Date: **October 28, 2021**

Black & Veatch Corp.
6800 W. 115th St., Suite 2292
Overland Park, KS 66211
(913) 458-6909

Structural Analysis Report

5 5 **Co-Locate**
Site Number: 9JK0058A

5 5 **BU Number:** 809328
Site Name: LAKE CITY W J-FL-012-058
JDE Job Number: 691847
Work Order Number: 2036397
Order Number: 592259 Rev. 0

5 5 **Black & Veatch Corp. Project Number:** 406642

5 **555 Hackney Lane, Lake City, Columbia County, FL**
Latitude *5 p5 pp*, Longitude *5 p5 pp*
250 Foot - Self Support Tower

Black & Veatch Corp. 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:

LC7: Proposed Equipment Configuration	**Sufficient Capacity**

This analysis utilizes an ultimate 3-second gust wind speed of 118 mph as required by the 2020 Florida Building Code 7th Edition. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Patdanai Chongcharoenkamon

Respectfully submitted by:

Ping Jiang, P.E.
Professional Engineer

Digitally signed by Jiang, Ping
DN: CN="Jiang, Ping", O=Black Veatch, C=US
Date: 2021.10.28 09:08:35-05'00'

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED & SEALED BY PING JIANG, P.E., ON THE TIME & DATE STAMP SHOWN USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED & SEALED & THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

PING JIANG
10/28/2021

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1) INTRODUCTION

This tower is a 250 ft Self Support tower designed by Rohn Industries, Inc.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	118 mph
Exposure Category:	C
Topographic Factor:	1
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
252.0	252.0	1	cci tower mounts (v2.1)	Sector Mount [SM 504-3]	9	1-5/8
	250.0	3	commscope	FFVV-65C-R3-V1 w/ Mount Pipe		
		3	ericsson	AIR6449 B41_T-MOBILE w/ Mount Pipe		
		3	ericsson	RADIO 4460 B2/B25 B66_TMO		
		3	ericsson	Radio 4480_TMOV2		

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)
231.0	231.0	3	ericsson	AIR 6449 w/ Mount Pipe	3	1-5/8
		3	ericsson	RRUS 4449 B5/B12		
		3	ericsson	RRUS 8843 B2/B66A		
		6	jma wireless	MX06FRO860-02 w/ Mount Pipe		
		3	raycap	RVZDC-6627-PF-48_CCIV2		
		3	site pro1	VFA12-HD 12' Heavy Duty V-Frame		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	121904	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	121914	CCISITES
4-TOWER MANUFACTURER DRAWINGS	13075	CCISITES

3.1) Analysis Method

tnxTower (version 8.1.1.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

3.2) Assumptions

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

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary) (Self Support Tower)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T1	250 - 240	Leg	ROHN 2.5 STD	2	-4.53	60.05	7.6	Pass
T2	240 - 220	Leg	ROHN 3 STD	29	-20.75	74.53	27.8	Pass
T3	220 - 200	Leg	ROHN 4 X-STR	67	-51.15	168.03	30.4	Pass
T4	200 - 180	Leg	ROHN 5 EH	106	-78.97	251.35	31.4	Pass
T5	180 - 160	Leg	ROHN 6 EH	145	-101.52	360.24	28.2	Pass
T6	160 - 140	Leg	ROHN 8 EHS	184	-119.48	413.33	28.9	Pass
T7	140 - 120	Leg	ROHN 8 EHS	211	-139.78	413.28	33.8	Pass
T8	120 - 100	Leg	ROHN 8 X-STR	238	-159.60	530.71	30.1	Pass
T9	100 - 80	Leg	ROHN 8 X-STR	265	-179.18	530.66	33.8	Pass
T10	80 - 60	Leg	ROHN 10 EH	292	-199.11	701.99	28.4	Pass
T11	60 - 40	Leg	ROHN 10 X-STR	319	-208.04	701.99	29.6	Pass
T12	40 - 20	Leg	ROHN 10 X-STR	352	-228.37	701.99	32.5	Pass
T13	20 - 0	Leg	ROHN 10 EH	385	-249.53	701.99	35.5	Pass
T1	250 - 240	Diagonal	ROHN 2 STD	8	-2.37	25.36	9.3	Pass
T2	240 - 220	Diagonal	ROHN 2 STD	32	-6.86	18.63	36.8	Pass
T3	220 - 200	Diagonal	ROHN 2 X-STR	71	-8.57	24.62	34.8	Pass
T4	200 - 180	Diagonal	ROHN 2 X-STR	110	-5.93	21.21	28.0	Pass
T5	180 - 160	Diagonal	ROHN 2 X-STR	149	-5.91	18.08	32.7	Pass
T6	160 - 140	Diagonal	ROHN 2.5 X-STR	188	-7.64	22.18	34.4	Pass
T7	140 - 120	Diagonal	ROHN 3 STD	215	-7.35	30.33	24.2	Pass
T8	120 - 100	Diagonal	ROHN 3 STD	242	-7.86	26.47	29.7	Pass
T9	100 - 80	Diagonal	ROHN 3 STD	269	-7.96	22.99	34.6	Pass
T10	80 - 60	Diagonal	ROHN 3 STD	296	-9.07	20.50	44.3	Pass
T11	60 - 40	Diagonal	ROHN 3 STD	323	-14.08	33.46	42.1	Pass
T12	40 - 20	Diagonal	ROHN 3 STD	356	-14.40	31.53	45.7	Pass
T13	20 - 0	Diagonal	ROHN 3 STD	389	-14.38	29.67	48.5	Pass
T1	250 - 240	Horizontal	ROHN 1.5 STD	7	-1.49	23.71	6.3	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T2	240 - 220	Horizontal	ROHN 1.5 STD	31	-3.68	23.65	15.6	Pass
T3	220 - 200	Horizontal	ROHN 1.5 STD	70	-4.63	23.65	19.6	Pass
T4	200 - 180	Horizontal	ROHN 1.5 STD	109	-3.68	20.11	18.3	Pass
T5	180 - 160	Horizontal	ROHN 2 STD	148	-4.02	28.49	14.1	Pass
T6	160 - 140	Horizontal	ROHN 2 STD	187	-4.59	23.88	19.2	Pass
T7	140 - 120	Horizontal	ROHN 2 STD	214	-4.81	17.80	27.0	Pass
T8	120 - 100	Horizontal	ROHN 2.5 STD	241	-5.41	30.40	17.8	Pass
T9	100 - 80	Horizontal	ROHN 2.5 STD	268	-5.72	23.33	24.5	Pass
T10	80 - 60	Horizontal	ROHN 2.5 STD	295	-6.69	18.74	35.7	Pass
T11	60 - 40	Horizontal	ROHN 3 STD	322	-7.39	33.29	22.2	Pass
T12	40 - 20	Horizontal	ROHN 3 STD	355	-7.99	27.40	29.2	Pass
T13	20 - 0	Horizontal	ROHN 3 STD	388	-8.56	22.94	37.3	Pass
T1	250 - 240	Top Girt	ROHN 1.5 STD	4	-1.36	23.77	5.7	Pass
T11	60 - 40	Redund Horz 1 Bracing	ROHN 1.5 STD	324	-3.61	14.74	24.5	Pass
T12	40 - 20	Redund Horz 1 Bracing	ROHN 1.5 STD	357	-3.96	12.04	32.9	Pass
T13	20 - 0	Redund Horz 1 Bracing	ROHN 1.5 STD	390	-4.33	10.03	43.2	Pass
T11	60 - 40	Redund Diag 1 Bracing	ROHN 1.5 STD	325	-3.28	4.53	72.5	Pass
T12	40 - 20	Redund Diag 1 Bracing	ROHN 2.25 TUBE	358	-3.37	4.52	74.7	Pass
T13	20 - 0	Redund Diag 1 Bracing	ROHN 2.25 TUBE	391	-3.48	4.21	82.7	Pass
T11	60 - 40	Redund Hip 1 Bracing	ROHN 1.5 STD	347	-0.02	12.73	0.1	Pass
T12	40 - 20	Redund Hip 1 Bracing	ROHN 1.5 STD	380	-0.02	10.54	0.2	Pass
T13	20 - 0	Redund Hip 1 Bracing	ROHN 1.5 STD	413	-0.02	8.88	0.2	Pass
T11	60 - 40	Redund Hip Diagonal 1 Bracing	ROHN 2.5 STD	337	-0.06	11.01	0.6	Pass
T12	40 - 20	Redund Hip Diagonal 1 Bracing	ROHN 2.5 STD	370	-0.06	9.90	0.6	Pass
T13	20 - 0	Redund Hip Diagonal 1 Bracing	ROHN 3 STD	403	-0.07	17.59	0.4	Pass
T1	250 - 240	Inner Bracing	L2x2x1/8	18	-0.00	8.80	0.1	Pass
T2	240 - 220	Inner Bracing	L2x2x1/8	42	-0.00	8.65	0.1	Pass
T3	220 - 200	Inner Bracing	L2x2x1/8	79	-0.00	8.48	0.1	Pass
T4	200 - 180	Inner Bracing	L2x2x1/8	120	-0.00	6.27	0.1	Pass
T5	180 - 160	Inner Bracing	L2x2x1/8	159	-0.00	4.28	0.1	Pass
T6	160 - 140	Inner Bracing	L2x2x1/8	198	-0.01	3.24	0.2	Pass
T7	140 - 120	Inner Bracing	L2 1/2x2 1/2x3/16	225	-0.01	6.84	0.2	Pass
T8	120 - 100	Inner Bracing	L3x3x3/16	252	-0.01	9.02	0.2	Pass
T9	100 - 80	Inner Bracing	L3 1/2x3 1/2x1/4	279	-0.01	14.69	0.2	Pass
T10	80 - 60	Inner Bracing	L3 1/2x3 1/2x1/4	306	-0.01	11.72	0.2	Pass
T11	60 - 40	Inner Bracing	ROHN 3 STD	351	-0.01	30.98	0.2	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T12	40 - 20	Inner Bracing	ROHN 3 STD	383	-0.01	25.66	0.3	Pass
T13	20 - 0	Inner Bracing	ROHN 3 STD	416	-0.01	21.61	0.3	Pass
							Summary	
						Leg (T13)	35.5	Pass
						Diagonal (T13)	48.5	Pass
						Horizontal (T13)	37.3	Pass
						Top Girt (T1)	5.7	Pass
						Redund Horz 1 Bracing (T13)	43.2	Pass
						Redund Diag 1 Bracing (T13)	82.7	Pass
						Redund Hip 1 Bracing (T13)	0.2	Pass
						Redund Hip Diagonal 1 Bracing (T12)	0.6	Pass
						Inner Bracing (T13)	0.3	Pass
						Bolt Checks	42.7	Pass
						Rating =	82.7	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC7 (Self Support Tower)

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	23.1	Pass
1,2	Base Foundation (Compared w/ Design Loads)	0	36.0	Pass

Structure Rating (max from all components) =	82.7%

Notes:

1) See additional documentation in “Appendix C – Additional Calculations” for calculations supporting the % capacity consumed.
2) Foundation capacity determined by comparing analysis reactions to original design reactions.

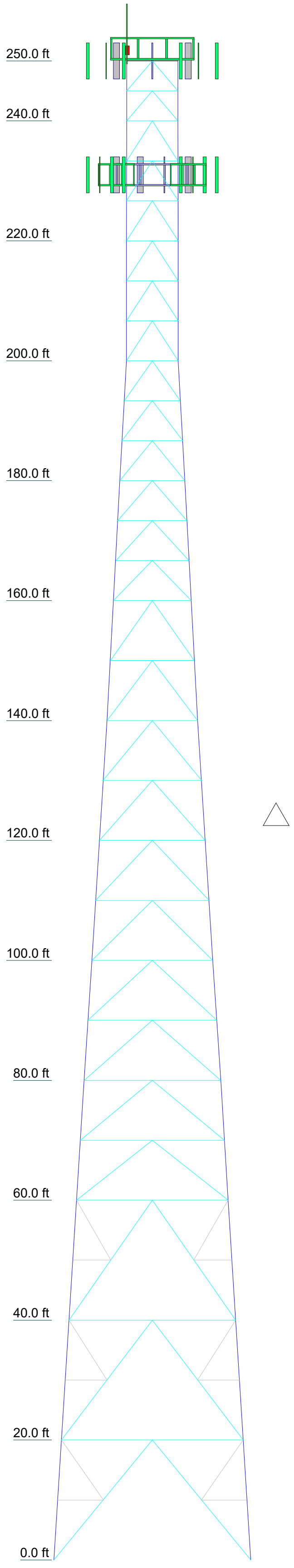
4.1) Recommendations

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

APPENDIX A

TNXTOWER OUTPUT

Section	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	
Legs	A	ROHN 3 STD	ROHN 4 X-STR	ROHN 5 EH	ROHN 6 EH	ROHN 8 EHS		ROHN 8 X-STR		ROHN 10 EH	ROHN 10 X-STR		ROHN 10 EH	
Leg Grade	A572-50													
Diagonals	ROHN 2 STD		ROHN 2 X-STR			ROHN 2.5 X-STR		ROHN 3 STD						
Diagonal Grade	A572-50													
Top Girts	B	N.A.												
Horizontals	ROHN 1.5 STD				ROHN 2 STD			ROHN 2.5 STD			ROHN 3 STD			
Red. Horizontals	N.A.										ROHN 1.5 STD			
Red. Diagonals	N.A.										ROHN 1.5 STD	ROHN 2.25 TUBE		
Red. Hips	N.A.										ROHN 1.5 STD			
Inner Bracing	L2x2x1/8						L2 1/2x2 1/2x3/16	L3x3x3/16	L3 1/2x3 1/2x1/4		ROHN 3 STD			
Face Width (ft)	8.5	8.54167	8.625	8.70833	10.7917	12.9271	15.1771	17.6771	20.1771	22.8333	25.3333	27.8333	30.3333	32.8333
# Panels @ (ft)	2 @ 5	12 @ 6.66667				10 @ 10					3 @ 20			
Weight (K)	0.7	1.3	2.0	2.4	3.2	3.7	3.9	5.0	5.3	6.3	6.2	6.3	6.5	52.6



SYMBOL LIST

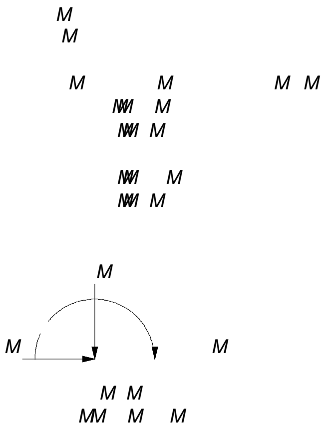
MARK	SIZE	MARK	SIZE
A	ROHN 2.5 STD	B	ROHN 1.5 STD

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi			

TOWER DESIGN NOTES

1. Tower is located in Columbia County, Florida.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 118 mph basic wind in accordance with the TIA-222-H Standard.
4. Deflections are based upon a 60 mph wind.
5. Tower Risk Category II.
6. Topographic Category 1 with Crest Height of 0.00 ft
7. TOWER RATING: 82.7%



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Job:
Project:
Client: Crown Castle
Drawn by: Patdanai Chongcharoenkamon
App'd:
Code: TIA-222-H
Date: 10/28/21
Scale: NTS
Path: C:\Users\cho87624\OneDrive - Black & Veatch\Desktop\CCI Project\2021\SST\809328\809328.2036397 - TSA\Structural\809328.2036397 Structural Analysis.eri
Dwg No. E-1

Tower Input Data

The main tower is a 3x free standing tower with an overall height of 250.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 8.50 ft at the top and 32.83 ft at the base.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

- Tower is located in Columbia County, Florida.
- Tower base elevation above sea level: 166.00 ft.
- Basic wind speed of 118 mph.
- Risk Category II.
- Exposure Category C.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.00 ft.
- Deflections calculated using a wind speed of 60 mph.
- Pressures are calculated at each section.
- Stress ratio used in tower member design is 1.
- Tower analysis based on target reliabilities in accordance with Annex S.
- Load Modification Factors used: $K_{es}(F_w)$ = 0.95.
- Maximum demand-capacity ratio is: 1.05.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

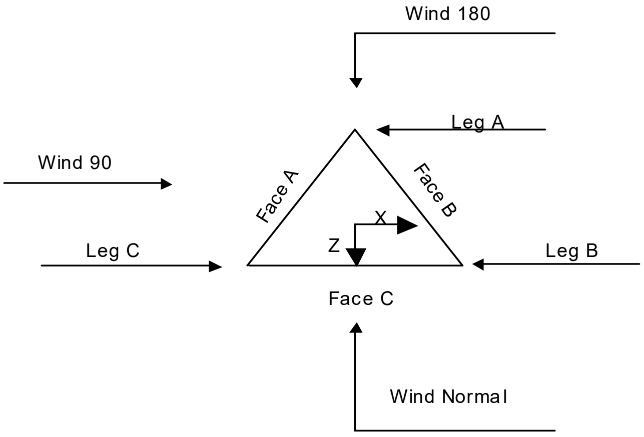
Consider Moments - Legs
Consider Moments - Horizontals
Consider Moments - Diagonals
Use Moment Magnification
√ Use Code Stress Ratios
√ Use Code Safety Factors - Guys
Escalate Ice
Always Use Max Kz
Use Special Wind Profile
Include Bolts In Member Capacity
Leg Bolts Are At Top Of Section
√ Secondary Horizontal 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 Appurt.
Autocalc Torque Arm Areas
Add IBC .6D+W Combination
√ Sort Capacity Reports By Component
Triangulate Diamond Inner Bracing
Treat Feed Line Bundles As Cylinder
Ignore KL/ry For 60 Deg. Angle Legs

Use ASCE 10 X-Brace Ly Rules
√ Calculate Redundant Bracing Forces
Ignore Redundant Members in FEA
√ SR Leg Bolts Resist Compression
All Leg Panels Have Same Allowable
Offset Girt At Foundation
√ Consider Feed Line Torque
√ Include Angle Block Shear Check
Use TIA-222-H Bracing Resist. Exemption
Use TIA-222-H Tension Splice Exemption

Poles

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



Tower Section Geometry

T1	250.00-240.00	8.50	1	10.00
T2	240.00-220.00	8.54	1	20.00
T3	220.00-200.00	8.63	1	20.00
T4	200.00-180.00	8.71	1	20.00
T5	180.00-160.00	10.79	1	20.00
T6	160.00-140.00	12.93	1	20.00
T7	140.00-120.00	15.18	1	20.00
T8	120.00-100.00	17.68	1	20.00
T9	100.00-80.00	20.18	1	20.00
T10	80.00-60.00	22.83	1	20.00
T11	60.00-40.00	25.33	1	20.00
T12	40.00-20.00	27.83	1	20.00
T13	20.00-0.00	30.33	1	20.00

Tower Section Geometry

T1	250.00-240.00	5.00	K Brace Down	No	Yes	0.0000	0.0000
T2	240.00-220.00	6.67	K Brace Down	No	Yes	0.0000	0.0000
T3	220.00-200.00	6.67	K Brace Down	No	Yes	0.0000	0.0000
T4	200.00-180.00	6.67	K Brace Down	No	Yes	0.0000	0.0000
T5	180.00-160.00	6.67	K Brace Down	No	Yes	0.0000	0.0000
T6	160.00-140.00	10.00	K Brace Down	No	Yes	0.0000	0.0000
T7	140.00-120.00	10.00	K Brace Down	No	Yes	0.0000	0.0000
T8	120.00-100.00	10.00	K Brace Down	No	Yes	0.0000	0.0000
T9	100.00-80.00	10.00	K Brace Down	No	Yes	0.0000	0.0000
T10	80.00-60.00	10.00	K Brace Down	No	Yes	0.0000	0.0000
T11	60.00-40.00	20.00	K1 Down	No	Yes	0.0000	0.0000
T12	40.00-20.00	20.00	K1 Down	No	Yes	0.0000	0.0000
T13	20.00-0.00	20.00	K1 Down	No	Yes	0.0000	0.0000

Tower Section Geometry 6 d

T1 250.00-240.00	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	ROHN 2 STD	A572-50 (50 ksi)
T2 240.00-220.00	Pipe	ROHN 3 STD	A572-50 (50 ksi)	Pipe	ROHN 2 STD	A572-50 (50 ksi)
T3 220.00-200.00	Pipe	ROHN 4 X-STR	A572-50 (50 ksi)	Pipe	ROHN 2 X-STR	A572-50 (50 ksi)
T4 200.00-180.00	Pipe	ROHN 5 EH	A572-50 (50 ksi)	Pipe	ROHN 2 X-STR	A572-50 (50 ksi)
T5 180.00-160.00	Pipe	ROHN 6 EH	A572-50 (50 ksi)	Pipe	ROHN 2 X-STR	A572-50 (50 ksi)
T6 160.00-140.00	Pipe	ROHN 8 EHS	A572-50 (50 ksi)	Pipe	ROHN 2.5 X-STR	A572-50 (50 ksi)
T7 140.00-120.00	Pipe	ROHN 8 EHS	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T8 120.00-100.00	Pipe	ROHN 8 X-STR	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T9 100.00-80.00	Pipe	ROHN 8 X-STR	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T10 80.00-60.00	Pipe	ROHN 10 EH	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T11 60.00-40.00	Pipe	ROHN 10 X-STR	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T12 40.00-20.00	Pipe	ROHN 10 X-STR	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T13 20.00-0.00	Pipe	ROHN 10 EH	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)

Tower Section Geometry 6 d

T1 250.00-240.00	None	Pipe		A618-50 (50 ksi)	Pipe	ROHN 1.5 STD	A572-50 (50 ksi)
T2 240.00-220.00	None	Pipe		A618-50 (50 ksi)	Pipe	ROHN 1.5 STD	A572-50 (50 ksi)
T3 220.00-200.00	None	Pipe		A618-50 (50 ksi)	Pipe	ROHN 1.5 STD	A572-50 (50 ksi)
T4 200.00-180.00	None	Pipe		A618-50 (50 ksi)	Pipe	ROHN 1.5 STD	A572-50 (50 ksi)
T5 180.00-160.00	None	Pipe		A618-50 (50 ksi)	Pipe	ROHN 2 STD	A572-50 (50 ksi)
T6 160.00-140.00	None	Pipe		A618-50 (50 ksi)	Pipe	ROHN 2 STD	A572-50 (50 ksi)
T7 140.00-120.00	None	Pipe		A618-50 (50 ksi)	Pipe	ROHN 2 STD	A572-50 (50 ksi)
T8 120.00-100.00	None	Pipe		A618-50 (50 ksi)	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)
T9 100.00-80.00	None	Pipe		A618-50 (50 ksi)	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)
T10 80.00-60.00	None	Pipe		A618-50 (50 ksi)	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)
T11 60.00-40.00	None	Pipe		A618-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T12 40.00-20.00	None	Pipe		A618-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T13 20.00-0.00	None	Pipe		A618-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)

Tower Section Geometry 6 d

T1 250.00-240.00	Pipe		A618-50 (50 ksi)	Equal Angle	L2x2x1/8	A36 (36 ksi)
T2 240.00-220.00	Pipe		A618-50 (50 ksi)	Equal Angle	L2x2x1/8	A36 (36 ksi)
T3 220.00-200.00	Pipe		A618-50 (50 ksi)	Equal Angle	L2x2x1/8	A36 (36 ksi)
T4 200.00-180.00	Pipe		A618-50 (50 ksi)	Equal Angle	L2x2x1/8	A36 (36 ksi)
T5 180.00-160.00	Pipe		A618-50 (50 ksi)	Equal Angle	L2x2x1/8	A36 (36 ksi)
T6 160.00-140.00	Pipe		A618-50 (50 ksi)	Equal Angle	L2x2x1/8	A36 (36 ksi)
T7 140.00-120.00	Pipe		A618-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T8 120.00-100.00	Pipe		A618-50 (50 ksi)	Equal Angle	L3x3x3/16	A36 (36 ksi)
T9 100.00-80.00	Pipe		A618-50 (50 ksi)	Equal Angle	L3 1/2x3 1/2x1/4	A572-50 (50 ksi)
T10 80.00-60.00	Pipe		A618-50 (50 ksi)	Equal Angle	L3 1/2x3 1/2x1/4	A572-50 (50 ksi)
T11 60.00-40.00	Pipe		A618-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T12 40.00-20.00	Pipe		A618-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T13 20.00-0.00	Pipe		A618-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)

Tower Section Geometry 6 d

T11 60.00-40.00	A572-50 (50 ksi)	Horizontal (1)	Pipe	ROHN 1.5 STD	1
		Diagonal (1)	Pipe	ROHN 1.5 STD	1
		Hip (1)	Pipe	ROHN 1.5 STD	1
		Hip Diagonal (1)	Pipe	ROHN 2.5 STD	1
T12 40.00-20.00	A572-50 (50 ksi)	Horizontal (1)	Pipe	ROHN 1.5 STD	1
		Diagonal (1)	Pipe	ROHN 2.25 TUBE	1
		Hip (1)	Pipe	ROHN 1.5 STD	1
		Hip Diagonal (1)	Pipe	ROHN 2.5 STD	1
T13 20.00-0.00	A572-50 (50 ksi)	Horizontal (1)	Pipe	ROHN 1.5 STD	1
		Diagonal (1)	Pipe	ROHN 2.25 TUBE	1
		Hip (1)	Pipe	ROHN 1.5 STD	1
		Hip Diagonal (1)	Pipe	ROHN 3 STD	1

Tower Section Geometry 6 d

U U/ U U U ᒐ	° U V U 6 U dU U ᒐ	° U U U U ᒐ	° U U	U'	V EIZ V U	V Z V U	EU UU U	E# UV Ux U #	# UV Ux U U % ᒐ	# UV Ux U U ᒐ
T1 250.00-240.00	0.00	0.2500	A36 (36 ksi)	1	1.05	1.05	36.0000	36.0000	36.0000
T2 240.00-220.00	0.00	0.2500	A36 (36 ksi)	1	1.05	1.05	36.0000	36.0000	36.0000
T3 220.00-200.00	0.00	0.2500	A36 (36 ksi)	1	1.05	1.05	36.0000	36.0000	36.0000
T4 200.00-180.00	0.00	0.2500	A36 (36 ksi)	1	1.05	1.05	36.0000	36.0000	36.0000
T5 180.00-160.00	0.00	0.2500	A36 (36 ksi)	1	1.05	1.05	36.0000	36.0000	36.0000
T6 160.00-140.00	0.00	0.2500	A36 (36 ksi)	1	1.05	1.05	36.0000	36.0000	36.0000
T7 140.00-120.00	0.00	0.2500	A36 (36 ksi)	1	1.05	1.05	36.0000	36.0000	36.0000
T8 120.00-100.00	0.00	0.2500	A36 (36 ksi)	1	1.05	1.05	36.0000	36.0000	36.0000
T9 100.00-80.00	0.00	0.2500	A36 (36 ksi)	1	1.05	1.05	36.0000	36.0000	36.0000
T10 80.00-60.00	0.00	0.2500	A36 (36 ksi)	1	1.05	1.05	36.0000	36.0000	36.0000
T11 60.00-40.00	0.00	0.3750	A36 (36 ksi)	1	1.05	1.05	36.0000	36.0000	36.0000
T12 40.00-20.00	0.00	0.3750	A36 (36 ksi)	1	1.05	1.05	36.0000	36.0000	36.0000
T13 20.00-0.00	0.00	0.3750	A36 (36 ksi)	1	1.05	1.05	36.0000	36.0000	36.0000

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Tower Section Geometry 6 d

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T1 250.00-240.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T2 240.00-220.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T3 220.00-200.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T4 200.00-180.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T5 180.00-160.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T6 160.00-140.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T7 140.00-120.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T8 120.00-100.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T9 100.00-80.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T10 80.00-60.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T11 60.00-40.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1

T12 40.00-20.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T13 20.00-0.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1

Tower Section Geometry

	in		in		in		in		in		in		in	
T1 250.00-240.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75	0.0000	1
T2 240.00-220.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75	0.0000	1
T3 220.00-200.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75	0.0000	1
T4 200.00-180.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 180.00-160.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 160.00-140.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75	0.0000	1
T7 140.00-120.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75	0.0000	1
T8 120.00-100.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75	0.0000	1
T9 100.00-80.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T10 80.00-60.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75	0.0000	1
T11 60.00-40.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75	0.0000	1
T12 40.00-20.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75	0.0000	1
T13 20.00-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75	0.0000	1

	in		in		in		in		in		in		in	
T1 250.00-240.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 240.00-220.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 220.00-200.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 200.00-180.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 180.00-160.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

U U U L U	% U		# U		# U 7		% U 7		U		% U		# % U	
	U # U inU	U U	U U # U inL	U U	U # U inU	U U	U U # L inL	U U	U U # L inL	U U	U U # L inL	U U	U U # L inL	U U
T6 160.00-140.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 140.00-120.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 120.00-100.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 100.00-80.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T10 80.00-60.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T11 60.00-40.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T12 40.00-20.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T13 20.00-0.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

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Tower Section Geometry *6 d*

U U L U	U U q L U	U		# U		U U		x U U		U U		U %		U % U	
		x U inL	l E	x U inL	l E	x U inL	l E	x U inL	l E	x U inL	l E	x U inL	l E	x U inL	l E
T1 250.00-240.00	Flange	0.7500 A325N	4	0.6250 A325N	3	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.6250 A325N	2	0.0000 A325N	0
T2 240.00-220.00	Flange	0.8750 A325N	4	0.6250 A325N	3	0.0000 A325N	0	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0
T3 220.00-200.00	Flange	1.0000 A325N	4	0.6250 A325N	3	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.6250 A325N	2	0.0000 A325N	0
T4 200.00-180.00	Flange	1.0000 A325N	6	0.6250 A325N	3	0.0000 A325N	0	0.0000 A325N	0	0.6250 A325N	0	0.6250 A325N	2	0.6250 A325N	0
T5 180.00-160.00	Flange	1.0000 A325N	8	0.6250 A325N	3	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.6250 A325N	2	0.0000 A325N	0
T6 160.00-140.00	Flange	1.0000 A325N	8	0.6250 A325N	3	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.6250 A325N	2	0.0000 A325N	0
T7 140.00-120.00	Flange	1.0000 A325N	8	0.6250 A325N	3	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.6250 A325N	2	0.0000 A325N	0
T8 120.00-100.00	Flange	1.0000 A325N	8	0.6250 A325N	3	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.6250 A325N	2	0.0000 A325N	0
T9 100.00-80.00	Flange	1.0000 A325N	12	0.6250 A325N	3	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.6250 A325N	2	0.0000 A325N	0
T10 80.00-60.00	Flange	1.0000 A325N	12	0.6250 A325N	3	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.6250 A325N	2	0.0000 A325N	0
T11 60.00-40.00	Flange	1.0000 A325N	12	0.7500 A325N	3	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.7500 A325N	2	0.6250 A325N	1
T12 40.00-20.00	Flange	1.0000 A325N	12	0.7500 A325N	3	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.7500 A325N	2	0.6250 A325N	1
T13 20.00-0.00	Flange	1.0000 A354-BC	0	0.7500 A325N	3	0.0000 A325N	0	0.0000 A325N	0	0.7500 A325N	0	0.7500 A325N	2	0.6250 A325N	1

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Tower Section Geometry [illegible]

[illegible]	[illegible] in	[illegible]	[illegible] in	[illegible]	[illegible] in	[illegible]	[illegible] in	[illegible]	[illegible] in	[illegible]	[illegible] in	[illegible]	[illegible] in	[illegible]
T1 250.00-240.00	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T2 240.00-220.00	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 220.00-200.00	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T4 200.00-180.00	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T5 180.00-160.00	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T6 160.00-140.00	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T7 140.00-120.00	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T8 120.00-100.00	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T9 100.00-80.00	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T10 80.00-60.00	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T11 60.00-40.00	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	1
T12 40.00-20.00	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	1
T13 20.00-0.00	0.6250 A325N	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	1	0.6250 A325N	1

Feed Line/Linear Appurtenances - Entered As Round Or Flat

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Safety Line 3/8 ***	B	No	No	Ar (CaAa)	250.00 - 0.00	0.0000	0.5	1	1	0.3750	0.3750		0.22
Feedline Ladder (Af)	C	No	No	Af (CaAa)	250.00 - 0.00	0.0000	-0.45	1	1	3.0000	3.0000		8.40
Feedline Ladder (Af)	C	No	No	Af (CaAa)	220.00 - 0.00	0.0000	0.45	1	1	3.0000	3.0000		8.40
Feedline Ladder (Af) ***	A	No	No	Af (CaAa)	180.00 - 0.00	0.0000	0.45	1	1	3.0000	3.0000		8.40
Feedline Ladder (Af)	B	No	No	Af (CaAa)	250.00 - 0.00	0.0000	0.45	1	1	3.0000	3.0000		8.40
HB158-21U6S24-xxM_TMO(1-5/8)	B	No	No	Ar (CaAa)	250.00 - 0.00	0.0000	0.43	3	3	0.5000	1.9960		2.50
LDF7-50A(1-5/8) ***	B	No	No	Ar (CaAa)	250.00 - 0.00	0.0000	0.46	6	6	0.5000	1.9800		0.82
Feedline Ladder (Af)	B	No	No	Af (CaAa)	231.00 - 0.00	0.0000	-0.45	1	1	3.0000	3.0000		8.40
MLE HYBRID 9POWER/18 FIBER RL 2(1-5/8) ***	B	No	No	Ar (CaAa)	231.00 - 0.00	0.0000	-0.45	3	3	0.5000	1.6250		1.07

Feed Line/Linear Appurtenances - Entered As Area

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
***									
1/8" Detuning Wire	A	No	No	CaAa (Out Of Face)	213.00 - 0.00	1	No Ice	0.01	0.07
1/8" Detuning Wire	B	No	No	CaAa (Out Of Face)	213.00 - 0.00	1	No Ice	0.01	0.07
1/8" Detuning Wire	C	No	No	CaAa (Out Of Face)	213.00 - 0.00	1	No Ice	0.01	0.07
***									

Feed Line/Linear Appurtenances Section Areas

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
T1	250.00-240.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	23.243	0.000	0.21
		C	0.000	0.000	5.000	0.000	0.08
T2	240.00-220.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	57.348	0.000	0.55
		C	0.000	0.000	10.000	0.000	0.17
T3	220.00-200.00	A	0.000	0.000	0.000	0.163	0.00
		B	0.000	0.000	66.236	0.163	0.65
		C	0.000	0.000	20.000	0.163	0.34
T4	200.00-180.00	A	0.000	0.000	0.000	0.250	0.00
		B	0.000	0.000	66.236	0.250	0.65
		C	0.000	0.000	20.000	0.250	0.34
T5	180.00-160.00	A	0.000	0.000	10.000	0.250	0.17
		B	0.000	0.000	66.236	0.250	0.65
		C	0.000	0.000	20.000	0.250	0.34
T6	160.00-140.00	A	0.000	0.000	10.000	0.250	0.17
		B	0.000	0.000	66.236	0.250	0.65
		C	0.000	0.000	20.000	0.250	0.34
T7	140.00-120.00	A	0.000	0.000	10.000	0.250	0.17
		B	0.000	0.000	66.236	0.250	0.65
		C	0.000	0.000	20.000	0.250	0.34
T8	120.00-100.00	A	0.000	0.000	10.000	0.250	0.17
		B	0.000	0.000	66.236	0.250	0.65
		C	0.000	0.000	20.000	0.250	0.34
T9	100.00-80.00	A	0.000	0.000	10.000	0.250	0.17
		B	0.000	0.000	66.236	0.250	0.65
		C	0.000	0.000	20.000	0.250	0.34
T10	80.00-60.00	A	0.000	0.000	10.000	0.250	0.17
		B	0.000	0.000	66.236	0.250	0.65
		C	0.000	0.000	20.000	0.250	0.34
T11	60.00-40.00	A	0.000	0.000	10.000	0.250	0.17
		B	0.000	0.000	66.236	0.250	0.65
		C	0.000	0.000	20.000	0.250	0.34
T12	40.00-20.00	A	0.000	0.000	10.000	0.250	0.17
		B	0.000	0.000	66.236	0.250	0.65
		C	0.000	0.000	20.000	0.250	0.34
T13	20.00-0.00	A	0.000	0.000	10.000	0.250	0.17
		B	0.000	0.000	66.236	0.250	0.65
		C	0.000	0.000	20.000	0.250	0.34

Feed Line Center of Pressure

U U	/ Ш U ι	q U U ι	q U U ι	q U ø U ι	q U ø U ι
T1	250.00-240.00	16.9549	10.9507	16.9549	10.9507
T2	240.00-220.00	16.3005	6.2015	16.2008	6.1685
T3	220.00-200.00	11.5513	4.0738	11.2202	3.9707
T4	200.00-180.00	12.2860	4.3820	11.5684	4.1539
T5	180.00-160.00	12.8261	1.4779	11.7269	1.3632
T6	160.00-140.00	13.9948	1.6453	12.5201	1.4868
T7	140.00-120.00	15.2385	1.8201	13.6645	1.6473
T8	120.00-100.00	16.6327	2.0105	14.9616	1.8241
T9	100.00-80.00	18.1579	2.2147	16.3257	2.0079
T10	80.00-60.00	18.4677	2.2797	16.4219	2.0443
T11	60.00-40.00	20.8828	2.5821	18.3717	2.2929
T12	40.00-20.00	22.1271	2.7505	19.4844	2.4439
T13	20.00-0.00	23.4621	2.9287	20.6595	2.6017

Shielding Factor Ka

U	Z U U U E	#	Z U U U / Ł	U Uø	U ø
T1	1	Safety Line 3/8	240.00 - 250.00	0.6000	0.6000
T1	7	Feedline Ladder (Af)	240.00 - 250.00	0.6000	0.6000
T1	11	Feedline Ladder (Af)	240.00 - 250.00	0.6000	0.6000
T1	12	HB158-21U6S24-xxM_TMO(1-5/8)	240.00 - 250.00	0.6000	0.6000
T1	13	LDF7-50A(1-5/8)	240.00 - 250.00	0.6000	0.6000
T2	1	Safety Line 3/8	220.00 - 240.00	0.6000	0.6000
T2	7	Feedline Ladder (Af)	220.00 - 240.00	0.6000	0.6000
T2	11	Feedline Ladder (Af)	220.00 - 240.00	0.6000	0.6000
T2	12	HB158-21U6S24-xxM_TMO(1-5/8)	220.00 - 240.00	0.6000	0.6000
T2	13	LDF7-50A(1-5/8)	220.00 - 240.00	0.6000	0.6000
T2	17	Feedline Ladder (Af)	220.00 - 231.00	0.6000	0.6000
T2	18	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	220.00 - 231.00	0.6000	0.6000
T3	1	Safety Line 3/8	200.00 - 220.00	0.6000	0.6000
T3	7	Feedline Ladder (Af)	200.00 - 220.00	0.6000	0.6000
T3	8	Feedline Ladder (Af)	200.00 - 220.00	0.6000	0.6000
T3	11	Feedline Ladder (Af)	200.00 - 220.00	0.6000	0.6000
T3	12	HB158-21U6S24-xxM_TMO(1-5/8)	200.00 - 220.00	0.6000	0.6000
T3	13	LDF7-50A(1-5/8)	200.00 - 220.00	0.6000	0.6000
T3	17	Feedline Ladder (Af)	200.00 - 220.00	0.6000	0.6000
T3	18	MLE HYBRID 9POWER/18FIBER RL	200.00 - 220.00	0.6000	0.6000

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		2(1-5/8)			
T4	1	Safety Line 3/8	180.00 - 200.00	0.6000	0.6000
T4	7	Feedline Ladder (Af)	180.00 - 200.00	0.6000	0.6000
T4	8	Feedline Ladder (Af)	180.00 - 200.00	0.6000	0.6000
T4	11	Feedline Ladder (Af)	180.00 - 200.00	0.6000	0.6000
T4	12	HB158-21U6S24-xxM_TMO(1-5/8)	180.00 - 200.00	0.6000	0.6000
T4	13	LDF7-50A(1-5/8)	180.00 - 200.00	0.6000	0.6000
T4	17	Feedline Ladder (Af)	180.00 - 200.00	0.6000	0.6000
T4	18	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	180.00 - 200.00	0.6000	0.6000
T5	1	Safety Line 3/8	160.00 - 180.00	0.6000	0.6000
T5	7	Feedline Ladder (Af)	160.00 - 180.00	0.6000	0.6000
T5	8	Feedline Ladder (Af)	160.00 - 180.00	0.6000	0.6000
T5	9	Feedline Ladder (Af)	160.00 - 180.00	0.6000	0.6000
T5	11	Feedline Ladder (Af)	160.00 - 180.00	0.6000	0.6000
T5	12	HB158-21U6S24-xxM_TMO(1-5/8)	160.00 - 180.00	0.6000	0.6000
T5	13	LDF7-50A(1-5/8)	160.00 - 180.00	0.6000	0.6000
T5	17	Feedline Ladder (Af)	160.00 - 180.00	0.6000	0.6000
T5	18	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	160.00 - 180.00	0.6000	0.6000
T6	1	Safety Line 3/8	140.00 - 160.00	0.6000	0.6000
T6	7	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T6	8	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T6	9	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T6	11	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T6	12	HB158-21U6S24-xxM_TMO(1-5/8)	140.00 - 160.00	0.6000	0.6000
T6	13	LDF7-50A(1-5/8)	140.00 - 160.00	0.6000	0.6000
T6	17	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T6	18	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	140.00 - 160.00	0.6000	0.6000
T7	1	Safety Line 3/8	120.00 - 140.00	0.6000	0.6000
T7	7	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T7	8	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T7	9	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T7	11	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T7	12	HB158-21U6S24-xxM_TMO(1-5/8)	120.00 - 140.00	0.6000	0.6000
T7	13	LDF7-50A(1-5/8)	120.00 -	0.6000	0.6000

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			140.00		
T7	17	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T7	18	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	120.00 - 140.00	0.6000	0.6000
T8	1	Safety Line 3/8	100.00 - 120.00	0.6000	0.6000
T8	7	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T8	8	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T8	9	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T8	11	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T8	12	HB158-21U6S24-xxM_TMO(1-5/8)	100.00 - 120.00	0.6000	0.6000
T8	13	LDF7-50A(1-5/8)	100.00 - 120.00	0.6000	0.6000
T8	17	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T8	18	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	100.00 - 120.00	0.6000	0.6000
T9	1	Safety Line 3/8	80.00 - 100.00	0.6000	0.6000
T9	7	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T9	8	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T9	9	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T9	11	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T9	12	HB158-21U6S24-xxM_TMO(1-5/8)	80.00 - 100.00	0.6000	0.6000
T9	13	LDF7-50A(1-5/8)	80.00 - 100.00	0.6000	0.6000
T9	17	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T9	18	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	80.00 - 100.00	0.6000	0.6000
T10	1	Safety Line 3/8	60.00 - 80.00	0.6000	0.6000
T10	7	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T10	8	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T10	9	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T10	11	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T10	12	HB158-21U6S24-xxM_TMO(1-5/8)	60.00 - 80.00	0.6000	0.6000
T10	13	LDF7-50A(1-5/8)	60.00 - 80.00	0.6000	0.6000
T10	17	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T10	18	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	60.00 - 80.00	0.6000	0.6000
T11	1	Safety Line 3/8	40.00 - 60.00	0.6000	0.6000
T11	7	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T11	8	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000

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T11	9	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T11	11	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T11	12	HB158-21U6S24-xxM_TMO(1-5/8)	40.00 - 60.00	0.6000	0.6000
T11	13	LDF7-50A(1-5/8)	40.00 - 60.00	0.6000	0.6000
T11	17	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T11	18	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	40.00 - 60.00	0.6000	0.6000
T12	1	Safety Line 3/8	20.00 - 40.00	0.6000	0.6000
T12	7	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T12	8	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T12	9	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T12	11	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T12	12	HB158-21U6S24-xxM_TMO(1-5/8)	20.00 - 40.00	0.6000	0.6000
T12	13	LDF7-50A(1-5/8)	20.00 - 40.00	0.6000	0.6000
T12	17	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T12	18	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	20.00 - 40.00	0.6000	0.6000
T13	1	Safety Line 3/8	0.00 - 20.00	0.6000	0.6000
T13	7	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T13	8	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T13	9	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T13	11	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T13	12	HB158-21U6S24-xxM_TMO(1-5/8)	0.00 - 20.00	0.6000	0.6000
T13	13	LDF7-50A(1-5/8)	0.00 - 20.00	0.6000	0.6000
T13	17	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T13	18	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	0.00 - 20.00	0.6000	0.6000

Discrete Tower Loads

# U	Z U U U	U U	.U V % U V U U U U Ł	U U U U U	U U U U	U U	qVVU Z U U U ᴸU	qVVU U U U ᴸU	U U U U U
Flash Beacon Lighting	C	From Leg	0.00 0.00 1.00	0.0000	250.00	No Ice	2.70	2.70	0.05
Lighting Rod 4'x5/8" on 7' Extension	C	From Leg	0.00 0.00 4.50	0.0000	250.00	No Ice	2.26	2.26	0.06
7'x2" Mount Pipe	B	From Leg	0.00 0.00 3.50	0.0000	250.00	No Ice	1.66	1.66	0.03
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Sector Mount [SM 504-3]	C	None		0.0000	252.00	No Ice	31.05	31.05	1.71

# U	Z U U U	U U	.U % U U U U U L	V V U U U U U	U U U U U	U U	qVVU Z U U U ᴸU	qVVU U U U ᴸU	U U U U U
8'x2" Mount Pipe	A	From Leg	4.00 0.00 -2.00	0.0000	252.00	No Ice	1.90	1.90	0.03
8'x2" Mount Pipe	B	From Leg	4.00 0.00 -2.00	0.0000	252.00	No Ice	1.90	1.90	0.03
8'x2" Mount Pipe	C	From Leg	4.00 0.00 -2.00	0.0000	252.00	No Ice	1.90	1.90	0.03
AIR6449 B41_T-MOBILE w/ Mount Pipe	A	From Leg	4.00 -6.00 -2.00	0.0000	252.00	No Ice	5.19	2.71	0.13
AIR6449 B41_T-MOBILE w/ Mount Pipe	B	From Leg	4.00 -6.00 -2.00	0.0000	252.00	No Ice	5.19	2.71	0.13
AIR6449 B41_T-MOBILE w/ Mount Pipe	C	From Leg	4.00 -6.00 -2.00	0.0000	252.00	No Ice	5.19	2.71	0.13
FFVV-65C-R3-V1 w/ Mount Pipe	A	From Leg	4.00 6.00 -2.00	0.0000	252.00	No Ice	12.97	6.20	0.18
FFVV-65C-R3-V1 w/ Mount Pipe	B	From Leg	4.00 6.00 -2.00	0.0000	252.00	No Ice	12.97	6.20	0.18
FFVV-65C-R3-V1 w/ Mount Pipe	C	From Leg	4.00 6.00 -2.00	0.0000	252.00	No Ice	12.97	6.20	0.18
Radio 4480_TMOV2	A	From Leg	4.00 0.00 -2.00	0.0000	252.00	No Ice	2.88	1.40	0.08
Radio 4480_TMOV2	B	From Leg	4.00 0.00 -2.00	0.0000	252.00	No Ice	2.88	1.40	0.08
Radio 4480_TMOV2	C	From Leg	4.00 0.00 -2.00	0.0000	252.00	No Ice	2.88	1.40	0.08
RADIO 4460 B2/B25 B66_TMO	A	From Leg	4.00 0.00 -2.00	0.0000	252.00	No Ice	2.14	1.69	0.11
RADIO 4460 B2/B25 B66_TMO	B	From Leg	4.00 0.00 -2.00	0.0000	252.00	No Ice	2.14	1.69	0.11
RADIO 4460 B2/B25 B66_TMO	C	From Leg	4.00 0.00 -2.00	0.0000	252.00	No Ice	2.14	1.69	0.11
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Site Pro 1 VFA12-HD 12' Heavy Duty V-Frame	A	From Leg	2.00 0.00 0.00	0.0000	231.00	No Ice	13.20	9.20	0.66
Site Pro 1 VFA12-HD 12' Heavy Duty V-Frame	B	From Leg	2.00 0.00 0.00	0.0000	231.00	No Ice	13.20	9.20	0.66
Site Pro 1 VFA12-HD 12' Heavy Duty V-Frame	C	From Leg	2.00 0.00 0.00	0.0000	231.00	No Ice	13.20	9.20	0.66
8'x2" Mount Pipe	A	From Leg	4.00 2.00 0.00	0.0000	231.00	No Ice	1.90	1.90	0.03
8'x2" Mount Pipe	B	From Leg	4.00 2.00 0.00	0.0000	231.00	No Ice	1.90	1.90	0.03
8'x2" Mount Pipe	C	From Leg	4.00 2.00 0.00	0.0000	231.00	No Ice	1.90	1.90	0.03
MX06FRO860-02 w/	A	From Leg	4.00	0.0000	231.00	No Ice	8.84	7.49	0.11

Mount Pipe			-6.00 0.00						
MX06FRO860-02 w/ Mount Pipe	B	From Leg	4.00 -6.00 0.00	0.0000	231.00	No Ice	8.84	7.49	0.11
MX06FRO860-02 w/ Mount Pipe	C	From Leg	4.00 -6.00 0.00	0.0000	231.00	No Ice	8.84	7.49	0.11
MX06FRO860-02 w/ Mount Pipe	A	From Leg	4.00 -2.00 0.00	0.0000	231.00	No Ice	8.84	7.49	0.11
MX06FRO860-02 w/ Mount Pipe	B	From Leg	4.00 -2.00 0.00	0.0000	231.00	No Ice	8.84	7.49	0.11
MX06FRO860-02 w/ Mount Pipe	C	From Leg	4.00 -2.00 0.00	0.0000	231.00	No Ice	8.84	7.49	0.11
AIR 6449 w/ Mount Pipe	A	From Leg	4.00 6.00 0.00	0.0000	231.00	No Ice	5.18	2.72	0.12
AIR 6449 w/ Mount Pipe	B	From Leg	4.00 6.00 0.00	0.0000	231.00	No Ice	5.18	2.72	0.12
AIR 6449 w/ Mount Pipe	C	From Leg	4.00 6.00 0.00	0.0000	231.00	No Ice	5.18	2.72	0.12
RRUS 4449 B5/B12	A	From Leg	4.00 0.00 0.00	0.0000	231.00	No Ice	1.97	1.41	0.07
RRUS 4449 B5/B12	B	From Leg	4.00 0.00 0.00	0.0000	231.00	No Ice	1.97	1.41	0.07
RRUS 4449 B5/B12	C	From Leg	4.00 0.00 0.00	0.0000	231.00	No Ice	1.97	1.41	0.07
RRUS 8843 B2/B66A	A	From Leg	4.00 0.00 0.00	0.0000	231.00	No Ice	1.64	1.35	0.07
RRUS 8843 B2/B66A	B	From Leg	4.00 0.00 0.00	0.0000	231.00	No Ice	1.64	1.35	0.07
RRUS 8843 B2/B66A	C	From Leg	4.00 0.00 0.00	0.0000	231.00	No Ice	1.64	1.35	0.07
RVZDC-6627-PF-48_CCIV2	A	From Leg	4.00 0.00 0.00	0.0000	231.00	No Ice	4.06	3.10	0.03
RVZDC-6627-PF-48_CCIV2	B	From Leg	4.00 0.00 0.00	0.0000	231.00	No Ice	4.06	3.10	0.03
RVZDC-6627-PF-48_CCIV2	C	From Leg	4.00 0.00 0.00	0.0000	231.00	No Ice	4.06	3.10	0.03
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Load Combinations

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

Maximum Member Forces

U ĿĿ	/ U U	q U U	q U	° ĒU U q ĿĿ	V U U Ŀ	ŁV U U ⱼ Ŀ	ŁV U U ⱼ Ŀ
T1	250 - 240	Leg	Max Tension	15	1.63	0.11	0.03
			Max. Compression	10	-4.53	-0.11	0.00
			Max. Mx	22	0.90	0.11	-0.00
			Max. My	18	-0.10	0.05	0.12
			Max. Vy	6	-1.14	0.00	0.00
			Max. Vx	24	1.18	-0.00	-0.00
		Diagonal	Max Tension	21	2.30	0.00	0.00
			Max. Compression	20	-2.37	0.00	0.00
			Max. Mx	2	1.88	0.02	0.00
			Max. Vy	2	-0.01	0.00	0.00
		Horizontal	Max Tension	20	1.53	-0.01	-0.00
			Max. Compression	21	-1.49	-0.01	-0.00
			Max. Mx	14	-0.06	-0.01	-0.00
			Max. My	6	0.00	-0.01	-0.00
			Max. Vy	14	-0.01	-0.01	-0.00
			Max. Vx	6	-0.00	-0.01	-0.00
		Top Girt	Max Tension	23	1.36	-0.01	0.00
			Max. Compression	10	-1.36	0.00	0.00
			Max. Mx	14	-0.67	-0.01	-0.00
			Max. My	2	0.64	-0.01	0.00
			Max. Vy	14	-0.01	-0.01	-0.00

			Max. Vx	18	-0.00	-0.01	0.00
		Inner Bracing	Max Tension	3	0.00	0.00	0.00
			Max. Compression	6	-0.00	0.00	0.00
			Max. Mx	2	-0.00	-0.00	0.00
			Max. Vy	2	0.00	0.00	0.00
T2	240 - 220	Leg	Max Tension	7	14.18	0.09	-0.05
			Max. Compression	10	-20.75	-0.09	0.01
			Max. Mx	22	6.97	1.21	-0.01
			Max. My	4	-2.37	-0.00	1.23
			Max. Vy	22	-0.83	-0.69	-0.01
			Max. Vx	16	0.88	-0.00	0.75
		Diagonal	Max Tension	21	6.79	0.00	0.00
			Max. Compression	20	-6.86	0.00	0.00
			Max. Mx	2	5.81	0.02	0.00
			Max. Vy	2	-0.01	0.00	0.00
		Horizontal	Max Tension	20	3.71	-0.01	-0.00
			Max. Compression	21	-3.68	-0.01	-0.00
			Max. Mx	6	-0.81	-0.02	-0.01
			Max. My	6	-0.81	-0.02	-0.01
			Max. Vy	6	-0.01	-0.02	-0.01
			Max. Vx	6	0.00	-0.02	-0.01
		Inner Bracing	Max Tension	19	0.00	0.00	0.00
			Max. Compression	6	-0.00	0.00	0.00
			Max. Mx	2	-0.00	-0.00	0.00
			Max. Vy	2	0.00	0.00	0.00
T3	220 - 200	Leg	Max Tension	7	43.45	-0.12	-0.02
			Max. Compression	18	-51.15	0.38	0.11
			Max. Mx	18	-51.15	0.38	0.11
			Max. My	4	-5.84	0.01	-0.41
			Max. Vy	6	0.09	-0.21	-0.04
			Max. Vx	4	0.13	0.00	-0.24
		Diagonal	Max Tension	21	8.48	0.00	0.00
			Max. Compression	20	-8.57	0.00	0.00
			Max. Mx	2	7.28	0.03	0.00
			Max. Vy	2	-0.01	0.00	0.00
		Horizontal	Max Tension	20	4.67	-0.01	-0.00
			Max. Compression	21	-4.63	-0.01	-0.00
			Max. Mx	6	0.38	-0.02	-0.01
			Max. My	6	0.38	-0.02	-0.01
			Max. Vy	6	0.01	-0.02	-0.01
			Max. Vx	6	-0.00	0.00	0.00
		Inner Bracing	Max Tension	19	0.00	0.00	0.00
			Max. Compression	6	-0.00	0.00	0.00
			Max. Mx	2	-0.00	-0.00	0.00
			Max. Vy	2	0.00	0.00	0.00
T4	200 - 180	Leg	Max Tension	7	69.12	-0.35	-0.03
			Max. Compression	18	-78.97	0.32	0.04
			Max. Mx	18	-63.12	0.38	0.11
			Max. My	4	-6.12	0.01	-0.41
			Max. Vy	22	-0.07	-0.35	-0.03
			Max. Vx	4	0.10	-0.01	-0.40
		Diagonal	Max Tension	20	5.86	0.00	0.00
			Max. Compression	20	-5.96	0.00	0.00
			Max. Mx	2	5.10	0.04	0.00
			Max. Vy	2	0.02	0.00	0.00
		Horizontal	Max Tension	7	3.74	0.00	0.00
			Max. Compression	18	-4.06	-0.02	-0.00
			Max. Mx	6	-0.87	-0.02	-0.01
			Max. My	18	0.37	0.00	0.01
			Max. Vy	6	-0.01	-0.02	-0.01
			Max. Vx	18	-0.00	0.00	0.01
		Inner Bracing	Max Tension	19	0.00	0.00	0.00
			Max. Compression	6	-0.01	0.00	0.00
			Max. Mx	2	-0.00	-0.01	0.00
			Max. Vy	2	0.01	0.00	0.00
T5	180 - 160	Leg	Max Tension	7	89.00	-0.34	-0.01
			Max. Compression	18	-101.52	0.97	0.08
			Max. Mx	6	87.09	-0.99	-0.09
			Max. My	4	-9.10	-0.01	-1.04

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			Max. Vy	6	0.16	-0.99	-0.09
			Max. Vx	4	0.19	-0.01	-1.04
		Diagonal	Max Tension	21	5.85	0.00	0.00
			Max. Compression	20	-5.99	0.00	0.00
			Max. Mx	2	5.08	0.05	0.00
			Max. Vy	2	-0.02	0.00	0.00
		Horizontal	Max Tension	20	4.08	-0.02	-0.00
			Max. Compression	18	-4.02	-0.03	-0.00
			Max. Mx	6	-0.87	-0.04	-0.01
			Max. My	18	-0.41	-0.00	0.01
			Max. Vy	6	0.02	-0.04	-0.01
			Max. Vx	18	0.00	-0.00	0.01
		Inner Bracing	Max Tension	19	0.00	0.00	0.00
			Max. Compression	6	-0.01	0.00	0.00
			Max. Mx	2	-0.00	-0.01	0.00
			Max. Vy	2	0.01	0.00	0.00
T6	160 - 140	Leg	Max Tension	7	104.28	-0.92	-0.04
			Max. Compression	18	-119.48	1.05	0.06
			Max. Mx	6	101.87	-1.08	-0.07
			Max. My	4	-10.92	-0.01	-1.07
			Max. Vy	22	0.14	-1.02	-0.04
			Max. Vx	4	0.17	-0.01	-1.07
		Diagonal	Max Tension	21	7.41	0.00	0.00
			Max. Compression	20	-7.64	0.00	0.00
			Max. Mx	2	6.59	0.12	0.00
			Max. Vy	2	-0.04	0.00	0.00
		Horizontal	Max Tension	7	4.56	0.00	0.00
			Max. Compression	18	-4.59	-0.04	-0.00
			Max. Mx	6	-1.11	-0.05	-0.01
			Max. My	18	-0.30	-0.01	0.01
			Max. Vy	6	0.02	-0.05	-0.01
			Max. Vx	18	0.00	-0.01	0.01
		Inner Bracing	Max Tension	19	0.00	0.00	0.00
			Max. Compression	6	-0.01	0.00	0.00
			Max. Mx	2	-0.00	-0.01	0.00
			Max. Vy	2	0.01	0.00	0.00
T7	140 - 120	Leg	Max Tension	7	121.30	-0.93	-0.03
			Max. Compression	18	-139.78	0.84	0.08
			Max. Mx	6	110.93	-1.08	-0.07
			Max. My	4	-11.41	-0.01	-1.07
			Max. Vy	22	-0.14	-1.02	-0.04
			Max. Vx	16	0.17	-0.01	1.06
		Diagonal	Max Tension	21	7.08	0.00	0.00
			Max. Compression	20	-7.35	0.00	0.00
			Max. Mx	2	6.34	0.14	0.00
			Max. Vy	2	-0.04	0.00	0.00
		Horizontal	Max Tension	7	4.80	0.00	0.00
			Max. Compression	18	-4.81	-0.05	-0.00
			Max. Mx	6	-1.13	-0.05	-0.01
			Max. My	18	1.32	-0.02	0.01
			Max. Vy	6	-0.03	-0.05	-0.01
			Max. Vx	18	0.00	-0.02	0.01
		Inner Bracing	Max Tension	1	0.00	0.00	0.00
			Max. Compression	6	-0.01	0.00	0.00
			Max. Mx	2	-0.01	-0.03	0.00
			Max. Vy	2	0.02	0.00	0.00
T8	120 - 100	Leg	Max Tension	7	137.23	-0.86	-0.03
			Max. Compression	18	-159.60	0.91	0.04
			Max. Mx	6	133.69	-0.96	-0.05
			Max. My	4	-13.52	-0.03	-1.02
			Max. Vy	22	0.13	-0.91	-0.03
			Max. Vx	16	0.17	-0.03	1.02
		Diagonal	Max Tension	21	7.49	0.00	0.00
			Max. Compression	20	-7.86	0.00	0.00
			Max. Mx	2	6.68	0.17	0.00
			Max. Vy	2	-0.05	0.00	0.00
		Horizontal	Max Tension	20	5.48	-0.08	-0.00
			Max. Compression	19	-5.41	-0.07	-0.01
			Max. Mx	6	-1.13	-0.11	-0.01

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			Max. My	18	-0.34	-0.05	0.01
			Max. Vy	6	-0.05	-0.11	-0.01
			Max. Vx	18	0.00	-0.05	0.01
		Inner Bracing	Max Tension	1	0.00	0.00	0.00
			Max. Compression	6	-0.01	0.00	0.00
			Max. Mx	2	-0.01	-0.05	0.00
			Max. Vy	2	0.02	0.00	0.00
T9	100 - 80	Leg	Max Tension	7	152.58	-0.90	-0.04
			Max. Compression	18	-179.18	0.47	0.02
			Max. Mx	6	141.79	-0.96	-0.05
			Max. My	4	-16.06	-0.03	-0.94
			Max. Vy	22	-0.15	-0.86	-0.02
			Max. Vx	4	-0.16	-0.03	-0.90
		Diagonal	Max Tension	21	7.50	0.00	0.00
			Max. Compression	20	-7.96	0.00	0.00
			Max. Mx	2	6.70	0.21	0.00
			Max. Vy	2	-0.05	0.00	0.00
		Horizontal	Max Tension	20	5.88	-0.11	-0.00
			Max. Compression	19	-5.72	-0.09	-0.01
			Max. Mx	6	-1.12	-0.13	-0.01
			Max. My	18	1.40	-0.08	0.01
			Max. Vy	6	-0.05	-0.13	-0.01
			Max. Vx	18	0.00	0.00	0.00
		Inner Bracing	Max Tension	1	0.00	0.00	0.00
			Max. Compression	6	-0.01	0.00	0.00
			Max. Mx	2	-0.01	-0.10	0.00
			Max. Vy	2	0.04	0.00	0.00
T10	80 - 60	Leg	Max Tension	7	167.69	-1.82	0.03
			Max. Compression	18	-199.11	-2.15	0.29
			Max. Mx	18	-199.11	-2.15	0.29
			Max. My	4	-21.05	-0.79	-4.07
			Max. Vy	18	0.51	1.97	-0.04
			Max. Vx	16	-0.49	-0.79	4.06
		Diagonal	Max Tension	21	8.55	0.00	0.00
			Max. Compression	20	-9.07	0.00	0.00
			Max. Mx	2	7.53	0.24	0.00
			Max. Vy	2	-0.06	0.00	0.00
		Horizontal	Max Tension	20	7.06	-0.13	-0.00
			Max. Compression	21	-6.69	-0.10	-0.00
			Max. Mx	6	-0.67	-0.15	-0.01
			Max. My	6	0.84	-0.13	-0.01
			Max. Vy	6	-0.06	-0.15	-0.01
			Max. Vx	6	0.00	-0.13	-0.01
		Inner Bracing	Max Tension	1	0.00	0.00	0.00
			Max. Compression	6	-0.01	0.00	0.00
			Max. Mx	2	-0.01	-0.13	0.00
			Max. Vy	2	0.04	0.00	0.00
T11	60 - 40	Leg	Max Tension	7	173.75	0.93	-0.30
			Max. Compression	18	-208.04	-6.01	0.62
			Max. Mx	18	-207.63	7.88	-0.58
			Max. My	16	-23.32	-1.53	5.66
			Max. Vy	18	1.47	7.88	-0.58
			Max. Vx	16	-1.03	-1.53	5.66
		Diagonal	Max Tension	21	12.94	-0.10	-0.01
			Max. Compression	18	-14.08	0.00	0.00
			Max. Mx	6	9.98	-0.14	0.02
			Max. My	20	-13.20	-0.06	-0.07
			Max. Vy	6	-0.05	-0.14	0.02
			Max. Vx	20	-0.01	-0.06	-0.07
		Horizontal	Max Tension	20	7.41	-0.20	-0.00
			Max. Compression	18	-7.39	-0.22	-0.01
			Max. Mx	6	0.25	-0.24	-0.02
			Max. My	18	-0.14	-0.16	0.02
			Max. Vy	6	0.08	-0.24	-0.02
			Max. Vx	18	0.00	-0.16	0.02
		Redund Horz 1 Bracing	Max Tension	6	1.96	0.00	0.00
			Max. Compression	19	-1.52	0.00	0.00
			Max. Mx	2	0.66	0.02	0.00

			Max. Vy	2	-0.01	0.00	0.00
		Redund Diag 1 Bracing	Max Tension	9	1.50	0.00	0.00
			Max. Compression	6	-1.68	0.00	0.00
			Max. Mx	2	-0.99	0.03	0.00
			Max. Vy	2	-0.01	0.00	0.00
		Redund Hip 1 Bracing	Max Tension	21	0.01	0.00	0.00
			Max. Compression	8	-0.02	0.00	0.00
			Max. Mx	2	-0.02	0.02	0.00
			Max. Vy	2	-0.01	0.00	0.00
		Redund Hip Diagonal 1 Bracing	Max Tension	2	0.06	0.00	0.00
			Max. Compression	14	-0.06	0.00	0.00
			Max. Mx	2	0.06	0.16	0.00
			Max. Vy	2	-0.04	0.00	0.00
		Inner Bracing	Max Tension	1	0.00	0.00	0.00
			Max. Compression	2	-0.01	0.00	0.00
			Max. Mx	2	-0.01	0.19	0.00
			Max. Vy	2	-0.06	0.00	0.00
T12	40 - 20	Leg	Max Tension	7	189.26	3.69	-0.60
			Max. Compression	18	-228.37	-5.98	0.59
			Max. Mx	18	-227.79	8.26	-0.53
			Max. My	16	-24.72	-1.53	5.65
			Max. Vy	18	-1.50	8.26	-0.53
			Max. Vx	16	0.98	-1.53	5.65
		Diagonal	Max Tension	21	13.15	-0.11	-0.01
			Max. Compression	18	-14.40	0.00	0.00
			Max. Mx	6	8.99	-0.15	0.02
			Max. My	14	-11.80	-0.10	-0.06
			Max. Vy	6	-0.05	-0.15	0.02
			Max. Vx	14	-0.00	0.00	0.00
		Horizontal	Max Tension	20	7.91	-0.24	0.00
			Max. Compression	18	-7.99	-0.26	-0.01
			Max. Mx	6	-1.75	-0.28	-0.02
			Max. My	18	-0.12	-0.20	0.02
			Max. Vy	6	-0.09	-0.28	-0.02
			Max. Vx	18	0.00	-0.20	0.02
		Redund Horz 1 Bracing	Max Tension	6	2.20	0.00	0.00
			Max. Compression	9	-1.67	0.00	0.00
			Max. Mx	2	0.71	0.02	0.00
			Max. Vy	2	-0.01	0.00	0.00
		Redund Diag 1 Bracing	Max Tension	9	1.56	0.00	0.00
			Max. Compression	6	-1.77	0.00	0.00
			Max. Mx	2	-1.10	0.02	0.00
			Max. Vy	2	-0.01	0.00	0.00
		Redund Hip 1 Bracing	Max Tension	21	0.01	0.00	0.00
			Max. Compression	8	-0.02	0.00	0.00
			Max. Mx	2	-0.02	0.02	0.00
			Max. Vy	2	-0.01	0.00	0.00
		Redund Hip Diagonal 1 Bracing	Max Tension	2	0.05	0.00	0.00
			Max. Compression	14	-0.06	0.00	0.00
			Max. Mx	2	0.05	0.18	0.00
			Max. Vy	2	-0.05	0.00	0.00
		Inner Bracing	Max Tension	1	0.00	0.00	0.00
			Max. Compression	2	-0.01	0.00	0.00
			Max. Mx	2	-0.01	0.23	0.00
			Max. Vy	2	-0.07	0.00	0.00
T13	20 - 0	Leg	Max Tension	7	205.04	3.56	-0.55
			Max. Compression	18	-249.53	0.00	-0.00
			Max. Mx	18	-248.95	7.49	-0.53
			Max. My	16	-28.00	-1.59	5.64
			Max. Vy	18	-1.41	7.49	-0.53
			Max. Vx	16	0.96	-1.59	5.64
		Diagonal	Max Tension	21	13.27	-0.12	-0.01

		Max. Compression	20	-14.38	0.00	0.00
		Max. Mx	20	5.70	-0.16	0.01
		Max. My	20	-14.28	-0.09	-0.06
		Max. Vy	20	-0.05	-0.16	0.01
		Max. Vx	20	0.00	-0.09	-0.06
	Horizontal	Max Tension	20	8.42	-0.28	0.00
		Max. Compression	18	-8.56	-0.30	-0.01
		Max. Mx	6	0.07	-0.32	-0.02
		Max. My	18	-0.06	-0.25	0.02
		Max. Vy	6	0.09	-0.32	-0.02
		Max. Vx	18	-0.00	-0.25	0.02
	Redund Horz 1 Bracing	Max Tension	8	1.53	0.00	0.00
		Max. Compression	9	-1.19	0.00	0.00
		Max. Mx	2	1.11	0.02	0.00
		Max. Vy	2	-0.01	0.00	0.00
	Redund Diag 1 Bracing	Max Tension	8	1.12	0.00	0.00
		Max. Compression	8	-1.12	0.00	0.00
		Max. Mx	2	-0.70	0.03	0.00
		Max. Vy	2	0.01	0.00	0.00
	Redund Hip 1 Bracing	Max Tension	21	0.00	0.00	0.00
		Max. Compression	8	-0.02	0.00	0.00
		Max. Mx	2	-0.02	0.02	0.00
		Max. Vy	2	-0.01	0.00	0.00
	Redund Hip Diagonal 1 Bracing	Max Tension	2	0.06	0.00	0.00
		Max. Compression	14	-0.07	0.00	0.00
		Max. Mx	2	0.06	0.27	0.00
		Max. Vy	2	-0.06	0.00	0.00
	Inner Bracing	Max Tension	1	0.00	0.00	0.00
		Max. Compression	2	-0.01	0.00	0.00
		Max. Mx	2	-0.01	0.27	0.00
		Max. Vy	2	-0.07	0.00	0.00

Maximum Reactions

Leg C	Max. Vert	18	269.15	28.42	-15.33
	Max. H_x	18	269.15	28.42	-15.33
	Max. H_z	7	-220.92	-24.57	13.14
	Min. Vert	7	-220.92	-24.57	13.14
	Min. H_x	7	-220.92	-24.57	13.14
	Min. H_z	18	269.15	28.42	-15.33
Leg B	Max. Vert	10	253.84	-25.71	-15.37
	Max. H_x	21	-186.01	21.82	9.84
	Max. H_z	23	-199.67	21.80	13.08
	Min. Vert	23	-199.67	21.80	13.08
	Min. H_x	8	240.18	-25.73	-12.13
	Min. H_z	10	253.84	-25.71	-15.37
Leg A	Max. Vert	2	252.13	1.02	29.92
	Max. H_x	20	29.25	4.18	2.56
	Max. H_z	2	252.13	1.02	29.92
	Min. Vert	15	-200.95	-0.96	-25.44
	Min. H_x	9	21.94	-4.12	1.92
	Min. H_z	15	-200.95	-0.96	-25.44

Tower Mast Reaction Summary

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Dead Only	73.14	0.00	0.00	0.14	-46.46	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	87.76	0.00	-47.01	-6337.47	-55.75	55.88
0.9 Dead+1.0 Wind 0 deg - No Ice	65.82	0.00	-47.01	-6337.52	-41.82	55.88
1.2 Dead+1.0 Wind 30 deg - No Ice	87.76	25.57	-44.28	-5948.95	-3490.47	78.81
0.9 Dead+1.0 Wind 30 deg - No Ice	65.82	25.57	-44.28	-5948.99	-3476.53	78.81
1.2 Dead+1.0 Wind 60 deg - No Ice	87.76	44.28	-25.57	-3434.56	-6004.86	52.23
0.9 Dead+1.0 Wind 60 deg - No Ice	65.82	44.28	-25.57	-3434.60	-5990.92	52.23
1.2 Dead+1.0 Wind 90 deg - No Ice	87.76	51.13	0.00	0.16	-6925.19	11.65
0.9 Dead+1.0 Wind 90 deg - No Ice	65.82	51.13	0.00	0.12	-6911.25	11.65
1.2 Dead+1.0 Wind 120 deg - No Ice	87.76	40.71	23.51	3168.98	-5544.31	-24.98
0.9 Dead+1.0 Wind 120 deg - No Ice	65.82	40.71	23.51	3168.94	-5530.37	-24.98
1.2 Dead+1.0 Wind 150 deg - No Ice	87.76	21.96	38.03	5143.40	-3025.21	-31.29
0.9 Dead+1.0 Wind 150 deg - No Ice	65.82	21.96	38.03	5143.36	-3011.27	-31.29
1.2 Dead+1.0 Wind 180 deg - No Ice	87.76	0.00	47.01	6337.80	-55.75	-55.88
0.9 Dead+1.0 Wind 180 deg - No Ice	65.82	0.00	47.01	6337.76	-41.82	-55.88
1.2 Dead+1.0 Wind 210 deg - No Ice	87.76	-25.57	44.28	5949.27	3378.97	-78.81
0.9 Dead+1.0 Wind 210 deg - No Ice	65.82	-25.57	44.28	5949.23	3392.90	-78.81
1.2 Dead+1.0 Wind 240 deg - No Ice	87.76	-44.28	25.57	3434.88	5893.36	-52.23
0.9 Dead+1.0 Wind 240 deg - No Ice	65.82	-44.28	25.57	3434.84	5907.29	-52.23
1.2 Dead+1.0 Wind 270 deg - No Ice	87.76	-51.13	0.00	0.16	6813.69	-11.65
0.9 Dead+1.0 Wind 270 deg - No Ice	65.82	-51.13	0.00	0.12	6827.62	-11.65
1.2 Dead+1.0 Wind 300 deg - No Ice	87.76	-40.71	-23.51	-3168.66	5432.80	24.98
0.9 Dead+1.0 Wind 300 deg - No Ice	65.82	-40.71	-23.51	-3168.70	5446.74	24.98
1.2 Dead+1.0 Wind 330 deg - No Ice	87.76	-21.96	-38.03	-5143.08	2913.70	31.29
0.9 Dead+1.0 Wind 330 deg - No Ice	65.82	-21.96	-38.03	-5143.12	2927.64	31.29
Dead+Wind 0 deg - Service	73.14	0.00	-13.56	-1801.21	-46.46	15.21
Dead+Wind 30 deg - Service	73.14	7.34	-12.72	-1685.22	-1019.50	21.45
Dead+Wind 60 deg - Service	73.14	12.72	-7.34	-972.91	-1731.82	14.21
Dead+Wind 90 deg - Service	73.14	14.69	0.00	0.14	-1992.54	3.17
Dead+Wind 120 deg - Service	73.14	11.75	6.78	900.81	-1606.48	-6.80
Dead+Wind 150 deg - Service	73.14	6.36	11.02	1466.17	-892.88	-8.51
Dead+Wind 180 deg - Service	73.14	0.00	13.56	1801.49	-46.46	-15.21
Dead+Wind 210 deg - Service	73.14	-7.34	12.72	1685.49	926.58	-21.45
Dead+Wind 240 deg - Service	73.14	-12.72	7.34	973.18	1638.90	-14.21
Dead+Wind 270 deg - Service	73.14	-14.69	0.00	0.14	1899.62	-3.17

Dead+Wind 300 deg - Service	73.14	-11.75	-6.78	-900.54	1513.55	6.80
Dead+Wind 330 deg - Service	73.14	-6.36	-11.02	-1465.90	799.96	8.51

Solution Summary

1	0.00	-73.14	0.00	-0.00	73.14	0.00	0.000%
2	0.00	-87.76	-47.01	-0.00	87.76	47.01	0.000%
3	0.00	-65.82	-47.01	-0.00	65.82	47.01	0.000%
4	25.57	-87.76	-44.28	-25.57	87.76	44.28	0.000%
5	25.57	-65.82	-44.28	-25.57	65.82	44.28	0.000%
6	44.28	-87.76	-25.57	-44.28	87.76	25.57	0.000%
7	44.28	-65.82	-25.57	-44.28	65.82	25.57	0.000%
8	51.13	-87.76	0.00	-51.13	87.76	0.00	0.000%
9	51.13	-65.82	0.00	-51.13	65.82	0.00	0.000%
10	40.71	-87.76	23.51	-40.71	87.76	-23.51	0.000%
11	40.71	-65.82	23.51	-40.71	65.82	-23.51	0.000%
12	21.96	-87.76	38.03	-21.96	87.76	-38.03	0.000%
13	21.96	-65.82	38.03	-21.96	65.82	-38.03	0.000%
14	-0.00	-87.76	47.01	0.00	87.76	-47.01	0.000%
15	-0.00	-65.82	47.01	0.00	65.82	-47.01	0.000%
16	-25.57	-87.76	44.28	25.57	87.76	-44.28	0.000%
17	-25.57	-65.82	44.28	25.57	65.82	-44.28	0.000%
18	-44.28	-87.76	25.57	44.28	87.76	-25.57	0.000%
19	-44.28	-65.82	25.57	44.28	65.82	-25.57	0.000%
20	-51.13	-87.76	0.00	51.13	87.76	0.00	0.000%
21	-51.13	-65.82	0.00	51.13	65.82	0.00	0.000%
22	-40.71	-87.76	-23.51	40.71	87.76	23.51	0.000%
23	-40.71	-65.82	-23.51	40.71	65.82	23.51	0.000%
24	-21.96	-87.76	-38.03	21.96	87.76	38.03	0.000%
25	-21.96	-65.82	-38.03	21.96	65.82	38.03	0.000%
26	0.00	-73.14	-13.56	-0.00	73.14	13.56	0.000%
27	7.34	-73.14	-12.72	-7.34	73.14	12.72	0.000%
28	12.72	-73.14	-7.34	-12.72	73.14	7.34	0.000%
29	14.69	-73.14	0.00	-14.69	73.14	0.00	0.000%
30	11.75	-73.14	6.78	-11.75	73.14	-6.78	0.000%
31	6.36	-73.14	11.02	-6.36	73.14	-11.02	0.000%
32	0.00	-73.14	13.56	-0.00	73.14	-13.56	0.000%
33	-7.34	-73.14	12.72	7.34	73.14	-12.72	0.000%
34	-12.72	-73.14	7.34	12.72	73.14	-7.34	0.000%
35	-14.69	-73.14	0.00	14.69	73.14	0.00	0.000%
36	-11.75	-73.14	-6.78	11.75	73.14	6.78	0.000%
37	-6.36	-73.14	-11.02	6.36	73.14	11.02	0.000%

Maximum Tower Deflections - Service Wind

T1	250 - 240	3.796	29	0.1547	0.0691
T2	240 - 220	3.468	29	0.1536	0.0684
T3	220 - 200	2.824	29	0.1423	0.0619
T4	200 - 180	2.244	29	0.1237	0.0525
T5	180 - 160	1.760	29	0.1025	0.0418
T6	160 - 140	1.354	29	0.0859	0.0335
T7	140 - 120	1.020	29	0.0712	0.0274
T8	120 - 100	0.747	29	0.0563	0.0220
T9	100 - 80	0.526	29	0.0450	0.0178
T10	80 - 60	0.350	29	0.0338	0.0139

T11	60 - 40	0.208	29	0.0252	0.0102
T12	40 - 20	0.105	35	0.0169	0.0066
T13	20 - 0	0.037	35	0.0085	0.0032

Critical Deflections and Radius of Curvature - Service Wind

252.00	Sector Mount [SM 504-3]	29	3.796	0.1547	0.0691	Inf
250.00	Flash Beacon Lighting	29	3.796	0.1547	0.0691	Inf
231.00	Site Pro 1 VFA12-HD 12' Heavy Duty V-Frame	29	3.174	0.1499	0.0662	144706

Maximum Tower Deflections - Design Wind

T1	250 - 240	13.368	8	0.5452	0.2536
T2	240 - 220	12.209	8	0.5414	0.2512
T3	220 - 200	9.934	8	0.5024	0.2272
T4	200 - 180	7.880	8	0.4364	0.1927
T5	180 - 160	6.173	8	0.3612	0.1533
T6	160 - 140	4.741	8	0.3021	0.1227
T7	140 - 120	3.567	8	0.2499	0.1003
T8	120 - 100	2.610	8	0.1971	0.0805
T9	100 - 80	1.836	8	0.1572	0.0651
T10	80 - 60	1.222	8	0.1179	0.0508
T11	60 - 40	0.725	8	0.0880	0.0373
T12	40 - 20	0.365	20	0.0587	0.0239
T13	20 - 0	0.124	20	0.0294	0.0116

Critical Deflections and Radius of Curvature - Design Wind

252.00	Sector Mount [SM 504-3]	8	13.368	0.5452	0.2536	486239
250.00	Flash Beacon Lighting	8	13.368	0.5452	0.2536	486239
231.00	Site Pro 1 VFA12-HD 12' Heavy Duty V-Frame	8	11.171	0.5288	0.2430	43633

Bolt Design Data

T1	250	Leg	A325N	0.7500	4	0.41	30.10	0.013	1.05	Bolt Tension
		Diagonal	A325N	0.6250	3	0.79	13.81	0.057	1.05	Bolt Shear
		Horizontal	A325N	0.6250	2	0.76	13.81	0.055	1.05	Bolt Shear
T2	240	Leg	A325N	0.8750	4	3.54	41.56	0.085	1.05	Bolt Tension
		Diagonal	A325N	0.6250	3	2.29	13.81	0.166	1.05	Bolt Shear
		Horizontal	A325N	0.6250	2	1.86	13.81	0.134	1.05	Bolt Shear
T3	220	Leg	A325N	1.0000	4	10.86	54.52	0.199	1.05	Bolt Tension

		Diagonal	A325N	0.6250	3	2.86	13.81	0.207	1.05	Bolt Shear
		Horizontal	A325N	0.6250	2	2.33	13.81	0.169	1.05	Bolt Shear
T4	200	Leg	A325N	1.0000	6	11.52	54.52	0.211	1.05	Bolt Tension
		Diagonal	A325N	0.6250	3	1.99	13.81	0.144	1.05	Bolt Shear
		Horizontal	A325N	0.6250	2	2.03	13.81	0.147	1.05	Bolt Shear
T5	180	Leg	A325N	1.0000	8	11.13	54.52	0.204	1.05	Bolt Tension
		Diagonal	A325N	0.6250	3	2.00	13.81	0.145	1.05	Bolt Shear
		Horizontal	A325N	0.6250	2	2.04	13.81	0.148	1.05	Bolt Shear
T6	160	Leg	A325N	1.0000	8	13.04	54.52	0.239	1.05	Bolt Tension
		Diagonal	A325N	0.6250	3	2.55	13.81	0.184	1.05	Bolt Shear
		Horizontal	A325N	0.6250	2	2.29	13.81	0.166	1.05	Bolt Shear
T7	140	Leg	A325N	1.0000	8	15.16	54.52	0.278	1.05	Bolt Tension
		Diagonal	A325N	0.6250	3	2.45	13.81	0.178	1.05	Bolt Shear
		Horizontal	A325N	0.6250	2	2.41	13.81	0.174	1.05	Bolt Shear
T8	120	Leg	A325N	1.0000	8	17.15	54.52	0.315	1.05	Bolt Tension
		Diagonal	A325N	0.6250	3	2.62	13.81	0.190	1.05	Bolt Shear
		Horizontal	A325N	0.6250	2	2.74	13.81	0.198	1.05	Bolt Shear
T9	100	Leg	A325N	1.0000	12	12.71	54.52	0.233	1.05	Bolt Tension
		Diagonal	A325N	0.6250	3	2.65	13.81	0.192	1.05	Bolt Shear
		Horizontal	A325N	0.6250	2	2.94	13.81	0.213	1.05	Bolt Shear
T10	80	Leg	A325N	1.0000	12	13.97	54.52	0.256	1.05	Bolt Tension
		Diagonal	A325N	0.6250	3	3.02	13.81	0.219	1.05	Bolt Shear
		Horizontal	A325N	0.6250	2	3.53	13.81	0.256	1.05	Bolt Shear
T11	60	Leg	A325N	1.0000	12	14.43	54.52	0.265	1.05	Bolt Tension
		Diagonal	A325N	0.7500	3	4.69	19.88	0.236	1.05	Bolt Shear
		Horizontal	A325N	0.7500	2	3.71	19.88	0.186	1.05	Bolt Shear
		Redund Horz 1 Bracing	A325N	0.6250	1	3.61	13.57	0.266	1.05	Member Bearing
		Redund Diag 1 Bracing	A325N	0.6250	1	3.28	13.57	0.242	1.05	Member Bearing
		Redund Hip 1 Bracing	A325N	0.6250	1	0.02	13.81	0.001	1.05	Bolt Shear
		Redund Hip Diagonal 1 Bracing	A325N	0.6250	1	0.06	13.81	0.005	1.05	Bolt Shear
T12	40	Leg	A325N	1.0000	12	15.72	54.52	0.288	1.05	Bolt Tension
		Diagonal	A325N	0.7500	3	4.80	19.88	0.242	1.05	Bolt Shear
		Horizontal	A325N	0.7500	2	4.00	19.88	0.201	1.05	Bolt Shear
		Redund Horz 1 Bracing	A325N	0.6250	1	3.96	13.57	0.292	1.05	Member Bearing
		Redund Diag 1 Bracing	A325N	0.6250	1	3.37	7.77	0.434	1.05	Member Bearing
		Redund Hip 1 Bracing	A325N	0.6250	1	0.02	13.81	0.001	1.05	Bolt Shear
		Redund Hip Diagonal 1 Bracing	A325N	0.6250	1	0.06	13.81	0.004	1.05	Bolt Shear
T13	20	Diagonal	A325N	0.7500	3	4.79	19.88	0.241	1.05	Bolt Shear
		Horizontal	A325N	0.7500	2	4.28	19.88	0.215	1.05	Bolt Shear
		Redund Horz 1 Bracing	A325N	0.6250	1	4.33	13.57	0.319	1.05	Member Bearing
		Redund Diag 1 Bracing	A325N	0.6250	1	3.48	7.77	0.448	1.05	Member Bearing
		Redund Hip 1 Bracing	A325N	0.6250	1	0.02	13.81	0.001	1.05	Bolt Shear
		Redund Hip Diagonal 1 Bracing	A325N	0.6250	1	0.07	13.81	0.005	1.05	Bolt Shear

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Leg Design Data (Compression)

U ƎU	/ U U U	U U	U U U	U U U	DU U	VU U ᴸU	U U U	ϕ U U U	U U ϕ U
T1	250 - 240	ROHN 2.5 STD	10.00	5.00	63.3 K=1.00	1.7040	-4.53	57.19	0.079 [1]
T2	240 - 220	ROHN 3 STD	20.00	6.67	68.8 K=1.00	2.2285	-20.75	70.98	0.292 [1]
T3	220 - 200	ROHN 4 X-STR	20.00	6.67	54.2 K=1.00	4.4074	-51.15	160.03	0.320 [1]
T4	200 - 180	ROHN 5 EH	20.04	6.68	43.6 K=1.00	6.1120	-78.97	239.38	0.330 [1]
T5	180 - 160	ROHN 6 EH	20.04	6.68	36.5 K=1.00	8.4049	-101.52	343.08	0.296 [1]
T6	160 - 140	ROHN 8 EHS	20.04	10.02	40.6 K=1.00	9.8666	-119.48	393.65	0.304 [1]
T7	140 - 120	ROHN 8 EHS	20.05	10.03	40.6 K=1.00	9.8666	-139.78	393.60	0.355 [1]
T8	120 - 100	ROHN 8 X-STR	20.05	10.03	41.8 K=1.00	12.7627	-159.60	505.43	0.316 [1]
T9	100 - 80	ROHN 8 X-STR	20.06	10.03	41.8 K=1.00	12.7627	-179.18	505.39	0.355 [1]
T10	80 - 60	ROHN 10 EH	20.05	10.03	33.2 K=1.00	16.1007	-199.11	668.56	0.298 [1]
T11	60 - 40	ROHN 10 X-STR	20.05	10.03	33.2 K=1.00	16.1007	-208.04	668.56	0.311 [1]
T12	40 - 20	ROHN 10 X-STR	20.05	10.03	33.2 K=1.00	16.1007	-228.37	668.56	0.342 [1]
T13	20 - 0	ROHN 10 EH	20.05	10.03	33.2 K=1.00	16.1007	-249.53	668.56	0.373 [1]

[1] U_U/ϕ controls

Diagonal Design Data (Compression)

U ƎU	/ U U U	U U	U U U	U U U	DU U	VU U ᴸU	U U U	ϕ U U U	U U ϕ U
T1	250 - 240	ROHN 2 STD	6.58	6.39	97.4 K=1.00	1.0745	-2.37	24.15	0.098 [1]
T2	240 - 220	ROHN 2 STD	7.94	7.67	117.0 K=1.00	1.0745	-6.86	17.75	0.386 [1]
T3	220 - 200	ROHN 2 X-STR	7.96	7.62	119.3 K=1.00	1.4773	-8.57	23.45	0.365 [1]
T4	200 - 180	ROHN 2 X-STR	8.58	8.21	128.5 K=1.00	1.4773	-5.93	20.20	0.294 [1]
T5	180 - 160	ROHN 2 X-STR	9.29	8.89	139.2 K=1.00	1.4773	-5.91	17.22	0.343 [1]
T6	160 - 140	ROHN 2.5 X-STR	12.56	11.95	155.2 K=1.00	2.2535	-7.64	21.12	0.362 [1]
T7	140 - 120	ROHN 3 STD	13.35	12.80	132.0 K=1.00	2.2285	-7.35	28.89	0.255 [1]
T8	120 - 100	ROHN 3 STD	14.21	13.70	141.3 K=1.00	2.2285	-7.86	25.21	0.312 [1]
T9	100 - 80	ROHN 3 STD	15.18	14.70	151.6 K=1.00	2.2285	-7.96	21.89	0.364 [1]
T10	80 - 60	ROHN 3 STD	16.14	15.57	160.6 K=1.00	2.2285	-9.07	19.52	0.465 [1]
T11	60 - 40	ROHN 3 STD	24.38	12.19	125.7 K=1.00	2.2285	-14.08	31.86	0.442 [1]

U EU	/ U U U	U U	U U U	U U U	DU U	VU U ^{L}U	U U U	ϕ U U U	U $\frac{U}{\phi U}$
T12	40 - 20	ROHN 3 STD	25.11	12.56	129.5 K=1.00	2.2285	-14.40	30.03	0.480 [1]
T13	20 - 0	ROHN 3 STD	25.88	12.94	133.5 K=1.00	2.2285	-14.38	28.26	0.509 [1]

[1] U_U/ϕ controls

Horizontal Design Data (Compression)

U EU	/ U U U	U U	U U U	U U U	DU U	VU U ^{L}U	U U U	ϕ U U U	U $\frac{U}{\phi U}$
T1	250 - 240	ROHN 1.5 STD	8.52	4.14	79.8 K=1.00	0.7995	-1.49	22.58	0.066 [1]
T2	240 - 220	ROHN 1.5 STD	8.60	4.15	80.0 K=1.00	0.7995	-3.68	22.52	0.163 [1]
T3	220 - 200	ROHN 1.5 STD	8.68	4.15	80.0 K=1.00	0.7995	-4.63	22.52	0.205 [1]
T4	200 - 180	ROHN 1.5 STD	10.10	4.82	92.8 K=1.00	0.7995	-3.68	19.16	0.192 [1]
T5	180 - 160	ROHN 2 STD	12.22	5.83	88.9 K=1.00	1.0745	-4.02	27.13	0.148 [1]
T6	160 - 140	ROHN 2 STD	14.05	6.66	101.6 K=1.00	1.0745	-4.59	22.75	0.202 [1]
T7	140 - 120	ROHN 2 STD	16.43	7.85	119.7 K=1.00	1.0745	-4.81	16.95	0.284 [1]
T8	120 - 100	ROHN 2.5 STD	18.93	9.10	115.3 K=1.00	1.7040	-5.41	28.95	0.187 [1]
T9	100 - 80	ROHN 2.5 STD	21.51	10.39	131.6 K=1.00	1.7040	-5.72	22.21	0.258 [1]
T10	80 - 60	ROHN 2.5 STD	24.08	11.59	146.8 K=1.00	1.7040	-6.69	17.85	0.375 [1]
T11	60 - 40	ROHN 3 STD	25.33	12.22	126.0 K=1.00	2.2285	-7.39	31.70	0.233 [1]
T12	40 - 20	ROHN 3 STD	27.83	13.47	138.9 K=1.00	2.2285	-7.99	26.09	0.306 [1]
T13	20 - 0	ROHN 3 STD	30.33	14.72	151.8 K=1.00	2.2285	-8.56	21.85	0.392 [1]

[1] U_U/ϕ controls

Top Girt Design Data (Compression)

U EU	/ U U U	U U	U U U	U U U	DU U	VU U ^{L}U	U U U	ϕ U U U	U $\frac{U}{\phi U}$
T1	250 - 240	ROHN 1.5 STD	8.50	4.13	79.6 K=1.00	0.7995	-1.36	22.63	0.060 [1]

[1] U_U/ϕ controls

Redundant Horizontal (1) Design Data (Compression)

U / ÆU	U U U	U U	U U U	U U U	DU U	VU U LU	U U U	ϕ U U U	U U ϕ U
T11	60 - 40	ROHN 1.5 STD	6.33	5.89	113.4 K=1.00	0.7995	-3.61	14.04	0.257 [1]
T12	40 - 20	ROHN 1.5 STD	6.96	6.51	125.5 K=1.00	0.7995	-3.96	11.47	0.346 [1]
T13	20 - 0	ROHN 1.5 STD	7.58	7.14	137.5 K=1.00	0.7995	-4.33	9.55	0.453 [1]

[1] U_U/ ϕ controls

Redundant Diagonal (1) Design Data (Compression)

U / ÆU	U U U	U U	U U U	U U U	DU U	VU U LU	U U U	ϕ U U U	U U ϕ U
T11	60 - 40	ROHN 1.5 STD	11.52	10.62	204.7 K=1.00	0.7995	-3.28	4.31	0.761 [1]
T12	40 - 20	ROHN 2.25 TUBE	11.84	11.01	172.3 K=1.00	0.5651	-3.37	4.30	0.784 [1]
T13	20 - 0	ROHN 2.25 TUBE	12.19	11.40	178.5 K=1.00	0.5651	-3.48	4.01	0.869 [1]

[1] U_U/ ϕ controls

Redundant Hip (1) Design Data (Compression)

U / ÆU	U U U	U U	U U U	U U U	DU U	VU U LU	U U U	ϕ U U U	U U ϕ U
T11	60 - 40	ROHN 1.5 STD	6.33	6.33	122.1 K=1.00	0.7995	-0.02	12.12	0.002 [1]
T12	40 - 20	ROHN 1.5 STD	6.96	6.96	134.1 K=1.00	0.7995	-0.02	10.04	0.002 [1]
T13	20 - 0	ROHN 1.5 STD	7.58	7.58	146.2 K=1.00	0.7995	-0.02	8.45	0.002 [1]

[1] U_U/ ϕ controls

Redundant Hip Diagonal (1) Design Data (Compression)

U / ÆU	U U U	U U	U U U	U U U	DU U	VU U LU	U U U	ϕ U U U	U U ϕ U
T11	60 - 40	ROHN 2.5 STD	15.13	15.13	191.6 K=1.00	1.7040	-0.06	10.49	0.006 [1]
T12	40 - 20	ROHN 2.5 STD	15.95	15.95	202.1 K=1.00	1.7040	-0.06	9.43	0.006 [1]
T13	20 - 0	ROHN 3 STD	16.81	16.81	173.3 K=1.00	2.2285	-0.07	16.75	0.004 [1]

[1] U_U/ ϕ controls

Inner Bracing Design Data (Compression)

U ÆU	/ U U U	U U	U U U	U U U	DU U	VU U LU	U U U	ϕ U U U	U U ϕ U
T1	250 - 240	L2x2x1/8	4.25	4.25	128.3 K=1.00	0.4844	-0.00	8.42	0.000 [1]
T2	240 - 220	L2x2x1/8	4.30	4.30	129.8 K=1.00	0.4844	-0.00	8.23	0.000 [1]
T3	220 - 200	L2x2x1/8	4.34	4.34	131.0 K=1.00	0.4844	-0.00	8.08	0.001 [1]
T4	200 - 180	L2x2x1/8	4.35	4.35	131.4 K=1.00	0.4844	-0.01	8.03	0.001 [1]
T5	180 - 160	L2x2x1/8	6.11	6.11	184.4 K=1.00	0.4844	-0.00	4.08	0.001 [1]
T6	160 - 140	L2x2x1/8	7.03	7.03	212.1 K=1.00	0.4844	-0.01	3.08	0.002 [1]
T7	140 - 120	L2 1/2x2 1/2x3/16	8.21	8.21	199.1 K=1.00	0.9020	-0.01	6.51	0.001 [1]
T8	120 - 100	L3x3x3/16	9.46	9.46	190.5 K=1.00	1.0900	-0.01	8.59	0.001 [1]
T9	100 - 80	L3 1/2x3 1/2x1/4	10.75	10.75	185.9 K=1.00	1.6900	-0.01	13.99	0.001 [1]
T10	80 - 60	L3 1/2x3 1/2x1/4	12.04	12.04	208.2 K=1.00	1.6900	-0.01	11.16	0.001 [1]
T11	60 - 40	ROHN 3 STD	12.67	12.67	130.6 K=1.00	2.2285	-0.01	29.50	0.000 [1]
T12	40 - 20	ROHN 3 STD	13.92	13.92	143.5 K=1.00	2.2285	-0.01	24.44	0.001 [1]
T13	20 - 0	ROHN 3 STD	15.17	15.17	156.4 K=1.00	2.2285	-0.01	20.58	0.001 [1]

[1] U_U/ ϕ controls

5

Leg Design Data (Tension)

U ÆU	/ U U U	U U	U U U	U U U	DU U	VU U LU	U U U	ϕ U U U	U U ϕ U
T1	250 - 240	ROHN 2.5 STD	10.00	5.00	63.3	1.7040	1.63	76.68	0.021 [1]
T2	240 - 220	ROHN 3 STD	20.00	6.67	68.8	2.2285	14.18	100.28	0.141 [1]
T3	220 - 200	ROHN 4 X-STR	20.00	6.67	54.2	4.4074	43.45	198.34	0.219 [1]
T4	200 - 180	ROHN 5 EH	20.04	6.68	43.6	6.1120	69.12	275.04	0.251 [1]
T5	180 - 160	ROHN 6 EH	20.04	6.68	36.5	8.4049	89.00	378.22	0.235 [1]
T6	160 - 140	ROHN 8 EHS	20.04	10.02	40.6	9.8666	104.28	444.00	0.235 [1]
T7	140 - 120	ROHN 8 EHS	20.05	10.03	40.6	9.8666	121.30	444.00	0.273 [1]
T8	120 - 100	ROHN 8 X-STR	20.05	10.03	41.8	12.7627	137.23	574.32	0.239 [1]
T9	100 - 80	ROHN 8 X-STR	20.06	10.03	41.8	12.7627	152.58	574.32	0.266 [1]
T10	80 - 60	ROHN 10 EH	20.05	10.03	33.2	16.1007	167.69	724.53	0.231 [1]
T11	60 - 40	ROHN 10 X-STR	20.05	10.03	33.2	16.1007	173.75	724.53	0.240 [1]
T12	40 - 20	ROHN 10 X-STR	20.05	10.03	33.2	16.1007	189.26	724.53	0.261 [1]
T13	20 - 0	ROHN 10 EH	20.05	10.03	33.2	16.1007	205.04	724.53	0.283 [1]

[1] U_U/ ϕ controls

Diagonal Design Data (Tension)

U ÐU	/ U U U	U U	U U U	U U U	DU U	VU U LU	U U U	ϕ U U U	U U / ϕ U
T1	250 - 240	ROHN 2 STD	6.58	6.39	97.4	1.0745	2.30	48.35	0.047 [1]
T2	240 - 220	ROHN 2 STD	7.94	7.67	117.0	1.0745	6.79	48.35	0.140 [1]
T3	220 - 200	ROHN 2 X-STR	7.96	7.62	119.3	1.4773	8.48	66.48	0.128 [1]
T4	200 - 180	ROHN 2 X-STR	8.16	7.79	122.0	1.4773	5.86	66.48	0.088 [1]
T5	180 - 160	ROHN 2 X-STR	9.04	8.65	135.4	1.4773	5.85	66.48	0.088 [1]
T6	160 - 140	ROHN 2.5 X-STR	12.56	11.95	155.2	2.2535	7.41	101.41	0.073 [1]
T7	140 - 120	ROHN 3 STD	13.35	12.80	132.0	2.2285	7.08	100.28	0.071 [1]
T8	120 - 100	ROHN 3 STD	14.21	13.70	141.3	2.2285	7.49	100.28	0.075 [1]
T9	100 - 80	ROHN 3 STD	15.18	14.70	151.6	2.2285	7.50	100.28	0.075 [1]
T10	80 - 60	ROHN 3 STD	16.14	15.57	160.6	2.2285	8.55	100.28	0.085 [1]
T11	60 - 40	ROHN 3 STD	24.38	12.19	125.7	2.2285	12.94	100.28	0.129 [1]
T12	40 - 20	ROHN 3 STD	25.11	12.56	129.5	2.2285	13.15	100.28	0.131 [1]
T13	20 - 0	ROHN 3 STD	25.88	12.94	133.5	2.2285	13.27	100.28	0.132 [1]

[1] U_U/ ϕ controls

Horizontal Design Data (Tension)

U ÐU	/ U U U	U U	U U U	U U U	DU U	VU U LU	U U U	ϕ U U U	U U / ϕ U
T1	250 - 240	ROHN 1.5 STD	8.52	4.14	79.8	0.7995	1.53	35.98	0.042 [1]
T2	240 - 220	ROHN 1.5 STD	8.60	4.15	80.0	0.7995	3.71	35.98	0.103 [1]
T3	220 - 200	ROHN 1.5 STD	8.68	4.15	80.0	0.7995	4.67	35.98	0.130 [1]
T4	200 - 180	ROHN 1.5 STD	8.71	4.12	79.5	0.7995	3.74	35.98	0.104 [1]
T5	180 - 160	ROHN 2 STD	12.22	5.83	88.9	1.0745	4.08	48.35	0.084 [1]
T6	160 - 140	ROHN 2 STD	14.05	6.66	101.6	1.0745	4.56	48.35	0.094 [1]
T7	140 - 120	ROHN 2 STD	16.43	7.85	119.7	1.0745	4.80	48.35	0.099 [1]
T8	120 - 100	ROHN 2.5 STD	18.93	9.10	115.3	1.7040	5.48	76.68	0.071 [1]
T9	100 - 80	ROHN 2.5 STD	21.51	10.39	131.6	1.7040	5.88	76.68	0.077 [1]
T10	80 - 60	ROHN 2.5 STD	24.08	11.59	146.8	1.7040	7.06	76.68	0.092 [1]
T11	60 - 40	ROHN 3 STD	25.33	12.22	126.0	2.2285	7.41	100.28	0.074 [1]
T12	40 - 20	ROHN 3 STD	27.83	13.47	138.9	2.2285	7.91	100.28	0.079 [1]
T13	20 - 0	ROHN 3 STD	30.33	14.72	151.8	2.2285	8.42	100.28	0.084 [1]

[1] U_U/ ϕ controls

Top Girt Design Data (Tension)

U ÐU	/ U U U	U U	U U U	U U U	DU U	VU U LU	U U U	ϕ U U U	U U / ϕ U
T1	250 - 240	ROHN 1.5 STD	8.50	4.13	79.6	0.7995	1.36	35.98	0.038 [1]

[1] U_U/ ϕ controls

Redundant Horizontal (1) Design Data (Tension)

U ÆU	/ U U U	U U	U U U	U U U	DU U	VU U ^{L}U	U U U	ϕ U U U	U U ϕ U
T11	60 - 40	ROHN 1.5 STD	6.33	5.89	113.4	0.7995	3.61	35.98	0.100 [1]
T12	40 - 20	ROHN 1.5 STD	6.96	6.51	125.5	0.7995	3.96	35.98	0.110 [1]
T13	20 - 0	ROHN 1.5 STD	7.58	7.14	137.5	0.7995	4.33	35.98	0.120 [1]

[1] U_U/ϕ controls

Redundant Diagonal (1) Design Data (Tension)

U ÆU	/ U U U	U U	U U U	U U U	DU U	VU U ^{L}U	U U U	ϕ U U U	U U ϕ U
T11	60 - 40	ROHN 1.5 STD	11.52	10.62	204.7	0.7995	3.28	35.98	0.091 [1]
T12	40 - 20	ROHN 2.25 TUBE	11.84	11.01	172.3	0.5651	3.37	25.43	0.133 [1]
T13	20 - 0	ROHN 2.25 TUBE	12.19	11.40	178.5	0.5651	3.48	25.43	0.137 [1]

[1] U_U/ϕ controls

Redundant Hip (1) Design Data (Tension)

U ÆU	/ U U U	U U	U U U	U U U	DU U	VU U ^{L}U	U U U	ϕ U U U	U U ϕ U
T11	60 - 40	ROHN 1.5 STD	6.33	6.33	122.1	0.7995	0.01	35.98	0.000 [1]
T12	40 - 20	ROHN 1.5 STD	6.96	6.96	134.1	0.7995	0.01	35.98	0.000 [1]
T13	20 - 0	ROHN 1.5 STD	7.58	7.58	146.2	0.7995	0.00	35.98	0.000 [1]

[1] U_U/ϕ controls

Redundant Hip Diagonal (1) Design Data (Tension)

U ÆU	/ U U U	U U	U U U	U U U	DU U	VU U ^{L}U	U U U	ϕ U U U	U U ϕ U
T11	60 - 40	ROHN 2.5 STD	15.13	15.13	191.6	1.7040	0.06	76.68	0.001 [1]
T12	40 - 20	ROHN 2.5 STD	15.95	15.95	202.1	1.7040	0.05	76.68	0.001 [1]
T13	20 - 0	ROHN 3 STD	16.81	16.81	173.3	2.2285	0.06	100.28	0.001 [1]

[1] U_U/ϕ controls

Inner Bracing Design Data (Tension)

U ÆU	/ U U U	U U	U U U	U U U	DU U	VU U ᴸU	U U U	ϕ U U U	U U / ϕ U
T1	250 - 240	L2x2x1/8	4.25	4.25	81.4	0.4844	0.00	15.69	0.000 [1]
T2	240 - 220	L2x2x1/8	4.30	4.30	82.4	0.4844	0.00	15.69	0.000 [1]
T3	220 - 200	L2x2x1/8	4.34	4.34	83.2	0.4844	0.00	15.69	0.000 [1]
T4	200 - 180	L2x2x1/8	4.35	4.35	83.4	0.4844	0.00	15.69	0.000 [1]
T5	180 - 160	L2x2x1/8	5.40	5.40	103.4	0.4844	0.00	15.69	0.000 [1]
T6	160 - 140	L2x2x1/8	6.46	6.46	123.9	0.4844	0.00	15.69	0.000 [1]

[1] U_U/ ϕ controls

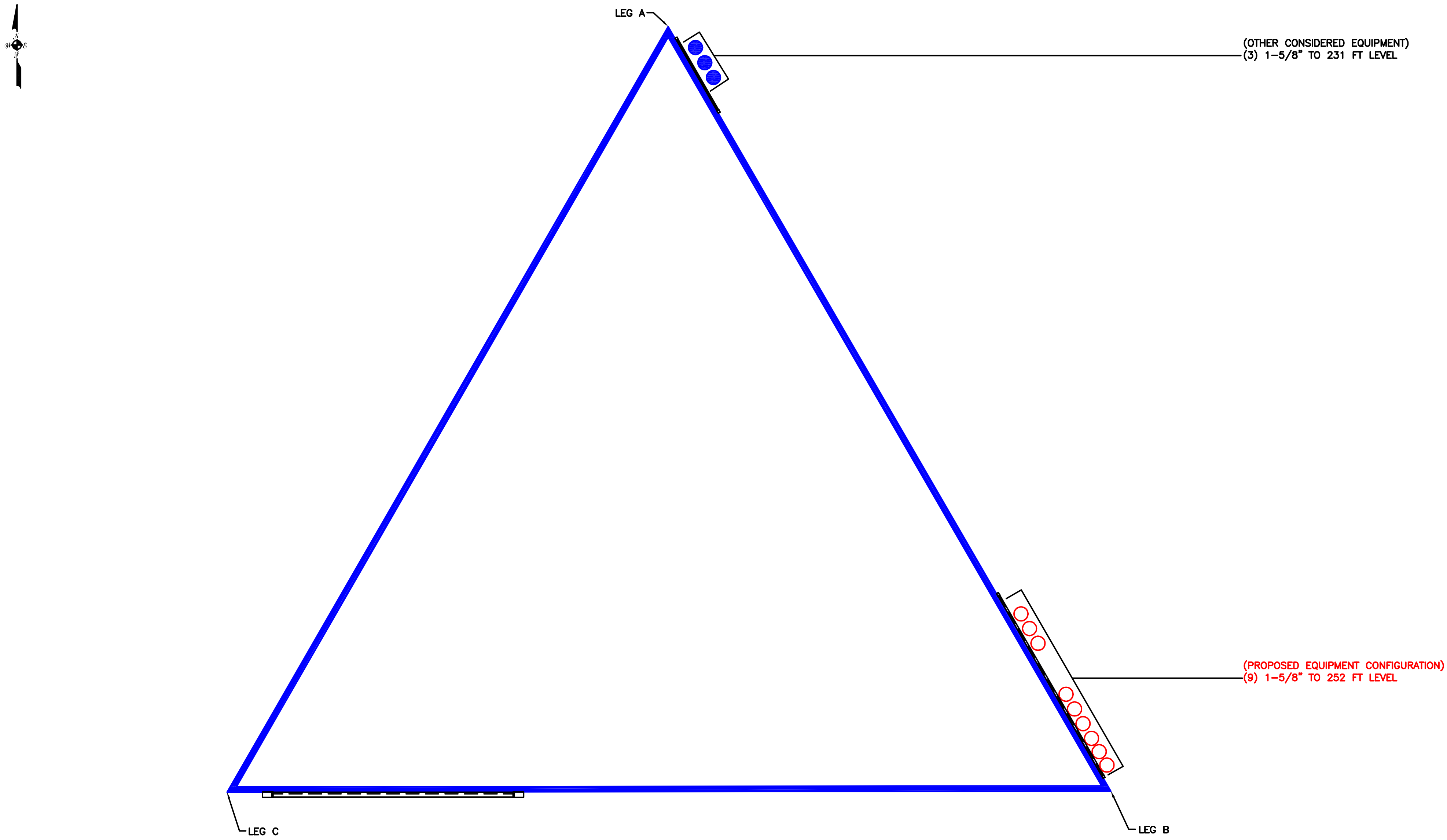
Section Capacity Table

S ι ŁU	/ U U	q U U	U	q U / ι	U U	U U U	q j U ι	Z U U
T1	250 - 240	Leg	ROHN 2.5 STD	2	-4.53	60.05	7.6	Pass
T2	240 - 220	Leg	ROHN 3 STD	29	-20.75	74.53	27.8	Pass
T3	220 - 200	Leg	ROHN 4 X-STR	67	-51.15	168.03	30.4	Pass
T4	200 - 180	Leg	ROHN 5 EH	106	-78.97	251.35	31.4	Pass
T5	180 - 160	Leg	ROHN 6 EH	145	-101.52	360.24	28.2	Pass
T6	160 - 140	Leg	ROHN 8 EHS	184	-119.48	413.33	28.9	Pass
T7	140 - 120	Leg	ROHN 8 EHS	211	-139.78	413.28	33.8	Pass
T8	120 - 100	Leg	ROHN 8 X-STR	238	-159.60	530.71	30.1	Pass
T9	100 - 80	Leg	ROHN 8 X-STR	265	-179.18	530.66	33.8	Pass
T10	80 - 60	Leg	ROHN 10 EH	292	-199.11	701.99	28.4	Pass
T11	60 - 40	Leg	ROHN 10 X-STR	319	-208.04	701.99	29.6	Pass
T12	40 - 20	Leg	ROHN 10 X-STR	352	-228.37	701.99	32.5	Pass
T13	20 - 0	Leg	ROHN 10 EH	385	-249.53	701.99	35.5	Pass
T1	250 - 240	Diagonal	ROHN 2 STD	8	-2.37	25.36	9.3	Pass
T2	240 - 220	Diagonal	ROHN 2 STD	32	-6.86	18.63	36.8	Pass
T3	220 - 200	Diagonal	ROHN 2 X-STR	71	-8.57	24.62	34.8	Pass
T4	200 - 180	Diagonal	ROHN 2 X-STR	110	-5.93	21.21	28.0	Pass
T5	180 - 160	Diagonal	ROHN 2 X-STR	149	-5.91	18.08	32.7	Pass
T6	160 - 140	Diagonal	ROHN 2.5 X-STR	188	-7.64	22.18	34.4	Pass
T7	140 - 120	Diagonal	ROHN 3 STD	215	-7.35	30.33	24.2	Pass
T8	120 - 100	Diagonal	ROHN 3 STD	242	-7.86	26.47	29.7	Pass
T9	100 - 80	Diagonal	ROHN 3 STD	269	-7.96	22.99	34.6	Pass
T10	80 - 60	Diagonal	ROHN 3 STD	296	-9.07	20.50	44.3	Pass
T11	60 - 40	Diagonal	ROHN 3 STD	323	-14.08	33.46	42.1	Pass
T12	40 - 20	Diagonal	ROHN 3 STD	356	-14.40	31.53	45.7	Pass
T13	20 - 0	Diagonal	ROHN 3 STD	389	-14.38	29.67	48.5	Pass
T1	250 - 240	Horizontal	ROHN 1.5 STD	7	-1.49	23.71	6.3	Pass
T2	240 - 220	Horizontal	ROHN 1.5 STD	31	-3.68	23.65	15.6	Pass
T3	220 - 200	Horizontal	ROHN 1.5 STD	70	-4.63	23.65	19.6	Pass
T4	200 - 180	Horizontal	ROHN 1.5 STD	109	-3.68	20.11	18.3	Pass
T5	180 - 160	Horizontal	ROHN 2 STD	148	-4.02	28.49	14.1	Pass
T6	160 - 140	Horizontal	ROHN 2 STD	187	-4.59	23.88	19.2	Pass
T7	140 - 120	Horizontal	ROHN 2 STD	214	-4.81	17.80	27.0	Pass
T8	120 - 100	Horizontal	ROHN 2.5 STD	241	-5.41	30.40	17.8	Pass
T9	100 - 80	Horizontal	ROHN 2.5 STD	268	-5.72	23.33	24.5	Pass
T10	80 - 60	Horizontal	ROHN 2.5 STD	295	-6.69	18.74	35.7	Pass
T11	60 - 40	Horizontal	ROHN 3 STD	322	-7.39	33.29	22.2	Pass
T12	40 - 20	Horizontal	ROHN 3 STD	355	-7.99	27.40	29.2	Pass
T13	20 - 0	Horizontal	ROHN 3 STD	388	-8.56	22.94	37.3	Pass
T1	250 - 240	Top Girt	ROHN 1.5 STD	4	-1.36	23.77	5.7	Pass
T11	60 - 40	Redund Horz 1 Bracing	ROHN 1.5 STD	324	-3.61	14.74	24.5	Pass
T12	40 - 20	Redund Horz 1 Bracing	ROHN 1.5 STD	357	-3.96	12.04	32.9	Pass
T13	20 - 0	Redund Horz 1 Bracing	ROHN 1.5 STD	390	-4.33	10.03	43.2	Pass
T11	60 - 40	Redund Diag 1 Bracing	ROHN 1.5 STD	325	-3.28	4.53	72.5	Pass

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
T12	40 - 20	Redund Diag 1 Bracing	ROHN 2.25 TUBE	358	-3.37	4.52	74.7	Pass
T13	20 - 0	Redund Diag 1 Bracing	ROHN 2.25 TUBE	391	-3.48	4.21	82.7	Pass
T11	60 - 40	Redund Hip 1 Bracing	ROHN 1.5 STD	347	-0.02	12.73	0.1	Pass
T12	40 - 20	Redund Hip 1 Bracing	ROHN 1.5 STD	380	-0.02	10.54	0.2	Pass
T13	20 - 0	Redund Hip 1 Bracing	ROHN 1.5 STD	413	-0.02	8.88	0.2	Pass
T11	60 - 40	Redund Hip Diagonal 1 Bracing	ROHN 2.5 STD	337	-0.06	11.01	0.6	Pass
T12	40 - 20	Redund Hip Diagonal 1 Bracing	ROHN 2.5 STD	370	-0.06	9.90	0.6	Pass
T13	20 - 0	Redund Hip Diagonal 1 Bracing	ROHN 3 STD	403	-0.07	17.59	0.4	Pass
T1	250 - 240	Inner Bracing	L2x2x1/8	18	-0.00	8.80	0.1	Pass
T2	240 - 220	Inner Bracing	L2x2x1/8	42	-0.00	8.65	0.1	Pass
T3	220 - 200	Inner Bracing	L2x2x1/8	79	-0.00	8.48	0.1	Pass
T4	200 - 180	Inner Bracing	L2x2x1/8	120	-0.00	6.27	0.1	Pass
T5	180 - 160	Inner Bracing	L2x2x1/8	159	-0.00	4.28	0.1	Pass
T6	160 - 140	Inner Bracing	L2x2x1/8	198	-0.01	3.24	0.2	Pass
T7	140 - 120	Inner Bracing	L2 1/2x2 1/2x3/16	225	-0.01	6.84	0.2	Pass
T8	120 - 100	Inner Bracing	L3x3x3/16	252	-0.01	9.02	0.2	Pass
T9	100 - 80	Inner Bracing	L3 1/2x3 1/2x1/4	279	-0.01	14.69	0.2	Pass
T10	80 - 60	Inner Bracing	L3 1/2x3 1/2x1/4	306	-0.01	11.72	0.2	Pass
T11	60 - 40	Inner Bracing	ROHN 3 STD	351	-0.01	30.98	0.2	Pass
T12	40 - 20	Inner Bracing	ROHN 3 STD	383	-0.01	25.66	0.3	Pass
T13	20 - 0	Inner Bracing	ROHN 3 STD	416	-0.01	21.61	0.3	Pass
							Summary	
						Leg (T13)	35.5	Pass
						Diagonal (T13)	48.5	Pass
						Horizontal (T13)	37.3	Pass
						Top Girt (T1)	5.7	Pass
						Redund Horz 1 Bracing (T13)	43.2	Pass
						Redund Diag 1 Bracing (T13)	82.7	Pass
						Redund Hip 1 Bracing (T13)	0.2	Pass
						Redund Hip Diagonal 1 Bracing (T12)	0.6	Pass
						Inner Bracing (T13)	0.3	Pass
						Bolt Checks	42.7	Pass
						RATING =	**82.7**	**Pass**

APPENDIX B

BASE LEVEL DRAWING


LEG A
LEG B
LEG C
(OTHER CONSIDERED EQUIPMENT)
(3) 1-5/8" TO 231 FT LEVEL
(PROPOSED EQUIPMENT CONFIGURATION)
(9) 1-5/8" TO 252 FT LEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

Self Support Anchor Rod Capacity

Site Info	
BU #	809328
Site Name	KE CITY W J-FL-012-0
Order #	592259 Rev.0

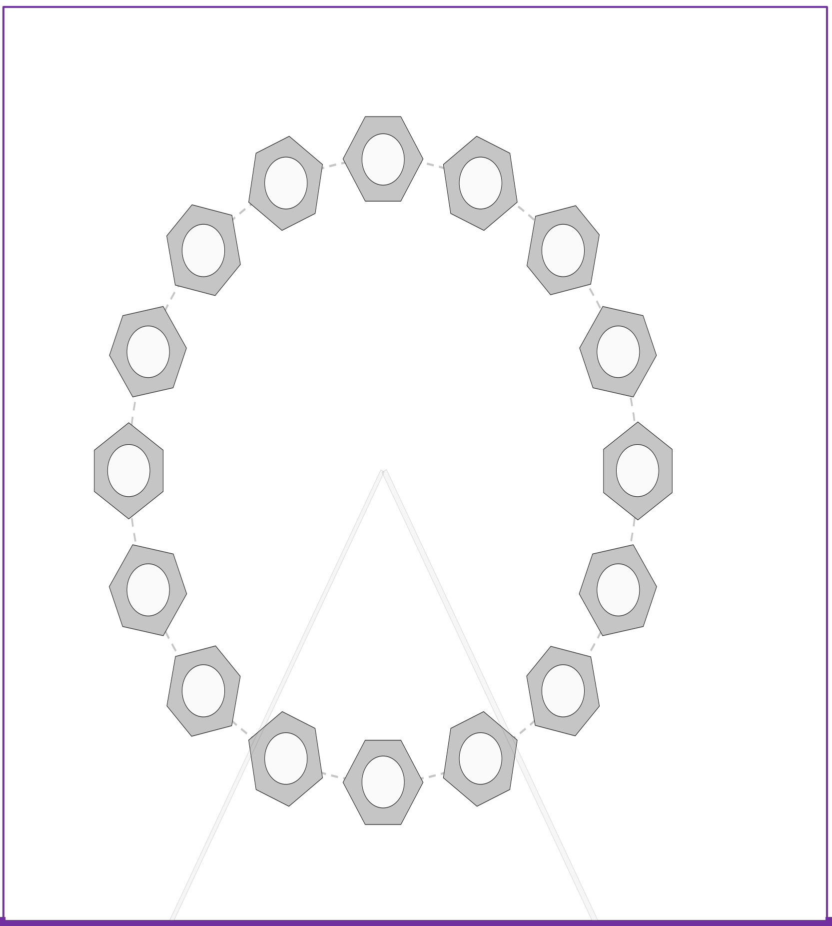
Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	Yes
l_{ar} (in)	1.75

Applied Loads		
	Comp.	Uplift
Axial Force (kips)	269.15	220.92
Shear Force (kips)	32.29	27.86

**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

Anchor Rod Data

(16) 1" ø bolts (A354-BC N; Fy=109 ksi, Fu=125 ksi)

l_{ar} (in): 1.75

Analysis Results

Anchor Rod Summary *(units of kips, kip-in)*

Pu_t = 13.81	ϕPn_t = 56.81	**Stress Rating**
Vu = 1.74	ϕVn = 36.82	**23.1%**
Mu = n/a	ϕMn = n/a	Pass

BLACK & VEATCH Building a **world** of difference.	***Client:***	Crown Castle	***Design:***	PCN
	Project:	406642 (809328.2036397)	***Date:***	10/28/2021
6800 W. 115th St., Suite 2292	***Site:***	LAKE CITY W J-FL-012-058	***Verify:***	PCN
Overland Park, KS 66211	***Title:***	Foundation Design Reaction Comparison	***Date:***	10/28/2021
Phone: (913) 458-6909			***Code:***	TIA-222-H

Template Version 1.8

FOUNDATION ANALYSIS:

Original Tower Design Reactions:

Drilled Caisson:

Uplift:	662.0	Kip
Shear:	135.1	Kip
Compression:	747.0	Kip
Shear:	135.1	Kip

Note: Design reactions are multiplied by 1.35 for comparison as allowed by TIA-222-H Section 15.6.2.

TnxTower Reactions:

Drilled Caisson:

Uplift:	220.9	Kip
Shear:	51.1	Kip
Compression:	269.2	Kip
Shear:	51.1	Kip

Stress Ratio:

Drilled Caisson:

Uplift:	**31.8%**
Shear:	**36.0%**
Compression:	**34.3%**
Shear:	**36.0%**

Note: Ratings per TIA-222-H Section 15.5.

Conclusion:

When the calculated reactions are compared to the original design reactions, the existing foundation is considered to have been designed and constructed with adequate capacity to support the existing and proposed loads.

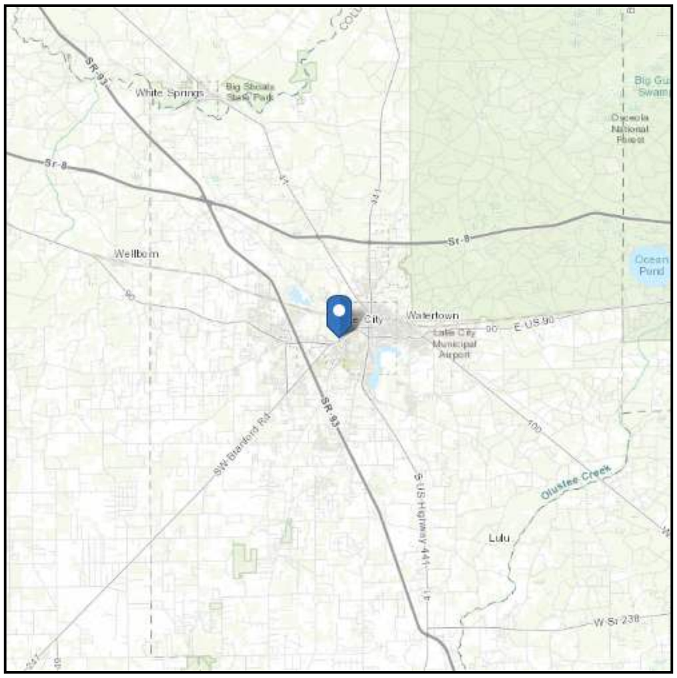
Controlling Foundation Stress Ratio: **36.0%**

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)

Elevation: 166.05 ft (NAVD 88)
Latitude: 30.182344
Longitude: -82.660558



Wind

Results:

Wind Speed:	118 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:	Thu Oct 28 2021

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.

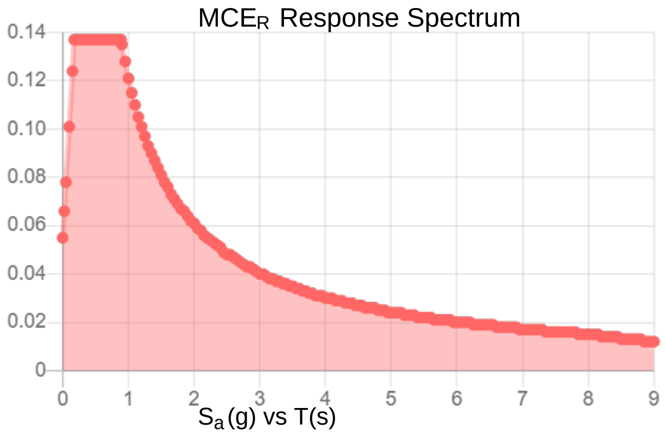
Seismic

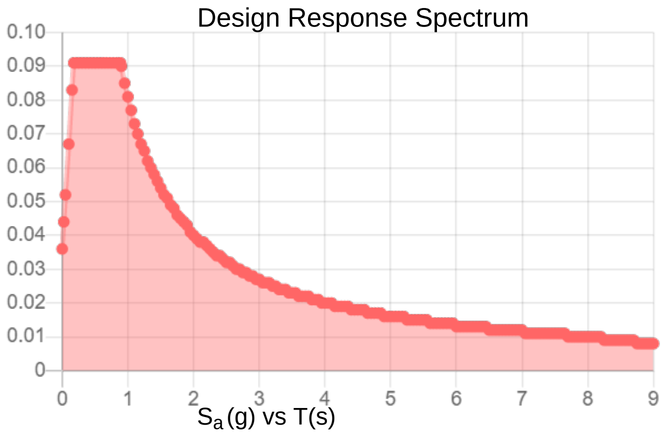
Site Soil Class: D - Default (see Section 11.4.3)

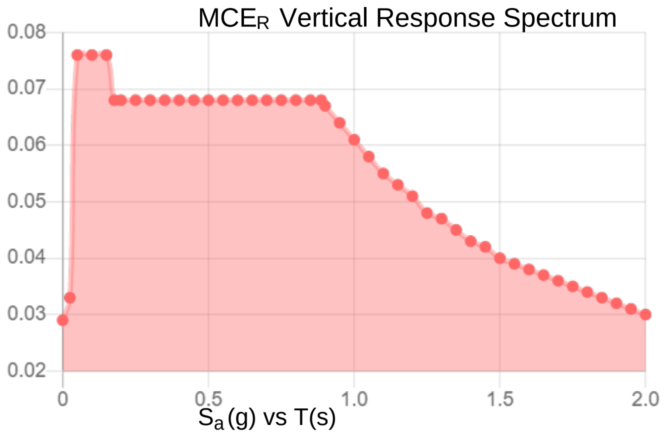
Results:

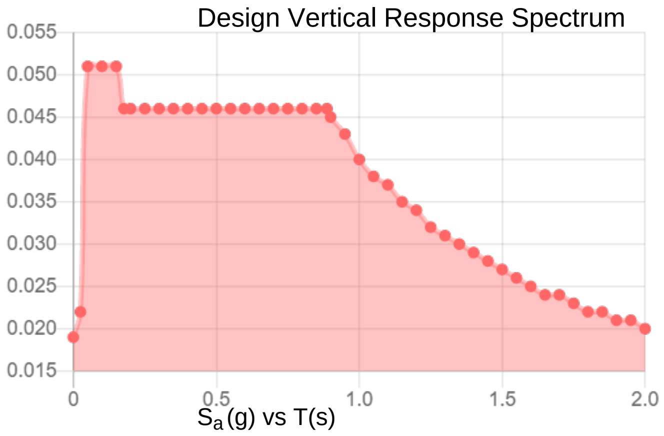
S_S :	0.085	S_{D1} :	0.081
S_1 :	0.051	T_L :	8
F_a :	1.6	PGA :	0.041
F_v :	2.4	PGA_M :	0.065
S_{MS} :	0.137	F_{PGA} :	1.6
S_{M1} :	0.121	I_e :	1
S_{DS} :	0.091	C_v :	0.7

Seismic Design Category B


MCE_R Response Spectrum


Design Response Spectrum


MCE_R Vertical Response Spectrum


Design Vertical Response Spectrum

Data Accessed: Thu Oct 28 2021

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:	0.25 in.
Concurrent Temperature:	25 F
Gust Speed:	30 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Thu Oct 28 2021

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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