

From: Paul Sagristano [mailto:psagristano@lrvassoc.com]
Sent: Wednesday, February 21, 2018 11:55 AM
To: Galligan, Coleen
Cc: CSC-DL Siting Council
Subject: RE: Incomplete - EM-SPRINT-094-180206-2111 Berlin Tpke (a/ka/ Cedarwood Lane)

Coleen: Attached is the requested study. Please advise if you need me to submit hard copies, and/or if you require I add this and resend the electronic filing. I hope this fulfills the request. Thank you.

Best,

Paul F. Sagristano
917-841-0247

From: Galligan, Coleen [mailto:Coleen.Galligan@ct.gov]
Sent: Tuesday, February 20, 2018 3:24 PM
To: Paul Sagristano
Cc: CSC-DL Siting Council
Subject: Incomplete - EM-SPRINT-094-180206-2111 Berlin Tpke (a/ka/ Cedarwood Lane)

Please see the attached correspondence.

Coleen Galligan
Connecticut Siting Council
120 Franklin Square
New Britain, CT 06051
(860) 827-2935
Coleen.Galligan@ct.gov

Sprint[®]



Revision 0

Guy Tower Structural Analysis

Site Name: Newington

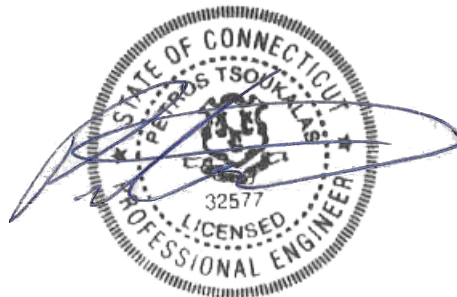
Site ID: CT52XC043

Site Address: 99 Cedarwood Lane
Newington, CT 06111
Hartford County

Maser Project Number: 17924017A

November 1, 2017

Analysis Type	Guy Tower	Foundation
Pass/Fail	Fail	Adequate
Mount Utilization	150.9 %	N/A



Petros E. Tsoukalas, P.E.
Connecticut Professional Engineer
PE License # 32577

Objective:

The objective of this report is to determine the capacity of the existing 170' lattice guyed tower structure at the subject facility for the final wireless telecommunications configuration, per the applicable codes and standards.

Introduction:

Maser Consulting Connecticut has performed limited field observations on August 30, 2017 to visually verify the existing condition of the structure from grade and to locate and quantify the existing wireless appurtenances where possible. Maser Consulting Connecticut has reviewed the following documents in completing this report:

- RFDS 63868 provided by Sprint, dated April 22, 2017.
- Previous Structural Analysis and Reinforcement analysis report prepared by URS Corporation., project# 33931279.000000 dated, August 22, 2014.
- Previous Structural Analysis report prepared by Hudson Design Group LLC., dated June 11, 2012.
- Previous Structural Analysis report prepared by CENTEK Engineering, project# 16002.12 dated April 26, 2016.
- Previous Structural Analysis report prepared by Destek Engineering dated, January 14, 2016.
- Previous Structural Analysis report prepared by Hudson Design Group LLC., dated May 17, 2016.
- Previous Construction Drawings prepared by MAXTON Technology, INC., dated May 13, 2017.
- Previous Construction Drawings prepared by Hudson Design Group for proposed modifications dated., June 13, 2012.

The existing **SPRINT** equipment is supported on an existing 170' lattice guyed tower structure. The primary tower structure is constructed of pipe legs, with the diagonal and horizontal members with pipes and angle members. The existing **SPRINT** equipment is supported on an existing antenna support mounts constructed of structural steel antenna support pipes supported by Steel Angles and pipes at a centerline of approximately 142'-0" above ground level. This report is based only upon this information, as well as the information obtained in the field.

Discrete and Linear Appurtenances:

Maser Consulting Connecticut understands the existing & proposed **SPRINT** loading to be as follows:

- (9) *Dummy Panel Antennas (Existing)*
- (3) **KMW ETCR-654L12H6 Panel Antennas (Proposed per RFDS)**
- (3) **RRH-4x45-1900 (Proposed)**
- (3) **ALU TD-RRH8X20-2.5 (Proposed per RFDS)**
- (6) **ALU RRH-2X50-800 (Proposed per RFDS)**
- (3) *VHLP2.5 Microwave Antennas (Existing)*
- (4) **Hybrid Cable**

The overall antenna loading is found in the Appendix A of this report.

Codes, Standards and Loading:

Maser Consulting Connecticut utilized the following codes and standards:

- 2016 Connecticut State Building Code, Incorporating The 2012 IBC
- Structural Standards for Antenna Supporting Structures and Antennas ANSI/TIA-222-G
 - Exposure Category – B
 - Structure Class – II
 - Topographic Category - 1
 - ASCE 7-10 Ultimate wind speed 123mph-Nominal wind speed 95mph

Analysis Approach & Assumptions:

The analysis approach used in this structural analysis is based on the premise that if the existing guyed lattice structure is structurally adequate to support the existing and proposed equipment per the aforementioned codes and standards, or if the increase in the forces in the structure are deemed to be negligible or acceptable, then the proposed equipment can be installed as intended. Tower Numerics, tnx Tower, a tower analysis and design program, designed specifically for the telecommunications industry and for all applicable codes and standards was used for this structural analysis.

The following assumptions were utilized in this report:

- Structural Steel Main Legs and Diagonals are constructed of A618-50 Grade Steel.
- Structural Steel Round Members are constructed of A500 Gr B 42 Steel.
- Structural Steel Angle members are constructed of A36 Grade.
- Structural Bolts are assumed to be A325N
- It is assumed that the modification proposed per the reference documents are assumed to be installed per the construction drawings.
- Tower is installed to plumb and is maintained properly without any structural deficiencies or deteriorations to the original design.
- It is assumed that the telecommunication equipment supports, antenna supports, and existing structure have been designed by a registered licensed professional engineer for the existing loads acting on the structure, as required by all applicable codes, prior to the proposed modifications listed within this report.
- It is assumed that information provided by the client regarding the structure itself, the antenna models, feed lines, and other relevant information is current and correct.
- It is assumed all other existing appurtenances, antennas, cables, etc. belonging to others have been installed and supported per code and per specifications so as not to damage any existing structural support members, and that any contributing loads from adjacent equipment has been taken into consideration for their design.
- Proposed equipment and locations should not deviate from the proposed locations noted herein and shown on the associated Maser Consulting Connecticut final Construction Drawings.

Calculations:

The calculations are found in Appendix A of this report.

Conclusion:

The existing guyed lattice tower was analyzed for the loading in the applicable codes and standards. The tower has been determined to be structurally **INADEQUATE** to support the proposed and existing antennas, based upon the aforementioned assumptions.

The lattice tower has been determined to be stressed to a maximum of **150.9%** of its structural capacity with the maximum usage occurring at the diagonal bolts at 5.0'-20.0' elevation. The leg members are stressed to a maximum of 135.4% of their structural capacity at 100'-120' elevation.

Foundation Reaction Comparison

Tower Base	Foundation Reaction from Previous Analysis using 222F*1.35	Current Forces	Comparison
Shear	5.4 kips	5 kips	Adequate
Axial	500.5 kips	258 kips	Adequate

Anchor Block Reactions

	Anchor @ 106 radius (Allowable Reactions)	Anchor @ 106ft radius (Current Reactions)	Comparison
Uplift	93.9 kips	74 kips	Adequate
Sliding	77.79 kips	69 kips	Adequate

*Based on calculations provided in the above referenced structural analysis and multiplied by a factor of 1.35 per 15.5.1 section of the 222G-code

The foundation and anchor blocks in comparison with the capacities from the previous structural analysis referenced above is observed to have **ADEQUATE** capacity. Therefore, the proposed **SPRINT** installation **CANNOT** be placed as intended.

It should be noted that due to a lack of information Maser Consulting Connecticut did not perform an analysis on the foundation, but a comparison of the capacities summarized in previous analysis with the current forces has been determined. If information is provided, then this report can be amended. The conclusions reached by Maser Consulting Connecticut in this evaluation are only applicable for the existing structural members supporting the proposed **SPRINT** telecommunications installation described herein.

We appreciate the opportunity to be of service on this project. If you should have any questions or require any additional information, please do not hesitate to call our office.

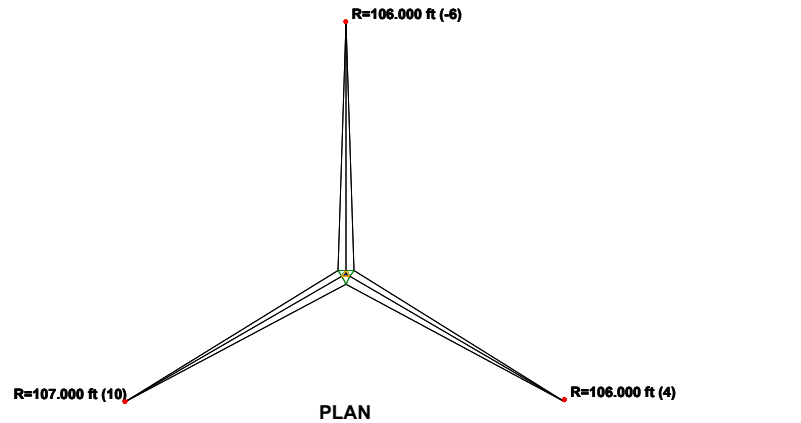
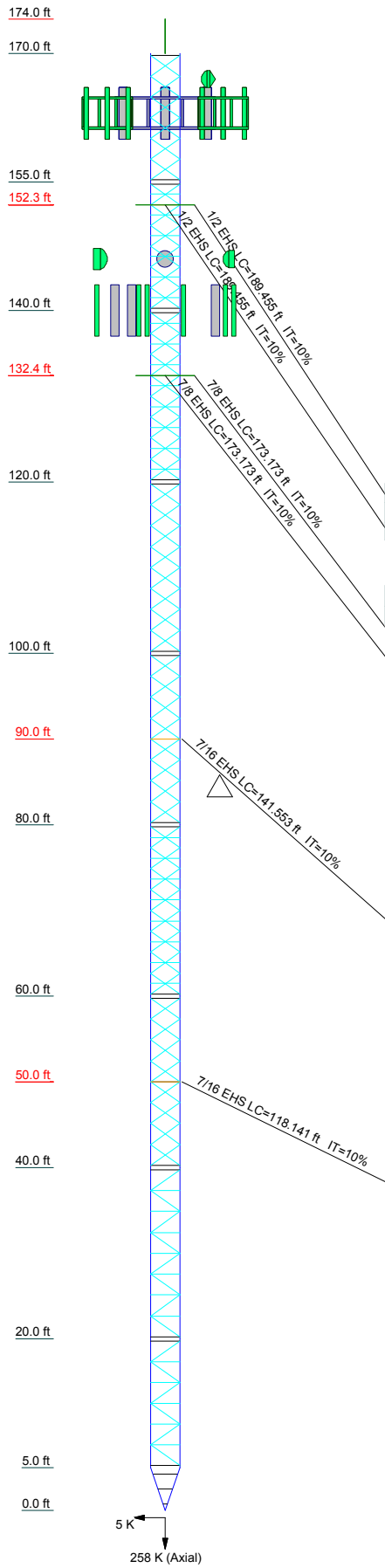
Sincerely,
Maser Consulting Connecticut



Petros E. Tsoukalas, P.E.
Telecommunications Discipline Leader

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Section	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs			ROHN 2.5 STD		B		ROHN 2.5 STD	A		ROHN 2 STD
Diagonals						A36				
Diagonal Grade										
Top Girts										
Mid Girts										
Bottom Girts										
Horizontal										
Sec. Horizontals										
Top Guy Pull-Offs										
Face Width (ft)										
# Panels @ (ft)										
Weight (K)	2.8	0.1	6 @ 2.41667	0.3	0.3	48 @ 2.4375	0.4	0.4	0.2	12 @ 2.41667
										0.2
										3.42



SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	Pipe 2.0 STD W 1" Rod Reinforcement	C	14x3/16
B	Pipe 2.0 STD with 1/3rd Split 2.5 STD Pipe	D	6 @ 0.875

MATERIAL STRENGTH

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

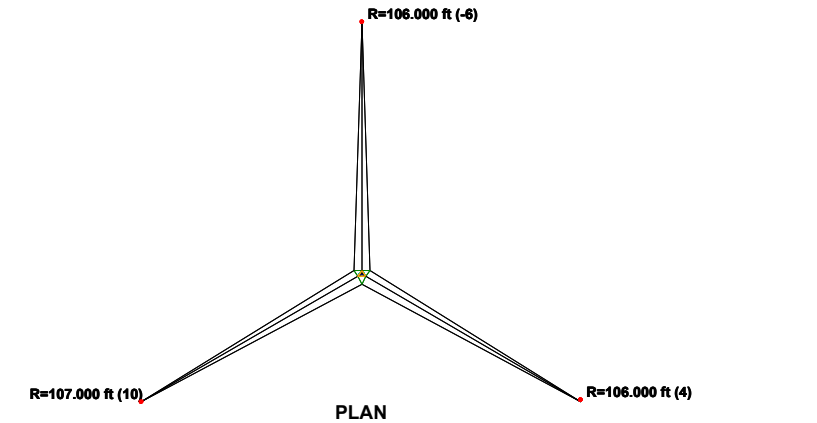
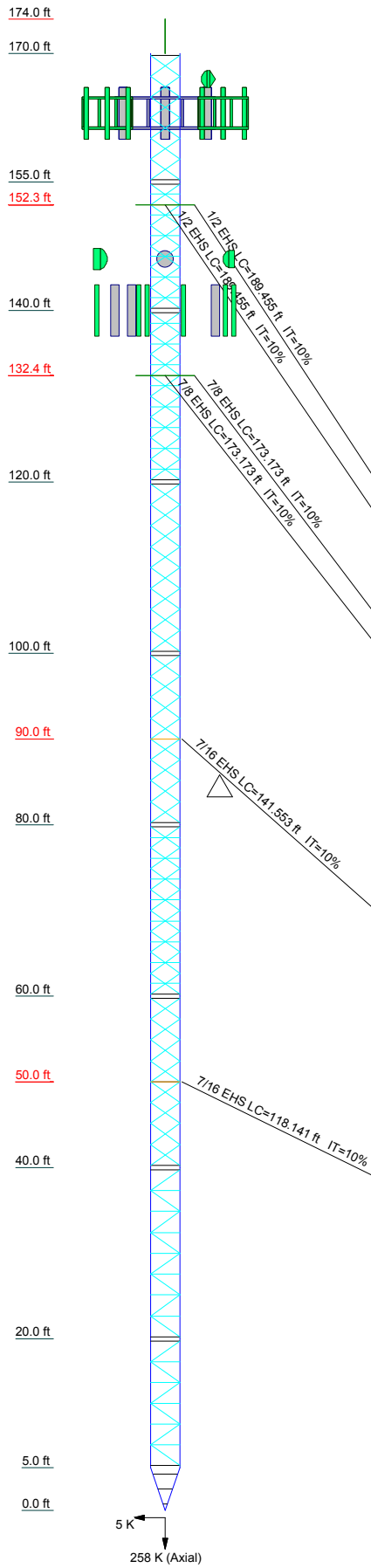
- TOWER DESIGN NOTES**
1. Tower is located in Hartford County, Connecticut.
 2. Tower designed for Exposure B to the TIA-222-G Standard.
 3. Tower designed for a 95 mph basic wind in accordance with the TIA-222-G Standard.
 4. Tower is also designed for a 40 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
 5. Deflections are based upon a 60 mph wind.
 6. Tower Structure Class II.
 7. Topographic Category 2 with Crest Height of 200.000 ft
 8. 4.000 ft Lightening Rod is included for load transfer only.
 9. TOWER RATING: 150.9%

ALL REACTIONS ARE FACTORED

Maser Consulting Connecticut
 331 Newman Springs Road, Suite 203
 Red Bank, NJ 07701
 Phone: 877.627.3772
 FAX: 973.398.3199

Job: Guyed Tower Analysis
 Project: 17924017A
 Client: Sprint
 Code: TIA-222-G
 Path: R:\Projects\2017\17924000\17924017A\Structural\Tower Analysis\TOWER\CTEX\243 Newman Tower Analysis Rev 4.dwg
 Drawn by: gpenumatsa
 Date: 11/01/17
 App'd:
 Scale: NTS
 Dwg No. E-1

Section	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs			ROHN 2.5 STD		B		ROHN 2.5 STD	A		ROHN 2 STD
Diagonals										
Diagonal Grade										
Top Girts										
Bottom Girts										
Horizontal										
Sec. Horizontal										
Top Guy Pull-Offs										
Face Width (ft)										
# Panels @ (ft)										
Weight (K)	2.8	0.1	0.3	0.4	0.3	0.4	0.2	0.4	0.2	0.2
										12 @ 2.41667
										3.42



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
DB636 Omni	176	TD-RRH8x20-25 (Sprint)	140
DB806-XT	174	ALU RRH-4X45-1900 (Sprint)	140
DB874H120-SX	171.5	(2) RRH-2X50-800 (Sprint)	140
BOX 24"X6"X6"	171.5	Junction Box (Sprint)	140
1' Side Mount Standoff	168	Pirot 12' T-Frame Sector Mount (1) (Sprint)	140
Pirot 5' Side Mount Standoff (1)	168	ETCR-654L12H6 W/Pipe Mount (Sprint)	140
Pirot 5' Side Mount Standoff (1)	168	844G65VTZASX (Sprint)	140
SC2	167	844G65VTZASX (Sprint)	140
APX16DWV-16DWVS (T-Mobile)	163	(2) LGP21401 (ATI)	120
LNX-6515DS-VTM (T-Mobile)	163	DC6-48-06-18-8F (ATI)	120
(2) TMA (T-Mobile)	163	RRUS-11 (ATI)	120
AIR 32 with 6' pipe (T-Mobile)	163	RRUS 32 (ATI)	120
Pirot 12' T-Frame Sector Mount (1) (T-Mobile)	163	TPX-070821 (ATI)	120
APX16DWV-16DWVS (T-Mobile)	163	14-ft T-Frame Sector Mount (ATI)	120
LNX-6515DS-VTM (T-Mobile)	163	Powerwave 7770 w/5ft mount pipe (ATI)	120
(2) TMA (T-Mobile)	163	CCI OPA-65R-LCUU-H6 Panel Antenna with 8ft Pipe (ATI)	120
AIR 32 with 6' pipe (T-Mobile)	163	Quintel QS66512-2 w/m pipe (ATI)	120
Pirot 12' T-Frame Sector Mount (1) (T-Mobile)	163	(2) LGP21401 (ATI)	120
APX16DWV-16DWVS (T-Mobile)	163	DC6-48-06-18-8F (ATI)	120
LNX-6515DS-VTM (T-Mobile)	163	RRUS-11 (ATI)	120
(2) TMA (T-Mobile)	163	RRUS 32 (ATI)	120
AIR 32 with 6' pipe (T-Mobile)	163	TPX-070821 (ATI)	120
Pirot 12' T-Frame Sector Mount (1) (T-Mobile)	163	14-ft T-Frame Sector Mount (ATI)	120
VHLP2-18	146	Powerwave 7770 w/5ft mount pipe (ATI)	120
VHLP2-18	146	CCI OPA-65R-LCUU-H6 Panel Antenna with 8ft Pipe (ATI)	120
VHLP800-11	146	Quintel QS66512-2 w/m pipe (ATI)	120
844G65VTZASX (Sprint)	140	(2) LGP21401 (ATI)	120
TD-RRH8x20-25 (Sprint)	140	RRUS-11 (ATI)	120
ALU RRH-4X45-1900 (Sprint)	140	RRUS 32 (ATI)	120
(2) RRH-2X50-800 (Sprint)	140	TPX-070821 (ATI)	120
Pirot 12' T-Frame Sector Mount (1) (Sprint)	140	14-ft T-Frame Sector Mount (ATI)	120
ETCR-654L12H6 W/Pipe Mount (Sprint)	140	Powerwave 7770 w/5ft mount pipe (ATI)	120
844G65VTZASX (Sprint)	140	CCI OPA-65R-LCUU-H6 Panel Antenna with 8ft Pipe (ATI)	120
844G65VTZASX (Sprint)	140	Quintel QS66512-2 w/m pipe (ATI)	120
844G65VTZASX (Sprint)	140	1' Side Mount Standoff (Other)	108.4
TD-RRH8x20-25 (Sprint)	140	1' Side Mount Standoff (Other)	108.4
ALU RRH-4X45-1900 (Sprint)	140	1' Side Mount Standoff (Other)	108.4
(2) RRH-2X50-800 (Sprint)	140	Panel Antenna 6"x6"x3" (Other)	108
Pirot 12' T-Frame Sector Mount (1) (Sprint)	140	Panel Antenna 6"x6"x3" (Other)	108
ETCR-654L12H6 W/Pipe Mount (Sprint)	140	Panel Antenna 6"x6"x3" (Other)	108
844G65VTZASX (Sprint)	140	GPS (Other)	50
844G65VTZASX (Sprint)	140		
844G65VTZASX (Sprint)	140		

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	Pipe 2.0 STD W 1" Rod Reinforcement	C	14x3/16
B	Pipe 2.0 STD with 1/3rd Split 2.5 STD Pipe	D	6 @ 0.875

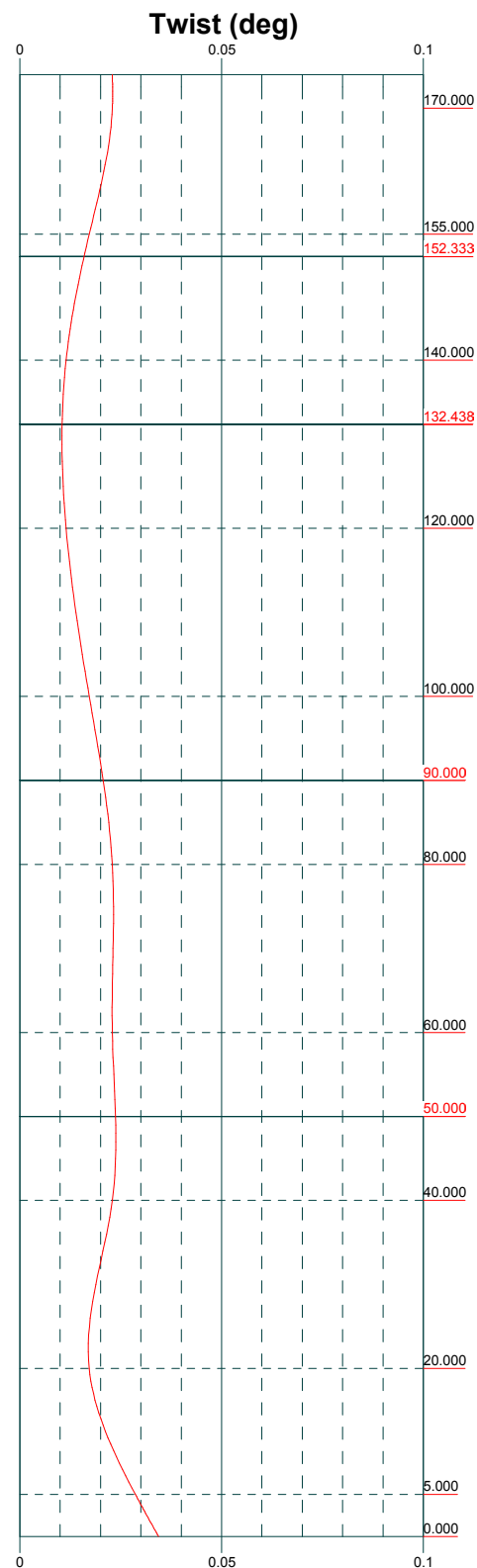
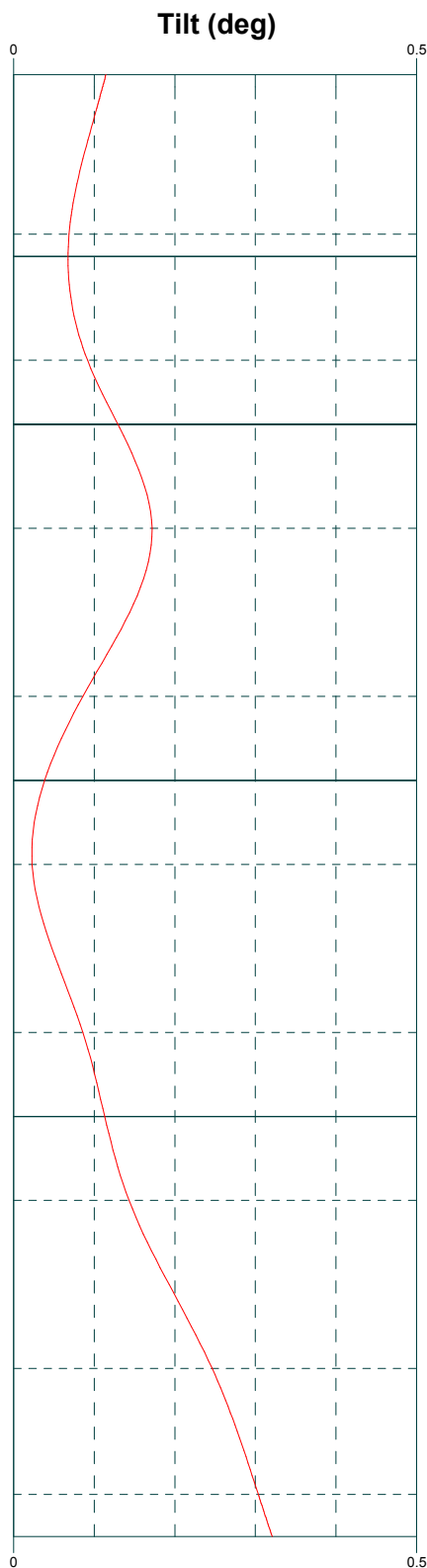
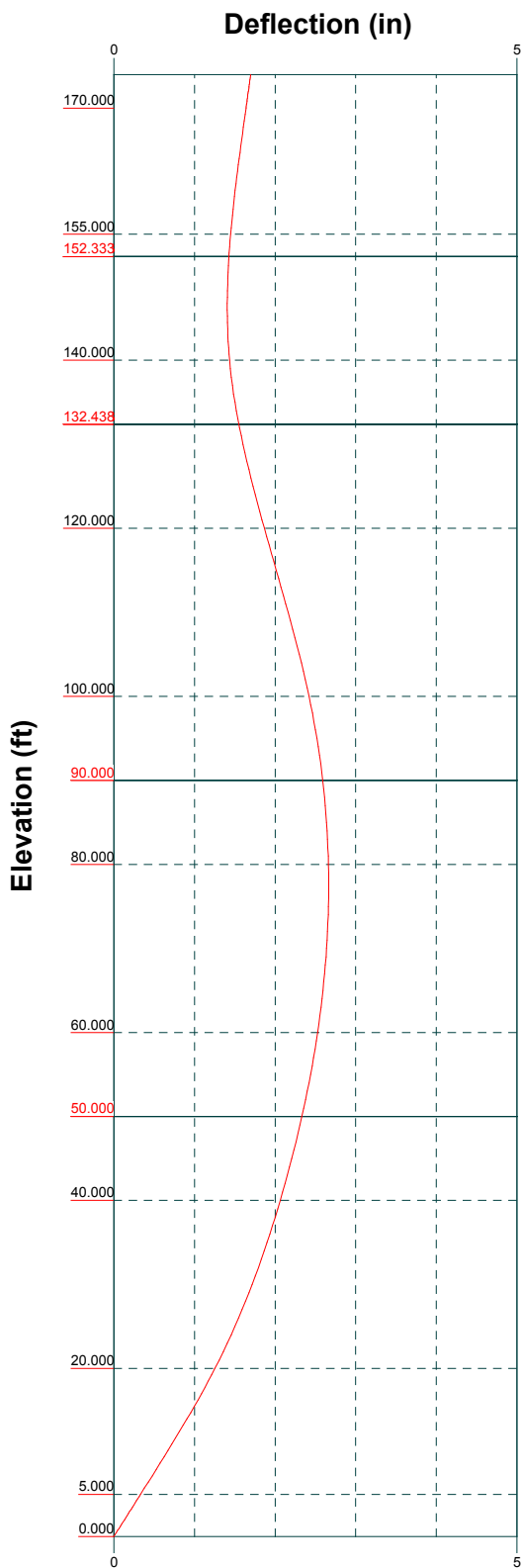
MATERIAL STRENGTH

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

ALL REACTIONS AT TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.

<p>Maser Consulting Connecticut 331 Newman Springs Road, Suite 203 Red Bank, NJ 07701 Phone: 877.627.3772 FAX: 973.398.3199</p>		<p>Job: GUYED Tower Analysis Project: 17924017A</p>	
Client: Sprint	Drawn by: gpenumatsa	App'd:	
Code: TIA-222-G	Date: 11/01/17	Scale: NTS	
Path:		Dwg No. E-1	

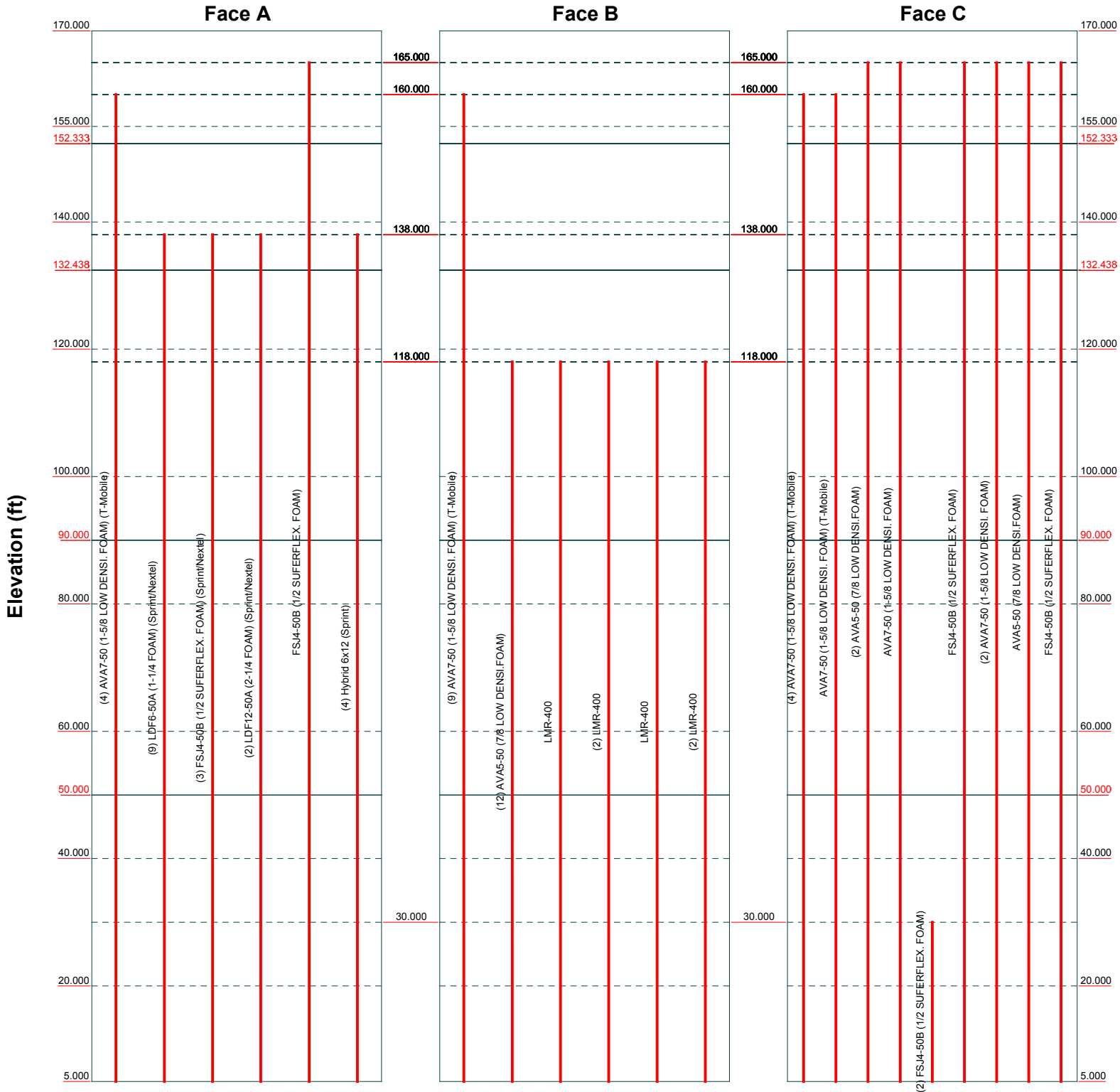


Maser Consulting Connecticut 331 Newman Springs Road, Suite 203 Red Bank, NJ 07701 Phone: 877.627.3772 FAX: 973.398.3199			Job: Guyed Tower Analysis		
Project: 17924017A			Client: Sprint		
Code: TIA-222-G			Drawn by: gpenumatsa		App'd:
Path:			Date: 11/01/17		Scale: NTS
Dwg No. E-5			Rev 1		

Feed Line Distribution Chart

5' - 170'

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



Maser Consulting Connecticut		
331 Newman Springs Road, Suite 203		
Red Bank, NJ 07701		
Phone: 877.627.3772		
FAX: 973.398.3199		
Job: Guyed Tower Analysis		
Project: 17924017A		
Client: Sprint	Drawn by: gpenumatsa	App'd:
Code: TIA-222-G	Date: 11/01/17	Scale: NTS
Path:		Dwg No. E-7

tnxTower Maser Consulting Connecticut 331 Newman Springs Road, Suite 203 Red Bank, NJ 07701 Phone: 877.627.3772 FAX: 973.398.3199	Job Guyed Tower Analysis	Page 1 of 70
	Project 17924017A	Date 16:03:09 11/01/17
	Client Sprint	Designed by gpenumatsa

Tower Input Data

The main tower is a 3x guyed tower with an overall height of 170.000 ft above the ground line.

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

The face width of the tower is 3.420 ft at the top and tapered at the base.

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

The following design criteria apply:

Tower is located in Hartford County, Connecticut.

ASCE 7-10 Wind Data is used (wind speeds converted to nominal values).

Basic wind speed of 95 mph.

Structure Class II.

Exposure Category B.

Topographic Category 2.

Crest Height 200.000 ft.

Nominal ice thickness of 1.000 in.

Ice thickness is considered to increase with height.

Ice density of 56 pcf.

A wind speed of 40 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 60 mph.

Pressures are calculated at each section.

Safety factor used in guy design is 1.

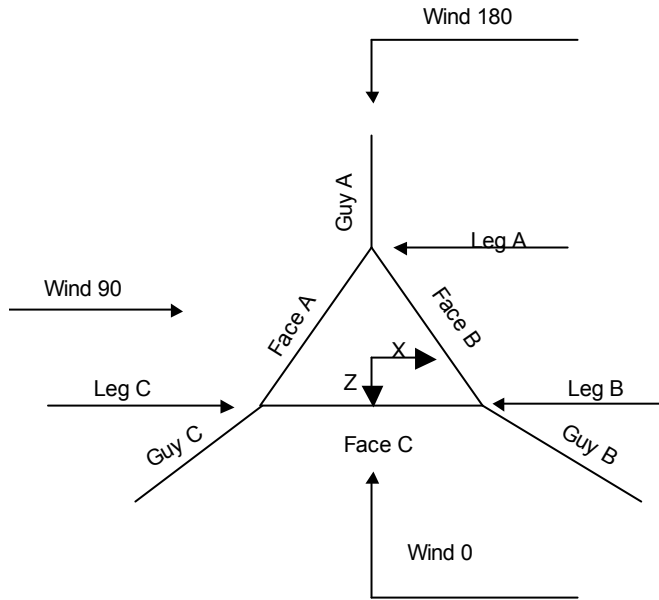
Stress ratio used in tower member design is 1.

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

Options

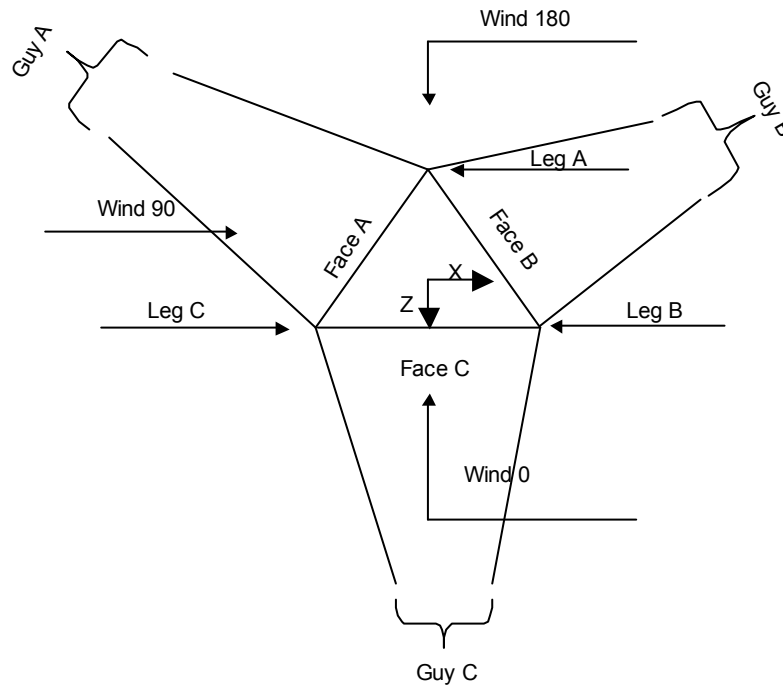
<ul style="list-style-type: none"> Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification √ Use Code Stress Ratios √ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile √ Include Bolts In Member Capacity √ Leg Bolts Are At Top Of Section √ Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) SR Members Have Cut Ends SR Members Are Concentric 	<ul style="list-style-type: none"> Distribute Leg Loads As Uniform Assume Legs Pinned √ Assume Rigid Index Plate √ Use Clear Spans For Wind Area √ Use Clear Spans For KL/r √ Retension Guys To Initial Tension √ Bypass Mast Stability Checks √ Use Azimuth Dish Coefficients √ Project Wind Area of Appurt. √ Autocalc Torque Arm Areas Add IBC .6D+W Combination √ Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder 	<ul style="list-style-type: none"> Use ASCE 10 X-Brace Ly Rules √ Calculate Redundant Bracing Forces Ignore Redundant Members in FEA √ SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation Consider Feed Line Torque Include Angle Block Shear Check Use TIA-222-G Bracing Resist. Exemption Use TIA-222-G Tension Splice Exemption <li style="text-align: center;">Poles Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets
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tnxTower Maser Consulting Connecticut 331 Newman Springs Road, Suite 203 Red Bank, NJ 07701 Phone: 877.627.3772 FAX: 973.398.3199	Job Guyed Tower Analysis	Page 2 of 70
	Project 17924017A	Date 16:03:09 11/01/17
	Client Sprint	Designed by gpenumatsa



Corner & Starmount Guyed Tower

tnxTower Maser Consulting Connecticut 331 Newman Springs Road, Suite 203 Red Bank, NJ 07701 Phone: 877.627.3772 FAX: 973.398.3199	Job Guyed Tower Analysis	Page 3 of 70
	Project 17924017A	Date 16:03:09 11/01/17
	Client Sprint	Designed by gpenumatsa



Face Guyed

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	170.000-155.000			3.420	1	15.000
T2	155.000-140.000			3.420	1	15.000
T3	140.000-120.000			3.420	1	20.000
T4	120.000-100.000			3.420	1	20.000
T5	100.000-80.000			3.420	1	20.000
T6	80.000-60.000			3.420	1	20.000
T7	60.000-40.000			3.420	1	20.000
T8	40.000-20.000			3.420	1	20.000
T9	20.000-5.000			3.420	1	15.000
T10	5.000-0.000			3.420	1	5.000

Tower Section Geometry (cont'd)

tnxTower Maser Consulting Connecticut 331 Newman Springs Road, Suite 203 Red Bank, NJ 07701 Phone: 877.627.3772 FAX: 973.398.3199	Job	Guyed Tower Analysis	Page	4 of 70
	Project	17924017A	Date	16:03:09 11/01/17
	Client	Sprint	Designed by	gpenumatsa

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	170.000-155.000	2.417	X Brace	No	No	3.000	3.000
T2	155.000-140.000	2.417	X Brace	No	Yes	3.000	3.000
T3	140.000-120.000	2.438	X Brace	No	Yes	3.000	3.000
T4	120.000-100.000	2.438	X Brace	No	Yes	3.000	3.000
T5	100.000-80.000	2.438	X Brace	No	No	3.000	3.000
T6	80.000-60.000	2.438	X Brace	No	Yes	3.000	3.000
T7	60.000-40.000	2.438	X Brace	No	No	3.000	3.000
T8	40.000-20.000	2.438	K Brace Right	No	Yes	3.000	3.000
T9	20.000-5.000	2.417	K Brace Right	No	Yes	3.000	3.000
T10	5.000-0.000	0.875	X Brace	No	Yes	9.000	9.000

Tower Section Geometry (cont'd)

Tower Elevation	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
ft						
T1	Pipe	ROHN 2 STD	A572-50 (50 ksi)	Pipe	P1.5X0625	A36 (36 ksi)
T2	Pipe	ROHN 2 STD	A572-50 (50 ksi)	Pipe	P1.5X0625	A36 (36 ksi)
T3	Arbitrary Shape	Pipe 2.0 STD W 1" Rod Reinforcement	A572-50 (50 ksi)	Single Angle	L1 3/4x1 3/4x1/4	A36 (36 ksi)
T4	Pipe	ROHN 2 STD	A572-50 (50 ksi)	Pipe	P1.5X0625	A36 (36 ksi)
T5	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	P1.5X0625	A36 (36 ksi)
T6	Arbitrary Shape	Pipe 2.0 STD with 1/3rd Split 2.5 STD Pipe	A572-50 (50 ksi)	Pipe	P1.5X0625	A36 (36 ksi)
T7	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	P1.5X0625	A36 (36 ksi)
T8	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	P1.5X0625	A36 (36 ksi)
T9	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	P1.5X0625	A36 (36 ksi)
T10	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	P1.5X0625	A36 (36 ksi)

Tower Section Geometry (cont'd)

Tower Elevation	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
ft						
T1	Pipe	P1.5X0625	A36 (36 ksi)	Pipe	P1.5X0625	A36 (36 ksi)
T2	Pipe	P1.5X0625	A36 (36 ksi)	Pipe	P1.5X0625	A36 (36 ksi)
T3	Equal Angle	L1 1/2x1 1/2x1/8	A36 (36 ksi)	Equal Angle	L1 3/4x1 3/4x1/4	A36 (36 ksi)
T4	Pipe	P1.5X0625	A36 (36 ksi)	Pipe	P1.5X0625	A36 (36 ksi)
T5	Pipe	P1.5X0625	A36 (36 ksi)	Pipe	P1.5X0625	A36 (36 ksi)

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Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
100.000-80.000			(36 ksi)			(36 ksi)
T6 80.000-60.000	Pipe	P1.5X0625	A36	Pipe	P1.5X0625	A36
T7 60.000-40.000	Pipe	P1.5X0625	(36 ksi) A36	Pipe	P1.5X0625	(36 ksi) A36
T8 40.000-20.000	Pipe	P1.5X0625	(36 ksi) A36	Pipe	P1.5X0625	(36 ksi) A36
T9 20.000-5.000	Pipe	ROHN 1.5 STD	(36 ksi) A36	Pipe	P1.5X0625	(36 ksi) A36
T10 5.000-0.000	Flat Bar	14x3/16	(36 ksi) A36	Flat Bar	4x3/16	(36 ksi) A36

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
T5 100.000-80.000	1	Pipe	P1.5X0625	A572-50 (50 ksi)	Solid Round		A36 (36 ksi)
T7 60.000-40.000	1	Pipe	P1.5X0625	A572-50 (50 ksi)	Equal Angle		A36 (36 ksi)
T8 40.000-20.000	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T9 20.000-5.000	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T10 5.000-0.000	1	Flat Bar	14x3/16	A36 (36 ksi)	Solid Round		A36 (36 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T2 155.000-140.000	Solid Round	1	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T3 140.000-120.000	Equal Angle	L1 3/4x1 3/4x1/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T6 80.000-60.000	Equal Angle	L2x2x3/16	A36 (36 ksi)	Solid Round		A36 (36 ksi)

Tower Section Geometry (cont'd)

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Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Legs	K Factors ¹								
				X Brace Diags	K Brace Diags	Single Diags	Girts	Horiz.	Sec. Horiz.	Inner Brace		
				X Y	X Y	X Y	X Y	X Y	X Y	X Y		
T9 20.000-5.000	Yes	Yes	1	1	1	1	1	1	1	1	1	1
T10 5.000-0.000	Yes	Yes	1	1	1	1	1	1	1	1	1	1

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

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 170.000-155.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T2 155.000-140.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T3 140.000-120.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T4 120.000-100.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T5 100.000-80.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T6 80.000-60.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T7 60.000-40.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T8 40.000-20.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T9 20.000-5.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T10 5.000-0.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75

Tower Section Geometry (cont'd)

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Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 170.000-155.000	Flange	0.750 A325N	4	0.500 A325N	1	0.500 A325N	1	0.500 A325N	0	0.625 A325N	0	0.500 A325N	0	0.500 A325N	0
T2 155.000-140.000	Flange	0.750 A325N	4	0.500 A325N	1	0.500 A325N	1	0.500 A325N	0	0.625 A325N	0	0.500 A325N	0	0.625 A325N	0
T3 140.000-120.000	Flange	0.750 A325N	4	0.625 A325N	1	0.625 A325N	1	0.625 A325N	0	0.625 A325N	0	0.500 A325N	0	0.500 A325N	0
T4 120.000-100.000	Flange	0.750 A325N	4	0.500 A325N	1	0.500 A325N	1	0.500 A325N	0	0.625 A325N	0	0.500 A325N	0	0.500 A325N	0
T5 100.000-80.000	Flange	0.750 A325N	4	0.500 A325N	1	0.500 A325N	1	0.500 A325N	0	0.625 A325N	0	0.500 A325N	0	0.500 A325N	0
T6 80.000-60.000	Flange	0.750 A325N	4	0.500 A325N	1	0.500 A325N	1	0.750 A325N	0	0.750 A325N	0	0.500 A325N	0	0.500 A325N	0
T7 60.000-40.000	Flange	0.750 A325N	4	0.500 A325N	1	0.500 A325N	1	0.500 A325N	0	0.625 A325N	0	0.500 A325N	0	0.500 A325N	0
T8 40.000-20.000	Flange	0.750 A325N	4	0.500 A325N	1	0.500 A325N	1	0.500 A325N	0	0.625 A325N	0	0.500 A325N	0	0.500 A325N	0
T9 20.000-5.000	Flange	0.750 A325N	4	0.500 A325N	1	0.500 A325N	1	0.500 A490N	0	0.625 A325N	0	0.500 A325N	0	0.500 A325N	0
T10 5.000-0.000	Flange	0.750 A325N	4	0.500 A325N	0	0.500 A325N	0	0.500 A490N	0	0.625 A325N	0	0.500 A325N	0	0.500 A325N	0

Guy Data

Guy Elevation ft	Guy Grade	Guy Size	Initial Tension K	%	Guy Modulus ksi	Guy Weight plf	L _u ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %
152.333	EHS	A	1/2	2.690	10%	21000.000	0.517	189.294	106.000	0.0000	100%
		B	1/2	2.690	10%	21000.000	0.517	181.027	106.000	0.0000	100%
		C	1/2	2.690	10%	21000.000	0.517	176.744	107.000	0.0000	100%
132.438	EHS	A	7/8	7.970	10%	19000.000	1.581	173.016	106.000	0.0000	100%
		B	7/8	7.970	10%	19000.000	1.581	165.138	106.000	0.0000	100%
		C	7/8	7.970	10%	19000.000	1.581	161.173	107.000	0.0000	100%
90	EHS	A	7/16	2.080	10%	21000.000	0.399	141.433	106.000	0.0000	100%
		B	7/16	2.080	10%	21000.000	0.399	134.857	106.000	0.0000	100%
		C	7/16	2.080	10%	21000.000	0.399	131.912	107.000	0.0000	100%
50	EHS	A	7/16	2.080	10%	21000.000	0.399	118.041	106.000	0.0000	100%
		B	7/16	2.080	10%	21000.000	0.399	113.646	106.000	0.0000	100%
		C	7/16	2.080	10%	21000.000	0.399	112.290	107.000	0.0000	100%

Guy Data(cont'd)

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Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
152.333	Torque Arm	7.000	0.0000	Channel	A36 (36 ksi)	Channel	C12x20.7
132.438	Torque Arm	7.000	0.0000	Channel	A36 (36 ksi)	Arbitrary Shape	C12x20.7 with 8"x3/8" plates
90	Corner						
50	Corner						

Guy Data (cont'd)

Guy Elevation ft	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap.	Pull-Off Grade	Pull-Off Type	Pull-Off Size
152.333	A36 (36 ksi)	Solid Round			Yes	A36 (36 ksi)	Equal Angle	L2x2x3/16
132.438	A36 (36 ksi)	Solid Round				A572-50 (50 ksi)	Solid Round	
90.000	A36 (36 ksi)	Solid Round			Yes	A572-50 (50 ksi)	Flat Bar	4x3/8
50.000	A36 (36 ksi)	Solid Round			Yes	A572-50 (50 ksi)	Flat Bar	4x3/8

Guy Data (cont'd)

Guy Elevation ft	Cable Weight A K	Cable Weight B K	Cable Weight C K	Cable Weight D K	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft
152.333	0.098	0.094	0.091		3.395	3.108	2.964	
132.438	0.274	0.261	0.255		3.2 sec/pulse 2.932	3.0 sec/pulse 2.673	3.0 sec/pulse 2.548	
90	0.056	0.054	0.053		3.0 sec/pulse 1.903	2.8 sec/pulse 1.732	2.8 sec/pulse 1.658	
50	0.047	0.045	0.045		2.4 sec/pulse 1.330	2.3 sec/pulse 1.234	2.2 sec/pulse 1.206	
					2.0 sec/pulse	1.9 sec/pulse	1.9 sec/pulse	

Guy Data (cont'd)

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm		Pull Off		Diagonal	
			K _x	K _y	K _x	K _y	K _x	K _y
152.333	No	No	1	1	1	1	1	1
132.438	No	No	1	1	1	1	1	1
90	No	No			1	1	1	1
50	No	No			1	1	1	1

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Guy Data (cont'd)

Guy Elevation ft	Torque-Arm				Pull Off				Diagonal			
	Bolt Size in	Number	Net Width Deduct in	U	Bolt Size in	Number	Net Width Deduct in	U	Bolt Size in	Number	Net Width Deduct in	U
152.333	0.750 A325N	8	0.000	1	0.750 A325N	1	0.000	0.75	0.625 A325N	0	0.000	0.75
132.438	0.750 A325N	8	0.000	1	0.750 A325N	1	0.000	0.75	0.625 A325N	0	0.000	0.75
90	0.875 A325N	4	0.000	1	0.625 A325N	0	0.000	0.75	0.625 A325N	0	0.000	0.75
50	0.875 A325N	4	0.000	1	0.625 A325N	0	0.000	0.75	0.625 A325N	0	0.000	0.75

Guy Pressures

Guy Elevation ft	Guy Location	z ft	q _z ksf	q _z Ice ksf	Ice Thickness in
152.333	A	73.167	0.028	0.005	2.525
	B	78.167	0.028	0.005	2.531
	C	81.167	0.028	0.005	2.534
132.438	A	63.219	0.027	0.005	2.510
	B	68.219	0.027	0.005	2.518
	C	71.219	0.027	0.005	2.522
90	A	42.000	0.026	0.005	2.459
	B	47.000	0.026	0.005	2.474
	C	50.000	0.026	0.005	2.482
50	A	22.000	0.025	0.004	2.354
	B	27.000	0.024	0.004	2.389
	C	30.000	0.024	0.004	2.407

Guy-Mast Forces (Excluding Wind) - No Ice

Guy Elevation ft	Guy Location	Chord Angle °	Guy Tension Top Bottom K	F _x K	F _y K	F _z K	M _x kip-ft	M _y kip-ft	M _z kip-ft
152.333	A	56.6918	2.772 2.690	-0.050	2.331	-1.499	-4.711	5.347	-8.159
	A	56.6918	2.772 2.690	0.050	2.331	-1.499	-4.711	-5.347	8.159
	B	54.9549	2.767 2.690	1.382	2.280	0.737	9.216	5.586	0.000
	B	54.9549	2.767 2.690	1.330	2.280	0.828	-4.608	-5.586	-7.981
	C	53.5738	2.764 2.690	-1.374	2.240	0.856	-4.526	5.772	7.839
	C	53.5738	2.764 2.690	-1.428	2.240	0.762	9.051	-5.772	0.000

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Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom K	F _x	F _y	F _z	M _x	M _y	M _z	
ft		°		K	K	K	kip-ft	kip-ft	kip-ft	
132.438	A	53.0745	Sum:	-0.091	13.702	0.186	-0.288	0.000	-0.143	
			8.189	-0.163	6.595	-4.851	-13.327	17.307	-23.084	
	A	53.0745	7.970	0.163	6.595	-4.851	-13.327	-17.307	23.084	
			8.189	4.482	6.402	2.391	25.875	18.115	0.000	
	B	50.9915	53.0745	7.970	4.311	6.402	2.687	-12.937	-18.115	-22.408
				8.173	-4.458	6.250	2.776	-12.629	18.725	21.874
C	49.3741	50.9915	7.970	-4.633	6.250	2.473	25.258	-18.725	0.000	
			8.163	-0.298	38.495	0.625	-1.088	0.000	-0.534	
90	A	42.7024	Sum:	0.000	1.452	-1.543	-2.867	0.000	0.000	
	B	39.5812	2.118	1.400	1.363	0.808	1.346	0.000	-2.331	
			2.080	-1.444	1.296	0.834	1.280	0.000	2.217	
50	A	28.2949	2.112	-0.044	4.111	0.099	-0.241	0.000	-0.114	
			2.102	0.000	1.015	-1.841	-2.004	0.000	0.000	
	B	23.8550	2.080	1.655	0.868	0.955	0.857	0.000	-1.484	
			2.098	-1.690	0.766	0.976	0.756	0.000	1.309	
C	20.8498	23.8550	2.080	-0.035	2.648	0.090	-0.391	0.000	-0.174	
			2.096							

Guy-Mast Forces (Excluding Wind) - Ice

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom K	F _x	F _y	F _z	M _x	M _y	M _z	
ft		°		K	K	K	kip-ft	kip-ft	kip-ft	
152.333	A	56.6918	7.542	-0.124	6.579	-3.685	-13.295	13.149	-23.028	
			5.986	0.124	6.579	-3.685	-13.295	-13.149	23.028	
	B	54.9549	56.6918	7.542	3.409	6.435	1.818	26.007	13.776	0.000
				5.986	3.279	6.435	2.043	-13.003	-13.776	-22.523
	C	53.5738	54.9549	7.505	-3.410	6.349	2.123	-12.829	14.321	22.221
				6.042	-3.544	6.349	1.891	25.658	-14.321	0.000
132.438	A	53.0745	7.513	-0.266	38.726	0.505	-0.757	0.000	-0.302	
			6.105	-0.277	12.030	-8.243	-24.310	29.411	-42.106	
	A	53.0745	7.513	0.277	12.030	-8.243	-24.310	-29.411	42.106	
			6.105	7.632	11.689	4.070	47.242	30.845	0.000	
B	50.9915	53.0745	14.542							

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Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom K	F _x	F _y	F _z	M _x	M _y	M _z
ft		°		K	K	K	kip-ft	kip-ft	kip-ft
			13.000						
	B	50.9915	14.542	7.341	11.689	4.574	-23.621	-30.845	-40.913
			13.000						
	C	49.3741	14.552	-7.621	11.452	4.745	-23.142	32.007	40.084
			13.078						
	C	49.3741	14.552	-7.920	11.452	4.227	46.285	-32.007	0.000
			13.078						
90	A	42.7024	6.125	-0.567	70.344	1.131	-1.857	0.000	-0.829
			5.253	0.000	4.497	-4.158	-8.880	0.000	0.000
	B	39.5812	6.113	3.797	4.260	2.192	4.205	0.000	-7.284
			5.323						
	C	37.2973	6.130	-3.949	4.097	2.280	4.045	-0.000	7.006
			5.392						
			Sum:	-0.152	12.854	0.315	-0.629	0.000	-0.278
50	A	28.2949	5.703	0.000	3.086	-4.795	-6.093	0.000	0.000
			5.232						
	B	23.8550	5.736	4.369	2.728	2.522	2.694	0.000	-4.666
			5.338						
	C	20.8498	5.773	-4.513	2.482	2.606	2.450	-0.000	4.244
			5.423						
			Sum:	-0.144	8.296	0.333	-0.949	0.000	-0.421

Guy-Mast Forces (Excluding Wind) - Service

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom K	F _x	F _y	F _z	M _x	M _y	M _z
ft		°		K	K	K	kip-ft	kip-ft	kip-ft
152.333	A	56.6918	2.772	-0.050	2.331	-1.499	-4.711	5.347	-8.159
			2.690						
	A	56.6918	2.772	0.050	2.331	-1.499	-4.711	-5.347	8.159
			2.690						
	B	54.9549	2.767	1.382	2.280	0.737	9.216	5.586	0.000
			2.690						
	B	54.9549	2.767	1.330	2.280	0.828	-4.608	-5.586	-7.981
			2.690						
	C	53.5738	2.764	-1.374	2.240	0.856	-4.526	5.772	7.839
			2.690						
	C	53.5738	2.764	-1.428	2.240	0.762	9.051	-5.772	0.000
			2.690						
			Sum:	-0.091	13.702	0.186	-0.288	0.000	-0.143
132.438	A	53.0745	8.189	-0.163	6.595	-4.851	-13.327	17.307	-23.084
			7.970						
	A	53.0745	8.189	0.163	6.595	-4.851	-13.327	-17.307	23.084
			7.970						
	B	50.9915	8.173	4.482	6.402	2.391	25.875	18.115	0.000
			7.970						
	B	50.9915	8.173	4.311	6.402	2.687	-12.937	-18.115	-22.408
			7.970						
	C	49.3741	8.163	-4.458	6.250	2.776	-12.629	18.725	21.874
			7.970						
	C	49.3741	8.163	-4.633	6.250	2.473	25.258	-18.725	0.000

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Guy Elevation	Guy Location	Chord Angle	Guy Tension		F _x	F _y	F _z	M _x	M _y	M _z
			Top	Bottom						
ft		°	K		K	K	K	kip-ft	kip-ft	kip-ft
90	A	42.7024	7.970	Sum:	-0.298	38.495	0.625	-1.088	0.000	-0.534
			2.118	0.000	1.452	-1.543	-2.867	0.000	0.000	
			2.080							
			2.114	1.400	1.363	0.808	1.346	0.000	-2.331	
			2.080							
50	A	28.2949	2.112	-1.444	1.296	0.834	1.280	0.000	2.217	
			2.080							
			Sum:	-0.044	4.111	0.099	-0.241	0.000	-0.114	
			2.102	0.000	1.015	-1.841	-2.004	0.000	0.000	
			2.080							
50	B	23.8550	2.098	1.655	0.868	0.955	0.857	0.000	-1.484	
			2.080							
			2.096	-1.690	0.766	0.976	0.756	0.000	1.309	
			2.080							
			Sum:	-0.035	2.648	0.090	-0.391	0.000	-0.174	

Guy-Tensioning Information

Temperature At Time Of Tensioning																	
Guy Elevation	H	V	0 F		20 F		40 F		60 F		80 F		100 F		120 F		
			Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	
ft	ft	ft	K	ft	K	ft	K	ft	K	ft	K	ft	K	ft	K	ft	
152.333	A	104.04	158.33	3.049	3.00	2.929	3.12	2.809	3.25	2.690	3.39	2.571	3.55	2.453	3.72	2.336	3.90
	B	104.04	148.33	3.083	2.72	2.951	2.84	2.820	2.97	2.690	3.11	2.560	3.26	2.431	3.43	2.303	3.62
	C	105.04	142.33	3.110	2.57	2.969	2.69	2.829	2.82	2.690	2.96	2.552	3.12	2.414	3.30	2.278	3.49
132.438	A	104.04	138.44	9.163	2.55	8.764	2.67	8.366	2.79	7.970	2.93	7.576	3.08	7.185	3.25	6.798	3.43
	B	104.04	128.44	9.279	2.30	8.842	2.41	8.405	2.54	7.970	2.67	7.538	2.82	7.109	2.99	6.684	3.18
	C	105.04	122.44	9.372	2.17	8.902	2.28	8.435	2.41	7.970	2.55	7.508	2.70	7.050	2.88	6.597	3.07
90	A	104.03	96.00	2.578	1.54	2.411	1.64	2.245	1.76	2.080	1.90	1.916	2.06	1.755	2.25	1.596	2.47
	B	104.03	86.00	2.628	1.37	2.445	1.47	2.262	1.59	2.080	1.73	1.900	1.89	1.723	2.09	1.549	2.32
	C	105.03	80.00	2.664	1.30	2.468	1.40	2.273	1.52	2.080	1.66	1.889	1.82	1.700	2.03	1.516	2.27
50	A	104.03	56.00	2.797	0.99	2.557	1.08	2.317	1.19	2.080	1.33	1.846	1.50	1.616	1.71	1.393	1.98
	B	104.03	46.00	2.854	0.90	2.594	0.99	2.336	1.10	2.080	1.23	1.827	1.40	1.580	1.62	1.342	1.91
	C	105.03	40.00	2.888	0.87	2.617	0.96	2.347	1.07	2.080	1.21	1.816	1.38	1.559	1.61	1.312	1.91

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement	Total Number	Number Per Row	Clear Spacing	Width or Diameter	Perimeter	Weight
				ft			in	in	in	klf
AVA7-50 (1-5/8 LOW DENSI. FOAM) (T-Mobile)	A	Yes	Ar (CaAa)	160.000 - 0.000	4	4	1.000 1.980	1.980		0.001
AVA7-50 (1-5/8 LOW DENSI. FOAM) (T-Mobile)	B	Yes	Ar (CaAa)	160.000 - 0.000	9	9	1.000 1.980	1.980		0.001
AVA7-50 (1-5/8 LOW DENSI. FOAM) (T-Mobile)	C	Yes	Ar (CaAa)	160.000 - 0.000	4	4	1.000 1.980	1.980		0.001
AVA7-50 (1-5/8 LOW DENSI. FOAM)	C	Yes	Ar (CaAa)	160.000 - 0.000	1	1	1.980	1.980		0.001

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Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	Number Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
(T-Mobile)										
LDF6-50A (1-1/4 FOAM)	A	Yes	Ar (CaAa)	138.000 - 0.000	9	9	0.750 1.550	1.550		0.001
(Sprint/Nextel)										
FSJ4-50B (1/2 SUFERFLEX. FOAM)	A	Yes	Ar (CaAa)	138.000 - 0.000	3	2	0.580 0.520	0.520		0.000
(Sprint/Nextel)										
LDF12-50A (2-1/4 FOAM)	A	Yes	Ar (CaAa)	138.000 - 0.000	2	2	1.000 2.350	2.350		0.001
(Sprint/Nextel)										
AVA5-50 (7/8 LOW DENSIFOAM)	B	Yes	Ar (CaAa)	118.000 - 0.000	12	8	0.750 1.100	1.100		0.000
AVA5-50 (7/8 LOW DENSIFOAM)	C	Yes	Ar (CaAa)	165.000 - 0.000	2	1	0.750 1.100	1.100		0.000
AVA7-50 (1-5/8 LOW DENSIFOAM)	C	Yes	Ar (CaAa)	165.000 - 0.000	1	1	1.980	1.980		0.001
FSJ4-50B (1/2 SUFERFLEX. FOAM)	C	Yes	Ar (CaAa)	30.000 - 0.000	2	1	0.580 0.520	0.520		0.000
FSJ4-50B (1/2 SUFERFLEX. FOAM)	C	Yes	Ar (CaAa)	165.000 - 0.000	1	1	0.580 0.520	0.520		0.000
FSJ4-50B (1/2 SUFERFLEX. FOAM)	A	Yes	Ar (CaAa)	165.000 - 0.000	1	1	0.580 0.520	0.520		0.000
AVA7-50 (1-5/8 LOW DENSIFOAM)	C	Yes	Ar (CaAa)	165.000 - 0.000	2	1	1.000 1.980	1.980		0.001
AVA5-50 (7/8 LOW DENSIFOAM)	C	Yes	Ar (CaAa)	165.000 - 0.000	1	1	1.110 1.100	1.100		0.000
FSJ4-50B (1/2 SUFERFLEX. FOAM)	C	Yes	Ar (CaAa)	165.000 - 0.000	1	1	0.580 0.520	0.520		0.000
LMR-400	B	Yes	Ar (CaAa)	118.000 - 0.000	1	1	0.400 0.405	0.405		0.001
LMR-400	B	Yes	Ar (CaAa)	118.000 - 0.000	2	1	0.400 0.405	0.405		0.001
LMR-400	B	Yes	Ar (CaAa)	118.000 - 0.000	1	1	0.400 0.405	0.405		0.001
LMR-400	B	Yes	Ar (CaAa)	118.000 - 0.000	2	2	0.400 0.405	0.405		0.001
Hybrid 6x12 (Sprint)	A	Yes	Ar (CaAa)	138.000 - 0.000	4	4	1.380	1.380		0.002

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
T1	170.000-155.000	A	0.000	0.000	4.480	0.000	0.016
		B	0.000	0.000	8.910	0.000	0.032
		C	0.000	0.000	15.230	0.000	0.051
T2	155.000-140.000	A	0.000	0.000	12.660	0.000	0.045
		B	0.000	0.000	26.730	0.000	0.097
		C	0.000	0.000	30.270	0.000	0.104
T3	140.000-120.000	A	0.000	0.000	63.194	0.000	0.341
		B	0.000	0.000	35.640	0.000	0.130
		C	0.000	0.000	40.360	0.000	0.139
T4	120.000-100.000	A	0.000	0.000	68.340	0.000	0.372
		B	0.000	0.000	63.774	0.000	0.253
		C	0.000	0.000	40.360	0.000	0.139
T5	100.000-80.000	A	0.000	0.000	68.340	0.000	0.372
		B	0.000	0.000	66.900	0.000	0.266

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Tower Section	Tower Elevation ft	Face	A_R ft ²	A_F ft ²	C_{AA} In Face ft ²	C_{AA} Out Face ft ²	Weight K
T6	80.000-60.000	C	0.000	0.000	40.360	0.000	0.139
		A	0.000	0.000	68.340	0.000	0.372
		B	0.000	0.000	66.900	0.000	0.266
T7	60.000-40.000	C	0.000	0.000	40.360	0.000	0.139
		A	0.000	0.000	68.340	0.000	0.372
		B	0.000	0.000	66.900	0.000	0.266
T8	40.000-20.000	C	0.000	0.000	40.360	0.000	0.139
		A	0.000	0.000	68.340	0.000	0.372
		B	0.000	0.000	66.900	0.000	0.266
T9	20.000-5.000	C	0.000	0.000	41.400	0.000	0.142
		A	0.000	0.000	51.255	0.000	0.279
		B	0.000	0.000	50.175	0.000	0.200
T10	5.000-0.000	C	0.000	0.000	31.830	0.000	0.108
		A	0.000	0.000	17.085	0.000	0.093
		B	0.000	0.000	16.725	0.000	0.067
		C	0.000	0.000	10.610	0.000	0.036

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} In Face ft ²	C_{AA} Out Face ft ²	Weight K
T1	170.000-155.000	A	2.571	0.000	0.000	16.644	0.000	0.290
		B		0.000	0.000	19.857	0.000	0.386
		C		0.000	0.000	68.825	0.000	1.269
T2	155.000-140.000	A	2.568	0.000	0.000	41.413	0.000	0.722
		B		0.000	0.000	59.556	0.000	1.157
		C		0.000	0.000	124.952	0.000	2.300
T3	140.000-120.000	A	2.563	0.000	0.000	200.871	0.000	3.463
		B		0.000	0.000	79.379	0.000	1.540
		C		0.000	0.000	166.403	0.000	3.058
T4	120.000-100.000	A	2.555	0.000	0.000	216.757	0.000	3.728
		B		0.000	0.000	184.015	0.000	3.399
		C		0.000	0.000	166.074	0.000	3.044
T5	100.000-80.000	A	2.542	0.000	0.000	216.277	0.000	3.708
		B		0.000	0.000	195.201	0.000	3.585
		C		0.000	0.000	165.553	0.000	3.022
T6	80.000-60.000	A	2.521	0.000	0.000	215.475	0.000	3.674
		B		0.000	0.000	194.456	0.000	3.551
		C		0.000	0.000	164.683	0.000	2.985
T7	60.000-40.000	A	2.482	0.000	0.000	214.051	0.000	3.614
		B		0.000	0.000	193.132	0.000	3.490
		C		0.000	0.000	163.138	0.000	2.919
T8	40.000-20.000	A	2.407	0.000	0.000	211.245	0.000	3.497
		B		0.000	0.000	190.522	0.000	3.372
		C		0.000	0.000	170.479	0.000	2.968
T9	20.000-5.000	A	2.248	0.000	0.000	154.009	0.000	2.442
		B		0.000	0.000	138.774	0.000	2.347
		C		0.000	0.000	130.004	0.000	2.134
T10	5.000-0.000	A	1.937	0.000	0.000	48.451	0.000	0.701
		B		0.000	0.000	43.569	0.000	0.669
		C		0.000	0.000	39.643	0.000	0.576

Feed Line Shielding

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Section	Elevation	Face	A_R	A_R	A_F	A_F
	ft		ft ²	Ice ft ²	ft ²	Ice ft ²
T1	170.000-155.000	A	0.519	7.030	0.000	0.000
		B	1.033	7.948	0.000	0.000
		C	1.409	25.487	0.000	0.000
T2	155.000-140.000	A	1.819	23.028	0.117	0.302
		B	3.841	32.832	0.248	0.430
		C	3.686	64.896	0.238	0.850
T3	140.000-120.000	A	0.000	77.448	11.162	26.313
		B	0.000	32.660	6.390	11.096
		C	0.000	64.493	6.132	21.912
T4	120.000-100.000	A	7.588	78.528	0.000	0.000
		B	6.215	68.316	0.000	0.000
		C	3.856	60.592	0.000	0.000
T5	100.000-80.000	A	7.939	84.461	0.935	2.191
		B	6.758	77.956	0.796	2.022
		C	4.034	65.077	0.475	1.688
T6	80.000-60.000	A	7.588	99.324	3.739	8.735
		B	6.459	91.649	3.183	8.060
		C	3.856	76.345	1.900	6.714
T7	60.000-40.000	A	7.939	82.163	0.935	2.171
		B	6.758	75.776	0.796	2.002
		C	4.034	62.883	0.475	1.662
T8	40.000-20.000	A	5.780	61.887	0.000	0.000
		B	4.921	57.021	0.000	0.000
		C	2.982	49.090	0.000	0.000
T9	20.000-5.000	A	4.538	43.921	0.000	0.000
		B	3.863	40.380	0.000	0.000
		C	2.376	35.610	0.000	0.000
T10	5.000-0.000	A	0.000	5.409	0.123	0.280
		B	0.000	4.950	0.105	0.256
		C	0.000	4.191	0.064	0.217

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	1	AVA7-50 (1-5/8 LOW DENS. FOAM)	155.00 - 160.00	1.0000	1.0000
T1	2	AVA7-50 (1-5/8 LOW DENS. FOAM)	155.00 - 160.00	1.0000	1.0000
T1	3	AVA7-50 (1-5/8 LOW DENS. FOAM)	155.00 - 160.00	1.0000	1.0000
T1	4	AVA7-50 (1-5/8 LOW DENS. FOAM)	155.00 - 160.00	1.0000	1.0000
T1	9	AVA5-50 (7/8 LOW DENS. FOAM)	155.00 - 165.00	1.0000	1.0000
T1	10	AVA7-50 (1-5/8 LOW DENS. FOAM)	155.00 - 165.00	1.0000	1.0000
T1	12	FSJ4-50B (1/2 SUPERFLEX. FOAM)	155.00 - 165.00	1.0000	1.0000
T1	13	FSJ4-50B (1/2 SUPERFLEX. FOAM)	155.00 - 165.00	1.0000	1.0000
T1	14	AVA7-50 (1-5/8 LOW DENS. FOAM)	155.00 - 165.00	1.0000	1.0000
T1	15	AVA5-50 (7/8 LOW	155.00 -	1.0000	1.0000

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Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T1	16	DENSI.FOAM)	165.00		
		FSJ4-50B (1/2 SUFERFLEX.	155.00 -	1.0000	1.0000
		FOAM)	165.00		
T2	1	AVA7-50 (1-5/8 LOW	140.00 -	1.0000	1.0000
		DENSI. FOAM)	155.00		
T2	2	AVA7-50 (1-5/8 LOW	140.00 -	1.0000	1.0000
		DENSI. FOAM)	155.00		
T2	3	AVA7-50 (1-5/8 LOW	140.00 -	1.0000	1.0000
		DENSI. FOAM)	155.00		
T2	4	AVA7-50 (1-5/8 LOW	140.00 -	1.0000	1.0000
		DENSI. FOAM)	155.00		
T2	9	AVA5-50 (7/8 LOW	140.00 -	1.0000	1.0000
		DENSI.FOAM)	155.00		
T2	10	AVA7-50 (1-5/8 LOW	140.00 -	1.0000	1.0000
		DENSI. FOAM)	155.00		
T2	12	FSJ4-50B (1/2 SUFERFLEX.	140.00 -	1.0000	1.0000
		FOAM)	155.00		
T2	13	FSJ4-50B (1/2 SUFERFLEX.	140.00 -	1.0000	1.0000
		FOAM)	155.00		
T2	14	AVA7-50 (1-5/8 LOW	140.00 -	1.0000	1.0000
		DENSI. FOAM)	155.00		
T2	15	AVA5-50 (7/8 LOW	140.00 -	1.0000	1.0000
		DENSI.FOAM)	155.00		
T2	16	FSJ4-50B (1/2 SUFERFLEX.	140.00 -	1.0000	1.0000
		FOAM)	155.00		
T3	1	AVA7-50 (1-5/8 LOW	120.00 -	1.0000	1.0000
		DENSI. FOAM)	140.00		
T3	2	AVA7-50 (1-5/8 LOW	120.00 -	1.0000	1.0000
		DENSI. FOAM)	140.00		
T3	3	AVA7-50 (1-5/8 LOW	120.00 -	1.0000	1.0000
		DENSI. FOAM)	140.00		
T3	4	AVA7-50 (1-5/8 LOW	120.00 -	1.0000	1.0000
		DENSI. FOAM)	140.00		
T3	5	LDF6-50A (1-1/4 FOAM)	120.00 -	1.0000	1.0000
			138.00		
T3	6	FSJ4-50B (1/2 SUFERFLEX.	120.00 -	1.0000	1.0000
		FOAM)	138.00		
T3	7	LDF12-50A (2-1/4 FOAM)	120.00 -	1.0000	1.0000
			138.00		
T3	9	AVA5-50 (7/8 LOW	120.00 -	1.0000	1.0000
		DENSI.FOAM)	140.00		
T3	10	AVA7-50 (1-5/8 LOW	120.00 -	1.0000	1.0000
		DENSI. FOAM)	140.00		
T3	12	FSJ4-50B (1/2 SUFERFLEX.	120.00 -	1.0000	1.0000
		FOAM)	140.00		
T3	13	FSJ4-50B (1/2 SUFERFLEX.	120.00 -	1.0000	1.0000
		FOAM)	140.00		
T3	14	AVA7-50 (1-5/8 LOW	120.00 -	1.0000	1.0000
		DENSI. FOAM)	140.00		
T3	15	AVA5-50 (7/8 LOW	120.00 -	1.0000	1.0000
		DENSI.FOAM)	140.00		
T3	16	FSJ4-50B (1/2 SUFERFLEX.	120.00 -	1.0000	1.0000
		FOAM)	140.00		
T3	21	Hybrid 6x12	120.00 -	1.0000	1.0000
			138.00		
T4	1	AVA7-50 (1-5/8 LOW	100.00 -	1.0000	1.0000
		DENSI. FOAM)	120.00		
T4	2	AVA7-50 (1-5/8 LOW	100.00 -	1.0000	1.0000
		DENSI. FOAM)	120.00		
T4	3	AVA7-50 (1-5/8 LOW	100.00 -	1.0000	1.0000
		DENSI. FOAM)	120.00		
T4	4	AVA7-50 (1-5/8 LOW	100.00 -	1.0000	1.0000

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Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T4	5	DENSI.FOAM) LDF6-50A (1-1/4 FOAM)	120.00 100.00 - 120.00	1.0000	1.0000
T4	6	FSJ4-50B (1/2 SUFERFLEX. FOAM)	100.00 - 120.00	1.0000	1.0000
T4	7	LDF12-50A (2-1/4 FOAM)	100.00 - 120.00	1.0000	1.0000
T4	8	AVA5-50 (7/8 LOW DENSI.FOAM)	100.00 - 118.00	1.0000	1.0000
T4	9	AVA5-50 (7/8 LOW DENSI.FOAM)	100.00 - 120.00	1.0000	1.0000
T4	10	AVA7-50 (1-5/8 LOW DENSI.FOAM)	100.00 - 120.00	1.0000	1.0000
T4	12	FSJ4-50B (1/2 SUFERFLEX. FOAM)	100.00 - 120.00	1.0000	1.0000
T4	13	FSJ4-50B (1/2 SUFERFLEX. FOAM)	100.00 - 120.00	1.0000	1.0000
T4	14	AVA7-50 (1-5/8 LOW DENSI.FOAM)	100.00 - 120.00	1.0000	1.0000
T4	15	AVA5-50 (7/8 LOW DENSI.FOAM)	100.00 - 120.00	1.0000	1.0000
T4	16	FSJ4-50B (1/2 SUFERFLEX. FOAM)	100.00 - 120.00	1.0000	1.0000
T4	17	LMR-400	100.00 - 118.00	1.0000	1.0000
T4	18	LMR-400	100.00 - 118.00	1.0000	1.0000
T4	19	LMR-400	100.00 - 118.00	1.0000	1.0000
T4	20	LMR-400	100.00 - 118.00	1.0000	1.0000
T4	21	Hybrid 6x12	100.00 - 120.00	1.0000	1.0000
T5	1	AVA7-50 (1-5/8 LOW DENSI.FOAM)	80.00 - 100.00	1.0000	1.0000
T5	2	AVA7-50 (1-5/8 LOW DENSI.FOAM)	80.00 - 100.00	1.0000	1.0000
T5	3	AVA7-50 (1-5/8 LOW DENSI.FOAM)	80.00 - 100.00	1.0000	1.0000
T5	4	AVA7-50 (1-5/8 LOW DENSI.FOAM)	80.00 - 100.00	1.0000	1.0000
T5	5	LDF6-50A (1-1/4 FOAM)	80.00 - 100.00	1.0000	1.0000
T5	6	FSJ4-50B (1/2 SUFERFLEX. FOAM)	80.00 - 100.00	1.0000	1.0000
T5	7	LDF12-50A (2-1/4 FOAM)	80.00 - 100.00	1.0000	1.0000
T5	8	AVA5-50 (7/8 LOW DENSI.FOAM)	80.00 - 100.00	1.0000	1.0000
T5	9	AVA5-50 (7/8 LOW DENSI.FOAM)	80.00 - 100.00	1.0000	1.0000
T5	10	AVA7-50 (1-5/8 LOW DENSI.FOAM)	80.00 - 100.00	1.0000	1.0000
T5	12	FSJ4-50B (1/2 SUFERFLEX. FOAM)	80.00 - 100.00	1.0000	1.0000
T5	13	FSJ4-50B (1/2 SUFERFLEX. FOAM)	80.00 - 100.00	1.0000	1.0000
T5	14	AVA7-50 (1-5/8 LOW DENSI.FOAM)	80.00 - 100.00	1.0000	1.0000
T5	15	AVA5-50 (7/8 LOW DENSI.FOAM)	80.00 - 100.00	1.0000	1.0000
T5	16	FSJ4-50B (1/2 SUFERFLEX. FOAM)	80.00 - 100.00	1.0000	1.0000
T5	17	LMR-400	80.00 - 100.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T5	18	LMR-400	80.00 - 100.00	1.0000	1.0000
T5	19	LMR-400	80.00 - 100.00	1.0000	1.0000
T5	20	LMR-400	80.00 - 100.00	1.0000	1.0000
T5	21	Hybrid 6x12	80.00 - 100.00	1.0000	1.0000
T6	1	AVA7-50 (1-5/8 LOW DENSE FOAM)	60.00 - 80.00	1.0000	1.0000
T6	2	AVA7-50 (1-5/8 LOW DENSE FOAM)	60.00 - 80.00	1.0000	1.0000
T6	3	AVA7-50 (1-5/8 LOW DENSE FOAM)	60.00 - 80.00	1.0000	1.0000
T6	4	AVA7-50 (1-5/8 LOW DENSE FOAM)	60.00 - 80.00	1.0000	1.0000
T6	5	LDF6-50A (1-1/4 FOAM)	60.00 - 80.00	1.0000	1.0000
T6	6	FSJ4-50B (1/2 SUPERFLEX. FOAM)	60.00 - 80.00	1.0000	1.0000
T6	7	LDF12-50A (2-1/4 FOAM)	60.00 - 80.00	1.0000	1.0000
T6	8	AVA5-50 (7/8 LOW DENSE FOAM)	60.00 - 80.00	1.0000	1.0000
T6	9	AVA5-50 (7/8 LOW DENSE FOAM)	60.00 - 80.00	1.0000	1.0000
T6	10	AVA7-50 (1-5/8 LOW DENSE FOAM)	60.00 - 80.00	1.0000	1.0000
T6	12	FSJ4-50B (1/2 SUPERFLEX. FOAM)	60.00 - 80.00	1.0000	1.0000
T6	13	FSJ4-50B (1/2 SUPERFLEX. FOAM)	60.00 - 80.00	1.0000	1.0000
T6	14	AVA7-50 (1-5/8 LOW DENSE FOAM)	60.00 - 80.00	1.0000	1.0000
T6	15	AVA5-50 (7/8 LOW DENSE FOAM)	60.00 - 80.00	1.0000	1.0000
T6	16	FSJ4-50B (1/2 SUPERFLEX. FOAM)	60.00 - 80.00	1.0000	1.0000
T6	17	LMR-400	60.00 - 80.00	1.0000	1.0000
T6	18	LMR-400	60.00 - 80.00	1.0000	1.0000
T6	19	LMR-400	60.00 - 80.00	1.0000	1.0000
T6	20	LMR-400	60.00 - 80.00	1.0000	1.0000
T6	21	Hybrid 6x12	60.00 - 80.00	1.0000	1.0000
T7	1	AVA7-50 (1-5/8 LOW DENSE FOAM)	40.00 - 60.00	1.0000	1.0000
T7	2	AVA7-50 (1-5/8 LOW DENSE FOAM)	40.00 - 60.00	1.0000	1.0000
T7	3	AVA7-50 (1-5/8 LOW DENSE FOAM)	40.00 - 60.00	1.0000	1.0000
T7	4	AVA7-50 (1-5/8 LOW DENSE FOAM)	40.00 - 60.00	1.0000	1.0000
T7	5	LDF6-50A (1-1/4 FOAM)	40.00 - 60.00	1.0000	1.0000
T7	6	FSJ4-50B (1/2 SUPERFLEX. FOAM)	40.00 - 60.00	1.0000	1.0000
T7	7	LDF12-50A (2-1/4 FOAM)	40.00 - 60.00	1.0000	1.0000
T7	8	AVA5-50 (7/8 LOW DENSE FOAM)	40.00 - 60.00	1.0000	1.0000
T7	9	AVA5-50 (7/8 LOW DENSE FOAM)	40.00 - 60.00	1.0000	1.0000
T7	10	AVA7-50 (1-5/8 LOW DENSE FOAM)	40.00 - 60.00	1.0000	1.0000
T7	12	FSJ4-50B (1/2 SUPERFLEX. FOAM)	40.00 - 60.00	1.0000	1.0000
T7	13	FSJ4-50B (1/2 SUPERFLEX. FOAM)	40.00 - 60.00	1.0000	1.0000
T7	14	AVA7-50 (1-5/8 LOW DENSE FOAM)	40.00 - 60.00	1.0000	1.0000
T7	15	AVA5-50 (7/8 LOW DENSE FOAM)	40.00 - 60.00	1.0000	1.0000

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Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T7	16	DENSI.FOAM) FSJ4-50B (1/2 SUFERFLEX. FOAM)	40.00 - 60.00	1.0000	1.0000
T7	17	LMR-400	40.00 - 60.00	1.0000	1.0000
T7	18	LMR-400	40.00 - 60.00	1.0000	1.0000
T7	19	LMR-400	40.00 - 60.00	1.0000	1.0000
T7	20	LMR-400	40.00 - 60.00	1.0000	1.0000
T7	21	Hybrid 6x12	40.00 - 60.00	1.0000	1.0000
T8	1	AVA7-50 (1-5/8 LOW DENSI. FOAM)	20.00 - 40.00	1.0000	1.0000
T8	2	AVA7-50 (1-5/8 LOW DENSI. FOAM)	20.00 - 40.00	1.0000	1.0000
T8	3	AVA7-50 (1-5/8 LOW DENSI. FOAM)	20.00 - 40.00	1.0000	1.0000
T8	4	AVA7-50 (1-5/8 LOW DENSI. FOAM)	20.00 - 40.00	1.0000	1.0000
T8	5	LDF6-50A (1-1/4 FOAM)	20.00 - 40.00	1.0000	1.0000
T8	6	FSJ4-50B (1/2 SUFERFLEX. FOAM)	20.00 - 40.00	1.0000	1.0000
T8	7	LDF12-50A (2-1/4 FOAM)	20.00 - 40.00	1.0000	1.0000
T8	8	AVA5-50 (7/8 LOW DENSI.FOAM)	20.00 - 40.00	1.0000	1.0000
T8	9	AVA5-50 (7/8 LOW DENSI.FOAM)	20.00 - 40.00	1.0000	1.0000
T8	10	AVA7-50 (1-5/8 LOW DENSI. FOAM)	20.00 - 40.00	1.0000	1.0000
T8	11	FSJ4-50B (1/2 SUFERFLEX. FOAM)	20.00 - 30.00	1.0000	1.0000
T8	12	FSJ4-50B (1/2 SUFERFLEX. FOAM)	20.00 - 40.00	1.0000	1.0000
T8	13	FSJ4-50B (1/2 SUFERFLEX. FOAM)	20.00 - 40.00	1.0000	1.0000
T8	14	AVA7-50 (1-5/8 LOW DENSI. FOAM)	20.00 - 40.00	1.0000	1.0000
T8	15	AVA5-50 (7/8 LOW DENSI.FOAM)	20.00 - 40.00	1.0000	1.0000
T8	16	FSJ4-50B (1/2 SUFERFLEX. FOAM)	20.00 - 40.00	1.0000	1.0000
T8	17	LMR-400	20.00 - 40.00	1.0000	1.0000
T8	18	LMR-400	20.00 - 40.00	1.0000	1.0000
T8	19	LMR-400	20.00 - 40.00	1.0000	1.0000
T8	20	LMR-400	20.00 - 40.00	1.0000	1.0000
T8	21	Hybrid 6x12	20.00 - 40.00	1.0000	1.0000
T9	1	AVA7-50 (1-5/8 LOW DENSI. FOAM)	5.00 - 20.00	1.0000	1.0000
T9	2	AVA7-50 (1-5/8 LOW DENSI. FOAM)	5.00 - 20.00	1.0000	1.0000
T9	3	AVA7-50 (1-5/8 LOW DENSI. FOAM)	5.00 - 20.00	1.0000	1.0000
T9	4	AVA7-50 (1-5/8 LOW DENSI. FOAM)	5.00 - 20.00	1.0000	1.0000
T9	5	LDF6-50A (1-1/4 FOAM)	5.00 - 20.00	1.0000	1.0000
T9	6	FSJ4-50B (1/2 SUFERFLEX. FOAM)	5.00 - 20.00	1.0000	1.0000
T9	7	LDF12-50A (2-1/4 FOAM)	5.00 - 20.00	1.0000	1.0000
T9	8	AVA5-50 (7/8 LOW DENSI.FOAM)	5.00 - 20.00	1.0000	1.0000
T9	9	AVA5-50 (7/8 LOW DENSI.FOAM)	5.00 - 20.00	1.0000	1.0000
T9	10	AVA7-50 (1-5/8 LOW DENSI. FOAM)	5.00 - 20.00	1.0000	1.0000
T9	11	FSJ4-50B (1/2 SUFERFLEX.	5.00 - 20.00	1.0000	1.0000

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Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T9	12	FOAM) FSJ4-50B (1/2 SUFERFLEX.	5.00 - 20.00	1.0000	1.0000
T9	13	FOAM) FSJ4-50B (1/2 SUFERFLEX.	5.00 - 20.00	1.0000	1.0000
T9	14	FOAM) AVA7-50 (1-5/8 LOW	5.00 - 20.00	1.0000	1.0000
T9	15	DENSI. FOAM) AVA5-50 (7/8 LOW	5.00 - 20.00	1.0000	1.0000
T9	16	DENSI.FOAM) FSJ4-50B (1/2 SUFERFLEX.	5.00 - 20.00	1.0000	1.0000
T9	17	FOAM) LMR-400	5.00 - 20.00	1.0000	1.0000
T9	18	LMR-400	5.00 - 20.00	1.0000	1.0000
T9	19	LMR-400	5.00 - 20.00	1.0000	1.0000
T9	20	LMR-400	5.00 - 20.00	1.0000	1.0000
T9	21	Hybrid 6x12	5.00 - 20.00	1.0000	1.0000
T10	1	AVA7-50 (1-5/8 LOW	0.00 - 5.00	1.0000	1.0000
T10	2	DENSI. FOAM) AVA7-50 (1-5/8 LOW	0.00 - 5.00	1.0000	1.0000
T10	3	DENSI. FOAM) AVA7-50 (1-5/8 LOW	0.00 - 5.00	1.0000	1.0000
T10	4	DENSI. FOAM) AVA7-50 (1-5/8 LOW	0.00 - 5.00	1.0000	1.0000
T10	5	DENSI. FOAM) LDF6-50A (1-1/4 FOAM)	0.00 - 5.00	1.0000	1.0000
T10	6	FOAM) FSJ4-50B (1/2 SUFERFLEX.	0.00 - 5.00	1.0000	1.0000
T10	7	FOAM) LDF12-50A (2-1/4 FOAM)	0.00 - 5.00	1.0000	1.0000
T10	8	AVA5-50 (7/8 LOW	0.00 - 5.00	1.0000	1.0000
T10	9	DENSI.FOAM) AVA5-50 (7/8 LOW	0.00 - 5.00	1.0000	1.0000
T10	10	DENSI.FOAM) AVA7-50 (1-5/8 LOW	0.00 - 5.00	1.0000	1.0000
T10	11	DENSI. FOAM) FSJ4-50B (1/2 SUFERFLEX.	0.00 - 5.00	1.0000	1.0000
T10	12	FOAM) FSJ4-50B (1/2 SUFERFLEX.	0.00 - 5.00	1.0000	1.0000
T10	13	FOAM) FSJ4-50B (1/2 SUFERFLEX.	0.00 - 5.00	1.0000	1.0000
T10	14	FOAM) AVA7-50 (1-5/8 LOW	0.00 - 5.00	1.0000	1.0000
T10	15	DENSI. FOAM) AVA5-50 (7/8 LOW	0.00 - 5.00	1.0000	1.0000
T10	16	DENSI.FOAM) FSJ4-50B (1/2 SUFERFLEX.	0.00 - 5.00	1.0000	1.0000
T10	17	FOAM) LMR-400	0.00 - 5.00	1.0000	1.0000
T10	18	LMR-400	0.00 - 5.00	1.0000	1.0000
T10	19	LMR-400	0.00 - 5.00	1.0000	1.0000
T10	20	LMR-400	0.00 - 5.00	1.0000	1.0000
T10	21	Hybrid 6x12	0.00 - 5.00	1.0000	1.0000

Antenna Pole Forces Lightning Rod

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Length of Pole	Ix	Iy	Modulus E	Antenna Pole	Antenna Pole	Length of Beacon	Beacon C _{AA}	Beacon Weight
ft	in ⁴	in ⁴	ksi	C _{AA}	Weight	ft	ft ²	K
4.000	10.000	10.000	29000.000	No Ice	2.500	0.003	0.000	0.000
				With Ice	3.000	0.004	0.000	0.000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			ft ft ft	°	ft	ft ²	ft ²	K
Pirod 5' Side Mount Standoff (1)	A	From Leg	2.500 0.000 0.000	0.0000	168.000	No Ice 1/2" Ice 1" Ice	2.720 0.000 0.000	0.050 0.065 0.080
Pirod 5' Side Mount Standoff (1)	B	From Leg	2.500 0.000 0.000	0.0000	168.000	No Ice 1/2" Ice 1" Ice	2.720 0.000 0.000	0.050 0.065 0.080
DB636 Omni	A	From Leg	5.000 0.000 0.000	0.0000	176.000	No Ice 1/2" Ice 1" Ice	2.375 3.354 4.350	0.066 0.084 0.108
DB806-XT	B	From Leg	5.000 0.000 0.000	0.0000	174.000	No Ice 1/2" Ice 1" Ice	1.140 1.680 2.220	0.021 0.030 0.098
1' Side Mount Standoff	C	From Leg	0.500 0.000 0.000	0.0000	168.000	No Ice 1/2" Ice 1" Ice	1.000 1.500 2.000	0.030 0.050 0.070
DB874H120-SX	C	From Leg	1.000 0.000 0.000	0.0000	171.500	No Ice 1/2" Ice 1" Ice	5.600 5.990 6.380	0.014 0.044 0.075
BOX 24"X6"X6"	C	From Leg	0.000 0.000 0.000	0.0000	171.500	No Ice 1/2" Ice 1" Ice	1.400 1.600 1.800	0.015 0.027 0.038
Pirod 12' T-Frame Sector Mount (1) (T-Mobile)	A	From Leg	3.000 0.000 0.000	0.0000	163.000	No Ice 1/2" Ice 1" Ice	13.600 18.400 23.200	0.465 0.600 0.735
APX16DWV-16DWVS (T-Mobile)	A	From Leg	6.000 0.000 0.000	0.0000	163.000	No Ice 1/2" Ice 1" Ice	6.586 6.962 7.344	0.041 0.074 0.113
LNX-6515DS-VTM (T-Mobile)	A	From Leg	6.000 0.000 0.000	0.0000	163.000	No Ice 1/2" Ice 1" Ice	11.445 12.064 12.689	0.080 0.166 0.263
(2) TMA (T-Mobile)	A	From Leg	5.000 0.000 0.000	0.0000	163.000	No Ice 1/2" Ice 1" Ice	1.000 1.131 1.270	0.015 0.023 0.033
AIR 32 with 6' pipe (T-Mobile)	A	From Leg	6.000 0.000 0.000	0.0000	163.000	No Ice 1/2" Ice 1" Ice	6.815 7.299 7.762	0.154 0.216 0.284
Pirod 12' T-Frame Sector Mount (1) (T-Mobile)	B	From Leg	3.000 0.000 0.000	0.0000	163.000	No Ice 1/2" Ice 1" Ice	13.600 18.400 23.200	0.465 0.600 0.735
APX16DWV-16DWVS (T-Mobile)	B	From Leg	6.000 0.000 0.000	0.0000	163.000	No Ice 1/2" Ice 1" Ice	6.586 6.962 7.344	0.041 0.074 0.113
LNX-6515DS-VTM (T-Mobile)	B	From Leg	6.000 0.000	0.0000	163.000	No Ice 1/2" Ice	11.445 12.064	0.080 0.166

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Vert					
			ft	ft	°	ft	ft ²	ft ²	K
			0.000			1" Ice	12.689	12.290	0.263
(2) TMA	B	From Leg	5.000		0.0000	No Ice	1.000	0.267	0.015
(T-Mobile)			0.000			1/2" Ice	1.131	0.337	0.023
			0.000			1" Ice	1.270	0.415	0.033
AIR 32 with 6' pipe	B	From Leg	6.000		0.0000	No Ice	6.815	6.137	0.154
(T-Mobile)			0.000			1/2" Ice	7.299	6.993	0.216
			0.000			1" Ice	7.762	7.725	0.284
Pirod 12' T-Frame Sector	C	From Leg	3.000		0.0000	No Ice	13.600	13.600	0.465
Mount (1)			0.000			1/2" Ice	18.400	18.400	0.600
(T-Mobile)			0.000			1" Ice	23.200	23.200	0.735
APX16DWV-16DWVS	C	From Leg	6.000		0.0000	No Ice	6.586	2.150	0.041
(T-Mobile)			0.000			1/2" Ice	6.962	2.490	0.074
			0.000			1" Ice	7.344	2.837	0.113
LNx-6515DS-VTM	C	From Leg	6.000		0.0000	No Ice	11.445	9.596	0.080
(T-Mobile)			0.000			1/2" Ice	12.064	11.017	0.166
			0.000			1" Ice	12.689	12.290	0.263
(2) TMA	C	From Leg	5.000		0.0000	No Ice	1.000	0.267	0.015
(T-Mobile)			0.000			1/2" Ice	1.131	0.337	0.023
			0.000			1" Ice	1.270	0.415	0.033
AIR 32 with 6' pipe	C	From Leg	6.000		0.0000	No Ice	6.815	6.137	0.154
(T-Mobile)			0.000			1/2" Ice	7.299	6.993	0.216
			0.000			1" Ice	7.762	7.725	0.284
Pirod 12' T-Frame Sector	A	From Leg	0.500		0.0000	No Ice	13.600	13.600	0.465
Mount (1)			0.000			1/2" Ice	18.400	18.400	0.600
(Sprint)			0.000			1" Ice	23.200	23.200	0.735
ETCR-654L12H6 W/Pipe	A	From Leg	4.000		0.0000	No Ice	6.653	5.032	0.078
Mount			0.000			1/2" Ice	7.136	5.892	0.133
(Sprint)			0.000			1" Ice	7.598	6.627	0.195
844G65VTZASX	A	From Leg	4.000		0.0000	No Ice	6.550	5.630	0.041
(Sprint)			-6.000			1/2" Ice	7.250	6.730	0.098
			0.000			1" Ice	7.950	7.830	0.156
844G65VTZASX	A	From Leg	4.000		0.0000	No Ice	6.550	5.630	0.041
(Sprint)			6.000			1/2" Ice	7.250	6.730	0.098
			0.000			1" Ice	7.950	7.830	0.156
844G65VTZASX	A	From Leg	4.000		0.0000	No Ice	6.550	5.630	0.041
(Sprint)			-4.000			1/2" Ice	7.250	6.730	0.098
			0.000			1" Ice	7.950	7.830	0.156
TD-RRH8x20-25	A	From Leg	4.000		0.0000	No Ice	4.030	1.526	0.076
(Sprint)			1.000			1/2" Ice	4.281	1.705	0.103
			0.000			1" Ice	4.540	1.891	0.134
ALU RRH-4X45-1900	A	From Leg	4.000		0.0000	No Ice	2.500	2.500	0.070
(Sprint)			2.000			1/2" Ice	2.709	2.709	0.095
			0.000			1" Ice	2.926	2.926	0.124
(2) RRH-2X50-800	A	From Leg	4.000		0.0000	No Ice	1.733	1.333	0.069
(Sprint)			3.000			1/2" Ice	1.898	1.481	0.087
			0.000			1" Ice	2.070	1.637	0.107
Pirod 12' T-Frame Sector	B	From Leg	0.500		0.0000	No Ice	13.600	13.600	0.465
Mount (1)			0.000			1/2" Ice	18.400	18.400	0.600
(Sprint)			0.000			1" Ice	23.200	23.200	0.735
ETCR-654L12H6 W/Pipe	B	From Leg	4.000		0.0000	No Ice	6.653	5.032	0.078
Mount			0.000			1/2" Ice	7.136	5.892	0.133
(Sprint)			0.000			1" Ice	7.598	6.627	0.195
844G65VTZASX	B	From Leg	4.000		0.0000	No Ice	6.550	5.630	0.041
(Sprint)			-6.000			1/2" Ice	7.250	6.730	0.098
			0.000			1" Ice	7.950	7.830	0.156
844G65VTZASX	B	From Leg	4.000		0.0000	No Ice	6.550	5.630	0.041
(Sprint)			6.000			1/2" Ice	7.250	6.730	0.098

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	Client	Sprint	Designed by	gpenumatsa

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			Horz	Vert						
			ft	ft	°	ft	ft ²	ft ²	K	
844G65VTZASX (Sprint)	B	From Leg	0.000		0.0000	140.000	1" Ice	7.950	7.830	0.156
			4.000				No Ice	6.550	5.630	0.041
			-4.000				1/2" Ice	7.250	6.730	0.098
TD-RRH8x20-25 (Sprint)	B	From Leg	0.000		0.0000	140.000	1" Ice	7.950	7.830	0.156
			4.000				No Ice	4.030	1.526	0.076
			1.000				1/2" Ice	4.281	1.705	0.103
ALU RRH-4X45-1900 (Sprint)	B	From Leg	0.000		0.0000	140.000	1" Ice	4.540	1.891	0.134
			4.000				No Ice	2.500	2.500	0.070
			2.000				1/2" Ice	2.709	2.709	0.095
(2) RRH-2X50-800 (Sprint)	B	From Leg	0.000		0.0000	140.000	1" Ice	2.926	2.926	0.124
			4.000				No Ice	1.733	1.333	0.069
			3.000				1/2" Ice	1.898	1.481	0.087
Pirod 12' T-Frame Sector Mount (1) (Sprint)	C	From Leg	0.000		0.0000	140.000	1" Ice	2.070	1.637	0.107
			0.500				No Ice	13.600	13.600	0.465
			0.000				1/2" Ice	18.400	18.400	0.600
ETCR-654L12H6 W/Pipe Mount (Sprint)	C	From Leg	0.000		0.0000	140.000	1" Ice	23.200	23.200	0.735
			4.000				No Ice	6.653	5.032	0.078
			0.000				1/2" Ice	7.136	5.892	0.133
844G65VTZASX (Sprint)	C	From Leg	0.000		0.0000	140.000	1" Ice	7.598	6.627	0.195
			4.000				No Ice	6.550	5.630	0.041
			-6.000				1/2" Ice	7.250	6.730	0.098
844G65VTZASX (Sprint)	C	From Leg	0.000		0.0000	140.000	1" Ice	7.950	7.830	0.156
			4.000				No Ice	6.550	5.630	0.041
			6.000				1/2" Ice	7.250	6.730	0.098
844G65VTZASX (Sprint)	C	From Leg	0.000		0.0000	140.000	1" Ice	7.950	7.830	0.156
			4.000				No Ice	6.550	5.630	0.041
			-4.000				1/2" Ice	7.250	6.730	0.098
TD-RRH8x20-25 (Sprint)	C	From Leg	0.000		0.0000	140.000	1" Ice	7.950	7.830	0.156
			4.000				No Ice	4.030	1.526	0.076
			1.000				1/2" Ice	4.281	1.705	0.103
ALU RRH-4X45-1900 (Sprint)	C	From Leg	0.000		0.0000	140.000	1" Ice	4.540	1.891	0.134
			4.000				No Ice	2.500	2.500	0.070
			2.000				1/2" Ice	2.709	2.709	0.095
(2) RRH-2X50-800 (Sprint)	C	From Leg	0.000		0.0000	140.000	1" Ice	2.926	2.926	0.124
			4.000				No Ice	1.733	1.333	0.069
			3.000				1/2" Ice	1.898	1.481	0.087
Junction Box (Sprint)	A	From Leg	0.000		0.0000	140.000	1" Ice	2.070	1.637	0.107
			1.000				No Ice	0.970	0.970	0.015
			0.000				1/2" Ice	1.110	1.110	0.025
14-ft T-Frame Sector Mount (AT&T)	A	From Leg	0.000		0.0000	120.000	1" Ice	1.250	1.250	0.035
			2.000				No Ice	16.300	16.300	0.510
			0.000				1/2" Ice	20.600	20.600	0.720
Powerwave 7770 w/5ft mount pipe (AT&T)	A	From Leg	0.000		0.0000	120.000	1" Ice	24.900	24.900	0.930
			3.000				No Ice	5.607	4.116	0.045
			-6.000				1/2" Ice	5.992	4.769	0.091
CCI OPA-65R-LCUU-H6 Panel Antenna with 8ft Pipe (AT&T)	A	From Leg	0.000		0.0000	120.000	1" Ice	6.384	5.432	0.143
			3.000				No Ice	9.718	7.149	0.101
			-3.000				1/2" Ice	10.289	8.333	0.177
Quintel QS66512-2 w/m pipe (AT&T)	A	From Leg	0.000		0.0000	120.000	1" Ice	10.827	9.231	0.261
			3.000				No Ice	8.846	8.938	0.144
			6.000				1/2" Ice	9.612	10.332	0.225
(2) LGP21401 (AT&T)	A	From Leg	0.000		0.0000	120.000	1" Ice	10.390	11.733	0.314
			3.000				No Ice	1.656	0.445	0.035
			-6.000				1/2" Ice	1.816	0.542	0.046
DC6-48-06-18-8F (AT&T)	A	From Leg	0.000		0.0000	120.000	1" Ice	1.984	0.647	0.059
			3.000				No Ice	1.201	1.201	0.032
			0.000				1/2" Ice	1.877	1.877	0.054

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			Horz	Vert						
			ft	ft	°	ft	ft ²	ft ²	K	
RRUS-11 (AT&T)	A	From Leg	0.000		0.0000	120.000	1" Ice	2.088	2.088	0.078
			3.000				No Ice	2.522	1.020	0.055
			0.000				1/2" Ice	2.719	1.158	0.074
RRUS 32 (AT&T)	A	From Leg	0.000		0.0000	120.000	1" Ice	2.923	1.304	0.097
			3.000				No Ice	3.314	2.424	0.092
			0.000				1/2" Ice	3.558	2.638	0.120
TPX-070821 (AT&T)	A	From Leg	0.000		0.0000	120.000	1" Ice	3.809	2.860	0.151
			3.000				No Ice	0.120	0.120	0.010
			0.000				1/2" Ice	0.170	0.170	0.010
14-ft T-Frame Sector Mount (AT&T)	B	From Leg	0.000		0.0000	120.000	1" Ice	0.220	0.220	0.010
			2.000				No Ice	16.300	16.300	0.510
			0.000				1/2" Ice	20.600	20.600	0.720
Powerwave 7770 w/5ft mount pipe (AT&T)	B	From Leg	0.000		0.0000	120.000	1" Ice	24.900	24.900	0.930
			3.000				No Ice	5.607	4.116	0.045
			-6.000				1/2" Ice	5.992	4.769	0.091
CCI OPA-65R-LCUU-H6 Panel Antenna with 8ft Pipe (AT&T)	B	From Leg	0.000		0.0000	120.000	1" Ice	6.384	5.432	0.143
			3.000				No Ice	9.718	7.149	0.101
			-3.000				1/2" Ice	10.289	8.333	0.177
Quintel QS66512-2 w/m pipe (AT&T)	B	From Leg	0.000		0.0000	120.000	1" Ice	10.827	9.231	0.261
			3.000				No Ice	8.846	8.938	0.144
			6.000				1/2" Ice	9.612	10.332	0.225
(2) LGP21401 (AT&T)	B	From Leg	0.000		0.0000	120.000	1" Ice	10.390	11.733	0.314
			3.000				No Ice	1.656	0.445	0.035
			-6.000				1/2" Ice	1.816	0.542	0.046
DC6-48-06-18-8F (AT&T)	B	From Leg	0.000		0.0000	120.000	1" Ice	1.984	0.647	0.059
			3.000				No Ice	1.201	1.201	0.032
			0.000				1/2" Ice	1.877	1.877	0.054
RRUS-11 (AT&T)	B	From Leg	0.000		0.0000	120.000	1" Ice	2.088	2.088	0.078
			3.000				No Ice	2.522	1.020	0.055
			0.000				1/2" Ice	2.719	1.158	0.074
RRUS 32 (AT&T)	B	From Leg	0.000		0.0000	120.000	1" Ice	2.923	1.304	0.097
			3.000				No Ice	3.314	2.424	0.092
			0.000				1/2" Ice	3.558	2.638	0.120
TPX-070821 (AT&T)	B	From Leg	0.000		0.0000	120.000	1" Ice	3.809	2.860	0.151
			3.000				No Ice	0.120	0.120	0.010
			0.000				1/2" Ice	0.170	0.170	0.010
14-ft T-Frame Sector Mount (AT&T)	C	From Leg	0.000		0.0000	120.000	1" Ice	0.220	0.220	0.010
			2.000				No Ice	16.300	16.300	0.510
			0.000				1/2" Ice	20.600	20.600	0.720
Powerwave 7770 w/5ft mount pipe (AT&T)	C	From Leg	0.000		0.0000	120.000	1" Ice	24.900	24.900	0.930
			3.000				No Ice	5.607	4.116	0.045
			-6.000				1/2" Ice	5.992	4.769	0.091
CCI OPA-65R-LCUU-H6 Panel Antenna with 8ft Pipe (AT&T)	C	From Leg	0.000		0.0000	120.000	1" Ice	6.384	5.432	0.143
			3.000				No Ice	9.718	7.149	0.101
			-3.000				1/2" Ice	10.289	8.333	0.177
Quintel QS66512-2 w/m pipe (AT&T)	C	From Leg	0.000		0.0000	120.000	1" Ice	10.827	9.231	0.261
			3.000				No Ice	8.846	8.938	0.144
			6.000				1/2" Ice	9.612	10.332	0.225
(2) LGP21401 (AT&T)	C	From Leg	0.000		0.0000	120.000	1" Ice	10.390	11.733	0.314
			3.000				No Ice	1.656	0.445	0.035
			-6.000				1/2" Ice	1.816	0.542	0.046
RRUS-11 (AT&T)	C	From Leg	0.000		0.0000	120.000	1" Ice	1.984	0.647	0.059
			3.000				No Ice	2.522	1.020	0.055
			0.000				1/2" Ice	2.719	1.158	0.074
RRUS 32 (AT&T)	C	From Leg	0.000		0.0000	120.000	1" Ice	2.923	1.304	0.097
			3.000				No Ice	3.314	2.424	0.092
			0.000				1/2" Ice	3.558	2.638	0.120

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	Client	Sprint	Designed by	gpenumatsa

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			Horz	Lateral						
			ft	ft	°	ft	ft ²	ft ²	K	
TPX-070821 (AT&T)	C	From Leg	0.000		0.0000	120.000	1" Ice	3.809	2.860	0.151
			3.000				No Ice	0.120	0.120	0.010
			0.000				1/2" Ice	0.170	0.170	0.010
1' Side Mount Standoff (Other)	A	From Leg	0.000		0.0000	108.400	1" Ice	0.220	0.220	0.010
			0.500				No Ice	1.000	1.000	0.030
			0.000				1/2" Ice	1.500	1.500	0.050
1' Side Mount Standoff (Other)	B	From Leg	0.000		0.0000	108.400	1" Ice	2.000	2.000	0.070
			0.500				No Ice	1.000	1.000	0.030
			0.000				1/2" Ice	1.500	1.500	0.050
1' Side Mount Standoff (Other)	C	From Leg	0.000		0.0000	108.400	1" Ice	2.000	2.000	0.070
			0.500				No Ice	1.000	1.000	0.030
			0.000				1/2" Ice	1.500	1.500	0.050
Panel Antenna 6'x6"x3" (Other)	A	From Leg	0.000		0.0000	108.000	1" Ice	2.000	2.000	0.070
			1.000				No Ice	4.700	2.950	0.040
			0.000				1/2" Ice	5.150	3.380	0.064
Panel Antenna 6'x6"x3" (Other)	B	From Leg	0.000		0.0000	108.000	1" Ice	5.600	3.810	0.089
			1.000				No Ice	4.700	2.950	0.040
			0.000				1/2" Ice	5.150	3.380	0.064
Panel Antenna 6'x6"x3" (Other)	C	From Leg	0.000		0.0000	108.000	1" Ice	5.600	3.810	0.089
			1.000				No Ice	4.700	2.950	0.040
			0.000				1/2" Ice	5.150	3.380	0.064
GPS (Other)	C	From Leg	0.000		0.0000	50.000	1" Ice	5.600	3.810	0.089
			0.500				No Ice	0.210	0.210	0.005
			0.000				1/2" Ice	0.320	0.320	0.007
			0.000				1" Ice	0.430	0.430	0.010

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets:		Azimuth Adjustment	3 dB Beam Width	Elevation	Outside Diameter	Aperture Area	Weight	
				Horz	Lateral							
			ft	ft	°	°	ft	ft	ft ²	K		
SC2	B	Paraboloid w/Radome	From Leg	3.000		0.0000		167.000	2.000	No Ice	3.140	0.030
				0.000						1/2" Ice	3.410	0.040
				0.000						1" Ice	3.680	0.050
VHLP2-18	A	Paraboloid w/Shroud (HP)	From Leg	6.000		-45.0000		146.000	2.000	No Ice	3.140	0.020
				0.000						1/2" Ice	3.410	0.040
				0.000						1" Ice	3.680	0.060
VHLP2-18	B	Paraboloid w/Shroud (HP)	From Leg	6.000		45.0000		146.000	2.000	No Ice	3.140	0.020
				0.000						1/2" Ice	3.410	0.040
				0.000						1" Ice	3.680	0.060
VHLP800-11	C	Paraboloid w/Shroud (HP)	From Leg	6.000		45.0000		146.000	2.500	No Ice	6.000	0.020
				0.000						1/2" Ice	6.400	0.056
				0.000						1" Ice	7.470	0.093

Tower Pressures - No Ice

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$$G_H = 0.850$$

Section Elevation ft	z ft	K _Z	q _z ksf	A _G ft ²	F a c e	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
T1 170.000-155.000	162.500	1.135	0.029	54.269	A	0.000	12.142	5.938	48.90	4.480	0.000
					B	0.000	11.628		51.06	8.910	0.000
					C	0.000	11.253		52.77	15.230	0.000
T2 155.000-140.000	147.500	1.104	0.029	54.269	A	0.420	12.453	5.938	46.13	12.660	0.000
					B	0.290	10.431		55.39	26.730	0.000
					C	0.300	10.586		54.54	30.270	0.000
T3 140.000-120.000	130.000	1.065	0.029	74.025	A	2.702	11.250	11.250	80.63	63.194	0.000
					B	7.474	11.250		60.08	35.640	0.000
					C	7.733	11.250		59.27	40.360	0.000
T4 120.000-100.000	110.000	1.016	0.028	72.358	A	0.000	9.048	7.917	87.50	68.340	0.000
					B	0.000	10.420		75.97	63.774	0.000
					C	0.000	12.780		61.95	40.360	0.000
T5 100.000-80.000	90.000	0.959	0.028	73.192	A	0.125	10.648	9.583	88.95	68.340	0.000
					B	0.264	11.829		79.24	66.900	0.000
					C	0.585	14.553		63.31	40.360	0.000
T6 80.000-60.000	70.000	0.892	0.027	73.192	A	0.534	10.667	9.583	85.56	68.340	0.000
					B	1.090	11.795		74.37	66.900	0.000
					C	2.373	14.399		57.14	40.360	0.000
T7 60.000-40.000	50.000	0.811	0.026	73.192	A	0.125	10.648	9.583	88.95	68.340	0.000
					B	0.264	11.829		79.24	66.900	0.000
					C	0.585	14.553		63.31	40.360	0.000
T8 40.000-20.000	30.000	0.701	0.024	73.192	A	0.000	10.359	9.583	92.51	68.340	0.000
					B	0.000	11.219		85.42	66.900	0.000
					C	0.000	13.157		72.84	41.400	0.000
T9 20.000-5.000	12.500	0.7	0.025	54.894	A	0.000	7.796	7.188	92.19	51.255	0.000
					B	0.000	8.471		84.84	50.175	0.000
					C	0.000	9.958		72.18	31.830	0.000
T10 5.000-0.000	2.500	0.7	0.026	9.816	A	0.000	2.576	2.576	100.00	17.085	0.000
					B	0.000	2.576		100.00	16.725	0.000
					C	0.005	2.576		99.83	10.610	0.000

Tower Pressure - With Ice

$$G_H = 0.850$$

Section Elevation ft	z ft	K _Z	q _z ksf	t _z in	A _G ft ²	F a c e	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
T1 170.000-155.000	162.500	1.135	0.005	2.571	60.697	A	0.000	41.538	18.794	45.24	16.644	0.000
						B	0.000	40.620		46.27	19.857	0.000
						C	0.000	23.080		81.43	68.825	0.000
T2 155.000-140.000	147.500	1.104	0.005	2.568	60.689	A	0.235	36.758	18.777	50.76	41.413	0.000
						B	0.107	26.954		69.39	59.556	0.000
						C	0.000	0.000		100.00	124.952	0.000
T3 140.000-120.000	130.000	1.065	0.005	2.563	82.568	A	0.000	0.000	28.337	100.00	200.871	0.000
						B	2.768	36.483		72.19	79.379	0.000
						C	0.000	4.650		100.00	166.403	0.000
T4 120.000-100.000	110.000	1.016	0.005	2.555	80.875	A	0.000	0.000	24.949	100.00	216.757	0.000
						B	0.000	0.000		100.00	184.015	0.000
						C	0.000	2.777		100.00	166.074	0.000
T5 100.000-80.000	90.000	0.959	0.005	2.542	81.665	A	0.000	0.000	26.530	100.00	216.277	0.000
						B	0.000	0.000		100.00	195.201	0.000
						C	0.000	2.321		100.00	165.553	0.000

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Section Elevation ft	z ft	K _Z	q _z ksf	t _z in	A _G ft ²	F a c e ft ²	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _{AA} In Face ft ²	C _{AA} Out Face ft ²
T6 80.000-60.000	70.000	0.892	0.005	2.521	81.593	A 0.000 B 0.000 C 0.000	0.000 0.000 0.000	0.000 0.000	26.387	100.00 100.00 100.00	215.475 194.456 164.683	0.000 0.000 0.000
T7 60.000-40.000	50.000	0.811	0.005	2.482	81.466	A 0.000 B 0.000 C 0.000	0.000 0.000 0.000	0.000 3.370	26.132	100.00 100.00 100.00	214.051 193.132 163.138	0.000 0.000 0.000
T8 40.000-20.000	30.000	0.701	0.004	2.407	81.215	A 0.000 B 0.000 C 0.000	0.000 0.000 0.000	0.000 7.113	25.630	100.00 100.00 100.00	211.245 190.522 170.479	0.000 0.000 0.000
T9 20.000-5.000	12.500	0.7	0.004	2.248	60.515	A 0.000 B 0.000 C 0.000	0.000 0.000 0.000	0.000 0.295 5.066	18.430	100.00 100.00 100.00	154.009 138.774 130.004	0.000 0.000 0.000
T10 5.000-0.000	2.500	0.7	0.005	1.937	11.522	A 0.000 B 0.000 C 0.000	0.000 0.000 0.000	2.061 2.520 3.280	6.047	100.00 100.00 100.00	48.451 43.569 39.643	0.000 0.000 0.000

Tower Pressure - Service

$G_H = 0.850$

Section Elevation ft	z ft	K _Z	q _z ksf	A _G ft ²	F a c e ft ²	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _{AA} In Face ft ²	C _{AA} Out Face ft ²
T1 170.000-155.000	162.500	1.135	0.012	54.269	A 0.000 B 0.000 C 0.000	0.000 0.000 0.000	12.142 11.628 11.253	5.938	48.90	4.480 8.910 15.230	0.000 0.000 0.000
T2 155.000-140.000	147.500	1.104	0.012	54.269	A 0.420 B 0.290 C 0.300	0.420 0.290 0.300	12.453 10.431 10.586	5.938	46.13	12.660 26.730 30.270	0.000 0.000 0.000
T3 140.000-120.000	130.000	1.065	0.011	74.025	A 2.702 B 7.474 C 7.733	2.702 7.474 7.733	11.250 11.250 11.250	11.250	80.63	63.194 60.08 40.360	0.000 0.000 0.000
T4 120.000-100.000	110.000	1.016	0.011	72.358	A 0.000 B 0.000 C 0.000	0.000 0.000 0.000	9.048 10.420 12.780	7.917	87.50	68.340 63.774 40.360	0.000 0.000 0.000
T5 100.000-80.000	90.000	0.959	0.011	73.192	A 0.125 B 0.264 C 0.585	0.125 0.264 0.585	10.648 11.829 14.553	9.583	88.95	68.340 66.900 40.360	0.000 0.000 0.000
T6 80.000-60.000	70.000	0.892	0.011	73.192	A 0.534 B 1.090 C 2.373	0.534 1.090 2.373	10.667 11.795 14.399	9.583	85.56	68.340 66.900 40.360	0.000 0.000 0.000
T7 60.000-40.000	50.000	0.811	0.010	73.192	A 0.125 B 0.264 C 0.585	0.125 0.264 0.585	10.648 11.829 14.553	9.583	88.95	68.340 66.900 40.360	0.000 0.000 0.000
T8 40.000-20.000	30.000	0.701	0.010	73.192	A 0.000 B 0.000 C 0.000	0.000 0.000 0.000	10.359 11.219 13.157	9.583	92.51	68.340 66.900 41.400	0.000 0.000 0.000
T9 20.000-5.000	12.500	0.7	0.010	54.894	A 0.000 B 0.000 C 0.000	0.000 0.000 0.000	7.796 8.471 9.958	7.188	92.19	51.255 50.175 31.830	0.000 0.000 0.000
T10 5.000-0.000	2.500	0.7	0.010	9.816	A 0.000 B 0.000 C 0.005	0.000 0.000 0.005	2.576 2.576 2.576	2.576	100.00	17.085 16.725 10.610	0.000 0.000 0.000

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Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	q _z ksf	D _F	D _R	A _E ft ²	F K	w klf	Ctrl. Face
T1 170.000-155.000	0.100	0.165	A	0.224	2.519	0.029	1	1	7.331	1.167	0.078	C
			B	0.214	2.549		1	1	7.307			
			C	0.207	2.572		1	1	7.290			
T2 155.000-140.000	0.247	0.165 TA 0.000	A	0.237	2.476	0.029	1	1	8.726	2.252	0.150	B
			B	0.198	2.604		1	1	8.482			
			C	0.201	2.594		1	1	8.500			
T3 140.000-120.000	0.610	0.369 TA 0.000	A	0.188	2.635	0.029	1	1	9.129	3.795*	0.190	C
			B	0.253	2.429		1	1	14.052			
			C	0.256	2.418		1	1	14.320			
T4 120.000-100.000	0.764	0.219	A	0.125	2.865	0.028	1	1	9.407	3.676*	0.184	C
			B	0.144	2.794		1	1	9.432			
			C	0.177	2.676		1	1	9.495			
T5 100.000-80.000	0.778	0.410	A	0.147	2.782	0.028	1	1	10.669	3.665*	0.183	C
			B	0.165	2.716		1	1	10.845			
			C	0.207	2.573		1	1	11.286			
T6 80.000-60.000	0.778	0.342	A	0.153	2.76	0.027	1	1	10.900	3.577*	0.179	C
			B	0.176	2.678		1	1	11.508			
			C	0.229	2.502		1	1	12.964			
T7 60.000-40.000	0.778	0.410	A	0.147	2.782	0.026	1	1	10.669	3.425*	0.171	C
			B	0.165	2.716		1	1	10.845			
			C	0.207	2.573		1	1	11.286			
T8 40.000-20.000	0.780	0.348	A	0.142	2.803	0.024	1	1	9.147	3.136*	0.157	C
			B	0.153	2.759		1	1	9.165			
			C	0.18	2.665		1	1	9.219			
T9 20.000-5.000	0.587	0.261	A	0.142	2.801	0.025	1	1	6.991	2.484*	0.166	C
			B	0.154	2.756		1	1	7.006			
			C	0.181	2.659		1	1	7.049			
T10 5.000-0.000	0.196	0.094	A	0.262	2.401	0.026	1	1	1.515	0.459*	0.092	C
			B	0.262	2.401		1	1	1.515			
			C	0.263	2.399		1	1	1.520			
Sum Weight:	5.616	2.782			*2.1A _g limit					27.635		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	q _z ksf	D _F	D _R	A _E ft ²	F K	w klf	Ctrl. Face
T1 170.000-155.000	0.100	0.165	A	0.224	2.519	0.029	0.8	1	7.331	1.167	0.078	C
			B	0.214	2.549		0.8	1	7.307			
			C	0.207	2.572		0.8	1	7.290			
T2 155.000-140.000	0.247	0.165 TA 0.000	A	0.237	2.476	0.029	0.8	1	8.642	2.248	0.150	B
			B	0.198	2.604		0.8	1	8.425			
			C	0.201	2.594		0.8	1	8.440			
T3 140.000-120.000	0.610	0.369 TA 0.000	A	0.188	2.635	0.029	0.8	1	8.588	3.795*	0.190	C
			B	0.253	2.429		0.8	1	12.557			
			C	0.256	2.418		0.8	1	12.774			
T4 120.000-100.000	0.764	0.219	A	0.125	2.865	0.028	0.8	1	9.407	3.676*	0.184	C
			B	0.144	2.794		0.8	1	9.432			

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	Client	Sprint	Designed by	gpnumatsa

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	q _z ksf	D _F	D _R	A _E ft ²	F K	w klf	Ctrl. Face
00			C	0.177	2.676		0.8	1	9.495			
T5	0.778	0.410	A	0.147	2.782	0.028	0.8	1	10.644	3.665*	0.183	C
100.000-80.000			B	0.165	2.716		0.8	1	10.793			
0			C	0.207	2.573		0.8	1	11.169			
T6	0.778	0.342	A	0.153	2.76	0.027	0.8	1	10.793	3.577*	0.179	C
80.000-60.000			B	0.176	2.678		0.8	1	11.290			
			C	0.229	2.502		0.8	1	12.490			
T7	0.778	0.410	A	0.147	2.782	0.026	0.8	1	10.644	3.425*	0.171	C
60.000-40.000			B	0.165	2.716		0.8	1	10.793			
			C	0.207	2.573		0.8	1	11.169			
T8	0.780	0.348	A	0.142	2.803	0.024	0.8	1	9.147	3.136*	0.157	C
40.000-20.000			B	0.153	2.759		0.8	1	9.165			
			C	0.18	2.665		0.8	1	9.219			
T9	0.587	0.261	A	0.142	2.801	0.025	0.8	1	6.991	2.484*	0.166	C
20.000-5.000			B	0.154	2.756		0.8	1	7.006			
			C	0.181	2.659		0.8	1	7.049			
T10	0.196	0.094	A	0.262	2.401	0.026	0.8	1	1.515	0.459*	0.092	C
5.000-0.000			B	0.262	2.401		0.8	1	1.515			
			C	0.263	2.399		0.8	1	1.519			
Sum Weight:	5.616	2.782			2.1A _g limit					27.632		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	q _z ksf	D _F	D _R	A _E ft ²	F K	w klf	Ctrl. Face
T1	0.100	0.165	A	0.224	2.519	0.029	0.85	1	7.331	1.167	0.078	C
170.000-155.000			B	0.214	2.549		0.85	1	7.307			
00			C	0.207	2.572		0.85	1	7.290			
T2	0.247	0.165	A	0.237	2.476	0.029	0.85	1	8.663	2.249	0.150	B
155.000-140.000		TA 0.000	B	0.198	2.604		0.85	1	8.439			
00			C	0.201	2.594		0.85	1	8.455			
T3	0.610	0.369	A	0.188	2.635	0.029	0.85	1	8.724	3.795*	0.190	C
140.000-120.000		TA 0.000	B	0.253	2.429		0.85	1	12.931			
00			C	0.256	2.418		0.85	1	13.160			
T4	0.764	0.219	A	0.125	2.865	0.028	0.85	1	9.407	3.676*	0.184	C
120.000-100.000			B	0.144	2.794		0.85	1	9.432			
00			C	0.177	2.676		0.85	1	9.495			
T5	0.778	0.410	A	0.147	2.782	0.028	0.85	1	10.650	3.665*	0.183	C
100.000-80.000			B	0.165	2.716		0.85	1	10.806			
0			C	0.207	2.573		0.85	1	11.198			
T6	0.778	0.342	A	0.153	2.76	0.027	0.85	1	10.820	3.577*	0.179	C
80.000-60.000			B	0.176	2.678		0.85	1	11.345			
			C	0.229	2.502		0.85	1	12.608			
T7	0.778	0.410	A	0.147	2.782	0.026	0.85	1	10.650	3.425*	0.171	C
60.000-40.000			B	0.165	2.716		0.85	1	10.806			
			C	0.207	2.573		0.85	1	11.198			
T8	0.780	0.348	A	0.142	2.803	0.024	0.85	1	9.147	3.136*	0.157	C
40.000-20.000			B	0.153	2.759		0.85	1	9.165			
			C	0.18	2.665		0.85	1	9.219			
T9	0.587	0.261	A	0.142	2.801	0.025	0.85	1	6.991	2.484*	0.166	C
20.000-5.000			B	0.154	2.756		0.85	1	7.006			

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	Client	Sprint	Designed by	gpnumatsa

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	q _z ksf	D _F	D _R	A _E ft ²	F K	w klf	Ctrl. Face
T10 5.000-0.000	0.196	0.094	C	0.181	2.659	0.026	0.85	1	7.049	0.459*	0.092	C
			A	0.262	2.401		0.85	1	1.515			
			B	0.262	2.401		0.85	1	1.515			
			C	0.263	2.399		0.85	1	1.519			
Sum Weight:	5.616	2.782			*2.1A _g limit					27.633		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	q _z ksf	D _F	D _R	A _E ft ²	F K	w klf	Ctrl. Face
T1 170.000-155.000	1.946	3.054	A	0.684	1.776	0.005	1	1	38.856	0.557*	0.037	C
			B	0.669	1.777		1	1	38.346			
			C	0.38	2.104		1	1	30.496			
T2 155.000-140.000	4.179	3.911	A	0.61	1.798	0.005	1	1	45.066	0.555*	0.037	C
		TA 0.983	B	0.446	1.98		1	1	39.403			
			C	0	3.4		1	1	34.078			
T3 140.000-120.000	8.061	6.160	A	0	3.4	0.005	1	1	39.412	0.750*	0.038	C
		TA 0.625	B	0.475	1.934		1	1	49.233			
			C	0.056	3.146		1	1	39.052			
T4 120.000-100.000	10.170	3.954	A	0	3.4	0.005	1	1	36.121	0.728*	0.036	C
			B	0	3.4		1	1	36.121			
			C	0.034	3.243		1	1	35.880			
T5 100.000-80.000	10.314	4.546	A	0	3.4	0.005	1	1	38.417	0.725*	0.036	C
			B	0	3.4		1	1	38.417			
			C	0.028	3.269		1	1	38.195			
T6 80.000-60.000	10.209	5.320	A	0	3.4	0.005	1	1	42.733	0.707*	0.035	C
			B	0	3.4		1	1	42.733			
			C	0	3.4		1	1	42.733			
T7 60.000-40.000	10.023	4.394	A	0	3.4	0.005	1	1	37.764	0.676*	0.034	C
			B	0	3.4		1	1	37.764			
			C	0.041	3.211		1	1	37.477			
T8 40.000-20.000	9.836	3.393	A	0	3.4	0.004	1	1	32.036	0.617*	0.031	C
			B	0	3.4		1	1	32.036			
			C	0.088	3.014		1	1	31.709			
T9 20.000-5.000	6.922	2.351	A	0	3.4	0.004	1	1	23.185	0.485*	0.032	C
			B	0.005	3.377		1	1	23.158			
			C	0.084	3.03		1	1	22.948			
T10 5.000-0.000	1.946	0.821	A	0.179	2.668	0.005	1	1	4.267	0.096*	0.019	C
			B	0.219	2.535		1	1	4.318			
			C	0.285	2.338		1	1	4.440			
Sum Weight:	73.606	39.512			*2.1A _g limit					5.896		

Tower Forces - With Ice - Wind 60 To Face

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Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	q _z ksf	D _F	D _R	A _E ft ²	F K	w klf	Ctrl. Face
T1 170.000-155.0 00	1.946	3.054	A	0.684	1.776	0.005	0.8	1	38.856	0.557*	0.037	C
T2 155.000-140.0 00	4.179	3.911	B	0.669	1.777		0.8	1	38.346			
			C	0.38	2.104		0.8	1	30.496			
T2 155.000-140.0 00	4.179	3.911	A	0.61	1.798	0.005	0.8	1	45.019	0.555*	0.037	C
		TA 0.983	B	0.446	1.98		0.8	1	39.382			
			C	0	3.4		0.8	1	34.078			
T3 140.000-120.0 00	8.061	6.160	A	0	3.4	0.005	0.8	1	39.412	0.750*	0.038	C
		TA 0.625	B	0.475	1.934		0.8	1	48.679			
			C	0.056	3.146		0.8	1	39.052			
T4 120.000-100.0 00	10.170	3.954	A	0	3.4	0.005	0.8	1	36.121	0.728*	0.036	C
			B	0	3.4		0.8	1	36.121			
			C	0.034	3.243		0.8	1	35.880			
T5 100.000-80.00 0	10.314	4.546	A	0	3.4	0.005	0.8	1	38.417	0.725*	0.036	C
			B	0	3.4		0.8	1	38.417			
			C	0.028	3.269		0.8	1	38.195			
T6 80.000-60.000	10.209	5.320	A	0	3.4	0.005	0.8	1	42.733	0.707*	0.035	C
			B	0	3.4		0.8	1	42.733			
			C	0	3.4		0.8	1	42.733			
T7 60.000-40.000	10.023	4.394	A	0	3.4	0.005	0.8	1	37.764	0.676*	0.034	C
			B	0	3.4		0.8	1	37.764			
			C	0.041	3.211		0.8	1	37.477			
T8 40.000-20.000	9.836	3.393	A	0	3.4	0.004	0.8	1	32.036	0.617*	0.031	C
			B	0	3.4		0.8	1	32.036			
			C	0.088	3.014		0.8	1	31.709			
T9 20.000-5.000	6.922	2.351	A	0	3.4	0.004	0.8	1	23.185	0.485*	0.032	C
			B	0.005	3.377		0.8	1	23.158			
			C	0.084	3.03		0.8	1	22.948			
T10 5.000-0.000	1.946	0.821	A	0.179	2.668	0.005	0.8	1	4.267	0.096*	0.019	C
			B	0.219	2.535		0.8	1	4.318			
			C	0.285	2.338		0.8	1	4.440			
Sum Weight:	73.606	39.512			2.1A _g limit					5.896		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	q _z ksf	D _F	D _R	A _E ft ²	F K	w klf	Ctrl. Face
T1 170.000-155.0 00	1.946	3.054	A	0.684	1.776	0.005	0.85	1	38.856	0.557*	0.037	C
			B	0.669	1.777		0.85	1	38.346			
			C	0.38	2.104		0.85	1	30.496			
T2 155.000-140.0 00	4.179	3.911	A	0.61	1.798	0.005	0.85	1	45.031	0.555*	0.037	C
		TA 0.983	B	0.446	1.98		0.85	1	39.387			
			C	0	3.4		0.85	1	34.078			
T3 140.000-120.0 00	8.061	6.160	A	0	3.4	0.005	0.85	1	39.412	0.750*	0.038	C
		TA 0.625	B	0.475	1.934		0.85	1	48.818			
			C	0.056	3.146		0.85	1	39.052			
T4 120.000-100.0 00	10.170	3.954	A	0	3.4	0.005	0.85	1	36.121	0.728*	0.036	C
			B	0	3.4		0.85	1	36.121			
			C	0.034	3.243		0.85	1	35.880			
T5 100.000-80.00 0	10.314	4.546	A	0	3.4	0.005	0.85	1	38.417	0.725*	0.036	C
			B	0	3.4		0.85	1	38.417			
			C	0.028	3.269		0.85	1	38.195			

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Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K				ksf			ft ²	K	klf	
T6 80.000-60.000	10.209	5.320	A	0	3.4	0.005	0.85	1	42.733	0.707*	0.035	C
			B	0	3.4		0.85	1	42.733			
			C	0	3.4		0.85	1	42.733			
T7 60.000-40.000	10.023	4.394	A	0	3.4	0.005	0.85	1	37.764	0.676*	0.034	C
			B	0	3.4		0.85	1	37.764			
			C	0.041	3.211		0.85	1	37.477			
T8 40.000-20.000	9.836	3.393	A	0	3.4	0.004	0.85	1	32.036	0.617*	0.031	C
			B	0	3.4		0.85	1	32.036			
			C	0.088	3.014		0.85	1	31.709			
T9 20.000-5.000	6.922	2.351	A	0	3.4	0.004	0.85	1	23.185	0.485*	0.032	C
			B	0.005	3.377		0.85	1	23.158			
			C	0.084	3.03		0.85	1	22.948			
T10 5.000-0.000	1.946	0.821	A	0.179	2.668	0.005	0.85	1	4.267	0.096*	0.019	C
			B	0.219	2.535		0.85	1	4.318			
			C	0.285	2.338		0.85	1	4.440			
Sum Weight:	73.606	39.512				2.1A _g limit				5.896		

Tower Forces - Service - Wind Normal To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K				ksf			ft ²	K	klf	
T1 170.000-155.000	0.100	0.165	A	0.224	2.519	0.012	1	1	7.331	0.465	0.031	C
			B	0.214	2.549		1	1	7.307			
			C	0.207	2.572		1	1	7.290			
T2 155.000-140.000	0.247	0.165	A	0.237	2.476	0.012	1	1	8.726	0.898	0.060	B
		TA 0.000	B	0.198	2.604		1	1	8.482			
			C	0.201	2.594		1	1	8.500			
T3 140.000-120.000	0.610	0.369	A	0.188	2.635	0.011	1	1	9.129	1.514*	0.076	C
		TA 0.000	B	0.253	2.429		1	1	14.052			
			C	0.256	2.418		1	1	14.320			
T4 120.000-100.000	0.764	0.219	A	0.125	2.865	0.011	1	1	9.407	1.466*	0.073	C
			B	0.144	2.794		1	1	9.432			
			C	0.177	2.676		1	1	9.495			
T5 100.000-80.000	0.778	0.410	A	0.147	2.782	0.011	1	1	10.669	1.462*	0.073	C
			B	0.165	2.716		1	1	10.845			
			C	0.207	2.573		1	1	11.286			
T6 80.000-60.000	0.778	0.342	A	0.153	2.76	0.011	1	1	10.900	1.427*	0.071	C
			B	0.176	2.678		1	1	11.508			
			C	0.229	2.502		1	1	12.964			
T7 60.000-40.000	0.778	0.410	A	0.147	2.782	0.010	1	1	10.669	1.366*	0.068	C
			B	0.165	2.716		1	1	10.845			
			C	0.207	2.573		1	1	11.286			
T8 40.000-20.000	0.780	0.348	A	0.142	2.803	0.010	1	1	9.147	1.251*	0.063	C
			B	0.153	2.759		1	1	9.165			
			C	0.18	2.665		1	1	9.219			
T9 20.000-5.000	0.587	0.261	A	0.142	2.801	0.010	1	1	6.991	0.991*	0.066	C
			B	0.154	2.756		1	1	7.006			
			C	0.181	2.659		1	1	7.049			
T10 5.000-0.000	0.196	0.094	A	0.262	2.401	0.010	1	1	1.515	0.183*	0.037	C
			B	0.262	2.401		1	1	1.515			
			C	0.263	2.399		1	1	1.520			

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Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K				ksf			ft ²	K	klf	
Sum Weight:	5.616	2.782				*2.1A _g limit				11.024		

Tower Forces - Service - Wind 60 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K				ksf			ft ²	K	klf	
T1 170.000-155.0	0.100	0.165	A	0.224	2.519	0.012	0.8	1	7.331	0.465	0.031	C
00			B	0.214	2.549		0.8	1	7.307			
T2 155.000-140.0	0.247	0.165	C	0.207	2.572		0.8	1	7.290			
00		TA 0.000	A	0.237	2.476	0.012	0.8	1	8.642	0.897	0.060	B
T3 140.000-120.0	0.610	0.369	B	0.198	2.604		0.8	1	8.425			
00		TA 0.000	C	0.201	2.594		0.8	1	8.440			
T4 120.000-100.0	0.764	0.219	A	0.188	2.635	0.011	0.8	1	8.588	1.514*	0.076	C
00			B	0.253	2.429		0.8	1	12.557			
T5 100.000-80.0	0.778	0.410	C	0.256	2.418		0.8	1	12.774			
0			A	0.125	2.865	0.011	0.8	1	9.407	1.466*	0.073	C
T6 80.000-60.000	0.778	0.342	B	0.144	2.794		0.8	1	9.432			
00			C	0.177	2.676		0.8	1	9.495			
T7 60.000-40.000	0.778	0.410	A	0.147	2.782	0.011	0.8	1	10.644	1.462*	0.073	C
00			B	0.165	2.716		0.8	1	10.793			
T8 40.000-20.000	0.780	0.348	C	0.207	2.573		0.8	1	11.169			
00			A	0.142	2.803	0.010	0.8	1	10.644	1.366*	0.068	C
T9 20.000-5.000	0.587	0.261	B	0.153	2.759		0.8	1	10.793			
00			C	0.18	2.665		0.8	1	11.169			
T10 5.000-0.000	0.196	0.094	A	0.142	2.801	0.010	0.8	1	9.147	1.251*	0.063	C
00			B	0.154	2.756		0.8	1	9.165			
Sum Weight:	5.616	2.782	C	0.181	2.659		0.8	1	9.219	0.991*	0.066	C
			A	0.262	2.401	0.010	0.8	1	6.991	0.183*	0.037	C
			B	0.262	2.401		0.8	1	7.006			
			C	0.263	2.399		0.8	1	7.049			
						*2.1A _g limit			1.515	11.022		
									1.515			
									1.519			

Tower Forces - Service - Wind 90 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K				ksf			ft ²	K	klf	
T1	0.100	0.165	A	0.224	2.519	0.012	0.85	1	7.331	0.465	0.031	C

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Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	q _z ksf	D _F	D _R	A _E ft ²	F K	w klf	Ctrl. Face
170.000-155.000			B	0.214	2.549		0.85	1	7.307			
T2	0.247	0.165	C	0.207	2.572		0.85	1	7.290			
155.000-140.000		TA 0.000	A	0.237	2.476	0.012	0.85	1	8.663	0.897	0.060	B
T3	0.610	0.369	B	0.198	2.604		0.85	1	8.439			
140.000-120.000		TA 0.000	C	0.201	2.594		0.85	1	8.455			
T4	0.764	0.219	A	0.188	2.635	0.011	0.85	1	8.724	1.514*	0.076	C
120.000-100.000			B	0.253	2.429		0.85	1	12.931			
T5	0.778	0.410	C	0.256	2.418		0.85	1	13.160			
100.000-80.000			A	0.125	2.865	0.011	0.85	1	9.407	1.466*	0.073	C
T6	0.778	0.342	B	0.144	2.794		0.85	1	9.432			
80.000-60.000			C	0.177	2.676		0.85	1	9.495			
T7	0.778	0.410	A	0.147	2.782	0.011	0.85	1	10.650	1.462*	0.073	C
60.000-40.000			B	0.165	2.716		0.85	1	10.806			
T8	0.780	0.348	C	0.207	2.573		0.85	1	11.198			
40.000-20.000			A	0.142	2.803	0.010	0.85	1	9.147	1.251*	0.063	C
T9	0.587	0.261	B	0.153	2.759		0.85	1	9.165			
20.000-5.000			C	0.18	2.665		0.85	1	9.219			
T10	0.196	0.094	A	0.142	2.801	0.010	0.85	1	6.991	0.991*	0.066	C
5.000-0.000			B	0.154	2.756		0.85	1	7.006			
Sum Weight:	5.616	2.782	C	0.181	2.659		0.85	1	7.049			
			A	0.262	2.401	0.010	0.85	1	1.515	0.183*	0.037	C
			B	0.262	2.401		0.85	1	1.515			
			C	0.263	2.399		0.85	1	1.519			
					*2.1A _g limit					11.022		

Discrete Appurtenance Pressures - No Ice

G_H = 0.850 (base tower), 1.350 (antenna pole)

Description	Aiming Azimuth °	Weight K	Offset _x ft	Offset _z ft	z ft	K _z	q _z ksf	C _{AAc} Front ft ²	C _{AAc} Side ft ²
Torque Arm Face C	180.0000	0.000	0.000	2.514	152.333	1.115	0.029	4.104	7.480
Torque Arm Face B	60.0000	0.000	2.178	-1.257	152.333	1.115	0.029	4.104	7.480
Torque Arm Face A	300.0000	0.000	-2.178	-1.257	152.333	1.115	0.029	4.104	7.480
Torque Arm Face C	180.0000	0.000	0.000	2.514	132.438	1.071	0.029	3.420	6.108
Torque Arm Face B	60.0000	0.000	2.178	-1.257	132.438	1.071	0.029	3.420	6.108
Torque Arm Face A	300.0000	0.000	-2.178	-1.257	132.438	1.071	0.029	3.420	6.108
Antenna Pole	0.0000	0.010	0.000	0.000	172.000	1.154	0.029	10.000	10.000
Pirod 5' Side Mount Standoff (1)	0.0000	0.050	0.000	-4.475	168.000	1.146	0.029	2.720	2.720
Pirod 5' Side Mount Standoff (1)	120.0000	0.050	3.875	2.237	168.000	1.146	0.029	2.720	2.720
DB636 Omni	0.0000	0.066	0.000	-6.975	176.000	1.161	0.029	2.375	2.375
DB806-XT	120.0000	0.021	6.040	3.487	174.000	1.158	0.029	1.140	1.140
1' Side Mount Standoff	240.0000	0.030	-2.143	1.237	168.000	1.146	0.029	1.000	1.000
DB874H120-SX	240.0000	0.014	-2.576	1.487	171.500	1.153	0.029	5.600	2.480
BOX 24"X6"X6"	240.0000	0.015	-1.710	0.987	171.500	1.153	0.029	1.400	1.400
Pirod 12' T-Frame Sector	0.0000	0.465	0.000	-4.975	163.000	1.136	0.029	13.600	13.600

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Description	Aiming Azimuth °	Weight K	Offset _x ft	Offset _z ft	z ft	K _z	q _z ksf	C _{AAc} Front ft ²	C _{AAc} Side ft ²
Mount (1)									
APX16DWV-16DWVS	0.0000	0.041	0.000	-7.975	163.000	1.136	0.029	6.586	2.150
LNx-6515DS-VTM	0.0000	0.080	0.000	-7.975	163.000	1.136	0.029	11.445	9.596
TMA	0.0000	0.030	0.000	-6.975	163.000	1.136	0.029	2.000	0.533
AIR 32 with 6' pipe	0.0000	0.154	0.000	-7.975	163.000	1.136	0.029	6.815	6.137
Pirod 12' T-Frame Sector	120.0000	0.465	4.308	2.487	163.000	1.136	0.029	13.600	13.600
Mount (1)									
APX16DWV-16DWVS	120.0000	0.041	6.906	3.987	163.000	1.136	0.029	6.586	2.150
LNx-6515DS-VTM	120.0000	0.080	6.906	3.987	163.000	1.136	0.029	11.445	9.596
TMA	120.0000	0.030	6.040	3.487	163.000	1.136	0.029	2.000	0.533
AIR 32 with 6' pipe	120.0000	0.154	6.906	3.987	163.000	1.136	0.029	6.815	6.137
Pirod 12' T-Frame Sector	240.0000	0.465	-4.308	2.487	163.000	1.136	0.029	13.600	13.600
Mount (1)									
APX16DWV-16DWVS	240.0000	0.041	-6.906	3.987	163.000	1.136	0.029	6.586	2.150
LNx-6515DS-VTM	240.0000	0.080	-6.906	3.987	163.000	1.136	0.029	11.445	9.596
TMA	240.0000	0.030	-6.040	3.487	163.000	1.136	0.029	2.000	0.533
AIR 32 with 6' pipe	240.0000	0.154	-6.906	3.987	163.000	1.136	0.029	6.815	6.137
Pirod 12' T-Frame Sector	0.0000	0.465	0.000	-2.475	140.000	1.088	0.029	13.600	13.600
Mount (1)									
ETCR-654L12H6	0.0000	0.078	0.000	-5.975	140.000	1.088	0.029	6.653	5.032
W/Pipe Mount									
844G65VTZASX	0.0000	0.041	-6.000	-5.975	140.000	1.088	0.029	6.550	5.630
844G65VTZASX	0.0000	0.041	6.000	-5.975	140.000	1.088	0.029	6.550	5.630
844G65VTZASX	0.0000	0.041	-4.000	-5.975	140.000	1.088	0.029	6.550	5.630
TD-RRH8x20-25	0.0000	0.076	1.000	-5.975	140.000	1.088	0.029	4.030	1.526
ALU RRH-4X45-1900	0.0000	0.070	2.000	-5.975	140.000	1.088	0.029	2.500	2.500
RRH-2X50-800	0.0000	0.138	3.000	-5.975	140.000	1.088	0.029	3.467	2.667
Pirod 12' T-Frame Sector	120.0000	0.465	2.143	1.237	140.000	1.088	0.029	13.600	13.600
Mount (1)									
ETCR-654L12H6	120.0000	0.078	5.174	2.987	140.000	1.088	0.029	6.653	5.032
W/Pipe Mount									
844G65VTZASX	120.0000	0.041	8.174	-2.209	140.000	1.088	0.029	6.550	5.630
844G65VTZASX	120.0000	0.041	2.174	8.183	140.000	1.088	0.029	6.550	5.630
844G65VTZASX	120.0000	0.041	7.174	-0.477	140.000	1.088	0.029	6.550	5.630
TD-RRH8x20-25	120.0000	0.076	4.674	3.853	140.000	1.088	0.029	4.030	1.526
ALU RRH-4X45-1900	120.0000	0.070	4.174	4.719	140.000	1.088	0.029	2.500	2.500
RRH-2X50-800	120.0000	0.138	3.674	5.585	140.000	1.088	0.029	3.467	2.667
Pirod 12' T-Frame Sector	240.0000	0.465	-2.143	1.237	140.000	1.088	0.029	13.600	13.600
Mount (1)									
ETCR-654L12H6	240.0000	0.078	-5.174	2.987	140.000	1.088	0.029	6.653	5.032
W/Pipe Mount									
844G65VTZASX	240.0000	0.041	-2.174	8.183	140.000	1.088	0.029	6.550	5.630
844G65VTZASX	240.0000	0.041	-8.174	-2.209	140.000	1.088	0.029	6.550	5.630
844G65VTZASX	240.0000	0.041	-3.174	6.451	140.000	1.088	0.029	6.550	5.630
TD-RRH8x20-25	240.0000	0.076	-5.674	2.121	140.000	1.088	0.029	4.030	1.526
ALU RRH-4X45-1900	240.0000	0.070	-6.174	1.255	140.000	1.088	0.029	2.500	2.500
RRH-2X50-800	240.0000	0.138	-6.674	0.389	140.000	1.088	0.029	3.467	2.667
Junction Box	0.0000	0.015	0.000	-2.975	140.000	1.088	0.029	0.970	0.970
14-ft T-Frame Sector	0.0000	0.510	0.000	-3.975	120.000	1.041	0.029	16.300	16.300
Mount									
Powerwave 7770 w/5ft	0.0000	0.045	-6.000	-4.975	120.000	1.041	0.029	5.607	4.116
mount pipe									
CCI	0.0000	0.101	-3.000	-4.975	120.000	1.041	0.029	9.718	7.149
OPA-65R-LCUU-H6									
Panel Antenna with 8ft									
Pipe									
Quintel QS66512-2 w/m	0.0000	0.144	6.000	-4.975	120.000	1.041	0.029	8.846	8.938
pipe									
LGP21401	0.0000	0.070	-6.000	-4.975	120.000	1.041	0.029	3.312	0.890
DC6-48-06-18-8F	0.0000	0.032	0.000	-4.975	120.000	1.041	0.029	1.201	1.201
RRUS-11	0.0000	0.055	0.000	-4.975	120.000	1.041	0.029	2.522	1.020

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Description	Aiming Azimuth °	Weight K	Offset _x ft	Offset _z ft	z ft	K _z	q _z ksf	C _{AAc} Front ft ²	C _{AAc} Side ft ²
RRUS 32	0.0000	0.092	0.000	-4.975	120.000	1.041	0.029	3.314	2.424
TPX-070821	0.0000	0.010	0.000	-4.975	120.000	1.041	0.029	0.120	0.120
14-ft T-Frame Sector Mount	120.0000	0.510	3.442	1.987	120.000	1.041	0.029	16.300	16.300
Powerwave 7770 w/5ft mount pipe	120.0000	0.045	7.308	-2.709	120.000	1.041	0.029	5.607	4.116
CCI	120.0000	0.101	5.808	-0.111	120.000	1.041	0.029	9.718	7.149
OPA-65R-LCUU-H6 Panel Antenna with 8ft Pipe	120.0000	0.144	1.308	7.683	120.000	1.041	0.029	8.846	8.938
Quintel QS66512-2 w/m pipe	120.0000	0.070	7.308	-2.709	120.000	1.041	0.029	3.312	0.890
LGP21401	120.0000	0.032	4.308	2.487	120.000	1.041	0.029	1.201	1.201
DC6-48-06-18-8F	120.0000	0.055	4.308	2.487	120.000	1.041	0.029	2.522	1.020
RRUS-11	120.0000	0.092	4.308	2.487	120.000	1.041	0.029	3.314	2.424
TPX-070821	120.0000	0.010	4.308	2.487	120.000	1.041	0.029	0.120	0.120
14-ft T-Frame Sector Mount	240.0000	0.510	-3.442	1.987	120.000	1.041	0.029	16.300	16.300
Powerwave 7770 w/5ft mount pipe	240.0000	0.045	-1.308	7.683	120.000	1.041	0.029	5.607	4.116
CCI	240.0000	0.101	-2.808	5.085	120.000	1.041	0.029	9.718	7.149
OPA-65R-LCUU-H6 Panel Antenna with 8ft Pipe	240.0000	0.144	-7.308	-2.709	120.000	1.041	0.029	8.846	8.938
Quintel QS66512-2 w/m pipe	240.0000	0.070	-1.308	7.683	120.000	1.041	0.029	3.312	0.890
LGP21401	240.0000	0.055	-4.308	2.487	120.000	1.041	0.029	2.522	1.020
RRUS-11	240.0000	0.092	-4.308	2.487	120.000	1.041	0.029	3.314	2.424
TPX-070821	240.0000	0.010	-4.308	2.487	120.000	1.041	0.029	0.120	0.120
1' Side Mount Standoff	0.0000	0.030	0.000	-2.475	108.400	1.011	0.028	1.000	1.000
1' Side Mount Standoff	120.0000	0.030	2.143	1.237	108.400	1.011	0.028	1.000	1.000
1' Side Mount Standoff	240.0000	0.030	-2.143	1.237	108.400	1.011	0.028	1.000	1.000
Panel Antenna 6'x6"x3"	0.0000	0.040	0.000	-2.975	108.000	1.010	0.028	4.700	2.950
Panel Antenna 6'x6"x3"	120.0000	0.040	2.576	1.487	108.000	1.010	0.028	4.700	2.950
Panel Antenna 6'x6"x3"	240.0000	0.040	-2.576	1.487	108.000	1.010	0.028	4.700	2.950
GPS	240.0000	0.005	-2.143	1.237	50.000	0.811	0.026	0.210	0.210
Sum		8.791							
Weight:									

Discrete Appurtenance Pressures - With Ice

$G_H = 0.850$ (base tower), 1.350 (antenna pole)

Description	Aiming Azimuth °	Weight K	Offset _x ft	Offset _z ft	z ft	K _z	q _z ksf	C _{AAc} Front ft ²	C _{AAc} Side ft ²	t _z in
Torque Arm Face C	180.0000	0.000	0.000	2.514	152.333	1.115	0.005	5.275	9.456	2.568
Torque Arm Face B	60.0000	0.000	2.178	-1.257	152.333	1.115	0.005	5.275	9.456	2.568
Torque Arm Face A	300.0000	0.000	-2.178	-1.257	152.333	1.115	0.005	5.275	9.456	2.568
Torque Arm Face C	180.0000	0.000	0.000	2.514	132.438	1.071	0.005	4.394	7.848	2.563
Torque Arm Face B	60.0000	0.000	2.178	-1.257	132.438	1.071	0.005	4.394	7.848	2.563
Torque Arm Face A	300.0000	0.000	-2.178	-1.257	132.438	1.071	0.005	4.394	7.848	2.563
Antenna Pole	0.0000	0.016	0.000	0.000	172.000	1.154	0.005	12.000	12.000	2.573
Pirol 5' Side Mount Standoff (1)	0.0000	0.127	0.000	-4.475	168.000	1.146	0.005	0.000	0.000	2.580
Pirol 5' Side Mount Standoff (1)	120.0000	0.127	3.875	2.237	168.000	1.146	0.005	0.000	0.000	2.580
DB636 Omni	0.0000	0.239	0.000	-6.975	176.000	1.161	0.005	6.306	6.306	2.592

tnxTower Maser Consulting Connecticut 331 Newman Springs Road, Suite 203 Red Bank, NJ 07701 Phone: 877.627.3772 FAX: 973.398.3199	Job	Guyed Tower Analysis	Page	39 of 70
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	Client	Sprint	Designed by	gpenumatsa

Description	Aiming Azimuth °	Weight K	Offset _x ft	Offset _z ft	z ft	K _z	q _z ksf	C _{AAc} Front ft ²	C _{AAc} Side ft ²	t _z in
Quintel QS66512-2 w/m pipe	0.0000	0.690	6.000	-4.975	120.000	1.041	0.005	12.508	15.008	2.577
LGP21401	0.0000	0.246	-6.000	-4.975	120.000	1.041	0.005	5.148	2.078	2.577
DC6-48-06-18-8F	0.0000	0.183	0.000	-4.975	120.000	1.041	0.005	2.855	2.855	2.577
RRUS-11	0.0000	0.194	0.000	-4.975	120.000	1.041	0.005	3.629	1.824	2.577
RRUS 32	0.0000	0.284	0.000	-4.975	120.000	1.041	0.005	4.662	3.621	2.577
TPX-070821	0.0000	0.010	0.000	-4.975	120.000	1.041	0.005	0.378	0.378	2.577
14-ft T-Frame Sector Mount	120.0000	1.592	3.442	1.987	120.000	1.041	0.005	38.464	38.464	2.577
Powerwave 7770 w/5ft mount pipe	120.0000	0.375	7.308	-2.709	120.000	1.041	0.005	7.683	7.646	2.577
CCI	120.0000	0.612	5.808	-0.111	120.000	1.041	0.005	12.588	12.155	2.577
OPA-65R-LCUU-H6 Panel Antenna with 8ft Pipe										
Quintel QS66512-2 w/m pipe	120.0000	0.690	1.308	7.683	120.000	1.041	0.005	12.508	15.008	2.577
LGP21401	120.0000	0.246	7.308	-2.709	120.000	1.041	0.005	5.148	2.078	2.577
DC6-48-06-18-8F	120.0000	0.183	4.308	2.487	120.000	1.041	0.005	2.855	2.855	2.577
RRUS-11	120.0000	0.194	4.308	2.487	120.000	1.041	0.005	3.629	1.824	2.577
RRUS 32	120.0000	0.284	4.308	2.487	120.000	1.041	0.005	4.662	3.621	2.577
TPX-070821	120.0000	0.010	4.308	2.487	120.000	1.041	0.005	0.378	0.378	2.577
14-ft T-Frame Sector Mount	240.0000	1.592	-3.442	1.987	120.000	1.041	0.005	38.464	38.464	2.577
Powerwave 7770 w/5ft mount pipe	240.0000	0.375	-1.308	7.683	120.000	1.041	0.005	7.683	7.646	2.577
CCI	240.0000	0.612	-2.808	5.085	120.000	1.041	0.005	12.588	12.155	2.577
OPA-65R-LCUU-H6 Panel Antenna with 8ft Pipe										
Quintel QS66512-2 w/m pipe	240.0000	0.690	-7.308	-2.709	120.000	1.041	0.005	12.508	15.008	2.577
LGP21401	240.0000	0.246	-1.308	7.683	120.000	1.041	0.005	5.148	2.078	2.577
RRUS-11	240.0000	0.194	-4.308	2.487	120.000	1.041	0.005	3.629	1.824	2.577
RRUS 32	240.0000	0.284	-4.308	2.487	120.000	1.041	0.005	4.662	3.621	2.577
TPX-070821	240.0000	0.010	-4.308	2.487	120.000	1.041	0.005	0.378	0.378	2.577
1' Side Mount Standoff	0.0000	0.132	0.000	-2.475	108.400	1.011	0.005	3.551	3.551	2.551
1' Side Mount Standoff	120.0000	0.132	2.143	1.237	108.400	1.011	0.005	3.551	3.551	2.551
1' Side Mount Standoff	240.0000	0.132	-2.143	1.237	108.400	1.011	0.005	3.551	3.551	2.551
Panel Antenna 6'x6"x3"	0.0000	0.164	0.000	-2.975	108.000	1.010	0.005	6.995	5.143	2.550
Panel Antenna 6'x6"x3"	120.0000	0.164	2.576	1.487	108.000	1.010	0.005	6.995	5.143	2.550
Panel Antenna 6'x6"x3"	240.0000	0.164	-2.576	1.487	108.000	1.010	0.005	6.995	5.143	2.550
GPS	240.0000	0.017	-2.143	1.237	50.000	0.811	0.005	0.756	0.756	2.482
Sum Weight:		33.666								

Discrete Appurtenance Pressures - Service

G_H = 0.850 (base tower), 1.350 (antenna pole)

Description	Aiming Azimuth °	Weight K	Offset _x ft	Offset _z ft	z ft	K _z	q _z ksf	C _{AAc} Front ft ²	C _{AAc} Side ft ²
Torque Arm Face C	180.0000	0.000	0.000	2.514	152.333	1.115	0.012	4.104	7.480
Torque Arm Face B	60.0000	0.000	2.178	-1.257	152.333	1.115	0.012	4.104	7.480
Torque Arm Face A	300.0000	0.000	-2.178	-1.257	152.333	1.115	0.012	4.104	7.480
Torque Arm Face C	180.0000	0.000	0.000	2.514	132.438	1.071	0.011	3.420	6.108
Torque Arm Face B	60.0000	0.000	2.178	-1.257	132.438	1.071	0.011	3.420	6.108
Torque Arm Face A	300.0000	0.000	-2.178	-1.257	132.438	1.071	0.011	3.420	6.108
Antenna Pole	0.0000	0.010	0.000	0.000	172.000	1.154	0.012	10.000	10.000

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Description	Aiming Azimuth °	Weight K	Offset _x ft	Offset _z ft	z ft	K _z	q _z ksf	C _{AAc} Front ft ²	C _{AAc} Side ft ²
Pirod 5' Side Mount Standoff (1)	0.0000	0.050	0.000	-4.475	168.000	1.146	0.012	2.720	2.720
Pirod 5' Side Mount Standoff (1)	120.0000	0.050	3.875	2.237	168.000	1.146	0.012	2.720	2.720
DB636 Omni	0.0000	0.066	0.000	-6.975	176.000	1.161	0.012	2.375	2.375
DB806-XT	120.0000	0.021	6.040	3.487	174.000	1.158	0.012	1.140	1.140
1' Side Mount Standoff	240.0000	0.030	-2.143	1.237	168.000	1.146	0.012	1.000	1.000
DB874H120-SX	240.0000	0.014	-2.576	1.487	171.500	1.153	0.012	5.600	2.480
BOX 24"X6"X6"	240.0000	0.015	-1.710	0.987	171.500	1.153	0.012	1.400	1.400
Pirod 12' T-Frame Sector Mount (1)	0.0000	0.465	0.000	-4.975	163.000	1.136	0.012	13.600	13.600
APX16DWV-16DWVS	0.0000	0.041	0.000	-7.975	163.000	1.136	0.012	6.586	2.150
LNx-6515DS-VTM	0.0000	0.080	0.000	-7.975	163.000	1.136	0.012	11.445	9.596
TMA	0.0000	0.030	0.000	-6.975	163.000	1.136	0.012	2.000	0.533
AIR 32 with 6' pipe	0.0000	0.154	0.000	-7.975	163.000	1.136	0.012	6.815	6.137
Pirod 12' T-Frame Sector Mount (1)	120.0000	0.465	4.308	2.487	163.000	1.136	0.012	13.600	13.600
APX16DWV-16DWVS	120.0000	0.041	6.906	3.987	163.000	1.136	0.012	6.586	2.150
LNx-6515DS-VTM	120.0000	0.080	6.906	3.987	163.000	1.136	0.012	11.445	9.596
TMA	120.0000	0.030	6.040	3.487	163.000	1.136	0.012	2.000	0.533
AIR 32 with 6' pipe	120.0000	0.154	6.906	3.987	163.000	1.136	0.012	6.815	6.137
Pirod 12' T-Frame Sector Mount (1)	240.0000	0.465	-4.308	2.487	163.000	1.136	0.012	13.600	13.600
APX16DWV-16DWVS	240.0000	0.041	-6.906	3.987	163.000	1.136	0.012	6.586	2.150
LNx-6515DS-VTM	240.0000	0.080	-6.906	3.987	163.000	1.136	0.012	11.445	9.596
TMA	240.0000	0.030	-6.040	3.487	163.000	1.136	0.012	2.000	0.533
AIR 32 with 6' pipe	240.0000	0.154	-6.906	3.987	163.000	1.136	0.012	6.815	6.137
Pirod 12' T-Frame Sector Mount (1)	0.0000	0.465	0.000	-2.475	140.000	1.088	0.011	13.600	13.600
ETCR-654L12H6 W/Pipe Mount	0.0000	0.078	0.000	-5.975	140.000	1.088	0.011	6.653	5.032
844G65VTZASX	0.0000	0.041	-6.000	-5.975	140.000	1.088	0.011	6.550	5.630
844G65VTZASX	0.0000	0.041	6.000	-5.975	140.000	1.088	0.011	6.550	5.630
844G65VTZASX	0.0000	0.041	-4.000	-5.975	140.000	1.088	0.011	6.550	5.630
TD-RRH8x20-25	0.0000	0.076	1.000	-5.975	140.000	1.088	0.011	4.030	1.526
ALU RRH-4X45-1900	0.0000	0.070	2.000	-5.975	140.000	1.088	0.011	2.500	2.500
RRH-2X50-800	0.0000	0.138	3.000	-5.975	140.000	1.088	0.011	3.467	2.667
Pirod 12' T-Frame Sector Mount (1)	120.0000	0.465	2.143	1.237	140.000	1.088	0.011	13.600	13.600
ETCR-654L12H6 W/Pipe Mount	120.0000	0.078	5.174	2.987	140.000	1.088	0.011	6.653	5.032
844G65VTZASX	120.0000	0.041	8.174	-2.209	140.000	1.088	0.011	6.550	5.630
844G65VTZASX	120.0000	0.041	2.174	8.183	140.000	1.088	0.011	6.550	5.630
844G65VTZASX	120.0000	0.041	7.174	-0.477	140.000	1.088	0.011	6.550	5.630
TD-RRH8x20-25	120.0000	0.076	4.674	3.853	140.000	1.088	0.011	4.030	1.526
ALU RRH-4X45-1900	120.0000	0.070	4.174	4.719	140.000	1.088	0.011	2.500	2.500
RRH-2X50-800	120.0000	0.138	3.674	5.585	140.000	1.088	0.011	3.467	2.667
Pirod 12' T-Frame Sector Mount (1)	240.0000	0.465	-2.143	1.237	140.000	1.088	0.011	13.600	13.600
ETCR-654L12H6 W/Pipe Mount	240.0000	0.078	-5.174	2.987	140.000	1.088	0.011	6.653	5.032
844G65VTZASX	240.0000	0.041	-2.174	8.183	140.000	1.088	0.011	6.550	5.630
844G65VTZASX	240.0000	0.041	-8.174	-2.209	140.000	1.088	0.011	6.550	5.630
844G65VTZASX	240.0000	0.041	-3.174	6.451	140.000	1.088	0.011	6.550	5.630
TD-RRH8x20-25	240.0000	0.076	-5.674	2.121	140.000	1.088	0.011	4.030	1.526
ALU RRH-4X45-1900	240.0000	0.070	-6.174	1.255	140.000	1.088	0.011	2.500	2.500
RRH-2X50-800	240.0000	0.138	-6.674	0.389	140.000	1.088	0.011	3.467	2.667
Junction Box	0.0000	0.015	0.000	-2.975	140.000	1.088	0.011	0.970	0.970
14-ft T-Frame Sector Mount	0.0000	0.510	0.000	-3.975	120.000	1.041	0.011	16.300	16.300
Powerwave 7770 w/5ft	0.0000	0.045	-6.000	-4.975	120.000	1.041	0.011	5.607	4.116

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Description	Aiming Azimuth °	Weight K	Offset _x ft	Offset _z ft	z ft	K _z	q _z ksf	C _{AAc} Front ft ²	C _{AAc} Side ft ²
mount pipe									
CCI	0.0000	0.101	-3.000	-4.975	120.000	1.041	0.011	9.718	7.149
OPA-65R-LCUU-H6 Panel Antenna with 8ft Pipe									
Quintel QS66512-2 w/m pipe	0.0000	0.144	6.000	-4.975	120.000	1.041	0.011	8.846	8.938
LGP21401	0.0000	0.070	-6.000	-4.975	120.000	1.041	0.011	3.312	0.890
DC6-48-06-18-8F	0.0000	0.032	0.000	-4.975	120.000	1.041	0.011	1.201	1.201
RRUS-11	0.0000	0.055	0.000	-4.975	120.000	1.041	0.011	2.522	1.020
RRUS 32	0.0000	0.092	0.000	-4.975	120.000	1.041	0.011	3.314	2.424
TPX-070821	0.0000	0.010	0.000	-4.975	120.000	1.041	0.011	0.120	0.120
14-ft T-Frame Sector Mount	120.0000	0.510	3.442	1.987	120.000	1.041	0.011	16.300	16.300
Powerwave 7770 w/5ft mount pipe	120.0000	0.045	7.308	-2.709	120.000	1.041	0.011	5.607	4.116
CCI	120.0000	0.101	5.808	-0.111	120.000	1.041	0.011	9.718	7.149
OPA-65R-LCUU-H6 Panel Antenna with 8ft Pipe									
Quintel QS66512-2 w/m pipe	120.0000	0.144	1.308	7.683	120.000	1.041	0.011	8.846	8.938
LGP21401	120.0000	0.070	7.308	-2.709	120.000	1.041	0.011	3.312	0.890
DC6-48-06-18-8F	120.0000	0.032	4.308	2.487	120.000	1.041	0.011	1.201	1.201
RRUS-11	120.0000	0.055	4.308	2.487	120.000	1.041	0.011	2.522	1.020
RRUS 32	120.0000	0.092	4.308	2.487	120.000	1.041	0.011	3.314	2.424
TPX-070821	120.0000	0.010	4.308	2.487	120.000	1.041	0.011	0.120	0.120
14-ft T-Frame Sector Mount	240.0000	0.510	-3.442	1.987	120.000	1.041	0.011	16.300	16.300
Powerwave 7770 w/5ft mount pipe	240.0000	0.045	-1.308	7.683	120.000	1.041	0.011	5.607	4.116
CCI	240.0000	0.101	-2.808	5.085	120.000	1.041	0.011	9.718	7.149
OPA-65R-LCUU-H6 Panel Antenna with 8ft Pipe									
Quintel QS66512-2 w/m pipe	240.0000	0.144	-7.308	-2.709	120.000	1.041	0.011	8.846	8.938
LGP21401	240.0000	0.070	-1.308	7.683	120.000	1.041	0.011	3.312	0.890
RRUS-11	240.0000	0.055	-4.308	2.487	120.000	1.041	0.011	2.522	1.020
RRUS 32	240.0000	0.092	-4.308	2.487	120.000	1.041	0.011	3.314	2.424
TPX-070821	240.0000	0.010	-4.308	2.487	120.000	1.041	0.011	0.120	0.120
1' Side Mount Standoff	0.0000	0.030	0.000	-2.475	108.400	1.011	0.011	1.000	1.000
1' Side Mount Standoff	120.0000	0.030	2.143	1.237	108.400	1.011	0.011	1.000	1.000
1' Side Mount Standoff	240.0000	0.030	-2.143	1.237	108.400	1.011	0.011	1.000	1.000
Panel Antenna 6'x6"x3"	0.0000	0.040	0.000	-2.975	108.000	1.010	0.011	4.700	2.950
Panel Antenna 6'x6"x3"	120.0000	0.040	2.576	1.487	108.000	1.010	0.011	4.700	2.950
Panel Antenna 6'x6"x3"	240.0000	0.040	-2.576	1.487	108.000	1.010	0.011	4.700	2.950
GPS	240.0000	0.005	-2.143	1.237	50.000	0.811	0.010	0.210	0.210
Sum Weight:		8.791							

Dish Pressures - No Ice

Elevation ft	Dish Description	Aiming Azimuth °	Weight K	Offset _x ft	Offset _z ft	K _z	A _A ft ²	q _z ksf
167.000	SC2	120.0000	0.030	4.308	2.487	1.144	3.140	0.029
146.000	VHLP2-18	-45.0000	0.020	0.000	-7.975	1.101	3.140	0.029

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	Client	Sprint	Designed by	gpenumatsa

Elevation ft	Dish Description	Aiming Azimuth °	Weight K	Offset _x ft	Offset _z ft	K _z	A _A ft ²	q _z ksf
146.000	VHLP2-18	165.0000	0.020	6.906	3.987	1.101	3.140	0.029
146.000	VHLP800-11	285.0000	0.020	-6.906	3.987	1.101	6.000	0.029
	Sum		0.090					
	Weight:							

Dish Pressures - With Ice

Elevation ft	Dish Description	Aiming Azimuth °	Weight K	Offset _x ft	Offset _z ft	K _z	A _A ft ²	q _z ksf	t _z in
167.000	SC2	120.0000	0.082	4.308	2.487	1.144	4.532	0.005	2.578
146.000	VHLP2-18	-45.0000	0.110	0.000	-7.975	1.101	4.512	0.005	2.565
146.000	VHLP2-18	165.0000	0.110	6.906	3.987	1.101	4.512	0.005	2.565
146.000	VHLP800-11	285.0000	0.206	-6.906	3.987	1.101	8.688	0.005	2.565
	Sum		0.507						
	Weight:								

Dish Pressures - Service

Elevation ft	Dish Description	Aiming Azimuth °	Weight K	Offset _x ft	Offset _z ft	K _z	A _A ft ²	q _z ksf
167.000	SC2	120.0000	0.030	4.308	2.487	1.144	3.140	0.012
146.000	VHLP2-18	-45.0000	0.020	0.000	-7.975	1.101	3.140	0.012
146.000	VHLP2-18	165.0000	0.020	6.906	3.987	1.101	3.140	0.012
146.000	VHLP800-11	285.0000	0.020	-6.906	3.987	1.101	6.000	0.012
	Sum		0.090					
	Weight:							

Force Totals (Does not include forces on guys)

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Torques kip-ft
Leg Weight	2.658			
Bracing Weight	0.124			
Total Member Self-Weight	2.782			
Guy Weight	2.445			
Total Weight	19.724			
Wind 0 deg - No Ice		-0.065	-37.191	0.487
Wind 30 deg - No Ice		18.580	-32.175	0.691
Wind 60 deg - No Ice		32.269	-18.534	0.613
Wind 90 deg - No Ice		37.278	0.064	0.051
Wind 120 deg - No Ice		32.278	18.621	-0.279
Wind 150 deg - No Ice		18.693	32.192	-0.323
Wind 180 deg - No Ice		0.067	37.137	-0.477
Wind 210 deg - No Ice		-18.594	32.153	-0.562
Wind 240 deg - No Ice		-32.265	18.543	-0.432
Wind 270 deg - No Ice		-37.244	-0.047	0.113
Wind 300 deg - No Ice		-32.252	-18.623	0.484
Wind 330 deg - No Ice		-18.665	-32.203	0.509

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Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Torques kip-ft
Member Ice	36.730			
Guy Ice	27.069			
Total Weight Ice	176.806			
Wind 0 deg - Ice		-0.018	-8.965	0.085
Wind 30 deg - Ice		4.479	-7.759	0.146
Wind 60 deg - Ice		7.778	-4.466	0.143
Wind 90 deg - Ice		8.986	0.018	0.020
Wind 120 deg - Ice		7.785	4.493	-0.046
Wind 150 deg - Ice		4.509	7.762	-0.045
Wind 180 deg - Ice		0.019	8.957	-0.083
Wind 210 deg - Ice		-4.483	7.754	-0.113
Wind 240 deg - Ice		-7.776	4.468	-0.097
Wind 270 deg - Ice		-8.978	-0.014	0.023
Wind 300 deg - Ice		-7.776	-4.492	0.099
Wind 330 deg - Ice		-4.501	-7.765	0.093
Total Weight	19.724			
Wind 0 deg - Service		-0.026	-14.835	0.194
Wind 30 deg - Service		7.411	-12.834	0.276
Wind 60 deg - Service		12.872	-7.393	0.244
Wind 90 deg - Service		14.870	0.025	0.020
Wind 120 deg - Service		12.875	7.428	-0.111
Wind 150 deg - Service		7.456	12.841	-0.129
Wind 180 deg - Service		0.027	14.814	-0.190
Wind 210 deg - Service		-7.417	12.826	-0.224
Wind 240 deg - Service		-12.870	7.397	-0.172
Wind 270 deg - Service		-14.856	-0.019	0.045
Wind 300 deg - Service		-12.865	-7.429	0.193
Wind 330 deg - Service		-7.445	-12.846	0.203

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice+1.0 Guy
3	1.2 Dead+1.6 Wind 30 deg - No Ice+1.0 Guy
4	1.2 Dead+1.6 Wind 60 deg - No Ice+1.0 Guy
5	1.2 Dead+1.6 Wind 90 deg - No Ice+1.0 Guy
6	1.2 Dead+1.6 Wind 120 deg - No Ice+1.0 Guy
7	1.2 Dead+1.6 Wind 150 deg - No Ice+1.0 Guy
8	1.2 Dead+1.6 Wind 180 deg - No Ice+1.0 Guy
9	1.2 Dead+1.6 Wind 210 deg - No Ice+1.0 Guy
10	1.2 Dead+1.6 Wind 240 deg - No Ice+1.0 Guy
11	1.2 Dead+1.6 Wind 270 deg - No Ice+1.0 Guy
12	1.2 Dead+1.6 Wind 300 deg - No Ice+1.0 Guy
13	1.2 Dead+1.6 Wind 330 deg - No Ice+1.0 Guy
14	1.2 Dead+1.0 Ice+1.0 Temp+Guy
15	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy
16	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy
17	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy
18	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy
19	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy
20	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy
21	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy

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Comb. No.	Description
22	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy
23	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy
24	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy
25	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy
26	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy
27	Dead+Wind 0 deg - Service+Guy
28	Dead+Wind 30 deg - Service+Guy
29	Dead+Wind 60 deg - Service+Guy
30	Dead+Wind 90 deg - Service+Guy
31	Dead+Wind 120 deg - Service+Guy
32	Dead+Wind 150 deg - Service+Guy
33	Dead+Wind 180 deg - Service+Guy
34	Dead+Wind 210 deg - Service+Guy
35	Dead+Wind 240 deg - Service+Guy
36	Dead+Wind 270 deg - Service+Guy
37	Dead+Wind 300 deg - Service+Guy
38	Dead+Wind 330 deg - Service+Guy

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	170 - 155	Leg	Max Tension	4	20.170	0.467	-0.271
			Max. Compression	10	-22.111	0.123	-0.071
			Max. Mx	23	-0.069	-0.818	0.475
			Max. My	15	-0.068	-0.002	-0.942
			Max. Vy	23	-3.493	0.055	-0.031
			Max. Vx	15	-4.030	-0.001	0.065
		Diagonal	Max Tension	13	3.013	-0.007	0.001
			Max. Compression	13	-3.047	0.000	0.000
			Max. Mx	19	0.294	-0.013	-0.000
			Max. My	13	-2.570	0.003	0.004
			Max. Vy	16	0.017	-0.013	-0.000
			Max. Vx	13	-0.002	0.003	0.004
		Top Girt	Max Tension	23	2.087	0.000	0.000
			Max. Compression	4	-0.024	0.000	0.000
			Max. Mx	20	2.077	0.019	0.000
			Max. Vy	20	-0.022	0.000	0.000
		Bottom Girt	Max. Vx	24	0.000	0.000	0.000
			Max Tension	4	0.904	0.000	0.000
			Max. Compression	10	-0.832	0.000	0.000
			Max. Mx	26	0.320	0.019	0.000
		Pole Antenna	Max. Vy	26	0.022	0.000	0.000
			Max Tension	21	0.000	0.000	-0.000
			Max. Compression	23	-0.018	0.144	-0.083
			Max. Mx	5	-0.011	-1.255	0.003
Max. My	8		-0.009	-0.002	-1.255		
Max. Vy	5		0.627	-1.255	0.003		
Max. Vx	8		0.627	-0.002	-1.255		
Max. Torque	8				-0.000		
T2	155 - 140	Leg	Max Tension	4	28.999	0.299	-0.160
			Max. Compression	2	-45.575	0.013	0.340
			Max. Mx	11	19.760	0.752	0.158
			Max. My	8	22.413	-0.021	-0.826
			Max. Vy	4	2.716	-0.380	0.189
		Diagonal	Max. Vx	8	3.169	-0.010	-0.444
			Max Tension	13	3.571	0.000	0.000
			Max. Compression	13	-3.723	0.012	0.004

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	2	1.061	-0.024	-0.003
			Max. My	9	-1.775	0.009	-0.006
			Max. Vy	23	0.021	-0.021	0.001
			Max. Vx	9	0.003	0.009	-0.006
		Secondary Horizontal	Max Tension	6	1.231	-0.001	0.002
			Max. Compression	12	-1.037	0.002	-0.003
			Max. Mx	22	-0.336	-0.008	0.001
			Max. My	2	-0.503	-0.002	-0.005
			Max. Vy	22	0.015	-0.008	0.001
			Max. Vx	2	0.003	0.000	0.000
		Top Girt	Max Tension	10	0.328	0.000	0.000
			Max. Compression	12	-0.309	0.000	0.000
			Max. Mx	21	0.154	0.019	0.000
			Max. Vy	21	-0.022	0.000	0.000
			Max. Vx	24	0.000	0.000	0.000
		Bottom Girt	Max Tension	15	0.434	0.000	0.000
			Max. Compression	1	0.000	0.000	0.000
			Max. Mx	25	0.403	0.019	0.000
			Max. My	24	0.395	0.000	-0.000
			Max. Vy	25	-0.022	0.000	0.000
			Max. Vx	24	0.000	0.000	0.000
		Guy A	Bottom Tension	7	8.118		
			Top Tension	7	8.198		
			Top Cable Vert	7	6.914		
			Top Cable Norm	7	4.406		
			Top Cable Tan	7	0.050		
			Bot Cable Vert	7	-6.690		
			Bot Cable Norm	7	4.597		
			Bot Cable Tan	7	0.095		
		Guy B	Bottom Tension	13	7.968		
			Top Tension	13	8.044		
			Top Cable Vert	13	6.647		
			Top Cable Norm	13	4.529		
			Top Cable Tan	13	0.048		
			Bot Cable Vert	13	-6.432		
			Bot Cable Norm	13	4.703		
			Bot Cable Tan	13	0.090		
		Guy C	Bottom Tension	5	7.782		
			Top Tension	5	7.855		
			Top Cable Vert	5	6.383		
			Top Cable Norm	5	4.578		
			Top Cable Tan	5	0.045		
			Bot Cable Vert	5	-6.171		
			Bot Cable Norm	5	4.740		
			Bot Cable Tan	5	0.089		
		Top Guy Pull-Off	Max Tension	4	3.744	0.000	0.000
			Max. Compression	10	-3.367	0.000	0.000
			Max. Mx	20	-0.193	-0.025	0.000
			Max. My	24	1.173	0.000	0.000
			Max. Vy	20	-0.029	0.000	0.000
			Max. Vx	24	0.000	0.000	0.000
		Torque Arm Top	Max Tension	5	4.884	0.000	0.000
			Max. Compression	11	-2.113	-20.370	0.000
			Max. Mx	21	1.025	-24.059	0.000
			Max. My	24	1.243	-22.879	0.000
			Max. Vy	21	6.955	-24.059	0.000
			Max. Vx	24	0.000	-22.879	0.000
T3	140 - 120	Leg	Max Tension	12	51.784	-1.999	-0.004
			Max. Compression	10	-76.889	2.876	-0.014
			Max. Mx	10	-70.117	-3.075	-0.127

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	7	-9.226	-1.045	-6.199
			Max. Vy	10	4.989	2.960	0.004
			Max. Vx	7	5.956	-1.045	-6.199
		Diagonal	Max Tension	10	6.113	0.000	0.000
			Max. Compression	8	-8.659	-0.014	0.052
			Max. Mx	11	1.007	-0.127	-0.032
			Max. My	7	-7.756	0.050	-0.061
			Max. Vy	11	-0.060	0.000	0.000
			Max. Vx	7	0.029	0.050	-0.061
		Secondary Horizontal	Max Tension	8	7.875	0.000	0.000
			Max. Compression	6	-5.358	0.081	0.010
			Max. Mx	6	-2.264	-0.100	-0.006
			Max. My	8	-2.038	0.041	0.016
			Max. Vy	6	0.058	0.000	0.000
			Max. Vx	8	-0.009	0.000	0.000
		Top Girt	Max Tension	6	0.651	0.000	0.000
			Max. Compression	8	-0.310	0.000	0.000
			Max. Mx	25	0.538	-0.021	0.000
			Max. My	24	0.410	0.000	0.000
			Max. Vy	25	0.025	0.000	0.000
			Max. Vx	24	-0.000	0.000	0.000
		Bottom Girt	Max Tension	10	2.031	0.000	0.000
			Max. Compression	8	-0.270	0.000	0.000
			Max. Mx	18	1.430	-0.023	0.000
			Max. My	24	1.253	0.000	-0.000
			Max. Vy	18	0.027	0.000	0.000
			Max. Vx	24	-0.000	0.000	0.000
		Guy A	Bottom Tension	7	28.954		
			Top Tension	7	29.170		
			Top Cable Vert	7	23.399		
			Top Cable Norm	7	17.418		
			Top Cable Tan	7	0.003		
			Bot Cable Vert	7	-22.926		
			Bot Cable Norm	7	17.684		
			Bot Cable Tan	7	0.220		
		Guy B	Bottom Tension	13	27.726		
			Top Tension	13	27.926		
			Top Cable Vert	13	21.786		
			Top Cable Norm	13	17.471		
			Top Cable Tan	13	0.007		
			Bot Cable Vert	13	-21.333		
			Bot Cable Norm	13	17.708		
			Bot Cable Tan	13	0.203		
		Guy C	Bottom Tension	5	26.566		
			Top Tension	5	26.758		
			Top Cable Vert	5	20.401		
			Top Cable Norm	5	17.313		
			Top Cable Tan	5	0.002		
			Bot Cable Vert	5	-19.959		
			Bot Cable Norm	5	17.532		
			Bot Cable Tan	5	0.205		
		Torque Arm Top	Max Tension	7	19.908	-19.660	0.000
			Max. Compression	7	-10.359	-64.245	0.000
			Max. Mx	7	-0.884	-65.100	0.000
			Max. My	24	2.310	-35.994	0.000
			Max. Vy	7	18.598	-65.100	0.000
			Max. Vx	24	0.000	-35.994	0.000
		Leg	Max Tension	10	0.679	-0.149	0.096
			Max. Compression	22	-59.632	0.004	0.283
			Max. Mx	6	-25.940	-0.646	-0.357
T4	120 - 100						

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T5	100 - 80	Diagonal	Max. My	2	-26.751	-0.006	0.723
			Max. Vy	11	4.474	0.458	0.135
			Max. Vx	2	4.825	-0.006	0.723
			Max Tension	9	2.583	0.000	0.000
			Max. Compression	9	-3.212	0.001	-0.002
			Max. Mx	22	-0.722	-0.053	-0.000
		Top Girt	Max. My	7	-0.433	-0.038	-0.004
			Max. Vy	22	0.036	-0.053	-0.000
			Max. Vx	7	0.002	-0.038	-0.004
			Max Tension	23	0.927	0.000	0.000
			Max. Compression	1	0.000	0.000	0.000
			Max. Mx	18	0.906	0.019	0.000
		Bottom Girt	Max. My	24	0.869	0.000	0.000
			Max. Vy	18	0.022	0.000	0.000
			Max. Vx	24	-0.000	0.000	0.000
			Max Tension	10	0.792	0.000	0.000
			Max. Compression	1	0.000	0.000	0.000
			Max. Mx	15	0.660	0.019	0.000
		Leg	Max. My	24	0.620	0.000	0.000
			Max. Vy	15	-0.022	0.000	0.000
			Max. Vx	24	-0.000	0.000	0.000
			Max Tension	10	12.093	0.324	-0.183
			Max. Compression	9	-73.944	-0.021	0.126
			Max. Mx	18	-57.100	-0.415	-0.223
		Diagonal	Max. My	15	-57.547	0.002	0.478
			Max. Vy	6	-1.582	-0.334	-0.168
			Max. Vx	2	1.764	-0.005	0.374
			Max Tension	5	2.153	0.000	0.000
			Max. Compression	5	-2.478	0.004	-0.002
			Max. Mx	22	-0.517	-0.038	-0.000
		Top Girt	Max. My	7	-1.701	-0.004	-0.003
			Max. Vy	22	0.029	-0.038	-0.000
			Max. Vx	7	0.001	-0.004	-0.003
			Max Tension	10	0.734	0.000	0.000
			Max. Compression	1	0.000	0.000	0.000
			Max. Mx	15	0.675	0.018	0.000
		Bottom Girt	Max. My	24	0.619	0.000	0.000
			Max. Vy	15	-0.021	0.000	0.000
			Max. Vx	24	-0.000	0.000	0.000
			Max Tension	10	1.463	0.000	0.000
			Max. Compression	1	0.000	0.000	0.000
			Max. Mx	24	1.163	0.018	0.000
Mid Girt	Max. Vy	24	0.021	0.000	0.000		
	Max Tension	10	1.112	0.000	0.000		
	Max. Compression	1	0.000	0.000	0.000		
Guy A	Max. Mx	14	0.579	0.020	0.000		
	Max. Vy	14	0.023	0.000	0.000		
	Bottom Tension	7	15.113				
	Top Tension	7	15.150				
	Top Cable Vert	7	10.263				
	Top Cable Norm	7	11.144				
Guy B	Top Cable Tan	7	0.066				
	Bot Cable Vert	7	-10.135				
	Bot Cable Norm	7	11.210				
	Bot Cable Tan	7	0.149				
	Bottom Tension	13	14.517				
	Top Tension	13	14.550				
Top Cable Vert	13	9.265					
Top Cable Norm	13	11.219					
Top Cable Tan	13	0.061					
Bot Cable Vert	13	-9.145					

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T6	80 - 60	Guy C	Bot Cable Norm	13	11.273			
			Bot Cable Tan	13	0.138			
			Bottom Tension	3	14.103			
			Top Tension	3	14.134			
			Top Cable Vert	3	8.562			
			Top Cable Norm	3	11.245			
			Top Cable Tan	3	0.061			
			Bot Cable Vert	3	-8.448			
			Bot Cable Norm	3	11.293			
			Bot Cable Tan	3	0.135			
			Top Guy Pull-Off	10	5.908	0.000	0.000	
			Max. Compression	1	0.000	0.000	0.000	
		Max. Mx	14	3.078	0.039	0.000		
		Max. My	6	2.698	0.000	0.000		
		Max. Vy	14	0.045	0.000	0.000		
		Max. Vx	6	-0.000	0.000	0.000		
		Leg	Max Tension	10	16.545	-0.262	0.009	
			Max. Compression	9	-75.533	0.933	-0.031	
			Max. Mx	22	-74.211	-1.194	0.032	
			Max. My	10	-66.676	-0.866	-0.329	
			Max. Vy	10	-2.313	-0.079	0.001	
			Max. Vx	9	-1.053	0.069	-0.026	
			Diagonal	Max Tension	7	1.250	0.017	-0.000
				Max. Compression	7	-2.714	0.000	0.000
				Max. Mx	22	-1.720	-0.036	-0.004
				Max. My	7	-1.791	0.029	-0.007
				Max. Vy	22	0.028	-0.036	-0.004
				Max. Vx	7	-0.003	0.029	-0.007
		Secondary Horizontal	Max Tension	10	2.120	0.000	0.000	
			Max. Compression	9	-1.308	0.046	-0.008	
			Max. Mx	23	-1.265	0.057	-0.005	
			Max. My	10	-1.247	0.049	-0.009	
			Max. Vy	23	-0.048	0.057	-0.005	
			Max. Vx	10	0.005	0.000	0.000	
			Top Girt	Max Tension	10	0.390	0.000	0.000
				Max. Compression	1	0.000	0.000	0.000
				Max. Mx	22	0.365	0.018	0.000
			Bottom Girt	Max. Vy	22	-0.021	0.000	0.000
				Max Tension	23	0.431	0.000	0.000
				Max. Compression	1	0.000	0.000	0.000
		Max. Mx		18	0.425	0.018	0.000	
		Max. My		24	0.415	0.000	-0.000	
Max. Vy	18	-0.021		0.000	0.000			
T7	60 - 40	Leg	Max. Vx	24	-0.000	0.000	0.000	
			Max Tension	10	7.782	-0.068	0.040	
			Max. Compression	21	-83.968	-0.407	0.232	
			Max. Mx	24	-69.225	0.521	0.192	
			Max. My	15	-67.343	0.002	0.597	
			Max. Vy	10	-1.998	0.430	-0.257	
		Diagonal	Max. Vx	2	-2.249	0.007	0.490	
			Max Tension	7	2.753	0.021	-0.000	
			Max. Compression	7	-3.016	0.000	0.000	
			Max. Mx	22	-0.356	-0.045	0.001	
			Max. My	9	-1.933	-0.006	0.003	
			Max. Vy	22	0.032	-0.045	0.001	
		Top Girt	Max. Vx	9	-0.001	-0.006	0.003	
			Max Tension	10	1.483	0.000	0.000	
			Max. Compression	1	0.000	0.000	0.000	
			Max. Mx	18	1.221	0.018	0.000	
			Max. My	24	1.110	0.000	-0.000	

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
		Bottom Girt	Max. Vy	18	-0.021	0.000	0.000
			Max. Vx	24	0.000	0.000	0.000
			Max Tension	7	1.333	0.000	0.000
			Max. Compression	4	-0.035	0.000	0.000
		Mid Girt	Max. Mx	18	1.068	0.018	0.000
			Max. My	24	0.952	0.000	-0.000
			Max. Vy	18	-0.021	0.000	0.000
			Max. Vx	24	0.000	0.000	0.000
		Guy A	Max Tension	10	1.514	0.000	0.000
			Max. Compression	1	0.000	0.000	0.000
			Max. Mx	18	0.797	0.019	0.000
			Max. My	24	0.712	0.000	-0.000
		Guy B	Max. Vy	18	-0.023	0.000	0.000
			Max. Vx	24	0.000	0.000	0.000
			Bottom Tension	9	18.285		
			Top Tension	9	18.306		
		Guy C	Top Cable Vert	9	8.653		
			Top Cable Norm	9	16.132		
			Top Cable Tan	9	0.110		
			Bot Cable Vert	9	-8.565		
		Top Guy Pull-Off	Bot Cable Norm	9	16.154		
			Bot Cable Tan	9	0.166		
			Bottom Tension	11	17.432		
			Top Tension	11	17.450		
		Leg	Top Cable Vert	11	7.042		
			Top Cable Norm	11	15.966		
			Top Cable Tan	11	0.110		
			Bot Cable Vert	11	-6.965		
		Diagonal	Bot Cable Norm	11	15.980		
			Bot Cable Tan	11	0.160		
			Bottom Tension	5	16.885		
			Top Tension	5	16.901		
		Horizontal	Top Cable Vert	5	6.006		
			Top Cable Norm	5	15.797		
			Top Cable Tan	5	0.104		
			Bot Cable Vert	5	-5.934		
		Leg	Bot Cable Norm	5	15.807		
			Bot Cable Tan	5	0.151		
			Max Tension	10	8.044	0.000	0.000
			Max. Compression	1	0.000	0.000	0.000
		Diagonal	Max. Mx	18	4.237	0.038	0.000
			Max. My	6	3.830	0.000	0.000
			Max. Vy	18	-0.044	0.000	0.000
			Max. Vx	6	-0.000	0.000	0.000
		Horizontal	Max Tension	10	7.522	-0.305	-0.213
			Max. Compression	21	-88.501	-0.807	0.025
			Max. Mx	23	-85.085	-1.001	-0.015
			Max. My	23	-83.624	-0.479	0.872
		Diagonal	Max. Vy	5	-1.716	0.063	-0.118
			Max. Vx	2	-1.599	-0.291	-0.134
			Max Tension	4	2.247	0.000	0.000
			Max. Compression	10	-3.538	0.000	0.000
		Horizontal	Max. Mx	22	-1.432	0.021	0.000
			Max. My	23	-1.342	0.000	0.000
			Max. Vy	22	-0.020	0.000	0.000
			Max. Vx	23	-0.000	0.000	0.000
		Horizontal	Max Tension	21	1.518	0.000	0.000
			Max. Compression	21	-1.518	0.000	0.000
			Max. Mx	18	1.478	0.015	0.000
			Max. My	22	1.510	0.000	-0.000
		Horizontal	Max. Vy	18	-0.017	0.000	0.000

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft	
T9	20 - 5	Top Girt	Max. Vx	22	0.000	0.000	0.000	
			Max Tension	4	0.783	0.000	0.000	
			Max. Compression	4	-0.727	0.000	0.000	
			Max. Mx	18	0.115	0.017	0.000	
			Max. My	24	0.064	0.000	-0.000	
			Max. Vy	18	-0.020	0.000	0.000	
		Bottom Girt	Max. Vx	24	-0.000	0.000	0.000	
			Max Tension	10	0.799	0.000	0.000	
			Max. Compression	7	-0.149	0.000	0.000	
			Max. Mx	15	0.431	0.017	0.000	
			Max. My	24	0.407	0.000	-0.000	
			Max. Vy	15	0.020	0.000	0.000	
		Leg	Max. Vx	24	-0.000	0.000	0.000	
			Max Tension	1	0.000	0.000	0.000	
			Max. Compression	21	-88.506	-0.827	0.008	
			Max. Mx	18	-86.246	-5.037	2.868	
			Max. My	22	-87.042	0.037	-5.851	
			Max. Vy	24	-19.711	5.021	2.917	
			Diagonal	Max. Vx	21	22.752	0.033	-5.845
				Max Tension	7	6.237	0.000	0.000
				Max. Compression	9	-6.705	0.000	0.000
				Max. Mx	22	-0.253	0.019	0.000
				Max. My	23	-0.385	0.000	0.000
				Max. Vy	22	0.018	0.000	0.000
		Horizontal	Max. Vx	23	-0.000	0.000	0.000	
			Max Tension	21	1.518	0.000	0.000	
			Max. Compression	21	-1.518	0.000	0.000	
			Max. Mx	15	1.480	0.013	0.000	
			Max. My	22	1.513	0.000	-0.000	
			Max. Vy	15	0.015	0.000	0.000	
		Top Girt	Max. Vx	22	-0.000	0.000	0.000	
			Max Tension	9	1.132	0.000	0.000	
			Max. Compression	10	-0.511	0.000	0.000	
Max. Mx	15		0.816	0.017	0.000			
Max. My	24		0.832	0.000	-0.000			
Max. Vy	15		-0.019	0.000	0.000			
Bottom Girt	Max. Vx	24	0.000	0.000	0.000			
	Max Tension	22	13.167	0.000	0.000			
	Max. Compression	1	0.000	0.000	0.000			
	Max. Mx	15	12.904	0.015	0.000			
	Max. My	22	13.167	0.000	-0.000			
	Max. Vy	15	0.018	0.000	0.000			
T10	5 - 0	Leg	Max. Vx	22	0.000	0.000	0.000	
			Max Tension	1	0.000	0.000	0.000	
			Max. Compression	22	-94.622	0.477	-0.117	
			Max. Mx	22	-89.548	5.851	0.035	
			Max. My	10	-57.507	-1.598	-0.602	
			Max. Vy	23	11.454	-3.414	-0.009	
		Top Girt	Max. Vx	6	0.955	-1.530	-0.595	
			Max Tension	22	7.724	-0.031	-4.128	
			Max. Compression	1	0.000	0.000	0.000	
			Max. Mx	19	7.457	-0.031	-4.505	
			Max. My	23	7.493	-0.031	-4.539	
			Max. Vy	19	0.055	-0.031	-4.505	
		Bottom Girt	Max. Vx	8	-0.691	-0.002	-2.549	
			Max Tension	8	0.720	-0.000	-0.158	
			Max. Compression	7	-0.961	-0.005	-0.019	
			Max. Mx	6	-0.544	-0.005	0.063	
			Max. My	9	0.180	-0.002	-0.274	
			Max. Vy	6	0.018	-0.005	0.063	
			Max. Vx	8	0.735	-0.003	-0.193	

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
		Mid Girt	Max Tension	1	0.000	0.000	0.000
			Max. Compression	20	-0.989	0.000	0.000
			Max. Mx	15	-0.968	0.014	0.000
			Max. My	22	-0.961	0.000	0.003
			Max. Vy	15	-0.032	0.000	0.000
			Max. Vx	22	-0.006	0.000	0.000

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K	
Mast	Max. Vert	23	258.299	0.060	0.055	
	Max. H _x	11	131.571	4.430	0.084	
	Max. H _z	2	137.770	-0.039	4.248	
	Max. M _x	1	0.000	-0.005	0.009	
	Max. M _z	1	0.000	-0.005	0.009	
	Max. Torsion	6	0.260	-3.556	-1.935	
	Min. Vert	1	76.159	-0.005	0.009	
	Min. H _x	5	128.502	-4.562	0.082	
	Min. H _z	8	109.935	0.009	-4.796	
	Min. M _x	1	0.000	-0.005	0.009	
	Min. M _z	1	0.000	-0.005	0.009	
	Min. Torsion	11	-0.014	4.430	0.084	
	Guy C @ 107 ft Elev 10 ft Azimuth 240 deg	Max. Vert	10	-1.703	-0.855	0.493
		Max. H _x	10	-1.703	-0.855	0.493
Max. H _z		3	-63.194	-59.020	35.178	
Min. Vert		3	-63.194	-59.020	35.178	
Min. H _x		5	-63.032	-59.873	33.419	
Min. H _z		10	-1.703	-0.855	0.493	
Guy B @ 106 ft Elev 4 ft Azimuth 120 deg	Max. Vert	6	-2.056	0.982	0.565	
	Max. H _x	11	-67.108	59.757	33.305	
	Max. H _z	13	-67.662	59.133	35.287	
	Min. Vert	13	-67.662	59.133	35.287	
	Min. H _x	6	-2.056	0.982	0.565	
	Min. H _z	6	-2.056	0.982	0.565	
Guy A @ 106 ft Elev -6 ft Azimuth 0 deg	Max. Vert	2	-2.686	0.001	-1.403	
	Max. H _x	10	-62.558	1.637	-58.298	
	Max. H _z	2	-2.686	0.001	-1.403	
	Min. Vert	7	-73.527	-1.066	-68.620	
	Min. H _x	6	-63.006	-1.609	-58.614	
	Min. H _z	7	-73.527	-1.066	-68.620	

Tower Mast Reaction Summary

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Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Dead Only	76.159	0.005	-0.009	0.000	0.000	-0.050
1.2 Dead+1.6 Wind 0 deg - No Ice+1.0 Guy	137.770	0.039	-4.248	0.000	0.000	-0.025
1.2 Dead+1.6 Wind 30 deg - No Ice+1.0 Guy	126.251	2.338	-3.989	0.000	0.000	0.002
1.2 Dead+1.6 Wind 60 deg - No Ice+1.0 Guy	105.322	4.269	-2.471	0.000	0.000	-0.029
1.2 Dead+1.6 Wind 90 deg - No Ice+1.0 Guy	128.502	4.562	-0.082	0.000	0.000	-0.216
1.2 Dead+1.6 Wind 120 deg - No Ice+1.0 Guy	142.262	3.556	1.935	0.000	0.000	-0.260
1.2 Dead+1.6 Wind 150 deg - No Ice+1.0 Guy	133.112	2.133	3.753	0.000	0.000	-0.216
1.2 Dead+1.6 Wind 180 deg - No Ice+1.0 Guy	109.935	-0.009	4.796	0.000	0.000	-0.124
1.2 Dead+1.6 Wind 210 deg - No Ice+1.0 Guy	134.259	-2.083	3.748	0.000	0.000	-0.060
1.2 Dead+1.6 Wind 240 deg - No Ice+1.0 Guy	145.002	-3.421	1.915	0.000	0.000	-0.023
1.2 Dead+1.6 Wind 270 deg - No Ice+1.0 Guy	131.571	-4.430	-0.084	0.000	0.000	0.014
1.2 Dead+1.6 Wind 300 deg - No Ice+1.0 Guy	107.366	-4.217	-2.426	0.000	0.000	-0.021
1.2 Dead+1.6 Wind 330 deg - No Ice+1.0 Guy	128.192	-2.269	-3.913	0.000	0.000	-0.038
1.2 Dead+1.0 Ice+1.0 Temp+Guy	255.229	0.059	-0.112	0.000	0.000	-0.151
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy	256.464	0.061	-0.274	0.000	0.000	-0.146
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy	255.927	0.169	-0.270	0.000	0.000	-0.104
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy	255.687	0.244	-0.216	0.000	0.000	-0.154
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy	256.533	0.250	-0.133	0.000	0.000	-0.209
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy	257.461	0.195	-0.050	0.000	0.000	-0.167
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy	257.262	0.138	0.034	0.000	0.000	-0.118
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy	257.065	0.063	0.070	0.000	0.000	-0.159
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy	257.763	-0.009	0.031	0.000	0.000	-0.200
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy	258.299	-0.060	-0.055	0.000	0.000	-0.147
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy	257.382	-0.119	-0.135	0.000	0.000	-0.092
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy	256.338	-0.119	-0.214	0.000	0.000	-0.135
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy	256.279	-0.047	-0.267	0.000	0.000	-0.185
Dead+Wind 0 deg - Service+Guy	77.533	0.005	-1.392	0.000	0.000	-0.042
Dead+Wind 30 deg - Service+Guy	77.281	0.647	-1.180	0.000	0.000	-0.033
Dead+Wind 60 deg - Service+Guy	77.044	1.125	-0.658	0.000	0.000	-0.048
Dead+Wind 90 deg - Service+Guy	77.198	1.348	0.026	0.000	0.000	-0.069
Dead+Wind 120 deg - Service+Guy	77.455	1.219	0.697	0.000	0.000	-0.064

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Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Dead+Wind 150 deg - Service+Guy	77.053	0.717	1.149	0.000	0.000	-0.051
Dead+Wind 180 deg - Service+Guy	76.656	0.003	1.294	0.000	0.000	-0.059
Dead+Wind 210 deg - Service+Guy	77.110	-0.715	1.153	0.000	0.000	-0.066
Dead+Wind 240 deg - Service+Guy	77.551	-1.219	0.704	0.000	0.000	-0.049
Dead+Wind 270 deg - Service+Guy	77.246	-1.348	0.034	0.000	0.000	-0.030
Dead+Wind 300 deg - Service+Guy	76.990	-1.117	-0.656	0.000	0.000	-0.037
Dead+Wind 330 deg - Service+Guy	77.267	-0.637	-1.183	0.000	0.000	-0.049

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.000	-19.723	0.000	-0.000	19.723	0.002	0.009%
2	-0.120	-23.316	-64.111	0.120	23.316	64.108	0.005%
3	32.015	-23.122	-55.475	-32.015	23.122	55.473	0.003%
4	55.564	-22.940	-31.944	-55.563	22.940	31.946	0.003%
5	64.180	-23.157	0.110	-64.178	23.157	-0.109	0.003%
6	55.618	-23.379	32.124	-55.615	23.379	-32.122	0.006%
7	32.207	-23.214	55.505	-32.205	23.214	-55.504	0.004%
8	0.122	-23.042	64.055	-0.124	23.042	-64.055	0.003%
9	-32.037	-23.236	55.441	32.035	23.235	-55.439	0.005%
10	-55.560	-23.418	31.960	55.557	23.417	-31.958	0.004%
11	-64.127	-23.200	-0.084	64.125	23.200	0.086	0.004%
12	-55.555	-22.979	-32.115	55.554	22.979	32.117	0.003%
13	-32.162	-23.144	-55.523	32.162	23.143	55.521	0.003%
14	0.000	-180.253	0.000	-0.001	180.253	0.002	0.001%
15	-0.035	-180.398	-13.562	0.035	180.398	13.559	0.002%
16	6.745	-180.196	-11.720	-6.745	180.196	11.717	0.002%
17	11.700	-180.006	-6.751	-11.697	180.006	6.753	0.002%
18	13.507	-180.231	0.027	-13.504	180.231	-0.024	0.002%
19	11.723	-180.461	6.806	-11.720	180.461	-6.804	0.002%
20	6.801	-180.288	11.751	-6.797	180.288	-11.749	0.002%
21	0.035	-180.108	13.554	-0.037	180.108	-13.551	0.002%
22	-6.748	-180.310	11.715	6.745	180.310	-11.713	0.002%
23	-11.699	-180.500	6.753	11.696	180.500	-6.752	0.002%
24	-13.499	-180.275	-0.023	13.496	180.275	0.025	0.002%
25	-11.714	-180.045	-6.806	11.710	180.045	6.808	0.002%
26	-6.794	-180.218	-11.754	6.794	180.218	11.750	0.002%
27	-0.030	-19.757	-15.983	0.030	19.757	15.982	0.005%
28	7.982	-19.709	-13.830	-7.982	19.709	13.829	0.004%
29	13.853	-19.663	-7.964	-13.852	19.663	7.964	0.003%
30	16.001	-19.718	0.027	-16.000	19.718	-0.027	0.003%
31	13.866	-19.773	8.009	-13.865	19.773	-8.008	0.004%
32	8.029	-19.732	13.838	-8.028	19.732	-13.837	0.005%
33	0.030	-19.689	15.969	-0.031	19.689	-15.969	0.003%
34	-7.987	-19.737	13.822	7.986	19.737	-13.821	0.006%
35	-13.851	-19.783	7.968	13.850	19.783	-7.967	0.006%
36	-15.987	-19.728	-0.021	15.986	19.728	0.022	0.005%
37	-13.850	-19.673	-8.007	13.849	19.673	8.006	0.005%
38	-8.018	-19.714	-13.842	8.018	19.714	13.841	0.004%

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Non-Linear Convergence Results

<i>Load Combination</i>	<i>Converged?</i>	<i>Number of Cycles</i>	<i>Displacement Tolerance</i>	<i>Force Tolerance</i>
1	Yes	10	0.00000001	0.00006683
2	Yes	22	0.00006104	0.00008788
3	Yes	22	0.00004662	0.00006371
4	Yes	19	0.00009923	0.00007580
5	Yes	23	0.00004542	0.00006119
6	Yes	23	0.00006237	0.00009002
7	Yes	23	0.00004908	0.00007051
8	Yes	20	0.00009488	0.00008030
9	Yes	23	0.00006241	0.00008833
10	Yes	24	0.00004760	0.00006852
11	Yes	23	0.00005958	0.00008112
12	Yes	23	0.00008718	0.00007020
13	Yes	22	0.00004798	0.00006728
14	Yes	16	0.00010000	0.00005358
15	Yes	19	0.00010000	0.00008101
16	Yes	18	0.00010000	0.00007906
17	Yes	16	0.00010000	0.00007589
18	Yes	19	0.00010000	0.00009034
19	Yes	20	0.00010000	0.00008353
20	Yes	19	0.00010000	0.00008269
21	Yes	17	0.00010000	0.00008709
22	Yes	20	0.00010000	0.00007990
23	Yes	21	0.00010000	0.00007398
24	Yes	20	0.00010000	0.00008150
25	Yes	17	0.00010000	0.00008896
26	Yes	18	0.00010000	0.00007161
27	Yes	16	0.00000001	0.00007431
28	Yes	15	0.00000001	0.00005528
29	Yes	12	0.00000001	0.00004669
30	Yes	16	0.00000001	0.00004845
31	Yes	17	0.00000001	0.00007202
32	Yes	16	0.00000001	0.00007669
33	Yes	13	0.00000001	0.00004959
34	Yes	16	0.00000001	0.00009916
35	Yes	17	0.00000001	0.00009353
36	Yes	16	0.00000001	0.00007627
37	Yes	12	0.00000001	0.00006567
38	Yes	15	0.00000001	0.00006580

Maximum Tower Deflections - Service Wind

<i>Section No.</i>	<i>Elevation ft</i>	<i>Horz. Deflection in</i>	<i>Gov. Load Comb.</i>	<i>Tilt °</i>	<i>Twist °</i>
Pole	174 - 170	1.697	33	0.1129	0.0218
Antenna					
T1	170 - 155	1.639	33	0.1010	0.0218
T2	155 - 140	1.448	33	0.0714	0.0168
T3	140 - 120	1.435	33	0.0920	0.0132
T4	120 - 100	1.867	34	0.1710	0.0142

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Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T5	100 - 80	2.421	35	0.0866	0.0180
T6	80 - 60	2.662	35	0.0230	0.0213
T7	60 - 40	2.527	35	0.0844	0.0242
T8	40 - 20	2.063	35	0.1437	0.0217
T9	20 - 5	1.253	35	0.2484	0.0185
T10	5 - 0	0.329	35	0.3030	0.0285

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
176.000	DB636 Omni	33	1.697	0.1129	0.0218	108203
174.000	DB806-XT	33	1.697	0.1129	0.0218	108203
171.500	DB874H120-SX	33	1.661	0.1051	0.0219	108203
168.000	Pirod 5' Side Mount Standoff (1)	33	1.610	0.0966	0.0215	76796
167.000	SC2	33	1.595	0.0948	0.0212	57816
163.000	Pirod 12' T-Frame Sector Mount (1)	33	1.540	0.0888	0.0196	27574
152.333	Guy	33	1.426	0.0606	0.0161	11288
146.000	VHLP2-18	33	1.405	0.0532	0.0145	8225
140.000	Pirod 12' T-Frame Sector Mount (1)	33	1.435	0.0920	0.0132	6832
132.438	Guy	33	1.554	0.1372	0.0130	11214
120.000	14-ft T-Frame Sector Mount	34	1.867	0.1710	0.0142	30848
108.400	1' Side Mount Standoff	35	2.211	0.1336	0.0163	17158
108.000	Panel Antenna 6'x6"x3"	35	2.222	0.1315	0.0164	16888
90.000	Guy	35	2.589	0.0391	0.0196	12611
50.000	Guy	35	2.333	0.1097	0.0234	15886

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
Pole	174 - 170	10.950	10	0.3984	0.1187
Antenna					
T1	170 - 155	11.028	10	0.3508	0.1894
T2	155 - 140	11.440	10	0.2712	0.1652
T3	140 - 120	12.646	10	0.6192	0.1635
T4	120 - 100	16.217	10	0.9553	0.1659
T5	100 - 80	19.466	10	0.4569	0.1295
T6	80 - 60	20.501	10	0.0454	0.1085
T7	60 - 40	18.969	10	0.6920	0.0899
T8	40 - 20	15.025	10	1.1895	0.0822
T9	20 - 5	8.717	10	1.8067	0.0619
T10	5 - 0	2.257	10	2.0992	0.1092

Critical Deflections and Radius of Curvature - Design Wind

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Elevation	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
176.000	DB636 Omni	10	10.950	0.3984	0.1895	16052
174.000	DB806-XT	10	10.950	0.3984	0.1895	16052
171.500	DB874H120-SX	10	10.999	0.3676	0.1898	16052
168.000	Pirod 5' Side Mount Standoff (1)	10	11.067	0.3317	0.1880	12902
167.000	SC2	10	11.087	0.3234	0.1868	10704
163.000	Pirod 12' T-Frame Sector Mount (1)	10	11.176	0.2954	0.1805	6259
152.333	Guy	10	11.569	0.2955	0.1613	2812
146.000	VHLP2-18	10	12.005	0.4452	0.1554	1930
140.000	Pirod 12' T-Frame Sector Mount (1)	10	12.646	0.6192	0.1635	1597
132.438	Guy	10	13.824	0.8198	0.1699	2618
120.000	14-ft T-Frame Sector Mount	10	16.217	0.9553	0.1659	7644
108.400	1' Side Mount Standoff	10	18.301	0.7394	0.1464	2770
108.000	Panel Antenna 6'x6"x3"	10	18.364	0.7275	0.1456	2713
90.000	Guy	10	20.303	0.1327	0.1186	1877
50.000	Guy	10	17.280	0.9601	0.0881	2117

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load Allowable	Allowable Ratio	Criteria
T1	170	Leg	A325N	0.750	4	0.231	29.821	0.008 ✓	1	Bolt Tension
		Diagonal	A325N	0.500	1	3.013	4.133	0.729 ✓	1	Member Bearing
		Top Girt	A325N	0.500	1	2.087	4.133	0.505 ✓	1	Member Bearing
T2	155	Leg	A325N	0.750	4	5.042	29.821	0.169 ✓	1	Bolt Tension
		Diagonal	A325N	0.500	1	3.571	4.133	0.864 ✓	1	Member Bearing
		Top Girt	A325N	0.500	1	0.328	4.133	0.079 ✓	1	Member Bearing
		Top Guy	A325N	0.750	1	3.744	9.461	0.396 ✓	1	Member Bearing
		Torque Arm Top@152.333	A325N	0.750	8	0.611	17.892	0.034 ✓	1	Bolt Shear
T3	140	Leg	A325N	0.750	4	7.249	29.821	0.243 ✓	1	Bolt Tension
		Diagonal	A325N	0.625	1	8.659	12.425	0.697 ✓	1	Bolt Shear
		Top Girt	A325N	0.625	1	0.651	5.220	0.125 ✓	1	Member Bearing
		Torque Arm Top@132.438	A325N	0.750	8	2.489	17.892	0.139 ✓	1	Bolt Shear
T4	120	Leg	A325N	0.750	4	4.345	29.821	0.146 ✓	1	Bolt Tension
		Diagonal	A325N	0.500	1	2.583	4.133	0.625 ✓	1	Member Bearing
		Top Girt	A325N	0.500	1	0.927	4.133	0.224 ✓	1	Member Bearing
T5	100	Leg	A325N	0.750	4	4.970	29.821	0.167 ✓	1	Bolt Tension
		Diagonal	A325N	0.500	1	2.153	4.133	0.521 ✓	1	Member Bearing
		Top Girt	A325N	0.500	1	0.734	4.133	0.178 ✓	1	Member Bearing
T6	80	Leg	A325N	0.750	4	6.162	29.821	0.207 ✓	1	Bolt Tension
		Diagonal	A325N	0.500	1	2.714	6.960	0.390 ✓	1	Member Bearing
		Top Girt	A325N	0.500	1	0.390	4.133	0.094 ✓	1	Member Bearing

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Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load Allowable	Allowable Ratio	Criteria
T7	60	Leg	A325N	0.750	4	6.289	29.821	0.211 ✓	1	Bolt Tension
		Diagonal	A325N	0.500	1	2.753	4.133	0.666 ✓	1	Member Bearing
		Top Girt	A325N	0.500	1	1.483	4.133	0.359 ✓	1	Member Bearing
T8	40	Leg	A325N	0.750	4	6.998	29.821	0.235 ✓	1	Bolt Tension
		Diagonal	A325N	0.500	1	2.247	4.133	0.544 ✓	1	Member Bearing
		Top Girt	A325N	0.500	1	0.783	4.133	0.189 ✓	1	Member Bearing
T9	20	Leg	A325N	0.750	4	7.375	29.821	0.247 ✓	1	Bolt Tension
		Diagonal	A325N	0.500	1	6.237	4.133	1.509 ✗	1	Member Bearing
		Top Girt	A325N	0.500	1	1.132	7.952	0.142 ✓	1	Bolt Shear
T10	5	Leg	A325N	0.750	4	7.464	29.821	0.250 ✓	1	Bolt Tension

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T_u K	Allowable ϕT_n K	Required S.F.	Actual S.F.
T2	152.333 (A)	1/2 EHS	2.690	26.900	8.198	16.140	1.000	1.969 ✓
	152.333 (A)	1/2 EHS	2.690	26.900	8.117	16.140	1.000	1.988 ✓
	152.333 (B)	1/2 EHS	2.690	26.900	7.965	16.140	1.000	2.026 ✓
	152.333 (B)	1/2 EHS	2.690	26.900	8.044	16.140	1.000	2.007 ✓
	152.333 (C)	1/2 EHS	2.690	26.900	7.816	16.140	1.000	2.065 ✓
	152.333 (C)	1/2 EHS	2.690	26.900	7.855	16.140	1.000	2.055 ✓
T3	132.438 (A)	7/8 EHS	7.970	79.700	29.170	47.820	1.000	1.639 ✓
	132.438 (A)	7/8 EHS	7.970	79.700	28.914	47.820	1.000	1.654 ✓
	132.438 (B)	7/8 EHS	7.970	79.700	27.579	47.820	1.000	1.734 ✓
	132.438 (B)	7/8 EHS	7.970	79.700	27.926	47.820	1.000	1.712 ✓
	132.438 (C)	7/8 EHS	7.970	79.700	26.749	47.820	1.000	1.788 ✓
	132.438 (C)	7/8 EHS	7.970	79.700	26.758	47.820	1.000	1.787 ✓
T5	90.000 (A)	7/16 EHS	2.080	20.800	15.150	12.480	1.000	0.824 ✗
	90.000 (B)	7/16 EHS	2.080	20.800	14.550	12.480	1.000	0.858 ✗
	90.000 (C)	7/16 EHS	2.080	20.800	14.134	12.480	1.000	0.883 ✗
T7	50.000 (A)	7/16 EHS	2.080	20.800	18.306	12.480	1.000	0.682 ✗
	50.000 (B)	7/16 EHS	2.080	20.800	17.450	12.480	1.000	0.715 ✗

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Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T_u K	Allowable ϕT_n K	Required S.F.	Actual S.F.
	50.000 (C) (590)	7/16 EHS	2.080	20.800	16.901	12.480	1.000	0.738 X

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	170 - 155	ROHN 2 STD	15.000	0.250	3.8 K=1.00	1.075	-22.111	48.303	0.458 ¹ ✓
T2	155 - 140	ROHN 2 STD	15.000	0.250	3.8 K=1.00	1.075	-45.575	48.303	0.944 ¹ ✓
T3	140 - 120	Pipe 2.0 STD W 1" Rod Reinforcement	20.000	1.219	12.4 K=1.00	1.805	-76.889	80.322	0.957 ¹ ✓
T4	120 - 100	ROHN 2 STD	20.000	2.438	37.2 K=1.00	1.075	-59.193	43.710	1.354 ¹ X
T5	100 - 80	4.8.1 (1.35 CR) - 193/2 ROHN 2.5 STD	20.000	2.438	30.9 K=1.00	1.704	-72.198	71.520	1.009 ¹ X
T6	80 - 60	4.8.1 (1.01 CR) - 250 Pipe 2.0 STD with 1/3rd Split 2.5 STD Pipe	20.000	1.219	19.0 K=1.00	1.677	-75.533	73.489	1.028 ¹ X
T7	60 - 40	4.8.1 (1.03 CR) - 310/10 ROHN 2.5 STD	20.000	2.438	30.9 K=1.00	1.704	-82.509	71.520	1.154 ¹ X
T8	40 - 20	4.8.1 (1.15 CR) - 391/2 ROHN 2.5 STD	20.000	2.438	30.9 K=1.00	1.704	-87.625	71.520	1.225 ¹ X
T9	20 - 5	4.8.1 (1.23 CR) - 451 ROHN 2.5 STD	15.000	2.417	30.6 K=1.00	1.704	-87.637	71.605	1.224 ¹ X
T10	5 - 0	4.8.1 (1.22 CR) - 505/6 ROHN 2.5 STD	5.376	1.882	23.8 K=1.00	1.704	-94.622	73.563	1.286 ¹ X
		4.8.1 (1.29 CR) - 547/2							

¹ $P_u / \phi P_n$ controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	170 - 155	P1.5X0625	4.188	1.973	46.5 K=1.00	0.282	-3.047	8.160	0.373 ¹

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T2	155 - 140	P1.5X0625	4.188	1.973	46.5 K=1.00	0.282	-3.723	8.160	0.456 ¹ ✓
T3	140 - 120	L1 3/4x1 3/4x1/4	4.200	1.859	79.0 K=1.21	0.813	-8.659	18.953	0.457 ¹ ✓
T4	120 - 100	P1.5X0625	4.200	1.978	46.7 K=1.00	0.282	-3.212	8.154	0.394 ¹ ✓
T5	100 - 80	P1.5X0625	4.200	1.953	46.1 K=1.00	0.282	-2.478	8.178	0.303 ¹ ✓
T6	80 - 60	P1.5X0625	4.200	1.968	46.4 K=1.00	0.282	-2.714	8.165	0.332 ¹ ✓
T7	60 - 40	P1.5X0625	4.200	1.953	46.1 K=1.00	0.282	-3.016	8.178	0.369 ¹ ✓
T8	40 - 20	P1.5X0625	4.200	3.906	92.1 K=1.00	0.282	-3.538	5.850	0.605 ¹ ✓
T9	20 - 5	P1.5X0625	4.188	3.894	91.9 K=1.00	0.282	-6.705	5.865	1.143 ¹ ✗

bolt (1.39 CR) - 514

¹ P_u / φP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T8	40 - 20	1	3.420	3.180	106.9 K=0.70	0.785	-1.518	13.949	0.109 ¹ ✓
T9	20 - 5	1	3.420	3.180	106.9 K=0.70	0.785	-1.518	13.949	0.109 ¹ ✓

¹ P_u / φP_n controls

Secondary Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T2	155 - 140	1	3.420	3.222	108.3 K=0.70	0.785	-1.037	13.730	0.076 ¹ ✓
T3	140 - 120	L1 3/4x1 3/4x1/4	3.420	3.222	96.6 K=1.32	0.813	-5.358	16.114	0.333 ¹ ✓
T6	80 - 60	L2x2x3/16	3.420	3.205	91.2 K=1.46	0.715	-1.308	14.957	0.087 ¹ ✓

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¹ $P_u / \phi P_n$ 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	170 - 155	P1.5X0625	3.420	3.222	76.0 K=1.00	0.282	-0.024	6.747	0.004 ¹ ✓
T2	155 - 140	P1.5X0625	3.420	3.222	76.0 K=1.00	0.282	-0.309	6.747	0.046 ¹ ✓
T3	140 - 120	L1 1/2x1 1/2x1/8	3.420	2.983	120.8 K=1.00	0.359	-0.310	5.398	0.057 ¹ ✓
T8	40 - 20	P1.5X0625	3.420	3.180	75.0 K=1.00	0.282	-0.727	6.800	0.107 ¹ ✓
T9	20 - 5	ROHN 1.5 STD	3.420	3.180	61.3 K=1.00	0.799	-0.511	21.253	0.024 ¹ ✓

¹ $P_u / \phi P_n$ controls

Bottom 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	170 - 155	P1.5X0625	3.420	3.222	76.0 K=1.00	0.282	-0.832	6.747	0.123 ¹ ✓
T3	140 - 120	L1 3/4x1 3/4x1/4	3.420	3.222	116.6 K=1.03	0.813	-0.270	12.863	0.021 ¹ ✓
T7	60 - 40	P1.5X0625	3.420	3.180	75.0 K=1.00	0.282	-0.035	6.800	0.005 ¹ ✓
T8	40 - 20	P1.5X0625	3.420	3.180	75.0 K=1.00	0.282	-0.149	6.800	0.022 ¹ ✓
T10	5 - 0	4x3/16	0.513	0.273	60.6 K=1.00	0.750	-0.961	20.026	0.048 ¹ ✓

¹ $P_u / \phi P_n$ 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 $\frac{P_u}{\phi P_n}$
T10	5 - 0	14x3/16	1.710	1.470	326.0 K=1.00	2.625	-0.989	5.580	0.177 ¹ ✓

KL/R > 200 (C) - 556

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¹ $P_u / \phi P_n$ controls

Top Guy Pull-Off 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 $\frac{P_u}{\phi P_n}$
T2	155 - 140	L2x2x3/16	3.420	3.222	98.1 K=1.00	0.715	-3.367	13.953	0.241 ¹

¹ $P_u / \phi P_n$ controls

Top Guy Pull-Off Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{ux} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{ux}}$	M_{uy} kip-ft	ϕM_{uy} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{uy}}$
T2	155 - 140	L2x2x3/16	0.000	1.301	0.000	0.000	0.664	0.000

Top Guy Pull-Off Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{ux}}$	Ratio $\frac{M_{uy}}{\phi M_{uy}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T2	155 - 140	L2x2x3/16	0.241	0.000	0.000	0.241 ¹ ✓	1.000	4.8.1 ✓

¹ $P_u / \phi P_n$ controls

Torque-Arm Top Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in ²	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T2	155 - 140 (559)	C12x20.7	3.500	3.401	51.1 K=1.00	6.090	-1.287	171.988	0.007
T2	155 - 140 (560)	C12x20.7	3.500	3.401	51.1 K=1.00	6.090	-1.235	171.988	0.007
T2	155 - 140 (566)	C12x20.7	3.500	3.401	51.1 K=1.00	6.090	-1.274	171.988	0.007
T2	155 - 140 (567)	C12x20.7	3.500	3.401	51.1 K=1.00	6.090	-1.362	171.988	0.008
T2	155 - 140 (570)	C12x20.7	3.500	3.401	51.1 K=1.00	6.090	-1.339	171.988	0.008
T2	155 - 140 (571)	C12x20.7	3.500	3.401	51.1 K=1.00	6.090	-1.310	171.988	0.008
T3	140 - 120 (574)	C12x20.7 with 8"x3/8"	3.500	3.401	61.3	9.080	-7.121	241.335	0.030

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T3	140 - 120 (575)	C12x20.7 with 8"x3/8" plates	3.500	3.401	K=1.00 61.3	9.080	-7.403	241.335	0.031
T3	140 - 120 (578)	C12x20.7 with 8"x3/8" plates	3.500	3.401	K=1.00 61.3	9.080	-7.281	241.335	0.030
T3	140 - 120 (579)	C12x20.7 with 8"x3/8" plates	3.500	3.401	K=1.00 61.3	9.080	-7.300	241.335	0.030
T3	140 - 120 (582)	C12x20.7 with 8"x3/8" plates	3.500	3.401	K=1.00 61.3	9.080	-7.388	241.335	0.031
T3	140 - 120 (583)	C12x20.7 with 8"x3/8" plates	3.500	3.401	K=1.00 61.3	9.080	-7.528	241.335	0.031

Torque-Arm Top Bending Design Data

Section No.	Elevation ft	Size	M _{ux} kip-ft	φM _{ux} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{ux}}$	M _{uy} kip-ft	φM _{uy} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{uy}}$
T2	155 - 140 (559)	C12x20.7	-21.091	58.050	0.363	0.000	9.423	0.000
T2	155 - 140 (560)	C12x20.7	-21.894	58.050	0.377	0.000	9.423	0.000
T2	155 - 140 (566)	C12x20.7	-21.557	58.050	0.371	0.000	9.423	0.000
T2	155 - 140 (567)	C12x20.7	-21.090	58.050	0.363	0.000	9.423	0.000
T2	155 - 140 (570)	C12x20.7	-21.555	58.050	0.371	0.000	9.423	0.000
T2	155 - 140 (571)	C12x20.7	-21.882	58.050	0.377	0.000	9.423	0.000
T3	140 - 120 (574)	C12x20.7 with 8"x3/8" plates	-57.699	97.877	0.590	0.000	11.078	0.000
T3	140 - 120 (575)	C12x20.7 with 8"x3/8" plates	-64.873	97.877	0.663	0.000	11.078	0.000
T3	140 - 120 (578)	C12x20.7 with 8"x3/8" plates	-60.785	97.877	0.621	0.000	11.078	0.000
T3	140 - 120 (579)	C12x20.7 with 8"x3/8" plates	-57.616	97.877	0.589	0.000	11.078	0.000
T3	140 - 120 (582)	C12x20.7 with 8"x3/8" plates	-60.926	97.877	0.622	0.000	11.078	0.000
T3	140 - 120 (583)	C12x20.7 with 8"x3/8" plates	-64.936	97.877	0.663	0.000	11.078	0.000

Torque-Arm Top Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{ux}}$	Ratio $\frac{M_{uy}}{\phi M_{uy}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T2	155 - 140 (559)	C12x20.7	0.007	0.363	0.000	0.367	1.000	4.8.1 ✓
T2	155 - 140 (560)	C12x20.7	0.007	0.377	0.000	0.381	1.000	4.8.1 ✓
T2	155 - 140 (566)	C12x20.7	0.007	0.371	0.000	0.375	1.000	4.8.1 ✓
T2	155 - 140 (567)	C12x20.7	0.008	0.363	0.000	0.367	1.000	4.8.1 ✓
T2	155 - 140 (570)	C12x20.7	0.008	0.371	0.000	0.375	1.000	4.8.1 ✓

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Section No.	Elevation ft	Size	Ratio	Ratio	Ratio	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
			ϕP_n	ϕM_{nx}	ϕM_{ny}			
T2	155 - 140 (571)	C12x20.7	0.008	0.377	0.000	0.381	1.000	4.8.1 ✓
T3	140 - 120 (574)	C12x20.7 with 8"x3/8" plates	0.030	0.590	0.000	0.604	1.000	4.8.1 ✓
T3	140 - 120 (575)	C12x20.7 with 8"x3/8" plates	0.031	0.663	0.000	0.678	1.000	4.8.1 ✓
T3	140 - 120 (578)	C12x20.7 with 8"x3/8" plates	0.030	0.621	0.000	0.636	1.000	4.8.1 ✓
T3	140 - 120 (579)	C12x20.7 with 8"x3/8" plates	0.030	0.589	0.000	0.604	1.000	4.8.1 ✓
T3	140 - 120 (582)	C12x20.7 with 8"x3/8" plates	0.031	0.622	0.000	0.638	1.000	4.8.1 ✓
T3	140 - 120 (583)	C12x20.7 with 8"x3/8" plates	0.031	0.663	0.000	0.679	1.000	4.8.1 ✓

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio
			ft	ft		in^2	K	K	$\frac{P_u}{\phi P_n}$
T1	170 - 155	ROHN 2 STD	15.000	0.250	3.8	1.075	20.170	48.354	0.417 ¹ ✓
T2	155 - 140	ROHN 2 STD	15.000	0.250	3.8	1.075	28.999	48.354	0.600 ¹ ✓
T3	140 - 120	Pipe 2.0 STD W 1" Rod Reinforcement	20.000	1.219	12.4	1.805	51.784	81.225	0.638 ¹ ✓
T4	120 - 100	ROHN 2 STD	20.000	2.438	37.2	1.075	0.679	48.354	0.014 ¹ ✓
T5	100 - 80	4.8.1 (1.29 CR) - 191 ROHN 2.5 STD	20.000	0.250	3.2	1.704	12.093	76.682	0.158 ¹ ✓
T6	80 - 60	Pipe 2.0 STD with 1/3rd Split 2.5 STD Pipe	20.000	1.219	19.0	1.677	16.545	75.460	0.219 ¹ ✓
T7	60 - 40	ROHN 2.5 STD	20.000	0.250	3.2	1.704	7.782	76.682	0.101 ¹ ✓
T8	40 - 20	4.8.1 (1.12 CR) - 389/9 ROHN 2.5 STD	20.000	2.438	30.9	1.704	7.522	76.682	0.098 ¹ ✓
		4.8.1 (1.20 CR) - 449/5							✓

¹ $P_u / \phi P_n$ controls

Diagonal Design Data (Tension)

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	170 - 155	P1.5X0625	4.188	1.973	46.5	0.282	3.013	9.145	0.330 ¹
T2	155 - 140	P1.5X0625	4.188	1.973	46.5	0.282	3.571	9.145	0.391 ¹
T3	140 - 120	L1 3/4x1 3/4x1/4	4.200	1.859	44.9	0.469	6.113	20.391	0.300 ¹
T4	120 - 100	P1.5X0625	4.200	1.978	46.7	0.282	2.583	9.145	0.282 ¹
T5	100 - 80	P1.5X0625	4.200	1.953	46.1	0.282	2.153	9.145	0.235 ¹
T6	80 - 60	P1.5X0625	4.200	1.968	46.4	0.282	1.250	9.145	0.137 ¹
T7	60 - 40	P1.5X0625	4.200	1.953	46.1	0.282	2.753	9.145	0.301 ¹
T8	40 - 20	P1.5X0625	4.200	3.906	92.1	0.282	2.247	9.145	0.246 ¹
T9	20 - 5	P1.5X0625	4.188	3.894	91.9	0.282	6.237	9.145	0.682 ¹

bolt (1.51 CR) - 513

¹ P_u / φP_n controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T8	40 - 20	1	3.420	3.180	152.7	0.785	1.518	25.447	0.060 ¹
T9	20 - 5	1	3.420	3.180	152.7	0.785	1.518	25.447	0.060 ¹

¹ P_u / φP_n controls

Secondary Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T2	155 - 140	1	3.420	3.222	154.7	0.785	1.231	25.447	0.048 ¹
T3	140 - 120	L1 3/4x1 3/4x1/4	3.420	3.222	73.1	0.813	7.875	26.325	0.299 ¹
T6	80 - 60	L2x2x3/16	3.420	3.205	62.3	0.715	2.120	23.166	0.092 ¹

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¹ $P_u / \phi P_n$ 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	170 - 155	P1.5X0625	3.420	3.222	76.0	0.282	2.087	9.145	0.228 ¹
T2	155 - 140	P1.5X0625	3.420	3.222	76.0	0.282	0.328	9.145	0.036 ¹
T3	140 - 120	L1 1/2x1 1/2x1/8	3.420	2.983	83.1	0.199	0.651	8.666	0.075 ¹
T4	120 - 100	P1.5X0625	3.420	3.222	76.0	0.282	0.927	9.145	0.101 ¹
T5	100 - 80	P1.5X0625	3.420	3.180	75.0	0.282	0.734	9.145	0.080 ¹
T6	80 - 60	P1.5X0625	3.420	3.205	75.6	0.282	0.390	9.145	0.043 ¹
T7	60 - 40	P1.5X0625	3.420	3.180	75.0	0.282	1.483	9.145	0.162 ¹
T8	40 - 20	P1.5X0625	3.420	3.180	75.0	0.282	0.783	9.145	0.086 ¹
T9	20 - 5	ROHN 1.5 STD	3.420	3.180	61.3	0.799	1.132	25.902	0.044 ¹
T10	5 - 0	14x3/16	2.907	2.667	591.4	2.625	7.724	85.050	0.091 ¹

L/R > 500 (T) - 550

¹ $P_u / \phi P_n$ controls

Bottom 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	170 - 155	P1.5X0625	3.420	3.222	76.0	0.282	0.904	9.145	0.099 ¹
T2	155 - 140	P1.5X0625	3.420	3.222	76.0	0.282	0.434	9.145	0.047 ¹
T3	140 - 120	L1 3/4x1 3/4x1/4	3.420	3.222	73.1	0.813	2.031	26.325	0.077 ¹
T4	120 - 100	P1.5X0625	3.420	3.222	76.0	0.282	0.792	9.145	0.087 ¹
T5	100 - 80	P1.5X0625	3.420	3.180	75.0	0.282	1.463	9.145	0.160 ¹
T6	80 - 60	P1.5X0625	3.420	3.205	75.6	0.282	0.431	9.145	0.047 ¹
T7	60 - 40	P1.5X0625	3.420	3.180	75.0	0.282	1.333	9.145	0.146 ¹

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T8	40 - 20	P1.5X0625	3.420	3.180	75.0	0.282	0.799	9.145	0.087 ¹
T9	20 - 5	P1.5X0625	3.420	3.180	75.0	0.282	13.168	9.145	1.440 ¹
T10	5 - 0	4.8.1 (1.44 CR) - 511 4x3/16	0.513	0.273	60.6	0.750	0.720	24.300	0.030 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 $\frac{P_u}{\phi P_n}$
T5	100 - 80	P1.5X0625	3.420	3.180	75.0	0.282	1.112	12.701	0.088 ¹
T7	60 - 40	P1.5X0625	3.420	3.180	75.0	0.282	1.514	12.701	0.119 ¹

¹ P_u / φP_n controls

Top Guy Pull-Off 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 $\frac{P_u}{\phi P_n}$
T2	155 - 140	L2x2x3/16	3.420	3.222	62.7	0.413	3.744	17.974	0.208 ¹
T5	100 - 80	4x3/8	3.420	3.180	352.6	1.125	5.908	54.844	0.108 ¹
T7	60 - 40	4x3/8	3.420	3.180	352.6	1.125	8.044	54.844	0.147 ¹

¹ P_u / φP_n controls

Top Guy Pull-Off Bending Design Data

Section No.	Elevation ft	Size	M _{ux} kip-ft	φM _{ux} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{ux}}$	M _{uy} kip-ft	φM _{uy} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{uy}}$
T2	155 - 140	L2x2x3/16	0.000	1.301	0.000	0.000	0.664	0.000
T5	100 - 80	4x3/8	0.000	5.625	0.000	0.000	0.527	0.000
T7	60 - 40	4x3/8	0.000	5.625	0.000	0.000	0.527	0.000

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Top Guy Pull-Off Interaction Design Data

Section No.	Elevation ft	Size	Ratio	Ratio	Ratio	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
			$\frac{P_u}{\phi P_n}$	$\frac{M_{ux}}{\phi M_{nx}}$	$\frac{M_{uy}}{\phi M_{ny}}$			
T2	155 - 140	L2x2x3/16	0.208	0.000	0.000	0.208 ¹	1.000	4.8.1 ✓
T5	100 - 80	4x3/8	0.108	0.000	0.000	0.108 ¹	1.000	4.8.1 ✓
T7	60 - 40	4x3/8	0.147	0.000	0.000	0.147 ¹	1.000	4.8.1 ✓

¹ $P_u / \phi P_n$ controls

Torque-Arm Top Design Data

Section No.	Elevation ft	Size	L	L _u	Kl/r	A	P _u	φP _n	Ratio
			ft	ft		in ²	K	K	$\frac{P_u}{\phi P_n}$
T2	155 - 140 (559)	C12x20.7	3.500	3.401	51.1	6.090	0.863	197.316	0.004
T2	155 - 140 (560)	C12x20.7	3.500	3.401	51.1	6.090	1.102	197.316	0.006
T2	155 - 140 (566)	C12x20.7	3.500	3.401	51.1	6.090	1.053	197.316	0.005
T2	155 - 140 (567)	C12x20.7	3.500	3.401	51.1	6.090	0.921	197.316	0.005
T2	155 - 140 (570)	C12x20.7	3.500	3.401	51.1	6.090	0.899	197.316	0.005
T2	155 - 140 (571)	C12x20.7	3.500	3.401	51.1	6.090	1.025	197.316	0.005
T3	140 - 120 (574)	C12x20.7 with 8"x3/8" plates	3.500	3.401	61.3	9.080	6.683	294.192	0.023
T3	140 - 120 (575)	C12x20.7 with 8"x3/8" plates	3.500	3.401	61.3	9.080	6.522	294.192	0.022
T3	140 - 120 (578)	C12x20.7 with 8"x3/8" plates	3.500	3.401	61.3	9.080	6.612	294.192	0.022
T3	140 - 120 (579)	C12x20.7 with 8"x3/8" plates	3.500	3.401	61.3	9.080	6.646	294.192	0.023
T3	140 - 120 (582)	C12x20.7 with 8"x3/8" plates	3.500	3.401	61.3	9.080	6.623	294.192	0.023
T3	140 - 120 (583)	C12x20.7 with 8"x3/8" plates	3.500	3.401	61.3	9.080	6.470	294.192	0.022

Torque-Arm Top Bending Design Data

Section No.	Elevation ft	Size	M _{ux}	φM _{nx}	Ratio	M _{uy}	φM _{ny}	Ratio
			kip-ft	kip-ft	$\frac{M_{ux}}{\phi M_{nx}}$	kip-ft	kip-ft	$\frac{M_{uy}}{\phi M_{ny}}$
T2	155 - 140 (559)	C12x20.7	-22.572	58.050	0.389	0.000	9.423	0.000
T2	155 - 140 (560)	C12x20.7	-24.048	58.050	0.414	0.000	9.423	0.000
T2	155 - 140 (566)	C12x20.7	-23.130	58.050	0.398	0.000	9.423	0.000
T2	155 - 140 (567)	C12x20.7	-22.554	58.050	0.389	0.000	9.423	0.000
T2	155 - 140 (570)	C12x20.7	-23.162	58.050	0.399	0.000	9.423	0.000
T2	155 - 140 (571)	C12x20.7	-24.059	58.050	0.414	0.000	9.423	0.000
T3	140 - 120 (574)	C12x20.7 with 8"x3/8" plates	-49.146	97.877	0.502	0.000	11.078	0.000
T3	140 - 120 (575)	C12x20.7 with 8"x3/8" plates	-56.632	97.877	0.579	0.000	11.078	0.000

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Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{rx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{rx}}$	M_{uy} kip-ft	ϕM_{ry} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ry}}$
T3	140 - 120 (578)	C12x20.7 with 8"x3/8" plates	-53.041	97.877	0.542	0.000	11.078	0.000
T3	140 - 120 (579)	C12x20.7 with 8"x3/8" plates	-49.524	97.877	0.506	0.000	11.078	0.000
T3	140 - 120 (582)	C12x20.7 with 8"x3/8" plates	-51.788	97.877	0.529	0.000	11.078	0.000
T3	140 - 120 (583)	C12x20.7 with 8"x3/8" plates	-55.721	97.877	0.569	0.000	11.078	0.000

Torque-Arm Top Interaction Design Data

Section No.	Elevation ft	Size	Ratio P_u ϕP_n	Ratio M_{ux} ϕM_{rx}	Ratio M_{uy} ϕM_{ry}	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T2	155 - 140 (559)	C12x20.7	0.004	0.389	0.000	0.391	1.000	4.8.1 ✓
T2	155 - 140 (560)	C12x20.7	0.006	0.414	0.000	0.417	1.000	4.8.1 ✓
T2	155 - 140 (566)	C12x20.7	0.005	0.398	0.000	0.401	1.000	4.8.1 ✓
T2	155 - 140 (567)	C12x20.7	0.005	0.389	0.000	0.391	1.000	4.8.1 ✓
T2	155 - 140 (570)	C12x20.7	0.005	0.399	0.000	0.401	1.000	4.8.1 ✓
T2	155 - 140 (571)	C12x20.7	0.005	0.414	0.000	0.417	1.000	4.8.1 ✓
T3	140 - 120 (574)	C12x20.7 with 8"x3/8" plates	0.023	0.502	0.000	0.513	1.000	4.8.1 ✓
T3	140 - 120 (575)	C12x20.7 with 8"x3/8" plates	0.022	0.579	0.000	0.590	1.000	4.8.1 ✓
T3	140 - 120 (578)	C12x20.7 with 8"x3/8" plates	0.022	0.542	0.000	0.553	1.000	4.8.1 ✓
T3	140 - 120 (579)	C12x20.7 with 8"x3/8" plates	0.023	0.506	0.000	0.517	1.000	4.8.1 ✓
T3	140 - 120 (582)	C12x20.7 with 8"x3/8" plates	0.023	0.529	0.000	0.540	1.000	4.8.1 ✓
T3	140 - 120 (583)	C12x20.7 with 8"x3/8" plates	0.022	0.569	0.000	0.580	1.000	4.8.1 ✓

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	170 - 155	Leg	ROHN 2 STD	2	-22.111	48.303	45.8	Pass
T2	155 - 140	Leg	ROHN 2 STD	49	-45.575	48.303	94.4	Pass
T3	140 - 120	Leg	Pipe 2.0 STD W 1" Rod Reinforcement	110	-76.889	80.322	95.7	Pass
T4	120 - 100	Leg	ROHN 2 STD	193	-59.193	43.710	135.4	Fail ✗

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Section No.	Elevation ft	Component Type	Size	Critical Element	P K	θP_{allow} K	% Capacity	Pass Fail
T5	100 - 80	Leg	ROHN 2.5 STD	250	-72.198	71.520	100.9	Fail X
T6	80 - 60	Leg	Pipe 2.0 STD with 1/3rd Split 2.5 STD Pipe	310	-75.533	73.489	102.8	Fail X
T7	60 - 40	Leg	ROHN 2.5 STD	391	-82.509	71.520	115.4	Fail X
T8	40 - 20	Leg	ROHN 2.5 STD	451	-87.625	71.520	122.5	Fail X
T9	20 - 5	Leg	ROHN 2.5 STD	505	-87.637	71.605	122.4	Fail X
T10	5 - 0	Leg	ROHN 2.5 STD	547	-94.622	73.563	128.6	Fail X
T1	170 - 155	Diagonal	P1.5X0625	14	-3.047	8.160	37.3	Pass
T2	155 - 140	Diagonal	P1.5X0625	104	-3.723	8.160	72.9 (b) 45.6	Pass
T3	140 - 120	Diagonal	L1 3/4x1 3/4x1/4	159	-8.659	18.953	86.4 (b) 45.7	Pass
T4	120 - 100	Diagonal	P1.5X0625	246	-3.212	8.154	69.7 (b) 39.4	Pass
T5	100 - 80	Diagonal	P1.5X0625	278	-2.478	8.178	62.5 (b) 30.3	Pass
T6	80 - 60	Diagonal	P1.5X0625	319	-2.714	8.165	52.1 (b) 33.2	Pass
T7	60 - 40	Diagonal	P1.5X0625	427	-3.016	8.178	39.0 (b) 36.9	Pass
T8	40 - 20	Diagonal	P1.5X0625	460	-3.538	5.850	66.6 (b) 60.5	Pass
T9	20 - 5	Diagonal	P1.5X0625	514	-6.705	5.865	114.3	Fail X
T8	40 - 20	Horizontal	1	462	-1.518	13.949	150.9 (b) 10.9	Pass
T9	20 - 5	Horizontal	1	517	-1.518	13.949	10.9	Pass
T2	155 - 140	Secondary Horizontal	1	108	-1.037	13.730	7.6	Pass
T3	140 - 120	Secondary Horizontal	L1 3/4x1 3/4x1/4	172	-5.358	16.114	33.3	Pass
T6	80 - 60	Secondary Horizontal	L2x2x3/16	378	2.120	23.166	9.2	Pass
T1	170 - 155	Top Girt	P1.5X0625	6	2.087	9.145	22.8	Pass
T2	155 - 140	Top Girt	P1.5X0625	52	-0.309	6.747	50.5 (b) 4.6	Pass
T3	140 - 120	Top Girt	L1 1/2x1 1/2x1/8	115	0.651	8.666	7.9 (b) 7.5	Pass
T4	120 - 100	Top Girt	P1.5X0625	195	0.927	9.145	12.5 (b) 10.1	Pass
T5	100 - 80	Top Girt	P1.5X0625	252	0.734	9.145	22.4 (b) 8.0	Pass
T6	80 - 60	Top Girt	P1.5X0625	312	0.390	9.145	17.8 (b) 4.3	Pass
T7	60 - 40	Top Girt	P1.5X0625	393	1.483	9.145	9.4 (b) 16.2	Pass
T8	40 - 20	Top Girt	P1.5X0625	454	-0.727	6.800	35.9 (b) 10.7	Pass
T9	20 - 5	Top Girt	ROHN 1.5 STD	507	1.132	25.902	18.9 (b) 4.4	Pass
T10	5 - 0	Top Girt	14x3/16	550	7.724	85.050	14.2 (b) 9.1	Pass
T1	170 - 155	Bottom Girt	P1.5X0625	9	-0.832	6.747	12.3	Pass
T2	155 - 140	Bottom Girt	P1.5X0625	53	0.434	9.145	4.7	Pass
T3	140 - 120	Bottom Girt	L1 3/4x1 3/4x1/4	117	2.031	26.325	7.7	Pass
T4	120 - 100	Bottom Girt	P1.5X0625	198	0.792	9.145	8.7	Pass
T5	100 - 80	Bottom Girt	P1.5X0625	255	1.463	9.145	16.0	Pass
T6	80 - 60	Bottom Girt	P1.5X0625	315	0.431	9.145	4.7	Pass
T7	60 - 40	Bottom Girt	P1.5X0625	397	1.333	9.145	14.6	Pass
T8	40 - 20	Bottom Girt	P1.5X0625	457	0.799	9.145	8.7	Pass
T9	20 - 5	Bottom Girt	P1.5X0625	511	13.168	9.145	144.0	Fail X
T10	5 - 0	Bottom Girt	4x3/16	552	-0.961	20.026	5.0	Pass
T5	100 - 80	Mid Girt	P1.5X0625	258	1.112	12.701	8.8	Pass
T7	60 - 40	Mid Girt	P1.5X0625	399	1.514	12.701	11.9	Pass

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Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T10	5 - 0	Mid Girt	14x3/16	556	-0.989	5.580	17.7	Pass
T2	155 - 140	Guy A@152.333	1/2	568	8.198	16.140	50.8	Pass
T3	140 - 120	Guy A@132.438	7/8	580	29.170	47.820	61.0	Pass
T5	100 - 80	Guy A@90	7/16	589	15.150	12.480	121.4	Fail X
T7	60 - 40	Guy A@50	7/16	595	18.306	12.480	146.7	Fail X
T2	155 - 140	Guy B@152.333	1/2	565	8.044	16.140	49.8	Pass
T3	140 - 120	Guy B@132.438	7/8	577	27.926	47.820	58.4	Pass
T5	100 - 80	Guy B@90	7/16	588	14.550	12.480	116.6	Fail X
T7	60 - 40	Guy B@50	7/16	594	17.450	12.480	139.8	Fail X
T2	155 - 140	Guy C@152.333	1/2	558	7.855	16.140	48.7	Pass
T3	140 - 120	Guy C@132.438	7/8	573	26.758	47.820	56.0	Pass
T5	100 - 80	Guy C@90	7/16	584	14.134	12.480	113.3	Fail X
T7	60 - 40	Guy C@50	7/16	590	16.901	12.480	135.4	Fail X
T2	155 - 140	Top Guy Pull-Off@152.333	L2x2x3/16	562	-3.367	13.953	24.1 39.6 (b)	Pass
T5	100 - 80	Top Guy Pull-Off@90	4x3/8	586	5.908	54.844	10.8	Pass
T7	60 - 40	Top Guy Pull-Off@50	4x3/8	592	8.044	54.844	14.7	Pass
T2	155 - 140	Torque Arm Top@152.333	C12x20.7	560	-1.235	171.988	41.7	Pass
T3	140 - 120	Torque Arm Top@132.438	C12x20.7 with 8"x3/8" plates	583	-7.528	241.335	67.9	Pass
						Summary		
						Leg (T4)	135.4	Fail X
						Diagonal (T9)	150.9	Fail X
						Horizontal (T9)	10.9	Pass
						Secondary Horizontal (T3)	33.3	Pass
						Top Girt (T1)	50.5	Pass
						Bottom Girt (T9)	144.0	Fail X
						Mid Girt (T10)	17.7	Pass
						Guy A (T7)	146.7	Fail X
						Guy B (T7)	139.8	Fail X
						Guy C (T7)	135.4	Fail X
						Top Guy Pull-Off (T2)	39.6	Pass
						Torque Arm Top (T3)	67.9	Pass
						Bolt Checks	150.9	Fail X
						RATING =	150.9	Fail X