



STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

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VIA ELECTRONIC MAIL

May 2, 2024

Jeffrey Barbadora
Permitting Specialist
Crown Castle
1800 West Park Drive
Westborough, MA 01581
Jeff.Barbadora@crowncastle.com

RE: **EM-VER-085-230920** - Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 225-230 Guinea Road, Monroe, Connecticut.
Request for Project Change.

Dear Jeffrey Barbadora:

The Connecticut Siting Council (Council) is in receipt of the correspondence dated April 25, 2024 and the associated Structural Analysis dated November 29, 2023, regarding a project change for the above-referenced exempt modification request acknowledged by the Council on October 16, 2023.

Pursuant to Condition No. 1 of the Council's October 16, 2023 exempt modification approval, the request to increase the number of Kaelus interference mitigation filters to be installed from two to four is hereby approved.

This approval applies only to the project change in the correspondence dated April 25, 2024.

Thank you for your attention and cooperation.

Sincerely,

A handwritten signature in dark ink, appearing to read "Melanie A. Bachman".

Melanie A. Bachman
Executive Director

MAB/ANM/laf

c: The Honorable Ken Kellogg, First Selectperson, Town of Monroe (kkellogg@monroect.org)

From: Barbadora, Jeff <Jeff.Barbadora@crowncastle.com>
Sent: Thursday, May 2, 2024 7:35 AM
To: CSC-DL Siting Council <Siting.Council@ct.gov>
Subject: EM-VER-085-230920 - 225-230 Guinea Road - 841294

Good morning,

Would the CSC please update the approval for EM-VER-085-230920 to include a total of 4 filters?

The original SA submitted with the application and dated 7/27/2023 stated only 2 filters and should have stated 4 filters.

Please see updated SA stating a total of 4 filters and let me know if you have any questions.

Thanks,

Jeffrey Barbadora
Permitting Specialist
781-970-0053

Crown Castle
1800 W. Park Drive, Suite 250
Westborough, MA 01581

Date: **November 29, 2023**



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

Subject: **Structural Analysis Report**

Carrier Designation: **Verizon Wireless Co-Locate**
Site Number: 467875
Site Name: MONROE CT

Crown Castle Designation: **BU Number:** 841294
Site Name: MONROE-GUINEA ROAD
JDE Job Number: 685656
Work Order Number: 2263170
Order Number: 585538 Rev. 1

Engineering Firm Designation: **Crown Castle Project Number** 2263170

Site Data: **230 Guinea Road, Monroe, Fairfield County, CT**
Latitude: 41° 20' 30.68" Longitude: -73° 16' 28.28"
240 ft - Self Support Tower

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

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

LC8.7: Considered Equipment Configuration **Sufficient Capacity – 82.2%**

The installed loading for the customer is different than what was proposed per order number 585538. This analysis is to confirm the tower structure and foundation have sufficient capacity to support the loads considering those changes.

This analysis has been performed in accordance with the 2021 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 117 mph. Applicable Standard references and design criteria are listed in Section 2 – “Analysis Criteria”.

Structural analysis prepared by: Steven Hu

Respectfully submitted by:

Bradley E. Byrom, P.E., S.E.
Senior Project Engineer

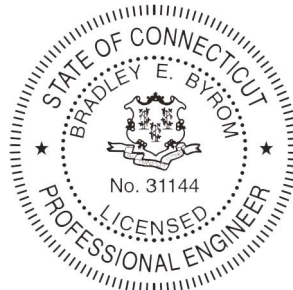


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1) INTRODUCTION

This tower is a 240 ft Self Support Tower designed by Rohn. The tower has been modified in the past to accommodate additional loading.

2) ANALYSIS CRITERIA

TIA-222 Revision: TIA-222-H
Risk Category: II
Wind Speed: 117 mph
Exposure Category: B
Topographic Factor: 1
Ice Thickness: 1.00 in
Wind Speed with Ice: 50 mph
Service Wind Speed: 60 mph

Table 1 - Installed Carrier Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
215	215	1	tower mounts	Sector Mount [SM 505-3]	8	1-5/8
	212	3	andrew	LNx-8514DS-A1M w/ Mount Pipe		
		6	jma wireless	MX06FRO660-03 w/ Mount Pipe		
		4	kaelus	BSF0020F3V1		
		2	raycap	RRFDC-3315-PF-48		
		3	samsung telecommunications	MT6407-77A w/ Mount Pipe		
		3	samsung telecommunications	RFV01U-D1A		
		3	samsung telecommunications	RFV01U-D2A		

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)
240	242	1	decibel	DB806-XC	1	1/2
		1	kathrein	FMO		
	240	1	tower mounts	Side Arm Mount [SO 302-3]		
236	236	3	cci antennas	DMP65R-BU6D	12	3/8 3/4 1-5/8
		3	cci antennas	HPA-65R-BUU-H6		
		3	cci antennas	OPA65R-BU6D		
		3	ericsson	RADIO 4449 B5/B12		
		3	ericsson	RRUS 32 B2		
		3	ericsson	RRUS 4478 B14		
		3	powerwave technologies	7770.00		
		6	powerwave technologies	LGP13519		
		2	raycap	DC6-48-60-18-8F		
		1	tower mounts	Sector Mount [SM 201-3]		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
201	207	2	kathrein	OG-4	2	1-1/4
	201	2	tower mounts	Side Arm Mount [SO 306-1]		
186	188	1	andrew	DB589-A	2 1	7/8 1/2
	186	1	tower mounts	Side Arm Mount [SO 306-1]		
	184	1	andrew	DB589-A		
165	165	1	ceragon	IP-50C	1 2	1-3/4 1/4
		1	commscope	VHLP2-11W/A		
		3	fujitsu	TA08025-B604		
		3	fujitsu	TA08025-B605		
		3	jma wireless	MX08FRO665-21 w/ Mount Pipe		
		1	raycap	RDIDC-9181-PF-48		
1	tower mounts	Commscope MTC3975083 (3)				
10	10	1	kathrein	TY-840	1	1/2

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	4468666	CCISITES
4-POST-MODIFICATION INSPECTION	4601541	CCISITES
4-POST-MODIFICATION INSPECTION	5750961	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	4468667	CCISITES
4-TOWER MANUFACTURER DRAWINGS	4841385	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	4601540	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	5306639	CCISITES

3.1) Analysis Method

tnxTower (version 8.2.2.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

tnxTower was used to determine the loads on the modified structure. Additional calculations were performed to determine the stresses in the reinforcing elements. These calculations are included in Appendix C.

3.2) Assumptions

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

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass/Fail
T1	242 - 222	Leg	ROHN 2.5 STD	1	-12.70	66.74	19.0	Pass
T2	222 - 202	Leg	ROHN 3 EH	37	-34.74	116.14	29.9	Pass
T3	202 - 182	Leg	ROHN 3.5 EH	69	-56.42	132.01	42.7	Pass
T4	182 - 162	Leg	ROHN 4 EH	90	-79.78	167.90	47.5	Pass
T5	162 - 142	Leg	ROHN 5 EH	111	-104.78	251.36	41.7	Pass
T6	142 - 122	Leg	ROHN 5 EH	132	-126.55	211.29	59.9	Pass
T7	122 - 102	Leg	ROHN 6 EH	147	-150.23	318.94	47.1	Pass
T8	102 - 82	Leg	ROHN 6 EH	162	-173.96	318.93	54.5	Pass
T9	82 - 62	Leg	ROHN 6 EH	177	-197.13	318.90	61.8	Pass
T10	62 - 42	Leg	ROHN 8 EHS	192	-219.81	405.69	54.2	Pass
T11	42 - 22	Leg	ROHN 8 EHS	207	-224.43	405.62	55.3	Pass
T12	22 - 2	Leg	ROHN 8 EH	240	-244.04	530.71	46.0	Pass
T1	242 - 222	Diagonal	L1 3/4x1 3/4x3/16	11	-2.67	11.69	22.8	Pass
T2	222 - 202	Diagonal	L1 3/4x1 3/4x3/16	47	-3.61	6.76	53.3	Pass
T3	202 - 182	Diagonal	L2 1/2x2 1/2x3/16	71	-4.15	12.60	33.0	Pass
T4	182 - 162	Diagonal	L2 1/2x2 1/2x1/4	92	-4.88	12.50	39.0	Pass
T5	162 - 142	Diagonal	L2 1/2x2 1/2x5/16	113	-5.33	12.08	44.2	Pass
T6	142 - 122	Diagonal	L3x3x5/16	134	-6.08	14.36	42.4	Pass
T7	122 - 102	Diagonal	L3 1/2x3 1/2x1/4	149	-6.65	16.02	41.5	Pass
T8	102 - 82	Diagonal	L3 1/2x3 1/2x1/4	164	-7.07	13.59	52.0	Pass
T9	82 - 62	Diagonal	L4x4x5/16	179	-7.43	21.23	35.0	Pass
T10	62 - 42	Diagonal	L4x4x5/16	194	-7.98	18.36	43.4	Pass
T11	42 - 22	Diagonal	ROHN 3 STD	212	-12.66	33.58	37.7	Pass
T12	22 - 2	Diagonal	ROHN 3 STD	245	-11.96	31.65	37.8	Pass
T11	42 - 22	Horizontal	ROHN 2.5 STD	208	-6.33	16.85	37.6	Pass
T12	22 - 2	Horizontal	ROHN 3 STD	241	-6.71	27.36	24.5	Pass
T1	242 - 222	Top Girt	L2x2x1/8	5	-0.03	4.27	0.7	Pass
T2	222 - 202	Top Girt	L2x2x1/8	42	-0.60	4.29	14.1	Pass
T11	42 - 22	Redund Horz 1 Bracing	ROHN 1.5 TUBE (11ga)	220	-3.89	5.84	66.7	Pass
T12	22 - 2	Redund Horz 1 Bracing	ROHN 1.5 STD	259	-4.24	11.86	35.7	Pass
T11	42 - 22	Redund Diag 1 Bracing	ROHN 1.5 STD	221	-3.56	4.40	80.9	Pass
T12	22 - 2	Redund Diag 1 Bracing	ROHN 2.25 TUBE (14GA)	260	-3.62	4.40	82.2	Pass
T11	42 - 22	Redund Hip 1 Bracing	ROHN 1.5 TUBE (11ga)	233	-0.02	5.19	0.4	Pass
T12	22 - 2	Redund Hip 1 Bracing	ROHN 1.5 STD	266	-0.02	10.66	0.2	Pass
T11	42 - 22	Redund Hip Diagonal 1 Bracing	ROHN 2.5 STD	234	-0.07	11.09	0.6	Pass
T12	22 - 2	Redund Hip Diagonal 1 Bracing	ROHN 2.5 STD	267	-0.06	9.97	0.6	Pass
T11	42 - 22	Inner Bracing	ROHN 2 STD	236	-0.01	6.92	0.4	Pass
T12	22 - 2	Inner Bracing	ROHN 3 STD	268	-0.01	25.95	0.3	Pass
							Summary	
						Leg (T9)	61.8	Pass
						Diagonal (T2)	53.3	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass/Fail
						Horizontal (T11)	37.6	Pass
						Top Girt (T2)	14.1	Pass
						Redund Horz 1 Bracing (T11)	66.7	Pass
						Redund Diag 1 Bracing (T12)	82.2	Pass
						Redund Hip 1 Bracing (T11)	0.4	Pass
						Redund Hip Diagonal 1 Bracing (T12)	0.6	Pass
						Inner Bracing (T11)	0.4	Pass
						Bolt Checks	63.2	Pass
						RATING =	82.2	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC8.7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	35.4	Pass
1	Base Foundation (Structural)	0	43.0	Pass
1	Base Foundation (Soil)	0	42.3	Pass

Structure Rating (max from all components) =	82.2%
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Notes:

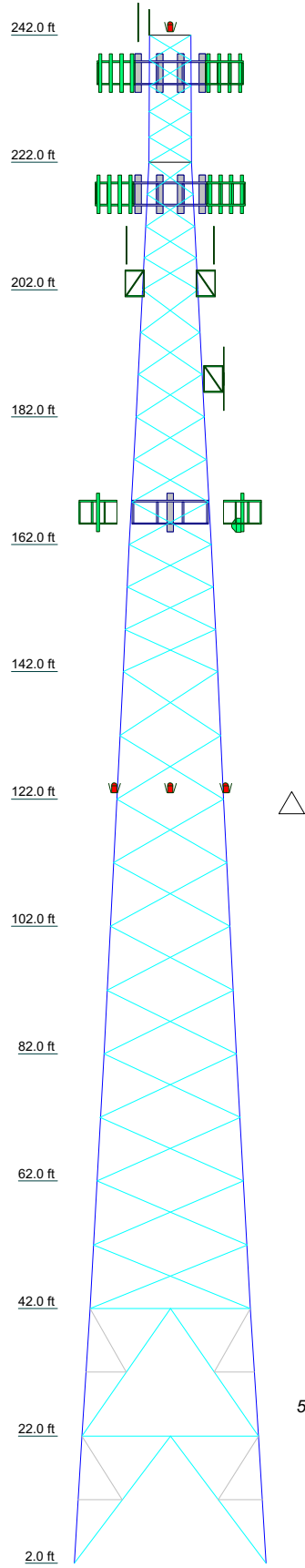
- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed

4.1) Recommendations

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

APPENDIX A
TNXTOWER OUTPUT

Section	T12	T11	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs	ROHN 8 EH	ROHN 8 EHS			ROHN 6 EH	A572-50	ROHN 5 EH	ROHN 4 EH	ROHN 3.5 EH	ROHN 3 EH	ROHN 2.5 STD	
Diagonals	ROHN 3 STD	L4x4x5/16 A572-50	L3 1/2x3 1/2x1/4	L3x3x5/16	L2 1/2x2 1/2x5/16	L2 1/2x2 1/2x1/4	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x3/16	L1 3/4x1 3/4x3/16		
Diagonal Grade												L2x2x1/8
Top Girts												
Horizontals	ROHN 3 STD	ROHN 2.5 STD										
Red. Horizontals	ROHN 1.5 STD	A										
Red. Diagonals	B	ROHN 1.5 STD										
Red. Hips	ROHN 1.5 STD	A										
Inner Bracing	ROHN 3 STD	ROHN 2 STD										
Face Width (ft)	30.1771	27.6771	25.1771	23	20.8646	18.8542	16.8542	14.7708	12.75	10.6771	8.63542	6.60417
# Panels @ (ft)		2 @ 20	4 @ 4.4	4.8	4.3	3.3	2.7	2.7	2.0	1.5	1.2	0.9
Weight (K)	36.8	5.5									4 @ 5	5 @ 4



SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	ROHN 1.5 TUBE (11ga)	B	ROHN 2.25 TUBE (14GA)

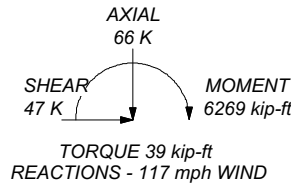
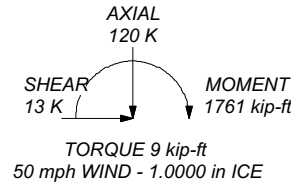
TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 117 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0'
8. TOWER RATING: 82.2%

ALL REACTIONS
ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 262 K
SHEAR: 29 K

UPLIFT: -211 K
SHEAR: 24 K



Crown Castle
2000 Corporate Drive
Canonsburg, PA 15317
The Pathway to Possible Phone: (724) 416-2000 FAX:

Job: 841294	Project:	
Client: Crown Castle	Drawn by: SHu	App'd:
Code: TIA-222-H	Date: 11/28/23	Scale: NTS
Path: C:\SAPI Work Area\841294\WO 2263170 - SAIProd\841294.dwg	Dwg No. E-1	

Tower Input Data

The main tower is a 3x free standing tower with an overall height of 242' above the ground line.

The base of the tower is set at an elevation of 2' above the ground line.

The face width of the tower is 6'6-3/4" at the top and 30'2-1/8" at the base.

This tower is designed using the TIA-222-H standard.

The following design criteria apply:

Tower is located in Fairfield County, Connecticut.

Tower base elevation above sea level: 585'.

Basic wind speed of 117 mph.

Risk Category II.

Exposure Category B.

Simplified Topographic Factor Procedure for wind speed-up calculations is used.

Topographic Category: 1.

Crest Height: 0'.

Nominal ice thickness of 1.0000 in.

Ice thickness is considered to increase with height.

Ice density of 56 pcf.

A wind speed of 50 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 60 mph.

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.

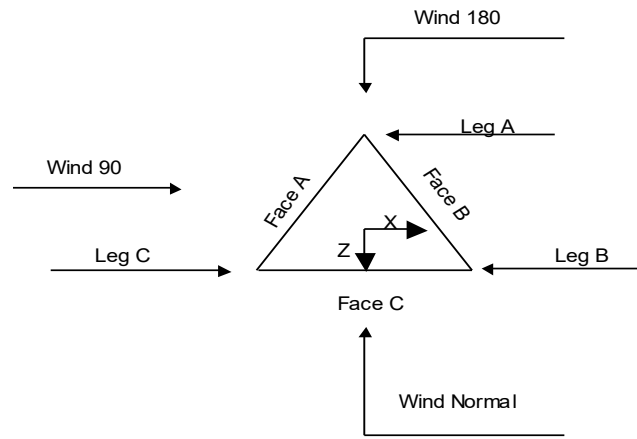
Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.

Maximum demand-capacity ratio is: 1.05.

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

Options

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

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	242'-222'			6'6-23/32"	1	20'
T2	222'-202'			6'7-3/16"	1	20'
T3	202'-182'			8'7-11/16"	1	20'
T4	182'-162'			10'8-5/32"	1	20'
T5	162'-142'			12'9"	1	20'
T6	142'-122'			14'9-1/4"	1	20'
T7	122'-102'			16'10-3/16"	1	20'
T8	102'-82'			18'10-3/16"	1	20'
T9	82'-62'			20'10-5/16"	1	20'
T10	62'-42'			23'	1	20'
T11	42'-22'			25'2-5/32"	1	20'
T12	22'-2'			27'8-5/32"	1	20'

Tower Section Geometry (cont'd)

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	242'-222'	4'	X Brace	No	No	0.0000	0.0000
T2	222'-202'	5'	X Brace	No	No	0.0000	0.0000
T3	202'-182'	6'8-1/32"	X Brace	No	No	0.0000	0.0000
T4	182'-162'	6'8-1/32"	X Brace	No	No	0.0000	0.0000
T5	162'-142'	6'8-1/32"	X Brace	No	No	0.0000	0.0000
T6	142'-122'	10'	X Brace	No	No	0.0000	0.0000

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T7	122'-102'	10'	X Brace	No	No	0.0000	0.0000
T8	102'-82'	10'	X Brace	No	No	0.0000	0.0000
T9	82'-62'	10'	X Brace	No	No	0.0000	0.0000
T10	62'-42'	10'	X Brace	No	No	0.0000	0.0000
T11	42'-22'	20'	K1 Down	No	Yes	0.0000	0.0000
T12	22'-2'	20'	K1 Down	No	Yes	0.0000	0.0000

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 242'-222'	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Equal Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T2 222'-202'	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Equal Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T3 202'-182'	Pipe	ROHN 3.5 EH	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T4 182'-162'	Pipe	ROHN 4 EH	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)
T5 162'-142'	Pipe	ROHN 5 EH	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x5/16	A36 (36 ksi)
T6 142'-122'	Pipe	ROHN 5 EH	A572-50 (50 ksi)	Equal Angle	L3x3x5/16	A36 (36 ksi)
T7 122'-102'	Pipe	ROHN 6 EH	A572-50 (50 ksi)	Equal Angle	L3 1/2x3 1/2x1/4	A572-50 (50 ksi)
T8 102'-82'	Pipe	ROHN 6 EH	A572-50 (50 ksi)	Equal Angle	L3 1/2x3 1/2x1/4	A572-50 (50 ksi)
T9 82'-62'	Pipe	ROHN 6 EH	A572-50 (50 ksi)	Equal Angle	L4x4x5/16	A572-50 (50 ksi)
T10 62'-42'	Pipe	ROHN 8 EHS	A572-50 (50 ksi)	Equal Angle	L4x4x5/16	A572-50 (50 ksi)
T11 42'-22'	Pipe	ROHN 8 EHS	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T12 22'-2'	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 242'-222'	Equal Angle	L2x2x1/8	A36 (36 ksi)	Flat Bar		A36 (36 ksi)
T2 222'-202'	Equal Angle	L2x2x1/8	A36 (36 ksi)	Flat Bar		A36 (36 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T11 42'-22'	None	Pipe		A618-50 (50 ksi)	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)
T12 22'-2'	None	Pipe		A618-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T11 42'-22'	Solid Round		A36 (36 ksi)	Pipe	ROHN 2 STD	A572-50 (50 ksi)
T12 22'-2'	Solid Round		A36 (36 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	Redundant Bracing Grade	Redundant Type	Redundant Size	K Factor	
T11 42'-22'	A572-50 (50 ksi)	Horizontal (1)	Pipe	ROHN 1.5 TUBE (11ga)	1
	A572-50 (50 ksi)	Diagonal (1)	Pipe	ROHN 1.5 STD	1
	A572-50 (50 ksi)	Hip (1)	Pipe	ROHN 1.5 TUBE (11ga)	1
	A572-50 (50 ksi)	Hip Diagonal (1)	Pipe	ROHN 2.5 STD	1
T12 22'-2'	A572-50 (50 ksi)	Horizontal (1)	Pipe	ROHN 1.5 STD	1
	A572-50 (50 ksi)	Diagonal (1)	Pipe	ROHN 2.25 TUBE (14GA)	1
	A572-50 (50 ksi)	Hip (1)	Pipe	ROHN 1.5 STD	1
	A572-50 (50 ksi)	Hip Diagonal (1)	Pipe	ROHN 2.5 STD	1

Tower Section Geometry (cont'd)

Tower Elevation ft	Gusset Area (per face) ft ²	Gusset Thickness in	Gusset Grade	Adjust. Factor A _f	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontal in	Double Angle Stitch Bolt Spacing Redundants in
T1 242'-222'	0.00	0.2500	A36 (36 ksi)	1.03	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T2 222'-202'	0.00	0.2500	A36 (36 ksi)	1.03	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T3 202'-182'	0.00	0.2500	A36 (36 ksi)	1.03	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T4 182'-162'	0.00	0.2500	A36 (36 ksi)	1.03	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T5 162'-142'	0.00	0.2500	A36 (36 ksi)	1.03	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T6 142'-122'	0.00	0.2500	A36 (36 ksi)	1.03	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_r	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
ft	ft ²	in							
T7 122'-102'	0.00	0.2500	A36 (36 ksi)	1.03	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T8 102'-82'	0.00	0.2500	A36 (36 ksi)	1.03	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T9 82'-62'	0.00	0.2500	A36 (36 ksi)	1.03	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T10 62'-42'	0.00	0.2500	A36 (36 ksi)	1.03	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T11 42'-22'	0.00	0.2500	A36 (36 ksi)	1	1.03	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T12 22'-2'	0.00	0.2500	A36 (36 ksi)	1	1.03	1.05	Mid-Pt	Mid-Pt	Mid-Pt

Tower Section Geometry (cont'd)

Tower Elevation	Calc K Single Angles	Calc K Solid Rounds	Legs	K Factors ¹						
				X Brace Diags	K Brace Diags	Single Diags	Girts	Horiz.	Sec. Horiz.	Inner Brace
				X Y	X Y	X Y	X Y	X Y	X Y	X Y
T1 242'-222'	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T2 222'-202'	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T3 202'-182'	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T4 182'-162'	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T5 162'-142'	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T6 142'-122'	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T7 122'-102'	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T8 102'-82'	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T9 82'-62'	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T10 62'-42'	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T11 42'-22'	No	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T12 22'-2'	No	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1

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

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 242'-222'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 222'-202'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 202'-182'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 182'-162'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 162'-142'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 142'-122'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 122'-102'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 102'-82'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 82'-62'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T10 62'-42'	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T11 42'-22'	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T12 22'-2'	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 242'-222'	0.0000	0.75 (1)	0.0000	0.75 (1)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
T2 222'-202'	0.0000	0.75 (1)	0.0000	0.75 (1)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
T3 202'-182'	0.0000	0.75 (1)	0.0000	0.75 (1)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
T4 182'-162'	0.0000	0.75 (1)	0.0000	0.75 (1)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
T5 162'-142'	0.0000	0.75 (1)	0.0000	0.75 (1)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T6 142'-122'	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
	0.0000	0.75 (1)	0.0000	0.75 (1)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
T7 122'-102'	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
	0.0000	0.75 (1)	0.0000	0.75 (1)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
T8 102'-82'	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
	0.0000	0.75 (1)	0.0000	0.75 (1)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
T9 82'-62'	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
	0.0000	0.75 (1)	0.0000	0.75 (1)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
T10 62'-42'	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
	0.0000	0.75 (1)	0.0000	0.75 (1)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75 (1)	0.0000	0.75 (1)
	0.0000	0.75 (2)	0.0000	0.75 (2)							0.0000	0.75 (2)	0.0000	0.75 (2)
	0.0000	0.75 (3)	0.0000	0.75 (3)							0.0000	0.75 (3)	0.0000	0.75 (3)
T11 42'-22'	0.0000	0.75 (4)	0.0000	0.75 (4)							0.0000	0.75 (4)	0.0000	0.75 (4)
	0.0000	1 (1)	0.0000	1 (1)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1 (1)	0.0000	1 (1)
	0.0000	1 (2)	0.0000	1 (2)							0.0000	1 (2)	0.0000	1 (2)
	0.0000	1 (3)	0.0000	1 (3)							0.0000	1 (3)	0.0000	1 (3)
T12 22'-2'	0.0000	1 (4)	0.0000	1 (4)							0.0000	1 (4)	0.0000	1 (4)
	0.0000	1 (1)	0.0000	1 (1)	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1 (1)	0.0000	1 (1)
	0.0000	1 (2)	0.0000	1 (2)							0.0000	1 (2)	0.0000	1 (2)
	0.0000	1 (3)	0.0000	1 (3)							0.0000	1 (3)	0.0000	1 (3)

0.0000	1 (4)	0.0000	1 (4)			0.0000	1 (4)	0.0000	1 (4)
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Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 242'-222'	Flange	0.7500	4	0.5000	1	0.5000	1	0.6250	0	0.6250	0	0.6250	0	0.6250	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T2 222'-202'	Flange	0.8750	4	0.5000	1	0.5000	1	0.6250	0	0.6250	0	0.6250	0	0.6250	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T3 202'-182'	Flange	0.8750	4	0.5000	1	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T4 182'-162'	Flange	1.0000	4	0.5000	1	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
		A325N		A325X		A325N		A325N		A325N		A325N		A325N	
T5 162'-142'	Flange	1.0000	4	0.5000	1	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
		A325N		A325X		A325N		A325N		A325N		A325N		A325N	
T6 142'-122'	Flange	1.0000	6	0.6250	1	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T7 122'-102'	Flange	1.0000	6	0.6250	1	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
		A325N		A325X		A325N		A325N		A325N		A325N		A325N	
T8 102'-82'	Flange	1.0000	6	0.7500	1	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T9 82'-62'	Flange	1.0000	8	0.7500	1	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T10 62'-42'	Flange	1.0000	8	0.7500	1	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T11 42'-22'	Flange	1.0000	8	0.7500	3	0.6250	0	0.6250	0	0.0000	0	0.7500	2	0.6250	1
		A325N		A325N		A325N		A325N		A325X		A325N		A325X	
T12 22'-2'	Flange	1.0000	0	0.7500	3	0.6250	0	0.6250	0	0.0000	0	0.7500	2	0.6250	1
		A325N		A325N		A325N		A325N		A325X		A325N		A325X	

Tower Section Geometry (cont'd)

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 242'-222'	0.6250	0 (1)	0.6250	0 (1)	0.6250	0	0.6250	0	0.6250	0	0.6250	0 (1)	0.6250	0 (1)
	A325N		A325N		A325N		A325N		A325N		A325N		A325N	
	0.6250	0 (2)	0.6250	0 (2)							0.6250	0 (2)	0.6250	0 (2)
	A325N		A325N								A325N		A325N	
	0.6250	0 (3)	0.6250	0 (3)							0.6250	0 (3)	0.6250	0 (3)
T2 222'-202'	0.6250	0 (4)	0.6250	0 (4)							0.6250	0 (4)	0.6250	0 (4)
	A325N		A325N								A325N		A325N	
	0.6250	0 (1)	0.6250	0 (1)	0.6250	0	0.6250	0	0.6250	0	0.6250	0 (1)	0.6250	0 (1)
	A325N		A325N		A325N		A325N		A325N		A325N		A325N	
	0.6250	0 (2)	0.6250	0 (2)							0.6250	0 (2)	0.6250	0 (2)
T12 22'-2'	0.6250	0 (3)	0.6250	0 (3)							0.6250	0 (3)	0.6250	0 (3)
	A325N		A325N								A325N		A325N	

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	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.
T3 202'-182'	0.6250	0 (4)	0.6250	0 (4)							0.6250	0 (4)	0.6250	0 (4)
	A325N		A325N								A325N		A325N	
	0.6250	0 (1)	0.6250	0 (1)	0.6250	0	0.6250	0	0.6250	0	0.6250	0 (1)	0.6250	0 (1)
	A325N		A325N		A325N		A325N		A325N		A325N		A325N	
	0.6250	0 (2)	0.6250	0 (2)							0.6250	0 (2)	0.6250	0 (2)
	A325N		A325N								A325N		A325N	
	0.6250	0 (3)	0.6250	0 (3)							0.6250	0 (3)	0.6250	0 (3)
A325N		A325N								A325N		A325N		
T4 182'-162'	0.6250	0 (4)	0.6250	0 (4)							0.6250	0 (4)	0.6250	0 (4)
	A325N		A325N								A325N		A325N	
	0.6250	0 (1)	0.6250	0 (1)	0.6250	0	0.6250	0	0.6250	0	0.6250	0 (1)	0.6250	0 (1)
	A325N		A325N		A325N		A325N		A325N		A325N		A325N	
	0.6250	0 (2)	0.6250	0 (2)							0.6250	0 (2)	0.6250	0 (2)
	A325N		A325N								A325N		A325N	
	0.6250	0 (3)	0.6250	0 (3)							0.6250	0 (3)	0.6250	0 (3)
A325N		A325N								A325N		A325N		
T5 162'-142'	0.6250	0 (4)	0.6250	0 (4)							0.6250	0 (4)	0.6250	0 (4)
	A325N		A325N								A325N		A325N	
	0.6250	0 (1)	0.6250	0 (1)	0.6250	0	0.6250	0	0.6250	0	0.6250	0 (1)	0.6250	0 (1)
	A325N		A325N		A325N		A325N		A325N		A325N		A325N	
	0.6250	0 (2)	0.6250	0 (2)							0.6250	0 (2)	0.6250	0 (2)
	A325N		A325N								A325N		A325N	
	0.6250	0 (3)	0.6250	0 (3)							0.6250	0 (3)	0.6250	0 (3)
A325N		A325N								A325N		A325N		
T6 142'-122'	0.6250	0 (4)	0.6250	0 (4)							0.6250	0 (4)	0.6250	0 (4)
	A325N		A325N								A325N		A325N	
	0.6250	0 (1)	0.6250	0 (1)	0.6250	0	0.6250	0	0.6250	0	0.6250	0 (1)	0.6250	0 (1)
	A325N		A325N		A325N		A325N		A325N		A325N		A325N	
	0.6250	0 (2)	0.6250	0 (2)							0.6250	0 (2)	0.6250	0 (2)
	A325N		A325N								A325N		A325N	
	0.6250	0 (3)	0.6250	0 (3)							0.6250	0 (3)	0.6250	0 (3)
A325N		A325N								A325N		A325N		
T7 122'-102'	0.6250	0 (4)	0.6250	0 (4)							0.6250	0 (4)	0.6250	0 (4)
	A325N		A325N								A325N		A325N	
	0.6250	0 (1)	0.6250	0 (1)	0.6250	0	0.6250	0	0.6250	0	0.6250	0 (1)	0.6250	0 (1)
	A325N		A325N		A325N		A325N		A325N		A325N		A325N	
	0.6250	0 (2)	0.6250	0 (2)							0.6250	0 (2)	0.6250	0 (2)
	A325N		A325N								A325N		A325N	
	0.6250	0 (3)	0.6250	0 (3)							0.6250	0 (3)	0.6250	0 (3)
A325N		A325N								A325N		A325N		
T8 102'-82'	0.6250	0 (4)	0.6250	0 (4)							0.6250	0 (4)	0.6250	0 (4)
	A325N		A325N								A325N		A325N	
	0.6250	0 (1)	0.6250	0 (1)	0.6250	0	0.6250	0	0.6250	0	0.6250	0 (1)	0.6250	0 (1)
	A325N		A325N		A325N		A325N		A325N		A325N		A325N	
	0.6250	0 (2)	0.6250	0 (2)							0.6250	0 (2)	0.6250	0 (2)
	A325N		A325N								A325N		A325N	
	0.6250	0 (3)	0.6250	0 (3)							0.6250	0 (3)	0.6250	0 (3)
A325N		A325N								A325N		A325N		
T9 82'-62'	0.6250	0 (4)	0.6250	0 (4)							0.6250	0 (4)	0.6250	0 (4)
	A325N		A325N								A325N		A325N	
	0.6250	0 (1)	0.6250	0 (1)	0.6250	0	0.6250	0	0.6250	0	0.6250	0 (1)	0.6250	0 (1)
	A325N		A325N		A325N		A325N		A325N		A325N		A325N	
	0.6250	0 (2)	0.6250	0 (2)							0.6250	0 (2)	0.6250	0 (2)
	A325N		A325N								A325N		A325N	
	0.6250	0 (3)	0.6250	0 (3)							0.6250	0 (3)	0.6250	0 (3)
A325N		A325N								A325N		A325N		
T10 62'-42'	0.6250	0 (1)	0.6250	0 (1)	0.6250	0	0.6250	0	0.6250	0	0.6250	0 (1)	0.6250	0 (1)
	A325N		A325N		A325N		A325N		A325N		A325N		A325N	

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	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.
T11 42'-22'	0.6250	0 (2)	0.6250	0 (2)							0.6250	0 (2)	0.6250	0 (2)
	A325N		A325N								A325N		A325N	
	0.6250	0 (3)	0.6250	0 (3)							0.6250	0 (3)	0.6250	0 (3)
	A325N		A325N								A325N		A325N	
	0.6250	0 (4)	0.6250	0 (4)							0.6250	0 (4)	0.6250	0 (4)
	A325N		A325N								A325N		A325N	
	0.6250	1 (1)	0.6250	1 (1)	0.6250	0	0.6250	0	0.6250	0	0.6250	1 (1)	0.6250	1 (1)
	A325N		A325N		A325N		A325X		A325X		A325N		A325N	
	0.6250	1 (2)	0.6250	1 (2)							0.6250	1 (2)	0.6250	1 (2)
	A325N		A325N								A325N		A325N	
T12 22'-2'	0.6250	1 (3)	0.6250	1 (3)							0.6250	1 (3)	0.6250	1 (3)
	A325N		A325N								A325N		A325N	
	0.6250	1 (4)	0.6250	1 (4)							0.6250	1 (4)	0.6250	1 (4)
	A325N		A325N								A325N		A325N	
	0.6250	1 (1)	0.6250	1 (1)	0.6250	0	0.6250	0	0.6250	0	0.6250	1 (1)	0.6250	1 (1)
	A325N		A325N		A325N		A325X		A325X		A325N		A325N	
	0.6250	1 (2)	0.6250	1 (2)							0.6250	1 (2)	0.6250	1 (2)
	A325N		A325N								A325N		A325N	
	0.6250	1 (3)	0.6250	1 (3)							0.6250	1 (3)	0.6250	1 (3)
	A325N		A325N								A325N		A325N	
0.6250	1 (4)	0.6250	1 (4)							0.6250	1 (4)	0.6250	1 (4)	
A325N		A325N								A325N		A325N		

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 plf
LDF7-50A(1-5/8)	A	No	No	Ar (CaAa)	238' - 2'	0.0000	-0.37	12	4	0.5000	1.9800		0.82
FB-L98B-034-XXX(3/8)	A	No	No	Ar (CaAa)	238' - 2'	1.0000	-0.35	1	1	0.3937	0.3937		0.06
WR-VG865T-BRD(3/4) ***	A	No	No	Ar (CaAa)	238' - 2'	0.0000	-0.35	4	2	0.5000	0.7950		0.58
AVA5-50(7/8)	A	No	No	Ar (CaAa)	188' - 2'	0.0000	-0.43	2	1	0.5000	1.1020		0.30
LDF4-50A(1/2) ***	A	No	No	Ar (CaAa)	188' - 2'	1.0000	-0.43	1	1	0.6250	0.6300		0.15
Feedline Ladder (Af) ***	A	No	No	Af (CaAa)	238' - 2'	0.0000	-0.4	1	1	3.0000	3.0000		8.40
LDF4-50A(1/2) ***	A	No	No	Ar (CaAa)	242' - 2'	0.0000	0.1	1	1	0.5000	0.6300		0.15
CU12PSM6P4 XXX(1-3/4) ***	A	No	No	Ar (CaAa)	167' - 2'	0.0000	-0.33	1	1	0.5000	1.7500		2.72
RJF SFTP 5E XXXX(1/4)	B	No	No	Ar (CaAa)	167' - 2'	0.0000	-0.37	1	1	0.5000	0.2800		0.04

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
CKLCULCU363 U8495CBCXXX XM(1/4) ***	B	No	No	Ar (CaAa)	167' - 2'	1.0000	-0.37	1	1	0.5000	0.2560		0.05
LDF6-50A(1-1/4) ***	B	No	No	Ar (CaAa)	203' - 2'	0.0000	0.49	2	2	0.5000	1.5500		0.60
LDF4-50A(1/2) ***	B	No	No	Ar (CaAa)	14' - 2'	0.0000	0.48	1	1	0.6250	0.6300		0.15
AVA7-50(1-5/8) Feedline Ladder (Af) ***	C	No	No	Ar (CaAa)	217' - 2'	0.0000	-0.4	8	8	0.5000	2.0100		0.70
	C	No	No	Af (CaAa)	217' - 2'	0.0000	-0.4	1	1	3.0000	3.0000		8.40
Thin Flat Bar Climbing Ladder	A	No	No	Af (CaAa)	242' - 2'	9.0000	0.5	1	1	2.0000	2.0000		4.00
Safety Line 3/8 ***	A	No	No	Ar (CaAa)	242' - 2'	10.0000	0.5	1	1	0.3750	0.3750		0.22

Feed Line/Linear Appurtenances - Entered As Area

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

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
T1	242'-222'	A	0.000	0.000	60.411	0.000	0.42
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
T2	222'-202'	A	0.000	0.000	73.344	0.000	0.50
		B	0.000	0.000	0.310	0.000	0.00
		C	0.000	0.000	31.620	0.000	0.21
T3	202'-182'	A	0.000	0.000	75.044	0.000	0.50
		B	0.000	0.000	6.200	0.000	0.02
		C	0.000	0.000	42.160	0.000	0.28
T4	182'-162'	A	0.000	0.000	79.887	0.000	0.53
		B	0.000	0.000	6.468	0.000	0.02
		C	0.000	0.000	42.160	0.000	0.28
T5	162'-142'	A	0.000	0.000	82.512	0.000	0.57
		B	0.000	0.000	7.272	0.000	0.03
		C	0.000	0.000	42.160	0.000	0.28
T6	142'-122'	A	0.000	0.000	82.512	0.000	0.57
		B	0.000	0.000	7.272	0.000	0.03
		C	0.000	0.000	42.160	0.000	0.28
T7	122'-102'	A	0.000	0.000	82.512	0.000	0.57

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
T8	102'-82'	B	0.000	0.000	7.272	0.000	0.03
		C	0.000	0.000	42.160	0.000	0.28
		A	0.000	0.000	82.512	0.000	0.57
T9	82'-62'	B	0.000	0.000	7.272	0.000	0.03
		C	0.000	0.000	42.160	0.000	0.28
		A	0.000	0.000	82.512	0.000	0.57
T10	62'-42'	B	0.000	0.000	7.272	0.000	0.03
		C	0.000	0.000	42.160	0.000	0.28
		A	0.000	0.000	82.512	0.000	0.57
T11	42'-22'	B	0.000	0.000	7.272	0.000	0.03
		C	0.000	0.000	42.160	0.000	0.28
		A	0.000	0.000	82.512	0.000	0.57
T12	22'-2'	B	0.000	0.000	8.028	0.000	0.03
		C	0.000	0.000	42.160	0.000	0.28
		A	0.000	0.000	82.512	0.000	0.57

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
T1	242'-222'	A	1.033	0.000	0.000	77.261	0.000	1.20
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
T2	222'-202'	A	1.024	0.000	0.000	90.992	0.000	1.42
		B		0.000	0.000	0.837	0.000	0.01
		C		0.000	0.000	51.830	0.000	0.65
T3	202'-182'	A	1.014	0.000	0.000	96.497	0.000	1.46
		B		0.000	0.000	16.670	0.000	0.13
		C		0.000	0.000	69.008	0.000	0.86
T4	182'-162'	A	1.003	0.000	0.000	111.523	0.000	1.59
		B		0.000	0.000	18.867	0.000	0.14
		C		0.000	0.000	68.899	0.000	0.85
T5	162'-142'	A	0.990	0.000	0.000	116.552	0.000	1.67
		B		0.000	0.000	25.503	0.000	0.19
		C		0.000	0.000	68.778	0.000	0.85
T6	142'-122'	A	0.976	0.000	0.000	115.872	0.000	1.66
		B		0.000	0.000	25.296	0.000	0.19
		C		0.000	0.000	68.642	0.000	0.84
T7	122'-102'	A	0.960	0.000	0.000	115.092	0.000	1.64
		B		0.000	0.000	25.059	0.000	0.18
		C		0.000	0.000	68.485	0.000	0.83
T8	102'-82'	A	0.942	0.000	0.000	114.175	0.000	1.62
		B		0.000	0.000	24.781	0.000	0.18
		C		0.000	0.000	68.302	0.000	0.82
T9	82'-62'	A	0.919	0.000	0.000	113.058	0.000	1.59
		B		0.000	0.000	24.441	0.000	0.17
		C		0.000	0.000	68.078	0.000	0.81
T10	62'-42'	A	0.890	0.000	0.000	111.616	0.000	1.56
		B		0.000	0.000	24.003	0.000	0.17
		C		0.000	0.000	67.790	0.000	0.79
T11	42'-22'	A	0.847	0.000	0.000	109.550	0.000	1.51
		B		0.000	0.000	23.376	0.000	0.16
		C		0.000	0.000	67.377	0.000	0.77
T12	22'-2'	A	0.768	0.000	0.000	105.673	0.000	1.43
		B		0.000	0.000	24.799	0.000	0.16
		C		0.000	0.000	66.603	0.000	0.73

Feed Line Center of Pressure

Section	Elevation	CP_x	CP_z	CP_x Ice	CP_z Ice
	ft	in	in	in	in
T1	242'-222'	-9.0063	0.4582	-9.7432	-1.7013
T2	222'-202'	-1.9599	3.5041	-1.9846	1.7089
T3	202'-182'	1.3005	5.8939	1.4704	4.7807
T4	182'-162'	0.0754	7.1130	-0.7445	5.8636
T5	162'-142'	-0.5637	7.6291	-1.4738	4.9590
T6	142'-122'	-0.5602	8.7454	-1.5406	5.8123
T7	122'-102'	-0.5011	8.8254	-1.4446	6.0568
T8	102'-82'	-0.4785	9.3864	-1.3954	6.5573
T9	82'-62'	-0.4303	9.3256	-1.2651	6.7978
T10	62'-42'	-0.4076	9.6746	-1.1049	7.0268
T11	42'-22'	-0.5683	14.0048	-1.1314	9.1641
T12	22'-2'	0.0059	14.8161	0.6264	10.5974

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	1	LDF7-50A(1-5/8)	222.00 - 238.00	0.6000	0.6000
T1	2	FB-L98B-034-XXX(3/8)	222.00 - 238.00	0.6000	0.6000
T1	3	WR-VG86ST-BRD(3/4)	222.00 - 238.00	0.6000	0.6000
T1	8	Feedline Ladder (Af)	222.00 - 238.00	0.6000	0.6000
T1	10	LDF4-50A(1/2)	222.00 - 242.00	0.6000	0.6000
T1	26	Thin Flat Bar Climbing Ladder	222.00 - 242.00	0.6000	0.6000
T1	27	Safety Line 3/8	222.00 - 242.00	0.6000	0.6000
T2	1	LDF7-50A(1-5/8)	202.00 - 222.00	0.6000	0.6000
T2	2	FB-L98B-034-XXX(3/8)	202.00 - 222.00	0.6000	0.6000
T2	3	WR-VG86ST-BRD(3/4)	202.00 - 222.00	0.6000	0.6000
T2	8	Feedline Ladder (Af)	202.00 - 222.00	0.6000	0.6000
T2	10	LDF4-50A(1/2)	202.00 - 222.00	0.6000	0.6000
T2	17	LDF6-50A(1-1/4)	202.00 - 203.00	0.6000	0.6000
T2	21	AVA7-50(1-5/8)	202.00 - 217.00	0.6000	0.6000
T2	24	Feedline Ladder (Af)	202.00 - 217.00	0.6000	0.6000
T2	26	Thin Flat Bar Climbing Ladder	202.00 - 222.00	0.6000	0.6000
T2	27	Safety Line 3/8	202.00 -	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _g No Ice	K _g Ice
			222.00		
T3	1	LDF7-50A(1-5/8)	182.00 - 202.00	0.6000	0.6000
T3	2	FB-L98B-034-XXX(3/8)	182.00 - 202.00	0.6000	0.6000
T3	3	WR-VG86ST-BRD(3/4)	182.00 - 202.00	0.6000	0.6000
T3	5	AVA5-50(7/8)	182.00 - 188.00	0.6000	0.6000
T3	6	LDF4-50A(1/2)	182.00 - 188.00	0.6000	0.6000
T3	8	Feedline Ladder (Af)	182.00 - 202.00	0.6000	0.6000
T3	10	LDF4-50A(1/2)	182.00 - 202.00	0.6000	0.6000
T3	17	LDF6-50A(1-1/4)	182.00 - 202.00	0.6000	0.6000
T3	21	AVA7-50(1-5/8)	182.00 - 202.00	0.6000	0.6000
T3	24	Feedline Ladder (Af)	182.00 - 202.00	0.6000	0.6000
T3	26	Thin Flat Bar Climbing Ladder	182.00 - 202.00	0.6000	0.6000
T3	27	Safety Line 3/8	182.00 - 202.00	0.6000	0.6000
T4	1	LDF7-50A(1-5/8)	162.00 - 182.00	0.6000	0.6000
T4	2	FB-L98B-034-XXX(3/8)	162.00 - 182.00	0.6000	0.6000
T4	3	WR-VG86ST-BRD(3/4)	162.00 - 182.00	0.6000	0.6000
T4	5	AVA5-50(7/8)	162.00 - 182.00	0.6000	0.6000
T4	6	LDF4-50A(1/2)	162.00 - 182.00	0.6000	0.6000
T4	8	Feedline Ladder (Af)	162.00 - 182.00	0.6000	0.6000
T4	10	LDF4-50A(1/2)	162.00 - 182.00	0.6000	0.6000
T4	12	CU12PSM6P4XXX(1-3/4)	162.00 - 167.00	0.6000	0.6000
T4	14	RJF SFTP 5E XXXX(1/4)	162.00 - 167.00	0.6000	0.6000
T4	15	CKLCULCU363U8495CBCXXX M(1/4)	162.00 - 167.00	0.6000	0.6000
T4	17	LDF6-50A(1-1/4)	162.00 - 182.00	0.6000	0.6000
T4	21	AVA7-50(1-5/8)	162.00 - 182.00	0.6000	0.6000
T4	24	Feedline Ladder (Af)	162.00 - 182.00	0.6000	0.6000
T4	26	Thin Flat Bar Climbing Ladder	162.00 - 182.00	0.6000	0.6000
T4	27	Safety Line 3/8	162.00 - 182.00	0.6000	0.6000
T5	1	LDF7-50A(1-5/8)	142.00 - 162.00	0.6000	0.6000
T5	2	FB-L98B-034-XXX(3/8)	142.00 - 162.00	0.6000	0.6000
T5	3	WR-VG86ST-BRD(3/4)	142.00 - 162.00	0.6000	0.6000
T5	5	AVA5-50(7/8)	142.00 - 162.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _g No Ice	K _g Ice
T5	6	LDF4-50A(1/2)	142.00 - 162.00	0.6000	0.6000
T5	8	Feedline Ladder (Af)	142.00 - 162.00	0.6000	0.6000
T5	10	LDF4-50A(1/2)	142.00 - 162.00	0.6000	0.6000
T5	12	CU12PSM6P4XXX(1-3/4)	142.00 - 162.00	0.6000	0.6000
T5	14	RJF SFTP 5E XXXX(1/4)	142.00 - 162.00	0.6000	0.6000
T5	15	CKLCULCU363U8495CBCXXX M(1/4)	142.00 - 162.00	0.6000	0.6000
T5	17	LDF6-50A(1-1/4)	142.00 - 162.00	0.6000	0.6000
T5	21	AVA7-50(1-5/8)	142.00 - 162.00	0.6000	0.6000
T5	24	Feedline Ladder (Af)	142.00 - 162.00	0.6000	0.6000
T5	26	Thin Flat Bar Climbing Ladder	142.00 - 162.00	0.6000	0.6000
T5	27	Safety Line 3/8	142.00 - 162.00	0.6000	0.6000
T6	1	LDF7-50A(1-5/8)	122.00 - 142.00	0.6000	0.6000
T6	2	FB-L98B-034-XXX(3/8)	122.00 - 142.00	0.6000	0.6000
T6	3	WR-VG86ST-BRD(3/4)	122.00 - 142.00	0.6000	0.6000
T6	5	AVA5-50(7/8)	122.00 - 142.00	0.6000	0.6000
T6	6	LDF4-50A(1/2)	122.00 - 142.00	0.6000	0.6000
T6	8	Feedline Ladder (Af)	122.00 - 142.00	0.6000	0.6000
T6	10	LDF4-50A(1/2)	122.00 - 142.00	0.6000	0.6000
T6	12	CU12PSM6P4XXX(1-3/4)	122.00 - 142.00	0.6000	0.6000
T6	14	RJF SFTP 5E XXXX(1/4)	122.00 - 142.00	0.6000	0.6000
T6	15	CKLCULCU363U8495CBCXXX M(1/4)	122.00 - 142.00	0.6000	0.6000
T6	17	LDF6-50A(1-1/4)	122.00 - 142.00	0.6000	0.6000
T6	21	AVA7-50(1-5/8)	122.00 - 142.00	0.6000	0.6000
T6	24	Feedline Ladder (Af)	122.00 - 142.00	0.6000	0.6000
T6	26	Thin Flat Bar Climbing Ladder	122.00 - 142.00	0.6000	0.6000
T6	27	Safety Line 3/8	122.00 - 142.00	0.6000	0.6000
T7	1	LDF7-50A(1-5/8)	102.00 - 122.00	0.6000	0.6000
T7	2	FB-L98B-034-XXX(3/8)	102.00 - 122.00	0.6000	0.6000
T7	3	WR-VG86ST-BRD(3/4)	102.00 - 122.00	0.6000	0.6000
T7	5	AVA5-50(7/8)	102.00 - 122.00	0.6000	0.6000
T7	6	LDF4-50A(1/2)	102.00 - 122.00	0.6000	0.6000
T7	8	Feedline Ladder (Af)	102.00 - 122.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _g No Ice	K _g Ice
			122.00		
T7	10	LDF4-50A(1/2)	102.00 -	0.6000	0.6000
			122.00		
T7	12	CU12PSM6P4XXX(1-3/4)	102.00 -	0.6000	0.6000
			122.00		
T7	14	RJF SFTP 5E XXXX(1/4)	102.00 -	0.6000	0.6000
			122.00		
T7	15	CKLCULCU363U8495CBCXXXX M(1/4)	102.00 -	0.6000	0.6000
			122.00		
T7	17	LDF6-50A(1-1/4)	102.00 -	0.6000	0.6000
			122.00		
T7	21	AVA7-50(1-5/8)	102.00 -	0.6000	0.6000
			122.00		
T7	24	Feedline Ladder (Af)	102.00 -	0.6000	0.6000
			122.00		
T7	26	Thin Flat Bar Climbing Ladder	102.00 -	0.6000	0.6000
			122.00		
T7	27	Safety Line 3/8	102.00 -	0.6000	0.6000
			122.00		
T8	1	LDF7-50A(1-5/8)	82.00 - 102.00	0.6000	0.6000
T8	2	FB-L98B-034-XXX(3/8)	82.00 - 102.00	0.6000	0.6000
T8	3	WR-VG86ST-BRD(3/4)	82.00 - 102.00	0.6000	0.6000
T8	5	AVA5-50(7/8)	82.00 - 102.00	0.6000	0.6000
T8	6	LDF4-50A(1/2)	82.00 - 102.00	0.6000	0.6000
T8	8	Feedline Ladder (Af)	82.00 - 102.00	0.6000	0.6000
T8	10	LDF4-50A(1/2)	82.00 - 102.00	0.6000	0.6000
T8	12	CU12PSM6P4XXX(1-3/4)	82.00 - 102.00	0.6000	0.6000
T8	14	RJF SFTP 5E XXXX(1/4)	82.00 - 102.00	0.6000	0.6000
T8	15	CKLCULCU363U8495CBCXXXX M(1/4)	82.00 - 102.00	0.6000	0.6000
			82.00 - 102.00		
T8	17	LDF6-50A(1-1/4)	82.00 - 102.00	0.6000	0.6000
T8	21	AVA7-50(1-5/8)	82.00 - 102.00	0.6000	0.6000
T8	24	Feedline Ladder (Af)	82.00 - 102.00	0.6000	0.6000
T8	26	Thin Flat Bar Climbing Ladder	82.00 - 102.00	0.6000	0.6000
T8	27	Safety Line 3/8	82.00 - 102.00	0.6000	0.6000
T9	1	LDF7-50A(1-5/8)	62.00 - 82.00	0.6000	0.6000
T9	2	FB-L98B-034-XXX(3/8)	62.00 - 82.00	0.6000	0.6000
T9	3	WR-VG86ST-BRD(3/4)	62.00 - 82.00	0.6000	0.6000
T9	5	AVA5-50(7/8)	62.00 - 82.00	0.6000	0.6000
T9	6	LDF4-50A(1/2)	62.00 - 82.00	0.6000	0.6000
T9	8	Feedline Ladder (Af)	62.00 - 82.00	0.6000	0.6000
T9	10	LDF4-50A(1/2)	62.00 - 82.00	0.6000	0.6000
T9	12	CU12PSM6P4XXX(1-3/4)	62.00 - 82.00	0.6000	0.6000
T9	14	RJF SFTP 5E XXXX(1/4)	62.00 - 82.00	0.6000	0.6000
T9	15	CKLCULCU363U8495CBCXXXX M(1/4)	62.00 - 82.00	0.6000	0.6000
			62.00 - 82.00		
T9	17	LDF6-50A(1-1/4)	62.00 - 82.00	0.6000	0.6000
T9	21	AVA7-50(1-5/8)	62.00 - 82.00	0.6000	0.6000
T9	24	Feedline Ladder (Af)	62.00 - 82.00	0.6000	0.6000
T9	26	Thin Flat Bar Climbing Ladder	62.00 - 82.00	0.6000	0.6000
T9	27	Safety Line 3/8	62.00 - 82.00	0.6000	0.6000
T10	1	LDF7-50A(1-5/8)	42.00 - 62.00	0.6000	0.6000
T10	2	FB-L98B-034-XXX(3/8)	42.00 - 62.00	0.6000	0.6000
T10	3	WR-VG86ST-BRD(3/4)	42.00 - 62.00	0.6000	0.6000
T10	5	AVA5-50(7/8)	42.00 - 62.00	0.6000	0.6000
T10	6	LDF4-50A(1/2)	42.00 - 62.00	0.6000	0.6000
T10	8	Feedline Ladder (Af)	42.00 - 62.00	0.6000	0.6000
T10	10	LDF4-50A(1/2)	42.00 - 62.00	0.6000	0.6000
T10	12	CU12PSM6P4XXX(1-3/4)	42.00 - 62.00	0.6000	0.6000
T10	14	RJF SFTP 5E XXXX(1/4)	42.00 - 62.00	0.6000	0.6000
T10	15	CKLCULCU363U8495CBCXXXX M(1/4)	42.00 - 62.00	0.6000	0.6000
			42.00 - 62.00		
T10	17	LDF6-50A(1-1/4)	42.00 - 62.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _g No Ice	K _g Ice
T10	21	AVA7-50(1-5/8)	42.00 - 62.00	0.6000	0.6000
T10	24	Feedline Ladder (Af)	42.00 - 62.00	0.6000	0.6000
T10	26	Thin Flat Bar Climbing Ladder	42.00 - 62.00	0.6000	0.6000
T10	27	Safety Line 3/8	42.00 - 62.00	0.6000	0.6000
T11	1	LDF7-50A(1-5/8)	22.00 - 42.00	0.6000	0.6000
T11	2	FB-L98B-034-XXX(3/8)	22.00 - 42.00	0.6000	0.6000
T11	3	WR-VG86ST-BRD(3/4)	22.00 - 42.00	0.6000	0.6000
T11	5	AVA5-50(7/8)	22.00 - 42.00	0.6000	0.6000
T11	6	LDF4-50A(1/2)	22.00 - 42.00	0.6000	0.6000
T11	8	Feedline Ladder (Af)	22.00 - 42.00	0.6000	0.6000
T11	10	LDF4-50A(1/2)	22.00 - 42.00	0.6000	0.6000
T11	12	CU12PSM6P4XXX(1-3/4)	22.00 - 42.00	0.6000	0.6000
T11	14	RJF SFTP 5E XXXX(1/4)	22.00 - 42.00	0.6000	0.6000
T11	15	CKLCULCU363U8495CBCXXX M(1/4)	22.00 - 42.00	0.6000	0.6000
T11	17	LDF6-50A(1-1/4)	22.00 - 42.00	0.6000	0.6000
T11	21	AVA7-50(1-5/8)	22.00 - 42.00	0.6000	0.6000
T11	24	Feedline Ladder (Af)	22.00 - 42.00	0.6000	0.6000
T11	26	Thin Flat Bar Climbing Ladder	22.00 - 42.00	0.6000	0.6000
T11	27	Safety Line 3/8	22.00 - 42.00	0.6000	0.6000
T12	1	LDF7-50A(1-5/8)	2.00 - 22.00	0.6000	0.6000
T12	2	FB-L98B-034-XXX(3/8)	2.00 - 22.00	0.6000	0.6000
T12	3	WR-VG86ST-BRD(3/4)	2.00 - 22.00	0.6000	0.6000
T12	5	AVA5-50(7/8)	2.00 - 22.00	0.6000	0.6000
T12	6	LDF4-50A(1/2)	2.00 - 22.00	0.6000	0.6000
T12	8	Feedline Ladder (Af)	2.00 - 22.00	0.6000	0.6000
T12	10	LDF4-50A(1/2)	2.00 - 22.00	0.6000	0.6000
T12	12	CU12PSM6P4XXX(1-3/4)	2.00 - 22.00	0.6000	0.6000
T12	14	RJF SFTP 5E XXXX(1/4)	2.00 - 22.00	0.6000	0.6000
T12	15	CKLCULCU363U8495CBCXXX M(1/4)	2.00 - 22.00	0.6000	0.6000
T12	17	LDF6-50A(1-1/4)	2.00 - 22.00	0.6000	0.6000
T12	19	LDF4-50A(1/2)	2.00 - 14.00	0.6000	0.6000
T12	21	AVA7-50(1-5/8)	2.00 - 22.00	0.6000	0.6000
T12	24	Feedline Ladder (Af)	2.00 - 22.00	0.6000	0.6000
T12	26	Thin Flat Bar Climbing Ladder	2.00 - 22.00	0.6000	0.6000
T12	27	Safety Line 3/8	2.00 - 22.00	0.6000	0.6000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment	Placement ft
Side Light	A	From Leg	0.50 0' 0'	0.0000	123'
Side Light	B	From Leg	0.50 0' 0'	0.0000	123'
Side Light	C	From Leg	0.50 0' 0'	0.0000	123'

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement
			Horz Lateral	Vert		
			ft	ft	°	ft
LED Strobe	A	From Leg	0.00		0.0000	242'
			0'			
			6"			
Lightning Rod 5/8" x 4'	C	From Leg	0.00		0.0000	242'
			0'			
			2'			
*** DB806-XC	C	From Leg	2.00		0.0000	242'
			0'			
			2'			
FMO	C	From Leg	2.00		0.0000	242'
			0'			
			2'			
Side Arm Mount [SO 302-3] ***	C	None			0.0000	242'
7770.00	A	From Leg	4.00		0.0000	236'
			0'			
			0'			
7770.00	B	From Leg	4.00		0.0000	236'
			0'			
			0'			
7770.00	C	From Leg	4.00		0.0000	236'
			0'			
			0'			
DMP65R-BU6D	A	From Leg	4.00		0.0000	236'
			0'			
			0'			
DMP65R-BU6D	B	From Leg	4.00		0.0000	236'
			0'			
			0'			
DMP65R-BU6D	C	From Leg	4.00		0.0000	236'
			0'			
			0'			
OPA65R-BU6D	A	From Leg	4.00		0.0000	236'
			0'			
			0'			
OPA65R-BU6D	B	From Leg	4.00		0.0000	236'
			0'			
			0'			
OPA65R-BU6D	C	From Leg	4.00		0.0000	236'
			0'			
			0'			
HPA-65R-BUU-H6	A	From Leg	4.00		0.0000	236'
			0'			
			0'			
HPA-65R-BUU-H6	B	From Leg	4.00		0.0000	236'
			0'			
			0'			
HPA-65R-BUU-H6	C	From Leg	4.00		0.0000	236'
			0'			
			0'			
(2) LGP13519	A	From Leg	4.00		0.0000	236'
			0'			
			0'			
(2) LGP13519	B	From Leg	4.00		0.0000	236'
			0'			
			0'			
(2) LGP13519	C	From Leg	4.00		0.0000	236'

Description	Face or Leg	Offset Type	Offsets:			Azimuth Adjustment	Placement
			Horz Lateral	Vert			
			ft	ft	°	ft	
RRUS 32 B2	A	From Leg	4.00	0'	0.0000	236'	
RRUS 32 B2	B	From Leg	4.00	0'	0.0000	236'	
RRUS 32 B2	C	From Leg	4.00	0'	0.0000	236'	
RRUS 4478 B14	A	From Leg	4.00	0'	0.0000	236'	
RRUS 4478 B14	B	From Leg	4.00	0'	0.0000	236'	
RRUS 4478 B14	C	From Leg	4.00	0'	0.0000	236'	
DC6-48-60-18-8F	A	From Leg	4.00	0'	0.0000	236'	
DC6-48-60-18-8F	C	From Leg	4.00	0'	0.0000	236'	
RADIO 4449 B5/B12	A	From Leg	4.00	0'	0.0000	236'	
RADIO 4449 B5/B12	B	From Leg	4.00	0'	0.0000	236'	
RADIO 4449 B5/B12	C	From Leg	4.00	0'	0.0000	236'	
8' x 2" Mount Pipe	A	From Leg	4.00	0'	0.0000	236'	
8' x 2" Mount Pipe	C	From Leg	4.00	0'	0.0000	236'	
Sector Mount [SM 201-3] ***	C	None		0'	0.0000	236'	
LNX-8514DS-A1M w/ Mount Pipe	A	From Leg	4.00	0'	0.0000	217'	
LNX-8514DS-A1M w/ Mount Pipe	B	From Leg	4.00	-3'	0.0000	217'	
LNX-8514DS-A1M w/ Mount Pipe	C	From Leg	4.00	0'	0.0000	217'	
MT6407-77A w/ Mount Pipe	A	From Leg	4.00	-3'	0.0000	217'	
MT6407-77A w/ Mount Pipe	B	From Leg	4.00	0'	0.0000	217'	
				-3'			

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement
			Horz Lateral	Vert		
			ft	ft	°	ft
MT6407-77A w/ Mount Pipe	C	From Leg	4.00	0'	0.0000	217'
			0'	-3'		
(2) MX06FRO660-03 w/ Mount Pipe	A	From Leg	4.00	0'	0.0000	217'
			0'	-3'		
(2) MX06FRO660-03 w/ Mount Pipe	B	From Leg	4.00	0'	0.0000	217'
			0'	-3'		
(2) MX06FRO660-03 w/ Mount Pipe	C	From Leg	4.00	0'	0.0000	217'
			0'	-3'		
RFV01U-D1A	A	From Leg	4.00	0'	0.0000	217'
			0'	-3'		
RFV01U-D1A	B	From Leg	4.00	0'	0.0000	217'
			0'	-3'		
RFV01U-D1A	C	From Leg	4.00	0'	0.0000	217'
			0'	-3'		
BSF0020F3V1	A	From Leg	4.00	0'	0.0000	217'
			0'	-3'		
(2) BSF0020F3V1	B	From Leg	4.00	0'	0.0000	217'
			0'	-3'		
BSF0020F3V1	C	From Leg	4.00	0'	0.0000	217'
			0'	-3'		
RRFDC-3315-PF-48	A	From Leg	4.00	0'	0.0000	217'
			0'	-3'		
RRFDC-3315-PF-48	B	From Leg	4.00	0'	0.0000	217'
			0'	-3'		
RFV01U-D2A	A	From Leg	4.00	0'	0.0000	217'
			0'	-3'		
RFV01U-D2A	B	From Leg	4.00	0'	0.0000	217'
			0'	-3'		
RFV01U-D2A	C	From Leg	4.00	0'	0.0000	217'
			0'	-3'		
6' x 2" Mount Pipe	A	From Leg	4.00	0'	0.0000	217'
			0'	0'		
6' x 2" Mount Pipe	B	From Leg	4.00	0'	0.0000	217'
			0'	0'		
6' x 2" Mount Pipe	C	From Leg	4.00	0'	0.0000	217'
			0'	0'		
Sector Mount [SM 505-3] *** ***	C	None			0.0000	217'
OG-4	B	From Leg	3.00		0.0000	203'

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement
			Horz Lateral	Vert		
			ft	ft	°	ft
OG-4	C	From Leg	3.00	0'	0.0000	203'
Side Arm Mount [SO 306-1]	B	From Leg	1.50	0'	0.0000	203'
Side Arm Mount [SO 306-1]	C	From Leg	1.50	0'	0.0000	203'

DB589-A	B	From Leg	4.00	0'	0.0000	188'
DB589-A	B	From Leg	4.00	2'	0.0000	188'
Side Arm Mount [SO 306-1]	B	From Leg	2.00	-2'	0.0000	188'

MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.00	0'	0.0000	167'
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.00	0'	0.0000	167'
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.00	0'	0.0000	167'
TA08025-B605	A	From Leg	4.00	0'	0.0000	167'
TA08025-B605	B	From Leg	4.00	0'	0.0000	167'
TA08025-B605	C	From Leg	4.00	0'	0.0000	167'
TA08025-B604	A	From Leg	4.00	0'	0.0000	167'
TA08025-B604	B	From Leg	4.00	0'	0.0000	167'
TA08025-B604	C	From Leg	4.00	0'	0.0000	167'
RDIDC-9181-PF-48	A	From Leg	4.00	0'	0.0000	167'
(2) 8' x 2" Mount Pipe	A	From Leg	4.00	0'	0.0000	167'
(2) 8' x 2" Mount Pipe	B	From Leg	4.00	0'	0.0000	167'

Description	Face or Leg	Offset Type	Offsets:			Azimuth Adjustment	Placement
			Horz Lateral	Vert			
			ft	ft	°	ft	
(2) 8' x 2" Mount Pipe	C	From Leg	4.00	0'	0.0000	167'	
Commscope MTC3975083 (3)	C	None			0.0000	167'	

IP-50C	B	From Leg	4.00	0'	0.0000	167'	

TY-840	B	From Face	1.00	0'	0.0000	12'	

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets:		Azimuth Adjustment	3 dB Beam Width	Elevation	Outside Diameter	Aperture Area	Weight	
				Horz Lateral	Vert							
			ft	ft	°	°	ft	ft	ft ²	K		
VHLP2-11W/A	B	Paraboloid w/Shroud (HP)	From Leg	4.00	0'	18.0000		165'	2.16	No Ice 1/2" Ice 1" Ice	3.66 3.95 4.23	0.03 0.05 0.07

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice

Comb. No.	Description
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	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	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	242 - 222	Leg	Max Tension	23	9.74	-0.04	0.02
			Max. Compression	18	-12.70	0.05	0.00
			Max. Mx	10	-2.21	-0.73	-0.00
			Max. My	3	-0.53	-0.18	-0.67
			Max. Vy	6	0.55	-0.35	0.02
			Max. Vx	2	-0.50	-0.18	0.30
		Diagonal	Max Tension	5	2.62	0.00	0.00
			Max. Compression	4	-2.67	0.00	0.00
			Max. Mx	35	0.46	0.01	-0.00
			Max. My	4	-2.46	0.00	0.00
			Max. Vy	35	-0.02	0.01	-0.00
			Max. Vx	4	-0.00	0.00	0.00
		Top Girt	Max Tension	23	0.02	0.00	0.00
			Max. Compression	18	-0.03	0.00	0.00
			Max. Mx	26	-0.01	-0.04	0.00
			Max. My	26	-0.01	0.00	0.00
			Max. Vy	26	0.02	0.00	0.00
			Max. Vx	26	-0.00	0.00	0.00
T2	222 - 202	Leg	Max Tension	23	27.36	-0.17	0.05
			Max. Compression	18	-34.74	0.16	0.03
			Max. Mx	14	26.25	-0.17	-0.01
			Max. My	24	-4.15	-0.01	0.22
			Max. Vy	22	-1.14	-0.04	0.01
			Max. Vx	16	0.89	0.00	-0.03
		Diagonal	Max Tension	4	3.71	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft			
T3	202 - 182	Top Girt	Max. Compression	4	-3.73	0.00	0.00			
			Max. Mx	35	0.65	0.02	-0.00			
			Max. My	4	-3.72	0.00	0.00			
			Max. Vy	37	0.02	0.02	0.00			
			Max. Vx	34	0.00	0.00	0.00			
			Max Tension	22	0.28	0.00	0.00			
		Leg	Max. Compression	11	-0.26	0.00	0.00			
			Max. Mx	26	0.02	-0.04	0.00			
			Max. My	26	0.02	0.00	0.00			
			Max. Vy	26	0.02	0.00	0.00			
			Max. Vx	26	0.00	0.00	0.00			
			Max Tension	15	47.04	-0.14	0.02			
			Diagonal	Max. Compression	2	-56.42	0.21	-0.02		
				Max. Mx	3	-55.33	0.22	-0.01		
				Max. My	16	-4.52	-0.01	0.23		
				Max. Vy	3	0.10	0.15	-0.02		
				Max. Vx	4	-0.22	-0.01	-0.19		
				Max Tension	8	4.11	0.00	0.00		
T4	182 - 162	Leg	Max. Compression	8	-4.15	0.00	0.00			
			Max. Mx	35	0.78	0.04	0.01			
			Max. My	30	-1.13	0.04	-0.01			
			Max. Vy	33	0.03	0.04	0.01			
			Max. Vx	30	0.00	0.00	0.00			
			Max Tension	15	66.78	-0.44	0.02			
		Diagonal	Max. Compression	2	-79.78	0.47	-0.04			
			Max. Mx	22	63.27	-0.49	0.01			
			Max. My	16	-6.54	-0.02	0.48			
			Max. Vy	22	-0.48	-0.46	0.01			
			Max. Vx	16	0.42	-0.03	0.43			
			Max Tension	8	4.77	0.00	0.00			
			Leg	Max. Compression	8	-4.88	0.00	0.00		
				Max. Mx	35	1.03	0.06	-0.01		
				Max. My	30	-1.50	0.05	-0.01		
				Max. Vy	33	0.04	0.06	0.01		
				Max. Vx	30	0.00	0.00	0.00		
				Max Tension	15	87.60	-0.29	-0.00		
T5	162 - 142	Leg	Max. Compression	2	-104.79	0.50	0.00			
			Max. Mx	2	-104.79	0.50	0.00			
			Max. My	16	-6.89	-0.02	0.48			
			Max. Vy	22	-0.09	-0.49	0.01			
			Max. Vx	10	0.10	-0.24	-0.37			
			Max Tension	8	5.35	0.00	0.00			
		Diagonal	Max. Compression	8	-5.33	0.00	0.00			
			Max. Mx	33	1.12	0.09	-0.01			
			Max. My	36	-1.28	0.08	0.01			
			Max. Vy	33	0.05	0.09	-0.01			
			Max. Vx	36	-0.00	0.00	0.00			
			Max Tension	15	106.04	-0.34	-0.00			
			T6	142 - 122	Leg	Max. Compression	2	-126.55	0.51	0.00
						Max. Mx	2	-126.55	0.51	0.00
						Max. My	12	-9.81	-0.04	-0.61
						Max. Vy	3	-0.11	0.51	0.00
						Max. Vx	10	-0.13	-0.21	-0.56
						Max Tension	8	6.06	0.00	0.00
Diagonal	Max. Compression	8			-6.08	0.00	0.00			
	Max. Mx	33			1.26	0.15	0.02			
	Max. My	31			1.07	0.15	-0.02			
	Max. Vy	33			0.07	0.15	0.02			
	Max. Vx	31			0.00	0.00	0.00			
	Max Tension	15			125.76	-0.56	-0.00			
	Leg	Max. Compression			2	-150.23	0.65	-0.00		
		Max. Mx			2	-150.23	0.65	-0.00		
		Diagonal			Max. Compression	2	-150.23	0.65	-0.00	
					Max. Mx	2	-150.23	0.65	-0.00	
					Max. My	12	-9.81	-0.04	-0.61	
					Max. Vy	3	-0.11	0.51	0.00	
Max. Vx	10		-0.13	-0.21	-0.56					
Max Tension	8		6.06	0.00	0.00					
Leg	Max. Compression	8	-6.08	0.00	0.00					
	Max. Mx	33	1.26	0.15	0.02					
	Max. My	31	1.07	0.15	-0.02					
	Max. Vy	33	0.07	0.15	0.02					
	Max. Vx	31	0.00	0.00	0.00					
	Max Tension	15	125.76	-0.56	-0.00					
Diagonal	Max. Compression	2	-150.23	0.65	-0.00					
	Max. Mx	2	-150.23	0.65	-0.00					
	Max. My	12	-9.81	-0.04	-0.61					
	Max. Vy	3	-0.11	0.51	0.00					
	Max. Vx	10	-0.13	-0.21	-0.56					
	Max Tension	8	6.06	0.00	0.00					
Leg	Max. Compression	8	-6.08	0.00	0.00					
	Max. Mx	33	1.26	0.15	0.02					
	Max. My	31	1.07	0.15	-0.02					
	Max. Vy	33	0.07	0.15	0.02					
	Max. Vx	31	0.00	0.00	0.00					
	Max Tension	15	125.76	-0.56	-0.00					
Diagonal	Max. Compression	2	-150.23	0.65	-0.00					
	Max. Mx	2	-150.23	0.65	-0.00					
	Max. My	12	-9.81	-0.04	-0.61					
	Max. Vy	3	-0.11	0.51	0.00					
	Max. Vx	10	-0.13	-0.21	-0.56					
	Max Tension	8	6.06	0.00	0.00					
Leg	Max. Compression	8	-6.08	0.00	0.00					
	Max. Mx	33	1.26	0.15	0.02					
	Max. My	31	1.07	0.15	-0.02					
	Max. Vy	33	0.07	0.15	0.02					
	Max. Vx	31	0.00	0.00	0.00					
	Max Tension	15	125.76	-0.56	-0.00					
Diagonal	Max. Compression	2	-150.23	0.65	-0.00					
	Max. Mx	2	-150.23	0.65	-0.00					
	Max. My	12	-9.81	-0.04	-0.61					
	Max. Vy	3	-0.11	0.51	0.00					
	Max. Vx	10	-0.13	-0.21	-0.56					
	Max Tension	8	6.06	0.00	0.00					
Leg	Max. Compression	8	-6.08	0.00	0.00					
	Max. Mx	33	1.26	0.15	0.02					
	Max. My	31	1.07	0.15	-0.02					
	Max. Vy	33	0.07	0.15	0.02					
	Max. Vx	31	0.00	0.00	0.00					
	Max Tension	15	125.76	-0.56	-0.00					
Diagonal	Max. Compression	2	-150.23	0.65	-0.00					
	Max. Mx	2	-150.23	0.65	-0.00					
	Max. My	12	-9.81	-0.04	-0.61					
	Max. Vy	3	-0.11	0.51	0.00					
	Max. Vx	10	-0.13	-0.21	-0.56					
	Max Tension	8	6.06	0.00	0.00					

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T8	102 - 82	Diagonal	Max. My	12	-11.06	-0.05	-0.65
			Max. Vy	6	0.11	-0.56	-0.02
			Max. Vx	10	0.14	-0.33	-0.60
			Max Tension	8	6.55	0.00	0.00
			Max. Compression	8	-6.65	0.00	0.00
			Max. Mx	33	1.33	0.18	0.02
		Leg	Max. My	37	-1.77	0.17	0.02
			Max. Vy	33	0.08	0.18	0.02
			Max. Vx	37	-0.00	0.00	0.00
			Max Tension	15	145.22	-0.48	-0.00
			Max. Compression	2	-173.96	0.97	0.00
			Max. Mx	2	-173.96	0.97	0.00
		Diagonal	Max. My	12	-12.86	-0.09	-0.74
			Max. Vy	2	-0.14	0.97	0.00
			Max. Vx	12	-0.13	-0.09	-0.74
			Max Tension	8	6.92	0.00	0.00
			Max. Compression	8	-7.07	0.00	0.00
			Max. Mx	33	1.36	0.22	0.03
T9	82 - 62	Leg	Max. My	31	1.07	0.21	-0.03
			Max. Vy	33	0.09	0.22	0.03
			Max. Vx	31	0.00	0.00	0.00
		Max Tension	15	163.49	-0.41	-0.00	
		Max. Compression	2	-197.13	0.99	0.00	
		Max. Mx	2	-197.13	0.99	0.00	
		Diagonal	Max. My	12	-15.34	-0.12	-1.03
			Max. Vy	2	-0.15	0.99	0.00
			Max. Vx	12	-0.20	-0.12	-1.03
			Max Tension	8	7.21	0.00	0.00
			Max. Compression	10	-7.43	0.00	0.00
			Max. Mx	33	1.33	0.33	0.04
Leg	Max. My	31	1.01	0.33	-0.04		
	Max. Vy	33	0.13	0.33	0.04		
	Max. Vx	31	0.01	0.00	0.00		
	Max Tension	15	180.84	-1.21	-0.00		
	Max. Compression	2	-219.81	-1.88	-0.01		
	Max. Mx	2	-219.81	-1.88	-0.01		
T10	62 - 42	Diagonal	Max. My	12	-18.13	-0.43	-2.36
			Max. Vy	2	0.39	1.19	-0.01
			Max. Vx	12	0.27	-0.06	-1.67
		Max Tension	8	7.65	0.00	0.00	
		Max. Compression	10	-7.98	0.00	0.00	
		Max. Mx	34	1.50	0.38	0.05	
		Leg	Max. My	32	2.13	0.36	-0.05
			Max. Vy	34	0.14	0.38	0.05
			Max. Vx	32	0.01	0.00	0.00
			Max Tension	15	183.40	1.12	-0.00
			Max. Compression	2	-224.43	-6.57	0.02
			Max. Mx	2	-224.25	7.65	-0.02
T11	42 - 22	Diagonal	Max. My	24	-19.78	-1.00	3.46
			Max. Vy	2	1.47	7.65	-0.02
			Max. Vx	24	-0.58	-1.00	3.46
			Max Tension	9	11.35	-0.16	0.08
			Max. Compression	10	-12.66	0.00	0.00
			Max. Mx	14	10.05	-0.21	0.07
		Horizontal	Max. My	20	-11.95	0.01	-0.09
			Max. Vy	33	0.06	-0.16	0.01
			Max. Vx	20	-0.01	0.01	-0.09
			Max Tension	8	6.32	0.00	0.00
			Max. Compression	11	-6.33	0.00	0.00
			Max. Mx	33	0.07	-0.25	-0.00
	Max. My	2	0.28	-0.11	0.01		
	Max. Vy	33	0.09	-0.25	-0.00		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft	
T12	22 - 2	Redund Horz 1 Bracing	Max. Vx	2	0.00	-0.11	0.01	
			Max Tension	12	1.58	0.00	0.00	
			Max. Compression	13	-1.31	0.00	0.00	
			Max. Mx	26	0.21	0.02	0.00	
		Redund Diag 1 Bracing	Max. Vy	26	-0.01	0.00	0.00	
			Max Tension	24	1.35	0.00	0.00	
			Max. Compression	16	-1.36	0.00	0.00	
			Max. Mx	26	0.07	0.05	0.00	
		Redund Hip 1 Bracing	Max. Vy	26	0.02	0.00	0.00	
			Max Tension	21	0.01	0.00	0.00	
			Max. Compression	8	-0.02	0.00	0.00	
			Max. Mx	26	-0.01	0.02	0.00	
		Redund Hip Diagonal 1 Bracing	Max. Vy	26	-0.01	0.00	0.00	
			Max Tension	31	0.06	0.00	0.00	
			Max. Compression	37	-0.07	0.00	0.00	
			Max. Mx	26	0.05	0.24	0.00	
		Inner Bracing	Max. Vy	26	-0.06	0.00	0.00	
			Max Tension	1	0.00	0.00	0.00	
			Max. Compression	33	-0.01	0.00	0.00	
			Max. Mx	26	-0.01	0.16	0.00	
		Leg	Max. Vy	26	0.05	0.00	0.00	
			Max Tension	15	197.52	4.76	-0.00	
			Max. Compression	2	-244.04	0.00	-0.00	
			Max. Mx	2	-243.69	6.67	-0.03	
			Max. My	24	-21.10	-1.00	3.46	
			Max. Vy	2	-1.36	6.67	-0.03	
			Max. Vx	24	0.56	-1.00	3.46	
			Diagonal	Max Tension	9	10.77	-0.14	0.06
				Max. Compression	10	-11.96	0.00	0.00
				Max. Mx	22	7.66	-0.19	0.04
				Max. My	20	-10.81	-0.04	-0.07
			Horizontal	Max. Vy	33	0.06	-0.17	0.01
		Max. Vx		20	-0.01	0.00	0.00	
		Max Tension		9	6.32	0.00	0.00	
		Max. Compression		10	-6.71	0.00	0.00	
		Redund Horz 1 Bracing	Max. Mx	33	-0.32	-0.32	-0.00	
			Max. My	2	0.75	-0.18	0.02	
			Max. Vy	33	-0.12	-0.32	-0.00	
			Max. Vx	2	-0.00	-0.18	0.02	
		Redund Diag 1 Bracing	Max Tension	12	1.24	0.00	0.00	
Max. Compression	13		-1.05	0.00	0.00			
Max. Mx	26		0.15	0.04	0.00			
Max. Vy	26		-0.02	0.00	0.00			
Redund Hip 1 Bracing	Max Tension	24	1.05	0.00	0.00			
	Max. Compression	17	-0.96	0.00	0.00			
	Max. Mx	26	0.14	0.05	0.00			
	Max. Vy	26	-0.02	0.00	0.00			
Redund Hip Diagonal 1 Bracing	Max Tension	21	0.01	0.00	0.00			
	Max. Compression	8	-0.02	0.00	0.00			
	Max. Mx	26	-0.01	0.04	0.00			
	Max. Vy	26	-0.02	0.00	0.00			
Redund Hip Diagonal 1 Bracing	Max Tension	31	0.05	0.00	0.00			
	Max. Compression	37	-0.06	0.00	0.00			
	Max. Mx	26	0.05	0.26	0.00			

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
		Inner Bracing	Max. Vy	26	-0.07	0.00	0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	32	-0.01	0.00	0.00
			Max. Mx	26	-0.01	0.32	0.00
			Max. Vy	26	-0.09	0.00	0.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	18	253.06	24.52	-13.71
	Max. H _x	18	253.06	24.52	-13.71
	Max. H _z	5	-180.75	-17.61	11.74
	Min. Vert	7	-198.20	-20.05	11.15
	Min. H _x	7	-198.20	-20.05	11.15
Leg B	Max. Vert	10	254.30	-24.94	-13.51
	Max. H _x	23	-202.21	20.51	11.00
	Max. H _z	25	-184.33	17.87	11.83
	Min. Vert	23	-202.21	20.51	11.00
	Min. H _x	10	254.30	-24.94	-13.51
Leg A	Max. Vert	2	261.68	-0.04	29.43
	Max. H _x	19	-98.97	2.51	-11.60
	Max. H _z	2	261.68	-0.04	29.43
	Min. Vert	15	-210.90	0.02	-24.33
	Min. H _x	8	20.71	-2.50	1.90
	Min. H _z	15	-210.90	0.02	-24.33

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	55.23	0.00	0.00	24.17	18.84	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	66.28	-0.05	-46.58	-6261.41	31.44	-1.56
0.9 Dead+1.0 Wind 0 deg - No Ice	49.71	-0.05	-46.58	-6268.66	25.79	-1.56
1.2 Dead+1.0 Wind 30 deg - No Ice	66.28	22.09	-38.33	-5159.79	-2965.57	17.79
0.9 Dead+1.0 Wind 30 deg - No Ice	49.71	22.09	-38.33	-5167.04	-2971.22	17.79
1.2 Dead+1.0 Wind 60 deg - No Ice	66.28	35.80	-20.64	-2786.65	-4862.34	19.53
0.9 Dead+1.0 Wind 60 deg - No Ice	49.71	35.80	-20.64	-2793.90	-4867.99	19.53
1.2 Dead+1.0 Wind 90 deg - No Ice	66.28	40.83	0.04	36.23	-5572.22	30.32
0.9 Dead+1.0 Wind 90 deg - No Ice	49.71	40.83	0.04	28.98	-5577.87	30.32
1.2 Dead+1.0 Wind 120 deg - No Ice	66.28	38.68	22.35	3068.23	-5236.03	39.24
0.9 Dead+1.0 Wind 120 deg - No Ice	49.71	38.68	22.35	3060.98	-5241.68	39.24

Load Combination	Vertical	Shear _x	Shear _z	Overturning Moment, M _x	Overturning Moment, M _z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
No Ice						
1.2 Dead+1.0 Wind 150 deg - No Ice	66.28	22.34	38.67	5269.86	-3005.07	21.80
0.9 Dead+1.0 Wind 150 deg - No Ice	49.71	22.34	38.67	5262.61	-3010.72	21.80
1.2 Dead+1.0 Wind 180 deg - No Ice	66.28	0.04	43.68	5952.09	15.70	1.65
0.9 Dead+1.0 Wind 180 deg - No Ice	49.71	0.04	43.68	5944.84	10.04	1.65
1.2 Dead+1.0 Wind 210 deg - No Ice	66.28	-22.09	38.33	5217.21	3012.34	-17.83
0.9 Dead+1.0 Wind 210 deg - No Ice	49.71	-22.09	38.33	5209.96	3006.69	-17.83
1.2 Dead+1.0 Wind 240 deg - No Ice	66.28	-38.29	22.08	3026.85	5222.36	-19.50
0.9 Dead+1.0 Wind 240 deg - No Ice	49.71	-38.29	22.08	3019.60	5216.70	-19.50
1.2 Dead+1.0 Wind 270 deg - No Ice	66.28	-40.85	-0.06	19.12	5619.90	-30.22
0.9 Dead+1.0 Wind 270 deg - No Ice	49.71	-40.85	-0.06	11.87	5614.25	-30.22
1.2 Dead+1.0 Wind 300 deg - No Ice	66.28	-36.20	-20.93	-2831.15	4969.00	-39.15
0.9 Dead+1.0 Wind 300 deg - No Ice	49.71	-36.20	-20.93	-2838.40	4963.35	-39.15
1.2 Dead+1.0 Wind 330 deg - No Ice	66.28	-22.36	-38.69	-5215.11	3053.09	-21.71
0.9 Dead+1.0 Wind 330 deg - No Ice	49.71	-22.36	-38.69	-5222.36	3047.44	-21.71
1.2 Dead+1.0 Ice+1.0 Temp	120.12	0.00	-0.00	77.48	51.42	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	120.12	-0.01	-12.94	-1666.06	53.29	-0.81
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	120.12	6.14	-10.66	-1364.38	-779.44	2.01
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	120.12	10.07	-5.81	-713.12	-1319.66	2.89
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	120.12	11.45	0.01	79.01	-1513.47	6.19
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	120.12	10.46	6.04	899.78	-1371.68	9.28
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	120.12	6.14	10.63	1519.24	-781.37	6.64
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	120.12	0.01	12.45	1760.30	49.97	0.83
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	120.12	-6.15	10.66	1519.22	882.62	-2.02
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	120.12	-10.49	6.05	898.15	1474.40	-2.88
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	120.12	-11.45	-0.01	75.40	1616.84	-6.17
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	120.12	-10.05	-5.81	-715.41	1423.17	-9.26
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	120.12	-6.15	-10.64	-1364.96	884.81	-6.62
Dead+Wind 0 deg - Service	55.23	-0.02	-13.28	-1748.16	21.28	-0.44
Dead+Wind 30 deg - Service	55.23	6.31	-10.94	-1439.05	-823.86	4.97
Dead+Wind 60 deg - Service	55.23	10.24	-5.91	-770.77	-1360.27	5.49
Dead+Wind 90 deg - Service	55.23	11.69	0.01	26.17	-1560.93	8.49
Dead+Wind 120 deg - Service	55.23	11.04	6.38	880.99	-1463.71	10.95
Dead+Wind 150 deg - Service	55.23	6.38	11.04	1501.80	-834.79	6.09
Dead+Wind 180 deg - Service	55.23	0.01	12.48	1694.81	16.92	0.46
Dead+Wind 210 deg - Service	55.23	-6.31	10.94	1487.22	861.96	-4.98

Load Combination	Vertical	Shear _x	Shear _z	Overturning Moment, M _x	Overturning Moment, M _z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead+Wind 240 deg - Service	55.23	-10.93	6.30	869.54	1485.09	-5.48
Dead+Wind 270 deg - Service	55.23	-11.69	-0.02	21.43	1599.29	-8.46
Dead+Wind 300 deg - Service	55.23	-10.35	-5.99	-783.08	1414.96	-10.92
Dead+Wind 330 deg - Service	55.23	-6.38	-11.04	-1454.37	873.24	-6.06

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-55.23	0.00	-0.00	55.23	0.00	0.000%
2	-0.05	-66.28	-46.58	0.05	66.28	46.58	0.000%
3	-0.05	-49.71	-46.58	0.05	49.71	46.58	0.000%
4	22.09	-66.28	-38.33	-22.09	66.28	38.33	0.000%
5	22.09	-49.71	-38.33	-22.09	49.71	38.33	0.000%
6	35.80	-66.28	-20.64	-35.80	66.28	20.64	0.000%
7	35.80	-49.71	-20.64	-35.80	49.71	20.64	0.000%
8	40.83	-66.28	0.04	-40.83	66.28	-0.04	0.000%
9	40.83	-49.71	0.04	-40.83	49.71	-0.04	0.000%
10	38.68	-66.28	22.35	-38.68	66.28	-22.35	0.000%
11	38.68	-49.71	22.35	-38.68	49.71	-22.35	0.000%
12	22.34	-66.28	38.67	-22.34	66.28	-38.67	0.000%
13	22.34	-49.71	38.67	-22.34	49.71	-38.67	0.000%
14	0.04	-66.28	43.68	-0.04	66.28	-43.68	0.000%
15	0.04	-49.71	43.68	-0.04	49.71	-43.68	0.000%
16	-22.09	-66.28	38.33	22.09	66.28	-38.33	0.000%
17	-22.09	-49.71	38.33	22.09	49.71	-38.33	0.000%
18	-38.29	-66.28	22.08	38.29	66.28	-22.08	0.000%
19	-38.29	-49.71	22.08	38.29	49.71	-22.08	0.000%
20	-40.85	-66.28	-0.06	40.85	66.28	0.06	0.000%
21	-40.85	-49.71	-0.06	40.85	49.71	0.06	0.000%
22	-36.20	-66.28	-20.93	36.20	66.28	20.93	0.000%
23	-36.20	-49.71	-20.93	36.20	49.71	20.93	0.000%
24	-22.36	-66.28	-38.69	22.36	66.28	38.69	0.000%
25	-22.36	-49.71	-38.69	22.36	49.71	38.69	0.000%
26	0.00	-120.12	0.00	-0.00	120.12	0.00	0.000%
27	-0.01	-120.12	-12.94	0.01	120.12	12.94	0.000%
28	6.14	-120.12	-10.66	-6.14	120.12	10.66	0.000%
29	10.07	-120.12	-5.81	-10.07	120.12	5.81	0.000%
30	11.45	-120.12	0.01	-11.45	120.12	-0.01	0.000%
31	10.46	-120.12	6.04	-10.46	120.12	-6.04	0.000%
32	6.14	-120.12	10.63	-6.14	120.12	-10.63	0.000%
33	0.01	-120.12	12.45	-0.01	120.12	-12.45	0.000%
34	-6.15	-120.12	10.66	6.15	120.12	-10.66	0.000%
35	-10.49	-120.12	6.05	10.49	120.12	-6.05	0.000%
36	-11.45	-120.12	-0.01	11.45	120.12	0.01	0.000%
37	-10.05	-120.12	-5.81	10.05	120.12	5.81	0.000%
38	-6.15	-120.12	-10.64	6.15	120.12	10.64	0.000%
39	-0.02	-55.23	-13.28	0.02	55.23	13.28	0.000%
40	6.31	-55.23	-10.94	-6.31	55.23	10.94	0.000%
41	10.24	-55.23	-5.91	-10.24	55.23	5.91	0.000%
42	11.69	-55.23	0.01	-11.69	55.23	-0.01	0.000%
43	11.04	-55.23	6.38	-11.04	55.23	-6.38	0.000%
44	6.38	-55.23	11.04	-6.38	55.23	-11.04	0.000%
45	0.01	-55.23	12.48	-0.01	55.23	-12.48	0.000%
46	-6.31	-55.23	10.94	6.31	55.23	-10.94	0.000%
47	-10.93	-55.23	6.30	10.93	55.23	-6.30	0.000%
48	-11.69	-55.23	-0.02	11.69	55.23	0.02	0.000%
49	-10.35	-55.23	-5.99	10.35	55.23	5.99	0.000%

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
50	-6.38	-55.23	-11.04	6.38	55.23	11.04	0.000%

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	242 - 222	5.250	39	0.2070	0.0379
T2	222 - 202	4.388	39	0.1982	0.0315
T3	202 - 182	3.569	39	0.1808	0.0234
T4	182 - 162	2.838	39	0.1579	0.0182
T5	162 - 142	2.206	39	0.1345	0.0153
T6	142 - 122	1.661	39	0.1152	0.0129
T7	122 - 102	1.205	39	0.0939	0.0111
T8	102 - 82	0.825	39	0.0775	0.0091
T9	82 - 62	0.512	39	0.0603	0.0072
T10	62 - 42	0.278	39	0.0424	0.0058
T11	42 - 22	0.113	39	0.0268	0.0044
T12	22 - 2	0.031	39	0.0115	0.0020

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
242'	LED Strobe	39	5.250	0.2070	0.0379	391921
236'	7770.00	39	4.990	0.2049	0.0361	326600
217'	LNx-8514DS-A1M w/ Mount Pipe	39	4.177	0.1947	0.0295	79235
203'	OG-4	39	3.608	0.1819	0.0238	51198
188'	DB589-A	39	3.047	0.1650	0.0193	46102
167'	MX08FRO665-21 w/ Mount Pipe	39	2.355	0.1400	0.0159	54270
165'	VHLP2-11W/A	39	2.295	0.1377	0.0157	55780
123'	Side Light	39	1.226	0.0948	0.0112	63669
12'	TY-840	39	0.012	0.0053	0.0010	190395

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	242 - 222	18.957	3	0.7424	0.1345
T2	222 - 202	15.836	3	0.7138	0.1115
T3	202 - 182	12.873	3	0.6535	0.0822
T4	182 - 162	10.226	3	0.5713	0.0645
T5	162 - 142	7.940	3	0.4863	0.0541
T6	142 - 122	5.972	3	0.4163	0.0457
T7	122 - 102	4.327	3	0.3389	0.0393
T8	102 - 82	2.956	3	0.2797	0.0325
T9	82 - 62	1.830	3	0.2176	0.0255
T10	62 - 42	0.989	3	0.1530	0.0205

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T11	42 - 22	0.395	2	0.0966	0.0154
T12	22 - 2	0.107	2	0.0413	0.0072

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
242'	LED Strobe	3	18.957	0.7424	0.1345	120143
236'	7770.00	3	18.014	0.7358	0.1282	100119
217'	LNx-8514DS-A1M w/ Mount Pipe	3	15.073	0.7019	0.1042	23304
203'	OG-4	3	13.014	0.6572	0.0835	14417
188'	DB589-A	3	10.982	0.5973	0.0682	12996
167'	MX08FRO665-21 w/ Mount Pipe	3	8.481	0.5061	0.0565	15163
165'	VHLP2-11W/A	3	8.262	0.4980	0.0555	15564
123'	Side Light	3	4.403	0.3424	0.0396	17569
12'	TY-840	2	0.042	0.0192	0.0034	52893

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	242	Leg	A325N	0.7500	4	2.44	30.10	0.081	1.05	Bolt Tension
		Diagonal	A325N	0.5000	1	2.62	6.20	0.423	1.05	Member Bearing
		Top Girt	A325N	0.5000	1	0.02	4.13	0.006	1.05	Member Bearing
T2	222	Leg	A325N	0.8750	4	6.84	41.56	0.165	1.05	Bolt Tension
		Diagonal	A325N	0.5000	1	3.71	6.20	0.598	1.05	Member Bearing
		Top Girt	A325N	0.5000	1	0.60	4.13	0.146	1.05	Member Bearing
T3	202	Leg	A325N	0.8750	4	11.76	41.56	0.283	1.05	Bolt Tension
		Diagonal	A325N	0.5000	1	4.11	6.20	0.663	1.05	Member Bearing
T4	182	Leg	A325N	1.0000	4	16.70	54.52	0.306	1.05	Bolt Tension
		Diagonal	A325X	0.5000	1	4.77	8.27	0.577	1.05	Member Bearing
T5	162	Leg	A325N	1.0000	4	21.90	54.52	0.402	1.05	Bolt Tension
		Diagonal	A325X	0.5000	1	5.35	11.04	0.484	1.05	Bolt Shear
T6	142	Leg	A325N	1.0000	6	17.67	54.52	0.324	1.05	Bolt Tension
		Diagonal	A325N	0.6250	1	6.08	13.81	0.440	1.05	Bolt Shear
T7	122	Leg	A325N	1.0000	6	20.96	54.52	0.384	1.05	Bolt Tension
		Diagonal	A325X	0.6250	1	6.55	12.68	0.517	1.05	Member Bearing
T8	102	Leg	A325N	1.0000	6	24.20	54.52	0.444	1.05	Bolt Tension
		Diagonal	A325N	0.7500	1	6.92	13.48	0.513	1.05	Gusset Bearing
T9	82	Leg	A325N	1.0000	8	20.44	54.52	0.375	1.05	Bolt Tension
		Diagonal	A325N	0.7500	1	7.21	13.48	0.535	1.05	Gusset Bearing
T10	62	Leg	A325N	1.0000	8	22.60	54.52	0.415	1.05	Bolt Tension
		Diagonal	A325N	0.7500	1	7.65	13.48	0.568	1.05	Gusset Bearing
T11	42	Leg	A325N	1.0000	8	22.88	54.52	0.420	1.05	Bolt Tension
		Diagonal	A325N	0.7500	3	4.22	19.88	0.212	1.05	Bolt Shear
		Horizontal	A325N	0.7500	2	3.16	17.18	0.184	1.05	Gusset Bearing
		Redund Horz 1 Bracing	A325N	0.6250	1	3.89	11.23	0.347	1.05	Member Bearing
		Redund Diag 1 Bracing	A325N	0.6250	1	3.56	13.57	0.262	1.05	Member Bearing
		Redund Hip 1	A325N	0.6250	1	0.02	13.81	0.002	1.05	Bolt Shear

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
T12	22	Bracing Redund Hip Diagonal 1	A325N	0.6250	1	0.07	13.81	0.005	1.05	Bolt Shear
		Bracing Diagonal	A325N	0.7500	3	3.99	19.88	0.201	1.05	Bolt Shear
		Horizontal	A325N	0.7500	2	3.16	17.18	0.184	1.05	Gusset Bearing
		Redund Horz 1	A325N	0.6250	1	4.24	13.57	0.312	1.05	Member Bearing
		Bracing Redund Diag 1	A325N	0.6250	1	3.62	7.77	0.466	1.05	Member Bearing
		Bracing Redund Hip 1	A325N	0.6250	1	0.02	13.81	0.001	1.05	Bolt Shear
		Bracing Redund Hip	A325N	0.6250	1	0.06	13.81	0.005	1.05	Bolt Shear
		Diagonal 1								
		Bracing								

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	242 - 222	ROHN 2.5 STD	20'	4'	50.7 K=1.00	1.7040	-12.70	63.56	0.200 ¹
T2	222 - 202	ROHN 3 EH	20'3/8"	5'1/8"	52.9 K=1.00	3.0159	-34.74	110.61	0.314 ¹
T3	202 - 182	ROHN 3.5 EH	20'3/8"	6'8- 5/32"	61.3 K=1.00	3.6784	-56.42	125.73	0.449 ¹
T4	182 - 162	ROHN 4 EH	20'15/3 2"	6'8- 5/32"	54.3 K=1.00	4.4074	-79.78	159.91	0.499 ¹
T5	162 - 142	ROHN 5 EH	20'3/8"	6'8- 5/32"	43.6 K=1.00	6.1120	-104.78	239.39	0.438 ¹
T6	142 - 122	ROHN 5 EH	20'15/3 2"	10'1/4"	65.4 K=1.00	6.1120	-126.55	201.23	0.629 ¹
T7	122 - 102	ROHN 6 EH	20'3/8"	10'1/4"	54.8 K=1.00	8.4049	-150.23	303.75	0.495 ¹
T8	102 - 82	ROHN 6 EH	20'3/8"	10'1/4"	54.8 K=1.00	8.4049	-173.96	303.75	0.573 ¹
T9	82 - 62	ROHN 6 EH	20'15/3 2"	10'1/4"	54.8 K=1.00	8.4049	-197.13	303.72	0.649 ¹
T10	62 - 42	ROHN 8 EHS	20'15/3 2"	10'1/4"	41.2 K=1.00	9.7193	-219.81	386.37	0.569 ¹
T11	42 - 22	ROHN 8 EHS	20'19/3 2"	10'3/8"	41.2 K=1.00	9.7193	-224.43	386.31	0.581 ¹
T12	22 - 2	ROHN 8 EH	20'19/3 2"	10'3/8"	41.8 K=1.00	12.7627	-244.04	505.43	0.483 ¹

¹ $P_u / \phi P_n$ controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	242 - 222	L1 3/4x1 3/4x3/16	7'8-5/8"	3'7-7/16"	126.4 K=1.00	0.6211	-2.67	11.13	0.240 ¹
T2	222 - 202	L1 3/4x1 3/4x3/16	9'9-1/8"	4'9"	166.1 K=1.00	0.6211	-3.61	6.44	0.560 ¹
T3	202 - 182	L2 1/2x2 1/2x3/16	12'3-19/32"	6'19/32"	146.7 K=1.00	0.9020	-4.15	12.00	0.346 ¹
T4	182 - 162	L2 1/2x2 1/2x1/4	14'31/32"	6'11-1/32"	169.1 K=1.00	1.1900	-4.88	11.90	0.410 ¹
T5	162 - 142	L2 1/2x2 1/2x5/16	15'10-13/16"	7'9-1/4"	190.6 K=1.00	1.4600	-5.33	11.51	0.464 ¹
T6	142 - 122	L3x3x5/16	19'1-13/16"	9'5-3/4"	193.0 K=1.00	1.7800	-6.08	13.67	0.445 ¹
T7	122 - 102	L3 1/2x3 1/2x1/4	20'10-13/16"	10'3-19/32"	178.0 K=1.00	1.6900	-6.65	15.26	0.436 ¹
T8	102 - 82	L3 1/2x3 1/2x1/4	22'8-9/32"	11'2-5/32"	193.3 K=1.00	1.6900	-7.07	12.94	0.546 ¹
T9	82 - 62	L4x4x5/16	24'7-3/32"	12'1-13/16"	184.3 K=1.00	2.4000	-7.43	20.21	0.367 ¹
T10	62 - 42	L4x4x5/16	26'7-3/32"	13'23/32"	198.2 K=1.00	2.4000	-7.98	17.49	0.456 ¹
T11	42 - 22	ROHN 3 STD	24'3-31/32"	12'2-1/32"	125.5 K=1.00	2.2285	-12.66	31.98	0.396 ¹
T12	22 - 2	ROHN 3 STD	25'23/32"	12'6-3/8"	129.2 K=1.00	2.2285	-11.96	30.14	0.397 ¹

¹ P_u / φP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T11	42 - 22	ROHN 2.5 STD	25'2-5/32"	12'2-3/4"	154.9 K=1.00	1.7040	-6.33	16.05	0.394 ¹
T12	22 - 2	ROHN 3 STD	27'8-5/32"	13'5-3/4"	139.0 K=1.00	2.2285	-6.71	26.05	0.258 ¹

¹ P_u / φP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	242 - 222	L2x2x1/8	6'6-23/32"	6'1-5/16"	184.6 K=1.00	0.4844	-0.03	4.07	0.007 ¹
T2	222 - 202	L2x2x1/8	6'7-3/16"	6'1-3/16"	184.3 K=1.00	0.4844	-0.60	4.08	0.148 ¹

¹ P_u / φP_n controls

Redundant Horizontal (1) 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	42 - 22	ROHN 1.5 TUBE (11ga)	6'3- 15/32"	5'11- 5/32"	145.4 K=1.00	0.5202	-3.89	5.56	0.701 ¹
T12	22 - 2	ROHN 1.5 STD	6'11- 1/32"	6'6- 23/32"	126.4 K=1.00	0.7995	-4.24	11.30	0.375 ¹

¹ P_u / φP_n controls

Redundant Diagonal (1) 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	42 - 22	ROHN 1.5 STD	11'6"	10'9- 1/4"	207.6 K=1.00	0.7995	-3.56	4.19	0.849 ¹
T12	22 - 2	ROHN 2.25 TUBE (14GA)	11'9- 27/32"	11'1- 13/16"	174.5 K=1.00	0.5651	-3.62	4.19	0.863 ¹

¹ P_u / φP_n controls

Redundant Hip (1) 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	42 - 22	ROHN 1.5 TUBE (11ga)	6'3- 15/32"	6'3- 15/32"	154.2 K=1.00	0.5202	-0.02	4.94	0.005 ¹
T12	22 - 2	ROHN 1.5 STD	6'11- 1/32"	6'11- 1/32"	133.4 K=1.00	0.7995	-0.02	10.15	0.002 ¹

¹ P_u / φP_n controls

Redundant Hip Diagonal (1) 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	42 - 22	ROHN 2.5 STD	15'27/3 2"	15'27/3 2"	190.9 K=1.00	1.7040	-0.07	10.56	0.006 ¹
T12	22 - 2	ROHN 2.5 STD	15'10- 1/32"	15'10- 1/32"	201.4 K=1.00	1.7040	-0.06	9.49	0.007 ¹

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
			13/16"	13/16"	K=1.00				

¹ P_u / φP_n controls

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 P _u / φP _n
T11	42 - 22	ROHN 2 STD	12'7- 3/32"	12'7- 3/32"	191.9 K=1.00	1.0745	-0.01	6.59	0.002 ¹
T12	22 - 2	ROHN 3 STD	13'10- 3/32"	13'10- 3/32"	142.7 K=1.00	2.2285	-0.01	24.72	0.001 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 P _u / φP _n
T1	242 - 222	ROHN 2.5 STD	20'	4'	50.7	1.7040	9.74	76.68	0.127 ¹
T2	222 - 202	ROHN 3 EH	20'3/8"	5'1/8"	52.9	3.0159	27.36	135.72	0.202 ¹
T3	202 - 182	ROHN 3.5 EH	20'3/8"	6'8- 5/32"	61.3	3.6784	47.04	165.53	0.284 ¹
T4	182 - 162	ROHN 4 EH	20'15/3 2"	6'8- 5/32"	54.3	4.4074	66.78	198.34	0.337 ¹
T5	162 - 142	ROHN 5 EH	20'3/8"	6'8- 5/32"	43.6	6.1120	87.60	275.04	0.318 ¹
T6	142 - 122	ROHN 5 EH	20'15/3 2"	10'1/4"	65.4	6.1120	106.04	275.04	0.386 ¹
T7	122 - 102	ROHN 6 EH	20'3/8"	10'1/4"	54.8	8.4049	125.76	378.22	0.332 ¹
T8	102 - 82	ROHN 6 EH	20'3/8"	10'1/4"	54.8	8.4049	145.22	378.22	0.384 ¹
T9	82 - 62	ROHN 6 EH	20'15/3 2"	10'1/4"	54.8	8.4049	163.49	378.22	0.432 ¹
T10	62 - 42	ROHN 8 EHS	20'15/3 2"	10'1/4"	41.2	9.7193	180.84	437.37	0.413 ¹
T11	42 - 22	ROHN 8 EHS	20'19/3 2"	10'3/8"	41.2	9.7193	183.40	437.37	0.419 ¹
T12	22 - 2	ROHN 8 EH	20'19/3 2"	10'3/8"	41.8	12.7627	197.52	574.32	0.344 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	242 - 222	L1 3/4x1 3/4x3/16	7'8-5/8"	3'7-7/16"	83.2	0.3779	2.62	16.44	0.159 ¹
T2	222 - 202	L1 3/4x1 3/4x3/16	8'10-13/16"	4'3-31/32"	99.1	0.3779	3.71	16.44	0.225 ¹
T3	202 - 182	L2 1/2x2 1/2x3/16	12'3-19/32"	6'19/32"	94.9	0.5886	4.11	25.60	0.161 ¹
T4	182 - 162	L2 1/2x2 1/2x1/4	14'31/32"	6'11-1/32"	109.6	0.7753	4.77	33.73	0.141 ¹
T5	162 - 142	L2 1/2x2 1/2x5/16	15'10-13/16"	7'9-1/4"	124.3	0.9485	5.35	41.26	0.130 ¹
T6	142 - 122	L3x3x5/16	19'1-13/16"	9'5-3/4"	125.1	1.1592	6.05	50.43	0.120 ¹
T7	122 - 102	L3 1/2x3 1/2x1/4	20'10-13/16"	10'3-19/32"	114.7	1.1269	6.55	54.94	0.119 ¹
T8	102 - 82	L3 1/2x3 1/2x1/4	22'8-9/32"	11'2-5/32"	124.6	1.1034	6.92	53.79	0.129 ¹
T9	82 - 62	L4x4x5/16	24'7-3/32"	12'1-13/16"	118.9	1.5949	7.21	77.75	0.093 ¹
T10	62 - 42	L4x4x5/16	26'7-3/32"	13'23/32"	127.7	1.5949	7.65	77.75	0.098 ¹
T11	42 - 22	ROHN 3 STD	24'3-31/32"	12'2-1/32"	125.5	1.8505	11.35	90.21	0.126 ¹
T12	22 - 2	ROHN 3 STD	25'23/32"	12'6-3/8"	129.2	1.8505	10.77	90.21	0.119 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	42 - 22	ROHN 2.5 STD	25'2-5/32"	12'2-3/4"	154.9	1.3488	6.32	65.75	0.096 ¹
T12	22 - 2	ROHN 3 STD	27'8-5/32"	13'5-3/4"	139.0	1.8505	6.32	90.21	0.070 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	242 - 222	L2x2x1/8	6'6-23/32"	6'1-5/16"	121.2	0.3047	0.02	13.25	0.002 ¹
T2	222 - 202	L2x2x1/8	6'7-3/16"	6'1-3/16"	121.0	0.3047	0.60	13.25	0.045 ¹

¹ P_u / φP_n controls

Redundant Horizontal (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
T11	42 - 22	ROHN 1.5 TUBE (11ga)	6'3- 15/32"	5'11- 5/32"	145.4	0.3402	3.89	16.59	0.235 ¹
T12	22 - 2	ROHN 1.5 STD	6'11- 1/32"	6'6- 23/32"	126.4	0.5820	4.24	28.37	0.149 ¹

¹ P_u / φP_n controls

Redundant Diagonal (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
T11	42 - 22	ROHN 1.5 STD	11'6"	10'9- 1/4"	207.6	0.5820	3.56	28.37	0.125 ¹
T12	22 - 2	ROHN 2.25 TUBE (14GA)	11'9- 27/32"	11'1- 13/16"	174.5	0.4405	3.62	21.48	0.168 ¹

¹ P_u / φP_n controls

Redundant Hip (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
T11	42 - 22	ROHN 1.5 TUBE (11ga)	6'3- 15/32"	6'3- 15/32"	154.2	0.3402	0.01	16.59	0.001 ¹
T12	22 - 2	ROHN 1.5 STD	6'11- 1/32"	6'11- 1/32"	133.4	0.5820	0.01	28.37	0.000 ¹

¹ P_u / φP_n controls

Redundant Hip Diagonal (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
T11	42 - 22	ROHN 2.5 STD	15'27/3 2"	15'27/3 2"	190.9	1.3995	0.06	68.23	0.001 ¹
T12	22 - 2	ROHN 2.5 STD	15'10-	15'10-	201.4	1.3995	0.05	68.23	0.001 ¹

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio P _u φP _n
			13/16"	13/16"					

¹ P_u / φP_n controls

Section Capacity Table

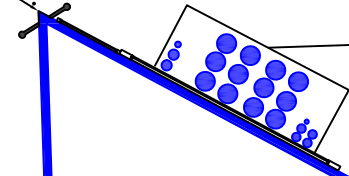
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	φP _{allow} K	% Capacity	Pass Fail
T1	242 - 222	Leg	ROHN 2.5 STD	1	-12.70	66.74	19.0	Pass
T2	222 - 202	Leg	ROHN 3 EH	37	-34.74	116.14	29.9	Pass
T3	202 - 182	Leg	ROHN 3.5 EH	69	-56.42	132.01	42.7	Pass
T4	182 - 162	Leg	ROHN 4 EH	90	-79.78	167.90	47.5	Pass
T5	162 - 142	Leg	ROHN 5 EH	111	-104.78	251.36	41.7	Pass
T6	142 - 122	Leg	ROHN 5 EH	132	-126.55	211.29	59.9	Pass
T7	122 - 102	Leg	ROHN 6 EH	147	-150.23	318.94	47.1	Pass
T8	102 - 82	Leg	ROHN 6 EH	162	-173.96	318.93	54.5	Pass
T9	82 - 62	Leg	ROHN 6 EH	177	-197.13	318.90	61.8	Pass
T10	62 - 42	Leg	ROHN 8 EHS	192	-219.81	405.69	54.2	Pass
T11	42 - 22	Leg	ROHN 8 EHS	207	-224.43	405.62	55.3	Pass
T12	22 - 2	Leg	ROHN 8 EH	240	-244.04	530.71	46.0	Pass
T1	242 - 222	Diagonal	L1 3/4x1 3/4x3/16	11	-2.67	11.69	22.8	Pass
T2	222 - 202	Diagonal	L1 3/4x1 3/4x3/16	47	-3.61	6.76	53.3	Pass
T3	202 - 182	Diagonal	L2 1/2x2 1/2x3/16	71	-4.15	12.60	33.0	Pass
T4	182 - 162	Diagonal	L2 1/2x2 1/2x1/4	92	-4.88	12.50	39.0	Pass
T5	162 - 142	Diagonal	L2 1/2x2 1/2x5/16	113	-5.33	12.08	44.2	Pass
T6	142 - 122	Diagonal	L3x3x5/16	134	-6.08	14.36	42.4	Pass
T7	122 - 102	Diagonal	L3 1/2x3 1/2x1/4	149	-6.65	16.02	41.5	Pass
T8	102 - 82	Diagonal	L3 1/2x3 1/2x1/4	164	-7.07	13.59	52.0	Pass
T9	82 - 62	Diagonal	L4x4x5/16	179	-7.43	21.23	35.0	Pass
T10	62 - 42	Diagonal	L4x4x5/16	194	-7.98	18.36	43.4	Pass
T11	42 - 22	Diagonal	ROHN 3 STD	212	-12.66	33.58	37.7	Pass
T12	22 - 2	Diagonal	ROHN 3 STD	245	-11.96	31.65	37.8	Pass
T11	42 - 22	Horizontal	ROHN 2.5 STD	208	-6.33	16.85	37.6	Pass
T12	22 - 2	Horizontal	ROHN 3 STD	241	-6.71	27.36	24.5	Pass
T1	242 - 222	Top Girt	L2x2x1/8	5	-0.03	4.27	0.7	Pass
T2	222 - 202	Top Girt	L2x2x1/8	42	-0.60	4.29	14.1	Pass
T11	42 - 22	Redund Horiz 1 Bracing	ROHN 1.5 TUBE (11ga)	220	-3.89	5.84	66.7	Pass
T12	22 - 2	Redund Horiz 1 Bracing	ROHN 1.5 STD	259	-4.24	11.86	35.7	Pass
T11	42 - 22	Redund Diag 1 Bracing	ROHN 1.5 STD	221	-3.56	4.40	80.9	Pass
T12	22 - 2	Redund Diag 1 Bracing	ROHN 2.25 TUBE (14GA)	260	-3.62	4.40	82.2	Pass
T11	42 - 22	Redund Hip 1 Bracing	ROHN 1.5 TUBE (11ga)	233	-0.02	5.19	0.4	Pass
T12	22 - 2	Redund Hip 1 Bracing	ROHN 1.5 STD	266	-0.02	10.66	0.2	Pass
T11	42 - 22	Redund Hip Diagonal 1 Bracing	ROHN 2.5 STD	234	-0.07	11.09	0.6	Pass
T12	22 - 2	Redund Hip Diagonal 1 Bracing	ROHN 2.5 STD	267	-0.06	9.97	0.6	Pass
T11	42 - 22	Inner Bracing	ROHN 2 STD	236	-0.01	6.92	0.4	Pass
T12	22 - 2	Inner Bracing	ROHN 3 STD	268	-0.01	25.95	0.3	Pass
							Summary	
						Leg (T9)	61.8	Pass
						Diagonal (T2)	53.3	Pass
						Horizontal	37.6	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
						(T11)		
						Top Girt (T2)	14.1	Pass
						Redund	66.7	Pass
						Horz 1		
						Bracing (T11)		
						Redund Diag 1 Bracing (T12)	82.2	Pass
						Redund Hip 1 Bracing (T11)	0.4	Pass
						Redund Hip Diagonal 1 Bracing (T12)	0.6	Pass
						Inner Bracing (T11)	0.4	Pass
						Bolt Checks	63.2	Pass
						RATING =	82.2	Pass

APPENDIX B
BASE LEVEL DRAWING



LEG C



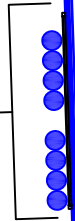
(OTHER CONSIDERED EQUIPMENT)
(1) 1/2" TO 186 FT LEVEL
(2) 7/8" TO 186 FT LEVEL

(OTHER CONSIDERED EQUIPMENT)
(1) 3/8" TO 236 FT LEVEL
(4) 3/4" TO 236 FT LEVEL
(12) 1-5/8" TO 236 FT LEVEL

(OTHER CONSIDERED EQUIPMENT)
(1) 1/2" TO 240 FT LEVEL

LEG A
(OTHER CONSIDERED EQUIPMENT)
(2) 1/4" TO 165 FT LEVEL
(1) 1-3/4" TO 165 FT LEVEL

(INSTALLED CARRIER EQUIPMENT CONFIGURATION)
(8) 1-5/8" TO 215 FT LEVEL



(OTHER CONSIDERED EQUIPMENT)
(2) 1-1/4" TO 201 FT LEVEL

(OTHER CONSIDERED EQUIPMENT)
(1) 1/2" TO 12 FT LEVEL

LEG B

CLIMBING PEGS
W/ SAFETY CLIMB
(TYP)



APPENDIX C
ADDITIONAL CALCULATIONS

Self Support Anchor Rod Capacity



Site Info	
BU #	841294
Site Name	MONROE-GUINEA ROAD
Order #	585538 REV. 1

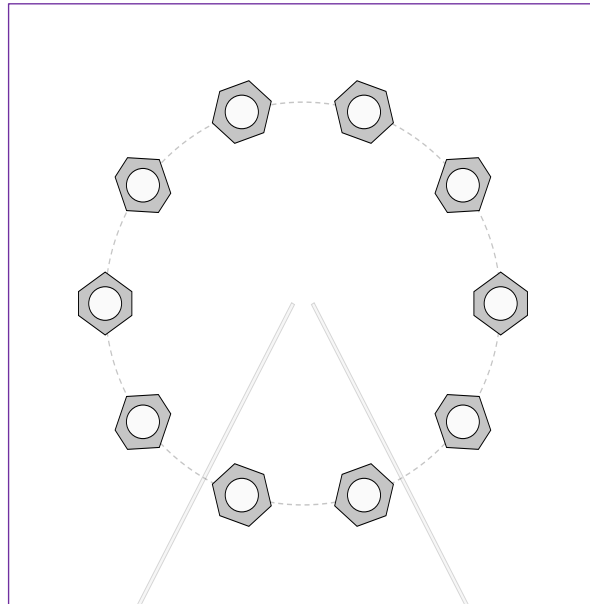
Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	Yes
l_{ar} (in)	0.75

Applied Loads		
	Comp.	Uplift
Axial Force (kips)	261.68	210.90
Shear Force (kips)	29.43	24.33

*TIA-222-H Section 15.5 Applied

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

*Anchor Rod Eccentricity Applied



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

Anchor Rod Data	
(10) 1" ϕ bolts (A354-BC N; $F_y=109$ ksi, $F_u=125$ ksi)	
l_{ar} (in):	0.75

Anchor Rod Summary		(units of kips, kip-in)
$P_{u,t} = 21.09$	$\phi P_{n,t} = 56.81$	Stress Rating
$V_u = 2.43$	$\phi V_n = 36.82$	35.4%
$M_u = n/a$	$\phi M_n = n/a$	Pass

Drilled Pier Foundation

BU # :	841294
Site Name:	MONROE-GUINEA ROAD
Order Number:	585538 REV. 1
TIA-222 Revison:	H
Tower Type:	Self Support



Applied Loads		
	Comp.	Uplift
Moment (kip-ft)	0	0
Axial Force (kips)	261.68	210.9
Shear Force (kips)	29.43	24.33

Material Properties	
Concrete Strength, f _c :	3 ksi
Rebar Strength, F _y :	60 ksi
Tie Yield Strength, F _y :	40 ksi

Pier Design Data	
Depth	20 ft
Ext. Above Grade	2 ft
Pier Section 1	
<i>From 2' above grade to 20' below grade</i>	
Pier Diameter	3.5 ft
Rebar Quantity	12
Rebar Size	9
Clear Cover to Ties	5.5 in
Tie Size	3
Tie Spacing	18 in

Rebar & Pier Options

Embedded Pole Inputs

Belled Pier Inputs

Analysis Results		
Soil Lateral Check		
	Compression	Uplift
D _{v=0} (ft from TOC)	11.46	11.46
Soil Safety Factor	26.92	32.57
Max Moment (kip-ft)	288.71	238.68
Rating*	4.7%	3.9%
Soil Vertical Check		
	Compression	Uplift
Skin Friction (kips)	669.22	446.15
End Bearing (kips)	453.08	-
Weight of Concrete (kips)	38.10	28.57
Total Capacity (kips)	1122.30	474.72
Axial (kips)	299.78	210.90
Rating*	25.4%	42.3%
Reinforced Concrete Flexure		
	Compression	Uplift
Critical Depth (ft from TOC)	11.73	10.82
Critical Moment (kip-ft)	288.35	236.93
Critical Moment Capacity	1001.82	651.19
Rating*	27.4%	34.7%
Reinforced Concrete Shear		
	Compression	Uplift
Critical Depth (ft from TOC)	16.73	16.73
Critical Shear (kip)	54.79	45.30
Critical Shear Capacity	203.45	100.31
Rating*	25.7%	43.0%
Structural Foundation Rating*		43.0%
Soil Interaction Rating*		42.3%

*Rating per TIA-222-H Section 15.5

Check Limitation	
Apply TIA-222-H Section 15.5:	<input checked="" 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](#)

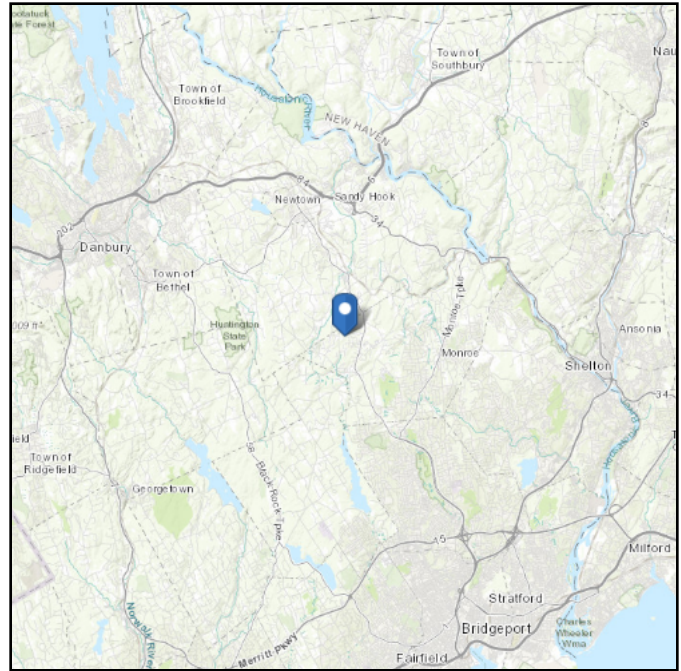
Groundwater Depth		# of Layers		Soil Profile														
N/A		4		Layer	Top (ft)	Bottom (ft)	Thickness (ft)	Y _{soil} (pcf)	Y _{concrete} (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Net Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	1.75	1.75	120	150	0	0	0.000	0.000	0.00	0.00							Cohesionless
2	1.75	3.5	1.75	120	150	0	34	0.000	0.000	0.60	0.40							Cohesionless
3	3.5	7	3.5	120	150	0	34	0.000	0.000	0.60	0.40							Cohesionless
4	7	20	13	150	150	10	0	4.500	4.500	6.00	4.00	60						Cohesive

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Latitude: 41.341856
Longitude: -73.274522
Elevation: 582.2926805264099 ft (NAVD 88)



Wind

Results:

Wind Speed	117 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	97 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2

Date Accessed: Sun Jul 23 2023

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

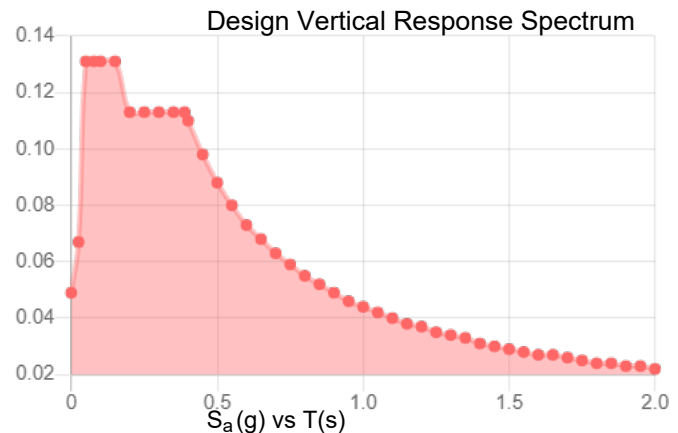
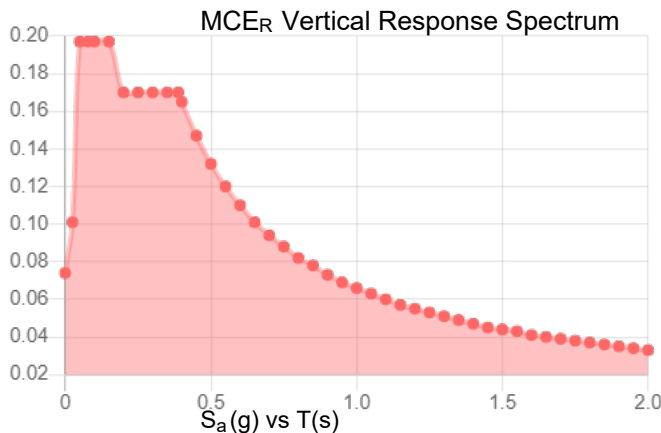
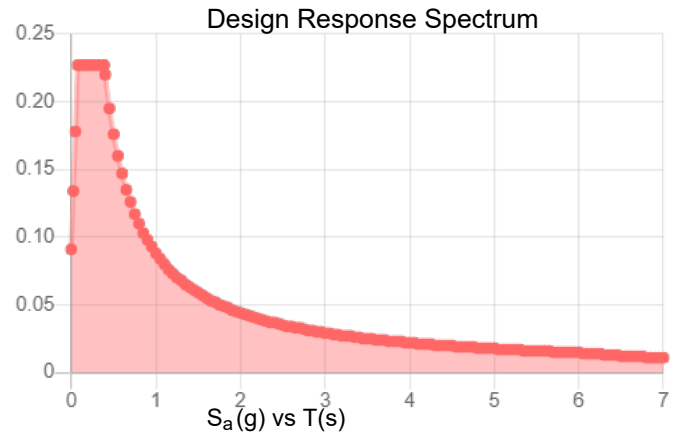
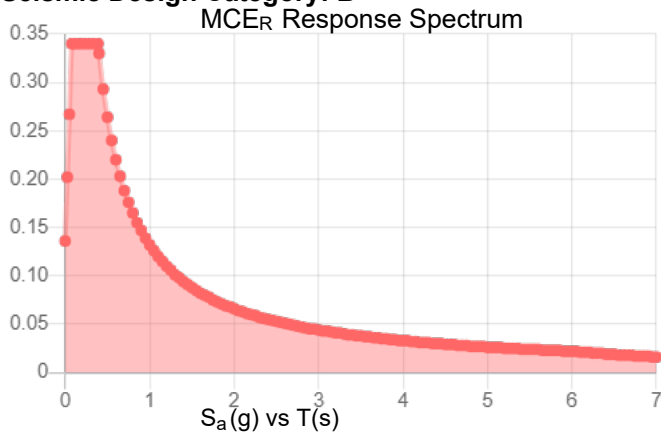
Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Site Soil Class:

Results:

S_s :	0.212	S_{D1} :	0.088
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.121
F_v :	2.4	PGA _M :	0.188
S_{MS} :	0.34	F_{PGA} :	1.558
S_{M1} :	0.132	I_e :	1
S_{DS} :	0.227	C_v :	0.725

Seismic Design Category: B



Data Accessed:

Sun Jul 23 2023

Date Source:

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

Ice

Results:

Ice Thickness: 1.00 in.
Concurrent Temperature: 15 F
Gust Speed 50 mph

Data Source: Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8

Date Accessed: Sun Jul 23 2023

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

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

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