005	0.000	0.000	
		Max. Mx	6	-0.003	-0.035	0.000	
		Max. My	2	-0.005	0.000	-0.000	
		Max. Vy	6	0.014	0.000	0.000	
		Max. Vx	2	0.000	0.000	0.000	
		Max Tension	15	304.788	5.779	0.043	
		Max. Compression	2	-378.811	0.000	-0.000	
		Max. Mx	2	-378.770	-7.379	-0.048	
		Max. My	20	-24.703	0.066	-2.739	
		Max. Vy	2	-14.748	0.000	-0.000	
		Max. Vx	20	4.530	0.066	-2.739	
		Max Tension	13	10.464	0.000	0.000	
		Max. Compression	12	-10.892	0.000	0.000	
		Max. Mx	10	9.714	0.160	0.000	
		Max. My	10	0.515	0.000	0.004	
		Max. Vy	10	-0.052	0.000	0.000	
		Max. Vx	10	-0.001	0.000	0.000	
		Max Tension	10	1.707	-0.120	0.001	
		Max. Compression	23	-1.434	-0.086	0.003	
		Max. Mx	14	0.472	-0.123	0.000	
		Max. My	14	0.542	-0.103	0.006	
		Max. Vy	14	0.054	-0.123	0.000	
		Max. Vx	14	0.001	-0.103	0.006	
		Max Tension	1	0.000	0.000	0.000	
Max. Compression	2	-0.006	0.000	0.000			
Max. Mx	16	-0.004	-0.041	0.000			
Max. My	2	-0.006	0.000	-0.000			
Max. Vy	16	0.015	0.000	0.000			
Max. Vx	2	0.000	0.000	0.000			

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	18	370.931	25.489	-15.106
	Max. H _x	18	370.931	25.489	-15.106
	Max. H _z	5	-261.875	-17.881	13.054
	Min. Vert	7	-298.090	-21.353	12.720

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Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg B	Min. H _x	7	-298.090	-21.353	12.720
	Min. H _z	18	370.931	25.489	-15.106
	Max. Vert	10	375.633	-25.812	-15.263
	Max. H _x	23	-302.442	21.643	12.882
	Max. H _z	25	-270.030	18.458	13.384
	Min. Vert	23	-302.442	21.643	12.882
Leg A	Min. H _x	10	375.633	-25.812	-15.263
	Min. H _z	10	375.633	-25.812	-15.263
	Max. Vert	2	377.900	-0.086	30.115
	Max. H _x	21	21.217	4.417	1.084
	Max. H _z	2	377.900	-0.086	30.115
	Min. Vert	15	-303.918	0.094	-25.383
	Min. H _x	9	17.931	-4.410	0.886
	Min. H _z	15	-303.918	0.094	-25.383

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	63.857	0.000	0.000	-12.908	2.272	-0.000
1.2 Dead+1.0 Wind 0 deg - No Ice	76.628	-0.138	-50.263	-6865.887	30.639	-3.662
0.9 Dead+1.0 Wind 0 deg - No Ice	57.471	-0.138	-50.263	-6851.161	29.900	-3.658
1.2 Dead+1.0 Wind 30 deg - No Ice	76.628	22.789	-39.665	-5516.145	-3150.134	-9.914
0.9 Dead+1.0 Wind 30 deg - No Ice	57.471	22.789	-39.665	-5503.452	-3145.795	-9.900
1.2 Dead+1.0 Wind 60 deg - No Ice	76.628	38.494	-22.119	-3093.797	-5364.871	-13.277
0.9 Dead+1.0 Wind 60 deg - No Ice	57.471	38.494	-22.119	-3084.957	-5356.965	-13.257
1.2 Dead+1.0 Wind 90 deg - No Ice	76.628	45.410	0.177	20.035	-6300.287	-15.163
0.9 Dead+1.0 Wind 90 deg - No Ice	57.471	45.410	0.177	23.884	-6290.908	-15.143
1.2 Dead+1.0 Wind 120 deg - No Ice	76.628	43.305	25.093	3414.618	-5905.610	-12.215
0.9 Dead+1.0 Wind 120 deg - No Ice	57.471	43.305	25.093	3413.108	-5896.966	-12.199
1.2 Dead+1.0 Wind 150 deg - No Ice	76.628	23.575	40.735	5628.891	-3267.136	-7.250
0.9 Dead+1.0 Wind 150 deg - No Ice	57.471	23.575	40.735	5623.809	-3262.610	-7.243
1.2 Dead+1.0 Wind 180 deg - No Ice	76.628	0.184	45.309	6301.495	-34.376	3.927
0.9 Dead+1.0 Wind 180 deg - No Ice	57.471	0.184	45.309	6295.301	-35.002	3.923
1.2 Dead+1.0 Wind 210 deg - No Ice	76.628	-22.779	39.670	5486.198	3153.656	9.877
0.9 Dead+1.0 Wind 210 deg - No Ice	57.471	-22.779	39.670	5481.329	3147.936	9.863
1.2 Dead+1.0 Wind 240 deg - No Ice	76.628	-42.834	24.652	3340.823	5842.418	13.440
0.9 Dead+1.0 Wind 240 deg - No Ice	57.471	-42.834	24.652	3339.435	5832.502	13.419

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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
1.2 Dead+1.0 Wind 270 deg - No Ice	76.628	-45.355	-0.141	-44.093	6294.645	15.673
0.9 Dead+1.0 Wind 270 deg - No Ice	57.471	-45.355	-0.141	-40.133	6283.904	15.653
1.2 Dead+1.0 Wind 300 deg - No Ice	76.628	-38.901	-22.522	-3159.766	5426.219	12.762
0.9 Dead+1.0 Wind 300 deg - No Ice	57.471	-38.901	-22.522	-3150.821	5416.852	12.740
1.2 Dead+1.0 Wind 330 deg - No Ice	76.628	-23.516	-40.663	-5645.512	3260.586	7.650
0.9 Dead+1.0 Wind 330 deg - No Ice	57.471	-23.516	-40.663	-5632.628	3254.704	7.643
Dead+Wind 0 deg - Service	63.857	-0.036	-13.290	-1818.549	9.615	-0.960
Dead+Wind 30 deg - Service	63.857	6.028	-10.492	-1463.070	-828.926	-2.606
Dead+Wind 60 deg - Service	63.857	10.184	-5.852	-824.538	-1412.861	-3.492
Dead+Wind 90 deg - Service	63.857	12.013	0.047	-3.606	-1659.403	-3.987
Dead+Wind 120 deg - Service	63.857	11.450	6.635	891.147	-1555.028	-3.209
Dead+Wind 150 deg - Service	63.857	6.235	10.774	1474.968	-859.673	-1.906
Dead+Wind 180 deg - Service	63.857	0.049	11.986	1652.405	-7.475	1.033
Dead+Wind 210 deg - Service	63.857	-6.026	10.494	1437.454	832.965	2.596
Dead+Wind 240 deg - Service	63.857	-11.326	6.519	871.749	1541.541	3.530
Dead+Wind 270 deg - Service	63.857	-11.998	-0.037	-20.462	1661.048	4.122
Dead+Wind 300 deg - Service	63.857	-10.291	-5.958	-841.880	1432.118	3.356
Dead+Wind 330 deg - Service	63.857	-6.220	-10.755	-1497.083	861.089	2.011

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	-63.857	0.000	0.000	63.857	0.000	0.000%
2	-0.138	-76.628	-50.263	0.138	76.628	50.263	0.000%
3	-0.138	-57.471	-50.263	0.138	57.471	50.263	0.000%
4	22.789	-76.628	-39.665	-22.789	76.628	39.665	0.000%
5	22.789	-57.471	-39.665	-22.789	57.471	39.665	0.000%
6	38.494	-76.628	-22.119	-38.494	76.628	22.119	0.000%
7	38.494	-57.471	-22.119	-38.494	57.471	22.119	0.000%
8	45.410	-76.628	0.177	-45.410	76.628	-0.177	0.000%
9	45.410	-57.471	0.177	-45.410	57.471	-0.177	0.000%
10	43.306	-76.628	25.093	-43.306	76.628	-25.093	0.000%
11	43.306	-57.471	25.093	-43.306	57.471	-25.093	0.000%
12	23.575	-76.628	40.735	-23.575	76.628	-40.735	0.000%
13	23.575	-57.471	40.735	-23.575	57.471	-40.735	0.000%
14	0.184	-76.628	45.309	-0.184	76.628	-45.309	0.000%
15	0.184	-57.471	45.309	-0.184	57.471	-45.309	0.000%
16	-22.779	-76.628	39.670	22.779	76.628	-39.670	0.000%
17	-22.779	-57.471	39.670	22.779	57.471	-39.670	0.000%
18	-42.834	-76.628	24.652	42.834	76.628	-24.652	0.000%
19	-42.834	-57.471	24.652	42.834	57.471	-24.652	0.000%
20	-45.355	-76.628	-0.141	45.355	76.628	0.141	0.000%
21	-45.355	-57.471	-0.141	45.355	57.471	0.141	0.000%
22	-38.901	-76.628	-22.522	38.901	76.628	22.522	0.000%
23	-38.901	-57.471	-22.522	38.901	57.471	22.522	0.000%
24	-23.516	-76.628	-40.663	23.516	76.628	40.663	0.000%
25	-23.516	-57.471	-40.663	23.516	57.471	40.663	0.000%
26	-0.036	-63.857	-13.290	0.036	63.857	13.290	0.000%
27	6.028	-63.857	-10.492	-6.028	63.857	10.492	0.000%
28	10.184	-63.857	-5.852	-10.184	63.857	5.852	0.000%

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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	
29	12.013	-63.857	0.047	-12.013	63.857	-0.047	0.000%
30	11.450	-63.857	6.635	-11.450	63.857	-6.635	0.000%
31	6.235	-63.857	10.774	-6.235	63.857	-10.774	0.000%
32	0.049	-63.857	11.986	-0.049	63.857	-11.986	0.000%
33	-6.026	-63.857	10.494	6.026	63.857	-10.494	0.000%
34	-11.326	-63.857	6.519	11.326	63.857	-6.519	0.000%
35	-11.998	-63.857	-0.037	11.998	63.857	0.037	0.000%
36	-10.291	-63.857	-5.958	10.291	63.857	5.958	0.000%
37	-6.220	-63.857	-10.755	6.220	63.857	10.755	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.0000001	0.0000001
2	Yes	4	0.0000001	0.00000195
3	Yes	4	0.0000001	0.00000172
4	Yes	4	0.0000001	0.00000164
5	Yes	4	0.0000001	0.00000138
6	Yes	4	0.0000001	0.00000162
7	Yes	4	0.0000001	0.00000135
8	Yes	4	0.0000001	0.00000167
9	Yes	4	0.0000001	0.00000139
10	Yes	4	0.0000001	0.00000198
11	Yes	4	0.0000001	0.00000175
12	Yes	4	0.0000001	0.00000170
13	Yes	4	0.0000001	0.00000145
14	Yes	4	0.0000001	0.00000165
15	Yes	4	0.0000001	0.00000140
16	Yes	4	0.0000001	0.00000163
17	Yes	4	0.0000001	0.00000137
18	Yes	4	0.0000001	0.00000195
19	Yes	4	0.0000001	0.00000171
20	Yes	4	0.0000001	0.00000167
21	Yes	4	0.0000001	0.00000139
22	Yes	4	0.0000001	0.00000166
23	Yes	4	0.0000001	0.00000139
24	Yes	4	0.0000001	0.00000171
25	Yes	4	0.0000001	0.00000146
26	Yes	4	0.0000001	0.00000001
27	Yes	4	0.0000001	0.00000001
28	Yes	4	0.0000001	0.00000001
29	Yes	4	0.0000001	0.00000001
30	Yes	4	0.0000001	0.00000001
31	Yes	4	0.0000001	0.00000001
32	Yes	4	0.0000001	0.00000001
33	Yes	4	0.0000001	0.00000001
34	Yes	4	0.0000001	0.00000001
35	Yes	4	0.0000001	0.00000001
36	Yes	4	0.0000001	0.00000001
37	Yes	4	0.0000001	0.00000001

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Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	250 - 240	6.218	26	0.217	0.056
T2	240 - 220	5.740	26	0.217	0.050
T3	220 - 200	4.806	26	0.202	0.038
T4	200 - 180	3.961	26	0.180	0.029
T5	180 - 160	3.209	26	0.160	0.021
T6	160 - 140	2.544	26	0.140	0.016
T7	140 - 120	1.959	26	0.119	0.012
T8	120 - 100	1.460	26	0.099	0.009
T9	100 - 80	1.033	26	0.081	0.007
T10	80 - 60	0.682	26	0.064	0.005
T11	60 - 40	0.395	26	0.047	0.003
T12	40 - 20	0.198	26	0.030	0.002
T13	20 - 0	0.066	26	0.015	0.001

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
250.000	Lightning Rod 1"x10'	26	6.218	0.217	0.056	Inf
245.000	(2) NHH-65C-HG-R2B_TIA w/ Mount Pipe	26	5.979	0.218	0.052	Inf
230.000	Crgn & Stnd UBR100 Int	26	5.265	0.212	0.045	81099
200.000	Commscope VHLPX3-11W	26	3.961	0.180	0.029	54154

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	250 - 240	23.510	2	0.819	0.215
T2	240 - 220	21.705	2	0.820	0.189
T3	220 - 200	18.176	2	0.764	0.146
T4	200 - 180	14.984	2	0.681	0.110
T5	180 - 160	12.138	2	0.605	0.080
T6	160 - 140	9.621	2	0.530	0.061
T7	140 - 120	7.409	2	0.449	0.045
T8	120 - 100	5.522	2	0.374	0.034
T9	100 - 80	3.907	2	0.306	0.025
T10	80 - 60	2.581	2	0.242	0.019
T11	60 - 40	1.496	2	0.176	0.013
T12	40 - 20	0.750	2	0.115	0.008
T13	20 - 0	0.248	2	0.058	0.004

Critical Deflections and Radius of Curvature - Design Wind

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Elevation	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
250.000	Lightning Rod 1"x10'	2	23.510	0.819	0.215	422310
245.000	(2) NHH-65C-HG-R2B_TIA w/ Mount Pipe	2	22.607	0.821	0.198	422310
230.000	Crgn & Stnd UBR100 Int	2	19.913	0.800	0.170	21899
200.000	Commscope VHLPX3-11W	2	14.984	0.681	0.110	14325

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	Leg	A325N	0.750	6	1.042	30.101	0.035	1	Bolt Tension
		Diagonal	A325X	0.625	1	3.266	9.598	0.340	1	Member Block Shear
		Top Girt	A325X	0.625	1	1.169	9.598	0.122	1	Member Block Shear
T2	240	Leg	A325N	0.750	6	5.707	30.101	0.190	1	Bolt Tension
		Diagonal	A325X	0.625	1	4.796	9.598	0.500	1	Member Block Shear
T3	220	Leg	A325N	1.000	6	10.405	54.517	0.191	1	Bolt Tension
		Diagonal	A325X	0.625	1	4.768	10.740	0.444	1	Member Block Shear
T4	200	Leg	A325N	1.000	6	14.703	54.517	0.270	1	Bolt Tension
		Diagonal	A325X	0.625	1	4.671	10.740	0.435	1	Member Block Shear
T5	180	Leg	A325N	1.000	6	18.753	54.517	0.344	1	Bolt Tension
		Diagonal	A325X	0.625	1	5.145	13.025	0.395	1	Member Block Shear
T6	160	Leg	A325N	1.250	6	22.698	87.220	0.260	1	Bolt Tension
		Diagonal	A325X	0.625	1	5.562	13.025	0.427	1	Member Block Shear
T7	140	Leg	A325N	1.250	6	26.662	87.220	0.306	1	Bolt Tension
		Diagonal	A325X	0.625	1	6.309	14.168	0.445	1	Member Block Shear
T8	120	Leg	A325N	1.250	6	30.688	87.220	0.352	1	Bolt Tension
		Diagonal	A325X	0.625	1	7.024	14.168	0.496	1	Member Block Shear
T9	100	Leg	A325N	1.250	6	34.779	87.220	0.399	1	Bolt Tension
		Diagonal	A325X	0.625	1	8.016	17.257	0.465	1	Bolt Shear
T10	80	Leg	A325N	1.500	6	38.907	126.472	0.308	1	Bolt Tension
		Diagonal	A325X	0.625	1	8.652	17.257	0.501	1	Bolt Shear
T11	60	Leg	A325N	1.500	6	43.015	126.472	0.340	1	Bolt Tension
		Diagonal	A325X	0.625	1	9.737	26.051	0.374	1	Member Block Shear
		Horizontal	A325X	0.625	1	5.458	21.480	0.254	1	Member Block Shear
T12	40	Leg	A325N	1.500	6	46.974	126.472	0.371	1	Bolt Tension
		Diagonal	A325X	0.625	1	10.127	26.051	0.389	1	Member Block Shear
		Horizontal	A325X	0.625	1	6.016	26.051	0.231	1	Member Block Shear
T13	20	Diagonal	A325X	0.625	1	10.892	29.250	0.372	1	Member Bearing
		Horizontal	A325X	0.625	1	6.566	26.051	0.252	1	Member Block Shear

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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 - 240	1 3/4	10.009	4.504	123.5 K=1.00	2.405	-5.690	35.601	0.160 ¹
T2	240 - 220	2 1/4	20.019	4.754	101.4 K=1.00	3.976	-37.347	84.331	0.443 ¹
T3	220 - 200	2 3/4	20.019	4.754	83.0 K=1.00	5.940	-68.820	161.540	0.426 ¹
T4	200 - 180	3 1/4	20.019	4.754	70.2 K=1.00	8.296	-98.170	260.312	0.377 ¹
T5	180 - 160	3 1/2	20.019	4.754	65.2 K=1.00	9.621	-126.628	317.273	0.399 ¹
T6	160 - 140	3 1/2	20.019	4.754	65.2 K=1.00	9.621	-154.929	317.273	0.488 ¹
T7	140 - 120	3 3/4	20.019	4.754	60.9 K=1.00	11.045	-183.951	379.106	0.485 ¹
T8	120 - 100	4	20.019	4.754	57.1 K=1.00	12.566	-214.061	445.717	0.480 ¹
T9	100 - 80	4 1/4	20.019	4.754	53.7 K=1.00	14.186	-245.501	517.034	0.475 ¹
T10	80 - 60	4 1/4	20.019	4.754	53.7 K=1.00	14.186	-277.763	517.034	0.537 ¹
T11	60 - 40	4 1/2	20.019	4.754	50.7 K=1.00	15.904	-306.307	593.004	0.517 ¹
T12	40 - 20	4 3/4	20.019	4.754	48.0 K=1.00	17.721	-338.381	673.582	0.502 ¹
T13	20 - 0	4 3/4	20.019	4.754	48.0 K=1.00	17.721	-370.042	673.582	0.549 ¹

¹ P_u / φP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	250 - 240	L1 3/4x1 3/4x3/16	6.221	2.960	107.6 K=1.04	0.621	-3.172	15.362	0.207 ¹
T2	240 - 220	L1 3/4x1 3/4x3/16	7.485	3.570	124.7 K=1.00	0.621	-4.607	11.425	0.403 ¹
T3	220 - 200	L2x2x3/16	8.697	4.151	126.4 K=1.00	0.715	-4.346	12.802	0.340 ¹
T4	200 - 180	L2x2x3/16	9.987	4.774	145.4 K=1.00	0.715	-4.614	9.679	0.477 ¹
T5	180 - 160	L2 1/2x2 1/2x3/16	11.329	5.435	131.8 K=1.00	0.902	-5.057	14.870	0.340 ¹
T6	160 - 140	L2 1/2x2 1/2x3/16	12.706	6.125	148.5	0.902	-5.469	11.709	0.467 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 $\frac{P_u}{\phi P_n}$
T7	140 - 120	L3x3x3/16	14.108	6.816	K=1.00 137.2	1.090	-6.207	16.564	0.375 ¹
T8	120 - 100	L3x3x3/16	15.529	7.516	K=1.00 151.3	1.090	-6.969	13.622	0.512 ¹
T9	100 - 80	L3x3x1/4	16.963	8.223	K=1.00 166.7	1.440	-7.899	14.834	0.533 ¹
T10	80 - 60	L3x3x1/4	18.408	8.946	K=1.00 181.3	1.440	-8.571	12.533	0.684 ¹
T11	60 - 40	2L2 1/2x2 1/2x3/16x3/8	10.829	10.287	K=1.00 158.4	1.800	-9.929	19.794	0.502 ¹
T12	40 - 20	ai/ri > 0.75(KL/r) _o - 269 2L2 1/2x2 1/2x3/16x3/8	11.508	10.957	K=1.00 168.7	1.800	-10.448	17.534	0.596 ¹
T13	20 - 0	ai/ri > 0.75(KL/r) _o - 308 2L3x3x3/16x3/8	12.195	11.647	K=1.00 148.8	2.180	-10.892	26.343	0.413 ¹
		ai/ri > 0.75(KL/r) _o - 347							

¹ P_u / φP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T11	60 - 40	2L2x2x3/16x3/8	19.106	9.199	K=1.00 178.8	1.430	-5.458	12.584	0.434 ¹
T12	40 - 20	ai/ri > 0.75(KL/r) _o - 268 2L2 1/2x2 1/2x3/16x3/8	20.606	9.939	K=1.00 153.0	1.800	-6.016	21.141	0.285 ¹
T13	20 - 0	ai/ri > 0.75(KL/r) _o - 307 2L2 1/2x2 1/2x3/16x3/8	22.106	10.688	K=1.00 164.6	1.800	-6.566	18.392	0.357 ¹
		ai/ri > 0.75(KL/r) _o - 346							

¹ P_u / φP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	250 - 240	L1 3/4x1 3/4x3/16	3.788	3.308	K=1.02 117.8	0.621	-1.154	12.811	0.090 ¹

¹ P_u / φP_n controls

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Inner Bracing 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 $\frac{P_u}{\phi P_n}$
T11	60 - 40	L1 3/4x1 3/4x3/16	9.553	9.553	333.8 K=1.00	0.621	-0.004	1.596	0.003 ¹
T12	40 - 20	KL/R > 250 (C) - 275 L1 3/4x1 3/4x3/16	10.303	10.303	360.0 K=1.00	0.621	-0.005	1.372	0.004 ¹
T13	20 - 0	KL/R > 250 (C) - 314 L1 3/4x1 3/4x3/16 KL/R > 250 (C) - 371	10.697	10.697	373.7 K=1.00	0.621	-0.006	1.273	0.005 ¹

¹ P_u / φP_n controls

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 - 240	1 3/4	10.009	0.500	13.7	2.405	6.250	108.238	0.058 ¹
T2	240 - 220	2 1/4	20.019	0.500	10.7	3.976	34.242	178.924	0.191 ¹
T3	220 - 200	2 3/4	20.019	0.500	8.7	5.940	62.429	267.281	0.234 ¹
T4	200 - 180	3 1/4	20.019	0.500	7.4	8.296	88.221	373.310	0.236 ¹
T5	180 - 160	3 1/2	20.019	0.500	6.9	9.621	112.517	432.951	0.260 ¹
T6	160 - 140	3 1/2	20.019	0.500	6.9	9.621	136.189	432.951	0.315 ¹
T7	140 - 120	3 3/4	20.019	0.500	6.4	11.045	159.970	497.010	0.322 ¹
T8	120 - 100	4	20.019	0.500	6.0	12.566	184.130	565.487	0.326 ¹
T9	100 - 80	4 1/4	20.019	0.500	5.7	14.186	208.676	638.381	0.327 ¹
T10	80 - 60	4 1/4	20.019	0.500	5.7	14.186	233.445	638.381	0.366 ¹
T11	60 - 40	4 1/2	20.019	0.500	5.3	15.904	258.090	715.694	0.361 ¹
T12	40 - 20	4 3/4	20.019	0.500	5.1	17.721	281.846	797.425	0.353 ¹
T13	20 - 0	4 3/4	20.019	0.500	5.1	17.721	304.788	797.425	0.382 ¹

¹ P_u / φP_n controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	250 - 240	L1 3/4x1 3/4x3/16	6.221	2.960	69.9	0.360	3.266	17.567	0.186 ¹
T2	240 - 220	L1 3/4x1 3/4x3/16	7.485	3.570	83.5	0.360	4.796	17.567	0.273 ¹
T3	220 - 200	L2x2x3/16	7.823	3.720	75.6	0.431	4.768	21.001	0.227 ¹
T4	200 - 180	L2x2x3/16	9.987	4.774	96.1	0.431	4.671	21.001	0.222 ¹
T5	180 - 160	L2 1/2x2 1/2x3/16	11.329	5.435	86.4	0.571	5.145	27.838	0.185 ¹
T6	160 - 140	L2 1/2x2 1/2x3/16	12.706	6.125	97.0	0.571	5.562	27.838	0.200 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 $\frac{P_u}{\phi P_n}$
T7	140 - 120	L3x3x3/16	14.108	6.816	89.2	0.712	6.309	34.712	0.182 ¹
T8	120 - 100	L3x3x3/16	15.529	7.516	98.2	0.712	7.024	34.712	0.202 ¹
T9	100 - 80	L3x3x1/4	16.963	8.223	108.3	0.939	8.016	45.794	0.175 ¹
T10	80 - 60	L3x3x1/4	18.408	8.946	117.6	0.939	8.652	45.794	0.189 ¹
T11	60 - 40	2L2 1/2x2 1/2x3/16x3/8 ai/ri > 0.75(KL/r) _o - 270	10.829	10.287	163.8	1.139	9.737	55.529	0.175 ¹
T12	40 - 20	2L2 1/2x2 1/2x3/16x3/8 ai/ri > 0.75(KL/r) _o - 309	11.508	10.957	174.1	1.139	10.127	55.529	0.182 ¹
T13	20 - 0	2L3x3x3/16x3/8 ai/ri > 0.75(KL/r) _o - 348	12.195	11.647	153.1	1.424	10.464	69.423	0.151 ¹

¹ P_u / φP_n controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T11	60 - 40	2L2x2x3/16x3/8 ai/ri > 0.75(KL/r) _o - 268	19.106	9.199	182.2	0.862	5.458	42.001	0.130 ¹
T12	40 - 20	2L2 1/2x2 1/2x3/16x3/8 ai/ri > 0.75(KL/r) _o - 307	20.606	9.939	155.9	1.139	6.016	55.529	0.108 ¹
T13	20 - 0	2L2 1/2x2 1/2x3/16x3/8 ai/ri > 0.75(KL/r) _o - 346	22.106	10.688	167.4	1.139	6.566	55.529	0.118 ¹

¹ P_u / φP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	250 - 240	L1 3/4x1 3/4x3/16	3.788	3.308	81.4	0.360	1.169	17.567	0.067 ¹

¹ P_u / φP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	φP _{allow} K	% Capacity	Pass Fail
T1	250 - 240	Leg	1 3/4	3	-5.690	35.601	16.0	Pass
T2	240 - 220	Leg	2 1/4	21	-37.347	84.331	44.3	Pass
T3	220 - 200	Leg	2 3/4	48	-68.820	161.540	42.6	Pass
T4	200 - 180	Leg	3 1/4	75	-98.170	260.312	37.7	Pass
T5	180 - 160	Leg	3 1/2	102	-126.628	317.273	39.9	Pass
T6	160 - 140	Leg	3 1/2	129	-154.929	317.273	48.8	Pass
T7	140 - 120	Leg	3 3/4	156	-183.951	379.106	48.5	Pass

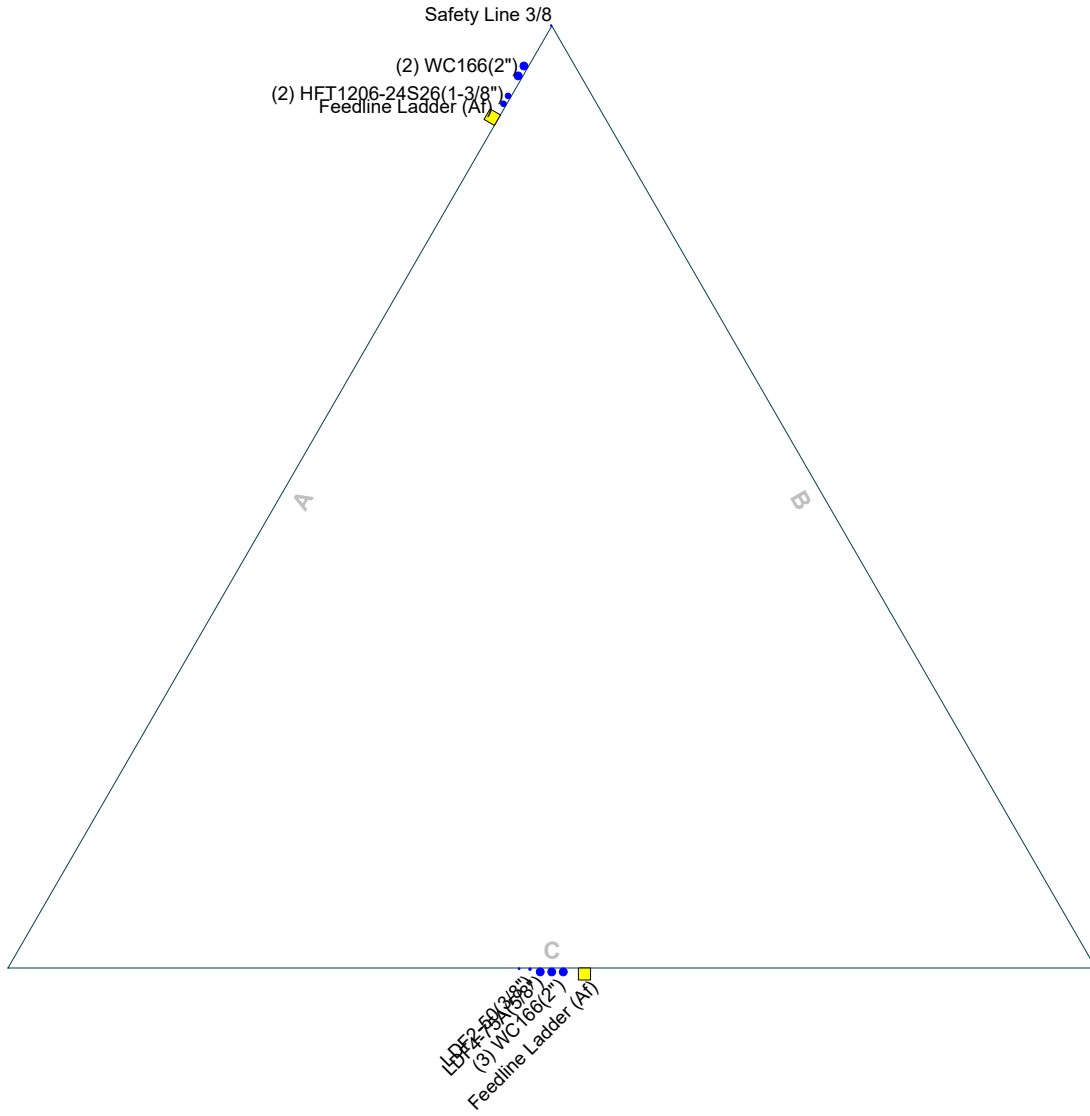
tnxTower B+T Group 1717 S. Boulder Ave, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job	25-009244 - Ebenezer, FL (Site# US-FL-5391)	Page	31 of 31
	Project		Date	16:27:57 11/22/25
	Client	Vertical Bridge	Designed by	Akshay Kumar

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail	
T8	120 - 100	Leg	4	183	-214.061	445.717	48.0	Pass	
T9	100 - 80	Leg	4 1/4	210	-245.501	517.034	47.5	Pass	
T10	80 - 60	Leg	4 1/4	237	-277.763	517.034	53.7	Pass	
T11	60 - 40	Leg	4 1/2	264	-306.307	593.004	51.7	Pass	
T12	40 - 20	Leg	4 3/4	303	-338.381	673.582	50.2	Pass	
T13	20 - 0	Leg	4 3/4	342	-370.042	673.582	54.9	Pass	
T1	250 - 240	Diagonal	L1 3/4x1 3/4x3/16	9	-3.172	15.362	20.7	Pass	
							34.0 (b)		
T2	240 - 220	Diagonal	L1 3/4x1 3/4x3/16	24	-4.607	11.425	40.3	Pass	
							50.0 (b)		
T3	220 - 200	Diagonal	L2x2x3/16	51	-4.346	12.802	34.0	Pass	
							44.4 (b)		
T4	200 - 180	Diagonal	L2x2x3/16	81	-4.614	9.679	47.7	Pass	
T5	180 - 160	Diagonal	L2 1/2x2 1/2x3/16	108	-5.057	14.870	34.0	Pass	
							39.5 (b)		
T6	160 - 140	Diagonal	L2 1/2x2 1/2x3/16	132	-5.469	11.709	46.7	Pass	
T7	140 - 120	Diagonal	L3x3x3/16	159	-6.207	16.564	37.5	Pass	
							44.5 (b)		
T8	120 - 100	Diagonal	L3x3x3/16	186	-6.969	13.622	51.2	Pass	
T9	100 - 80	Diagonal	L3x3x1/4	213	-7.899	14.834	53.3	Pass	
T10	80 - 60	Diagonal	L3x3x1/4	240	-8.571	12.533	68.4	Pass	
T11	60 - 40	Diagonal	2L2 1/2x2 1/2x3/16x3/8	269	-9.929	19.794	50.2	Pass	
T12	40 - 20	Diagonal	2L2 1/2x2 1/2x3/16x3/8	308	-10.448	17.534	59.6	Pass	
T13	20 - 0	Diagonal	2L3x3x3/16x3/8	347	-10.892	26.343	41.3	Pass	
T11	60 - 40	Horizontal	2L2x2x3/16x3/8	271	-5.458	12.584	43.4	Pass	
T12	40 - 20	Horizontal	2L2 1/2x2 1/2x3/16x3/8	310	-6.016	21.141	28.5	Pass	
T13	20 - 0	Horizontal	2L2 1/2x2 1/2x3/16x3/8	349	-6.566	18.392	35.7	Pass	
T1	250 - 240	Top Girt	L1 3/4x1 3/4x3/16	6	-1.154	12.811	9.0	Pass	
							12.2 (b)		
T11	60 - 40	Inner Bracing	L1 3/4x1 3/4x3/16	275	-0.004	1.596	0.3	Pass	
T12	40 - 20	Inner Bracing	L1 3/4x1 3/4x3/16	314	-0.005	1.372	0.4	Pass	
T13	20 - 0	Inner Bracing	L1 3/4x1 3/4x3/16	371	-0.006	1.273	0.5	Pass	
							Summary		
							Leg (T13)	54.9	Pass
							Diagonal (T10)	68.4	Pass
							Horizontal (T11)	43.4	Pass
							Top Girt (T1)	12.2	Pass
							Inner Bracing (T13)	0.5	Pass
							Bolt Checks	50.1	Pass
							RATING =	68.4	Pass

APPENDIX B
BASE LEVEL DRAWING

Feed Line Plan

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



B+T Group

1717 S. Boulder Ave, Suite 300

Tulsa, OK 74119

Phone: (918) 587-4630

FAX: (918) 295-0265

Job: 25-009244 - Ebenezer, FL (Site# US-FL-539)		
Project:		
Client: Vertical Bridge	Drawn by: Akshay Kumar	App'd:
Code: TIA-222-H	Date: 11/22/25	Scale: NTS
Path:		Dwg No: E-7

APPENDIX C
ADDITIONAL CALCULATIONS

Self Support Anchor Rod Capacity

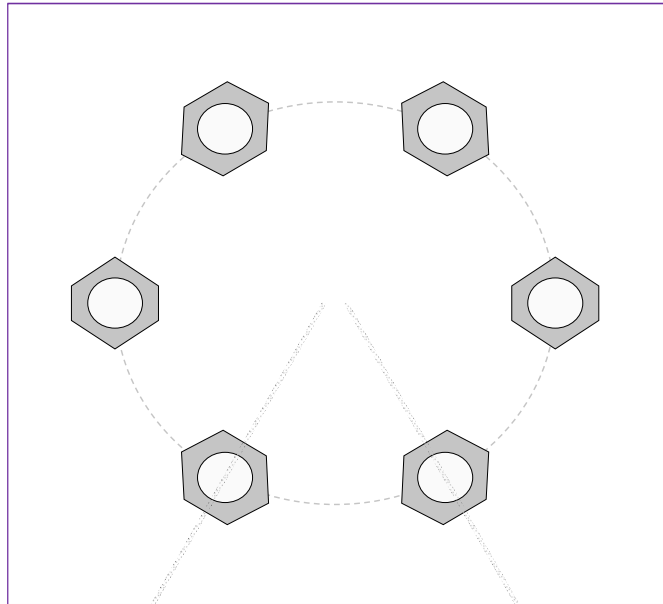
Site Info	
Site #	US-FL-5391
Site Name	Ebenezer, FL
Project #	25-009244

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	1.5

Applied Loads		
	Comp.	Uplift
Axial Force (kips)	377.90	303.92
Shear Force (kips)	30.12	25.38

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	
(6) 1-1/2" ϕ bolts (F1554-105 N; $F_y=105$ ksi, $F_u=125$ ksi)	
l_{ar} (in):	1.5

Anchor Rod Summary		(units of kips, kip-in)
$Pu_t = 50.65$	$\phi Pn_t = 132.19$	Stress Rating
$Vu = 4.23$	$\phi Vn = 82.83$	38.3%
$Mu = n/a$	$\phi Mn = n/a$	Pass

Drilled Pier Foundation

Site #	US-FL-5391
Site Name:	Ebenezer, FL
Project #	25-009244
TIA-222 Revision:	H
Tower Type:	Self Support

Applied Loads		
	Comp.	Uplift
Moment (kip-ft)	0	0
Axial Force (kips)	377.9	303.92
Shear Force (kips)	30.12	25.38

Material Properties	
Concrete Strength, f'c:	4 ksi
Rebar Strength, Fy:	60 ksi
Tie Yield Strength, Fyt:	40 ksi

Pier Design Data	
Depth	48 ft
Ext. Above Grade	0.5 ft
Pier Section 1	
<i>From 0.5' above grade to 48' below grade</i>	
Pier Diameter	4.5 ft
Rebar Quantity	12
Rebar Size	9
Clear Cover to Ties	3 in
Tie Size	4
Tie Spacing	12 in

Rebar & Pier Options

Embedded Pole Inputs

Belled Pier Inputs

Analysis Results

Soil Lateral Check	Compression	Uplift
D _{v=0} (ft from TOC)	20.22	20.22
Soil Safety Factor	34.76	41.25
Max Moment (kip-ft)	408.69	344.38
Rating	3.8%	3.2%

Soil Vertical Check	Compression	Uplift
Skin Friction (kips)	563.62	563.62
End Bearing (kips)	212.92	-
Weight of Concrete (kips)	85.82	64.37
Total Capacity (kips)	776.54	627.98
Axial (kips)	463.72	303.92
Rating	59.7%	48.4%

Reinforced Concrete Flexure	Compression	Uplift
Critical Depth (ft from TOC)	21.02	17.29
Critical Moment (kip-ft)	408.07	336.91
Critical Moment Capacity	1576.11	945.58
Rating	25.9%	35.6%

Reinforced Concrete Shear	Compression	Uplift
Critical Depth (ft from TOC)	38.22	0.00
Critical Shear (kip)	30.36	25.38
Critical Shear Capacity	394.40	180.08
Rating	7.7%	14.1%

Structural Foundation Rating	35.6%
Soil Interaction Rating	59.7%

Check Limitation	
Apply TIA-222-H Section 15.5:	<input type="checkbox"/>
N/A	<input type="checkbox"/>
Design Options	
Input Effective Depths (else Actual):	<input type="checkbox"/>
Consider non-tapered moment capacity:	<input type="checkbox"/>
Check Shear along Depth of Pier:	<input checked="" type="checkbox"/>
Utilize Shear-Friction Methodology:	<input type="checkbox"/>
Override Critical Depth:	<input type="checkbox"/>

[Go to Soil Calculations](#)

Soil Profile			
Groundwater Depth	3.5	# of Layers	24

Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ _{soil} (pcf)	γ _{concrete} (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Net Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	3	3	110	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
2	3	3.5	0.5	120	150	0	34	0.000	0.000	0.50	0.50			Cohesionless
3	3.5	6.3	2.8	57.6	87.6	0	34	0.000	0.000	0.50	0.50			Cohesionless
4	6.3	7.3	1	57.6	87.6	2	0	1.100	1.100	1.10	1.10			Cohesive
5	7.3	9	1.7	62.6	87.6	0	36	0.000	0.000	1.50	1.50			Cohesionless
6	9	11.5	2.5	67.6	87.6	0	40	0.000	0.000	2.00	2.00			Cohesionless
7	11.5	12.8	1.3	67.6	87.6	0	37	0.00	0.00	1.75	1.75			Cohesionless
8	12.8	14.8	2	67.6	87.6	3.75	0	1.96	1.96	1.90	1.90			Cohesive
9	14.8	16.3	1.5	67.6	87.6	0	39	0.00	0.00	2.00	2.00			Cohesionless
10	16.3	17.2	0.9	62.6	87.6	3	0	1.65	1.65	1.65	1.65			Cohesive
11	17.2	18.5	1.3	67.6	87.6	0	40	0.00	0.00	2.25	2.25			Cohesionless
12	18.5	20	1.5	57.6	87.6	0	34	0.00	0.00	1.10	1.10			Cohesionless
13	20	22.2	2.2	47.6	87.6	0	32	0.00	0.00	0.85	0.85			Cohesionless
14	22.2	23.3	1.1	32.6	87.6	0	27	0.00	0.00	0.41	0.41			Cohesionless
15	23.3	24	0.7	37.6	87.6	0.75	0	0.41	0.41	0.41	0.41			Cohesive
16	24	26.2	2.2	27.6	87.6	0	25	0.00	0.00	0.41	0.41			Cohesionless
17	26.2	28	1.8	37.6	87.6	0.5	0	0.28	0.28	0.28	0.28			Cohesive
18	28	29.5	1.5	57.6	87.6	0	35	0.00	0.00	1.10	1.10			Cohesionless
19	29.5	35.2	5.7	47.6	87.6	1.5	0	0.83	0.83	0.83	0.83			Cohesive
20	35.2	35.8	0.6	57.6	87.6	0	35	0.00	0.00	1.24	1.24			Cohesionless
21	35.8	39.1	3.3	57.6	87.6	2.25	0	1.24	1.24	1.24	1.24			Cohesive
22	39.1	42.6	3.5	62.6	87.6	0	37	0.00	0.00	1.60	1.60			Cohesionless
23	42.6	47.4	4.8	57.6	87.6	2.25	0	1.24	1.24	1.24	1.24			Cohesive
24	47.4	48	0.6	62.6	87.6	0	37	0.00	0.00	1.70	1.70	15		Cohesionless

Site # US-FL-5391
 Name: Ebenezer, FL
 Job # 25-009244

Structure: A
 Rev:

Location

	Decimal Degrees	Deg	Min	Sec	
Lat:	30.102997	+	30	6	10.79
Long:	-82.574153	-	82	34	26.95

Code and Site Parameters

Seismic Design Code: TIA-222-H-1
 Site Soil: D (Default) Default
 Risk Category: II

USGS Seismic Reference

S_s: 0.1300 g
 S₁: 0.0580 g
 T_L: 8 s

Seismic Design Category Determination

Importance Factor, I_e: 1
 Acceleration-based site coefficient, F_a: 1.6000
 Velocity-based site coefficient, F_v: 2.4000

Design spectral response acceleration short period, S_{DS}: 0.1387 g
 Design spectral response acceleration 1 s period, S_{D1}: 0.0928 g
 T_s: 0.6692 s

Seismic Design Category Based on S_{DS}: A
 Seismic Design Category Based on S_{D1}: B
 Seismic Design Category Based on S₁: N/A

Controlling Seismic Design Category: B

Site# US-FL-5391
 Name: Ebenezer, FL
 Job# 25-009244

Structure: A
 Rev:

Tower Details

Tower Type:	Self-Support	
Height, h:	250	ft
Effective Seismic Weight, W:	62.24	kips
Amplification Factor, A _s :	1.0	2.7.8.1

Seismic Base Shear

Response Modification Factor, R:	3	
w _a :	13.1250	ft
w ₀ :	22.5000	ft
W ₁ :	30.5171	kips
Weight of Structure and Appurtenances within top 5%, W ₂ :	4.0043	kips
K _f :	4540	ft
F _a :	0.8964	hz
Approximate Fundamental Period Self-Support, T _a :	1.1156	s
		2.7.7.1.3.2
Seismic Response Coefficient, C _s	0.0462	2.7.7.1.1
Seismic Response Coefficient Max 1, C _{smax}	0.0277	2.7.7.1.1
Seismic Response Coefficient Max 2, C _{smax}	N/A	2.7.7.1.1
Seismic Response Coefficient Min 1, C _{smin}	0.0300	2.7.7.1.1
Seismic Response Coefficient Min 2, C _{smin}	N/A	2.7.7.1.1
Controlling Seismic Response Coefficient, C _{sc}	0.0300	
Seismic Base Shear, V	1.867	kips
		2.7.7.1.1

Vertical Distribution Factors

Period Related Exponent, k:	1.308
Sum of w _i h _i ^k	31875.66

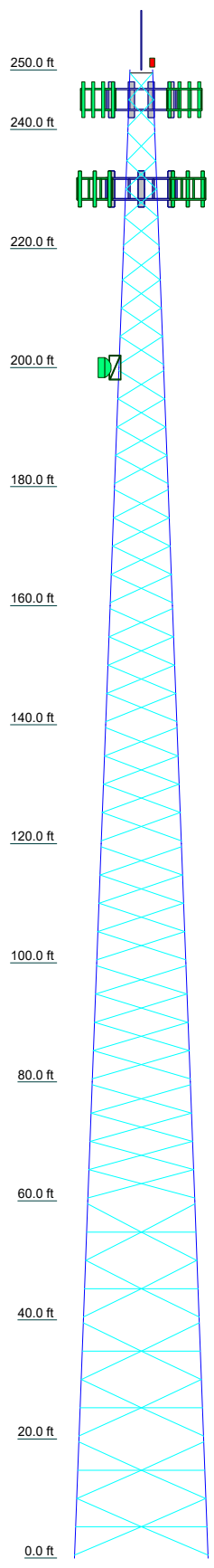
Tower Section Loads								
Section Number	Length	Top Height	Mid Height, h_x	Section Weight, w_x	$w_x h_x^k$	C_{vx}	F_{xh}	F_{xv}
1	10.00	250.00	245.00	0.4459	593.94	0.0186	0.0348	0.0124
2	20.00	240.00	230.00	1.2306	1509.15	0.0473	0.0884	0.0341
3	20.00	220.00	210.00	1.7808	1938.99	0.0608	0.1136	0.0494
4	20.00	200.00	190.00	2.3639	2258.14	0.0708	0.1323	0.0656
5	20.00	180.00	170.00	2.9035	2398.10	0.0752	0.1405	0.0805
6	20.00	160.00	150.00	3.0091	2110.08	0.0662	0.1236	0.0835
7	20.00	140.00	130.00	3.6418	2117.85	0.0664	0.1241	0.1010
8	20.00	120.00	110.00	4.1005	1916.64	0.0601	0.1123	0.1137
9	20.00	100.00	90.00	5.0755	1824.76	0.0572	0.1069	0.1408
10	20.00	80.00	70.00	5.2534	1359.68	0.0427	0.0797	0.1457
11	20.00	60.00	50.00	5.7347	955.86	0.0300	0.0560	0.1590
12	20.00	40.00	30.00	6.4450	550.78	0.0173	0.0323	0.1787
13	20.00	20.00	10.00	7.0050	142.30	0.0045	0.0083	0.1943
			Sum	48.9896	19676.28			

Discrete Loads						
Name	h_x	w_x	$w_x h_x^k$	C_{vx}	F_{xh}	F_{xv}
tower mounts Lightning Rod 1"x10'	250.00	0.0400	54.71	0.0017	0.0032	0.0011
misc Flash Beacon Lighting	250.00	0.0500	68.39	0.0021	0.0040	0.0014
(2) commscope NHH-65C-HG-R2B_TIA w/ Mount Pipe	245.00	0.1740	231.77	0.0073	0.0136	0.0048
(2) commscope NHH-65C-HG-R2B_TIA w/ Mount Pipe	245.00	0.1740	231.77	0.0073	0.0136	0.0048
(2) commscope NHH-65C-HG-R2B_TIA w/ Mount Pipe	245.00	0.1740	231.77	0.0073	0.0136	0.0048
ericsson AIR 6419_TIA w/ Mount Pipe	245.00	0.0690	91.91	0.0029	0.0054	0.0019
ericsson AIR 6419_TIA w/ Mount Pipe	245.00	0.0690	91.91	0.0029	0.0054	0.0019
ericsson AIR 6419_TIA w/ Mount Pipe	245.00	0.0690	91.91	0.0029	0.0054	0.0019
ericsson AIR3283_TIA w/ Mount Pipe	245.00	0.1280	170.50	0.0053	0.0100	0.0035
ericsson AIR3283_TIA w/ Mount Pipe	245.00	0.1280	170.50	0.0053	0.0100	0.0035
ericsson AIR3283_TIA w/ Mount Pipe	245.00	0.1280	170.50	0.0053	0.0100	0.0035
ericsson 4490	245.00	0.0680	90.58	0.0028	0.0053	0.0019
ericsson 4490	245.00	0.0680	90.58	0.0028	0.0053	0.0019
ericsson 4490	245.00	0.0680	90.58	0.0028	0.0053	0.0019
Commscope OVP-12	245.00	0.0320	42.63	0.0013	0.0025	0.0009
Commscope OVP-12	245.00	0.0320	42.63	0.0013	0.0025	0.0009
tower mounts 5' x 2" Pipe Mount	245.00	0.0180	23.98	0.0008	0.0014	0.0005
tower mounts 5' x 2" Pipe Mount	245.00	0.0180	23.98	0.0008	0.0014	0.0005
tower mounts 8' x 2" Mount Pipe	245.00	0.0290	38.63	0.0012	0.0023	0.0008
tower mounts 8' x 2" Mount Pipe	245.00	0.0290	38.63	0.0012	0.0023	0.0008
tower mounts 8' x 2" Mount Pipe	245.00	0.0290	38.63	0.0012	0.0023	0.0008
tower mounts Sector Mount [SM 503-3]	245.00	1.6905	2251.81	0.0706	0.1319	0.0469
commscope FFVV-65C-R3N23 (Octo)_TIA w/ Mount Pipe	230.00	0.1360	166.79	0.0052	0.0098	0.0038
commscope FFVV-65C-R3N23 (Octo)_TIA w/ Mount Pipe	230.00	0.1360	166.79	0.0052	0.0098	0.0038
commscope FFVV-65C-R3N23 (Octo)_TIA w/ Mount Pipe	230.00	0.1360	166.79	0.0052	0.0098	0.0038
ericsson AIR 6419 B41 w/ Mount Pipe	230.00	0.0830	101.79	0.0032	0.0060	0.0023
ericsson AIR 6419 B41 w/ Mount Pipe	230.00	0.0830	101.79	0.0032	0.0060	0.0023
ericsson AIR 6419 B41 w/ Mount Pipe	230.00	0.0830	101.79	0.0032	0.0060	0.0023
ericsson 4460	230.00	0.1090	133.68	0.0042	0.0078	0.0030
ericsson 4460	230.00	0.1090	133.68	0.0042	0.0078	0.0030
ericsson 4460	230.00	0.1090	133.68	0.0042	0.0078	0.0030
ericsson 4480	230.00	0.0930	114.06	0.0036	0.0067	0.0026
ericsson 4480	230.00	0.0930	114.06	0.0036	0.0067	0.0026
ericsson 4480	230.00	0.0930	114.06	0.0036	0.0067	0.0026
ceragon IP- 20A	230.00	0.0140	17.17	0.0005	0.0010	0.0004
tower mounts 6' x 2" Mount Pipe	230.00	0.0220	26.98	0.0008	0.0016	0.0006
Site Pro1 VFA12-HD	230.00	0.6580	806.97	0.0253	0.0473	0.0182
Site Pro1 VFA12-HD	230.00	0.6580	806.97	0.0253	0.0473	0.0182
Site Pro1 VFA12-HD	230.00	0.6580	806.97	0.0253	0.0473	0.0182
(2) aviat networks ODU600	200.00	0.0220	22.47	0.0007	0.0013	0.0006
tower mounts Side Arm Mount [SO 201-1]	200.00	0.0960	98.07	0.0031	0.0057	0.0027
andrew Crgn & Stnd UBR100 Int	230.00	0.0270	33.11	0.0010	0.0019	0.0007
Commscope VHLPX3-11W	200.00	0.0530	54.14	0.0017	0.0032	0.0015
Sum		6.7555	8600.10			

Linear Loads								
Name	Start Height	End Height	h_x	w_x	$w_x h_x^k$	C_{vx}	F_{xh}	F_{xv}
(2) andrew LDF7-50A(1-5/8") From 0 to 245	240.00	245.00	242.50	0.0082	10.78	0.0003	0.0006	0.0002
(2) andrew LDF7-50A(1-5/8") From 0 to 245	220.00	240.00	230.00	0.0328	40.23	0.0013	0.0024	0.0009
(2) andrew LDF7-50A(1-5/8") From 0 to 245	200.00	220.00	210.00	0.0328	35.71	0.0011	0.0021	0.0009
(2) andrew LDF7-50A(1-5/8") From 0 to 245	180.00	200.00	190.00	0.0328	31.33	0.0010	0.0018	0.0009
(2) andrew LDF7-50A(1-5/8") From 0 to 245	160.00	180.00	170.00	0.0328	27.09	0.0008	0.0016	0.0009
(2) andrew LDF7-50A(1-5/8") From 0 to 245	140.00	160.00	150.00	0.0328	23.00	0.0007	0.0013	0.0009
(2) andrew LDF7-50A(1-5/8") From 0 to 245	120.00	140.00	130.00	0.0328	19.07	0.0006	0.0011	0.0009
(2) andrew LDF7-50A(1-5/8") From 0 to 245	100.00	120.00	110.00	0.0328	15.33	0.0005	0.0009	0.0009
(2) andrew LDF7-50A(1-5/8") From 0 to 245	80.00	100.00	90.00	0.0328	11.79	0.0004	0.0007	0.0009
(2) andrew LDF7-50A(1-5/8") From 0 to 245	60.00	80.00	70.00	0.0328	8.49	0.0003	0.0005	0.0009
(2) andrew LDF7-50A(1-5/8") From 0 to 245	40.00	60.00	50.00	0.0328	5.47	0.0002	0.0003	0.0009
(2) andrew LDF7-50A(1-5/8") From 0 to 245	20.00	40.00	30.00	0.0328	2.80	0.0001	0.0002	0.0009
(2) andrew LDF7-50A(1-5/8") From 0 to 245	0.00	20.00	10.00	0.0328	0.67	0.0000	0.0000	0.0009
(2) times microwave LMR-400 From 0 to 200	180.00	200.00	190.00	0.0028	2.67	0.0001	0.0002	0.0001
(2) times microwave LMR-400 From 0 to 200	160.00	180.00	170.00	0.0028	2.31	0.0001	0.0001	0.0001
(2) times microwave LMR-400 From 0 to 200	140.00	160.00	150.00	0.0028	1.96	0.0001	0.0001	0.0001
(2) times microwave LMR-400 From 0 to 200	120.00	140.00	130.00	0.0028	1.63	0.0001	0.0001	0.0001
(2) times microwave LMR-400 From 0 to 200	100.00	120.00	110.00	0.0028	1.31	0.0000	0.0001	0.0001
(2) times microwave LMR-400 From 0 to 200	80.00	100.00	90.00	0.0028	1.01	0.0000	0.0001	0.0001
(2) times microwave LMR-400 From 0 to 200	60.00	80.00	70.00	0.0028	0.72	0.0000	0.0000	0.0001
(2) times microwave LMR-400 From 0 to 200	40.00	60.00	50.00	0.0028	0.47	0.0000	0.0000	0.0001
(2) times microwave LMR-400 From 0 to 200	20.00	40.00	30.00	0.0028	0.24	0.0000	0.0000	0.0001
(2) times microwave LMR-400 From 0 to 200	0.00	20.00	10.00	0.0028	0.06	0.0000	0.0000	0.0001
misc Feedline Ladder (Af) From 0 to 250	240.00	250.00	245.00	0.0840	111.89	0.0035	0.0066	0.0023
misc Feedline Ladder (Af) From 0 to 250	220.00	240.00	230.00	0.1680	206.04	0.0065	0.0121	0.0047
misc Feedline Ladder (Af) From 0 to 250	200.00	220.00	210.00	0.1680	182.93	0.0057	0.0107	0.0047
misc Feedline Ladder (Af) From 0 to 250	180.00	200.00	190.00	0.1680	160.48	0.0050	0.0094	0.0047
misc Feedline Ladder (Af) From 0 to 250	160.00	180.00	170.00	0.1680	138.76	0.0044	0.0081	0.0047
misc Feedline Ladder (Af) From 0 to 250	140.00	160.00	150.00	0.1680	117.81	0.0037	0.0069	0.0047
misc Feedline Ladder (Af) From 0 to 250	120.00	140.00	130.00	0.1680	97.70	0.0031	0.0057	0.0047
misc Feedline Ladder (Af) From 0 to 250	100.00	120.00	110.00	0.1680	78.53	0.0025	0.0046	0.0047
misc Feedline Ladder (Af) From 0 to 250	80.00	100.00	90.00	0.1680	60.40	0.0019	0.0035	0.0047
misc Feedline Ladder (Af) From 0 to 250	60.00	80.00	70.00	0.1680	43.48	0.0014	0.0025	0.0047
misc Feedline Ladder (Af) From 0 to 250	40.00	60.00	50.00	0.1680	28.00	0.0009	0.0016	0.0047
misc Feedline Ladder (Af) From 0 to 250	20.00	40.00	30.00	0.1680	14.36	0.0005	0.0008	0.0047
misc Feedline Ladder (Af) From 0 to 250	0.00	20.00	10.00	0.1680	3.41	0.0001	0.0002	0.0047
(3) andrew WC166(2") From 0 to 230	220.00	230.00	225.00	0.0840	100.10	0.0031	0.0059	0.0023
(3) andrew WC166(2") From 0 to 230	200.00	220.00	210.00	0.1680	182.93	0.0057	0.0107	0.0047
(3) andrew WC166(2") From 0 to 230	180.00	200.00	190.00	0.1680	160.48	0.0050	0.0094	0.0047
(3) andrew WC166(2") From 0 to 230	160.00	180.00	170.00	0.1680	138.76	0.0044	0.0081	0.0047
(3) andrew WC166(2") From 0 to 230	140.00	160.00	150.00	0.1680	117.81	0.0037	0.0069	0.0047
(3) andrew WC166(2") From 0 to 230	120.00	140.00	130.00	0.1680	97.70	0.0031	0.0057	0.0047
(3) andrew WC166(2") From 0 to 230	100.00	120.00	110.00	0.1680	78.53	0.0025	0.0046	0.0047
(3) andrew WC166(2") From 0 to 230	80.00	100.00	90.00	0.1680	60.40	0.0019	0.0035	0.0047
(3) andrew WC166(2") From 0 to 230	60.00	80.00	70.00	0.1680	43.48	0.0014	0.0025	0.0047
(3) andrew WC166(2") From 0 to 230	40.00	60.00	50.00	0.1680	28.00	0.0009	0.0016	0.0047
(3) andrew WC166(2") From 0 to 230	20.00	40.00	30.00	0.1680	14.36	0.0005	0.0008	0.0047
(3) andrew WC166(2") From 0 to 230	0.00	20.00	10.00	0.1680	3.41	0.0001	0.0002	0.0047
andrew LDF4-75A(5/8") From 0 to 230	220.00	230.00	225.00	0.0014	1.67	0.0001	0.0001	0.0000
andrew LDF4-75A(5/8") From 0 to 230	200.00	220.00	210.00	0.0028	3.05	0.0001	0.0002	0.0001
andrew LDF4-75A(5/8") From 0 to 230	180.00	200.00	190.00	0.0028	2.67	0.0001	0.0002	0.0001
andrew LDF4-75A(5/8") From 0 to 230	160.00	180.00	170.00	0.0028	2.31	0.0001	0.0001	0.0001
andrew LDF4-75A(5/8") From 0 to 230	140.00	160.00	150.00	0.0028	1.96	0.0001	0.0001	0.0001
andrew LDF4-75A(5/8") From 0 to 230	120.00	140.00	130.00	0.0028	1.63	0.0001	0.0001	0.0001
andrew LDF4-75A(5/8") From 0 to 230	100.00	120.00	110.00	0.0028	1.31	0.0000	0.0001	0.0001
andrew LDF4-75A(5/8") From 0 to 230	80.00	100.00	90.00	0.0028	1.01	0.0000	0.0001	0.0001
andrew LDF4-75A(5/8") From 0 to 230	60.00	80.00	70.00	0.0028	0.72	0.0000	0.0000	0.0001
andrew LDF4-75A(5/8") From 0 to 230	40.00	60.00	50.00	0.0028	0.47	0.0000	0.0000	0.0001
andrew LDF4-75A(5/8") From 0 to 230	20.00	40.00	30.00	0.0028	0.24	0.0000	0.0000	0.0001
andrew LDF4-75A(5/8") From 0 to 230	0.00	20.00	10.00	0.0028	0.06	0.0000	0.0000	0.0001
andrew LDF2-50(3/8") From 0 to 230	220.00	230.00	225.00	0.0008	0.95	0.0000	0.0001	0.0000
andrew LDF2-50(3/8") From 0 to 230	200.00	220.00	210.00	0.0016	1.74	0.0001	0.0001	0.0000
andrew LDF2-50(3/8") From 0 to 230	180.00	200.00	190.00	0.0016	1.53	0.0000	0.0001	0.0000
andrew LDF2-50(3/8") From 0 to 230	160.00	180.00	170.00	0.0016	1.32	0.0000	0.0001	0.0000
andrew LDF2-50(3/8") From 0 to 230	140.00	160.00	150.00	0.0016	1.12	0.0000	0.0001	0.0000
andrew LDF2-50(3/8") From 0 to 230	120.00	140.00	130.00	0.0016	0.93	0.0000	0.0001	0.0000
andrew LDF2-50(3/8") From 0 to 230	100.00	120.00	110.00	0.0016	0.75	0.0000	0.0000	0.0000
andrew LDF2-50(3/8") From 0 to 230	80.00	100.00	90.00	0.0016	0.58	0.0000	0.0000	0.0000
andrew LDF2-50(3/8") From 0 to 230	60.00	80.00	70.00	0.0016	0.41	0.0000	0.0000	0.0000
andrew LDF2-50(3/8") From 0 to 230	40.00	60.00	50.00	0.0016	0.27	0.0000	0.0000	0.0000
andrew LDF2-50(3/8") From 0 to 230	20.00	40.00	30.00	0.0016	0.14	0.0000	0.0000	0.0000
andrew LDF2-50(3/8") From 0 to 230	0.00	20.00	10.00	0.0016	0.03	0.0000	0.0000	0.0000
misc Feedline Ladder (Af) From 0 to 230	220.00	230.00	225.00	0.0840	100.10	0.0031	0.0059	0.0023
misc Feedline Ladder (Af) From 0 to 230	200.00	220.00	210.00	0.1680	182.93	0.0057	0.0107	0.0047
misc Feedline Ladder (Af) From 0 to 230	180.00	200.00	190.00	0.1680	160.48	0.0050	0.0094	0.0047
misc Feedline Ladder (Af) From 0 to 230	160.00	180.00	170.00	0.1680	138.76	0.0044	0.0081	0.0047
misc Feedline Ladder (Af) From 0 to 230	140.00	160.00	150.00	0.1680	117.81	0.0037	0.0069	0.0047
misc Feedline Ladder (Af) From 0 to 230	120.00	140.00	130.00	0.1680	97.70	0.0031	0.0057	0.0047
misc Feedline Ladder (Af) From 0 to 230	100.00	120.00	110.00	0.1680	78.53	0.0025	0.0046	0.0047
misc Feedline Ladder (Af) From 0 to 230	80.00	100.00	90.00	0.1680	60.40	0.0019	0.0035	0.0047
misc Feedline Ladder (Af) From 0 to 230	60.00	80.00	70.00	0.1680	43.48	0.0014	0.0025	0.0047

misc Feedline Ladder (Af) From 0 to 230	40.00	60.00	50.00	0.1680	28.00	0.0009	0.0016	0.0047
misc Feedline Ladder (Af) From 0 to 230	20.00	40.00	30.00	0.1680	14.36	0.0005	0.0008	0.0047
misc Feedline Ladder (Af) From 0 to 230	0.00	20.00	10.00	0.1680	3.41	0.0001	0.0002	0.0047
misc Safety Line 3/8 From 0 to 250	240.00	250.00	245.00	0.0022	2.93	0.0001	0.0002	0.0001
misc Safety Line 3/8 From 0 to 250	220.00	240.00	230.00	0.0044	5.40	0.0002	0.0003	0.0001
misc Safety Line 3/8 From 0 to 250	200.00	220.00	210.00	0.0044	4.79	0.0002	0.0003	0.0001
misc Safety Line 3/8 From 0 to 250	180.00	200.00	190.00	0.0044	4.20	0.0001	0.0002	0.0001
misc Safety Line 3/8 From 0 to 250	160.00	180.00	170.00	0.0044	3.63	0.0001	0.0002	0.0001
misc Safety Line 3/8 From 0 to 250	140.00	160.00	150.00	0.0044	3.09	0.0001	0.0002	0.0001
misc Safety Line 3/8 From 0 to 250	120.00	140.00	130.00	0.0044	2.56	0.0001	0.0001	0.0001
misc Safety Line 3/8 From 0 to 250	100.00	120.00	110.00	0.0044	2.06	0.0001	0.0001	0.0001
misc Safety Line 3/8 From 0 to 250	80.00	100.00	90.00	0.0044	1.58	0.0000	0.0001	0.0001
misc Safety Line 3/8 From 0 to 250	60.00	80.00	70.00	0.0044	1.14	0.0000	0.0001	0.0001
misc Safety Line 3/8 From 0 to 250	40.00	60.00	50.00	0.0044	0.73	0.0000	0.0000	0.0001
misc Safety Line 3/8 From 0 to 250	20.00	40.00	30.00	0.0044	0.38	0.0000	0.0000	0.0001
misc Safety Line 3/8 From 0 to 250	0.00	20.00	10.00	0.0044	0.09	0.0000	0.0000	0.0001
Sum				6.4994	3599.28			

Section	T13	T12	T11	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs	SR 4 3/4	SR 4 3/4	SR 4 1/2	SR 4 1/4	SR 4 1/4	SR 4	SR 3 3/4	SR 3 1/2	SR 3 1/2	SR 3 1/4	SR 2 3/4	SR 2 1/4	SR 1 3/4
Leg Grade	2L3x3x3/16x3/8	2L2 1/2x2 1/2x3/16x3/8	2L2x2x3/16x3/8	L3x3x1/4	L3x3x3/16	A529-50	A529-50	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	L2x2x3/16	L1 3/4x1 3/4x3/16	L1 3/4x1 3/4x3/16	L1 3/4x1 3/4x3/16
Diagonals	2L3x3x3/16x3/8	2L2 1/2x2 1/2x3/16x3/8	2L2x2x3/16x3/8	L3x3x1/4	L3x3x3/16	A36M-50	A36M-50	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	L2x2x3/16	L1 3/4x1 3/4x3/16	L1 3/4x1 3/4x3/16	L1 3/4x1 3/4x3/16
Diagonal Grade	2L3x3x3/16x3/8	2L2 1/2x2 1/2x3/16x3/8	2L2x2x3/16x3/8	L3x3x1/4	L3x3x3/16	A36M-50	A36M-50	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	L2x2x3/16	L1 3/4x1 3/4x3/16	L1 3/4x1 3/4x3/16	L1 3/4x1 3/4x3/16
Top Girts	2L2 1/2x2 1/2x3/16x3/8	2L2 1/2x2 1/2x3/16x3/8	2L2x2x3/16x3/8	L1 3/4x1 3/4x3/16	L1 3/4x1 3/4x3/16	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Inner Bracing	2L2 1/2x2 1/2x3/16x3/8	2L2 1/2x2 1/2x3/16x3/8	2L2x2x3/16x3/8	L1 3/4x1 3/4x3/16	L1 3/4x1 3/4x3/16	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Face Width (ft)	22.5	21	19.5	18	16.5	15	13.5	12	10.5	9	7.5	6	4.5
# Panels @ (ft)	22.5	21	19.5	18	16.5	15	13.5	12	10.5	9	7.5	6	4.5
Weight (K)	49.0	7.0	6.4	5.7	5.3	4.1	3.6	3.0	2.9	2.4	1.8	1.2	0.4



SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	L1 3/4x1 3/4x3/16		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A529-50	50 ksi	65 ksi	A36M-50	50 ksi	65 ksi

TOWER DESIGN NOTES

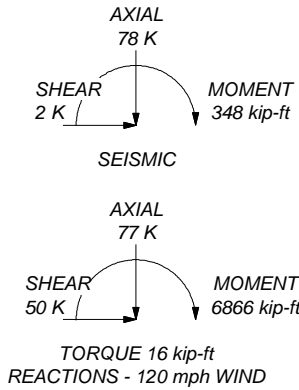
1. Tower is located in Columbia County, Florida.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 120 mph basic wind in accordance with the TIA-222-H Standard.
4. Deflections are based upon a 60 mph wind.
5. Tower Risk Category II.
6. Topographic Category 1 with Crest Height of 0.000 ft
7. Seismic Note: Seismic loads generated by Seismic 5.0.2
8. Seismic Note: Seismic calculations are in accordance with TIA-222-H-1
9. TOWER RATING: 68.4%

ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:

DOWN: 378 K
SHEAR: 30 K

UPLIFT: -304 K
SHEAR: 25 K



B+T Group
1717 S. Boulder Ave, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

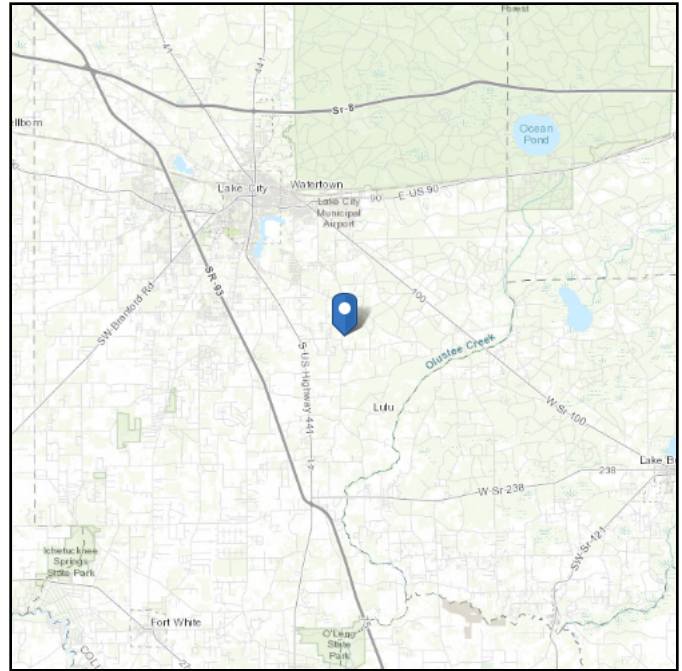
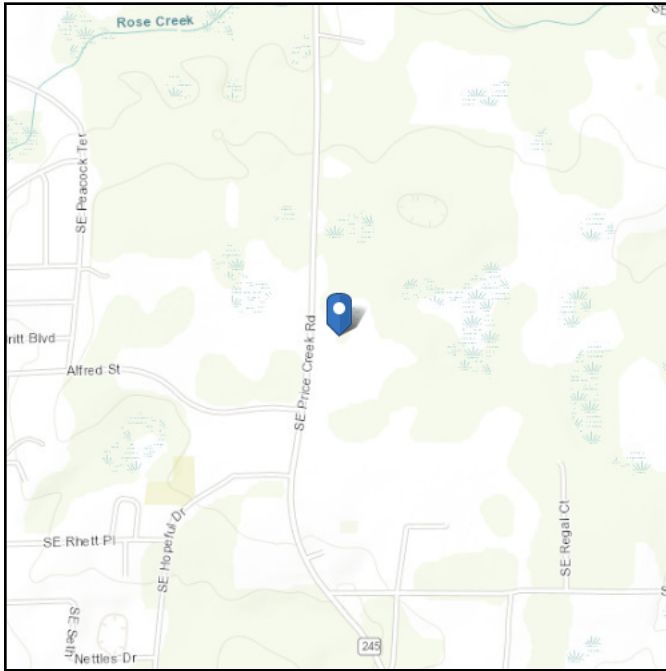
Job: 25-009244 - Ebenezer, FL (Site# US-FL-5391)		
Project:		
Client: Vertical Bridge	Drawn by: Akshay Kumar	App'd:
Code: TIA-222-H	Date: 11/22/25	Scale: NTS
Path:		Dwg No. E-1

ASCE Hazards Report

Address:
No Address at This Location

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

Latitude: 30.103
Longitude: -82.57415
Elevation: 147.97821919068346 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	129 Vmph
3,000-year MRI	135 Vmph
10,000-year MRI	144 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: Sat Nov 22 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.

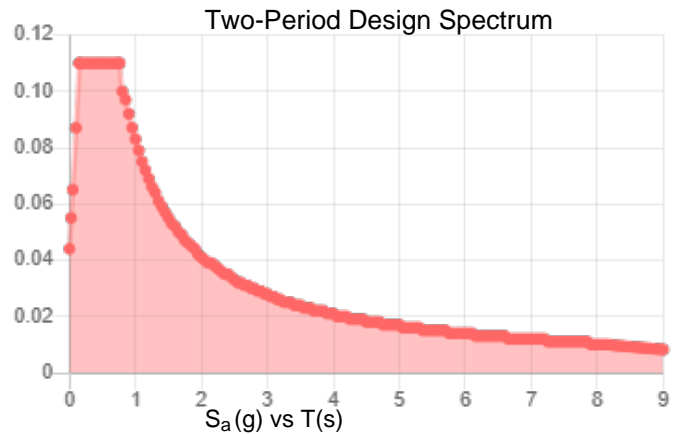
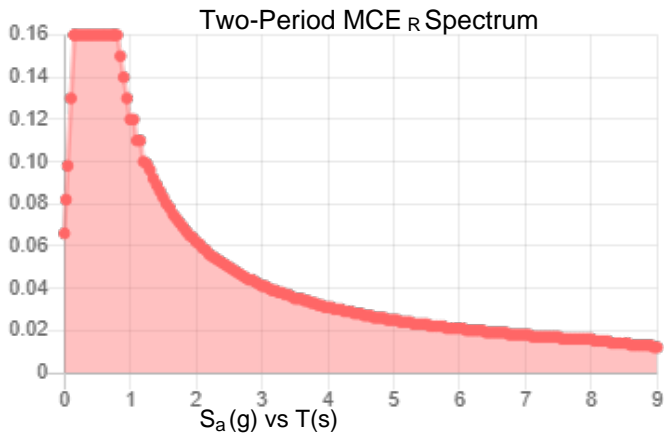
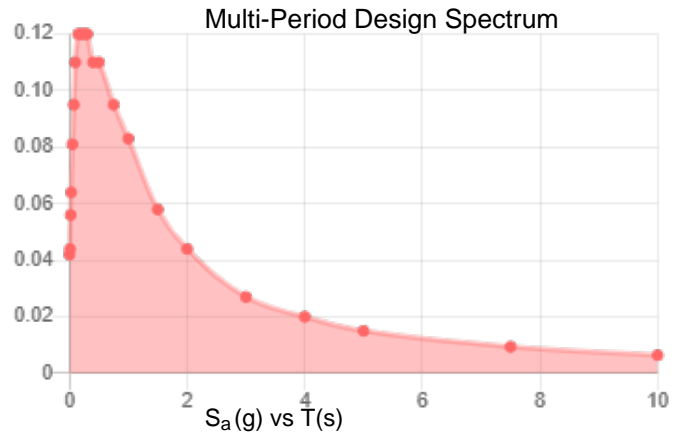
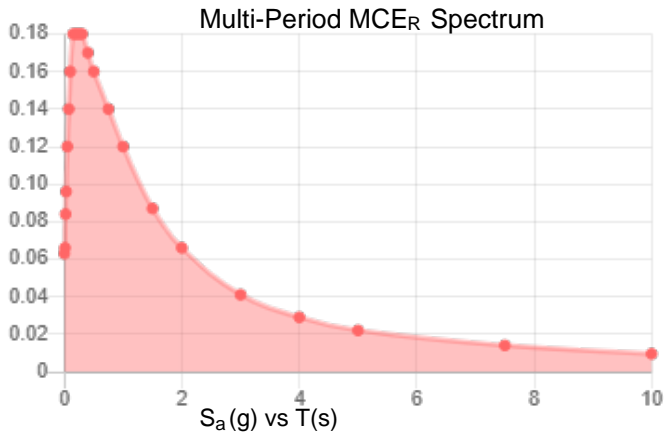
Site is in a hurricane-prone region as defined in ASCE/SEI 7-22 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Site Soil Class: Default

Results:

PGA _M :	0.059	T _L :	8
S _{MS} :	0.16	S _s :	0.13
S _{M1} :	0.12	S ₁ :	0.058
S _{DS} :	0.11	V _{S30} :	260
S _{D1} :	0.083		

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: Sat Nov 22 2025

Date Source:

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

Ice

Results:

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

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

Date Accessed: Sat Nov 22 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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COLOCATION APPLICATION - P-084761
SITE NUMBER: US-FL-5391
Version: 1
Tenant Legal Name: Cellco Partnership d/b/a
 Verizon Wireless

Vertical Bridge REIT, LLC.
 22 West Atlantic Avenue, Suite 310
 Delray Beach, FL 33444

SUMMARY

PRIMARY INFO

Application #: P-084761
Application Version: 1 (Submitted: 11/06/2025 15:50:05)
Application Type: Broadband
Application Name: 17567171 - EBENEZER - C -
 5000080217
Lease Type: Amendment
ASR Number: Not required for Broadband
 Applications
Description: Remove 9 antennas and 9 RRUs.
 Add 12 antennas and 3 RRUs. No
 ground changes.

VERTICAL BRIDGE SITE INFO

VB Site #: US-FL-5391
VB Site Name: Ebenezer
Latitude: 30.102997
Longitude: -82.574153
Structure Type: SST
Structure Height: 250
Site Address: 6295 SE County Rd 245 -
 Lake City, FL 32025

VERTICAL BRIDGE DEAL TEAM

RLM: Jamie Harris Jamie.Harris@verticalbridge.com 941.374.5513	LPM: Darlene Martin Darlene.Martin@verticalbridge.com 561.923.0685	ROM: Chris Warren Chris.Warren@verticalbridge.com 334.470.4061
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TENANT LEGAL INFO

Tenant Legal Name: Cellco Partnership d/b/a Verizon
 Wireless
State of Registration: DE
Carrier NOC #: (800) 264-6620
Tenant Site #: 5000080217
Tenant Site Name: EBENEZER - C

APPLICANT

Name: David Leete
Address: 1324 Seven Springs Blvd
 New Port Richey, FL 34655
Phone Number: (404) 293-0541
Email Address: david.leete@caawireless.com

FINAL LEASED RIGHTS CONFIGURATION TOTALS

This is a summary of your remaining existing equipment plus the new equipment.

FINAL EQUIPMENT

QTY	Equipment Location	Equipment Type
1	TOWER	Microwave Dish
2	TOWER	ODU
2	TOWER	Surge Arrestor/Raycap/Squid
3	TOWER	RRU
12	TOWER	Panel

FINAL FEED LINES

QTY	Line Type
2	Hybrid
2	Other



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Delray Beach, FL 33444

FREQUENCY & TECHNOLOGY INFO

Type of Technology:	Broadband Wireless		
Is TX Frequency Licensed:	Yes	TX Frequency:	776-787, 880-890, 891.5-894, 1950-1970, 2110-2130, 2155-2170, 3550-3650, 3700-3980 MHz
Is RX Frequency Licensed:	Yes	RX Frequency:	746-757, 835-845, 846.5-849, 1870-1890, 1710-1730, 1755-1770, 3550-3650, 3700-3980 MHz
CBand frequency being used?:	New		

MOUNT & STRUCTURAL ANALYSIS

MOUNT ANALYSIS

Provided by Tenant: Yes

To Be Run by VB: No

Include Mount Mapping:

STRUCTURAL HARD COPIES

Required: No

Number of Hard Copies:

CONTACTS

INVOICE CONTACT

Attention To	Name	Address	Phone Number 1	Phone Number 2	Email 1	Email 2
	David Leete	1324 Seven Springs Blvd #314 New Port Richey, FL 34655	(404) 293-0541		david.leete@caawireless.com	

PO CONTACT

Name	Phone	Email
David Leete	(404) 293-0541	david.leete@caawireless.com

TENANT CONTACT

Name	Phone	Email
Kathy Cicero	(561) 596-1256	kathy.cicero@verizonwireless.com

GROUND EQUIPMENT

Any Changes Required: No

TOWER EQUIPMENT

Any Changes Required: Yes

RAD CENTER 1 Height: 245.00 ft.

Mount 1: Sector Frames

EQUIPMENT

**COLOCATION APPLICATION - P-084761****SITE NUMBER: US-FL-5391****Version: 1****Tenant Legal Name:** Cellco Partnership d/b/a
Verizon Wireless**Vertical Bridge REIT, LLC.**

22 West Atlantic Avenue, Suite 310

Delray Beach, FL 33444

TOWER EQUIPMENT**Any Changes Required:** Yes

Status	QTY	Equipment Type	Equipment RAD H (ft)	Manufacturer	Model	Height (in)	Width (in)	Depth (in)	Weight (lbs)	Azimuth (°)
Existing	2	Surge Arrestor/ Raycap/ Squid	245.00	Commscope	OVP- 12	29.50	16.50	12.60	32.00	0
Proposed	3	Panel	245.00	Ericsson	AIR3283	47.20	20.00	10.90	110.00	50 / 165 / 270
Proposed	3	Panel	245.00	Ericsson	AIR6419	28.30	16.10	8.00	71.00	50 / 165 / 270
Proposed	6	Panel	245.00	Commscope	NHH- 65C- HG- R2B	95.98	11.85	7.09	53.79	50 / 165 / 270
Proposed	3	RRU	245.00	Ericsson	4490	17.50	15.20	6.80	68.40	50 / 165 / 270
Remove	6	Panel	245.00	Commscope	NHH- 65C- R2B	96.00	11.90	7.10	51.60	50 / 165 / 270
Remove	3	Panel	245.00	Ericsson	AIR6449	30.40	15.90	8.10	81.60	50 / 165 / 270
Remove	3	RRU	245.00	Ericsson	4449	17.90	13.20	9.20	67.00	50 / 165 / 270
Remove	6	RRU	245.00	Ericsson	8843	18.00	13.00	11.00	71.90	50 / 165 / 270

FEED LINES

Status	QTY	Line Type	Line Size (in)	Line Location	Comments					
Existing	2	Hybrid	2 in	Exterior						

RAD CENTER 2 Height: 200.00 ft.**Mount 1:** Pipe Mount**EQUIPMENT**

Status	QTY	Equipment Type	Equipment RAD H (ft)	Manufacturer	Model	Height (in)	Width (in)	Depth (in)	Weight (lbs)	Azimuth (°)
Existing	1	Microwave Dish	200.00	Commscope	VHLPX3- 11W	39.30	39.30	15.20	101.40	314.5
Existing	2	ODU	200.00	Aviat	ODU 600	10.40	10.40	4.90	11.00	314.5

FEED LINES

Status	QTY	Line Type	Line Size (in)	Line Location	Comments					
Existing	2	Other	1.3 in	Exterior						

UTILITIES**Any Changes Required:** No