Date: **October 22, 2021**

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

Subject:	**Structural Analysis Report**	
Carrier Designation:	***AT&T Mobility* Co-Locate**	
	Site Number:	CTL02122
	Site Name:	Norwalk Rockland Road
	FA Number:	10035123
Crown Castle Designation:	**BU Number:**	807133
	Site Name:	BRG 134 943057
	JDE Job Number:	649382
	Work Order Number:	2027915
	Order Number:	556500 Rev. 2
Engineering Firm Designation:	**B+T Group Project Number:**	82164.012.01
Site Data:	**50 Rockland Road Norwalk OFC - MTSO, SO Norwalk, Fairfield County, CT** **Latitude *41° 4' 54.44"*, Longitude *-73° 25' 49.52"*** **180 Foot - Self Support Tower**	

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

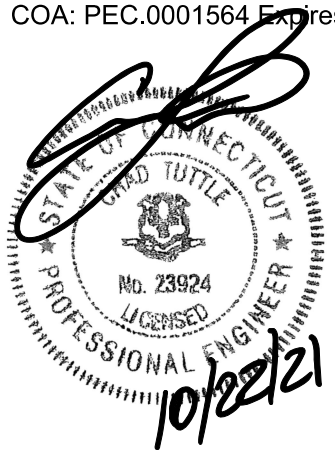
The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC7: Proposed Equipment Configuration **Sufficient Capacity – 79.8%**

This analysis utilizes an ultimate 3-second gust wind speed of 118 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Erika Ruiz

Respectfully submitted by: B+T Engineering, Inc.
COA: PEC.0001564 Expires: 02/10/2022



Chad E. Tuttle, P.E.

tnxTower Report - version 8.1.1.0

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 180 ft. Self-Support tower designed by Rohn.

This tower has been modified per reinforcement drawings prepared by Vertical Structures, Inc. in November of 2004. The reinforcement consist of installation of additional diagonal to existing diagonal member from 0' to 20' and 60' to 70' and installation of end bolts for diagonal from 20' to 40'

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	118 mph
Exposure Category:	C
Topographic Factor:	1
Ice Thickness:	1 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
161.0	163.0	3	Cci	C-Band Antenna N	6 4 4 3	1-5/8 1-1/8 13/16 3/8
	161.0	1	Cci Antennas	DMP65R-BU4D		
		2	Cci Antennas	DMP65R-BU6D		
		3	Ericsson	RRUS 32 B2		
		3	Ericsson	RRUS 32 B30		
		3	Ericsson	RRUS 4426 B66		
		3	Ericsson	RRUS 4449 B5/B12		
		3	Ericsson	RRUS 4478 B14		
		1	Quintel Tech.	QD4616-7		
		2	Quintel Tech.	QD6616-7		
		4	Raycap	DC6-48-60-18-8F		
		1	--	Sector Mount [SM 502-3]		
	159.0	3	Ericsson	AIR 6449 B77D		

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)
181.0	181.0	3	Fujitsu	TA08025-B604	1	1-3/4
		3	Fujitsu	TA08025-B605		
		3	Jma Wireless	MX08FRO665-21		
		1	Raycap	RDIDC-9181-PF-48		
		1	Commscope	MTC3975083 (3)		
170.0	170.0	3	Ericsson	AIR 32 B2A/B66AA	6	1-3/8
		3	Ericsson	AIR 3246 B66_T-MOBILE		
		3	Ericsson	AIR6449 B41		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
		3	Ericsson	RADIO 4449 B71 B85A_T-MOBILE		
		3	Ericsson	RRUS 4415 B25_CCIV2		
		3	Rfs Celwave	APXVAARR24_43-U-NA20		
		1	--	Sector Mount [SM 702-3]		
157.0	157.0	2	Andrew	VHLP2-18	2	7983A
		2	--	Side Arm Mount [SO 203-1]		
148.0	148.0	3	Alcatel Lucent	800 EXTERNAL NOTCH FILTER	4	1-1/4
		3	Alcatel Lucent	800MHZ 2X50W RRH		
		6	Alcatel Lucent	PCS 1900MHz 4x45W-65MHz		
		9	Rfs Celwave	ACU-A20-N		
		3	Rfs Celwave	APXVSPP18-C-A20		
		3	Rfs Celwave	APXVTM14-ALU-I20		
		1	--	Sector Mount [SM 502-3]		
136.0	138.0	1	Andrew	VHLP2-23	6 1	5/16 1/2
	136.0	3	Argus Tech.	LLPX310R		
		3	Samsung Telecom.	RRH-2WB		
		1	--	Sector Mount [SM 504-3]		
126.0	133.0	3	Samsung Telecom.	CBRS	7 1	1-5/8 1/2
	130.0	1	Gps	GPS_A		
	129.0	6	Commscope	JAHH-65C-R3B		
		4	Decibel	DB844G65ZAXY		
		2	Decibel	DB844H80-XY		
		1	Rfs Celwave	DB-C1-12C-24AB-0Z		
		3	Samsung Telecom.	RFV01U-D1A		
		3	Samsung Telecom.	RFV01U-D2A		
	128.0	3	Vzw	Sub6 Antenna - VZS01		
	126.0	1	--	Sector Mount [SM 411-3]		
112.0	112.0	3	Kathrein	800 10504	6	1-5/8
		1	--	Sector Mount [SM 104-3]		
5.0	6.0	1	Decibel	ASPP2933	2	1/4
	5.0	1	Gps	GPS_A		
		1	--	Side Arm Mount [SO 701-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
Tower Manufacturer Drawing	392878	CCI Sites
Mount Analysis	10020194	CCI Sites
Tower Modification Drawing	1257479	CCI Sites
Post-Modification Inspection	4065020	CCI Sites
Foundation Drawings	821566	CCI Sites
Geotech Report	2311843	CCI Sites
Crown CAD Package	Date: 10/13/2021	CCI Sites

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

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T1	180 - 160	Leg	ROHN 3 EH	2	-17.294	116.138	14.9	Pass
T2	160 - 153.333	Leg	ROHN 4 EH	35	-24.836	167.901	14.8	Pass
T3	153.333 - 146.667	Leg	ROHN 4 EH	44	-36.621	167.900	21.8	Pass
T4	146.667 - 140	Leg	ROHN 4 EH	56	-47.988	167.901	28.6	Pass
T5	140 - 120	Leg	ROHN 5 EH	68	-88.269	251.347	35.1	Pass
T6	120 - 100	Leg	ROHN 6 EHS	89	-130.891	288.515	45.4	Pass
T7	100 - 80	Leg	ROHN 6 EH	110	-167.942	318.903	52.7	Pass
T8	80 - 70	Leg	ROHN 8 EHS	125	-187.235	405.715	46.1	Pass
T9	70 - 60	Leg	ROHN 8 EHS	134	-206.859	405.715	51.0	Pass
T10	60 - 40	Leg	ROHN 8 EHS	143	-245.516	405.717	60.5	Pass
T11	40 - 20	Leg	ROHN 8 EH	158	-283.674	530.833	53.4	Pass
T12	20 - 0	Leg	ROHN 8 EH	173	-321.587	530.833	60.6	Pass
T1	180 - 160	Diagonal	L2x2x3/16	13	-2.955	10.104	29.2	Pass
T2	160 - 153.333	Diagonal	L2 1/2x2 1/2x1/4	39	-5.121	19.793	25.9	Pass
T3	153.333 -	Diagonal	L2 1/2x2 1/2x1/4	51	-5.384	17.900	30.1	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
	146.667							
T4	146.667 - 140	Diagonal	L2 1/2x2 1/2x1/4	61	-6.253	16.240	38.5	Pass
T5	140 - 120	Diagonal	L2 1/2x2 1/2x1/4	70	-7.938	12.489	63.6	Pass
T6	120 - 100	Diagonal	L3x3x1/4	92	-9.256	17.566	52.7	Pass
T7	100 - 80	Diagonal	L3 1/2x3 1/2x1/4	113	-10.279	18.890	54.4	Pass
T8	80 - 70	Diagonal	L3 1/2x3 1/2x1/4	128	-10.830	17.632	61.4	Pass
T9	70 - 60	Diagonal	2L3 1/2x3 1/2x1/4x3/8	137	-11.642	27.539	42.3	Pass
T10	60 - 40	Diagonal	L4x4x1/4	146	-12.140	20.589	59.0	Pass
T11	40 - 20	Diagonal	L4x4x5/16	161	-12.801	21.559	59.4	Pass
T12	20 - 0	Diagonal	2L4x4x5/16x3/8	176	-13.909	31.656	43.9	Pass
T1	180 - 160	Top Girt	L2x2x1/8	4	-0.464	4.230	11.0	Pass
T3	153.333 - 146.667	Top Girt	L2 1/2x2 1/2x1/8	46	-0.635	4.069	15.6	Pass
T4	146.667 - 140	Top Girt	L2 1/2x2 1/2x1/8	58	-0.832	3.498	23.8	Pass
T1	180 - 160	Mid Girt	L2x2x1/8	9	-0.466	3.097	15.0	Pass
							Summary	
						Leg (T12)	60.6	Pass
						Diagonal (T5)	63.6	Pass
						Top Girt (T4)	23.8	Pass
						Mid Girt (T1)	15.0	Pass
						Bolt Checks	79.8	Pass
						Rating =	79.8	Pass

Table 5 - Tower Component Stresses vs. Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	Base	47.7	Pass
1	Base Foundation	Base	77.4	Pass

Structure Rating (max from all components) =	79.8%

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

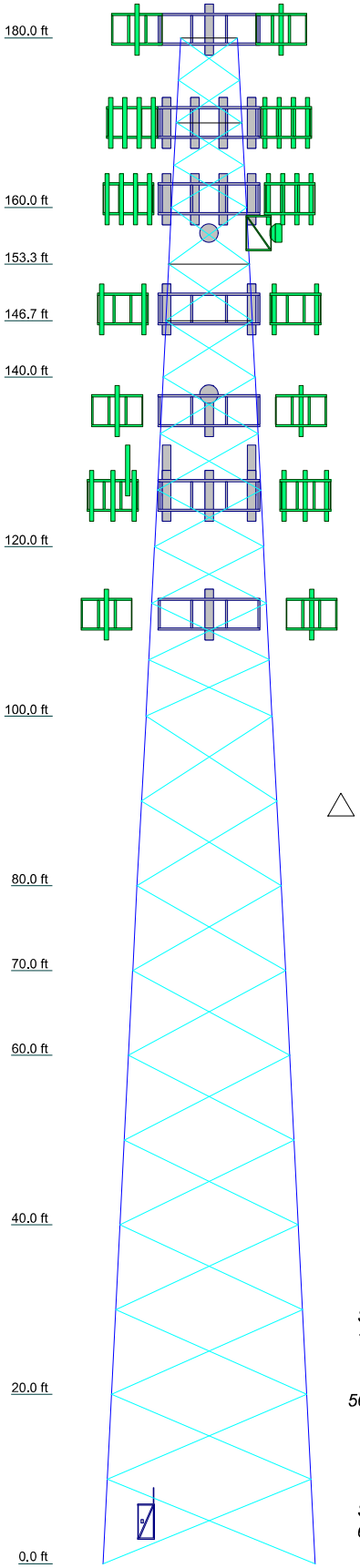
4.1) Recommendations

The tower and its foundations have sufficient capacity to carry the proposed load 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 EHS		ROHN 8 EHS			ROHN 6 EH	ROHN 6 EHS	ROHN 5 EH	ROHN 4 EH			ROHN 3 EH
Leg Grade	A572-50											
Diagonals	2L4x4x5/16x3/8	L4x4x5/16	L4x4x1/4	A	L3 1/2x3 1/2x1/4		L3x3x1/4	L2 1/2x2 1/2x1/4				L2x2x3/16
Diagonal Grade	A36	A572-50		A36	A572-50			A36				
Top Girts	N.A.							L2 1/2x2 1/2x1/8		L2 1/2x2 1/2x1/8	N.A.	L2x2x1/8
Mid Girts	N.A.											L2x2x1/8
Face Width (ft)	25	23	21	19	17.9948	16.9896	14.8542	12.9167	10.8333	10.1432	9.45052	8.76042	6.6875
# Panels @ (ft)	33.3	8.1	5.2	10 @ 10	3.9	2.6	3.2	2.9	2.4	9 @ 6.66667	0.7	0.7	0.6	4 @ 5	1.3
Weight (K)															



SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	2L3 1/2x3 1/2x1/4x3/8		

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
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. 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. TIA-222-H Annex S
9. TOWER RATING: 79.8%

ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 331 K
SHEAR: 39 K

UPLIFT: -273 K
SHEAR: 33 K

AXIAL 145 K
SHEAR 17 K
MOMENT 1844 kip-ft

TORQUE 17 kip-ft
50 mph WIND - 1.000 in ICE

AXIAL 83 K
SHEAR 63 K
MOMENT 6569 kip-ft

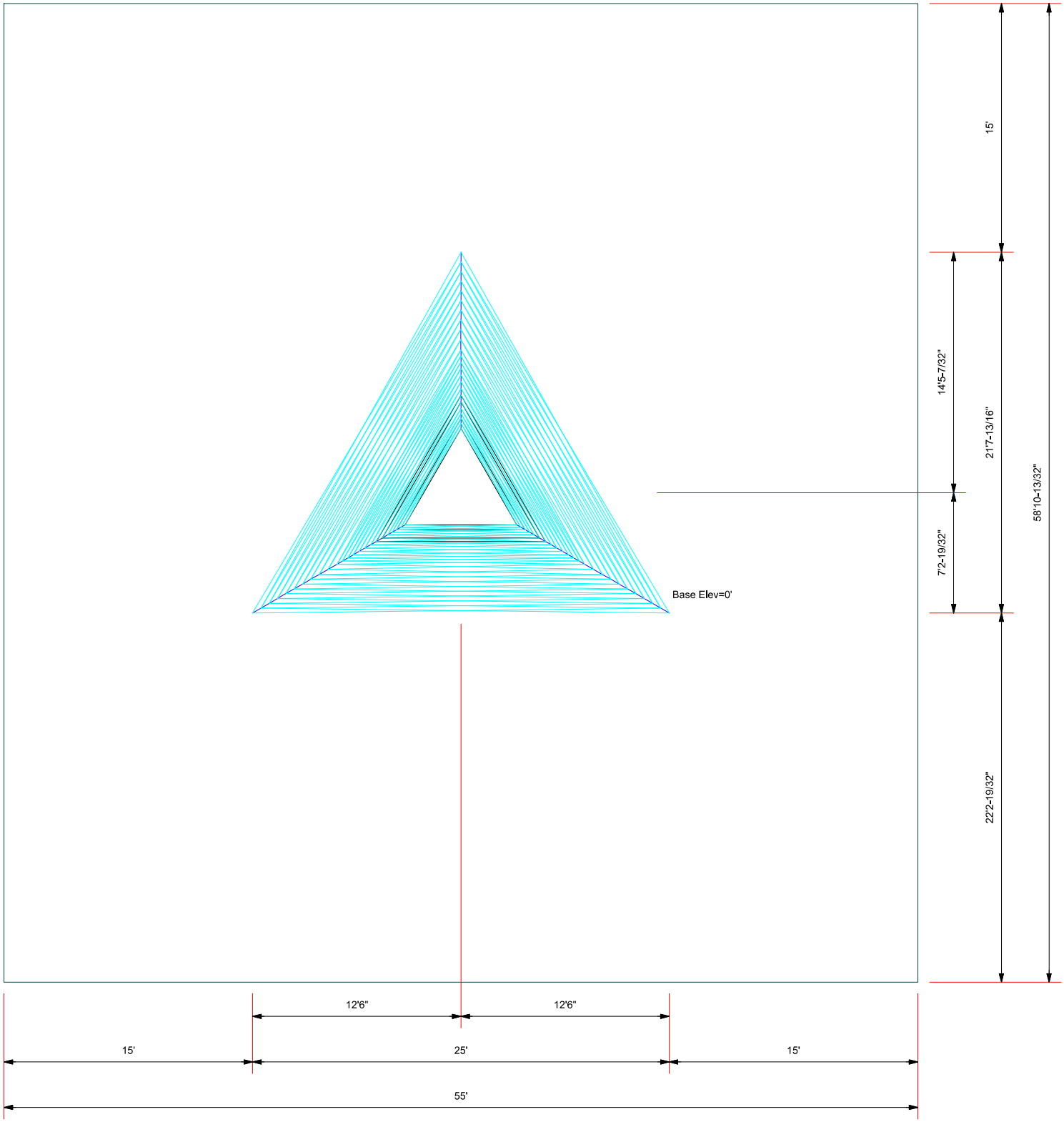
TORQUE 49 kip-ft
REACTIONS - 118 mph WIND

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

Job: 82164.012.01--BRG 134 943057,CT(BU#807133)			
Project:			
Client: Crown Castle	Drawn by: Sudhanva	App'd:	
Code: TIA-222-H	Date: 10/22/21	Scale: NTS	
Path: C:\Users\indevor\Desktop\October-22\82164_807133_BRG 134——Sudhanva——Shiva\Tnx_012_01\82164_012_01_BRG_134_943057_CT.eri		Dwg No. E-1	

Plot Plan

Total Area - 0.07 Acres

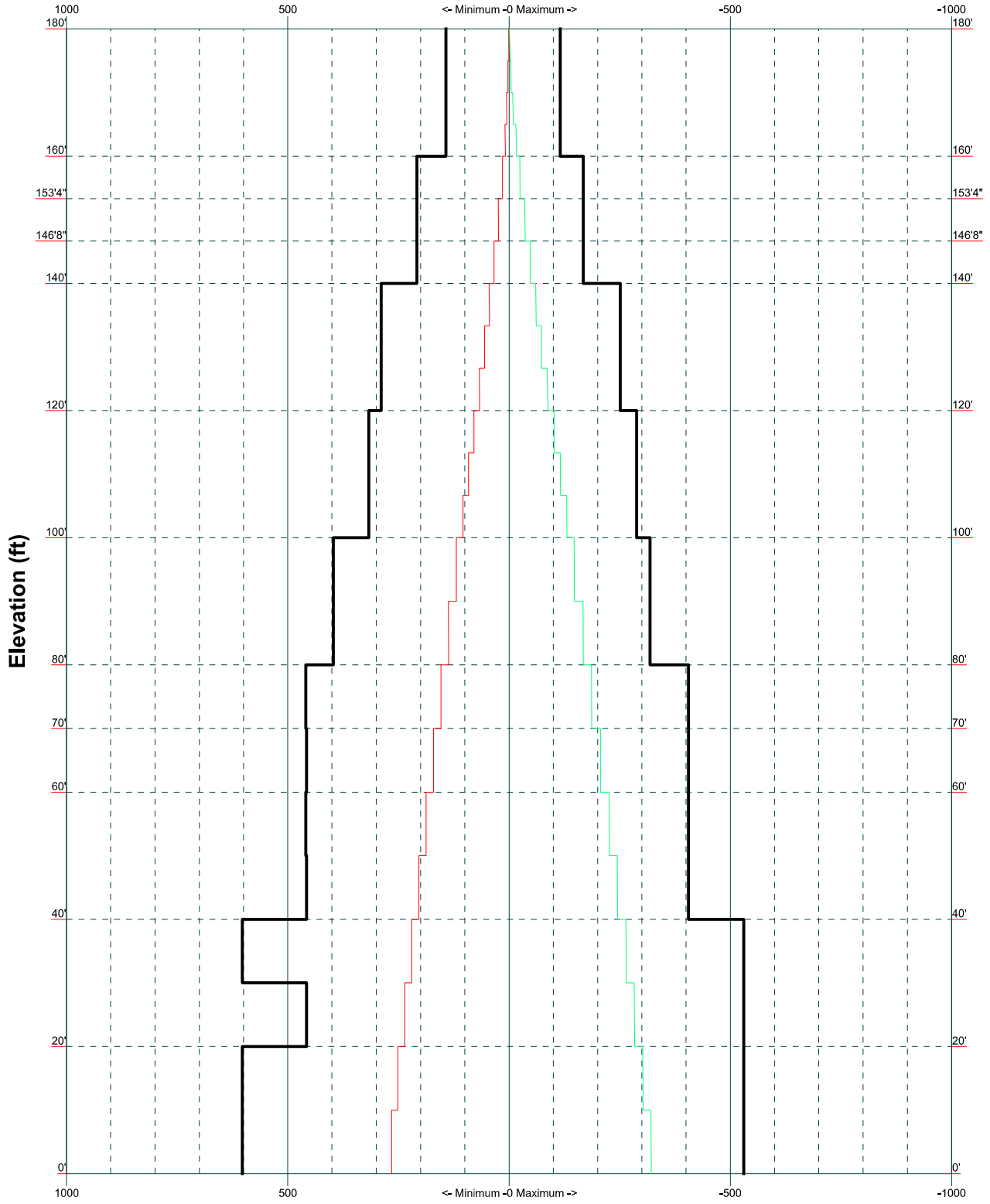


B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: 82164.012.01--BRG 134 943057,CT(BU#807133)			
Project:			
Client: Crown Castle	Drawn by: Sudhanva	App'd:	
Code: TIA-222-H	Date: 10/22/21	Scale: NTS	
Path: C:\Users\indevor\Desktop\October-22\82164_807133_BRG 134——Sudhanva——Shiva\Trnx_012_01\82164_012_01_BRG_134_943057_CT.eri		Dwg No. E-2	

TIA-222-H - 118 mph/50 mph 1.000 in Ice Exposure C

Leg Capacity ——— **Leg Compression (K)**



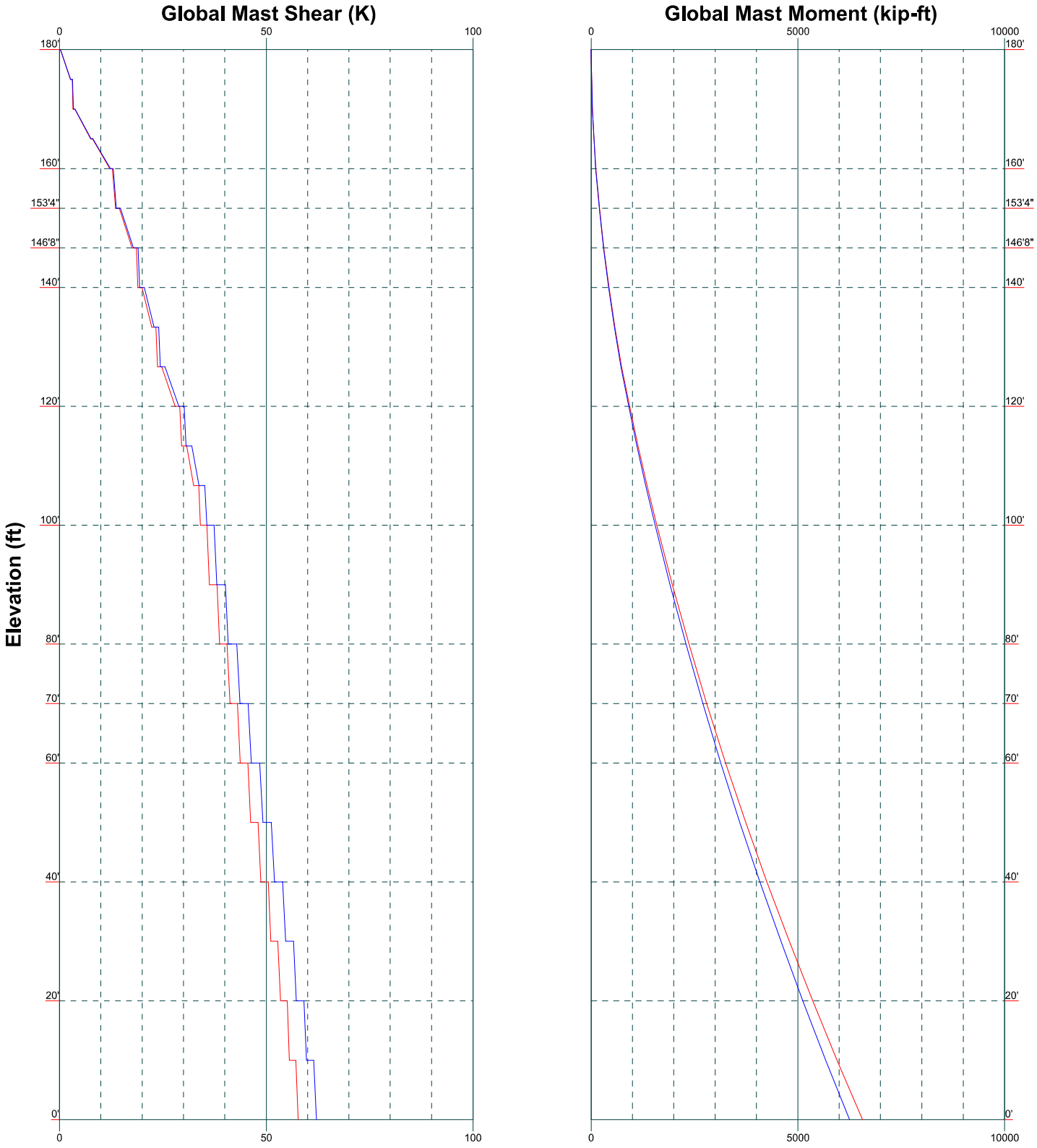
B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: 82164.012.01--BRG 134 943057,CT(BU#807133)			
Project:			
Client: Crown Castle	Drawn by: Sudhanva	App'd:	
Code: TIA-222-H	Date: 10/22/21	Scale: NTS	
Path: C:\Users\ndevor\Desktop\October-22\82164_807133_BRG 134——Sudhanva——Shiva\Trx_012_01\82164_012_01_BRG_134_943057_CT.eri		Dwg No. E-3	

TIA-222-H - 118 mph/50 mph 1.000 in Ice Exposure C

Maximum Values

Vx Vz Mx Mz

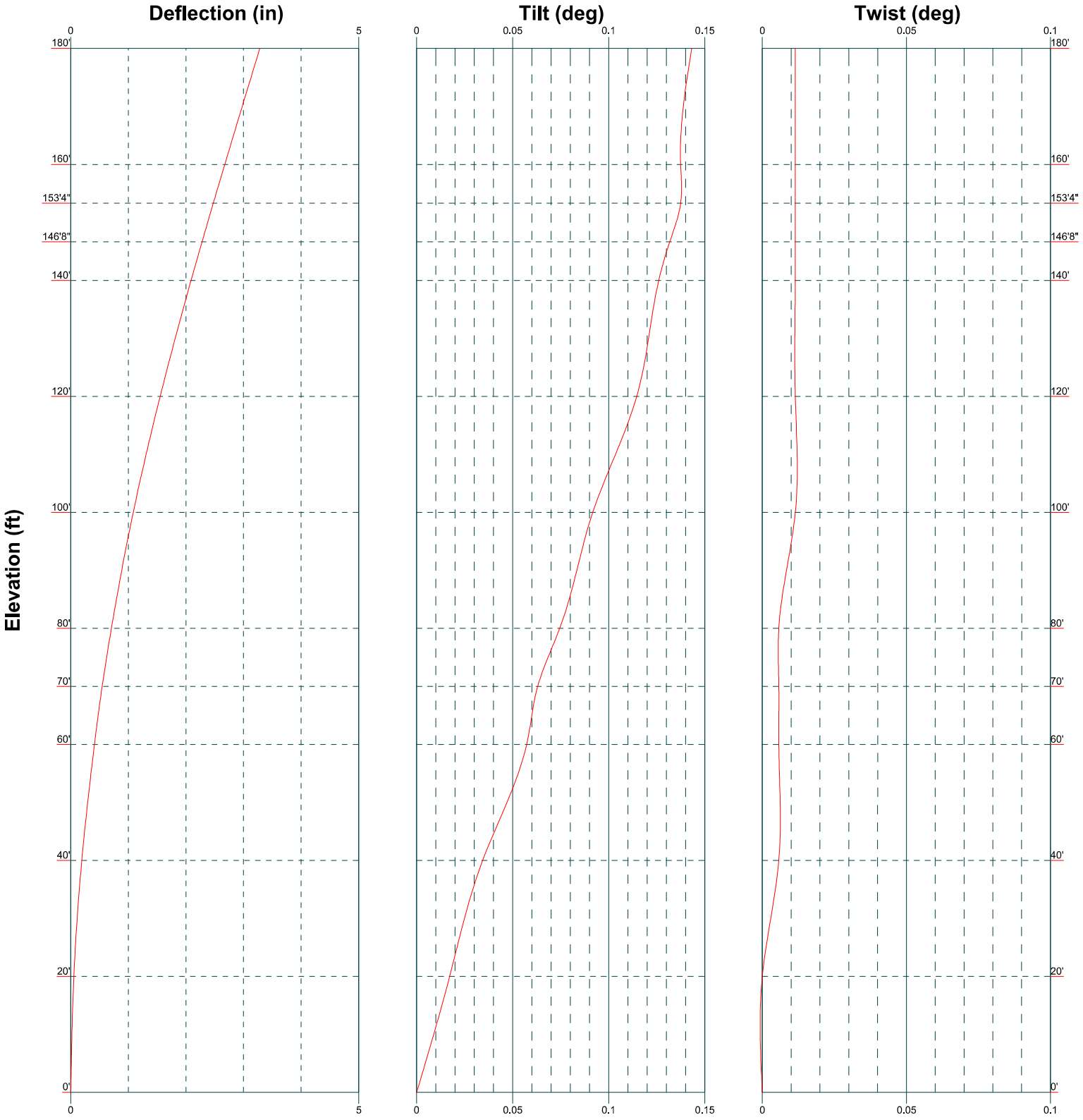


B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: 82164.012.01--BRG 134 943057,CT(BU#807133)			
Project:			
Client: Crown Castle	Drawn by: Sudhanva	App'd:	
Code: TIA-222-H	Date: 10/22/21	Scale: NTS	
Path: C:\Users\indevor\Desktop\October-22\82164_807133_BRG 134-----Sudhanva-----Shiva\Tnx_012_01\82164_012_01_BRG_134_943057_CT.eri		Dwg No. E-4	

TIA-222-H - Service - 60 mph

Maximum Values

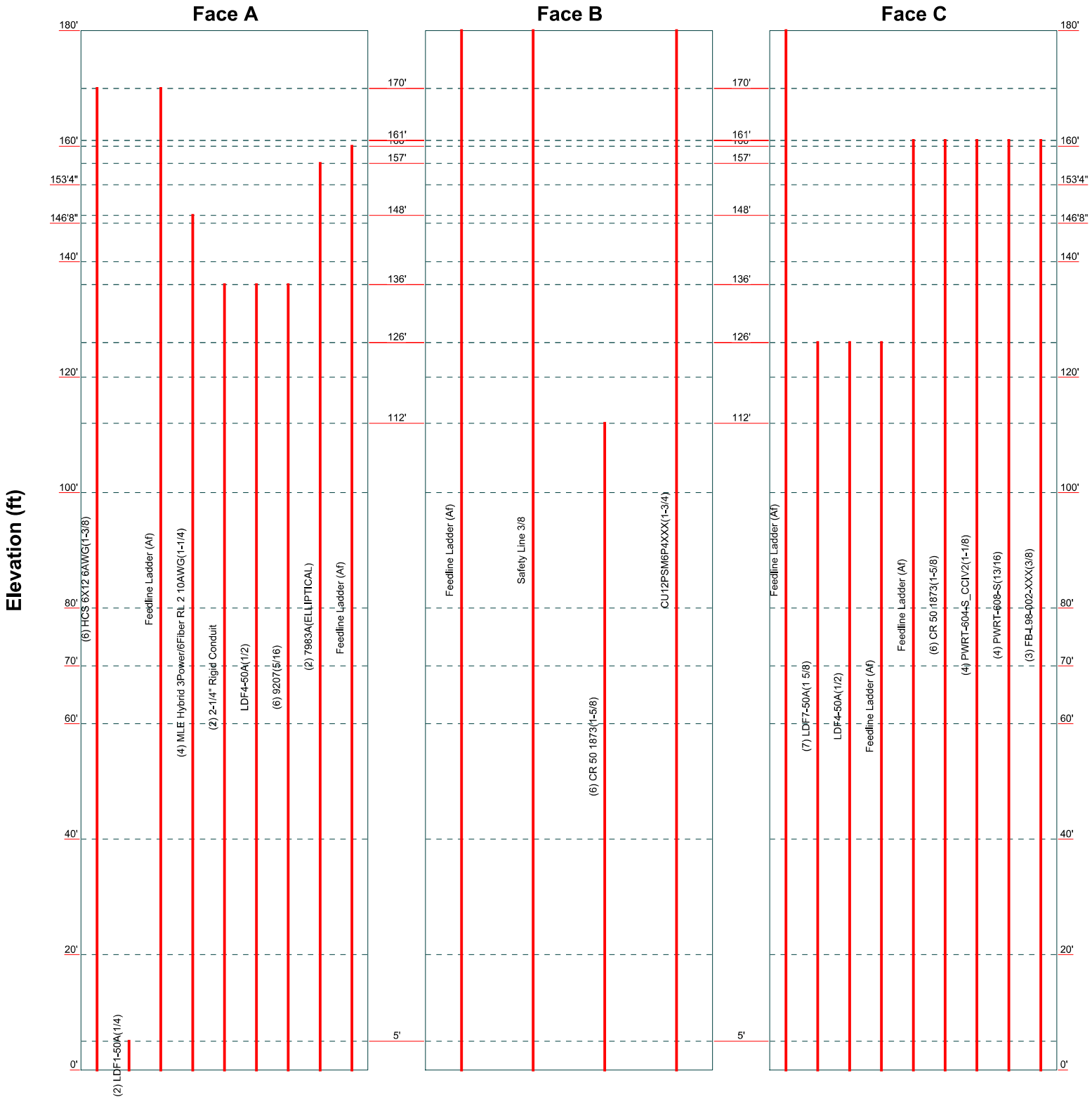


B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: *82164.012.01--BRG 134 943057,CT(BU#807133)*			
Project:			
Client: Crown Castle	Drawn by: Sudhanva	App'd:	
Code: TIA-222-H	Date: 10/22/21	Scale: NTS	
Path: C:\Users\ndevor\Desktop\October-22\82164_807133_BRG 134-----Sudhanva----Shiva\Trx_012_01\82164_012_01_BRG_134_943057_CT.eri		Dwg No. E-5	

Feed Line Distribution Chart
0' - 180'

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



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

Job: 82164.012.01--BRG 134 943057,CT(BU#807133)			
Project:			
Client: Crown Castle	Drawn by: Sudhanva		App'd:
Code: TIA-222-H	Date: 10/22/21		Scale: NTS
Path: C:\Users\indevor\Desktop\October-22\82164_807133_BRG 134——Sudhanva——Shiva\Trx_012_01\82164_012_01_BRG_134_943057_CT.eri			Dwg No. E-7

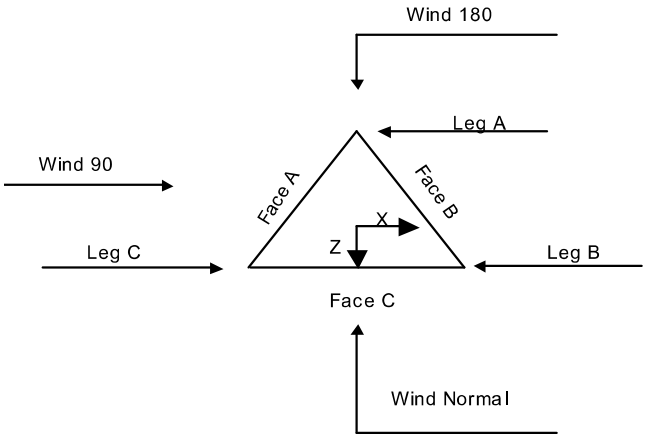
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 180' above the ground line.
The base of the tower is set at an elevation of 0' above the ground line.
The face width of the tower is 6'8-1/4" at the top and 25' 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: 61'.
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'.
Nominal ice thickness of 1.000 in.
Ice thickness is considered to increase with height.
Ice density of 56.000 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50.000 °F.
Deflections calculated using a wind speed of 60 mph.
TIA-222-H Annex S.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.
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		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned	√	Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area	√	SR Leg Bolts Resist Compression
√	Use Code Stress Ratios	√	Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients	√	Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-H Bracing Resist. Exemption
	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-H Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
√	Secondary Horizontal Braces Leg	√	Sort Capacity Reports By Component		Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric		Ignore KL/ry For 60 Deg. Angle Legs		Pole Without Linear Attachments
					Pole With Shroud Or No Appurtenances
					Outside and Inside Corner Radii Are Known



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	180'-160'			6'8-1/4"	1	20'
T2	160'-153'4"			8'9-1/8"	1	6'8"
T3	153'4"-146'8"			9'5-13/32"	1	6'8"
T4	146'8"-140'			10'1-23/32"	1	6'8"
T5	140'-120'			10'10"	1	20'
T6	120'-100'			12'11"	1	20'
T7	100'-80'			14'10-1/4"	1	20'
T8	80'-70'			16'11-7/8"	1	10'
T9	70'-60'			17'11-15/16"	1	10'
T10	60'-40'			19'	1	20'
T11	40'-20'			21'	1	20'
T12	20'-0'			23'	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	180'-160'	5'	X Brace	No	No	0.000	0.000

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
T2	160'-153'4"	6'8"	X Brace	No	No	0.000	0.000
T3	153'4"-146'8"	6'8"	X Brace	No	No	0.000	0.000
T4	146'8"-140'	6'8"	X Brace	No	No	0.000	0.000
T5	140'-120'	6'8"	X Brace	No	No	0.000	0.000
T6	120'-100'	6'8"	X Brace	No	No	0.000	0.000
T7	100'-80'	10'	X Brace	No	No	0.000	0.000
T8	80'-70'	10'	X Brace	No	No	0.000	0.000
T9	70'-60'	10'	X Brace	No	No	0.000	0.000
T10	60'-40'	10'	X Brace	No	No	0.000	0.000
T11	40'-20'	10'	X Brace	No	No	0.000	0.000
T12	20'-0'	10'	X Brace	No	No	0.000	0.000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 180'-160'	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T2 160'-153'4"	Pipe	ROHN 4 EH	A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)
T3 153'4"-146'8"	Pipe	ROHN 4 EH	A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)
T4 146'8"-140'	Pipe	ROHN 4 EH	A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)
T5 140'-120'	Pipe	ROHN 5 EH	A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)
T6 120'-100'	Pipe	ROHN 6 EHS	A572-50 (50 ksi)	Single Angle	L3x3x1/4	A572-50 (50 ksi)
T7 100'-80'	Pipe	ROHN 6 EH	A572-50 (50 ksi)	Single Angle	L3 1/2x3 1/2x1/4	A572-50 (50 ksi)
T8 80'-70'	Pipe	ROHN 8 EHS	A572-50 (50 ksi)	Single Angle	L3 1/2x3 1/2x1/4	A572-50 (50 ksi)
T9 70'-60'	Pipe	ROHN 8 EHS	A572-50 (50 ksi)	Double Equal Angle	2L3 1/2x3 1/2x1/4x3/8	A36 (36 ksi)
T10 60'-40'	Pipe	ROHN 8 EHS	A572-50 (50 ksi)	Single Angle	L4x4x1/4	A572-50 (50 ksi)
T11 40'-20'	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Single Angle	L4x4x5/16	A572-50 (50 ksi)
T12 20'-0'	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Double Equal Angle	2L4x4x5/16x3/8	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 180'-160'	Equal Angle	L2x2x1/8	A36 (36 ksi)	Single Angle		A36 (36 ksi)
T3 153'4"-146'8"	Equal Angle	L2 1/2x2 1/2x1/8	A36 (36 ksi)	Single Angle		A36 (36 ksi)
T4 146'8"-140'	Single Angle	L2 1/2x2 1/2x1/8	A36	Single Angle		A36

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
			(36 ksi)			(36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 180'-160'	1	Equal Angle	L2x2x1/8	A36 (36 ksi)	Single Angle		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 180'-160'	0.000	0.250	A36 (36 ksi)	1.03	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T2 160'-153'4"	0.000	0.250	A36 (36 ksi)	1.03	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T3 153'4"-146'8"	0.000	0.250	A36 (36 ksi)	1.03	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T4 146'8"-140'	0.000	0.250	A36 (36 ksi)	1.03	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T5 140'-120'	0.000	0.250	A36 (36 ksi)	1.03	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T6 120'-100'	0.000	0.250	A36 (36 ksi)	1.03	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T7 100'-80'	0.000	0.375	A36 (36 ksi)	1.03	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T8 80'-70'	0.000	0.375	A36 (36 ksi)	1.03	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T9 70'-60'	0.000	0.375	A36 (36 ksi)	1.03	1	1.05	120.000	Mid-Pt	Mid-Pt
T10 60'-40'	0.000	0.375	A36 (36 ksi)	1.03	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T11 40'-20'	0.000	0.375	A36 (36 ksi)	1.03	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T12 20'-0'	0.000	0.375	A36 (36 ksi)	1.03	1	1.05	152.750	Mid-Pt	Mid-Pt

Tower Section Geometry *(cont'd)*

K Factors[1]

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1 180'-160'	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T2 160'-153'4"	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T3 153'4"-146'8"	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T4 146'8"-140'	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T5 140'-120'	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T6 120'-100'	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T7 100'-80'	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T8 80'-70'	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T9 70'-60'	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T10 60'-40'	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T11 40'-20'	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1
T12 20'-0'	Yes	No	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1

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

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 180'-160'	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T2 160'-153'4"	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T3 153'4"-146'8"	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T4 146'8"-140'	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T5 140'-120'	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T6 120'-100'	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T7 100'-80'	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T8 80'-70'	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T9 70'-60'	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T10 60'-40'	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T11 40'-20'	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T12 20'-0'	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 180'-160'	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T2 160'-153'4"	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T3 153'4"-146'8"	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T4 146'8"-140'	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T5 140'-120'	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T6 120'-100'	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T7 100'-80'	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T8 80'-70'	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T9 70'-60'	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T10 60'-40'	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T11 40'-20'	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T12 20'-0'	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75

Tower 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 180'-160'	Flange	0.875 A325N	4	0.625 A325N	1	0.625 A325N	1	0.000 A325X	0	0.625 A325N	1	0.625 A325X	0	0.625 A325N	0
T2 160'-153'4"	Flange	0.000 A325N	0	0.625 A325N	1	0.000 A325N	0	0.000 A325X	0	0.625 A325X	0	0.625 A325X	0	0.625 A325N	0
T3 153'4"-146'8"	Flange	0.000 A325N	0	0.625 A325N	1	0.625 A325N	1	0.000 A325X	0	0.625 A325X	0	0.625 A325X	0	0.625 A325N	0
T4 146'8"-140'	Flange	1.000 A325N	4	0.625 A325N	1	0.625 A325N	1	0.000 A325X	0	0.625 A325X	0	0.625 A325X	0	0.625 A325N	0
T5 140'-120'	Flange	1.000 A325N	6	0.625 A325N	1	0.000 A325N	0	0.000 A325X	0	0.625 A325X	0	0.625 A325X	0	0.625 A325N	0
T6 120'-100'	Flange	1.000 A325N	6	0.625 A325N	1	0.000 A325N	0	0.000 A325X	0	0.625 A325X	0	0.625 A325X	0	0.625 A325N	0
T7 100'-80'	Flange	1.000 A325N	8	0.750 A325N	1	0.000 A325N	0	0.000 A325X	0	0.625 A325X	0	0.625 A325X	0	0.625 A325N	0
T8 80'-70'	Flange	0.000 A325N	0	0.750 A325N	1	0.000 A325N	0	0.000 A325X	0	0.625 A325X	0	0.625 A325X	0	0.625 A325N	0
T9 70'-60'	Flange	1.000 A325N	8	0.750 A325N	1	0.000 A325N	0	0.000 A325X	0	0.625 A325X	0	0.625 A325X	0	0.625 A325N	0
T10 60'-40'	Flange	1.000 A325N	8	0.750 A325N	1	0.000 A325N	0	0.000 A325X	0	0.625 A325X	0	0.625 A325X	0	0.625 A325N	0
T11 40'-20'	Flange	1.000 A325N	8	0.750 A325N	1	0.000 A325N	0	0.000 A325X	0	0.625 A325X	0	0.625 A325X	0	0.625 A325N	0
T12 20'-0'	Flange	1.000 A449	0	0.750 A325N	1	0.000 A325N	0	0.000 A325X	0	0.625 A325X	0	0.625 A325X	0	0.625 A325N	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
***													
Feedline Ladder (Af)	B	No	No	Af (CaAa)	180' - 0'	0.000	0.38	1	1	3.000	3.000		0.008
***													
HCS 6X12 6AWG(1-3/8)	A	No	No	Ar (CaAa)	170' - 0'	0.000	0.08	6	6	0.850 0.750	1.380		0.002
LDF1-50A(1/4)	A	No	No	Ar (CaAa)	5' - 0'	0.000	0.15	2	2	0.345	0.345		0.000
Feedline Ladder (Af)	A	No	No	Af (CaAa)	170' - 0'	0.000	0.05	1	1	3.000	3.000		0.008
***													
MLE Hybrid 3Power/6Fiber RL 2 10AWG(1-1/4)	A	No	No	Ar (CaAa)	148' - 0'	0.000	-0.35	4	4	1.250	1.250		0.000
***													
2-1/4" Rigid Conduit	A	No	No	Ar (CaAa)	136' - 0'	0.000	-0.38	2	2	0.850 0.750	2.250		0.003
LDF4-50A(1/2)	A	No	No	Ar (CaAa)	136' - 0'	0.000	-0.395	1	1	0.630	0.630		0.000
9207(5/16)	A	No	No	Ar (CaAa)	136' - 0'	0.000	-0.38	6	6	0.200	0.330		0.001
7983A(ELLIPTICAL)	A	No	No	Ar (CaAa)	157' - 0'	0.000	-0.405	2	1	0.500	0.573		0.000
Feedline Ladder (Af)	A	No	No	Af (CaAa)	160' - 0'	0.000	-0.36	1	1	3.000	3.000		0.008
***													
Feedline Ladder (Af)	C	No	No	Af (CaAa)	180' - 0'	0.000	-0.4	1	1	3.000	3.000		0.008
***													
LDF7-50A(15/8)	C	No	No	Ar (CaAa)	126' - 0'	-3.000	-0.4	7	7	1.980	1.980		0.001
LDF4-50A(1/2)	C	No	No	Ar (CaAa)	126' - 0'	-1.000	-0.455	1	1	0.500	0.630		0.000
Feedline Ladder (Af)	C	No	No	Af (CaAa)	126' - 0'	-1.000	-0.4	1	1	3.000	3.000		0.008
***													
Feedline Ladder (Af)	C	No	No	Af (CaAa)	161' - 0'	0.000	0.38	1	1	3.000	3.000		0.008
***													
CR 50 1873(1-5/8)	C	No	No	Ar (CaAa)	161' - 0'	0.000	0.34	6	3	0.850 0.750	1.980		0.001
***													
Safety Line 3/8	B	No	No	Ar (CaAa)	180' - 0'	0.000	0.5	1	1	0.375	0.375		0.000
***													
CR 50 1873(1-5/8)	B	No	No	Ar (CaAa)	112' - 0'	0.000	0.4	6	6	0.850 0.750	1.980		0.001
*													
CU12PSM6P4XXX(1-3/4)	B	No	No	Ar (CaAa)	180' - 0'	0.000	0.48	1	1	1.750	1.750		0.003
*													
PWRT-604-S_CCIV2(1-1/8)	C	No	No	Ar (CaAa)	161' - 0'	0.000	0.29	4	2	0.850 0.750	1.159		0.001
PWRT-608-S(13/16)	C	No	No	Ar (CaAa)	161' - 0'	0.000	0.31	4	4	0.820	0.820		0.001
FB-L98-002-XXX(3/8)	C	No	No	Ar (CaAa)	161' - 0'	2.000	0.31	3	3	0.394	0.394		0.000

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	180'-160'	A	0.000	0.000	13.280	0.000	0.186
		B	0.000	0.000	14.250	0.000	0.227
		C	0.000	0.000	12.598	0.000	0.189
T2	160'-153'4"	A	0.000	0.000	12.607	0.000	0.181
		B	0.000	0.000	4.750	0.000	0.076
		C	0.000	0.000	20.651	0.000	0.196
T3	153'4"-146'8"	A	0.000	0.000	13.617	0.000	0.184
		B	0.000	0.000	4.750	0.000	0.076
		C	0.000	0.000	20.651	0.000	0.196
T4	146'8"-140'	A	0.000	0.000	16.284	0.000	0.193
		B	0.000	0.000	4.750	0.000	0.076
		C	0.000	0.000	20.651	0.000	0.196
T5	140'-120'	A	0.000	0.000	60.228	0.000	0.736
		B	0.000	0.000	14.250	0.000	0.227
		C	0.000	0.000	73.648	0.000	0.675
T6	120'-100'	A	0.000	0.000	63.072	0.000	0.775
		B	0.000	0.000	28.506	0.000	0.287
		C	0.000	0.000	100.934	0.000	0.875
T7	100'-80'	A	0.000	0.000	63.072	0.000	0.775
		B	0.000	0.000	38.010	0.000	0.326
		C	0.000	0.000	100.934	0.000	0.875
T8	80'-70'	A	0.000	0.000	31.536	0.000	0.388
		B	0.000	0.000	19.005	0.000	0.163
		C	0.000	0.000	50.467	0.000	0.437
T9	70'-60'	A	0.000	0.000	31.536	0.000	0.388
		B	0.000	0.000	19.005	0.000	0.163
		C	0.000	0.000	50.467	0.000	0.437
T10	60'-40'	A	0.000	0.000	63.072	0.000	0.775
		B	0.000	0.000	38.010	0.000	0.326
		C	0.000	0.000	100.934	0.000	0.875
T11	40'-20'	A	0.000	0.000	63.072	0.000	0.775
		B	0.000	0.000	38.010	0.000	0.326
		C	0.000	0.000	100.934	0.000	0.875
T12	20'-0'	A	0.000	0.000	63.417	0.000	0.776
		B	0.000	0.000	38.010	0.000	0.326
		C	0.000	0.000	100.934	0.000	0.875

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_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	180'-160'	A	1.001	0.000	0.000	25.654	0.000	0.394
		B		0.000	0.000	26.267	0.000	0.451
		C		0.000	0.000	18.690	0.000	0.353
T2	160'-153'4"	A	0.993	0.000	0.000	23.770	0.000	0.373
		B		0.000	0.000	8.723	0.000	0.149
		C		0.000	0.000	35.801	0.000	0.506
T3	153'4"-146'8"	A	0.989	0.000	0.000	27.274	0.000	0.400
		B		0.000	0.000	8.706	0.000	0.149
		C		0.000	0.000	35.750	0.000	0.504
T4	146'8"-140'	A	0.984	0.000	0.000	34.702	0.000	0.466

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B		0.000	0.000	8.688	0.000	0.149
		C		0.000	0.000	35.697	0.000	0.503
T5	140'-120'	A	0.975	0.000	0.000	135.679	0.000	1.754
		B		0.000	0.000	25.949	0.000	0.443
		C		0.000	0.000	128.977	0.000	1.782
T6	120'-100'	A	0.959	0.000	0.000	142.917	0.000	1.826
		B		0.000	0.000	53.450	0.000	0.725
		C		0.000	0.000	179.679	0.000	2.408
T7	100'-80'	A	0.940	0.000	0.000	142.067	0.000	1.803
		B		0.000	0.000	71.572	0.000	0.904
		C		0.000	0.000	178.322	0.000	2.375
T8	80'-70'	A	0.923	0.000	0.000	70.655	0.000	0.892
		B		0.000	0.000	35.634	0.000	0.447
		C		0.000	0.000	88.556	0.000	1.172
T9	70'-60'	A	0.910	0.000	0.000	70.363	0.000	0.884
		B		0.000	0.000	35.516	0.000	0.443
		C		0.000	0.000	88.089	0.000	1.161
T10	60'-40'	A	0.886	0.000	0.000	139.677	0.000	1.741
		B		0.000	0.000	70.611	0.000	0.872
		C		0.000	0.000	174.501	0.000	2.282
T11	40'-20'	A	0.842	0.000	0.000	137.715	0.000	1.691
		B		0.000	0.000	69.820	0.000	0.846
		C		0.000	0.000	171.359	0.000	2.207
T12	20'-0'	A	0.754	0.000	0.000	135.797	0.000	1.602
		B		0.000	0.000	68.253	0.000	0.795
		C		0.000	0.000	165.128	0.000	2.063

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	180'-160'	4.084	2.014	5.948	2.836
T2	160'-153'4"	-7.979	6.529	-8.480	7.923
T3	153'4"-146'8"	-8.038	6.395	-9.056	8.008
T4	146'8"-140'	-9.583	7.139	-10.739	8.939
T5	140'-120'	-9.528	9.727	-9.633	11.667
T6	120'-100'	-1.351	12.783	-0.343	15.064
T7	100'-80'	-0.006	15.459	0.881	17.967
T8	80'-70'	-0.002	16.103	0.887	18.723
T9	70'-60'	0.000	16.748	0.894	19.471
T10	60'-40'	0.004	16.913	0.862	20.023
T11	40'-20'	0.008	17.969	0.797	21.206
T12	20'-0'	-0.033	18.845	0.445	21.768

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	2	Feedline Ladder (Af)	160.00 - 180.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	4	HCS 6X12 6AWG(1-3/8)	160.00 - 170.00	0.6000	0.6000
T1	9	Feedline Ladder (Af)	160.00 - 170.00	0.6000	0.6000
T1	20	Feedline Ladder (Af)	160.00 - 180.00	0.6000	0.6000
T1	33	Feedline Ladder (Af)	160.00 - 161.00	0.6000	0.6000
T1	35	CR 50 1873(1-5/8)	160.00 - 161.00	0.6000	0.6000
T1	40	Safety Line 3/8	160.00 - 180.00	0.6000	0.6000
T1	44	CU12PSM6P4XXX(1-3/4)	160.00 - 180.00	0.6000	0.6000
T1	46	PWRT-604-S_CCIV2(1-1/8)	160.00 - 161.00	0.6000	0.6000
T1	47	PWRT-608-S(13/16)	160.00 - 161.00	0.6000	0.6000
T1	48	FB-L98-002-XXX(3/8)	160.00 - 161.00	0.6000	0.6000
T2	2	Feedline Ladder (Af)	153.33 - 160.00	0.6000	0.6000
T2	4	HCS 6X12 6AWG(1-3/8)	153.33 - 160.00	0.6000	0.6000
T2	9	Feedline Ladder (Af)	153.33 - 160.00	0.6000	0.6000
T2	17	7983A(ELLIPTICAL)	153.33 - 157.00	0.6000	0.6000
T2	18	Feedline Ladder (Af)	153.33 - 160.00	0.6000	0.6000
T2	20	Feedline Ladder (Af)	153.33 - 160.00	0.6000	0.6000
T2	33	Feedline Ladder (Af)	153.33 - 160.00	0.6000	0.6000
T2	35	CR 50 1873(1-5/8)	153.33 - 160.00	0.6000	0.6000
T2	40	Safety Line 3/8	153.33 - 160.00	0.6000	0.6000
T2	44	CU12PSM6P4XXX(1-3/4)	153.33 - 160.00	0.6000	0.6000
T2	46	PWRT-604-S_CCIV2(1-1/8)	153.33 - 160.00	0.6000	0.6000
T2	47	PWRT-608-S(13/16)	153.33 - 160.00	0.6000	0.6000
T2	48	FB-L98-002-XXX(3/8)	153.33 - 160.00	0.6000	0.6000
T3	2	Feedline Ladder (Af)	146.67 - 153.33	0.6000	0.6000
T3	4	HCS 6X12 6AWG(1-3/8)	146.67 - 153.33	0.6000	0.6000
T3	9	Feedline Ladder (Af)	146.67 - 153.33	0.6000	0.6000
T3	12	MLE Hybrid 3Power/6Fiber RL 2 10AWG(1-1/4)	146.67 - 148.00	0.6000	0.6000
T3	17	7983A(ELLIPTICAL)	146.67 - 153.33	0.6000	0.6000
T3	18	Feedline Ladder (Af)	146.67 - 153.33	0.6000	0.6000
T3	20	Feedline Ladder (Af)	146.67 - 153.33	0.6000	0.6000
T3	33	Feedline Ladder (Af)	146.67 - 153.33	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T3	35	CR 50 1873(1-5/8)	146.67 - 153.33	0.6000	0.6000
T3	40	Safety Line 3/8	146.67 - 153.33	0.6000	0.6000
T3	44	CU12PSM6P4XXX(1-3/4)	146.67 - 153.33	0.6000	0.6000
T3	46	PWRT-604-S_CCIV2(1-1/8)	146.67 - 153.33	0.6000	0.6000
T3	47	PWRT-608-S(13/16)	146.67 - 153.33	0.6000	0.6000
T3	48	FB-L98-002-XXX(3/8)	146.67 - 153.33	0.6000	0.6000
T4	2	Feedline Ladder (Af)	140.00 - 146.67	0.6000	0.6000
T4	4	HCS 6X12 6AWG(1-3/8)	140.00 - 146.67	0.6000	0.6000
T4	9	Feedline Ladder (Af)	140.00 - 146.67	0.6000	0.6000
T4	12	MLE Hybrid 3Power/6Fiber RL 2 10AWG(1-1/4)	140.00 - 146.67	0.6000	0.6000
T4	17	7983A(ELLIPTICAL)	140.00 - 146.67	0.6000	0.6000
T4	18	Feedline Ladder (Af)	140.00 - 146.67	0.6000	0.6000
T4	20	Feedline Ladder (Af)	140.00 - 146.67	0.6000	0.6000
T4	33	Feedline Ladder (Af)	140.00 - 146.67	0.6000	0.6000
T4	35	CR 50 1873(1-5/8)	140.00 - 146.67	0.6000	0.6000
T4	40	Safety Line 3/8	140.00 - 146.67	0.6000	0.6000
T4	44	CU12PSM6P4XXX(1-3/4)	140.00 - 146.67	0.6000	0.6000
T4	46	PWRT-604-S_CCIV2(1-1/8)	140.00 - 146.67	0.6000	0.6000
T4	47	PWRT-608-S(13/16)	140.00 - 146.67	0.6000	0.6000
T4	48	FB-L98-002-XXX(3/8)	140.00 - 146.67	0.6000	0.6000
T5	2	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T5	4	HCS 6X12 6AWG(1-3/8)	120.00 - 140.00	0.6000	0.6000
T5	9	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T5	12	MLE Hybrid 3Power/6Fiber RL 2 10AWG(1-1/4)	120.00 - 140.00	0.6000	0.6000
T5	14	2-1/4" Rigid Conduit	120.00 - 136.00	0.6000	0.6000
T5	15	LDF4-50A(1/2)	120.00 - 136.00	0.0000	0.0000
T5	16	9207(5/16)	120.00 - 136.00	0.0000	0.0000
T5	17	7983A(ELLIPTICAL)	120.00 - 140.00	0.6000	0.6000
T5	18	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T5	20	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T5	22	LDF7-50A(1 5/8)	120.00 - 126.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T5	24	LDF4-50A(1/2)	120.00 - 126.00	0.6000	0.6000
T5	25	Feedline Ladder (Af)	120.00 - 126.00	0.6000	0.6000
T5	33	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T5	35	CR 50 1873(1-5/8)	120.00 - 140.00	0.6000	0.6000
T5	40	Safety Line 3/8	120.00 - 140.00	0.6000	0.6000
T5	44	CU12PSM6P4XXX(1-3/4)	120.00 - 140.00	0.6000	0.6000
T5	46	PWRT-604-S_CCIV2(1-1/8)	120.00 - 140.00	0.6000	0.6000
T5	47	PWRT-608-S(13/16)	120.00 - 140.00	0.6000	0.6000
T5	48	FB-L98-002-XXX(3/8)	120.00 - 140.00	0.6000	0.6000
T6	2	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T6	4	HCS 6X12 6AWG(1-3/8)	100.00 - 120.00	0.6000	0.6000
T6	9	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T6	12	MLE Hybrid 3Power/6Fiber RL 2 10AWG(1-1/4)	100.00 - 120.00	0.6000	0.6000
T6	14	2-1/4" Rigid Conduit	100.00 - 120.00	0.6000	0.6000
T6	15	LDF4-50A(1/2)	100.00 - 120.00	0.0000	0.0000
T6	16	9207(5/16)	100.00 - 120.00	0.0000	0.0000
T6	17	7983A(ELLIPTICAL)	100.00 - 120.00	0.6000	0.6000
T6	18	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T6	20	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T6	22	LDF7-50A(1 5/8)	100.00 - 120.00	0.6000	0.6000
T6	24	LDF4-50A(1/2)	100.00 - 120.00	0.6000	0.6000
T6	25	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T6	33	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T6	35	CR 50 1873(1-5/8)	100.00 - 120.00	0.6000	0.6000
T6	40	Safety Line 3/8	100.00 - 120.00	0.6000	0.6000
T6	42	CR 50 1873(1-5/8)	100.00 - 112.00	0.6000	0.6000
T6	44	CU12PSM6P4XXX(1-3/4)	100.00 - 120.00	0.6000	0.6000
T6	46	PWRT-604-S_CCIV2(1-1/8)	100.00 - 120.00	0.6000	0.6000
T6	47	PWRT-608-S(13/16)	100.00 - 120.00	0.6000	0.6000
T6	48	FB-L98-002-XXX(3/8)	100.00 - 120.00	0.6000	0.6000
T7	2	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T7	4	HCS 6X12 6AWG(1-3/8)	80.00 - 100.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T7	9	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T7	12	MLE Hybrid 3Power/6Fiber RL 2 10AWG(1-1/4)	80.00 - 100.00	0.6000	0.6000
T7	14	2-1/4" Rigid Conduit	80.00 - 100.00	0.6000	0.6000
T7	15	LDF4-50A(1/2)	80.00 - 100.00	0.0000	0.0000
T7	16	9207(5/16)	80.00 - 100.00	0.0000	0.0000
T7	17	7983A(ELLIPTICAL)	80.00 - 100.00	0.6000	0.6000
T7	18	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T7	20	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T7	22	LDF7-50A(1 5/8)	80.00 - 100.00	0.6000	0.6000
T7	24	LDF4-50A(1/2)	80.00 - 100.00	0.6000	0.6000
T7	25	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T7	33	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T7	35	CR 50 1873(1-5/8)	80.00 - 100.00	0.6000	0.6000
T7	40	Safety Line 3/8	80.00 - 100.00	0.6000	0.6000
T7	42	CR 50 1873(1-5/8)	80.00 - 100.00	0.6000	0.6000
T7	44	CU12PSM6P4XXX(1-3/4)	80.00 - 100.00	0.6000	0.6000
T7	46	PWRT-604-S_CCIV2(1-1/8)	80.00 - 100.00	0.6000	0.6000
T7	47	PWRT-608-S(13/16)	80.00 - 100.00	0.6000	0.6000
T7	48	FB-L98-002-XXX(3/8)	80.00 - 100.00	0.6000	0.6000
T8	2	Feedline Ladder (Af)	70.00 - 80.00	0.6000	0.6000
T8	4	HCS 6X12 6AWG(1-3/8)	70.00 - 80.00	0.6000	0.6000
T8	9	Feedline Ladder (Af)	70.00 - 80.00	0.6000	0.6000
T8	12	MLE Hybrid 3Power/6Fiber RL 2 10AWG(1-1/4)	70.00 - 80.00	0.6000	0.6000
T8	14	2-1/4" Rigid Conduit	70.00 - 80.00	0.6000	0.6000
T8	15	LDF4-50A(1/2)	70.00 - 80.00	0.0000	0.0000
T8	16	9207(5/16)	70.00 - 80.00	0.0000	0.0000
T8	17	7983A(ELLIPTICAL)	70.00 - 80.00	0.6000	0.6000
T8	18	Feedline Ladder (Af)	70.00 - 80.00	0.6000	0.6000
T8	20	Feedline Ladder (Af)	70.00 - 80.00	0.6000	0.6000
T8	22	LDF7-50A(1 5/8)	70.00 - 80.00	0.6000	0.6000
T8	24	LDF4-50A(1/2)	70.00 - 80.00	0.6000	0.6000
T8	25	Feedline Ladder (Af)	70.00 - 80.00	0.6000	0.6000
T8	33	Feedline Ladder (Af)	70.00 - 80.00	0.6000	0.6000
T8	35	CR 50 1873(1-5/8)	70.00 - 80.00	0.6000	0.6000
T8	40	Safety Line 3/8	70.00 - 80.00	0.6000	0.6000
T8	42	CR 50 1873(1-5/8)	70.00 - 80.00	0.6000	0.6000
T8	44	CU12PSM6P4XXX(1-3/4)	70.00 - 80.00	0.6000	0.6000
T8	46	PWRT-604-S_CCIV2(1-1/8)	70.00 - 80.00	0.6000	0.6000
T8	47	PWRT-608-S(13/16)	70.00 - 80.00	0.6000	0.6000
T8	48	FB-L98-002-XXX(3/8)	70.00 - 80.00	0.6000	0.6000
T9	2	Feedline Ladder (Af)	60.00 - 70.00	0.6000	0.6000
T9	4	HCS 6X12 6AWG(1-3/8)	60.00 - 70.00	0.6000	0.6000
T9	9	Feedline Ladder (Af)	60.00 - 70.00	0.6000	0.6000
T9	12	MLE Hybrid 3Power/6Fiber RL 2 10AWG(1-1/4)	60.00 - 70.00	0.6000	0.6000
T9	14	2-1/4" Rigid Conduit	60.00 - 70.00	0.6000	0.6000
T9	15	LDF4-50A(1/2)	60.00 - 70.00	0.0000	0.0000
T9	16	9207(5/16)	60.00 - 70.00	0.0000	0.0000
T9	17	7983A(ELLIPTICAL)	60.00 - 70.00	0.6000	0.6000
T9	18	Feedline Ladder (Af)	60.00 - 70.00	0.6000	0.6000
T9	20	Feedline Ladder (Af)	60.00 - 70.00	0.6000	0.6000
T9	22	LDF7-50A(1 5/8)	60.00 - 70.00	0.6000	0.6000
T9	24	LDF4-50A(1/2)	60.00 - 70.00	0.6000	0.6000
T9	25	Feedline Ladder (Af)	60.00 - 70.00	0.6000	0.6000
T9	33	Feedline Ladder (Af)	60.00 - 70.00	0.6000	0.6000
T9	35	CR 50 1873(1-5/8)	60.00 - 70.00	0.6000	0.6000
T9	40	Safety Line 3/8	60.00 - 70.00	0.6000	0.6000
T9	42	CR 50 1873(1-5/8)	60.00 - 70.00	0.6000	0.6000
T9	44	CU12PSM6P4XXX(1-3/4)	60.00 - 70.00	0.6000	0.6000
T9	46	PWRT-604-S_CCIV2(1-1/8)	60.00 - 70.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T9	47	PWRT-608-S(13/16)	60.00 - 70.00	0.6000	0.6000
T9	48	FB-L98-002-XXX(3/8)	60.00 - 70.00	0.6000	0.6000
T10	2	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T10	4	HCS 6X12 6AWG(1-3/8)	40.00 - 60.00	0.6000	0.6000
T10	9	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T10	12	MLE Hybrid 3Power/6Fiber RL 2 10AWG(1-1/4)	40.00 - 60.00	0.6000	0.6000
T10	14	2-1/4" Rigid Conduit	40.00 - 60.00	0.6000	0.6000
T10	15	LDF4-50A(1/2)	40.00 - 60.00	0.0000	0.0000
T10	16	9207(5/16)	40.00 - 60.00	0.0000	0.0000
T10	17	7983A(ELLIPTICAL)	40.00 - 60.00	0.6000	0.6000
T10	18	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T10	20	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T10	22	LDF7-50A(1 5/8)	40.00 - 60.00	0.6000	0.6000
T10	24	LDF4-50A(1/2)	40.00 - 60.00	0.6000	0.6000
T10	25	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T10	33	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T10	35	CR 50 1873(1-5/8)	40.00 - 60.00	0.6000	0.6000
T10	40	Safety Line 3/8	40.00 - 60.00	0.6000	0.6000
T10	42	CR 50 1873(1-5/8)	40.00 - 60.00	0.6000	0.6000
T10	44	CU12PSM6P4XXX(1-3/4)	40.00 - 60.00	0.6000	0.6000
T10	46	PWRT-604-S_CCIV2(1-1/8)	40.00 - 60.00	0.6000	0.6000
T10	47	PWRT-608-S(13/16)	40.00 - 60.00	0.6000	0.6000
T10	48	FB-L98-002-XXX(3/8)	40.00 - 60.00	0.6000	0.6000
T11	2	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T11	4	HCS 6X12 6AWG(1-3/8)	20.00 - 40.00	0.6000	0.6000
T11	9	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T11	12	MLE Hybrid 3Power/6Fiber RL 2 10AWG(1-1/4)	20.00 - 40.00	0.6000	0.6000
T11	14	2-1/4" Rigid Conduit	20.00 - 40.00	0.6000	0.6000
T11	15	LDF4-50A(1/2)	20.00 - 40.00	0.0000	0.0000
T11	16	9207(5/16)	20.00 - 40.00	0.0000	0.0000
T11	17	7983A(ELLIPTICAL)	20.00 - 40.00	0.6000	0.6000
T11	18	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T11	20	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T11	22	LDF7-50A(1 5/8)	20.00 - 40.00	0.6000	0.6000
T11	24	LDF4-50A(1/2)	20.00 - 40.00	0.6000	0.6000
T11	25	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T11	33	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T11	35	CR 50 1873(1-5/8)	20.00 - 40.00	0.6000	0.6000
T11	40	Safety Line 3/8	20.00 - 40.00	0.6000	0.6000
T11	42	CR 50 1873(1-5/8)	20.00 - 40.00	0.6000	0.6000
T11	44	CU12PSM6P4XXX(1-3/4)	20.00 - 40.00	0.6000	0.6000
T11	46	PWRT-604-S_CCIV2(1-1/8)	20.00 - 40.00	0.6000	0.6000
T11	47	PWRT-608-S(13/16)	20.00 - 40.00	0.6000	0.6000
T11	48	FB-L98-002-XXX(3/8)	20.00 - 40.00	0.6000	0.6000
T12	2	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T12	4	HCS 6X12 6AWG(1-3/8)	0.00 - 20.00	0.6000	0.6000
T12	8	LDF1-50A(1/4)	0.00 - 5.00	0.6000	0.6000
T12	9	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T12	12	MLE Hybrid 3Power/6Fiber RL 2 10AWG(1-1/4)	0.00 - 20.00	0.6000	0.6000
T12	14	2-1/4" Rigid Conduit	0.00 - 20.00	0.6000	0.6000
T12	15	LDF4-50A(1/2)	0.00 - 20.00	0.0000	0.0000
T12	16	9207(5/16)	0.00 - 20.00	0.0000	0.0000
T12	17	7983A(ELLIPTICAL)	0.00 - 20.00	0.6000	0.6000
T12	18	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T12	20	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T12	22	LDF7-50A(1 5/8)	0.00 - 20.00	0.6000	0.6000
T12	24	LDF4-50A(1/2)	0.00 - 20.00	0.6000	0.6000
T12	25	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T12	33	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T12	35	CR 50 1873(1-5/8)	0.00 - 20.00	0.6000	0.6000
T12	40	Safety Line 3/8	0.00 - 20.00	0.6000	0.6000
T12	42	CR 50 1873(1-5/8)	0.00 - 20.00	0.6000	0.6000
T12	44	CU12PSM6P4XXX(1-3/4)	0.00 - 20.00	0.6000	0.6000
T12	46	PWRT-604-S_CCIV2(1-1/8)	0.00 - 20.00	0.6000	0.6000
T12	47	PWRT-608-S(13/16)	0.00 - 20.00	0.6000	0.6000
T12	48	FB-L98-002-XXX(3/8)	0.00 - 20.00	0.6000	0.6000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
*									
MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.000 0' 0'	0.000	181'	No Ice 1/2" Ice 1" Ice	8.010 8.520 9.040	4.230 4.690 5.160	0.108 0.194 0.292
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.000 0' 0'	0.000	181'	No Ice 1/2" Ice 1" Ice	8.010 8.520 9.040	4.230 4.690 5.160	0.108 0.194 0.292
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.000 0' 0'	0.000	181'	No Ice 1/2" Ice 1" Ice	8.010 8.520 9.040	4.230 4.690 5.160	0.108 0.194 0.292
TA08025-B604	A	From Leg	4.000 0' 0'	0.000	181'	No Ice 1/2" Ice 1" Ice	1.964 2.138 2.320	0.981 1.112 1.250	0.064 0.081 0.100
TA08025-B604	B	From Leg	4.000 0' 0'	0.000	181'	No Ice 1/2" Ice 1" Ice	1.964 2.138 2.320	0.981 1.112 1.250	0.064 0.081 0.100
TA08025-B604	C	From Leg	4.000 0' 0'	0.000	181'	No Ice 1/2" Ice 1" Ice	1.964 2.138 2.320	0.981 1.112 1.250	0.064 0.081 0.100
TA08025-B605	A	From Leg	4.000 0' 0'	0.000	181'	No Ice 1/2" Ice 1" Ice	1.964 2.138 2.320	1.129 1.267 1.411	0.075 0.093 0.114
TA08025-B605	B	From Leg	4.000 0' 0'	0.000	181'	No Ice 1/2" Ice 1" Ice	1.964 2.138 2.320	1.129 1.267 1.411	0.075 0.093 0.114
TA08025-B605	C	From Leg	4.000 0' 0'	0.000	181'	No Ice 1/2" Ice 1" Ice	1.964 2.138 2.320	1.129 1.267 1.411	0.075 0.093 0.114
RDIDC-9181-PF-48	A	From Leg	4.000 0' 0'	0.000	181'	No Ice 1/2" Ice 1" Ice	2.012 2.189 2.373	1.168 1.311 1.461	0.022 0.040 0.060
(2) 8' x 2" Mount Pipe	A	From Leg	4.000 0' 0'	0.000	181'	No Ice 1/2" Ice 1" Ice	1.900 2.728 3.401	1.900 2.728 3.401	0.029 0.044 0.063
(2) 8' x 2" Mount Pipe	B	From Leg	4.000 0' 0'	0.000	181'	No Ice 1/2" Ice 1" Ice	1.900 2.728 3.401	1.900 2.728 3.401	0.029 0.044 0.063
(2) 8' x 2" Mount Pipe	C	From Leg	4.000	0.000	181'	No Ice	1.900	1.900	0.029

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0'			1/2" Ice	2.728	2.728	0.044
			0'			1" Ice	3.401	3.401	0.063
Commscope MTC3975083 (3)	C	None		0.000	181'	No Ice	23.850	23.850	1.260
						1/2" Ice	34.120	34.120	1.803
*						1" Ice	44.390	44.390	2.345
AIR 32 B2A/B66AA w/ Mount Pipe	A	From Leg	4.000	0.000	170'	No Ice	3.760	3.150	0.194
			0'			1/2" Ice	4.120	3.490	0.252
			0'			1" Ice	4.480	3.840	0.320
AIR 32 B2A/B66AA w/ Mount Pipe	B	From Leg	4.000	0.000	170'	No Ice	3.760	3.150	0.194
			0'			1/2" Ice	4.120	3.490	0.252
			0'			1" Ice	4.480	3.840	0.320
AIR 32 B2A/B66AA w/ Mount Pipe	C	From Leg	4.000	0.000	170'	No Ice	3.760	3.150	0.194
			0'			1/2" Ice	4.120	3.490	0.252
			0'			1" Ice	4.480	3.840	0.320
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Leg	4.000	0.000	170'	No Ice	14.690	6.870	0.186
			0'			1/2" Ice	15.460	7.550	0.315
			0'			1" Ice	16.230	8.250	0.458
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Leg	4.000	0.000	170'	No Ice	14.690	6.870	0.186
			0'			1/2" Ice	15.460	7.550	0.315
			0'			1" Ice	16.230	8.250	0.458
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Leg	4.000	0.000	170'	No Ice	14.690	6.870	0.186
			0'			1/2" Ice	15.460	7.550	0.315
			0'			1" Ice	16.230	8.250	0.458
AIR 3246 B66_T-MOBILE w/ Mount Pipe	A	From Leg	4.000	0.000	170'	No Ice	7.310	5.460	0.248
			0'			1/2" Ice	7.890	6.010	0.313
			0'			1" Ice	8.490	6.570	0.389
AIR 3246 B66_T-MOBILE w/ Mount Pipe	B	From Leg	4.000	0.000	170'	No Ice	7.310	5.460	0.248
			0'			1/2" Ice	7.890	6.010	0.313
			0'			1" Ice	8.490	6.570	0.389
AIR 3246 B66_T-MOBILE w/ Mount Pipe	C	From Leg	4.000	0.000	170'	No Ice	7.310	5.460	0.248
			0'			1/2" Ice	7.890	6.010	0.313
			0'			1" Ice	8.490	6.570	0.389
AIR6449 B41 w/ Mount Pipe	A	From Leg	4.000	0.000	170'	No Ice	5.180	2.720	0.118
			0'			1/2" Ice	5.590	3.050	0.164
			0'			1" Ice	6.010	3.390	0.216
AIR6449 B41 w/ Mount Pipe	B	From Leg	4.000	0.000	170'	No Ice	5.180	2.720	0.118
			0'			1/2" Ice	5.590	3.050	0.164
			0'			1" Ice	6.010	3.390	0.216
AIR6449 B41 w/ Mount Pipe	C	From Leg	4.000	0.000	170'	No Ice	5.180	2.720	0.118
			0'			1/2" Ice	5.590	3.050	0.164
			0'			1" Ice	6.010	3.390	0.216
RRUS 4415 B25_CCIV2	A	From Leg	4.000	0.000	170'	No Ice	1.843	0.820	0.046
			0'			1/2" Ice	2.012	0.943	0.060
			0'			1" Ice	2.190	1.075	0.077
RRUS 4415 B25_CCIV2	B	From Leg	4.000	0.000	170'	No Ice	1.843	0.820	0.046
			0'			1/2" Ice	2.012	0.943	0.060
			0'			1" Ice	2.190	1.075	0.077
RRUS 4415 B25_CCIV2	C	From Leg	4.000	0.000	170'	No Ice	1.843	0.820	0.046
			0'			1/2" Ice	2.012	0.943	0.060
			0'			1" Ice	2.190	1.075	0.077
RADIO 4449 B71 B85A_T-MOBILE	A	From Leg	4.000	0.000	170'	No Ice	1.970	1.587	0.073
			0'			1/2" Ice	2.147	1.749	0.093
			0'			1" Ice	2.331	1.918	0.116
RADIO 4449 B71 B85A_T-MOBILE	B	From Leg	4.000	0.000	170'	No Ice	1.970	1.587	0.073
			0'			1/2" Ice	2.147	1.749	0.093
			0'			1" Ice	2.331	1.918	0.116

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
RADIO 4449 B71	C	From Leg	4.000	0.000	170'	No Ice	1.970	1.587	0.073
B85A_T-MOBILE			0'			1/2" Ice	2.147	1.749	0.093
			0'			1" Ice	2.331	1.918	0.116
Sector Mount [SM 702-3]	C	None		0.000	170'	No Ice	38.890	38.890	1.551
						1/2" Ice	50.400	50.400	2.279
						1" Ice	61.770	61.770	3.217
*									
RRUS 32 B2	B	From Leg	4.000	0.000	161'	No Ice	2.731	1.668	0.053
			0'			1/2" Ice	2.953	1.855	0.074
			0'			1" Ice	3.182	2.049	0.098
RRUS 32 B2	A	From Leg	4.000	0.000	161'	No Ice	2.731	1.668	0.053
			0'			1/2" Ice	2.953	1.855	0.074
			0'			1" Ice	3.182	2.049	0.098
RRUS 32 B2	C	From Leg	4.000	0.000	161'	No Ice	2.731	1.668	0.053
			0'			1/2" Ice	2.953	1.855	0.074
			0'			1" Ice	3.182	2.049	0.098
RRUS 4426 B66	A	From Leg	4.000	0.000	161'	No Ice	1.644	0.725	0.048
			0'			1/2" Ice	1.804	0.842	0.061
			0'			1" Ice	1.972	0.969	0.076
RRUS 4426 B66	B	From Leg	4.000	0.000	161'	No Ice	1.644	0.725	0.048
			0'			1/2" Ice	1.804	0.842	0.061
			0'			1" Ice	1.972	0.969	0.076
RRUS 4426 B66	C	From Leg	4.000	0.000	161'	No Ice	1.644	0.725	0.048
			0'			1/2" Ice	1.804	0.842	0.061
			0'			1" Ice	1.972	0.969	0.076
RRUS 32 B30	A	From Leg	4.000	0.000	161'	No Ice	2.692	1.573	0.060
			0'			1/2" Ice	2.912	1.756	0.080
			0'			1" Ice	3.138	1.945	0.104
RRUS 32 B30	B	From Leg	4.000	0.000	161'	No Ice	2.692	1.573	0.060
			0'			1/2" Ice	2.912	1.756	0.080
			0'			1" Ice	3.138	1.945	0.104
RRUS 32 B30	C	From Leg	4.000	0.000	161'	No Ice	2.692	1.573	0.060
			0'			1/2" Ice	2.912	1.756	0.080
			0'			1" Ice	3.138	1.945	0.104
DC6-48-60-18-8F	A	From Leg	4.000	0.000	161'	No Ice	1.212	1.212	0.033
			0'			1/2" Ice	1.892	1.892	0.055
			0'			1" Ice	2.105	2.105	0.080
DC6-48-60-18-8F	B	From Leg	4.000	0.000	161'	No Ice	1.212	1.212	0.033
			0'			1/2" Ice	1.892	1.892	0.055
			0'			1" Ice	2.105	2.105	0.080
DC6-48-60-18-8F	C	From Leg	4.000	0.000	161'	No Ice	1.212	1.212	0.033
			0'			1/2" Ice	1.892	1.892	0.055
			0'			1" Ice	2.105	2.105	0.080
C-Band Antenna N w/ Mount Pipe	A	From Leg	4.000	0.000	161'	No Ice	4.556	3.095	0.112
			0'			1/2" Ice	4.883	3.521	0.154
			2'			1" Ice	5.221	3.963	0.202
C-Band Antenna N w/ Mount Pipe	B	From Leg	4.000	0.000	161'	No Ice	4.556	3.095	0.112
			0'			1/2" Ice	4.883	3.521	0.154
			2'			1" Ice	5.221	3.963	0.202
C-Band Antenna N w/ Mount Pipe	C	From Leg	4.000	0.000	161'	No Ice	4.556	3.095	0.112
			0'			1/2" Ice	4.883	3.521	0.154
			2'			1" Ice	5.221	3.963	0.202
AIR 6449 B77D w/ Mount Pipe	A	From Leg	4.000	0.000	161'	No Ice	3.580	2.310	0.095
			0'			1/2" Ice	3.920	2.600	0.130
			-2'			1" Ice	4.270	2.910	0.173
AIR 6449 B77D w/ Mount Pipe	B	From Leg	4.000	0.000	161'	No Ice	3.580	2.310	0.095
			0'			1/2" Ice	3.920	2.600	0.130

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			-2'			1" Ice	4.270	2.910	0.173
AIR 6449 B77D w/ Mount Pipe	C	From Leg	4.000 0'	0.000	161'	No Ice 1/2" Ice	3.580 3.920	2.310 2.600	0.095 0.130
			-2'			1" Ice	4.270	2.910	0.173
DMP65R-BU6D w/ Mount Pipe	A	From Leg	4.000 0'	0.000	161'	No Ice 1/2" Ice	11.960 12.700	5.970 6.630	0.115 0.201
			0'			1" Ice	13.460	7.300	0.298
DMP65R-BU6D w/ Mount Pipe	B	From Leg	4.000 0'	0.000	161'	No Ice 1/2" Ice	11.960 12.700	5.970 6.630	0.115 0.201
			0'			1" Ice	13.460	7.300	0.298
DMP65R-BU4D w/ Mount Pipe	C	From Leg	4.000 0'	0.000	161'	No Ice 1/2" Ice	7.530 8.040	3.790 4.230	0.095 0.156
			0'			1" Ice	8.570	4.680	0.225
QD6616-7 w/ Mount Pipe	A	From Leg	4.000 0'	0.000	161'	No Ice 1/2" Ice	12.560 13.300	6.930 7.600	0.156 0.252
			0'			1" Ice	14.060	8.280	0.360
QD6616-7 w/ Mount Pipe	B	From Leg	4.000 0'	0.000	161'	No Ice 1/2" Ice	12.560 13.300	6.930 7.600	0.156 0.252
			0'			1" Ice	14.060	8.280	0.360
QD4616-7 w/ Mount Pipe	C	From Leg	4.000 0'	0.000	161'	No Ice 1/2" Ice	8.880 9.450	4.920 5.420	0.128 0.200
			0'			1" Ice	10.040	5.930	0.281
RRUS 4449 B5/B12	A	From Leg	4.000 0'	0.000	161'	No Ice 1/2" Ice	1.968 2.144	1.408 1.564	0.071 0.090
			0'			1" Ice	2.328	1.727	0.111
RRUS 4449 B5/B12	B	From Leg	4.000 0'	0.000	161'	No Ice 1/2" Ice	1.968 2.144	1.408 1.564	0.071 0.090
			0'			1" Ice	2.328	1.727	0.111
RRUS 4449 B5/B12	C	From Leg	4.000 0'	0.000	161'	No Ice 1/2" Ice	1.968 2.144	1.408 1.564	0.071 0.090
			0'			1" Ice	2.328	1.727	0.111
RRUS 4478 B14	B	From Leg	4.000 0'	0.000	161'	No Ice 1/2" Ice	1.843 2.012	1.059 1.197	0.060 0.076
			0'			1" Ice	2.190	1.342	0.094
(2) RRUS 4478 B14	C	From Leg	4.000 0'	0.000	161'	No Ice 1/2" Ice	1.843 2.012	1.059 1.197	0.060 0.076
			0'			1" Ice	2.190	1.342	0.094
DC6-48-60-18-8F	A	From Leg	4.000 0'	0.000	161'	No Ice 1/2" Ice	1.212 1.892	1.212 1.892	0.033 0.055
			0'			1" Ice	2.105	2.105	0.080
(2) 6' x 2" Mount Pipe	A	From Leg	4.000 0'	0.000	161'	No Ice 1/2" Ice	1.425 1.925	1.425 1.925	0.022 0.033
			0'			1" Ice	2.294	2.294	0.048
(2) 6' x 2" Mount Pipe	B	From Leg	4.000 0'	0.000	161'	No Ice 1/2" Ice	1.425 1.925	1.425 1.925	0.022 0.033
			0'			1" Ice	2.294	2.294	0.048
(2) 6' x 2" Mount Pipe	C	From Leg	4.000 0'	0.000	161'	No Ice 1/2" Ice	1.425 1.925	1.425 1.925	0.022 0.033
			0'			1" Ice	2.294	2.294	0.048
Sector Mount [SM 502-3]	C	None		0.000	161'	No Ice 1/2" Ice 1" Ice	29.820 42.210 54.430	29.820 42.210 54.430	1.673 2.266 3.052
*									
Side Arm Mount [SO 203-1]	A	From Leg	1.500 0'	0.000	157'	No Ice 1/2" Ice	1.780 2.240	3.790 4.470	0.125 0.153
			0'			1" Ice	2.750	5.210	0.189
Side Arm Mount [SO 203-1]	B	From Leg	1.500	0.000	157'	No Ice	1.780	3.790	0.125

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0'			1/2" Ice	2.240	4.470	0.153
			0'			1" Ice	2.750	5.210	0.189
*									
APXVTM14-ALU-I20 w/ Mount Pipe	A	From Leg	4.000	0.000	148'	No Ice	4.090	2.860	0.077
			0'			1/2" Ice	4.480	3.230	0.127
			0'			1" Ice	4.880	3.610	0.185
APXVTM14-ALU-I20 w/ Mount Pipe	B	From Leg	4.000	0.000	148'	No Ice	4.090	2.860	0.077
			0'			1/2" Ice	4.480	3.230	0.127
			0'			1" Ice	4.880	3.610	0.185
APXVTM14-ALU-I20 w/ Mount Pipe	C	From Leg	4.000	0.000	148'	No Ice	4.090	2.860	0.077
			0'			1/2" Ice	4.480	3.230	0.127
			0'			1" Ice	4.880	3.610	0.185
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	4.000	0.000	148'	No Ice	4.600	4.010	0.095
			0'			1/2" Ice	5.050	4.450	0.160
			0'			1" Ice	5.500	4.890	0.235
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	4.000	0.000	148'	No Ice	4.600	4.010	0.095
			0'			1/2" Ice	5.050	4.450	0.160
			0'			1" Ice	5.500	4.890	0.235
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	4.000	0.000	148'	No Ice	4.600	4.010	0.095
			0'			1/2" Ice	5.050	4.450	0.160
			0'			1" Ice	5.500	4.890	0.235
800 EXTERNAL NOTCH FILTER	A	From Leg	4.000	0.000	148'	No Ice	0.660	0.289	0.011
			0'			1/2" Ice	0.763	0.364	0.017
			0'			1" Ice	0.873	0.446	0.024
800 EXTERNAL NOTCH FILTER	B	From Leg	4.000	0.000	148'	No Ice	0.660	0.289	0.011
			0'			1/2" Ice	0.763	0.364	0.017
			0'			1" Ice	0.873	0.446	0.024
800 EXTERNAL NOTCH FILTER	C	From Leg	4.000	0.000	148'	No Ice	0.660	0.289	0.011
			0'			1/2" Ice	0.763	0.364	0.017
			0'			1" Ice	0.873	0.446	0.024
(3) ACU-A20-N	A	From Leg	4.000	0.000	148'	No Ice	0.067	0.117	0.001
			0'			1/2" Ice	0.104	0.162	0.002
			0'			1" Ice	0.148	0.215	0.004
(3) ACU-A20-N	B	From Leg	4.000	0.000	148'	No Ice	0.067	0.117	0.001
			0'			1/2" Ice	0.104	0.162	0.002
			0'			1" Ice	0.148	0.215	0.004
(3) ACU-A20-N	C	From Leg	4.000	0.000	148'	No Ice	0.067	0.117	0.001
			0'			1/2" Ice	0.104	0.162	0.002
			0'			1" Ice	0.148	0.215	0.004
(2) PCS 1900MHz 4x45W-65MHz	A	From Leg	4.000	0.000	148'	No Ice	2.322	2.238	0.060
			0'			1/2" Ice	2.527	2.441	0.083
			0'			1" Ice	2.739	2.651	0.110
(2) PCS 1900MHz 4x45W-65MHz	B	From Leg	4.000	0.000	148'	No Ice	2.322	2.238	0.060
			0'			1/2" Ice	2.527	2.441	0.083
			0'			1" Ice	2.739	2.651	0.110
(2) PCS 1900MHz 4x45W-65MHz	C	From Leg	4.000	0.000	148'	No Ice	2.322	2.238	0.060
			0'			1/2" Ice	2.527	2.441	0.083
			0'			1" Ice	2.739	2.651	0.110
800MHZ 2X50W RRH	A	From Leg	4.000	0.000	148'	No Ice	2.134	1.773	0.053
			0'			1/2" Ice	2.320	1.946	0.074
			0'			1" Ice	2.512	2.127	0.098
800MHZ 2X50W RRH	B	From Leg	4.000	0.000	148'	No Ice	2.134	1.773	0.053
			0'			1/2" Ice	2.320	1.946	0.074
			0'			1" Ice	2.512	2.127	0.098
800MHZ 2X50W RRH	C	From Leg	4.000	0.000	148'	No Ice	2.134	1.773	0.053
			0'			1/2" Ice	2.320	1.946	0.074
			0'			1" Ice	2.512	2.127	0.098

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(2) 6' x 2" Mount Pipe	A	From Leg	4.000 0' 0'	0.000	148'	No Ice 1/2" Ice 1" Ice	1.425 1.925 2.294	1.425 1.925 2.294	0.022 0.033 0.048
(2) 6' x 2" Mount Pipe	B	From Leg	4.000 0' 0'	0.000	148'	No Ice 1/2" Ice 1" Ice	1.425 1.925 2.294	1.425 1.925 2.294	0.022 0.033 0.048
(2) 6' x 2" Mount Pipe	C	From Leg	4.000 0' 0'	0.000	148'	No Ice 1/2" Ice 1" Ice	1.425 1.925 2.294	1.425 1.925 2.294	0.022 0.033 0.048
(2) 6' x 3.5" Mount Pipe	A	From Leg	2.000 0' 0'	0.000	148'	No Ice 1/2" Ice 1" Ice	1.872 2.293 2.667	1.872 2.293 2.667	0.030 0.046 0.065
(2) 6' x 3.5" Mount Pipe	B	From Leg	2.000 0' 0'	0.000	148'	No Ice 1/2" Ice 1" Ice	1.872 2.293 2.667	1.872 2.293 2.667	0.030 0.046 0.065
(2) 6' x 3.5" Mount Pipe	C	From Leg	2.000 0' 0'	0.000	148'	No Ice 1/2" Ice 1" Ice	1.872 2.293 2.667	1.872 2.293 2.667	0.030 0.046 0.065
Sector Mount [SM 502-3]	C	None		0.000	148'	No Ice 1/2" Ice 1" Ice	29.820 42.210 54.430	29.820 42.210 54.430	1.673 2.266 3.052
*									
LLPX310R w/ Mount Pipe	A	From Leg	4.000 0' 0'	0.000	136'	No Ice 1/2" Ice 1" Ice	3.880 4.290 4.720	2.360 2.730 3.120	0.057 0.091 0.133
LLPX310R w/ Mount Pipe	B	From Leg	4.000 0' 0'	0.000	136'	No Ice 1/2" Ice 1" Ice	3.880 4.290 4.720	2.360 2.730 3.120	0.057 0.091 0.133
LLPX310R w/ Mount Pipe	C	From Leg	4.000 0' 0'	0.000	136'	No Ice 1/2" Ice 1" Ice	3.880 4.290 4.720	2.360 2.730 3.120	0.057 0.091 0.133
RRH-2WB	A	From Leg	4.000 0' 0'	0.000	136'	No Ice 1/2" Ice 1" Ice	2.305 2.496 2.695	0.783 0.917 1.058	0.044 0.059 0.077
RRH-2WB	B	From Leg	4.000 0' 0'	0.000	136'	No Ice 1/2" Ice 1" Ice	2.305 2.496 2.695	0.783 0.917 1.058	0.044 0.059 0.077
RRH-2WB	C	From Leg	4.000 0' 0'	0.000	136'	No Ice 1/2" Ice 1" Ice	2.305 2.496 2.695	0.783 0.917 1.058	0.044 0.059 0.077
J - Box	C	From Leg	0.500 0' 0'	0.000	136'	No Ice 1/2" Ice 1" Ice	0.667 0.770 0.881	0.500 0.593 0.693	0.020 0.027 0.036
(3) 6' x 2" Mount Pipe	A	From Leg	4.000 0' 0'	0.000	136'	No Ice 1/2" Ice 1" Ice	1.425 1.925 2.294	1.425 1.925 2.294	0.022 0.033 0.048
(3) 6' x 2" Mount Pipe	B	From Leg	4.000 0' 0'	0.000	136'	No Ice 1/2" Ice 1" Ice	1.425 1.925 2.294	1.425 1.925 2.294	0.022 0.033 0.048
(3) 6' x 2" Mount Pipe	C	From Leg	4.000 0' 0'	0.000	136'	No Ice 1/2" Ice 1" Ice	1.425 1.925 2.294	1.425 1.925 2.294	0.022 0.033 0.048
6' x 3" Mount Pipe	A	From Leg	4.000 0' 0'	0.000	136'	No Ice 1/2" Ice 1" Ice	1.767 2.129 2.501	1.767 2.129 2.501	0.030 0.044 0.061
6' x 3" Mount Pipe	C	From Leg	4.000 0'	0.000	136'	No Ice 1/2" Ice	1.767 2.129	1.767 2.129	0.030 0.044

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0'			1" Ice	2.501	2.501	0.061
Sector Mount [SM 504-3]	C	None		0.000	136'	No Ice	31.050	31.050	1.708
						1/2" Ice	43.830	43.830	2.326
						1" Ice	56.440	56.440	3.143
*									
(2) DB844G65ZAXY w/ Mount Pipe	A	From Leg	4.000 0'	0.000	126'	No Ice 1/2" Ice	4.230 4.710	4.510 5.000	0.034 0.076
			3'			1" Ice	5.210	5.500	0.126
(2) DB844G65ZAXY w/ Mount Pipe	C	From Leg	4.000 0'	0.000	126'	No Ice 1/2" Ice	4.230 4.710	4.510 5.000	0.034 0.076
			3'			1" Ice	5.210	5.500	0.126
DB844H80-XY w/ Mount Pipe	B	From Leg	4.000 0'	0.000	126'	No Ice 1/2" Ice	2.240 2.610	3.340 3.730	0.039 0.075
			3'			1" Ice	2.990	4.130	0.117
DB844H80-XY w/ Mount Pipe	B	From Leg	4.000 0'	0.000	126'	No Ice 1/2" Ice	2.240 2.610	3.340 3.730	0.039 0.075
			3'			1" Ice	2.990	4.130	0.117
GPS_A	B	From Leg	4.000 0'	0.000	126'	No Ice 1/2" Ice	0.255 0.320	0.255 0.320	0.001 0.005
			4'			1" Ice	0.393	0.393	0.010
(2) JAHH-65C-R3B w/ Mount Pipe	A	From Leg	4.000 0'	0.000	126'	No Ice 1/2" Ice	6.600 7.140	5.110 5.630	0.118 0.210
			3'			1" Ice	7.690	6.170	0.316
(2) JAHH-65C-R3B w/ Mount Pipe	B	From Leg	4.000 0'	0.000	126'	No Ice 1/2" Ice	6.600 7.140	5.110 5.630	0.118 0.210
			3'			1" Ice	7.690	6.170	0.316
(2) JAHH-65C-R3B w/ Mount Pipe	C	From Leg	4.000 0'	0.000	126'	No Ice 1/2" Ice	6.600 7.140	5.110 5.630	0.118 0.210
			3'			1" Ice	7.690	6.170	0.316
Sub6 Antenna - VZS01 w/ Mount Pipe	A	From Leg	4.000 0'	0.000	126'	No Ice 1/2" Ice	4.915 5.264	2.687 3.151	0.101 0.141
			2'			1" Ice	5.623	3.631	0.186
Sub6 Antenna - VZS01 w/ Mount Pipe	B	From Leg	4.000 0'	0.000	126'	No Ice 1/2" Ice	4.915 5.264	2.687 3.151	0.101 0.141
			2'			1" Ice	5.623	3.631	0.186
Sub6 Antenna - VZS01 w/ Mount Pipe	C	From Leg	4.000 0'	0.000	126'	No Ice 1/2" Ice	4.915 5.264	2.687 3.151	0.101 0.141
			2'			1" Ice	5.623	3.631	0.186
CBRS w/ Mount Pipe	A	From Leg	4.000 0'	0.000	126'	No Ice 1/2" Ice	1.450 1.670	0.990 1.180	0.032 0.048
			7'			1" Ice	1.900	1.390	0.068
CBRS w/ Mount Pipe	B	From Leg	4.000 0'	0.000	126'	No Ice 1/2" Ice	1.450 1.670	0.990 1.180	0.032 0.048
			7'			1" Ice	1.900	1.390	0.068
CBRS w/ Mount Pipe	C	From Leg	4.000 0'	0.000	126'	No Ice 1/2" Ice	1.450 1.670	0.990 1.180	0.032 0.048
			7'			1" Ice	1.900	1.390	0.068
(3) RFV01U-D1A	A	From Leg	4.000 0'	0.000	126'	No Ice 1/2" Ice	1.875 2.045	1.250 1.393	0.084 0.103
			3'			1" Ice	2.223	1.543	0.124
(2) RFV01U-D2A	B	From Leg	4.000 0'	0.000	126'	No Ice 1/2" Ice	1.875 2.045	1.013 1.145	0.070 0.087
			3'			1" Ice	2.223	1.284	0.106
RFV01U-D2A	C	From Leg	4.000 0'	0.000	126'	No Ice 1/2" Ice	1.875 2.045	1.013 1.145	0.070 0.087
			3'			1" Ice	2.223	1.284	0.106
DB-C1-12C-24AB-0Z	C	From Leg	4.000	0.000	126'	No Ice	4.056	3.098	0.032

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0'			1/2" Ice	4.316	3.335	0.068
			3'			1" Ice	4.582	3.580	0.109
Sector Mount [SM 411-3]	C	None		0.000	126'	No Ice	20.530	20.530	1.069
						1/2" Ice	28.620	28.620	1.457
						1" Ice	36.630	36.630	1.972
*									
800 10504 w/ Mount Pipe	A	From Leg	4.000	0.000	112'	No Ice	2.690	2.260	0.038
			0'			1/2" Ice	3.120	2.680	0.067
			0'			1" Ice	3.560	3.120	0.105
800 10504 w/ Mount Pipe	B	From Leg	4.000	0.000	112'	No Ice	2.690	2.260	0.038
			0'			1/2" Ice	3.120	2.680	0.067
			0'			1" Ice	3.560	3.120	0.105
800 10504 w/ Mount Pipe	C	From Leg	4.000	0.000	112'	No Ice	2.690	2.260	0.038
			0'			1/2" Ice	3.120	2.680	0.067
			0'			1" Ice	3.560	3.120	0.105
6' x 2" Mount Pipe	A	From Leg	4.000	0.000	112'	No Ice	1.425	1.425	0.022
			0'			1/2" Ice	1.925	1.925	0.033
			0'			1" Ice	2.294	2.294	0.048
6' x 2" Mount Pipe	B	From Leg	4.000	0.000	112'	No Ice	1.425	1.425	0.022
			0'			1/2" Ice	1.925	1.925	0.033
			0'			1" Ice	2.294	2.294	0.048
6' x 2" Mount Pipe	C	From Leg	4.000	0.000	112'	No Ice	1.425	1.425	0.022
			0'			1/2" Ice	1.925	1.925	0.033
			0'			1" Ice	2.294	2.294	0.048
Sector Mount [SM 104-3]	C	None		0.000	112'	No Ice	30.210	30.210	0.953
						1/2" Ice	38.120	38.120	1.432
						1" Ice	46.010	46.010	2.031
*									
GPS_A	A	From Face	2.000	0.000	5'	No Ice	0.255	0.255	0.001
			0'			1/2" Ice	0.320	0.320	0.005
			0'			1" Ice	0.393	0.393	0.010
ASPP2933	A	From Face	0.500	0.000	5'	No Ice	0.196	0.196	0.004
			0'			1/2" Ice	0.320	0.320	0.006
			1'			1" Ice	0.453	0.453	0.009
3' x 2" Pipe Mount	A	From Face	2.000	0.000	5'	No Ice	0.583	0.583	0.011
			0'			1/2" Ice	0.770	0.770	0.017
			0'			1" Ice	0.967	0.967	0.024
Side Arm Mount [SO 701-1]	A	From Face	1.500	0.000	5'	No Ice	0.850	1.670	0.065
			0'			1/2" Ice	1.140	2.340	0.079
			0'			1" Ice	1.430	3.010	0.093
**									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
VHLP2-18	A	Paraboloid w/Shroud (HP)	From Leg	3.000 0'	-10.000		157'	2.175	No Ice 1/2" Ice	3.720 4.010	0.031 0.050

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
				0'					1" Ice	4.300	0.070
VHLP2-18	B	Paraboloid w/Shroud (HP)	From Leg	3.000 0'	-40.000		157'	2.175	No Ice 1/2" Ice	3.720 4.010	0.031 0.050
*				0'					1" Ice	4.300	0.070
VHLP2-23	A	Paraboloid w/Shroud (HP)	From Leg	4.000 0'	50.000		136'	2.175	No Ice 1/2" Ice	3.720 4.000	0.030 0.030
*				2'					1" Ice	4.310	0.040

Load Combinations

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

Comb. No.	Description
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	180 - 160	Leg	Max Tension	15	9.391	-0.198	0.009
			Max. Compression	10	-17.294	0.681	0.030
			Max. Mx	22	6.765	-0.770	-0.023
			Max. My	16	-5.156	-0.049	0.624
			Max. Vy	22	1.303	-0.770	-0.023
			Max. Vx	16	-1.188	-0.049	0.624
		Diagonal	Max Tension	24	3.040	0.000	0.000
			Max. Compression	25	-2.955	0.000	0.000
			Max. Mx	32	0.413	0.021	0.003
			Max. My	34	0.761	0.020	0.003
			Max. Vy	27	0.021	0.021	-0.003
			Max. Vx	34	-0.001	0.000	0.000
		Top Girt	Max Tension	3	0.409	0.000	0.000
			Max. Compression	14	-0.464	0.000	0.000
			Max. Mx	26	-0.065	-0.038	0.000
			Max. My	26	-0.064	0.000	0.001
			Max. Vy	26	-0.023	0.000	0.000
			Max. Vx	26	0.001	0.000	0.000
		Mid Girt	Max Tension	18	0.474	0.000	0.000
			Max. Compression	23	-0.466	0.000	0.000
			Max. Mx	26	0.010	-0.050	0.000
			Max. My	26	0.009	0.000	0.002
			Max. Vy	26	0.026	0.000	0.000
			Max. Vx	26	-0.001	0.000	0.000
T2	160 - 153.333	Leg	Max Tension	15	15.215	-0.754	0.051
			Max. Compression	10	-24.836	0.199	-0.017
			Max. Mx	22	13.779	-0.770	-0.023
			Max. My	16	-5.174	-0.049	0.624
			Max. Vy	22	-0.217	-0.770	-0.023
			Max. Vx	17	0.215	-0.037	0.624
		Diagonal	Max Tension	13	4.879	0.000	0.000
			Max. Compression	12	-5.121	0.000	0.000
			Max. Mx	32	1.072	0.037	-0.004
			Max. My	32	-1.533	0.032	0.006
			Max. Vy	29	0.031	0.036	0.004
			Max. Vx	32	-0.002	0.000	0.000
T3	153.333 - 146.667	Leg	Max Tension	15	24.723	-0.225	0.004
			Max. Compression	10	-36.621	0.534	-0.044
			Max. Mx	6	21.849	0.623	-0.014
			Max. My	20	-6.697	-0.012	0.648
			Max. Vy	6	0.895	-0.558	-0.014
			Max. Vx	13	0.840	-0.017	-0.454
		Diagonal	Max Tension	13	5.019	0.000	0.000
			Max. Compression	12	-5.384	0.000	0.000

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	31	0.742	0.042	-0.006
			Max. My	28	0.830	0.040	-0.006
			Max. Vy	33	0.033	0.040	-0.006
			Max. Vx	28	0.002	0.000	0.000
		Top Girt	Max Tension	14	0.966	0.000	0.000
			Max. Compression	11	-0.547	0.000	0.000
			Max. Mx	26	0.444	-0.090	0.000
			Max. My	26	0.441	0.000	0.003
			Max. Vy	26	0.038	0.000	0.000
			Max. Vx	26	0.001	0.000	0.000
T4	146.667 - 140	Leg	Max Tension	15	33.954	-0.549	-0.036
			Max. Compression	10	-47.988	0.137	-0.028
			Max. Mx	6	31.758	-0.558	-0.014
			Max. My	12	-7.280	-0.023	-0.454
			Max. Vy	2	0.119	0.536	0.037
			Max. Vx	24	0.112	-0.023	0.453
		Diagonal	Max Tension	21	6.064	0.000	0.000
			Max. Compression	20	-6.253	0.000	0.000
			Max. Mx	31	1.181	0.046	-0.006
			Max. My	35	-1.724	0.036	0.007
			Max. Vy	33	0.035	0.043	0.006
			Max. Vx	35	-0.002	0.000	0.000
		Top Girt	Max Tension	14	0.445	0.000	0.000
			Max. Compression	11	-0.116	0.000	0.000
			Max. Mx	26	0.351	-0.103	0.000
			Max. My	26	0.353	0.000	0.003
			Max. Vy	26	-0.041	0.000	0.000
			Max. Vx	26	-0.001	0.000	0.000
T5	140 - 120	Leg	Max Tension	15	67.091	-0.366	-0.025
			Max. Compression	10	-88.269	0.543	-0.043
			Max. Mx	6	41.181	0.752	0.016
			Max. My	13	-8.660	-0.002	-0.761
			Max. Vy	14	-0.950	-0.377	-0.026
			Max. Vx	12	-0.941	-0.042	-0.323
		Diagonal	Max Tension	20	7.925	0.000	0.000
			Max. Compression	20	-7.938	0.000	0.000
			Max. Mx	35	1.851	0.062	-0.008
			Max. My	37	-1.814	0.056	0.009
			Max. Vy	33	0.042	0.062	-0.008
			Max. Vx	37	-0.002	0.000	0.000
T6	120 - 100	Leg	Max Tension	15	104.293	-0.486	-0.003
			Max. Compression	10	-130.891	0.847	-0.091
			Max. Mx	3	-126.930	0.856	0.015
			Max. My	13	-8.970	-0.002	-0.761
			Max. Vy	6	-0.449	-0.625	-0.044
			Max. Vx	16	0.425	-0.026	0.476
		Diagonal	Max Tension	8	9.284	0.000	0.000
			Max. Compression	8	-9.256	0.000	0.000
			Max. Mx	35	2.103	0.095	0.011
			Max. My	37	-2.101	0.082	0.012
			Max. Vy	33	0.057	0.093	-0.011
			Max. Vx	37	-0.003	0.000	0.000
T7	100 - 80	Leg	Max Tension	15	136.938	-0.551	-0.000
			Max. Compression	10	-167.942	0.621	-0.060
			Max. Mx	3	-143.304	0.856	0.015
			Max. My	16	-14.391	-0.029	0.869
			Max. Vy	6	-0.139	-0.825	-0.089
			Max. Vx	18	0.185	-0.315	0.808
		Diagonal	Max Tension	8	10.349	0.000	0.000
			Max. Compression	8	-10.279	0.000	0.000
			Max. Mx	35	2.281	0.151	0.021

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	37	2.393	0.143	0.021
			Max. Vy	33	0.075	0.150	0.020
			Max. Vx	37	-0.004	0.000	0.000
T8	80 - 70	Leg	Max Tension	15	153.956	-0.659	0.003
			Max. Compression	10	-187.235	2.234	-0.203
			Max. Mx	2	-186.225	2.254	0.036
			Max. My	12	-17.554	0.056	-2.041
			Max. Vy	2	-0.288	2.254	0.036
			Max. Vx	16	-0.311	0.055	1.988
		Diagonal	Max Tension	8	10.704	0.000	0.000
			Max. Compression	8	-10.830	0.000	0.000
			Max. Mx	33	2.042	0.169	-0.021
			Max. My	37	1.946	0.168	0.022
			Max. Vy	33	0.079	0.169	-0.021
			Max. Vx	37	-0.004	0.000	0.000
T9	70 - 60	Leg	Max Tension	15	170.812	-2.037	-0.040
			Max. Compression	10	-206.859	0.332	0.044
			Max. Mx	2	-205.612	2.254	0.036
			Max. My	12	-18.344	0.056	-2.041
			Max. Vy	2	0.316	2.254	0.036
			Max. Vx	4	-0.315	0.057	-1.975
		Diagonal	Max Tension	8	11.464	0.000	0.000
			Max. Compression	8	-11.642	0.000	0.000
			Max. Mx	33	2.423	-0.301	-0.035
			Max. My	31	-2.768	-0.265	0.043
			Max. Vy	33	-0.140	-0.301	-0.035
			Max. Vx	31	-0.008	0.000	0.000
T10	60 - 40	Leg	Max Tension	15	203.932	-1.286	-0.008
			Max. Compression	10	-245.515	1.668	-0.115
			Max. Mx	37	20.680	-2.486	0.055
			Max. My	12	-20.492	-0.032	-1.420
			Max. Vy	29	0.376	-2.473	-0.050
			Max. Vx	17	-0.251	-0.026	1.403
		Diagonal	Max Tension	8	11.842	0.000	0.000
			Max. Compression	8	-12.139	0.000	0.000
			Max. Mx	35	2.144	0.232	0.028
			Max. My	31	-2.989	0.193	-0.031
			Max. Vy	33	0.100	0.225	0.029
			Max. Vx	31	0.005	0.000	0.000
T11	40 - 20	Leg	Max Tension	15	235.910	-0.894	0.002
			Max. Compression	10	-283.674	2.731	-0.217
			Max. Mx	37	23.992	-5.861	0.066
			Max. My	12	-23.245	-0.210	-1.514
			Max. Vy	29	0.975	-5.840	-0.064
			Max. Vx	16	0.200	-0.211	1.499
		Diagonal	Max Tension	8	12.480	0.000	0.000
			Max. Compression	8	-12.801	0.000	0.000
			Max. Mx	33	1.291	0.324	0.034
			Max. My	31	3.932	0.248	-0.039
			Max. Vy	33	0.120	0.324	0.034
			Max. Vx	31	0.006	0.000	0.000
T12	20 - 0	Leg	Max Tension	15	265.740	-1.128	-0.015
			Max. Compression	10	-321.587	0.000	0.000
			Max. Mx	37	30.753	-5.861	0.066
			Max. My	12	-27.894	-0.292	-2.890
			Max. Vy	29	-1.149	-5.840	-0.064
			Max. Vx	12	-0.426	-0.292	-2.890
		Diagonal	Max Tension	8	13.536	0.000	0.000
			Max. Compression	10	-13.909	0.000	0.000
			Max. Mx	33	-1.293	-0.749	0.062
			Max. My	12	11.838	-0.509	0.092

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	33	-0.231	-0.749	0.062
			Max. Vx	32	-0.012	0.000	0.000

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	18	330.236	34.418	-18.557
	Max. H_x	18	330.236	34.418	-18.557
	Max. H_z	7	-265.776	-28.923	15.445
	Min. Vert	7	-265.776	-28.923	15.445
	Min. H_x	7	-265.776	-28.923	15.445
	Min. H_z	18	330.236	34.418	-18.557
Leg B	Max. Vert	10	331.005	-34.541	-18.581
	Max. H_x	23	-268.826	29.107	15.522
	Max. H_z	25	-235.990	24.570	15.749
	Min. Vert	23	-268.826	29.107	15.522
	Min. H_x	10	331.005	-34.541	-18.581
	Min. H_z	10	331.005	-34.541	-18.581
Leg A	Max. Vert	2	330.366	-0.173	39.526
	Max. H_x	21	18.752	3.471	1.771
	Max. H_z	2	330.366	-0.173	39.526
	Min. Vert	15	-273.082	0.160	-33.405
	Min. H_x	8	25.827	-3.486	2.456
	Min. H_z	15	-273.082	0.160	-33.405

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	69.030	0.000	0.000	37.924	10.599	0.000
1.2 Dead+1.0 Wind 0 deg - No Ice	82.836	0.097	-62.997	-6554.825	0.340	-6.778
0.9 Dead+1.0 Wind 0 deg - No Ice	62.127	0.097	-62.997	-6566.202	-2.840	-6.778
1.2 Dead+1.0 Wind 30 deg - No Ice	82.836	29.667	-51.349	-5380.300	-3122.158	42.478
0.9 Dead+1.0 Wind 30 deg - No Ice	62.127	29.667	-51.349	-5391.677	-3125.338	42.478
1.2 Dead+1.0 Wind 60 deg - No Ice	82.836	50.792	-29.391	-3074.844	-5377.127	48.104
0.9 Dead+1.0 Wind 60 deg - No Ice	62.127	50.792	-29.391	-3086.221	-5380.306	48.104
1.2 Dead+1.0 Wind 90 deg - No Ice	82.836	58.437	-0.062	38.640	-6218.740	41.715
0.9 Dead+1.0 Wind 90 deg - No Ice	62.127	58.437	-0.062	27.263	-6221.919	41.715
1.2 Dead+1.0 Wind 120 deg - No Ice	82.836	53.973	31.158	3324.547	-5665.392	49.222
0.9 Dead+1.0 Wind 120 deg - No Ice	62.127	53.973	31.158	3313.169	-5668.571	49.222

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
1.2 Dead+1.0 Wind 150 deg - No Ice	82.836	30.321	52.605	5619.824	-3199.747	43.162
0.9 Dead+1.0 Wind 150 deg - No Ice	62.127	30.321	52.605	5608.447	-3202.926	43.162
1.2 Dead+1.0 Wind 180 deg - No Ice	82.836	-0.105	59.679	6372.138	25.906	7.052
0.9 Dead+1.0 Wind 180 deg - No Ice	62.127	-0.105	59.679	6360.761	22.726	7.052
1.2 Dead+1.0 Wind 210 deg - No Ice	82.836	-29.721	51.406	5479.853	3155.582	-42.339
0.9 Dead+1.0 Wind 210 deg - No Ice	62.127	-29.721	51.406	5468.476	3152.403	-42.339
1.2 Dead+1.0 Wind 240 deg - No Ice	82.836	-53.754	31.118	3312.977	5652.859	-48.146
0.9 Dead+1.0 Wind 240 deg - No Ice	62.127	-53.754	31.118	3301.600	5649.679	-48.146
1.2 Dead+1.0 Wind 270 deg - No Ice	82.836	-58.499	0.072	53.755	6253.440	-41.637
0.9 Dead+1.0 Wind 270 deg - No Ice	62.127	-58.499	0.072	42.378	6250.261	-41.637
1.2 Dead+1.0 Wind 300 deg - No Ice	82.836	-51.093	-29.433	-3086.819	5452.814	-49.303
0.9 Dead+1.0 Wind 300 deg - No Ice	62.127	-51.093	-29.433	-3098.196	5449.635	-49.303
1.2 Dead+1.0 Wind 330 deg - No Ice	82.836	-30.322	-52.569	-5522.976	3225.400	-43.415
0.9 Dead+1.0 Wind 330 deg - No Ice	62.127	-30.322	-52.569	-5534.353	3222.220	-43.415
1.2 Dead+1.0 Ice+1.0 Temp	144.701	0.000	0.000	111.986	27.372	0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	144.701	0.022	-16.822	-1649.005	24.629	-1.292
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	144.701	8.122	-14.056	-1364.100	-825.595	13.497
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	144.701	13.612	-7.873	-722.306	-1414.726	15.311
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	144.701	15.914	-0.014	110.386	-1662.484	14.003
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	144.701	14.532	8.388	994.569	-1501.500	16.504
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	144.701	8.358	14.496	1635.631	-851.159	13.462
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	144.701	-0.023	16.274	1828.716	30.283	1.349
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	144.701	-8.133	14.068	1589.843	881.995	-13.468
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	144.701	-14.105	8.161	970.538	1510.552	-15.319
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	144.701	-15.926	0.017	113.873	1719.149	-13.986
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	144.701	-14.056	-8.100	-746.420	1517.709	-16.521
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	144.701	-8.358	-14.488	-1410.450	905.948	-13.515
Dead+Wind 0 deg - Service	69.030	0.027	-17.650	-1793.798	7.230	-1.845
Dead+Wind 30 deg - Service	69.030	8.327	-14.413	-1469.402	-860.278	11.557
Dead+Wind 60 deg - Service	69.030	14.261	-8.252	-829.000	-1486.940	13.085
Dead+Wind 90 deg - Service	69.030	16.409	-0.017	36.055	-1720.733	11.346
Dead+Wind 120 deg - Service	69.030	15.127	8.733	948.035	-1565.392	13.389
Dead+Wind 150 deg - Service	69.030	8.505	14.755	1585.667	-881.394	11.743
Dead+Wind 180 deg - Service	69.030	-0.029	16.748	1795.157	14.188	1.920
Dead+Wind 210 deg - Service	69.030	-8.342	14.428	1547.573	883.649	-11.519

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	69.030	-15.067	8.722	944.886	1576.256	-13.097
Dead+Wind 270 deg - Service	69.030	-16.426	0.020	40.168	1744.451	-11.324
Dead+Wind 300 deg - Service	69.030	-14.343	-8.263	-832.259	1521.813	-13.412
Dead+Wind 330 deg - Service	69.030	-8.505	-14.745	-1508.232	902.650	-11.812

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.000	-69.030	0.000	0.000	69.030	0.000	0.000%
2	0.097	-82.836	-62.997	-0.097	82.836	62.997	0.000%
3	0.097	-62.127	-62.997	-0.097	62.127	62.997	0.000%
4	29.667	-82.836	-51.349	-29.667	82.836	51.349	0.000%
5	29.667	-62.127	-51.349	-29.667	62.127	51.349	0.000%
6	50.792	-82.836	-29.391	-50.792	82.836	29.391	0.000%
7	50.792	-62.127	-29.391	-50.792	62.127	29.391	0.000%
8	58.437	-82.836	-0.062	-58.437	82.836	0.062	0.000%
9	58.437	-62.127	-0.062	-58.437	62.127	0.062	0.000%
10	53.973	-82.836	31.158	-53.973	82.836	-31.158	0.000%
11	53.973	-62.127	31.158	-53.973	62.127	-31.158	0.000%
12	30.321	-82.836	52.605	-30.321	82.836	-52.605	0.000%
13	30.321	-62.127	52.605	-30.321	62.127	-52.605	0.000%
14	-0.105	-82.836	59.679	0.105	82.836	-59.679	0.000%
15	-0.105	-62.127	59.679	0.105	62.127	-59.679	0.000%
16	-29.721	-82.836	51.406	29.721	82.836	-51.406	0.000%
17	-29.721	-62.127	51.406	29.721	62.127	-51.406	0.000%
18	-53.754	-82.836	31.118	53.754	82.836	-31.118	0.000%
19	-53.754	-62.127	31.118	53.754	62.127	-31.118	0.000%
20	-58.499	-82.836	0.072	58.499	82.836	-0.072	0.000%
21	-58.499	-62.127	0.072	58.499	62.127	-0.072	0.000%
22	-51.093	-82.836	-29.433	51.093	82.836	29.433	0.000%
23	-51.093	-62.127	-29.433	51.093	62.127	29.433	0.000%
24	-30.322	-82.836	-52.569	30.322	82.836	52.569	0.000%
25	-30.322	-62.127	-52.569	30.322	62.127	52.569	0.000%
26	0.000	-144.701	0.000	0.000	144.701	0.000	0.000%
27	0.022	-144.701	-16.822	-0.022	144.701	16.822	0.000%
28	8.122	-144.701	-14.056	-8.122	144.701	14.056	0.000%
29	13.612	-144.701	-7.873	-13.612	144.701	7.873	0.000%
30	15.914	-144.701	-0.014	-15.914	144.701	0.014	0.000%
31	14.532	-144.701	8.388	-14.532	144.701	-8.388	0.000%
32	8.358	-144.701	14.496	-8.358	144.701	-14.496	0.000%
33	-0.023	-144.701	16.274	0.023	144.701	-16.274	0.000%
34	-8.133	-144.701	14.068	8.133	144.701	-14.068	0.000%
35	-14.105	-144.701	8.161	14.105	144.701	-8.161	0.000%
36	-15.926	-144.701	0.017	15.926	144.701	-0.017	0.000%
37	-14.056	-144.701	-8.100	14.056	144.701	8.100	0.000%
38	-8.358	-144.701	-14.488	8.358	144.701	14.488	0.000%
39	0.027	-69.030	-17.650	-0.027	69.030	17.650	0.000%
40	8.327	-69.030	-14.413	-8.327	69.030	14.413	0.000%
41	14.261	-69.030	-8.252	-14.261	69.030	8.252	0.000%
42	16.409	-69.030	-0.017	-16.409	69.030	0.017	0.000%
43	15.127	-69.030	8.733	-15.127	69.030	-8.733	0.000%
44	8.505	-69.030	14.755	-8.505	69.030	-14.755	0.000%
45	-0.029	-69.030	16.748	0.029	69.030	-16.748	0.000%
46	-8.342	-69.030	14.428	8.342	69.030	-14.428	0.000%
47	-15.067	-69.030	8.722	15.067	69.030	-8.722	0.000%
48	-16.426	-69.030	0.020	16.426	69.030	-0.020	0.000%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
49	-14.343	-69.030	-8.263	14.343	69.030	8.263	0.000%
50	-8.505	-69.030	-14.745	8.505	69.030	14.745	0.000%

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	180 - 160	3.280	47	0.143	0.012
T2	160 - 153.333	2.673	47	0.139	0.013
T3	153.333 - 146.667	2.474	47	0.137	0.013
T4	146.667 - 140	2.279	47	0.133	0.013
T5	140 - 120	2.088	47	0.128	0.013
T6	120 - 100	1.551	47	0.112	0.012
T7	100 - 80	1.084	47	0.093	0.009
T8	80 - 70	0.705	47	0.073	0.007
T9	70 - 60	0.545	47	0.064	0.006
T10	60 - 40	0.411	47	0.055	0.006
T11	40 - 20	0.192	47	0.034	0.003
T12	20 - 0	0.053	43	0.018	0.001

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
181'	MX08FRO665-21 w/ Mount Pipe	47	3.280	0.143	0.012	Inf
170'	AIR 32 B2A/B66AA w/ Mount Pipe	47	2.976	0.142	0.012	675039
161'	RRUS 32 B2	47	2.703	0.140	0.013	298978
157'	VHLP2-18	47	2.583	0.138	0.013	139629
148'	APXVTM14-ALU-I20 w/ Mount Pipe	47	2.317	0.134	0.013	138302
138'	VHLP2-23	47	2.032	0.126	0.013	88660
136'	LLPX310R w/ Mount Pipe	47	1.976	0.125	0.013	85768
126'	(2) DB844G65ZAXY w/ Mount Pipe	47	1.706	0.117	0.012	77165
112'	800 10504 w/ Mount Pipe	47	1.354	0.105	0.011	60008
5'	GPS_A	39	0.009	0.005	0.000	178435

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	180 - 160	11.843	10	0.518	0.045
T2	160 - 153.333	9.640	10	0.504	0.047
T3	153.333 - 146.667	8.917	10	0.494	0.047
T4	146.667 - 140	8.212	10	0.480	0.048

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T5	140 - 120	7.522	10	0.461	0.047
T6	120 - 100	5.582	10	0.405	0.042
T7	100 - 80	3.896	10	0.334	0.035
T8	80 - 70	2.533	3	0.264	0.027
T9	70 - 60	1.957	3	0.231	0.023
T10	60 - 40	1.477	3	0.196	0.020
T11	40 - 20	0.689	3	0.122	0.012
T12	20 - 0	0.191	3	0.063	0.004

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
181'	MX08FRO665-21 w/ Mount Pipe	10	11.843	0.518	0.045	393623
170'	AIR 32 B2A/B66AA w/ Mount Pipe	10	10.739	0.513	0.046	196811
161'	RRUS 32 B2	10	9.750	0.506	0.047	85996
157'	VHLP2-18	10	9.313	0.500	0.047	38950
148'	APXVTM14-ALU-I20 w/ Mount Pipe	10	8.352	0.483	0.048	38402
138'	VHLP2-23	10	7.318	0.456	0.047	24266
136'	LLPX310R w/ Mount Pipe	10	7.117	0.450	0.047	23453
126'	(2) DB844G65ZAXY w/ Mount Pipe	10	6.141	0.423	0.044	21143
112'	800 10504 w/ Mount Pipe	10	4.872	0.378	0.039	16497
5'	GPS A	3	0.033	0.016	0.001	49698

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	180	Leg	A325N	0.875	4	2.348	41.556	0.056 ✔	1.05	Bolt Tension
		Diagonal	A325N	0.625	1	3.040	8.135	0.374 ✔	1.05	Member Block Shear
		Top Girt	A325N	0.625	1	0.409	5.423	0.075 ✔	1.05	Member Block Shear
		Mid Girt	A325N	0.625	1	0.474	5.423	0.087 ✔	1.05	Member Block Shear
T2	160	Diagonal	A325N	0.625	1	4.879	11.310	0.431 ✔	1.05	Member Bearing
T3	153.333	Diagonal	A325N	0.625	1	5.019	11.310	0.444 ✔	1.05	Member Bearing
		Top Girt	A325N	0.625	1	0.966	5.655	0.171 ✔	1.05	Member Bearing
T4	146.667	Leg	A325N	1.000	4	8.489	54.517	0.156 ✔	1.05	Bolt Tension
		Diagonal	A325N	0.625	1	6.064	11.310	0.536 ✔	1.05	Member Bearing
		Top Girt	A325N	0.625	1	0.832	5.655	0.147 ✔	1.05	Member Bearing
T5	140	Leg	A325N	1.000	6	11.182	54.517	0.205 ✔	1.05	Bolt Tension
		Diagonal	A325N	0.625	1	7.925	11.310	0.701 ✔	1.05	Member Bearing

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
T6	120	Leg	A325N	1.000	6	17.382	54.517	0.319 ✔	1.05	Bolt Tension
		Diagonal	A325N	0.625	1	9.284	12.675	0.732 ✔	1.05	Member Bearing
T7	100	Leg	A325N	1.000	8	17.117	54.517	0.314 ✔	1.05	Bolt Tension
		Diagonal	A325N	0.750	1	10.349	14.137	0.732 ✔	1.05	Member Bearing
T8	80	Diagonal	A325N	0.750	1	10.704	14.137	0.757 ✔	1.05	Member Bearing
T9	70	Leg	A325N	1.000	8	21.352	54.517	0.392 ✔	1.05	Bolt Tension
		Diagonal	A325N	0.750	1	11.464	20.227	0.567 ✔	1.05	Gusset Bearing
T10	60	Leg	A325N	1.000	8	25.492	54.517	0.468 ✔	1.05	Bolt Tension
		Diagonal	A325N	0.750	1	11.842	14.137	0.838 ✔	1.05	Member Bearing
T11	40	Leg	A325N	1.000	8	29.489	54.517	0.541 ✔	1.05	Bolt Tension
		Diagonal	A325N	0.750	1	12.480	17.672	0.706 ✔	1.05	Member Bearing
T12	20	Diagonal	A325N	0.750	1	13.536	20.227	0.669 ✔	1.05	Gusset Bearing

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	180 - 160	ROHN 3 EH	20'7/16"	5'3/32"	52.9 K=1.00	3.016	-17.294	110.608	0.156 [1] ✔
T2	160 - 153.333	ROHN 4 EH	6'8-5/32' '	6'8-5/32' '	54.3 K=1.00	4.407	-24.836	159.906	0.155 [1] ✔
T3	153.333 - 146.667	ROHN 4 EH	6'8-5/32' '	6'8-5/32' '	54.3 K=1.00	4.407	-36.621	159.905	0.229 [1] ✔
T4	146.667 - 140	ROHN 4 EH	6'8-5/32' '	6'8-5/32' '	54.3 K=1.00	4.407	-47.988	159.906	0.300 [1] ✔
T5	140 - 120	ROHN 5 EH	20'7/16"	6'8-5/32' '	43.6 K=1.00	6.112	-88.269	239.378	0.369 [1] ✔
T6	120 - 100	ROHN 6 EHS	20'3/8"	6'8-1/8"	36.0 K=1.00	6.713	-130.891	274.776	0.476 [1] ✔
T7	100 - 80	ROHN 6 EH	20'15/32 "	10'7/32"	54.8 K=1.00	8.405	-167.942	303.717	0.553 [1] ✔
T8	80 - 70	ROHN 8 EHS	10'7/32"	10'7/32"	41.2 K=1.00	9.719	-187.235	386.395	0.485 [1] ✔
T9	70 - 60	ROHN 8 EHS	10'7/32"	10'7/32"	41.2 K=1.00	9.719	-206.859	386.395	0.535 [1] ✔
T10	60 - 40	ROHN 8 EHS	20'13/32 "	10'7/32"	41.2 K=1.00	9.719	-245.516	386.397	0.635 [1] ✔
T11	40 - 20	ROHN 8 EH	20'13/32 "	10'7/32"	41.8 K=1.00	12.763	-283.674	505.555	0.561 [1] ✔
T12	20 - 0	ROHN 8 EH	20'13/32	10'7/32"	41.8	12.763	-321.587	505.555	0.636 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
			"		K=1.00				✔

[1] P_u / ϕP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	180 - 160	L2x2x3/16	9'10-3/8"	4'9-15/32"	145.8 K=1.00	0.715	-2.955	9.623	0.307 [1] ✔
T2	160 - 153.333	L2 1/2x2 1/2x1/4	11'3-7/16"	5'6"	134.4 K=1.00	1.190	-5.121	18.851	0.272 [1] ✔
T3	153.333 - 146.667	L2 1/2x2 1/2x1/4	11'10-7/32"	5'9-13/32"	141.4 K=1.00	1.190	-5.384	17.047	0.316 [1] ✔
T4	146.667 - 140	L2 1/2x2 1/2x1/4	12'5-5/32"	6'7/8"	148.4 K=1.00	1.190	-6.253	15.466	0.404 [1] ✔
T5	140 - 120	L2 1/2x2 1/2x1/4	14'2-3/4"	6'11-3/32"	169.2 K=1.00	1.190	-7.938	11.895	0.667 [1] ✔
T6	120 - 100	L3x3x1/4	15'11-7/8"	7'8-29/32"	157.0 K=1.00	1.440	-9.256	16.730	0.553 [1] ✔
T7	100 - 80	L3 1/2x3 1/2x1/4	19'3-3/32"	9'5-25/32"	164.0 K=1.00	1.690	-10.279	17.990	0.571 [1] ✔
T8	80 - 70	L3 1/2x3 1/2x1/4	20'1-13/16"	9'9-25/32"	169.7 K=1.00	1.690	-10.830	16.792	0.645 [1] ✔
T9	70 - 60	2L3 1/2x3 1/2x1/4x3/8 2L 'a' > 58.773 in - 137	21'11/32"	10'3-3/32"	189.4 K=1.00	3.380	-11.642	26.228	0.444 [1] ✔
T10	60 - 40	L4x4x1/4	22'9-23/32"	11'1-25/32"	168.3 K=1.00	1.940	-12.140	19.609	0.619 [1] ✔
T11	40 - 20	L4x4x5/16	24'7-1/2"	12'11/16"	182.9 K=1.00	2.400	-12.801	20.532	0.623 [1] ✔
T12	20 - 0	2L4x4x5/16x3/8 2L 'a' > 74.511 in - 176	26'5-9/16"	12'11-3/4"	211.6 K=1.00	4.800	-13.909	30.149	0.461 [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	180 - 160	L2x2x1/8	6'8-1/4"	6'1-3/4"	185.5 K=1.00	0.484	-0.464	4.028	0.115 [1] ✔
T3	153.333 - 146.667	L2 1/2x2 1/2x1/8	9'5-13/32"	8'9-29/32"	212.2 K=1.00	0.609	-0.635	3.875	0.164 [1] ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T4	146.667 - 140	KL/R > 200 (C) - 46 L2 1/2x2 1/2x1/8 KL/R > 200 (C) - 58	10'1-23/32"	9'6-7/32"	228.8 K=1.00	0.609	-0.832	3.331	0.250 [1] ✔

[1] P_u / ϕP_n controls

Mid 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	180 - 160	L2x2x1/8 KL/R > 200 (C) - 9	7'8-11/16"	7'2-3/16"	216.8 K=1.00	0.484	-0.466	2.950	0.158 [1] ✔

[1] P_u / ϕP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	180 - 160	ROHN 3 EH	20'7/16"	5'3/32"	52.9	3.016	9.391	135.717	0.069 [1] ✔
T2	160 - 153.333	ROHN 4 EH	6'8-5/32"	6'8-5/32"	54.3	4.407	15.215	198.335	0.077 [1] ✔
T3	153.333 - 146.667	ROHN 4 EH	6'8-5/32"	6'8-5/32"	54.3	4.407	24.723	198.335	0.125 [1] ✔
T4	146.667 - 140	ROHN 4 EH	6'8-5/32"	6'8-5/32"	54.3	4.407	33.954	198.335	0.171 [1] ✔
T5	140 - 120	ROHN 5 EH	20'7/16"	6'8-5/32"	43.6	6.112	67.091	275.039	0.244 [1] ✔
T6	120 - 100	ROHN 6 EHS	20'3/8"	6'8-1/8"	36.0	6.713	104.293	302.097	0.345 [1] ✔
T7	100 - 80	ROHN 6 EH	20'15/32"	10'7/32"	54.8	8.405	136.938	378.222	0.362 [1] ✔
T8	80 - 70	ROHN 8 EHS	10'7/32"	10'7/32"	41.2	9.719	153.956	437.369	0.352 [1] ✔
T9	70 - 60	ROHN 8 EHS	10'7/32"	10'7/32"	41.2	9.719	170.812	437.369	0.391 [1] ✔
T10	60 - 40	ROHN 8 EHS	20'13/32"	10'7/32"	41.2	9.719	203.932	437.369	0.466 [1] ✔

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	40 - 20	ROHN 8 EH	20'13/32"	10'7/32"	41.8	12.763	235.910	574.322	0.411 [1] ✔
T12	20 - 0	ROHN 8 EH	20'13/32"	10'7/32"	41.8	12.763	265.740	574.322	0.463 [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	180 - 160	L2x2x3/16	9'10-3/8"	4'9-15/32"	95.6	0.431	3.040	18.739	0.162 [1] ✔
T2	160 - 153.333	L2 1/2x2 1/2x1/4	11'3-7/16"	5'6"	87.8	0.752	4.879	32.707	0.149 [1] ✔
T3	153.333 - 146.667	L2 1/2x2 1/2x1/4	11'10-7/32"	5'9-13/32"	92.2	0.752	5.019	32.707	0.153 [1] ✔
T4	146.667 - 140	L2 1/2x2 1/2x1/4	12'5-5/32"	6'7/8"	96.7	0.752	6.064	32.707	0.185 [1] ✔
T5	140 - 120	L2 1/2x2 1/2x1/4	14'2-3/4"	6'11-3/32"	110.0	0.752	7.925	32.707	0.242 [1] ✔
T6	120 - 100	L3x3x1/4	15'11-7/8"	7'8-29/32"	101.5	0.939	9.284	45.794	0.203 [1] ✔
T7	100 - 80	L3 1/2x3 1/2x1/4	19'3-3/32"	9'5-25/32"	105.9	1.103	10.349	53.793	0.192 [1] ✔
T8	80 - 70	L3 1/2x3 1/2x1/4	20'1-13/16"	9'9-25/32"	109.6	1.103	10.704	53.793	0.199 [1] ✔
T9	70 - 60	2L3 1/2x3 1/2x1/4x3/8 2L 'a' > 58.773 in - 136	21'11/32"	10'3-3/32"	114.4	2.207	11.464	95.999	0.119 [1] ✔
T10	60 - 40	L4x4x1/4	22'9-23/32"	11'1-25/32"	108.3	1.291	11.842	62.933	0.188 [1] ✔
T11	40 - 20	L4x4x5/16	23'8-9/16"	11'7-1/4"	113.6	1.595	12.480	77.752	0.161 [1] ✔
T12	20 - 0	2L4x4x5/16x3/8 2L 'a' > 74.511 in - 175	26'5-9/16"	12'11-3/4"	126.9	3.190	13.536	138.758	0.098 [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	180 - 160	L2x2x1/8	6'8-1/4"	6'1-3/4"	122.6	0.293	0.409	12.744	0.032 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T3	153.333 - 146.667	L2 1/2x2 1/2x1/8	9'5-13/32"	8'9-29/32"	138.3	0.387	0.966	16.822	0.057 [1]
T4	146.667 - 140	L2 1/2x2 1/2x1/8	10'1-23/32"	9'6-7/32"	148.9	0.387	0.832	16.822	0.049 [1]

[1] P_u / ϕP_n controls

Mid 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	180 - 160	L2x2x1/8	7'8-11/16"	7'2-3/16"	142.4	0.293	0.474	12.744	0.037 [1]

[1] P_u / ϕP_n controls

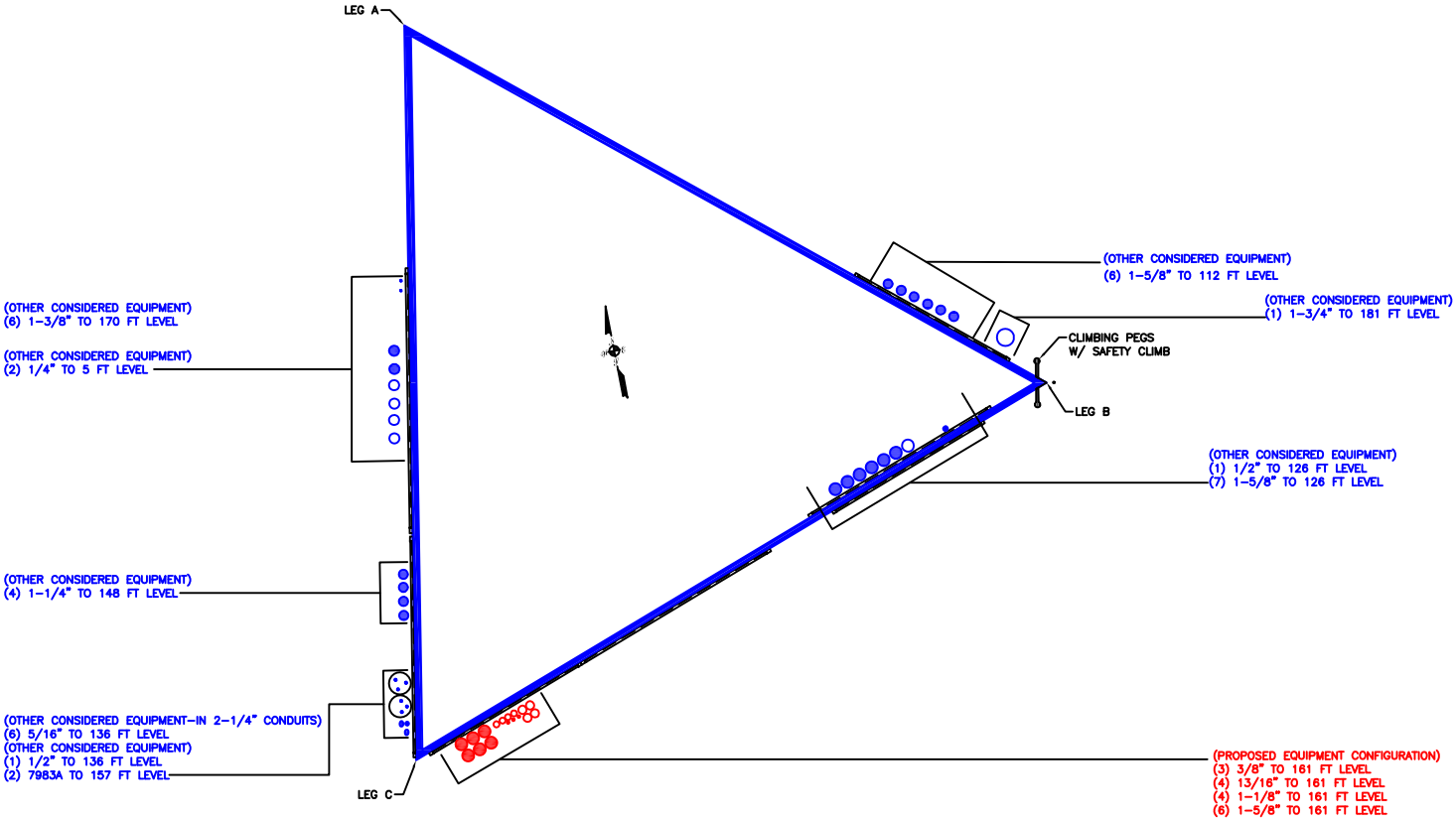
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	180 - 160	Leg	ROHN 3 EH	2	-17.294	116.138	14.9	Pass
T2	160 - 153.333	Leg	ROHN 4 EH	35	-24.836	167.901	14.8	Pass
T3	153.333 - 146.667	Leg	ROHN 4 EH	44	-36.621	167.900	21.8	Pass
T4	146.667 - 140	Leg	ROHN 4 EH	56	-47.988	167.901	28.6	Pass
T5	140 - 120	Leg	ROHN 5 EH	68	-88.269	251.347	35.1	Pass
T6	120 - 100	Leg	ROHN 6 EHS	89	-130.891	288.515	45.4	Pass
T7	100 - 80	Leg	ROHN 6 EH	110	-167.942	318.903	52.7	Pass
T8	80 - 70	Leg	ROHN 8 EHS	125	-187.235	405.715	46.1	Pass
T9	70 - 60	Leg	ROHN 8 EHS	134	-206.859	405.715	51.0	Pass
T10	60 - 40	Leg	ROHN 8 EHS	143	-245.516	405.717	60.5	Pass
T11	40 - 20	Leg	ROHN 8 EH	158	-283.674	530.833	53.4	Pass
T12	20 - 0	Leg	ROHN 8 EH	173	-321.587	530.833	60.6	Pass
T1	180 - 160	Diagonal	L2x2x3/16	13	-2.955	10.104	29.2	Pass
T2	160 - 153.333	Diagonal	L2 1/2x2 1/2x1/4	39	-5.121	19.793	25.9	Pass
T3	153.333 - 146.667	Diagonal	L2 1/2x2 1/2x1/4	51	-5.384	17.900	30.1	Pass
T4	146.667 - 140	Diagonal	L2 1/2x2 1/2x1/4	61	-6.253	16.240	38.5	Pass
T5	140 - 120	Diagonal	L2 1/2x2 1/2x1/4	70	-7.938	12.489	63.6	Pass
T6	120 - 100	Diagonal	L3x3x1/4	92	-9.256	17.566	52.7	Pass
T7	100 - 80	Diagonal	L3 1/2x3 1/2x1/4	113	-10.279	18.890	54.4	Pass
T8	80 - 70	Diagonal	L3 1/2x3 1/2x1/4	128	-10.830	17.632	61.4	Pass
T9	70 - 60	Diagonal	2L3 1/2x3 1/2x1/4x3/8	137	-11.642	27.539	42.3	Pass
T10	60 - 40	Diagonal	L4x4x1/4	146	-12.140	20.589	59.0	Pass
T11	40 - 20	Diagonal	L4x4x5/16	161	-12.801	21.559	59.4	Pass
T12	20 - 0	Diagonal	2L4x4x5/16x3/8	176	-13.909	31.656	43.9	Pass
T1	180 - 160	Top Girt	L2x2x1/8	4	-0.464	4.230	11.0	Pass
T3	153.333 -	Top Girt	L2 1/2x2 1/2x1/8	46	-0.635	4.069	15.6	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
	146.667							
T4	146.667 - 140	Top Girt	L2 1/2x2 1/2x1/8	58	-0.832	3.498	23.8	Pass
T1	180 - 160	Mid Girt	L2x2x1/8	9	-0.466	3.097	15.0	Pass
							Summary	
						Leg (T12)	60.6	Pass
						Diagonal (T5)	63.6	Pass
						Top Girt (T4)	23.8	Pass
						Mid Girt (T1)	15.0	Pass
						Bolt Checks	79.8	Pass
						RATING =	**79.8**	**Pass**

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT:807133

APPENDIX C

ADDITIONAL CALCULATIONS

Self Support Anchor Rod Capacity

Site Info	
BU #	807133
Site Name	BRG 134 943057, CT
Order #	556500 Rev# 2

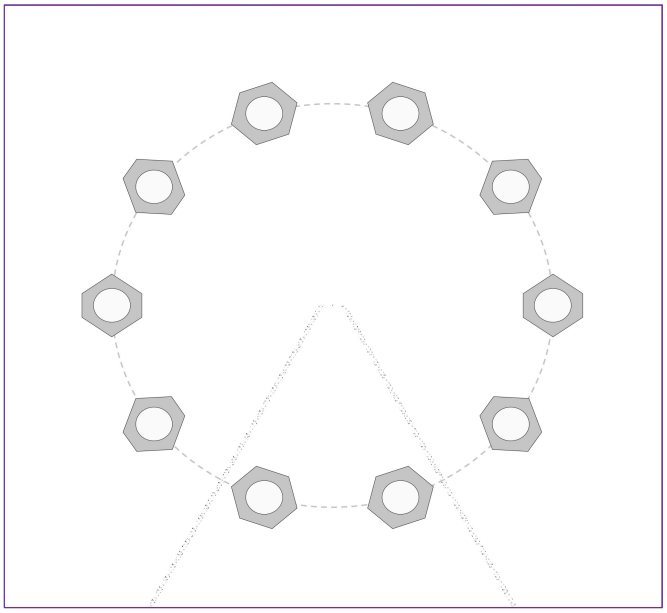
Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	Yes
l_{ar} (in)	0

Applied Loads		
	Comp.	Uplift
Axial Force (kips)	331.00	273.00
Shear Force (kips)	39.00	33.00

**TIA-222-H Section 15.5 Applied*

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

**Anchor Rod Eccentricity Applied*



Connection Properties

Anchor Rod Data

(10) 1" ø bolts (A449 N; Fy=92 ksi, Fu=120 ksi)

l_{ar} (in): 0

Analysis Results

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

Pu_t = 27.3	ϕPn_t = 54.54	**Stress Rating**
Vu = 3.3	ϕVn = 35.34	**47.7%**
Mu = n/a	ϕMn = n/a	**Pass**

Foundation Analysis-Rock Anchors

BU#: 807133
Site Name: BRG 134 943057,CT
Project Number: 82164.012.01

B+T GRP

Tnx Reactions

Uplift	273	k
Comp.	331	k

U.Shear	33	k
C. Shear	39	k

Applied Loads

dpier	9	ft
bpier	6.25	ft
Lpier	9	ft
n	4	

Wt.conc =γ x Lpier x dpier x bpier= 75.9375 k

Ru =Uplift-0.9 x Wt.conc = 204.6563 k

Rc =Comp.+1.2 x Wt.conc = 422.125 k

Compression Analysis:

qult	30	ksf
φ	0.75	

Ultimate Bearing Capacity
Strength Reduction Factor

Mu	351	K-ft
e	0.8315073	ft
B/6	1.0416667	ft
S	58.59375	ft3
qc	13.494844	Ksf

Since e<B/6

$$\text{Comp.} = \frac{qc}{\varphi qu} = 0.599771$$

59.98 %

Bearing stress rating

RevH **57.12 %**

Lateral Analysis:

μ	0.3	
φ	0.75	
Rv	39	k

Rc= 422.125

Rs= Rc x μ = 126.6375 k

φ x Rs = 94.978125 k -----Lateral Resistance

Lateral= $\frac{Rv}{\varphi Rs}$ = 0.410621 **41.06 %**

Lateral Stress Rating **RevH 39.11 %**

Uplift Analysis:

a.Steel Anchor Nominal Tensile Strength:

Fu	90	Ksi
Anet	1.56	in^2

A615 Gr. 60 Rebar

#11 Rebar

Ru= 204.65625

Rn_steel= Fu x Anet= 140.4 k

b. Steel-to-Grout Nominal Bonding Strength:

L	8	ft
d rebar	1.41	in
θ	0	degrees
fc	4000	psi

Embedded Length in concrete

Batter Angle

Grout Compressive Strength (Assumed)

As =Pi()x d rebar x (L/cos(θ)) = 425.246 in^2 Rebar Surface Area

Fs_g= 6 x √(fc) x√(psi) = 379.4733 psi --Steel-to-Grout Bond Strength

Rn_steel_to_grout= As x fs_g = 161.3695 k --Nominal Steel-to-Grout Bond Strength per Anchor

c. Grout-Rock Nominal Bonding Strength:

L_Sand	9	ft	Length of Embedment Into Sand below 10' below grad
dhole	2.25	in	
θ	0	degrees	
Fr_g	110	psi	Grout-Rock Bond Strength

Ab =Pi()x dhole x (L_Sand/cos(θ)) = 763.407 in^2 Grout Surface Area

Rn_rock_grout= Fr_g x Ab= 83.975 kip--Nominal Grout-Rock Bond Strength per Anchor

d. Nominal Weight of Rock Prism:

Leff	9.5	ft	--Effective Embedment Length = 5'-10' rock below grade
danchors	2	ft	--Spacing between anchors
φrock	40	degrees	
γ rock	140	pcf	
hsoil	5	ft	--Soil Layer Height
φsoil	40	degrees	
γ soil	135	pcf	--Unit Weight of Soil

d1= danchors= 2 ft

d2= 2 x Leff x tan(φrock)+danchors = 17.943 ft--Dia @ Top of Rock Layer

d3= d2+2 x hsoil x tan(φsoil) = 26.33 ft--Dia @ Top of Soil Layer

$$V_{rock} := \frac{\pi \cdot L_{eff}}{3} \cdot \left[\left(\frac{d_2}{2}\right)^2 + \left(\frac{d_2}{2}\right)\left(\frac{d_1}{2}\right) + \left(\frac{d_1}{2}\right)^2 \right]$$ = 899.9132 ft^3

$$V_{soil} := \frac{\pi \cdot h_{soil}}{3} \cdot \left[\left(\frac{d_3}{2}\right)^2 + \left(\frac{d_3}{2}\right)\left(\frac{d_2}{2}\right) + \left(\frac{d_2}{2}\right)^2 \right]$$ = 1947.692 ft^3

Wrock=γ rock x Vrock = 125.9879 k

Wsoil=γ soil x Vsoil = 262.9385 k

Overlapped concrete block on soil cone 42.1875 K

Rn_rock=Wrock+Wsoil= 346.7388 k

Rn_rock per pile 86.6847 K

$R_n := \min(R_{n\_steel}, R_{n\_steel\_to\_grout}, R_{n\_rock\_grout}, R_{n\_rock}) =$ 83.975 k

Dowel Capacity

Bit diameter for Dowel as per CCI_821566 0.875 in

Based on Bit diameter, the rebar size is assumed to be #6

(1) #6 Shear capacity 14.256 K

There are total of (15) dowel per face, meaning 7.5 dowels per anchor

Dowel capacity per anchor 106.920 K

φRn= 62.981079 k

n*φRn= 251.92431

Ru= 204.656

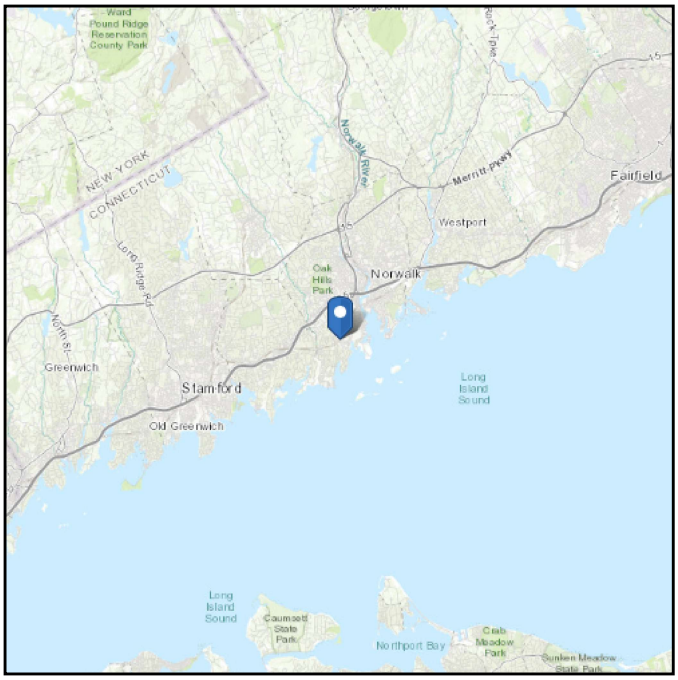
Uplift = Ru/(n*φRn)= 0.812372 **81.24 %**

RevH **77.37 %**

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-16	**Elevation:**	60.78 ft (NAVD 88)
Risk Category:	II	**Latitude:**	41.081789
Soil Class:	D - Default (see Section 11.4.3)	**Longitude:**	-73.430422



Wind

Results:

Wind Speed:	118 Vmph
10-year MRI	75 Vmph
25-year MRI	85 Vmph
50-year MRI	90 Vmph
100-year MRI	98 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:	Fri Oct 22 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.

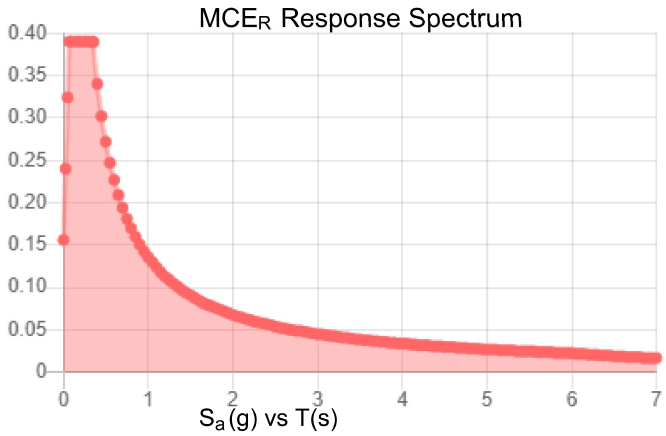
Seismic

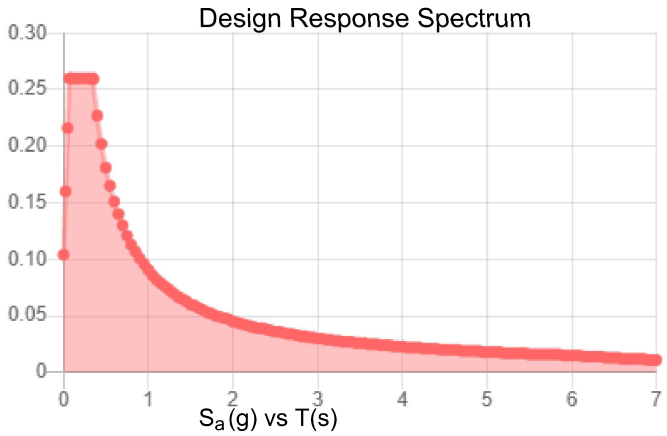
Site Soil Class: D - Default (see Section 11.4.3)

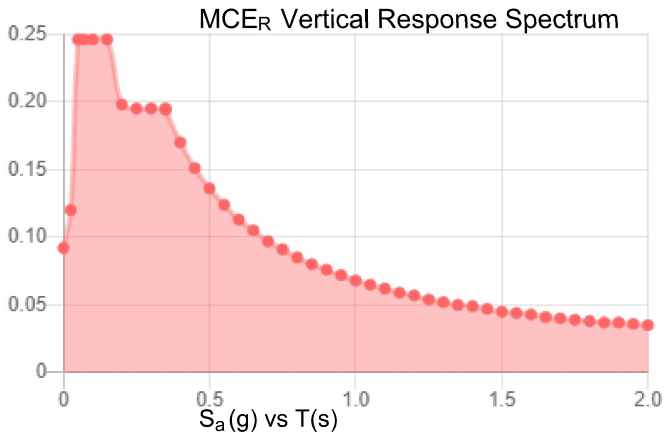
Results:

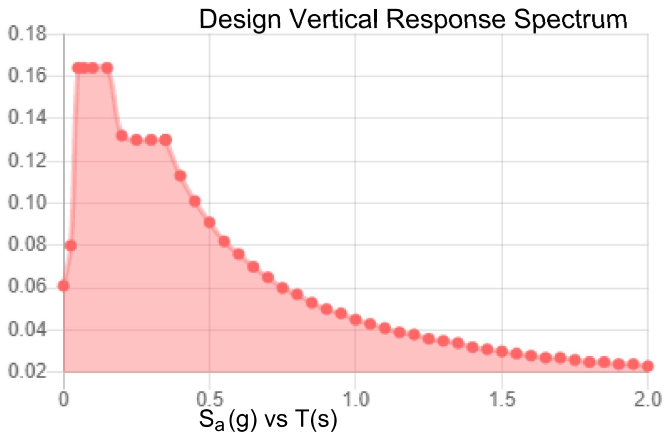
S_S :	0.244	S_{D1} :	0.091
S_1 :	0.057	T_L :	6
F_a :	1.6	PGA :	0.144
F_v :	2.4	PGA_M :	0.218
S_{MS} :	0.39	F_{PGA} :	1.511
S_{M1} :	0.136	I_e :	1
S_{DS} :	0.26	C_v :	0.788

Seismic Design Category B









Data Accessed: Fri Oct 22 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:	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:	Fri Oct 22 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.