STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
www.ct.gov/csc

VIA ELECTRONIC MAIL

July 11, 2018

Paul F. Sagristano
Cherundolo Consulting
4 Davis Road West, Suite 5
Old Lyme, CT 06371

RE: **EM-SPRINT-003-180504** – Sprint Spectrum Realty Company, L.P. notice of intent to modify an existing telecommunications facility located at 20 Seles Road, Ashford, Connecticut.

Dear Mr. Sagristano:

The Connecticut Siting Council (Council) received a notice of intent to modify the above-referenced facility on May 4, 2018. On May 16 and June 28, 2018, the Council issued letters (enclosed) stating that this request was incomplete because the antenna height of 180 feet listed in the Structural Analysis (SA) Report and Radio Frequency Emissions Analysis (RF) Report compared to the antenna height of 170 feet listed in the transmittal letter and construction drawings (CD) Sheet numbers A-2 and A-4 [Sprint's existing position on the tower is at 170 feet] were different and the SA was lacking an engineer's stamp and signature. The Council requested that Cherundolo Consulting provide the requisite documents, either updated SA and RF reports or corrected transmittal letter and CD, for consistency purposes.

On July 10, 2018, the Council received the SA with corrected antenna height with an engineer's stamp and signature; however, no RF Report with correct antenna height was provided as requested by the Council in its May 16, and June 28, 2018 letters. While the corrected SA with an engineer's stamp and signature is responsive to a portion of the incomplete filing letters, the lack of a RF Report with correct antenna height still remains.

Therefore, the exempt modification filing remains incomplete at this time. The Council recommends that Cherundolo Consulting provide the RF Report with correct antenna height on or before August 1, 2018. If additional time is needed to gather the requested information, please submit a written request for an extension of time prior to August 1, 2018.

This notice of incompletion shall have the effect of tolling the Federal Communications Commission (FCC) 60-day timeframe in accordance with Paragraph 217 of the FCC Wireless Infrastructure Report and Order issued on October 21, 2014 (FCC 14-153).

Thank you for your attention to this matter. Should you have any questions, please feel free to contact me at 860-827-2951.

Sincerely,

Melanie Bachman
Executive Director

MAB/FC

Enclosures

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VIA ELECTRONIC MAIL

June 28, 2018

Paul F. Sagristano
Cherundolo Consulting
4 Davis Road West, Suite 5
Old Lyme, CT 06371

RE: **EM-SPRINT-003-180504** – Sprint Spectrum Realty Company, L.P. notice of intent to modify an existing telecommunications facility located at 20 Seles Road, Ashford, Connecticut.

Dear Mr. Sagristano:

The Connecticut Siting Council (Council) is in receipt of your email correspondence of June 27, 2018 submitted in response to the Council's May 16, 2018 notification of an incomplete request for exempt modification with regard to the above-referenced matter.

The Structural Analysis submitted lacks an engineer's stamp and signature. Also, the Council's May 16, 2018 (see attached) notification recommended that Cherundolo Consulting provide an updated Radio Frequency Emissions Analysis (RF) Report.

The Council recommends Cherundolo Consulting provide the corrected Structural Analysis with an engineer's stamp and signature and an RF Report with correct antenna height on or before July 27, 2018. If additional time is needed to gather the requested information, please submit a written request for an extension of time prior to July 27, 2018.

This second notice of incompletion shall have the effect of tolling the Federal Communications Commission (FCC) 60-day timeframe in accordance with Paragraph 217 of the FCC Wireless Infrastructure Report and Order issued on October 21, 2014 (FCC 14-153).

Thank you for your attention to this matter. Should you have any questions, please feel free to contact me at 860-827-2951.

Sincerely,

Melanie A. Bachman
Executive Director

MB/FC

Enclosure

STATE OF CONNECTICUT
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Ten Franklin Square, New Britain, CT 06051
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www.ct.gov/csc

May 16, 2018

Paul F. Sagristano
Cherundolo Consulting
1280 Route 46 West, Suite 9
Parsippany, NJ 07054

RE: **EM-SPRINT-003-180504** – Sprint Spectrum Realty Company, L.P. notice of intent to modify an existing telecommunications facility located at 20 Seles Road, Ashford, Connecticut.

Dear Mr. Sagristano:

The Connecticut Siting Council (Council) received a notice of intent to modify the above-referenced facility on May 4, 2018.

According to Section 16-50j-71 of the Regulations of Connecticut State Agencies, "...any modification, as defined in Section 16-50j-2a of the Regulations of Connecticut State Agencies, to an existing tower site, except as specified in Sections 16-50j-72 and 16-50j-88 of the Regulations of Connecticut State Agencies, may have a substantial adverse environmental effect."

Staff has reviewed this exempt modification request for completeness and has identified a discrepancy between the antenna height of 180 feet listed in the Structural Analysis (SA) Report and Radio Frequency Emissions Analysis (RF) Report compared to 170 feet stated in the transmittal letter and construction drawings (CD) Sheet numbers A-2 and A-4 [Sprint's existing position on the tower is at 170 feet]. Therefore, the exempt modification request is incomplete at this time.

The Council recommends that Cherundolo Consulting provide the requisite documents, either updated SA and RF reports or corrected transmittal letter and CD, for consistency purposes on or before June 15, 2018. If additional time is needed to gather the requested information, please submit a written request for an extension of time prior to June 15, 2018.

This notice of incompletion shall have the effect of tolling the Federal Communications Commission (FCC) 60-day timeframe in accordance with Paragraph 217 of the FCC Wireless Infrastructure Report and Order issued on October 21, 2014 (FCC 14-153).

Thank you for your attention to this matter. Should you have any questions, please feel free to contact me at 860-827-2951.

Very truly yours,

Melanie Bachman
Executive Director

MAB/FC

c: The Honorable Michael J. Zambo, First Selectman, Town of Ashford
Michael Gardner, Zoning Enforcement Officer, Town of Ashford
Cordless Data Transfer, Inc., Tower owner
Raymond and Kathleen Baker, property owners

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FRED A. NUDD CORPORATION

1743 ROUTE 104, BOX 577
ONTARIO, NY 14519
(315) 524-2531 FAX (315) 524-4249

www.nuddtowers.com

Mark LeGault
Cordless Data Transfer, Inc.
600 Old Hartford Road
Colchester, CT 06415
July 8, 2018

Nudd Job Number: 118-23068

Site Location: 20 Seles Road, Ashford, CT 06258, Windham County (Lat. & Long. = 41-51-48, -72-10-57)

Subject: Structural Analysis of an existing 190 ft Guyed Tower

Fred A. Nudd Corporation has completed a three-dimensional, finite element model structural analysis of the above noted guyed tower. This tower was analyzed considered appurtenance loads noted in the appurtenance loading table on the following page. The design loading criteria and strength design are per the ANSI/TIA-222-G standard, which is the recommended design standard per the 2012 International Building Code (Sec. 1609 & 3108), and the 2016 Connecticut Sate Building Code. Tower and foundation dimensions have been taken from drawings by Fred A. Nudd, project number 00-6111A-1 & 98-6111-2, dated July 28, 2000 & June 1998, respectively. Geotechnical information was taken from a subsurface exploration report by Tower Engineering Professionals, Inc., project number 090004.13, dated September 22, 2009. Design criteria per each analysis are noted on the following page. The tower is assumed to be in good, undamaged and equivalent to as new condition and has been maintained / inspected per criteria by TIA-222.

The purpose of this analysis is to determine the structure's ability to support new Sprint equipment installed at a rad center of 170.5 ft above ground level (AGL). The new equipment to be installed, which includes antennas, diplexers, and associated hardware are listed on the following page in the appurtenance loading table.

Results of the analysis indicate the tower will be able to the support the design loads noted in the appurtenance loading table on the following page. Specific section design loads, capacities and stress ratios are provided on the following pages. Maximum member usage was found to be 99%.

The tower base foundation and anchors were analyzed considering onsite soil information from the aforementioned geotechnical report. Based on this analysis, the foundation and anchors will be able support the proposed appurtenance loading, in addition to the existing wireless equipment and tower superstructure. Specific design loads, capacities and stress ratios are provided on the following pages.

In conclusion, the tower super and substructure can support the listed existing and proposed appurtenance loading.

We trust this report satisfies your needs. Please contact us with any questions or concerns regarding this report.

Best Regards,

Fred. A. Nudd Corporation

Code Design Criteria

TIA-222-G
Windspeed = 126 mph, 3-second gust, V_{ult} = 100 mph, 3-second gust, V_{asd}
Exposure = B
Radial Ice = 1.00 inch
Ice Windspeed = 50 mph, 3-second gust
Structure Class = II
Topographic Category = 1
S_s < 1.0, thus seismic loading effects can be ignored

Appurtenance Loading – Existing Equipment to Remain on Tower

Elevation (ft)	Carrier	Antenna	Mount	Coax (in)
190	Verizon	(2) Antel LPA-80080-4CF (4) Antel LPA-80063-4CF (6) Commscope JAHH-65B-R3B (3) Alcatel Lucent B66A RRH4x45 (AWS) (3) Alcatel Lucent B13 RRH4x30 (700) (3) Alcatel Lucent RRH 4T4R B5 (160) (2) RFS DB-C1-12C-24AB-0Z	(3) 12 ft Sector Frame	(6) 1-5/8 (2) 1-5/8 Fiber
178	--	-	(3) 12 ft Boom / Frame	-
150	--	-	(3) 12 ft Boom / Frame	-
138	AT&T	(6) Powerwave 7770 (6) TMA (6) Diplextors (3) KMW AM-X-CD-17-65-00T-RET (1) Raycap DC6-48-60-18-8F (6) Ericsson RRU11	(3) 12 ft Boom / Frame	(12) 1-5/8 (2) 3/4 DC Cables (1) 3/8 Fiberline

- *Note elevation is measured from grade to center of antenna.*

Appurtenance Loading – Proposed Equipment Configuration for Sprint

Height (ft)	Carrier	Appurtenance	Mount	Coax (in)
170.5	Sprint	(3) RFS APXV9ERR18-C-A20 (3) Alcatel Lucent 4x45W, 1900 MHz (3) Alcatel Lucent TD-RRH8x200-25 (6) Alcatel Lucent RRH 2x50, 800 MHz (3) Commscope DT465B-2XR	(3) 12 ft Boom / Frame	(4) 1-1/4 Hybrid

- *Height measurement taken as distance from top of base foundation to center of appurtenance.*
- *The additional coax can be installed on any face.*

Maximum Member Usage Results

Member	Usage (%)[1]
Leg	99
Diagonal	63
Horizontal	49
Guy Wires	52
Bolts	36
Anchor Rod	68

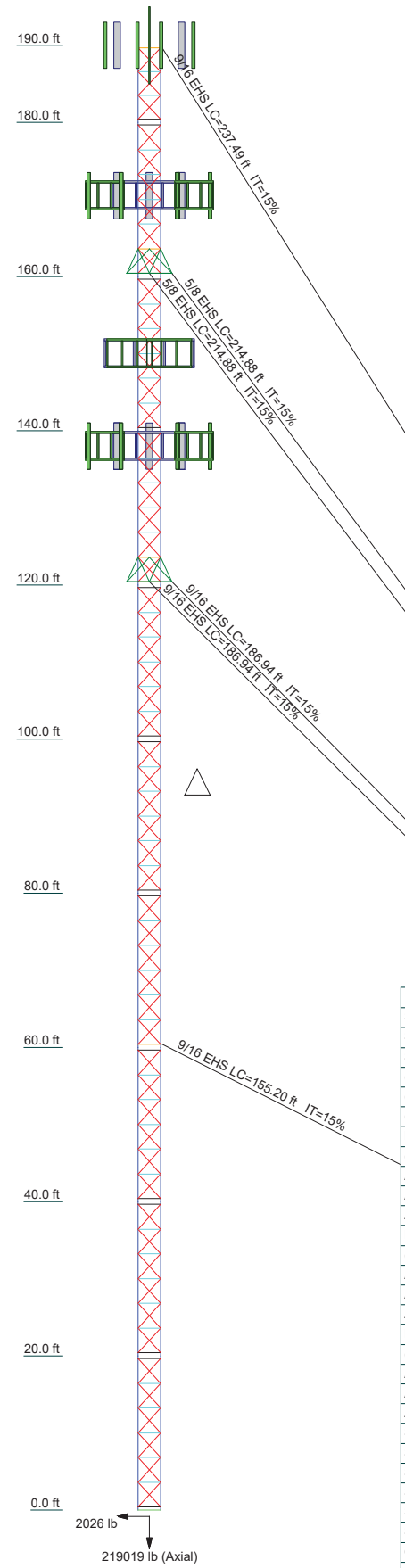
[1]*Usage above 100% indicates the applied design load exceeds the member strength capacity and requires strengthening.*

Foundation Usage Results

Base Reaction	Capacity (kips)	Analysis (kips)	Usage (%)[1]
Compression	254.1	219.0	87
Uplift	92.3	42.3	46
Shear	54.1	47.0	87

[1]*Usage above 100% indicates the applied design load exceeds the member strength capacity and requires strengthening.*

Section	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs					P2.5x.203					
Leg Grade					A500M-58					
Diagonals					SR 5/8					
Diagonal Grade					A36					
Top Girts					L1 1/2x1 1/2x3/16					N.A.
Bottom Girts		L1 1/2x1 1/2x3/16		N.A.		L1 1/2x1 1/2x3/16	N.A.	L1 1/2x1 1/2x3/16	N.A.	A
Horizontals					L1 1/2x1 1/2x3/16					
Top Guy Pull-Offs		N.A.		L1 1/2x1 1/2x3/16		N.A.	L1 1/2x1 1/2x3/16	N.A.	L1 1/2x1 1/2x3/16	
Bot Guy Pull-Offs				N.A.			L1 1/2x1 1/2x3/16	N.A.	L1 1/2x1 1/2x3/16	N.A.
Face Width (ft)					3.5					
# Panels @ (ft)					54 @ 3.20833					3 @ 3.08333
Weight (lb)	6689.9	658.2	658.2	658.2	658.2	658.2	672.6	658.2	872.6	337.0



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Sector Frame Mount	190	Alcatel Lucent 4x45W (Sprint)	170.5
Sector Frame Mount	190	Alcatel Lucent 8x200-25 (Sprint)	170.5
Sector Frame Mount	190	Alcatel Lucent 8x200-25 (Sprint)	170.5
(2) Antel LPA-80080-4CF (Verizon)	190	Alcatel Lucent 8x200-25 (Sprint)	170.5
(2) Antel LPA-80063/4CF (Verizon)	190	RFS APXV9ERR18-C-A20 (Sprint)	170.5
(2) Antel LPA-80063/4CF (Verizon)	190	RFS APXV9ERR18-C-A20 (Sprint)	170.5
Lightning Rod	190	RFS APXV9ERR18-C-A20 (Sprint)	170.5
(2) Commscope JAHH-65B-R3B	190	(2) Alcatel Lucent 2x50 (Sprint)	170.5
Alcatel Lucent B66A RRH4x45	190	(2) Alcatel Lucent 2x50 (Sprint)	170.5
Alcatel Lucent B13 RRH4x30	190	(2) Alcatel Lucent 2x50 (Sprint)	170.5
Alcatel Lucent RRH 4T4R B5	190	Sector Frame Mount	150
RFS DB-C1-12C-24AB-0Z	190	Sector Frame Mount	150
(2) Commscope JAHH-65B-R3B	190	Sector Frame Mount	150
Alcatel Lucent B66A RRH4x45	190	(2) Powerwave LGP21901 (ATI)	138
Alcatel Lucent B13 RRH4x30	190	(2) Powerwave LGP21401 (ATI)	138
Alcatel Lucent RRH 4T4R B5	190	(2) Powerwave LGP21901 (ATI)	138
RFS DB-C1-12C-24AB-0Z	190	(2) Powerwave LGP21901 (ATI)	138
(2) Commscope JAHH-65B-R3B	190	(2) Ericsson RRUS11 (ATI)	138
Alcatel Lucent B66A RRH4x45	190	Raycap DC6-48-60-18-8F (ATI)	138
Alcatel Lucent B13 RRH4x30	190	KMW AM-X-CD-17-65-00T-RET (ATI)	138
Alcatel Lucent RRH 4T4R B5	190	(2) Ericsson RRUS11 (ATI)	138
Sector Frame Mount	178	(2) Ericsson RRUS11 (ATI)	138
Sector Frame Mount	178	Sector Frame Mount	138
Sector Frame Mount	178	Sector Frame Mount	138
Sector Frame Mount (Sprint)	170.5	Sector Frame Mount	138
Sector Frame Mount (Sprint)	170.5	KMW AM-X-CD-17-65-00T-RET (ATI)	138
Sector Frame Mount (Sprint)	170.5	KMW AM-X-CD-17-65-00T-RET (ATI)	138
Commscope DT465B-2XR (Sprint)	170.5	(2) Allgon 7770.00 (ATI)	138
Commscope DT465B-2XR (Sprint)	170.5	(2) Allgon 7770.00 (ATI)	138
Commscope DT465B-2XR (Sprint)	170.5	(2) Allgon 7770.00 (ATI)	138
Alcatel Lucent 4x45W (Sprint)	170.5	(2) Powerwave LGP21401 (ATI)	138
Alcatel Lucent 4x45W (Sprint)	170.5	(2) Powerwave LGP21401 (ATI)	138

lb

SYMBOL LIST

Phone: FAX:	Job: 118-23068		
	Project: Ashford, CT		
	Client: CDT	Drawn by: FAN	App'd:
	Code: TIA-222-G	Date: 07/08/18	Scale: NTS
	Path:		Dwg No. E-1

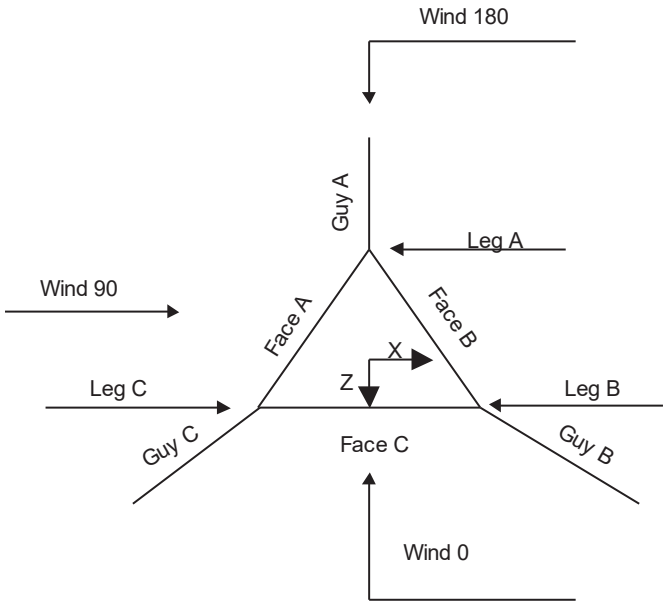
Tower Input Data

The main tower is a 3x guyed tower with an overall height of 190.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 3.50 ft at the top and 3.50 ft at the base.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

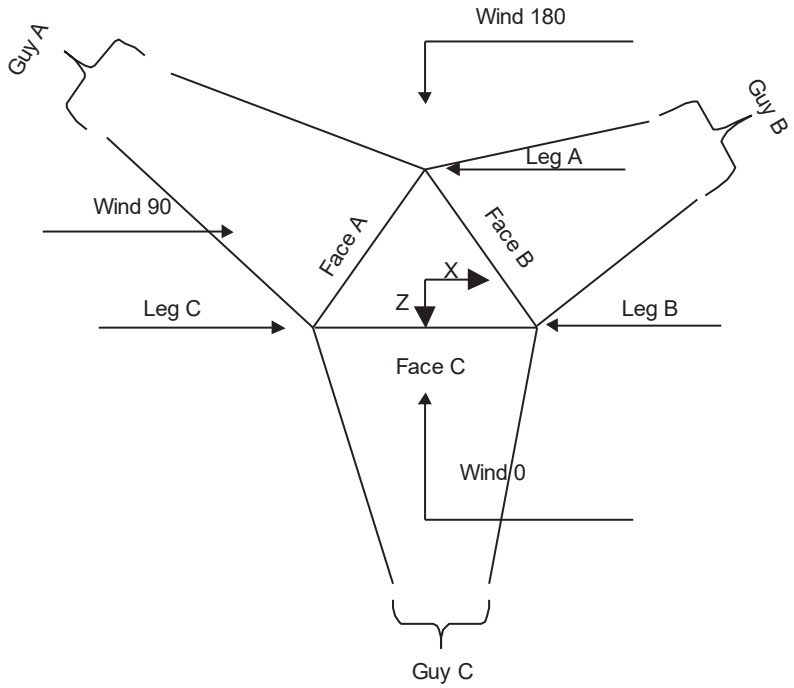
Tower is located in Windham County, Connecticut.
Basic wind speed of 100 mph.
Structure Class II.
Exposure Category B.
Topographic Category 1.
Crest Height 0.00 ft.
Nominal ice thickness of 1.0000 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
Weld together tower sections have flange connections..
Tension only take-up is 0.0313 in.
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, feedline supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs	Distribute Leg Loads As Uniform	Treat Feedline Bundles As Cylinder
Consider Moments - Horizontals	Assume Legs Pinned	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Diagonals	√ Assume Rigid Index Plate	√ Calculate Redundant Bracing Forces
Use Moment Magnification	√ Use Clear Spans For Wind Area	Ignore Redundant Members in FEA
√ Use Code Stress Ratios	√ Use Clear Spans For KL/r	SR Leg Bolts Resist Compression
√ Use Code Safety Factors - Guys	√ Retension Guys To Initial Tension	√ All Leg Panels Have Same Allowable
Escalate Ice	Bypass Mast Stability Checks	Offset Girt At Foundation
Always Use Max Kz	√ Use Azimuth Dish Coefficients	√ Consider Feedline Torque
Use Special Wind Profile	√ Project Wind Area of Appurt.	Include Angle Block Shear Check
√ Include Bolts In Member Capacity	√ Autocalc Torque Arm Areas	Poles
√ Leg Bolts Are At Top Of Section	SR Members Have Cut Ends	Include Shear-Torsion Interaction
√ Secondary Horizontal Braces Leg	Sort Capacity Reports By Component	Always Use Sub-Critical Flow
Use Diamond Inner Bracing (4 Sided)	√ Triangulate Diamond Inner Bracing	Use Top Mounted Sockets
Add IBC .6D+W Combination		



Corner & Starmount Guyed Tower



Face Guyed

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	190.00-180.00			3.50	1	10.00
T2	180.00-160.00			3.50	1	20.00
T3	160.00-140.00			3.50	1	20.00
T4	140.00-120.00			3.50	1	20.00
T5	120.00-100.00			3.50	1	20.00
T6	100.00-80.00			3.50	1	20.00
T7	80.00-60.00			3.50	1	20.00
T8	60.00-40.00			3.50	1	20.00
T9	40.00-20.00			3.50	1	20.00
T10	20.00-0.00			3.50	1	20.00

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	190.00-180.00	3.08	TX Brace	No	Yes	4.5000	4.5000
T2	180.00-160.00	3.21	TX Brace	No	Yes	4.5000	4.5000
T3	160.00-140.00	3.21	TX Brace	No	Yes	4.5000	4.5000
T4	140.00-120.00	3.21	TX Brace	No	Yes	4.5000	4.5000
T5	120.00-100.00	3.21	TX Brace	No	Yes	4.5000	4.5000
T6	100.00-80.00	3.21	TX Brace	No	Yes	4.5000	4.5000
T7	80.00-60.00	3.21	TX Brace	No	Yes	4.5000	4.5000
T8	60.00-40.00	3.21	TX Brace	No	Yes	4.5000	4.5000
T9	40.00-20.00	3.21	TX Brace	No	Yes	4.5000	4.5000
T10	20.00-0.00	3.21	TX Brace	No	Yes	4.5000	4.5000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 190.00-180.00	Pipe	P2.5x.203	A500M-58 (58 ksi)	Solid Round	5/8	A36 (36 ksi)
T2 180.00-160.00	Pipe	P2.5x.203	A500M-58 (58 ksi)	Solid Round	5/8	A36 (36 ksi)
T3 160.00-140.00	Pipe	P2.5x.203	A500M-58 (58 ksi)	Solid Round	5/8	A36 (36 ksi)
T4 140.00-120.00	Pipe	P2.5x.203	A500M-58 (58 ksi)	Solid Round	5/8	A36 (36 ksi)
T5 120.00-100.00	Pipe	P2.5x.203	A500M-58 (58 ksi)	Solid Round	5/8	A36 (36 ksi)
T6 100.00-80.00	Pipe	P2.5x.203	A500M-58 (58 ksi)	Solid Round	5/8	A36 (36 ksi)
T7 80.00-60.00	Pipe	P2.5x.203	A500M-58 (58 ksi)	Solid Round	5/8	A36 (36 ksi)
T8 60.00-40.00	Pipe	P2.5x.203	A500M-58 (58 ksi)	Solid Round	5/8	A36 (36 ksi)
T9 40.00-20.00	Pipe	P2.5x.203	A500M-58 (58 ksi)	Solid Round	5/8	A36 (36 ksi)
T10 20.00-0.00	Pipe	P2.5x.203	A500M-58 (58 ksi)	Solid Round	5/8	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 190.00-180.00	Equal Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)	Equal Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)
T2 180.00-160.00	Equal Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)	Equal Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)
T3 160.00-140.00	Equal Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)	Equal Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)
T4 140.00-120.00	Equal Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)	Equal Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)
T5 120.00-100.00	Equal Angle	L1 1/2x1 1/2x3/16	A36	Equal Angle	L1 1/2x1 1/2x3/16	A36

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T6 100.00-80.00	Equal Angle	L1 1/2x1 1/2x3/16	(36 ksi) A36 (36 ksi)	Equal Angle	L1 1/2x1 1/2x3/16	(36 ksi) A36 (36 ksi)
T7 80.00-60.00	Equal Angle	L1 1/2x1 1/2x3/16	(36 ksi) A36 (36 ksi)	Equal Angle	L1 1/2x1 1/2x3/16	(36 ksi) A36 (36 ksi)
T8 60.00-40.00	Equal Angle	L1 1/2x1 1/2x3/16	(36 ksi) A36 (36 ksi)	Equal Angle	L1 1/2x1 1/2x3/16	(36 ksi) A36 (36 ksi)
T9 40.00-20.00	Equal Angle	L1 1/2x1 1/2x3/16	(36 ksi) A36 (36 ksi)	Equal Angle	L1 1/2x1 1/2x3/16	(36 ksi) A36 (36 ksi)
T10 20.00-0.00	Equal Angle	L1 1/2x1 1/2x3/16	(36 ksi) A36 (36 ksi)	Equal Angle	L1 1/2x1 1/2x3/16	(36 ksi) A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 190.00-180.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)
T2 180.00-160.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)
T3 160.00-140.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)
T4 140.00-120.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)
T5 120.00-100.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)
T6 100.00-80.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)
T7 80.00-60.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)
T8 60.00-40.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)
T9 40.00-20.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)
T10 20.00-0.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
T1 190.00-180.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T2 180.00-160.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T3	0.00	0.0000	A36	1	1	1	36.0000	36.0000

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
160.00-140.00			(36 ksi)					
T4	0.00	0.0000	A36	1	1	1	36.0000	36.0000
140.00-120.00			(36 ksi)					
T5	0.00	0.0000	A36	1	1	1	36.0000	36.0000
120.00-100.00			(36 ksi)					
T6	0.00	0.0000	A36	1	1	1	36.0000	36.0000
100.00-80.00			(36 ksi)					
T7 80.00-60.00	0.00	0.0000	A36	1	1	1	36.0000	36.0000
			(36 ksi)					
T8 60.00-40.00	0.00	0.0000	A36	1	1	1	36.0000	36.0000
			(36 ksi)					
T9 40.00-20.00	0.00	0.0000	A36	1	1	1	36.0000	36.0000
			(36 ksi)					
T10 20.00-0.00	0.00	0.0000	A36	1	1	1	36.0000	36.0000
			(36 ksi)					

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1	No	Yes	1	1	1	1	0.65	0.65	1	1
190.00-180.00				1	1	1	0.65	0.65	1	1
T2	No	Yes	1	1	1	1	0.65	0.65	1	1
180.00-160.00				1	1	1	0.65	0.65	1	1
T3	No	Yes	1	1	1	1	0.65	0.65	1	1
160.00-140.00				1	1	1	0.65	0.65	1	1
T4	No	Yes	1	1	1	1	0.65	0.65	1	1
140.00-120.00				1	1	1	0.65	0.65	1	1
T5	No	Yes	1	1	1	1	0.65	0.65	1	1
120.00-100.00				1	1	1	0.65	0.65	1	1
T6	No	Yes	1	1	1	1	0.65	0.65	1	1
100.00-80.00				1	1	1	0.65	0.65	1	1
T7	No	Yes	1	1	1	1	0.65	0.65	1	1
80.00-60.00				1	1	1	0.65	0.65	1	1
T8	No	Yes	1	1	1	1	0.65	0.65	1	1
60.00-40.00				1	1	1	0.65	0.65	1	1
T9	No	Yes	1	1	1	1	0.65	0.65	1	1
40.00-20.00				1	1	1	0.65	0.65	1	1
T10	No	Yes	1	1	1	1	0.65	0.65	1	1
20.00-0.00				1	1	1	0.65	0.65	1	1

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

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 190.00-180.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75
T2 180.00-160.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75
T3 160.00-140.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75
T4 140.00-120.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75
T5 120.00-100.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75
T6 100.00-80.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75
T7 80.00-60.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75
T8 60.00-40.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75
T9 40.00-20.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75
T10 20.00-0.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 190.00-180.00	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T2 180.00-160.00	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 160.00-140.00	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T4 140.00-120.00	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T5 120.00-100.00	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T6 100.00-80.00	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T7 80.00-60.00	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T8 60.00-40.00	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T9 40.00-20.00	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T10 20.00-0.00	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Guy Data

Guy Elevation ft	Guy Grade		Guy Size	Initial Tension lb	%	Guy Modulus ksi	Guy Weight plf	L_u ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %
160.375	EHS	A	5/8	6360.00	15%	21000	0.813	214.61	145.00	0.0000	0.00	100%
		B	5/8	6360.00	15%	21000	0.813	214.61	145.00	0.0000	0.00	100%
		C	5/8	6360.00	15%	21000	0.813	214.61	145.00	0.0000	0.00	100%
120.375	EHS	A	9/16	5250.00	15%	21000	0.671	186.70	145.00	0.0000	0.00	100%
		B	9/16	5250.00	15%	21000	0.671	186.70	145.00	0.0000	0.00	100%
		C	9/16	5250.00	15%	21000	0.671	186.70	145.00	0.0000	0.00	100%
60.375	EHS	A	9/16	5250.00	15%	21000	0.671	155.01	145.00	0.0000	0.00	100%
		B	9/16	5250.00	15%	21000	0.671	155.01	145.00	0.0000	0.00	100%
		C	9/16	5250.00	15%	21000	0.671	155.01	145.00	0.0000	0.00	100%
189.625	EHS	A	9/16	5250.00	15%	21000	0.671	237.18	145.00	0.0000	0.00	100%
		B	9/16	5250.00	15%	21000	0.671	237.18	145.00	0.0000	0.00	100%
		C	9/16	5250.00	15%	21000	0.671	237.18	145.00	0.0000	0.00	100%

Guy Data *(cont'd)*

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
160.375	Torque Arm	7.00	30.0000	Dog Ear	A36 (36 ksi)	Single Angle	L2x2x5/16 L3x3x1/4
120.375	Torque Arm	7.00	30.0000	Dog Ear	A36 (36 ksi)	Single Angle	L2x2x5/16 L3x3x1/4
60.375	Corner						
189.625	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
160.38	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Equal Angle	L1 1/2x1 1/2x3/16
120.38	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Equal Angle	L1 1/2x1 1/2x3/16
60.38	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Equal Angle	L1 1/2x1 1/2x3/16
189.63	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Equal Angle	L1 1/2x1 1/2x3/16

Guy Data *(cont'd)*

Guy Elevation ft	Cable Weight A lb	Cable Weight B lb	Cable Weight C lb	Cable Weight D lb	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft

Guy Elevation ft	Cable Weight A lb	Cable Weight B lb	Cable Weight C lb	Cable Weight D lb	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft
160.375	174.48	174.48	174.48		2.92 2.9 sec/pulse	2.92 2.9 sec/pulse	2.92 2.9 sec/pulse	
120.375	125.27	125.27	125.27		2.21 2.6 sec/pulse	2.21 2.6 sec/pulse	2.21 2.6 sec/pulse	
60.375	104.01	104.01	104.01		1.53 2.1 sec/pulse	1.53 2.1 sec/pulse	1.53 2.1 sec/pulse	
189.625	159.15	159.15	159.15		3.56 3.3 sec/pulse	3.56 3.3 sec/pulse	3.56 3.3 sec/pulse	

Guy Data *(cont'd)*

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm K_x	Torque Arm K_y	Pull Off K_x	Pull Off K_y	Diagonal K_x	Diagonal K_y
160.375	No	No	1	1	0.65	0.65	1	1
120.375	No	No	1	1	0.65	0.65	1	1
60.375	No	No			0.65	0.65	1	1
189.625	No	No			0.65	0.65	1	1

Guy Data *(cont'd)*

Guy Elevation ft	Torque-Arm Bolt Size in	Torque-Arm Number	Torque-Arm Net Width Deduct in	Torque-Arm U	Pull Off Bolt Size in	Pull Off Number	Pull Off Net Width Deduct in	Pull Off U	Diagonal Bolt Size in	Diagonal Number	Diagonal Net Width Deduct in	Diagonal U
160.375	0.7500 A325N	2	0.0000	1	0.0000 A325N	0	0.0000	1	0.6250 A325N	0	0.0000	1
120.375	0.7500 A325N	2	0.0000	1	0.0000 A325N	0	0.0000	1	0.6250 A325N	0	0.0000	1
60.375	0.6250 A325N	0	0.0000	0.75	0.0000 A325N	0	0.0000	1	0.6250 A325N	0	0.0000	1
189.625	0.6250 A325N	0	0.0000	0.75	0.0000 A325N	0	0.0000	1	0.6250 A325N	0	0.0000	1

Guy Pressures

Guy Elevation ft	Guy Location	z ft	q_z psf	q_z Ice psf	Ice Thickness in
160.375	A	80.19	20	5	2.1857
	B	80.19	20	5	2.1857
	C	80.19	20	5	2.1857
120.375	A	60.19	19	5	2.1239
	B	60.19	19	5	2.1239
	C	60.19	19	5	2.1239
60.375	A	30.19	15	4	1.9823
	B	30.19	15	4	1.9823

Guy Elevation ft	Guy Location	z ft	q_z psf	q_z Ice psf	Ice Thickness in
	C	30.19	15	4	1.9823
189.625	A	94.81	21	5	2.2226
	B	94.81	21	5	2.2226
	C	94.81	21	5	2.2226

Guy-Mast Forces (Excluding Wind) - No Ice

Guy Elevation ft	Guy Location	Chord Angle °	Guy Tension Top / Bottom lb	F_x lb	F_y lb	F_z lb	M_x lb-ft	M_y lb-ft	M_z lb-ft
160.375	A	48.2735	6490.22 / 6360.00	-104.64	4882.39	-4274.84	-9865.97	15173.38	-17088.36
	A	48.2735	6490.22 / 6360.00	104.64	4882.39	-4274.84	-9865.97	-15173.38	17088.36
	B	48.2735	6490.22 / 6360.00	3754.44	4882.39	2046.79	19731.94	15173.38	0.00
	B	48.2735	6490.22 / 6360.00	3649.79	4882.39	2228.04	-9865.97	-15173.38	-17088.36
	C	48.2735	6490.22 / 6360.00	-3649.79	4882.39	2228.04	-9865.97	15173.38	17088.36
	C	48.2735	6490.22 / 6360.00	-3754.44	4882.39	2046.79	19731.94	-15173.38	0.00
			Sum:	0.00	29294.33	0.00	-0.00	0.00	0.00
120.375	A	40.0857	5330.67 / 5250.00	-99.04	3469.21	-4046.08	-7010.33	14361.42	-12142.24
	A	40.0857	5330.67 / 5250.00	99.04	3469.21	-4046.08	-7010.33	-14361.42	12142.24
	B	40.0857	5330.67 / 5250.00	3553.53	3469.21	1937.27	14020.66	14361.42	0.00
	B	40.0857	5330.67 / 5250.00	3454.49	3469.21	2108.82	-7010.33	-14361.42	-12142.24
	C	40.0857	5330.67 / 5250.00	-3454.49	3469.21	2108.82	-7010.33	14361.42	12142.24
	C	40.0857	5330.67 / 5250.00	-3553.53	3469.21	1937.27	14020.66	-14361.42	0.00
			Sum:	0.00	20815.27	0.00	-0.00	0.00	0.00
60.375	A	22.8926	5290.46 / 5250.00	0.00	2102.12	-4854.90	-4247.81	0.00	0.00
	B	22.8926	5290.46 / 5250.00	4204.47	2102.12	2427.45	2123.90	0.00	-3678.71
	C	22.8926	5290.46 / 5250.00	-4204.47	2102.12	2427.45	2123.90	-0.00	3678.71
			Sum:	0.00	6306.36	0.00	0.00	0.00	0.00
189.625	A	52.9833	5377.07 / 5250.00	0.00	4322.16	-3198.73	-8733.90	0.00	0.00
	B	52.9833	5377.07 / 5250.00	2770.18	4322.16	1599.36	4366.95	0.00	-7563.78
	C	52.9833	5377.07 / 5250.00	-2770.18	4322.16	1599.36	4366.95	-0.00	7563.78
			Sum:	0.00	12966.47	0.00	0.00	0.00	0.00

Guy-Mast Forces (Excluding Wind) - Ice

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom	F_x	F_y	F_z	M_x	M_y	M_z
ft		°	lb	lb	lb	lb	lb-ft	lb-ft	lb-ft
160.375	A	48.2735	11257.75 9926.09	-172.02	8793.49	-7027.21	-17769.24	24942.86	-30777.22
	A	48.2735	11257.75 9926.09	172.02	8793.49	-7027.21	-17769.24	-24942.86	30777.22
	B	48.2735	11257.75 9926.09	6171.76	8793.49	3364.63	35538.47	24942.86	0.00
	B	48.2735	11257.75 9926.09	5999.74	8793.49	3662.58	-17769.24	-24942.86	-30777.22
	C	48.2735	11257.75 9926.09	-5999.74	8793.49	3662.58	-17769.24	24942.86	30777.22
	C	48.2735	11257.75 9926.09	-6171.76	8793.49	3364.63	35538.47	-24942.86	0.00
			Sum:	0.00	52760.95	0.00	-0.00	0.00	0.00
120.375	A	40.0857	9516.06 8597.94	-169.12	6541.87	-6908.74	-13219.33	24522.34	-22896.56
	A	40.0857	9516.06 8597.94	169.12	6541.87	-6908.74	-13219.33	-24522.34	22896.56
	B	40.0857	9516.06 8597.94	6067.71	6541.87	3307.91	26438.67	24522.34	0.00
	B	40.0857	9516.06 8597.94	5898.59	6541.87	3600.83	-13219.33	-24522.34	-22896.56
	C	40.0857	9516.06 8597.94	-5898.59	6541.87	3600.83	-13219.33	24522.34	22896.56
	C	40.0857	9516.06 8597.94	-6067.71	6541.87	3307.91	26438.67	-24522.34	0.00
			Sum:	0.00	39251.24	0.00	-0.00	0.00	0.00
60.375	A	22.8926	8905.54 8493.69	0.00	3912.05	-8000.28	-7905.18	0.00	0.00
	B	22.8926	8905.54 8493.69	6928.45	3912.05	4000.14	3952.59	0.00	-6846.09
	C	22.8926	8905.54 8493.69	-6928.45	3912.05	4000.14	3952.59	-0.00	6846.09
			Sum:	0.00	11736.15	-0.00	0.00	0.00	0.00
189.625	A	52.9833	10097.77 8539.50	0.00	8411.96	-5586.05	-16998.27	0.00	0.00
	B	52.9833	10097.77 8539.50	4837.66	8411.96	2793.02	8499.13	0.00	-14720.93
	C	52.9833	10097.77 8539.50	-4837.66	8411.96	2793.02	8499.13	-0.00	14720.93
			Sum:	0.00	25235.88	0.00	0.00	0.00	0.00

Guy-Mast Forces (Excluding Wind) - Service

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom	F_x	F_y	F_z	M_x	M_y	M_z
ft		°	lb	lb	lb	lb	lb-ft	lb-ft	lb-ft
160.375	A	48.2735	6490.22 6360.00	-104.64	4882.39	-4274.84	-9865.97	15173.38	-17088.36
	A	48.2735	6490.22	104.64	4882.39	-4274.84	-9865.97	-15173.38	17088.36

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top / Bottom	F_x	F_y	F_z	M_x	M_y	M_z
ft		°	lb	lb	lb	lb	lb-ft	lb-ft	lb-ft
			6360.00						
	B	48.2735	6490.22	3754.44	4882.39	2046.79	19731.94	15173.38	0.00
			6360.00						
	B	48.2735	6490.22	3649.79	4882.39	2228.04	-9865.97	-15173.38	-17088.36
			6360.00						
	C	48.2735	6490.22	-3649.79	4882.39	2228.04	-9865.97	15173.38	17088.36
			6360.00						
	C	48.2735	6490.22	-3754.44	4882.39	2046.79	19731.94	-15173.38	0.00
			6360.00						
			Sum:	0.00	29294.33	0.00	-0.00	0.00	0.00
120.375	A	40.0857	5330.67	-99.04	3469.21	-4046.08	-7010.33	14361.42	-12142.24
			5250.00						
	A	40.0857	5330.67	99.04	3469.21	-4046.08	-7010.33	-14361.42	12142.24
			5250.00						
	B	40.0857	5330.67	3553.53	3469.21	1937.27	14020.66	14361.42	0.00
			5250.00						
	B	40.0857	5330.67	3454.49	3469.21	2108.82	-7010.33	-14361.42	-12142.24
			5250.00						
	C	40.0857	5330.67	-3454.49	3469.21	2108.82	-7010.33	14361.42	12142.24
			5250.00						
	C	40.0857	5330.67	-3553.53	3469.21	1937.27	14020.66	-14361.42	0.00
			5250.00						
			Sum:	0.00	20815.27	0.00	-0.00	0.00	0.00
60.375	A	22.8926	5290.46	0.00	2102.12	-4854.90	-4247.81	0.00	0.00
			5250.00						
	B	22.8926	5290.46	4204.47	2102.12	2427.45	2123.90	0.00	-3678.71
			5250.00						
	C	22.8926	5290.46	-4204.47	2102.12	2427.45	2123.90	-0.00	3678.71
			5250.00						
			Sum:	0.00	6306.36	0.00	0.00	0.00	0.00
189.625	A	52.9833	5377.07	0.00	4322.16	-3198.73	-8733.90	0.00	0.00
			5250.00						
	B	52.9833	5377.07	2770.18	4322.16	1599.36	4366.95	0.00	-7563.78
			5250.00						
	C	52.9833	5377.07	-2770.18	4322.16	1599.36	4366.95	-0.00	7563.78
			5250.00						
			Sum:	0.00	12966.47	0.00	0.00	0.00	0.00

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
1 5/8 (Verizon)	C	No	Ar (CaAa)	190.00 - 0.00	0.0000	0.25	6	6	0.2500	1.9800		1.04
1 1/4 (Sprint)	A	No	Ar (CaAa)	170.50 - 0.00	0.0000	0.25	4	4	0.5000 1.0000	1.5500		0.66
1 5/8 (AT&T)	B	No	Ar (CaAa)	138.00 - 0.00	6.0000	0.5	12	6	0.2500	1.9800		1.04
Safety Line 3/8	A	No	Ar (CaAa)	190.00 - 0.00	0.0000	0	1	1	0.3750	0.3750		0.22
3/4 Cable	B	No	Ar (CaAa)	138.00 - 0.00	0.0000	0.1	2	1	0.6300	0.6300		0.19
3/8 Cable	B	No	Ar (CaAa)	138.00 - 0.00	0.0000	0.1	1	1	0.0000	0.3750		0.19
1-5/8 Fiber	C	No	Ar (CaAa)	190.00 - 0.00	0.0000	-0.25	2	2	1.9800	1.9800		0.75

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
(Verizon)												

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T1	190.00-180.00	A	0.000	0.000	0.375	0.000	2.20
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	15.840	0.000	77.40
T2	180.00-160.00	A	0.000	0.000	7.260	0.000	32.12
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	31.680	0.000	154.80
T3	160.00-140.00	A	0.000	0.000	13.150	0.000	57.20
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	31.680	0.000	154.80
T4	140.00-120.00	A	0.000	0.000	13.150	0.000	57.20
		B	0.000	0.000	45.711	0.000	234.90
		C	0.000	0.000	31.680	0.000	154.80
T5	120.00-100.00	A	0.000	0.000	13.150	0.000	57.20
		B	0.000	0.000	50.790	0.000	261.00
		C	0.000	0.000	31.680	0.000	154.80
T6	100.00-80.00	A	0.000	0.000	13.150	0.000	57.20
		B	0.000	0.000	50.790	0.000	261.00
		C	0.000	0.000	31.680	0.000	154.80
T7	80.00-60.00	A	0.000	0.000	13.150	0.000	57.20
		B	0.000	0.000	50.790	0.000	261.00
		C	0.000	0.000	31.680	0.000	154.80
T8	60.00-40.00	A	0.000	0.000	13.150	0.000	57.20
		B	0.000	0.000	50.790	0.000	261.00
		C	0.000	0.000	31.680	0.000	154.80
T9	40.00-20.00	A	0.000	0.000	13.150	0.000	57.20
		B	0.000	0.000	50.790	0.000	261.00
		C	0.000	0.000	31.680	0.000	154.80
T10	20.00-0.00	A	0.000	0.000	13.150	0.000	57.20
		B	0.000	0.000	50.790	0.000	261.00
		C	0.000	0.000	31.680	0.000	154.80

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T1	190.00-180.00	A	2.376	0.000	0.000	5.128	0.000	82.07
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	39.679	0.000	654.11
T2	180.00-160.00	A	2.356	0.000	0.000	28.423	0.000	441.60
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	79.092	0.000	1296.94
T3	160.00-140.00	A	2.327	0.000	0.000	44.618	0.000	683.99
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	78.701	0.000	1280.51
T4	140.00-120.00	A	2.294	0.000	0.000	44.264	0.000	671.81
		B		0.000	0.000	72.157	0.000	1432.23

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
		C		0.000	0.000	78.261	0.000	1262.08
T5	120.00-100.00	A	2.256	0.000	0.000	43.857	0.000	657.93
		B		0.000	0.000	79.501	0.000	1563.20
		C		0.000	0.000	77.755	0.000	1241.02
T6	100.00-80.00	A	2.211	0.000	0.000	43.378	0.000	641.75
		B		0.000	0.000	78.707	0.000	1530.34
		C		0.000	0.000	77.159	0.000	1216.36
T7	80.00-60.00	A	2.156	0.000	0.000	42.791	0.000	622.21
		B		0.000	0.000	77.734	0.000	1490.65
		C		0.000	0.000	76.430	0.000	1186.44
T8	60.00-40.00	A	2.085	0.000	0.000	42.029	0.000	597.24
		B		0.000	0.000	76.471	0.000	1439.93
		C		0.000	0.000	75.484	0.000	1147.99
T9	40.00-20.00	A	1.981	0.000	0.000	40.922	0.000	561.80
		B		0.000	0.000	74.634	0.000	1367.89
		C		0.000	0.000	74.109	0.000	1092.91
T10	20.00-0.00	A	1.775	0.000	0.000	38.729	0.000	494.55
		B		0.000	0.000	70.992	0.000	1231.12
		C		0.000	0.000	71.390	0.000	986.69

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	190.00-180.00	-0.8400	1.9798	-0.2739	0.3972
T2	180.00-160.00	-0.9185	1.3361	-0.3203	0.2853
T3	160.00-140.00	-0.9703	0.8543	-0.3479	0.1748
T4	140.00-120.00	2.5550	1.3137	1.4201	0.4957
T5	120.00-100.00	2.7587	1.3402	1.5342	0.5193
T6	100.00-80.00	2.7587	1.3402	1.5313	0.5228
T7	80.00-60.00	2.7587	1.3402	1.5278	0.5272
T8	60.00-40.00	2.7587	1.3402	1.5235	0.5334
T9	40.00-20.00	2.7587	1.3402	1.5177	0.5432
T10	20.00-0.00	2.7587	1.3402	1.5077	0.5656

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	1	1 5/8	180.00 - 190.00	0.6000	0.2458
T1	4	Safety Line 3/8	180.00 - 190.00	0.6000	0.2458
T1	7	1-5/8 Fiber	180.00 - 190.00	0.6000	0.2458
T2	1	1 5/8	160.00 - 180.00	0.6000	0.2654
T2	2	1 1/4	160.00 - 170.50	0.6000	0.2654
T2	4	Safety Line 3/8	160.00 -	0.6000	0.2654

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			180.00		
T2	7	1-5/8 Fiber	160.00 - 180.00	0.6000	0.2654
T3	1	1 5/8	140.00 - 160.00	0.6000	0.2713
T3	2	1 1/4	140.00 - 160.00	0.6000	0.2713
T3	4	Safety Line 3/8	140.00 - 160.00	0.6000	0.2713
T3	7	1-5/8 Fiber	140.00 - 160.00	0.6000	0.2713
T4	1	1 5/8	120.00 - 140.00	0.6000	0.2781
T4	2	1 1/4	120.00 - 140.00	0.6000	0.2781
T4	3	1 5/8	120.00 - 138.00	1.0000	1.0000
T4	4	Safety Line 3/8	120.00 - 140.00	0.6000	0.2781
T4	5	3/4 Cable	120.00 - 138.00	0.6000	0.2781
T4	6	3/8 Cable	120.00 - 138.00	0.6000	0.2781
T4	7	1-5/8 Fiber	120.00 - 140.00	0.6000	0.2781
T5	1	1 5/8	100.00 - 120.00	0.6000	0.2859
T5	2	1 1/4	100.00 - 120.00	0.6000	0.2859
T5	3	1 5/8	100.00 - 120.00	1.0000	1.0000
T5	4	Safety Line 3/8	100.00 - 120.00	0.6000	0.2859
T5	5	3/4 Cable	100.00 - 120.00	0.6000	0.2859
T5	6	3/8 Cable	100.00 - 120.00	0.6000	0.2859
T5	7	1-5/8 Fiber	100.00 - 120.00	0.6000	0.2859
T6	1	1 5/8	80.00 - 100.00	0.6000	0.2952
T6	2	1 1/4	80.00 - 100.00	0.6000	0.2952
T6	3	1 5/8	80.00 - 100.00	1.0000	1.0000
T6	4	Safety Line 3/8	80.00 - 100.00	0.6000	0.2952
T6	5	3/4 Cable	80.00 - 100.00	0.6000	0.2952
T6	6	3/8 Cable	80.00 - 100.00	0.6000	0.2952
T6	7	1-5/8 Fiber	80.00 - 100.00	0.6000	0.2952
T7	1	1 5/8	60.00 - 80.00	0.6000	0.3065
T7	2	1 1/4	60.00 - 80.00	0.6000	0.3065
T7	3	1 5/8	60.00 - 80.00	1.0000	1.0000
T7	4	Safety Line 3/8	60.00 - 80.00	0.6000	0.3065
T7	5	3/4 Cable	60.00 - 80.00	0.6000	0.3065
T7	6	3/8 Cable	60.00 - 80.00	0.6000	0.3065
T7	7	1-5/8 Fiber	60.00 - 80.00	0.6000	0.3065
T8	1	1 5/8	40.00 - 60.00	0.6000	0.3214
T8	2	1 1/4	40.00 - 60.00	0.6000	0.3214
T8	3	1 5/8	40.00 - 60.00	1.0000	1.0000
T8	4	Safety Line 3/8	40.00 - 60.00	0.6000	0.3214
T8	5	3/4 Cable	40.00 - 60.00	0.6000	0.3214
T8	6	3/8 Cable	40.00 - 60.00	0.6000	0.3214
T8	7	1-5/8 Fiber	40.00 - 60.00	0.6000	0.3214
T9	1	1 5/8	20.00 - 40.00	0.6000	0.3431
T9	2	1 1/4	20.00 - 40.00	0.6000	0.3431

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T9	3	1 5/8	20.00 - 40.00	1.0000	1.0000
T9	4	Safety Line 3/8	20.00 - 40.00	0.6000	0.3431
T9	5	3/4 Cable	20.00 - 40.00	0.6000	0.3431
T9	6	3/8 Cable	20.00 - 40.00	0.6000	0.3431
T9	7	1-5/8 Fiber	20.00 - 40.00	0.6000	0.3431
T10	1	1 5/8	0.00 - 20.00	0.6000	0.3869
T10	2	1 1/4	0.00 - 20.00	0.6000	0.3869
T10	3	1 5/8	0.00 - 20.00	1.0000	1.0000
T10	4	Safety Line 3/8	0.00 - 20.00	0.6000	0.3869
T10	5	3/4 Cable	0.00 - 20.00	0.6000	0.3869
T10	6	3/8 Cable	0.00 - 20.00	0.6000	0.3869
T10	7	1-5/8 Fiber	0.00 - 20.00	0.6000	0.3869

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Sector Frame Mount	A	From Leg	1.50 0.00 0.00	0.0000	190.00	No Ice 1/2" Ice 1" Ice	13.60 18.40 23.20	13.60 18.40 23.20	465.00 600.00 735.00
Sector Frame Mount	B	From Leg	1.50 0.00 0.00	0.0000	190.00	No Ice 1/2" Ice 1" Ice	13.60 18.40 23.20	13.60 18.40 23.20	465.00 600.00 735.00
Sector Frame Mount	C	From Leg	1.50 0.00 0.00	0.0000	190.00	No Ice 1/2" Ice 1" Ice	13.60 18.40 23.20	13.60 18.40 23.20	465.00 600.00 735.00
(2) Antel LPA-80080-4CF (Verizon)	A	From Leg	3.00 0.00 0.00	0.0000	190.00	No Ice 1/2" Ice 1" Ice	1.51 1.81 2.53	6.79 7.14 7.50	12.00 45.10 50.65
(2) Antel LPA-80063/4CF (Verizon)	B	From Leg	3.00 0.00 0.00	0.0000	190.00	No Ice 1/2" Ice 1" Ice	7.00 7.36 2.53	3.48 3.82 3.99	20.00 72.60 50.65
(2) Antel LPA-80063/4CF (Verizon)	C	From Leg	3.00 0.00 0.00	0.0000	190.00	No Ice 1/2" Ice 1" Ice	7.00 7.36 2.53	3.48 3.82 3.99	20.00 72.60 50.65
Sector Frame Mount	A	From Leg	1.50 0.00 0.00	0.0000	178.00	No Ice 1/2" Ice 1" Ice	13.60 18.40 23.20	13.60 18.40 23.20	465.00 600.00 735.00
Sector Frame Mount	B	From Leg	1.50 0.00 0.00	0.0000	178.00	No Ice 1/2" Ice 1" Ice	13.60 18.40 23.20	13.60 18.40 23.20	465.00 600.00 735.00
Sector Frame Mount	C	From Leg	1.50 0.00 0.00	0.0000	178.00	No Ice 1/2" Ice 1" Ice	13.60 18.40 23.20	13.60 18.40 23.20	465.00 600.00 735.00
(2) Allgon 7770.00 (AT&T)	A	From Leg	3.00 0.00 0.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice	5.88 6.25 6.64	2.93 3.29 3.67	35.00 67.60 85.58
(2) Allgon 7770.00 (AT&T)	B	From Leg	3.00 0.00 0.00	0.0000	138.00	No Ice 1/2" Ice 1" Ice	5.88 6.25 6.64	2.93 3.29 3.67	35.00 67.60 85.58

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
(2) Allgon 7770.00	C	From Leg	3.00		0.0000	138.00	No Ice	5.88	2.93	35.00
(AT&T)			0.00				1/2" Ice	6.25	3.29	67.60
			0.00				1" Ice	6.64	3.67	85.58
(2) Powerwave LGP21401	A	From Leg	3.00		0.0000	138.00	No Ice	1.95	0.53	31.00
(AT&T)			0.00				1/2" Ice	2.11	0.63	30.30
			0.00				1" Ice	2.28	0.75	203.29
(2) Powerwave LGP21401	B	From Leg	3.00		0.0000	138.00	No Ice	1.95	0.53	31.00
(AT&T)			0.00				1/2" Ice	2.11	0.63	30.30
			0.00				1" Ice	2.28	0.75	203.29
(2) Powerwave LGP21401	C	From Leg	3.00		0.0000	138.00	No Ice	1.95	0.53	31.00
(AT&T)			0.00				1/2" Ice	2.11	0.63	30.30
			0.00				1" Ice	2.28	0.75	203.29
(2) Powerwave LGP21901	A	From Leg	3.00		0.0000	138.00	No Ice	0.27	0.13	25.00
(AT&T)			0.00				1/2" Ice	0.33	0.18	30.30
			0.00				1" Ice	0.41	0.23	203.29
(2) Powerwave LGP21901	B	From Leg	3.00		0.0000	138.00	No Ice	0.27	0.13	25.00
(AT&T)			0.00				1/2" Ice	0.33	0.18	30.30
			0.00				1" Ice	0.41	0.23	203.29
(2) Powerwave LGP21901	C	From Leg	3.00		0.0000	138.00	No Ice	0.27	0.13	25.00
(AT&T)			0.00				1/2" Ice	0.33	0.18	30.30
			0.00				1" Ice	0.41	0.23	203.29
Sector Frame Mount	A	From Leg	1.50		0.0000	150.00	No Ice	13.60	13.60	465.00
			0.00				1/2" Ice	18.40	18.40	600.00
			0.00				1" Ice	23.20	23.20	735.00
Sector Frame Mount	B	From Leg	1.50		0.0000	150.00	No Ice	13.60	13.60	465.00
			0.00				1/2" Ice	18.40	18.40	600.00
			0.00				1" Ice	23.20	23.20	735.00
Sector Frame Mount	C	From Leg	1.50		0.0000	150.00	No Ice	13.60	13.60	465.00
			0.00				1/2" Ice	18.40	18.40	600.00
			0.00				1" Ice	23.20	23.20	735.00
Lightning Rod	C	None			0.0000	190.00	No Ice	1.00	1.00	40.00
							1/2" Ice	2.02	2.02	49.26
							1" Ice	3.05	3.05	64.89
KMW	A	From Leg	3.00		0.0000	138.00	No Ice	11.31	6.80	25.00
AM-X-CD-17-65-00T-RET			0.00				1/2" Ice	11.93	7.48	86.40
(AT&T)			0.00				1" Ice	12.53	8.12	155.40
KMW	B	From Leg	3.00		0.0000	138.00	No Ice	11.31	6.80	25.00
AM-X-CD-17-65-00T-RET			0.00				1/2" Ice	11.93	7.48	86.40
(AT&T)			0.00				1" Ice	12.53	8.12	155.40
KMW	C	From Leg	3.00		0.0000	138.00	No Ice	11.31	6.80	25.00
AM-X-CD-17-65-00T-RET			0.00				1/2" Ice	11.93	7.48	86.40
(AT&T)			0.00				1" Ice	12.53	8.12	155.40
(2) Ericsson RRUS11	A	From Leg	3.00		0.0000	138.00	No Ice	2.99	0.36	25.00
(AT&T)			0.00				1/2" Ice	3.19	0.48	38.50
			0.00				1" Ice	3.41	0.60	54.60
(2) Ericsson RRUS11	B	From Leg	3.00		0.0000	138.00	No Ice	2.99	0.36	25.00
(AT&T)			0.00				1/2" Ice	3.19	0.48	38.50
			0.00				1" Ice	3.41	0.60	54.60
(2) Ericsson RRUS11	C	From Leg	3.00		0.0000	138.00	No Ice	2.99	0.36	25.00
(AT&T)			0.00				1/2" Ice	3.19	0.48	38.50
			0.00				1" Ice	3.41	0.60	54.60
Raycap DC6-48-60-18-8F	A	From Leg	3.00		0.0000	138.00	No Ice	1.47	1.47	25.00
(AT&T)			0.00				1/2" Ice	1.67	1.67	47.60
			0.00				1" Ice	1.88	1.88	73.70
Sector Frame Mount	A	From Leg	1.50		0.0000	170.50	No Ice	13.60	13.60	465.00
(Sprint)			0.00				1/2" Ice	18.40	18.40	600.00
			0.00				1" Ice	23.20	23.20	735.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Sector Frame Mount (Sprint)	B	From Leg	1.50	0.00	0.0000	170.50	No Ice	13.60	13.60	465.00
			0.00				1/2" Ice	18.40	18.40	600.00
			0.00				1" Ice	23.20	23.20	735.00
Sector Frame Mount (Sprint)	C	From Leg	1.50	0.00	0.0000	170.50	No Ice	13.60	13.60	465.00
			0.00				1/2" Ice	18.40	18.40	600.00
			0.00				1" Ice	23.20	23.20	735.00
Sector Frame Mount	A	From Leg	1.50	0.00	0.0000	138.00	No Ice	13.60	13.60	465.00
			0.00				1/2" Ice	18.40	18.40	600.00
			0.00				1" Ice	23.20	23.20	735.00
Sector Frame Mount	B	From Leg	1.50	0.00	0.0000	138.00	No Ice	13.60	13.60	465.00
			0.00				1/2" Ice	18.40	18.40	600.00
			0.00				1" Ice	23.20	23.20	735.00
Sector Frame Mount	C	From Leg	1.50	0.00	0.0000	138.00	No Ice	13.60	13.60	465.00
			0.00				1/2" Ice	18.40	18.40	600.00
			0.00				1" Ice	23.20	23.20	735.00
(2) Commscope JAHH-65B-R3B	A	From Leg	3.00	0.00	0.0000	190.00	No Ice	9.11	3.44	63.30
			0.00				1/2" Ice	10.03	4.36	185.70
			0.00				1" Ice	10.96	5.27	334.10
Alcatel Lucent B66A RRH4x45	A	From Leg	3.00	0.00	0.0000	190.00	No Ice	2.54	1.61	51.00
			0.00				1/2" Ice	2.92	1.96	94.30
			0.00				1" Ice	3.35	2.33	150.90
Alcatel Lucent B13 RRH4x30	A	From Leg	3.00	0.00	0.0000	190.00	No Ice	2.16	1.62	57.20
			0.00				1/2" Ice	2.51	1.94	99.40
			0.00				1" Ice	2.89	2.29	154.20
Alcatel Lucent RRH 4T4R B5	A	From Leg	3.00	0.00	0.0000	190.00	No Ice	1.28	0.72	50.00
			0.00				1/2" Ice	1.54	0.93	74.70
			0.00				1" Ice	1.84	1.18	109.10
RFS DB-C1-12C-24AB-0Z	A	From Leg	3.00	0.00	0.0000	190.00	No Ice	2.80	1.17	44.00
			0.00				1/2" Ice	3.29	1.52	120.20
			0.00				1" Ice	3.81	1.91	213.00
(2) Commscope JAHH-65B-R3B	B	From Leg	3.00	0.00	0.0000	190.00	No Ice	9.11	3.44	63.30
			0.00				1/2" Ice	10.03	4.36	185.70
			0.00				1" Ice	10.96	5.27	334.10
Alcatel Lucent B66A RRH4x45	B	From Leg	3.00	0.00	0.0000	190.00	No Ice	2.54	1.61	51.00
			0.00				1/2" Ice	2.92	1.96	94.30
			0.00				1" Ice	3.35	2.33	150.90
Alcatel Lucent B13 RRH4x30	B	From Leg	3.00	0.00	0.0000	190.00	No Ice	2.16	1.62	57.20
			0.00				1/2" Ice	2.51	1.94	99.40
			0.00				1" Ice	2.89	2.29	154.20
Alcatel Lucent RRH 4T4R B5	B	From Leg	3.00	0.00	0.0000	190.00	No Ice	1.28	0.72	50.00
			0.00				1/2" Ice	1.54	0.93	74.70
			0.00				1" Ice	1.84	1.18	109.10
RFS DB-C1-12C-24AB-0Z	B	From Leg	3.00	0.00	0.0000	190.00	No Ice	2.80	1.17	44.00
			0.00				1/2" Ice	3.29	1.52	120.20
			0.00				1" Ice	3.81	1.91	213.00
(2) Commscope JAHH-65B-R3B	C	From Leg	3.00	0.00	0.0000	190.00	No Ice	9.11	3.44	63.30
			0.00				1/2" Ice	10.03	4.36	185.70
			0.00				1" Ice	10.96	5.27	334.10
Alcatel Lucent B66A RRH4x45	C	From Leg	3.00	0.00	0.0000	190.00	No Ice	2.54	1.61	51.00
			0.00				1/2" Ice	2.92	1.96	94.30
			0.00				1" Ice	3.35	2.33	150.90
Alcatel Lucent B13 RRH4x30	C	From Leg	3.00	0.00	0.0000	190.00	No Ice	2.16	1.62	57.20
			0.00				1/2" Ice	2.51	1.94	99.40
			0.00				1" Ice	2.89	2.29	154.20
Alcatel Lucent RRH 4T4R B5	C	From Leg	3.00	0.00	0.0000	190.00	No Ice	1.28	0.72	50.00
			0.00				1/2" Ice	1.54	0.93	74.70
			0.00				1" Ice	1.84	1.18	109.10

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Commscope DT465B-2XR (Sprint)	A	From Leg	3.00 0.00 0.00	0.0000	170.50	No Ice 1/2" Ice 1" Ice	9.22 9.68 10.14	5.87 6.33 6.79	50.00 108.00 172.40
Commscope DT465B-2XR (Sprint)	A	From Leg	3.00 0.00 0.00	0.0000	170.50	No Ice 1/2" Ice 1" Ice	9.22 9.68 10.14	5.87 6.33 6.79	50.00 108.00 172.40
Commscope DT465B-2XR (Sprint)	B	From Leg	3.00 0.00 0.00	0.0000	170.50	No Ice 1/2" Ice 1" Ice	9.22 9.68 10.14	5.87 6.33 6.79	50.00 108.00 172.40
Alcatel Lucent 4x45W (Sprint)	A	From Leg	3.00 0.00 0.00	0.0000	170.50	No Ice 1/2" Ice 1" Ice	2.54 2.72 2.92	1.61 1.78 1.96	51.00 71.10 94.30
Alcatel Lucent 4x45W (Sprint)	B	From Leg	3.00 0.00 0.00	0.0000	170.50	No Ice 1/2" Ice 1" Ice	2.54 2.72 2.92	1.61 1.78 1.96	51.00 71.10 94.30
Alcatel Lucent 4x45W (Sprint)	C	From Leg	3.00 0.00 0.00	0.0000	170.50	No Ice 1/2" Ice 1" Ice	2.54 2.72 2.92	1.61 1.78 1.96	51.00 71.10 94.30
Alcatel Lucent 8x200-25 (Sprint)	A	From Leg	3.00 0.00 0.00	0.0000	170.50	No Ice 1/2" Ice 1" Ice	4.05 4.27 4.50	1.53 1.70 1.88	70.00 97.10 127.80
Alcatel Lucent 8x200-25 (Sprint)	B	From Leg	3.00 0.00 0.00	0.0000	170.50	No Ice 1/2" Ice 1" Ice	4.05 4.27 4.50	1.53 1.70 1.88	70.00 97.10 127.80
Alcatel Lucent 8x200-25 (Sprint)	C	From Leg	3.00 0.00 0.00	0.0000	170.50	No Ice 1/2" Ice 1" Ice	4.05 4.27 4.50	1.53 1.70 1.88	70.00 97.10 127.80
RFS APXV9ERR18-C-A20 (Sprint)	A	From Leg	3.00 0.00 0.00	0.0000	170.50	No Ice 1/2" Ice 1" Ice	8.02 8.48 8.93	5.81 6.27 6.73	62.00 114.00 172.10
RFS APXV9ERR18-C-A20 (Sprint)	B	From Leg	3.00 0.00 0.00	0.0000	170.50	No Ice 1/2" Ice 1" Ice	8.02 8.48 8.93	5.81 6.27 6.73	62.00 114.00 172.10
RFS APXV9ERR18-C-A20 (Sprint)	C	From Leg	3.00 0.00 0.00	0.0000	170.50	No Ice 1/2" Ice 1" Ice	8.02 8.48 8.93	5.81 6.27 6.73	62.00 114.00 172.10
(2) Alcatel Lucent 2x50 (Sprint)	A	From Leg	3.00 0.00 0.00	0.0000	170.50	No Ice 1/2" Ice 1" Ice	2.27 2.45 2.64	1.35 1.51 1.68	42.00 59.30 79.60
(2) Alcatel Lucent 2x50 (Sprint)	B	From Leg	3.00 0.00 0.00	0.0000	170.50	No Ice 1/2" Ice 1" Ice	2.27 2.45 2.64	1.35 1.51 1.68	42.00 59.30 79.60
(2) Alcatel Lucent 2x50 (Sprint)	C	From Leg	3.00 0.00 0.00	0.0000	170.50	No Ice 1/2" Ice 1" Ice	2.27 2.45 2.64	1.35 1.51 1.68	42.00 59.30 79.60

Tower Pressures - No Ice

$G_H = 0.850$

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1	185.00	1.178	26	37.396	A	1.630	6.150	4.792	61.59	0.375	0.000
190.00-180.00					B	1.630	6.150		61.59	0.000	0.000
					C	1.630	6.150		61.59	15.840	0.000
T2	170.00	1.15	25	74.792	A	2.853	12.348	9.583	63.05	7.260	0.000
180.00-160.00					B	2.853	12.348		63.05	0.000	0.000
					C	2.853	12.348		63.05	31.680	0.000
T3	150.00	1.11	24	74.792	A	2.853	12.348	9.583	63.05	13.150	0.000
160.00-140.00					B	2.853	12.348		63.05	0.000	0.000
					C	2.853	12.348		63.05	31.680	0.000
T4	130.00	1.065	23	74.792	A	2.853	12.348	9.583	63.05	13.150	0.000
140.00-120.00					B	2.853	12.348		63.05	45.711	0.000
					C	2.853	12.348		63.05	31.680	0.000
T5	110.00	1.016	22	74.792	A	2.853	12.348	9.583	63.05	13.150	0.000
120.00-100.00					B	2.853	12.348		63.05	50.790	0.000
					C	2.853	12.348		63.05	31.680	0.000
T6	90.00	0.959	21	74.792	A	2.853	12.348	9.583	63.05	13.150	0.000
100.00-80.00					B	2.853	12.348		63.05	50.790	0.000
					C	2.853	12.348		63.05	31.680	0.000
T7 80.00-60.00	70.00	0.892	19	74.792	A	2.853	12.348	9.583	63.05	13.150	0.000
					B	2.853	12.348		63.05	50.790	0.000
					C	2.853	12.348		63.05	31.680	0.000
T8 60.00-40.00	50.00	0.811	18	74.792	A	2.853	12.348	9.583	63.05	13.150	0.000
					B	2.853	12.348		63.05	50.790	0.000
					C	2.853	12.348		63.05	31.680	0.000
T9 40.00-20.00	30.00	0.701	15	74.792	A	2.853	12.348	9.583	63.05	13.150	0.000
					B	2.853	12.348		63.05	50.790	0.000
					C	2.853	12.348		63.05	31.680	0.000
T10 20.00-0.00	10.00	0.7	15	74.792	A	2.853	12.348	9.583	63.05	13.150	0.000
					B	2.853	12.348		63.05	50.790	0.000
					C	2.853	12.348		63.05	31.680	0.000

Tower Pressure - With Ice

$G_H = 0.850$

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1	185.00	1.178	6	2.3763	41.356	A	1.630	29.561	12.713	40.76	5.128	0.000
190.00-180.00						B	1.630	29.561		40.76	0.000	0.000
						C	1.630	29.561		40.76	39.679	0.000
T2	170.00	1.15	6	2.3563	82.646	A	2.853	57.862	25.292	41.66	28.423	0.000
180.00-160.00						B	2.853	57.862		41.66	0.000	0.000
						C	2.853	57.862		41.66	79.092	0.000
T3	150.00	1.11	6	2.3270	82.548	A	2.853	57.296	25.096	41.72	44.618	0.000
160.00-140.00						B	2.853	57.296		41.72	0.000	0.000
						C	2.853	57.296		41.72	78.701	0.000
T4	130.00	1.065	6	2.2939	82.438	A	2.853	56.658	24.876	41.80	44.264	0.000
140.00-120.00						B	2.853	56.658		41.80	72.157	0.000
						C	2.853	56.658		41.80	78.261	0.000
T5	110.00	1.016	6	2.2559	82.311	A	2.853	55.923	24.623	41.89	43.857	0.000
120.00-100.00						B	2.853	55.923		41.89	79.501	0.000
						C	2.853	55.923		41.89	77.755	0.000
T6 100.00-80.00	90.00	0.959	5	2.2111	82.162	A	2.853	55.058	24.324	42.00	43.378	0.000
						B	2.853	55.058		42.00	78.707	0.000

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
						C	2.853	55.058		42.00	77.159	0.000
T7 80.00-60.00	70.00	0.892	5	2.1562	81.979	A	2.853	53.998	23.958	42.14	42.791	0.000
						B	2.853	53.998		42.14	77.734	0.000
						C	2.853	53.998		42.14	76.430	0.000
T8 60.00-40.00	50.00	0.811	4	2.0849	81.741	A	2.853	52.620	23.482	42.33	42.029	0.000
						B	2.853	52.620		42.33	76.471	0.000
						C	2.853	52.620		42.33	75.484	0.000
T9 40.00-20.00	30.00	0.701	4	1.9810	81.395	A	2.853	50.614	22.790	42.62	40.922	0.000
						B	2.853	50.614		42.62	74.634	0.000
						C	2.853	50.614		42.62	74.109	0.000
T10 20.00-0.00	10.00	0.7	4	1.7749	80.708	A	2.853	46.633	21.416	43.28	38.729	0.000
						B	2.853	46.633		43.28	70.992	0.000
						C	2.853	46.633		43.28	71.390	0.000

Tower Pressure - Service

$G_H = 0.850$

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1	185.00	1.178	9	37.396	A	1.630	6.150	4.792	61.59	0.375	0.000
190.00-180.00					B	1.630	6.150		61.59	0.000	0.000
					C	1.630	6.150		61.59	15.840	0.000
T2	170.00	1.15	9	74.792	A	2.853	12.348	9.583	63.05	7.260	0.000
180.00-160.00					B	2.853	12.348		63.05	0.000	0.000
					C	2.853	12.348		63.05	31.680	0.000
T3	150.00	1.11	9	74.792	A	2.853	12.348	9.583	63.05	13.150	0.000
160.00-140.00					B	2.853	12.348		63.05	0.000	0.000
					C	2.853	12.348		63.05	31.680	0.000
T4	130.00	1.065	8	74.792	A	2.853	12.348	9.583	63.05	13.150	0.000
140.00-120.00					B	2.853	12.348		63.05	45.711	0.000
					C	2.853	12.348		63.05	31.680	0.000
T5	110.00	1.016	8	74.792	A	2.853	12.348	9.583	63.05	13.150	0.000
120.00-100.00					B	2.853	12.348		63.05	50.790	0.000
					C	2.853	12.348		63.05	31.680	0.000
T6	90.00	0.959	8	74.792	A	2.853	12.348	9.583	63.05	13.150	0.000
100.00-80.00					B	2.853	12.348		63.05	50.790	0.000
					C	2.853	12.348		63.05	31.680	0.000
T7 80.00-60.00	70.00	0.892	7	74.792	A	2.853	12.348	9.583	63.05	13.150	0.000
					B	2.853	12.348		63.05	50.790	0.000
					C	2.853	12.348		63.05	31.680	0.000
T8 60.00-40.00	50.00	0.811	6	74.792	A	2.853	12.348	9.583	63.05	13.150	0.000
					B	2.853	12.348		63.05	50.790	0.000
					C	2.853	12.348		63.05	31.680	0.000
T9 40.00-20.00	30.00	0.701	5	74.792	A	2.853	12.348	9.583	63.05	13.150	0.000
					B	2.853	12.348		63.05	50.790	0.000
					C	2.853	12.348		63.05	31.680	0.000
T10 20.00-0.00	10.00	0.7	5	74.792	A	2.853	12.348	9.583	63.05	13.150	0.000
					B	2.853	12.348		63.05	50.790	0.000
					C	2.853	12.348		63.05	31.680	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	79.60	336.97	A	0.208	2.569	26	1	1	5.172	501.57	50.16	C
190.00-180.00			B	0.208	2.569		1	1	5.172			
			C	0.208	2.569		1	1	5.172			
T2	186.92	658.24	A	0.203	2.585	25	1	1	9.953	1044.30	52.21	C
180.00-160.00		TA 214.38	B	0.203	2.585		1	1	9.953			
			C	0.203	2.585		1	1	9.953			
T3	212.00	658.24	A	0.203	2.585	24	1	1	9.953	1080.14	54.01	C
160.00-140.00			B	0.203	2.585		1	1	9.953			
			C	0.203	2.585		1	1	9.953			
T4	446.90	658.24	A	0.203	2.585	23	1	1	9.953	1513.71	75.69	B
140.00-120.00		TA 214.38	B	0.203	2.585		1	1	9.953			
			C	0.203	2.585		1	1	9.953			
T5	473.00	658.24	A	0.203	2.585	22	1	1	9.953	1508.50	75.42	B
120.00-100.00			B	0.203	2.585		1	1	9.953			
			C	0.203	2.585		1	1	9.953			
T6	473.00	658.24	A	0.203	2.585	21	1	1	9.953	1424.44	71.22	B
100.00-80.00			B	0.203	2.585		1	1	9.953			
			C	0.203	2.585		1	1	9.953			
T7	473.00	658.24	A	0.203	2.585	19	1	1	9.953	1325.74	66.29	B
80.00-60.00			B	0.203	2.585		1	1	9.953			
			C	0.203	2.585		1	1	9.953			
T8	473.00	658.24	A	0.203	2.585	18	1	1	9.953	1204.23	60.21	B
60.00-40.00			B	0.203	2.585		1	1	9.953			
			C	0.203	2.585		1	1	9.953			
T9	473.00	658.24	A	0.203	2.585	15	1	1	9.953	1040.70	52.03	B
40.00-20.00			B	0.203	2.585		1	1	9.953			
			C	0.203	2.585		1	1	9.953			
T10	473.00	658.24	A	0.203	2.585	15	1	1	9.953	1039.82	51.99	B
20.00-0.00			B	0.203	2.585		1	1	9.953			
			C	0.203	2.585		1	1	9.953			
Sum Weight:	3763.42	6689.93								11683.14		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	79.60	336.97	A	0.208	2.569	26	0.8	1	4.846	483.32	48.33	B
190.00-180.00			B	0.208	2.569		0.8	1	4.846			
			C	0.208	2.569		0.8	1	4.846			
T2	186.92	658.24	A	0.203	2.585	25	0.8	1	9.383	1012.92	50.65	B
180.00-160.00		TA 214.38	B	0.203	2.585		0.8	1	9.383			
			C	0.203	2.585		0.8	1	9.383			
T3	212.00	658.24	A	0.203	2.585	24	0.8	1	9.383	1049.87	52.49	B
160.00-140.00			B	0.203	2.585		0.8	1	9.383			
			C	0.203	2.585		0.8	1	9.383			
T4	446.90	658.24	A	0.203	2.585	23	0.8	1	9.383	1484.65	74.23	A
140.00-120.00		TA 214.38	B	0.203	2.585		0.8	1	9.383			
			C	0.203	2.585		0.8	1	9.383			
T5	473.00	658.24	A	0.203	2.585	22	0.8	1	9.383	1480.79	74.04	A

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
120.00-100.00			B	0.203	2.585		0.8	1	9.383			
			C	0.203	2.585		0.8	1	9.383			
T6	473.00	658.24	A	0.203	2.585	21	0.8	1	9.383	1398.28	69.91	A
100.00-80.00			B	0.203	2.585		0.8	1	9.383			
			C	0.203	2.585		0.8	1	9.383			
T7	473.00	658.24	A	0.203	2.585	19	0.8	1	9.383	1301.40	65.07	A
80.00-60.00			B	0.203	2.585		0.8	1	9.383			
			C	0.203	2.585		0.8	1	9.383			
T8	473.00	658.24	A	0.203	2.585	18	0.8	1	9.383	1182.11	59.11	A
60.00-40.00			B	0.203	2.585		0.8	1	9.383			
			C	0.203	2.585		0.8	1	9.383			
T9	473.00	658.24	A	0.203	2.585	15	0.8	1	9.383	1021.58	51.08	A
40.00-20.00			B	0.203	2.585		0.8	1	9.383			
			C	0.203	2.585		0.8	1	9.383			
T10	473.00	658.24	A	0.203	2.585	15	0.8	1	9.383	1020.72	51.04	A
20.00-0.00			B	0.203	2.585		0.8	1	9.383			
			C	0.203	2.585		0.8	1	9.383			
Sum Weight:	3763.42	6689.93								11435.63		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	79.60	336.97	A	0.208	2.569	26	0.85	1	4.927	487.88	48.79	B
190.00-180.00			B	0.208	2.569		0.85	1	4.927			
			C	0.208	2.569		0.85	1	4.927			
T2	186.92	658.24	A	0.203	2.585	25	0.85	1	9.526	1020.77	51.04	B
180.00-160.00		TA 214.38	B	0.203	2.585		0.85	1	9.526			
			C	0.203	2.585		0.85	1	9.526			
T3	212.00	658.24	A	0.203	2.585	24	0.85	1	9.526	1057.44	52.87	B
160.00-140.00			B	0.203	2.585		0.85	1	9.526			
			C	0.203	2.585		0.85	1	9.526			
T4	446.90	658.24	A	0.203	2.585	23	0.85	1	9.526	1533.03	76.65	A
140.00-120.00		TA 214.38	B	0.203	2.585		0.85	1	9.526			
			C	0.203	2.585		0.85	1	9.526			
T5	473.00	658.24	A	0.203	2.585	22	0.85	1	9.526	1516.45	75.82	A
120.00-100.00			B	0.203	2.585		0.85	1	9.526			
			C	0.203	2.585		0.85	1	9.526			
T6	473.00	658.24	A	0.203	2.585	21	0.85	1	9.526	1431.95	71.60	A
100.00-80.00			B	0.203	2.585		0.85	1	9.526			
			C	0.203	2.585		0.85	1	9.526			
T7	473.00	658.24	A	0.203	2.585	19	0.85	1	9.526	1332.73	66.64	A
80.00-60.00			B	0.203	2.585		0.85	1	9.526			
			C	0.203	2.585		0.85	1	9.526			
T8	473.00	658.24	A	0.203	2.585	18	0.85	1	9.526	1210.58	60.53	A
60.00-40.00			B	0.203	2.585		0.85	1	9.526			
			C	0.203	2.585		0.85	1	9.526			
T9	473.00	658.24	A	0.203	2.585	15	0.85	1	9.526	1046.18	52.31	A
40.00-20.00			B	0.203	2.585		0.85	1	9.526			
			C	0.203	2.585		0.85	1	9.526			
T10	473.00	658.24	A	0.203	2.585	15	0.85	1	9.526	1045.30	52.26	A
20.00-0.00			B	0.203	2.585		0.85	1	9.526			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
Sum Weight:	3763.42	6689.93	C	0.203	2.585		0.85	1	9.526	11682.31		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	736.18	2074.29	A	0.754	1.789	6	1	1	26.776	318.93	31.89	C
190.00-180.00			B	0.754	1.789		1	1	26.776			
			C	0.754	1.789		1	1	26.776			
T2	1738.54	3976.13	A	0.735	1.782	6	1	1	51.234	632.96	31.65	C
180.00-160.00		TA	B	0.735	1.782		1	1	51.234			
		1038.49	C	0.735	1.782		1	1	51.234			
T3	1964.50	3909.50	A	0.729	1.781	6	1	1	50.509	628.95	31.45	C
160.00-140.00			B	0.729	1.781		1	1	50.509			
			C	0.729	1.781		1	1	50.509			
T4	3366.11	3835.10	A	0.722	1.779	6	1	1	49.698	804.83	40.24	B
140.00-120.00		TA	B	0.722	1.779		1	1	49.698			
		1008.03	C	0.722	1.779		1	1	49.698			
T5	3462.15	3750.58	A	0.714	1.778	6	1	1	48.775	786.23	39.31	B
120.00-100.00			B	0.714	1.778		1	1	48.775			
			C	0.714	1.778		1	1	48.775			
T6	3388.46	3652.29	A	0.705	1.776	5	1	1	47.699	735.98	36.80	B
100.00-80.00			B	0.705	1.776		1	1	47.699			
			C	0.705	1.776		1	1	47.699			
T7	3299.31	3533.98	A	0.693	1.776	5	1	1	46.400	677.81	33.89	B
80.00-60.00			B	0.693	1.776		1	1	46.400			
			C	0.693	1.776		1	1	46.400			
T8	3185.16	3383.50	A	0.679	1.776	4	1	1	44.741	607.45	30.37	B
60.00-40.00			B	0.679	1.776		1	1	44.741			
			C	0.679	1.776		1	1	44.741			
T9	3022.59	3171.29	A	0.657	1.78	4	1	1	42.387	514.96	25.75	B
40.00-20.00			B	0.657	1.78		1	1	42.387			
			C	0.657	1.78		1	1	42.387			
T10	2712.36	2773.77	A	0.613	1.796	4	1	1	37.928	495.73	24.79	B
20.00-0.00			B	0.613	1.796		1	1	37.928			
			C	0.613	1.796		1	1	37.928			
Sum Weight:	26875.36	36106.94								6203.82		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	736.18	2074.29	A	0.754	1.789	6	0.8	1	26.450	315.76	31.58	B
190.00-180.00			B	0.754	1.789		0.8	1	26.450			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
			C	0.754	1.789		0.8	1	26.450			
T2	1738.54	3976.13	A	0.735	1.782	6	0.8	1	50.663	627.56	31.38	B
180.00-160.00		TA	B	0.735	1.782		0.8	1	50.663			
		1038.49	C	0.735	1.782		0.8	1	50.663			
T3	1964.50	3909.50	A	0.729	1.781	6	0.8	1	49.938	623.73	31.19	B
160.00-140.00			B	0.729	1.781		0.8	1	49.938			
			C	0.729	1.781		0.8	1	49.938			
T4	3366.11	3835.10	A	0.722	1.779	6	0.8	1	49.127	799.83	39.99	A
140.00-120.00		TA	B	0.722	1.779		0.8	1	49.127			
		1008.03	C	0.722	1.779		0.8	1	49.127			
T5	3462.15	3750.58	A	0.714	1.778	6	0.8	1	48.204	781.46	39.07	A
120.00-100.00			B	0.714	1.778		0.8	1	48.204			
			C	0.714	1.778		0.8	1	48.204			
T6	3388.46	3652.29	A	0.705	1.776	5	0.8	1	47.128	731.48	36.57	A
100.00-80.00			B	0.705	1.776		0.8	1	47.128			
			C	0.705	1.776		0.8	1	47.128			
T7	3299.31	3533.98	A	0.693	1.776	5	0.8	1	45.829	673.63	33.68	A
80.00-60.00			B	0.693	1.776		0.8	1	45.829			
			C	0.693	1.776		0.8	1	45.829			
T8	3185.16	3383.50	A	0.679	1.776	4	0.8	1	44.170	603.65	30.18	A
60.00-40.00			B	0.679	1.776		0.8	1	44.170			
			C	0.679	1.776		0.8	1	44.170			
T9	3022.59	3171.29	A	0.657	1.78	4	0.8	1	41.817	511.67	25.58	A
40.00-20.00			B	0.657	1.78		0.8	1	41.817			
			C	0.657	1.78		0.8	1	41.817			
T10	2712.36	2773.77	A	0.613	1.796	4	0.8	1	37.357	492.41	24.62	A
20.00-0.00			B	0.613	1.796		0.8	1	37.357			
			C	0.613	1.796		0.8	1	37.357			
Sum Weight:	26875.36	36106.94								6161.18		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	736.18	2074.29	A	0.754	1.789	6	0.85	1	26.531	311.89	31.19	B
190.00-180.00			B	0.754	1.789		0.85	1	26.531			
			C	0.754	1.789		0.85	1	26.531			
T2	1738.54	3976.13	A	0.735	1.782	6	0.85	1	50.806	619.07	30.95	B
180.00-160.00		TA	B	0.735	1.782		0.85	1	50.806			
		1038.49	C	0.735	1.782		0.85	1	50.806			
T3	1964.50	3909.50	A	0.729	1.781	6	0.85	1	50.081	615.33	30.77	B
160.00-140.00			B	0.729	1.781		0.85	1	50.081			
			C	0.729	1.781		0.85	1	50.081			
T4	3366.11	3835.10	A	0.722	1.779	6	0.85	1	49.270	795.46	39.77	A
140.00-120.00		TA	B	0.722	1.779		0.85	1	49.270			
		1008.03	C	0.722	1.779		0.85	1	49.270			
T5	3462.15	3750.58	A	0.714	1.778	6	0.85	1	48.347	775.19	38.76	A
120.00-100.00			B	0.714	1.778		0.85	1	48.347			
			C	0.714	1.778		0.85	1	48.347			
T6	3388.46	3652.29	A	0.705	1.776	5	0.85	1	47.271	726.13	36.31	A
100.00-80.00			B	0.705	1.776		0.85	1	47.271			
			C	0.705	1.776		0.85	1	47.271			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T7	3299.31	3533.98	A	0.693	1.776	5	0.85	1	45.972	669.30	33.46	A
80.00-60.00			B	0.693	1.776		0.85	1	45.972			
			C	0.693	1.776		0.85	1	45.972			
T8	3185.16	3383.50	A	0.679	1.776	4	0.85	1	44.313	600.49	30.02	A
60.00-40.00			B	0.679	1.776		0.85	1	44.313			
			C	0.679	1.776		0.85	1	44.313			
T9	3022.59	3171.29	A	0.657	1.78	4	0.85	1	41.959	509.92	25.50	A
40.00-20.00			B	0.657	1.78		0.85	1	41.959			
			C	0.657	1.78		0.85	1	41.959			
T10	2712.36	2773.77	A	0.613	1.796	4	0.85	1	37.500	492.65	24.63	A
20.00-0.00			B	0.613	1.796		0.85	1	37.500			
			C	0.613	1.796		0.85	1	37.500			
Sum Weight:	26875.36	36106.94								6115.42		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	79.60	336.97	A	0.208	2.569	9	1	1	5.172	180.57	18.06	C
190.00-180.00			B	0.208	2.569		1	1	5.172			
			C	0.208	2.569		1	1	5.172			
T2	186.92	658.24	A	0.203	2.585	9	1	1	9.953	375.95	18.80	C
180.00-160.00		TA 214.38	B	0.203	2.585		1	1	9.953			
			C	0.203	2.585		1	1	9.953			
T3	212.00	658.24	A	0.203	2.585	9	1	1	9.953	388.85	19.44	C
160.00-140.00			B	0.203	2.585		1	1	9.953			
			C	0.203	2.585		1	1	9.953			
T4	446.90	658.24	A	0.203	2.585	8	1	1	9.953	544.93	27.25	B
140.00-120.00		TA 214.38	B	0.203	2.585		1	1	9.953			
			C	0.203	2.585		1	1	9.953			
T5	473.00	658.24	A	0.203	2.585	8	1	1	9.953	543.06	27.15	B
120.00-100.00			B	0.203	2.585		1	1	9.953			
			C	0.203	2.585		1	1	9.953			
T6	473.00	658.24	A	0.203	2.585	8	1	1	9.953	512.80	25.64	B
100.00-80.00			B	0.203	2.585		1	1	9.953			
			C	0.203	2.585		1	1	9.953			
T7	473.00	658.24	A	0.203	2.585	7	1	1	9.953	477.27	23.86	B
80.00-60.00			B	0.203	2.585		1	1	9.953			
			C	0.203	2.585		1	1	9.953			
T8	473.00	658.24	A	0.203	2.585	6	1	1	9.953	433.52	21.68	B
60.00-40.00			B	0.203	2.585		1	1	9.953			
			C	0.203	2.585		1	1	9.953			
T9	473.00	658.24	A	0.203	2.585	5	1	1	9.953	374.65	18.73	B
40.00-20.00			B	0.203	2.585		1	1	9.953			
			C	0.203	2.585		1	1	9.953			
T10	473.00	658.24	A	0.203	2.585	5	1	1	9.953	374.33	18.72	B
20.00-0.00			B	0.203	2.585		1	1	9.953			
			C	0.203	2.585		1	1	9.953			
Sum Weight:	3763.42	6689.93								4205.93		

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	79.60	336.97	A	0.208	2.569	9	0.8	1	4.846	173.99	17.40	B
190.00-180.00			B	0.208	2.569		0.8	1	4.846			
			C	0.208	2.569		0.8	1	4.846			
T2	186.92	658.24	A	0.203	2.585	9	0.8	1	9.383	364.65	18.23	B
180.00-160.00		TA 214.38	B	0.203	2.585		0.8	1	9.383			
			C	0.203	2.585		0.8	1	9.383			
T3	212.00	658.24	A	0.203	2.585	9	0.8	1	9.383	377.95	18.90	B
160.00-140.00			B	0.203	2.585		0.8	1	9.383			
			C	0.203	2.585		0.8	1	9.383			
T4	446.90	658.24	A	0.203	2.585	8	0.8	1	9.383	534.47	26.72	A
140.00-120.00		TA 214.38	B	0.203	2.585		0.8	1	9.383			
			C	0.203	2.585		0.8	1	9.383			
T5	473.00	658.24	A	0.203	2.585	8	0.8	1	9.383	533.08	26.65	A
120.00-100.00			B	0.203	2.585		0.8	1	9.383			
			C	0.203	2.585		0.8	1	9.383			
T6	473.00	658.24	A	0.203	2.585	8	0.8	1	9.383	503.38	25.17	A
100.00-80.00			B	0.203	2.585		0.8	1	9.383			
			C	0.203	2.585		0.8	1	9.383			
T7	473.00	658.24	A	0.203	2.585	7	0.8	1	9.383	468.50	23.43	A
80.00-60.00			B	0.203	2.585		0.8	1	9.383			
			C	0.203	2.585		0.8	1	9.383			
T8	473.00	658.24	A	0.203	2.585	6	0.8	1	9.383	425.56	21.28	A
60.00-40.00			B	0.203	2.585		0.8	1	9.383			
			C	0.203	2.585		0.8	1	9.383			
T9	473.00	658.24	A	0.203	2.585	5	0.8	1	9.383	367.77	18.39	A
40.00-20.00			B	0.203	2.585		0.8	1	9.383			
			C	0.203	2.585		0.8	1	9.383			
T10	473.00	658.24	A	0.203	2.585	5	0.8	1	9.383	367.46	18.37	A
20.00-0.00			B	0.203	2.585		0.8	1	9.383			
			C	0.203	2.585		0.8	1	9.383			
Sum Weight:	3763.42	6689.93								4116.83		

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	79.60	336.97	A	0.208	2.569	9	0.85	1	4.927	175.64	17.56	B
190.00-180.00			B	0.208	2.569		0.85	1	4.927			
			C	0.208	2.569		0.85	1	4.927			
T2	186.92	658.24	A	0.203	2.585	9	0.85	1	9.526	367.48	18.37	B
180.00-160.00		TA 214.38	B	0.203	2.585		0.85	1	9.526			
			C	0.203	2.585		0.85	1	9.526			
T3	212.00	658.24	A	0.203	2.585	9	0.85	1	9.526	380.68	19.03	B
160.00-140.00			B	0.203	2.585		0.85	1	9.526			
			C	0.203	2.585		0.85	1	9.526			
T4	446.90	658.24	A	0.203	2.585	8	0.85	1	9.526	551.89	27.59	A
140.00-120.00		TA 214.38	B	0.203	2.585		0.85	1	9.526			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
			C	0.203	2.585		0.85	1	9.526			
T5	473.00	658.24	A	0.203	2.585	8	0.85	1	9.526	545.92	27.30	A
120.00-100.00			B	0.203	2.585		0.85	1	9.526			
			C	0.203	2.585		0.85	1	9.526			
T6	473.00	658.24	A	0.203	2.585	8	0.85	1	9.526	515.50	25.78	A
100.00-80.00			B	0.203	2.585		0.85	1	9.526			
			C	0.203	2.585		0.85	1	9.526			
T7	473.00	658.24	A	0.203	2.585	7	0.85	1	9.526	479.78	23.99	A
80.00-60.00			B	0.203	2.585		0.85	1	9.526			
			C	0.203	2.585		0.85	1	9.526			
T8	473.00	658.24	A	0.203	2.585	6	0.85	1	9.526	435.81	21.79	A
60.00-40.00			B	0.203	2.585		0.85	1	9.526			
			C	0.203	2.585		0.85	1	9.526			
T9	473.00	658.24	A	0.203	2.585	5	0.85	1	9.526	376.63	18.83	A
40.00-20.00			B	0.203	2.585		0.85	1	9.526			
			C	0.203	2.585		0.85	1	9.526			
T10	473.00	658.24	A	0.203	2.585	5	0.85	1	9.526	376.31	18.82	A
20.00-0.00			B	0.203	2.585		0.85	1	9.526			
			C	0.203	2.585		0.85	1	9.526			
Sum Weight:	3763.42	6689.93								4205.63		

Discrete Appurtenance Pressures - No Ice $G_H = 0.850$

Description	Aiming Azimuth °	Weight lb	$Offset_x$ ft	$Offset_z$ ft	z ft	K_z	q_z psf	C_AA_C Front ft²	C_AA_C Side ft²
Torque Arm Face C	180.0000	0.00	0.00	2.53	161.26	1.133	25	3.54	5.32
Torque Arm Face B	60.0000	0.00	2.19	-1.26	161.26	1.133	25	3.54	5.32
Torque Arm Face A	300.0000	0.00	-2.19	-1.26	161.26	1.133	25	3.54	5.32
Torque Arm Face C	180.0000	0.00	0.00	2.53	121.26	1.044	23	3.54	5.32
Torque Arm Face B	60.0000	0.00	2.19	-1.26	121.26	1.044	23	3.54	5.32
Torque Arm Face A	300.0000	0.00	-2.19	-1.26	121.26	1.044	23	3.54	5.32
Sector Frame Mount	0.0000	465.00	0.00	-3.52	190.00	1.187	26	13.60	13.60
Sector Frame Mount	120.0000	465.00	3.05	1.76	190.00	1.187	26	13.60	13.60
Sector Frame Mount	240.0000	465.00	-3.05	1.76	190.00	1.187	26	13.60	13.60
Antel LPA-80080-4CF	0.0000	24.00	0.00	-5.02	190.00	1.187	26	3.02	13.58
Antel LPA-80063/4CF	120.0000	40.00	4.35	2.51	190.00	1.187	26	14.00	6.96
Antel LPA-80063/4CF	240.0000	40.00	-4.35	2.51	190.00	1.187	26	14.00	6.96
Sector Frame Mount	0.0000	465.00	0.00	-3.52	178.00	1.165	25	13.60	13.60
Sector Frame Mount	120.0000	465.00	3.05	1.76	178.00	1.165	25	13.60	13.60
Sector Frame Mount	240.0000	465.00	-3.05	1.76	178.00	1.165	25	13.60	13.60
Allgon 7770.00	0.0000	70.00	0.00	-5.02	138.00	1.083	24	11.76	5.86
Allgon 7770.00	120.0000	70.00	4.35	2.51	138.00	1.083	24	11.76	5.86
Allgon 7770.00	240.0000	70.00	-4.35	2.51	138.00	1.083	24	11.76	5.86
Powerwave LGP21401	0.0000	62.00	0.00	-5.02	138.00	1.083	24	3.90	1.06
Powerwave LGP21401	120.0000	62.00	4.35	2.51	138.00	1.083	24	3.90	1.06
Powerwave LGP21401	240.0000	62.00	-4.35	2.51	138.00	1.083	24	3.90	1.06
Powerwave LGP21901	0.0000	50.00	0.00	-5.02	138.00	1.083	24	0.54	0.26
Powerwave LGP21901	120.0000	50.00	4.35	2.51	138.00	1.083	24	0.54	0.26
Powerwave LGP21901	240.0000	50.00	-4.35	2.51	138.00	1.083	24	0.54	0.26
Sector Frame Mount	0.0000	465.00	0.00	-3.52	150.00	1.110	24	13.60	13.60
Sector Frame Mount	120.0000	465.00	3.05	1.76	150.00	1.110	24	13.60	13.60
Sector Frame Mount	240.0000	465.00	-3.05	1.76	150.00	1.110	24	13.60	13.60
Lightning Rod	0.0000	40.00	0.00	0.00	190.00	1.187	26	1.00	1.00

Description	Aiming Azimuth °	Weight lb	$Offset_x$ ft	$Offset_z$ ft	z ft	K_z	q_z psf	C_AA_C Front ft^2	C_AA_C Side ft^2
KMW AM-X-CD-17-65-00T-RET	0.0000	25.00	0.00	-5.02	138.00	1.083	24	11.31	6.80
KMW AM-X-CD-17-65-00T-RET	120.0000	25.00	4.35	2.51	138.00	1.083	24	11.31	6.80
KMW AM-X-CD-17-65-00T-RET	240.0000	25.00	-4.35	2.51	138.00	1.083	24	11.31	6.80
Ericsson RRUS11	0.0000	50.00	0.00	-5.02	138.00	1.083	24	5.98	0.72
Ericsson RRUS11	120.0000	50.00	4.35	2.51	138.00	1.083	24	5.98	0.72
Ericsson RRUS11	240.0000	50.00	-4.35	2.51	138.00	1.083	24	5.98	0.72
Raycap DC6-48-60-18-8F	0.0000	25.00	0.00	-5.02	138.00	1.083	24	1.47	1.47
Sector Frame Mount	0.0000	465.00	0.00	-3.52	170.50	1.151	25	13.60	13.60
Sector Frame Mount	120.0000	465.00	3.05	1.76	170.50	1.151	25	13.60	13.60
Sector Frame Mount	240.0000	465.00	-3.05	1.76	170.50	1.151	25	13.60	13.60
Sector Frame Mount	0.0000	465.00	0.00	-3.52	138.00	1.083	24	13.60	13.60
Sector Frame Mount	120.0000	465.00	3.05	1.76	138.00	1.083	24	13.60	13.60
Sector Frame Mount	240.0000	465.00	-3.05	1.76	138.00	1.083	24	13.60	13.60
Commscope JAHH-65B-R3B	0.0000	126.60	0.00	-5.02	190.00	1.187	26	18.22	6.88
Alcatel Lucent B66A RRH4x45	0.0000	51.00	0.00	-5.02	190.00	1.187	26	2.54	1.61
Alcatel Lucent B13 RRH4x30	0.0000	57.20	0.00	-5.02	190.00	1.187	26	2.16	1.62
Alcatel Lucent RRH 4T4R B5	0.0000	50.00	0.00	-5.02	190.00	1.187	26	1.28	0.72
RFS DB-C1-12C-24AB-0Z	0.0000	44.00	0.00	-5.02	190.00	1.187	26	2.80	1.17
Commscope JAHH-65B-R3B	120.0000	126.60	4.35	2.51	190.00	1.187	26	18.22	6.88
Alcatel Lucent B66A RRH4x45	120.0000	51.00	4.35	2.51	190.00	1.187	26	2.54	1.61
Alcatel Lucent B13 RRH4x30	120.0000	57.20	4.35	2.51	190.00	1.187	26	2.16	1.62
Alcatel Lucent RRH 4T4R B5	120.0000	50.00	4.35	2.51	190.00	1.187	26	1.28	0.72
RFS DB-C1-12C-24AB-0Z	120.0000	44.00	4.35	2.51	190.00	1.187	26	2.80	1.17
Commscope JAHH-65B-R3B	240.0000	126.60	-4.35	2.51	190.00	1.187	26	18.22	6.88
Alcatel Lucent B66A RRH4x45	240.0000	51.00	-4.35	2.51	190.00	1.187	26	2.54	1.61
Alcatel Lucent B13 RRH4x30	240.0000	57.20	-4.35	2.51	190.00	1.187	26	2.16	1.62
Alcatel Lucent RRH 4T4R B5	240.0000	50.00	-4.35	2.51	190.00	1.187	26	1.28	0.72
Commscope DT465B-2XR	0.0000	50.00	0.00	-5.02	170.50	1.151	25	9.22	5.87
Commscope DT465B-2XR	0.0000	50.00	0.00	-5.02	170.50	1.151	25	9.22	5.87
Commscope DT465B-2XR	120.0000	50.00	4.35	2.51	170.50	1.151	25	9.22	5.87
Alcatel Lucent 4x45W	0.0000	51.00	0.00	-5.02	170.50	1.151	25	2.54	1.61
Alcatel Lucent 4x45W	120.0000	51.00	4.35	2.51	170.50	1.151	25	2.54	1.61
Alcatel Lucent 4x45W	240.0000	51.00	-4.35	2.51	170.50	1.151	25	2.54	1.61
Alcatel Lucent 8x200-25	0.0000	70.00	0.00	-5.02	170.50	1.151	25	4.05	1.53
Alcatel Lucent 8x200-25	120.0000	70.00	4.35	2.51	170.50	1.151	25	4.05	1.53
Alcatel Lucent 8x200-25	240.0000	70.00	-4.35	2.51	170.50	1.151	25	4.05	1.53
RFS	0.0000	62.00	0.00	-5.02	170.50	1.151	25	8.02	5.81

Description	Aiming Azimuth °	Weight lb	$Offset_x$ ft	$Offset_z$ ft	z ft	K_z	q_z psf	C_AA_C Front ft^2	C_AA_C Side ft^2
APXV9ERR18-C-A20 RFS	120.0000	62.00	4.35	2.51	170.50	1.151	25	8.02	5.81
APXV9ERR18-C-A20 RFS	240.0000	62.00	-4.35	2.51	170.50	1.151	25	8.02	5.81
APXV9ERR18-C-A20									
Alcatel Lucent 2x50	0.0000	84.00	0.00	-5.02	170.50	1.151	25	4.54	2.70
Alcatel Lucent 2x50	120.0000	84.00	4.35	2.51	170.50	1.151	25	4.54	2.70
Alcatel Lucent 2x50	240.0000	84.00	-4.35	2.51	170.50	1.151	25	4.54	2.70
	Sum Weight:	9808.40							

Discrete Appurtenance Pressures - With Ice $G_H = 0.850$

Description	Aiming Azimuth °	Weight lb	$Offset_x$ ft	$Offset_z$ ft	z ft	K_z	q_z psf	C_AA_C Front ft^2	C_AA_C Side ft^2	t_z in
Torque Arm Face C	180.0000	0.00	0.00	2.53	161.26	1.133	6	6.77	9.91	2.3563
Torque Arm Face B	60.0000	0.00	2.19	-1.26	161.26	1.133	6	6.77	9.91	2.3563
Torque Arm Face A	300.0000	0.00	-2.19	-1.26	161.26	1.133	6	6.77	9.91	2.3563
Torque Arm Face C	180.0000	0.00	0.00	2.53	121.26	1.044	6	6.68	9.79	2.2939
Torque Arm Face B	60.0000	0.00	2.19	-1.26	121.26	1.044	6	6.68	9.79	2.2939
Torque Arm Face A	300.0000	0.00	-2.19	-1.26	121.26	1.044	6	6.68	9.79	2.2939
Sector Frame Mount	0.0000	1108.31	0.00	-3.52	190.00	1.187	6	36.47	36.47	2.3826
Sector Frame Mount	120.0000	1108.31	3.05	1.76	190.00	1.187	6	36.47	36.47	2.3826
Sector Frame Mount	240.0000	1108.31	-3.05	1.76	190.00	1.187	6	36.47	36.47	2.3826
Antel LPA-80080-4CF	0.0000	286.09	0.00	-5.02	190.00	1.187	6	6.88	10.15	2.3826
Antel LPA-80063/4CF	120.0000	286.09	4.35	2.51	190.00	1.187	6	6.88	10.15	2.3826
Antel LPA-80063/4CF	240.0000	286.09	-4.35	2.51	190.00	1.187	6	6.88	10.15	2.3826
Sector Frame Mount	0.0000	1104.12	0.00	-3.52	178.00	1.165	6	36.32	36.32	2.3671
Sector Frame Mount	120.0000	1104.12	3.05	1.76	178.00	1.165	6	36.32	36.32	2.3671
Sector Frame Mount	240.0000	1104.12	-3.05	1.76	178.00	1.165	6	36.32	36.32	2.3671
Allgon 7770.00	0.0000	418.14	0.00	-5.02	138.00	1.083	6	16.19	9.71	2.3076
Allgon 7770.00	120.0000	418.14	4.35	2.51	138.00	1.083	6	16.19	9.71	2.3076
Allgon 7770.00	240.0000	418.14	-4.35	2.51	138.00	1.083	6	16.19	9.71	2.3076
Powerwave LGP21401	0.0000	678.91	0.00	-5.02	138.00	1.083	6	15.18	15.18	2.3076
Powerwave LGP21401	120.0000	678.91	4.35	2.51	138.00	1.083	6	15.18	15.18	2.3076
Powerwave LGP21401	240.0000	678.91	-4.35	2.51	138.00	1.083	6	15.18	15.18	2.3076
Powerwave LGP21901	0.0000	678.91	0.00	-5.02	138.00	1.083	6	15.18	15.18	2.3076
Powerwave LGP21901	120.0000	678.91	4.35	2.51	138.00	1.083	6	15.18	15.18	2.3076
Powerwave LGP21901	240.0000	678.91	-4.35	2.51	138.00	1.083	6	15.18	15.18	2.3076
Sector Frame Mount	0.0000	1093.28	0.00	-3.52	150.00	1.110	6	35.94	35.94	2.3270
Sector Frame Mount	120.0000	1093.28	3.05	1.76	150.00	1.110	6	35.94	35.94	2.3270
Sector Frame Mount	240.0000	1093.28	-3.05	1.76	150.00	1.110	6	35.94	35.94	2.3270
Lightning Rod	0.0000	151.24	0.00	0.00	190.00	1.187	6	5.63	5.63	2.3826
KMW AM-X-CD-17-65-00T-RET	0.0000	209.07	0.00	-5.02	138.00	1.083	6	8.09	4.86	2.3076
KMW AM-X-CD-17-65-00T-RET	120.0000	209.07	4.35	2.51	138.00	1.083	6	8.09	4.86	2.3076
KMW AM-X-CD-17-65-00T-RET	240.0000	209.07	-4.35	2.51	138.00	1.083	6	8.09	4.86	2.3076
Ericsson RRUS11	0.0000	418.14	0.00	-5.02	138.00	1.083	6	16.19	9.71	2.3076
Ericsson RRUS11	120.0000	418.14	4.35	2.51	138.00	1.083	6	16.19	9.71	2.3076
Ericsson RRUS11	240.0000	418.14	-4.35	2.51	138.00	1.083	6	16.19	9.71	2.3076
Raycap DC6-48-60-18-8F	0.0000	209.07	0.00	-5.02	138.00	1.083	6	8.09	4.86	2.3076

Description	Aiming Azimuth °	Weight lb	$Offset_x$ ft	$Offset_z$ ft	z ft	K_z	q_z psf	C_AA_C Front ft^2	C_AA_C Side ft^2	t_z in
Sector Frame Mount	0.0000	1101.38	0.00	-3.52	170.50	1.151	6	36.23	36.23	2.3570
Sector Frame Mount	120.0000	1101.38	3.05	1.76	170.50	1.151	6	36.23	36.23	2.3570
Sector Frame Mount	240.0000	1101.38	-3.05	1.76	170.50	1.151	6	36.23	36.23	2.3570
Sector Frame Mount	0.0000	1088.06	0.00	-3.52	138.00	1.083	6	35.75	35.75	2.3076
Sector Frame Mount	120.0000	1088.06	3.05	1.76	138.00	1.083	6	35.75	35.75	2.3076
Sector Frame Mount	240.0000	1088.06	-3.05	1.76	138.00	1.083	6	35.75	35.75	2.3076
Commscope JAHH-65B-R3B	0.0000	1293.13	0.00	-5.02	190.00	1.187	6	26.99	15.65	2.3826
Alcatel Lucent B66A RRH4x45	0.0000	257.33	0.00	-5.02	190.00	1.187	6	4.35	3.28	2.3826
Alcatel Lucent B13 RRH4x30	0.0000	258.29	0.00	-5.02	190.00	1.187	6	3.83	3.14	2.3826
Alcatel Lucent RRH 4T4R B5	0.0000	167.70	0.00	-5.02	190.00	1.187	6	1.60	1.72	2.3826
RFS DB-C1-12C-24AB-0Z	0.0000	407.11	0.00	-5.02	190.00	1.187	6	5.13	2.84	2.3826
Commscope JAHH-65B-R3B	120.0000	1293.13	4.35	2.51	190.00	1.187	6	26.99	15.65	2.3826
Alcatel Lucent B66A RRH4x45	120.0000	257.33	4.35	2.51	190.00	1.187	6	4.35	3.28	2.3826
Alcatel Lucent B13 RRH4x30	120.0000	258.29	4.35	2.51	190.00	1.187	6	3.83	3.14	2.3826
Alcatel Lucent RRH 4T4R B5	120.0000	167.70	4.35	2.51	190.00	1.187	6	1.60	1.72	2.3826
RFS DB-C1-12C-24AB-0Z	120.0000	407.11	4.35	2.51	190.00	1.187	6	5.13	2.84	2.3826
Commscope JAHH-65B-R3B	240.0000	1293.13	-4.35	2.51	190.00	1.187	6	26.99	15.65	2.3826
Alcatel Lucent B66A RRH4x45	240.0000	257.33	-4.35	2.51	190.00	1.187	6	4.35	3.28	2.3826
Alcatel Lucent B13 RRH4x30	240.0000	258.29	-4.35	2.51	190.00	1.187	6	3.83	3.14	2.3826
Alcatel Lucent RRH 4T4R B5	240.0000	167.70	-4.35	2.51	190.00	1.187	6	1.60	1.72	2.3826
Commscope DT465B-2XR	0.0000	388.63	0.00	-5.02	170.50	1.151	6	11.42	8.03	2.3570
Commscope DT465B-2XR	0.0000	388.63	0.00	-5.02	170.50	1.151	6	11.42	8.03	2.3570
Commscope DT465B-2XR	120.0000	388.63	4.35	2.51	170.50	1.151	6	11.42	8.03	2.3570
Alcatel Lucent 4x45W	0.0000	179.22	0.00	-5.02	170.50	1.151	6	3.52	2.49	2.3570
Alcatel Lucent 4x45W	120.0000	179.22	4.35	2.51	170.50	1.151	6	3.52	2.49	2.3570
Alcatel Lucent 4x45W	240.0000	179.22	-4.35	2.51	170.50	1.151	6	3.52	2.49	2.3570
Alcatel Lucent 8x200-25	0.0000	235.52	0.00	-5.02	170.50	1.151	6	5.19	2.41	2.3570
Alcatel Lucent 8x200-25	120.0000	235.52	4.35	2.51	170.50	1.151	6	5.19	2.41	2.3570
Alcatel Lucent 8x200-25	240.0000	235.52	-4.35	2.51	170.50	1.151	6	5.19	2.41	2.3570
RFS APXV9ERR18-C-A20	0.0000	370.62	0.00	-5.02	170.50	1.151	6	10.20	7.97	2.3570
RFS APXV9ERR18-C-A20	120.0000	370.62	4.35	2.51	170.50	1.151	6	10.20	7.97	2.3570
RFS APXV9ERR18-C-A20	240.0000	370.62	-4.35	2.51	170.50	1.151	6	10.20	7.97	2.3570
Alcatel Lucent 2x50	0.0000	310.42	0.00	-5.02	170.50	1.151	6	6.43	4.38	2.3570
Alcatel Lucent 2x50	120.0000	310.42	4.35	2.51	170.50	1.151	6	6.43	4.38	2.3570
Alcatel Lucent 2x50	240.0000	310.42	-4.35	2.51	170.50	1.151	6	6.43	4.38	2.3570
	Sum Weight:	36110.33								

Discrete Appurtenance Pressures - Service $G_H = 0.850$

Description	Aiming Azimuth °	Weight lb	$Offset_x$ ft	$Offset_z$ ft	z ft	K_z	q_z psf	C_AA_C Front ft^2	C_AA_C Side ft^2
Torque Arm Face C	180.0000	0.00	0.00	2.53	161.26	1.133	9	3.54	5.32
Torque Arm Face B	60.0000	0.00	2.19	-1.26	161.26	1.133	9	3.54	5.32
Torque Arm Face A	300.0000	0.00	-2.19	-1.26	161.26	1.133	9	3.54	5.32
Torque Arm Face C	180.0000	0.00	0.00	2.53	121.26	1.044	8	3.54	5.32
Torque Arm Face B	60.0000	0.00	2.19	-1.26	121.26	1.044	8	3.54	5.32
Torque Arm Face A	300.0000	0.00	-2.19	-1.26	121.26	1.044	8	3.54	5.32
Sector Frame Mount	0.0000	465.00	0.00	-3.52	190.00	1.187	9	13.60	13.60
Sector Frame Mount	120.0000	465.00	3.05	1.76	190.00	1.187	9	13.60	13.60
Sector Frame Mount	240.0000	465.00	-3.05	1.76	190.00	1.187	9	13.60	13.60
Antel LPA-80080-4CF	0.0000	24.00	0.00	-5.02	190.00	1.187	9	3.02	13.58
Antel LPA-80063/4CF	120.0000	40.00	4.35	2.51	190.00	1.187	9	14.00	6.96
Antel LPA-80063/4CF	240.0000	40.00	-4.35	2.51	190.00	1.187	9	14.00	6.96
Sector Frame Mount	0.0000	465.00	0.00	-3.52	178.00	1.165	9	13.60	13.60
Sector Frame Mount	120.0000	465.00	3.05	1.76	178.00	1.165	9	13.60	13.60
Sector Frame Mount	240.0000	465.00	-3.05	1.76	178.00	1.165	9	13.60	13.60
Allgon 7770.00	0.0000	70.00	0.00	-5.02	138.00	1.083	8	11.76	5.86
Allgon 7770.00	120.0000	70.00	4.35	2.51	138.00	1.083	8	11.76	5.86
Allgon 7770.00	240.0000	70.00	-4.35	2.51	138.00	1.083	8	11.76	5.86
Powerwave LGP21401	0.0000	62.00	0.00	-5.02	138.00	1.083	8	3.90	1.06
Powerwave LGP21401	120.0000	62.00	4.35	2.51	138.00	1.083	8	3.90	1.06
Powerwave LGP21401	240.0000	62.00	-4.35	2.51	138.00	1.083	8	3.90	1.06
Powerwave LGP21901	0.0000	50.00	0.00	-5.02	138.00	1.083	8	0.54	0.26
Powerwave LGP21901	120.0000	50.00	4.35	2.51	138.00	1.083	8	0.54	0.26
Powerwave LGP21901	240.0000	50.00	-4.35	2.51	138.00	1.083	8	0.54	0.26
Sector Frame Mount	0.0000	465.00	0.00	-3.52	150.00	1.110	9	13.60	13.60
Sector Frame Mount	120.0000	465.00	3.05	1.76	150.00	1.110	9	13.60	13.60
Sector Frame Mount	240.0000	465.00	-3.05	1.76	150.00	1.110	9	13.60	13.60
Lightning Rod	0.0000	40.00	0.00	0.00	190.00	1.187	9	1.00	1.00
KMW AM-X-CD-17-65-00T-RET	0.0000	25.00	0.00	-5.02	138.00	1.083	8	11.31	6.80
KMW AM-X-CD-17-65-00T-RET	120.0000	25.00	4.35	2.51	138.00	1.083	8	11.31	6.80
KMW AM-X-CD-17-65-00T-RET	240.0000	25.00	-4.35	2.51	138.00	1.083	8	11.31	6.80
Ericsson RRUS11	0.0000	50.00	0.00	-5.02	138.00	1.083	8	5.98	0.72
Ericsson RRUS11	120.0000	50.00	4.35	2.51	138.00	1.083	8	5.98	0.72
Ericsson RRUS11	240.0000	50.00	-4.35	2.51	138.00	1.083	8	5.98	0.72
Raycap DC6-48-60-18-8F	0.0000	25.00	0.00	-5.02	138.00	1.083	8	1.47	1.47
Sector Frame Mount	0.0000	465.00	0.00	-3.52	170.50	1.151	9	13.60	13.60
Sector Frame Mount	120.0000	465.00	3.05	1.76	170.50	1.151	9	13.60	13.60
Sector Frame Mount	240.0000	465.00	-3.05	1.76	170.50	1.151	9	13.60	13.60
Sector Frame Mount	0.0000	465.00	0.00	-3.52	138.00	1.083	8	13.60	13.60
Sector Frame Mount	120.0000	465.00	3.05	1.76	138.00	1.083	8	13.60	13.60
Sector Frame Mount	240.0000	465.00	-3.05	1.76	138.00	1.083	8	13.60	13.60
Commscope JAHH-65B-R3B	0.0000	126.60	0.00	-5.02	190.00	1.187	9	18.22	6.88
Alcatel Lucent B66A RRH4x45	0.0000	51.00	0.00	-5.02	190.00	1.187	9	2.54	1.61
Alcatel Lucent B13 RRH4x30	0.0000	57.20	0.00	-5.02	190.00	1.187	9	2.16	1.62
Alcatel Lucent RRH 4T4R B5	0.0000	50.00	0.00	-5.02	190.00	1.187	9	1.28	0.72
RFS DB-C1-12C-24AB-0Z	0.0000	44.00	0.00	-5.02	190.00	1.187	9	2.80	1.17

Description	Aiming Azimuth °	Weight lb	$Offset_x$ ft	$Offset_z$ ft	z ft	K_z	q_z psf	C_AA_C Front ft^2	C_AA_C Side ft^2
Commscope JAHH-65B-R3B	120.0000	126.60	4.35	2.51	190.00	1.187	9	18.22	6.88
Alcatel Lucent B66A RRH4x45	120.0000	51.00	4.35	2.51	190.00	1.187	9	2.54	1.61
Alcatel Lucent B13 RRH4x30	120.0000	57.20	4.35	2.51	190.00	1.187	9	2.16	1.62
Alcatel Lucent RRH 4T4R B5	120.0000	50.00	4.35	2.51	190.00	1.187	9	1.28	0.72
RFS DB-C1-12C-24AB-0Z	120.0000	44.00	4.35	2.51	190.00	1.187	9	2.80	1.17
Commscope JAHH-65B-R3B	240.0000	126.60	-4.35	2.51	190.00	1.187	9	18.22	6.88
Alcatel Lucent B66A RRH4x45	240.0000	51.00	-4.35	2.51	190.00	1.187	9	2.54	1.61
Alcatel Lucent B13 RRH4x30	240.0000	57.20	-4.35	2.51	190.00	1.187	9	2.16	1.62
Alcatel Lucent RRH 4T4R B5	240.0000	50.00	-4.35	2.51	190.00	1.187	9	1.28	0.72
Commscope DT465B-2XR	0.0000	50.00	0.00	-5.02	170.50	1.151	9	9.22	5.87
Commscope DT465B-2XR	0.0000	50.00	0.00	-5.02	170.50	1.151	9	9.22	5.87
Commscope DT465B-2XR	120.0000	50.00	4.35	2.51	170.50	1.151	9	9.22	5.87
Alcatel Lucent 4x45W	0.0000	51.00	0.00	-5.02	170.50	1.151	9	2.54	1.61
Alcatel Lucent 4x45W	120.0000	51.00	4.35	2.51	170.50	1.151	9	2.54	1.61
Alcatel Lucent 4x45W	240.0000	51.00	-4.35	2.51	170.50	1.151	9	2.54	1.61
Alcatel Lucent 8x200-25	0.0000	70.00	0.00	-5.02	170.50	1.151	9	4.05	1.53
Alcatel Lucent 8x200-25	120.0000	70.00	4.35	2.51	170.50	1.151	9	4.05	1.53
Alcatel Lucent 8x200-25	240.0000	70.00	-4.35	2.51	170.50	1.151	9	4.05	1.53
RFS APXV9ERR18-C-A20	0.0000	62.00	0.00	-5.02	170.50	1.151	9	8.02	5.81
RFS APXV9ERR18-C-A20	120.0000	62.00	4.35	2.51	170.50	1.151	9	8.02	5.81
RFS APXV9ERR18-C-A20	240.0000	62.00	-4.35	2.51	170.50	1.151	9	8.02	5.81
Alcatel Lucent 2x50	0.0000	84.00	0.00	-5.02	170.50	1.151	9	4.54	2.70
Alcatel Lucent 2x50	120.0000	84.00	4.35	2.51	170.50	1.151	9	4.54	2.70
Alcatel Lucent 2x50	240.0000	84.00	-4.35	2.51	170.50	1.151	9	4.54	2.70
	Sum Weight:	9808.40							

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

Comb. No.	Description
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
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 Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Guy C @ 145 ft Elev 0 ft Azimuth 240 deg	Max. Vert	10	-4887.56	-4366.64	2524.76
	Max. H_x	10	-4887.56	-4366.64	2524.76
	Max. H_z	4	-42285.12	-40661.67	23469.82
	Min. Vert	4	-42285.12	-40661.67	23469.82
	Min. H_x	4	-42285.12	-40661.67	23469.82
	Min. H_z	10	-4887.56	-4366.64	2524.76
Guy B @ 145 ft Elev 0 ft Azimuth 120 deg	Max. Vert	6	-4790.58	4292.88	2474.33
	Max. H_x	12	-42341.34	40687.73	23498.33
	Max. H_z	12	-42341.34	40687.73	23498.33
	Min. Vert	12	-42341.34	40687.73	23498.33
	Min. H_x	6	-4790.58	4292.88	2474.33
	Min. H_z	6	-4790.58	4292.88	2474.33
Guy A @ 145 ft Elev 0 ft Azimuth 0 deg	Max. Vert	2	-5002.11	6.20	-5121.60
	Max. H_x	24	-28974.58	1204.23	-36980.69
	Max. H_z	2	-5002.11	6.20	-5121.60
	Min. Vert	8	-42069.87	-10.53	-46800.63
	Min. H_x	18	-29000.13	-1205.25	-37001.54
	Min. H_z	8	-42069.87	-10.53	-46800.63
Mast	Max. Vert	19	219018.69	-200.18	-112.67
	Max. H_x	11	98251.04	2009.19	12.95
	Max. H_z	2	96899.88	28.58	2015.87

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
	Max. M_x	1	0.00	24.65	13.64
	Max. M_z	1	0.00	24.65	13.64
	Max. Torsion	1	0.00	24.65	13.64
	Min. Vert	1	89635.53	24.65	13.64
	Min. H_x	5	98297.43	-1949.81	11.62
	Min. H_z	8	98563.22	26.72	-1899.05
	Min. M_x	1	0.00	24.65	13.64
	Min. M_z	1	0.00	24.65	13.64
	Min. Torsion	1	0.00	24.65	13.64

Tower Mast Reaction Summary

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x lb-ft	Overturning Moment, M_z lb-ft	Torque lb-ft
Dead Only	89635.53	-24.65	-13.64	0.00	0.00	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice+1.0 Guy	96899.88	-28.58	-2015.87	0.00	0.00	0.00
1.2 Dead+1.6 Wind 30 deg - No Ice+1.0 Guy	98055.62	960.36	-1719.81	0.00	0.00	0.00
1.2 Dead+1.6 Wind 60 deg - No Ice+1.0 Guy	98638.10	1636.91	-970.50	0.00	0.00	0.00
1.2 Dead+1.6 Wind 90 deg - No Ice+1.0 Guy	98297.43	1949.81	-11.62	0.00	0.00	0.00
1.2 Dead+1.6 Wind 120 deg - No Ice+1.0 Guy	97201.72	1720.24	989.91	0.00	0.00	0.00
1.2 Dead+1.6 Wind 150 deg - No Ice+1.0 Guy	98185.80	963.57	1689.02	0.00	0.00	0.00
1.2 Dead+1.6 Wind 180 deg - No Ice+1.0 Guy	98563.22	-26.72	1899.05	0.00	0.00	0.00
1.2 Dead+1.6 Wind 210 deg - No Ice+1.0 Guy	98115.25	-1017.43	1690.08	0.00	0.00	0.00
1.2 Dead+1.6 Wind 240 deg - No Ice+1.0 Guy	97094.60	-1769.95	985.85	0.00	0.00	0.00
1.2 Dead+1.6 Wind 270 deg - No Ice+1.0 Guy	98251.04	-2009.19	-12.95	0.00	0.00	0.00
1.2 Dead+1.6 Wind 300 deg - No Ice+1.0 Guy	98655.25	-1695.53	-973.78	0.00	0.00	0.00
1.2 Dead+1.6 Wind 330 deg - No Ice+1.0 Guy	98077.94	-1017.25	-1723.39	0.00	0.00	0.00
1.2 Dead+1.0 Ice+1.0 Temp+Guy	217022.16	-112.22	-63.91	0.00	0.00	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy	218995.89	-108.05	-424.05	0.00	0.00	0.00
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy	218371.43	72.21	-381.16	0.00	0.00	0.00
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy	217813.55	211.20	-250.67	0.00	0.00	0.00
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy	218381.59	253.72	-64.51	0.00	0.00	0.00
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy	219018.69	200.18	112.67	0.00	0.00	0.00
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy	218382.96	73.77	249.35	0.00	0.00	0.00
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy	217815.88	-108.24	305.80	0.00	0.00	0.00
1.2 Dead+1.0 Wind 210	218372.87	-290.82	250.15	0.00	0.00	0.00

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x lb-ft	Overturning Moment, M_z lb-ft	Torque lb-ft
deg+1.0 Ice+1.0 Temp+1.0 Guy 1.2 Dead+1.0 Wind 240	218995.11	-418.13	114.63	0.00	0.00	0.00
deg+1.0 Ice+1.0 Temp+1.0 Guy 1.2 Dead+1.0 Wind 270	218356.40	-474.45	-65.29	0.00	0.00	0.00
deg+1.0 Ice+1.0 Temp+1.0 Guy 1.2 Dead+1.0 Wind 300	217790.76	-431.76	-252.88	0.00	0.00	0.00
deg+1.0 Ice+1.0 Temp+1.0 Guy 1.2 Dead+1.0 Wind 330	218356.21	-291.30	-383.36	0.00	0.00	0.00
deg+1.0 Ice+1.0 Temp+1.0 Guy Dead+Wind 0 deg - Service+Guy	89805.28	-24.83	-462.96	0.00	0.00	0.00
Dead+Wind 30 deg - Service+Guy	89765.39	201.15	-404.62	0.00	0.00	0.00
Dead+Wind 60 deg - Service+Guy	89727.54	357.56	-233.62	0.00	0.00	0.00
Dead+Wind 90 deg - Service+Guy	89763.85	427.92	-13.19	0.00	0.00	0.00
Dead+Wind 120 deg - Service+Guy	89803.59	365.59	210.94	0.00	0.00	0.00
Dead+Wind 150 deg - Service+Guy	89764.21	202.08	376.81	0.00	0.00	0.00
Dead+Wind 180 deg - Service+Guy	89727.72	-24.60	426.27	0.00	0.00	0.00
Dead+Wind 210 deg - Service+Guy	89764.91	-251.34	376.75	0.00	0.00	0.00
Dead+Wind 240 deg - Service+Guy	89804.33	-415.00	210.80	0.00	0.00	0.00
Dead+Wind 270 deg - Service+Guy	89764.25	-477.47	-13.39	0.00	0.00	0.00
Dead+Wind 300 deg - Service+Guy	89727.42	-407.19	-233.84	0.00	0.00	0.00
Dead+Wind 330 deg - Service+Guy	89765.08	-250.80	-404.80	0.00	0.00	0.00

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	% Error
1	0.00	-22849.01	0.00	0.00	22849.01	-0.00	0.000%
2	-59.36	-27107.18	-34393.24	59.19	27105.29	34324.88	0.156%
3	17308.45	-26901.36	-29748.51	-17319.98	26900.02	29685.63	0.146%
4	29702.74	-26695.53	-16947.20	-29696.74	26695.45	16943.23	0.017%
5	34719.72	-26901.36	59.36	-34669.17	26899.68	-18.68	0.148%
6	30105.07	-27107.18	17248.03	-30073.57	27105.93	-17229.71	0.083%
7	17411.27	-26901.36	29807.87	-17351.52	26899.79	-29784.93	0.146%
8	59.36	-26695.53	33997.22	-59.73	26695.47	-33990.30	0.016%
9	-17308.45	-26901.36	29748.51	17248.65	26899.90	-29726.44	0.146%
10	-30045.70	-27107.18	17145.21	29986.29	27105.02	-17110.81	0.156%
11	-34719.72	-26901.36	-59.36	34670.12	26899.76	99.67	0.146%
12	-29762.11	-26695.53	-17050.02	29755.82	26695.45	17046.39	0.017%
13	-17411.27	-26901.36	-29807.87	17422.14	26899.99	29745.63	0.144%
14	0.00	-131445.04	0.00	0.84	131445.04	0.73	0.001%
15	-10.61	-131712.84	-15128.41	10.57	131712.50	15087.51	0.031%
16	7486.49	-131445.04	-13011.91	-7484.57	131444.73	12968.81	0.033%
17	13025.03	-131177.24	-7533.70	-12995.85	131176.93	7518.36	0.025%
18	14991.35	-131445.04	10.61	-14951.77	131444.72	10.55	0.034%
19	13072.57	-131712.84	7573.39	-13036.24	131712.50	-7552.29	0.032%

Load Comb.	Sum of Applied Forces PX lb	PY lb	PZ lb	Sum of Reactions PX lb	PY lb	PZ lb	% Error
20	7504.86	-131445.04	13022.52	-7467.38	131444.72	-12998.88	0.033%
21	10.61	-131177.24	15085.77	-10.68	131176.93	-15052.59	0.025%
22	-7486.49	-131445.04	13011.91	7448.63	131444.72	-12988.13	0.034%
23	-13061.96	-131712.84	7555.02	13025.13	131712.49	-7533.78	0.032%
24	-14991.35	-131445.04	-10.61	14951.69	131444.72	31.92	0.034%
25	-13035.64	-131177.24	-7552.07	13006.81	131176.94	7536.98	0.025%
26	-7504.86	-131445.04	-13022.52	7502.99	131444.74	12979.64	0.032%
27	-13.36	-22895.32	-7738.48	13.36	22895.31	7736.61	0.008%
28	3894.40	-22849.01	-6693.41	-3894.04	22849.01	6691.97	0.006%
29	6683.12	-22802.70	-3813.12	-6682.26	22802.70	3812.60	0.004%
30	7811.94	-22849.01	13.36	-7810.53	22849.01	-12.97	0.006%
31	6773.64	-22895.32	3880.81	-6772.06	22895.31	-3879.88	0.008%
32	3917.54	-22849.01	6706.77	-3916.50	22849.01	-6705.73	0.006%
33	13.36	-22802.70	7649.38	-13.37	22802.70	-7648.36	0.004%
34	-3894.40	-22849.01	6693.41	3893.35	22849.01	-6692.37	0.006%
35	-6760.28	-22895.32	3857.67	6758.69	22895.31	-3856.74	0.008%
36	-7811.94	-22849.01	-13.36	7810.53	22849.01	13.75	0.006%
37	-6696.47	-22802.70	-3836.26	6695.61	22802.70	3835.75	0.004%
38	-3917.54	-22849.01	-6706.77	3917.17	22849.01	6705.33	0.006%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	13	0.00000001	0.00000001
2	Yes	13	0.00120163	0.00053886
3	Yes	13	0.00111761	0.00034947
4	Yes	13	0.00025997	0.00012779
5	Yes	13	0.00136274	0.00044759
6	Yes	14	0.00089783	0.00038729
7	Yes	13	0.00128030	0.00041004
8	Yes	13	0.00025374	0.00012557
9	Yes	13	0.00120267	0.00038395
10	Yes	13	0.00142481	0.00062020
11	Yes	13	0.00130901	0.00042871
12	Yes	13	0.00025300	0.00011358
13	Yes	13	0.00114000	0.00035728
14	Yes	13	0.00000001	0.00000734
15	Yes	16	0.00097389	0.00013497
16	Yes	15	0.00107992	0.00013832
17	Yes	14	0.00115741	0.00012440
18	Yes	15	0.00112342	0.00014115
19	Yes	16	0.00100242	0.00013704
20	Yes	15	0.00111119	0.00013777
21	Yes	14	0.00116757	0.00012604
22	Yes	15	0.00112579	0.00014894
23	Yes	16	0.00102231	0.00014540
24	Yes	15	0.00113661	0.00014966
25	Yes	14	0.00116207	0.00012892
26	Yes	15	0.00107907	0.00013584
27	Yes	13	0.00000001	0.00002433
28	Yes	13	0.00000001	0.00002282
29	Yes	13	0.00000001	0.00001945
30	Yes	13	0.00000001	0.00002149
31	Yes	13	0.00000001	0.00002331
32	Yes	13	0.00000001	0.00002197

33	Yes	13	0.00000001	0.00001990
34	Yes	13	0.00000001	0.00002279
35	Yes	13	0.00000001	0.00002392
36	Yes	13	0.00000001	0.00002161
37	Yes	13	0.00000001	0.00001951
38	Yes	13	0.00000001	0.00002211

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	190 - 180	1.240	37	0.0495	0.0437
T2	180 - 160	1.130	37	0.0538	0.0370
T3	160 - 140	0.897	29	0.0428	0.0224
T4	140 - 120	0.772	33	0.0324	0.0244
T5	120 - 100	0.655	32	0.0142	0.0354
T6	100 - 80	0.655	32	0.0043	0.0730
T7	80 - 60	0.613	32	0.0187	0.1023
T8	60 - 40	0.515	32	0.0189	0.1235
T9	40 - 20	0.447	34	0.0267	0.1398
T10	20 - 0	0.280	28	0.0546	0.1494

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
190.00	Sector Frame Mount	37	1.240	0.0495	0.0437	95255
189.63	Guy	37	1.236	0.0498	0.0434	95255
178.00	Sector Frame Mount	37	1.106	0.0537	0.0355	70638
170.50	Sector Frame Mount	37	1.013	0.0505	0.0296	91941
160.38	Guy	29	0.900	0.0430	0.0226	26653
150.00	Sector Frame Mount	29	0.827	0.0376	0.0200	90010
138.00	(2) Allgon 7770.00	33	0.759	0.0309	0.0253	70812
120.38	Guy	32	0.657	0.0146	0.0349	24023
60.38	Guy	32	0.516	0.0189	0.1231	56805

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	190 - 180	6.623	5	0.3251	0.2177
T2	180 - 160	5.948	5	0.3418	0.1844
T3	160 - 140	4.587	5	0.2702	0.1186
T4	140 - 120	3.793	8	0.1958	0.1398
T5	120 - 100	3.143	8	0.0881	0.1893
T6	100 - 80	3.040	8	0.0341	0.3555
T7	80 - 60	2.806	3	0.0929	0.4846
T8	60 - 40	2.365	2	0.0900	0.5774

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T9	40 - 20	2.075	2	0.1227	0.6503
T10	20 - 0	1.302	2	0.2529	0.6929

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
190.00	Sector Frame Mount	5	6.623	0.3251	0.2177	23221
189.63	Guy	5	6.599	0.3261	0.2165	23221
178.00	Sector Frame Mount	5	5.806	0.3401	0.1774	17944
170.50	Sector Frame Mount	5	5.263	0.3180	0.1512	16191
160.38	Guy	5	4.608	0.2718	0.1196	5348
150.00	Sector Frame Mount	5	4.140	0.2335	0.1102	13580
138.00	(2) Allgon 7770.00	8	3.724	0.1864	0.1437	18689
120.38	Guy	8	3.150	0.0901	0.1873	4597
60.38	Guy	2	2.371	0.0902	0.5758	12708

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load lb	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	190	Leg	A325N	0.7500	4	351.26	29820.60	0.012 ✔	1	Bolt Tension
T2	180	Leg	A325N	0.7500	4	1192.06	29820.60	0.040 ✔	1	Bolt Tension
		Torque Arm Top@160.375	A325N	0.7500	2	6410.06	17892.40	0.358 ✔	1	Bolt Shear
		Torque Arm Bottom@160.375	A325N	0.7500	2	4308.15	17892.40	0.241 ✔	1	Bolt Shear
T3	160	Leg	A325N	0.7500	4	3080.85	29820.60	0.103 ✔	1	Bolt Tension
T4	140	Leg	A325N	0.7500	4	3238.29	29820.60	0.109 ✔	1	Bolt Tension
		Torque Arm Top@120.375	A325N	0.7500	2	4910.14	17892.40	0.274 ✔	1	Bolt Shear
		Torque Arm Bottom@120.375	A325N	0.7500	2	3220.97	17892.40	0.180 ✔	1	Bolt Shear
T5	120	Leg	A325N	0.7500	4	4990.78	29820.60	0.167 ✔	1	Bolt Tension
T6	100	Leg	A325N	0.7500	4	4943.68	29820.60	0.166 ✔	1	Bolt Tension
T7	80	Leg	A325N	0.7500	4	5185.12	29820.60	0.174 ✔	1	Bolt Tension
T8	60	Leg	A325N	0.7500	4	5637.79	29820.60	0.189 ✔	1	Bolt Tension
T9	40	Leg	A325N	0.7500	4	6040.77	29820.60	0.203 ✔	1	Bolt Tension
T10	20	Leg	A325N	0.7500	4	6254.78	29820.60	0.210 ✔	1	Bolt Tension

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension lb	Breaking Load lb	Actual T_u lb	Allowable ϕT_n lb	Required S.F.	Actual S.F.
T1	189.63 (A) (615)	9/16 EHS	5250.00	35000.04	10934.00	21000.00	1.000	1.921 ✔
	189.63 (B) (614)	9/16 EHS	5250.00	35000.04	10944.30	21000.00	1.000	1.919 ✔
	189.63 (C) (613)	9/16 EHS	5250.00	35000.04	11001.30	21000.00	1.000	1.909 ✔
T2	160.38 (A) (586)	5/8 EHS	6360.00	42399.99	12309.40	25440.00	1.000	2.067 ✔
	160.38 (A) (587)	5/8 EHS	6360.00	42399.99	12148.10	25440.00	1.000	2.094 ✔
	160.38 (B) (580)	5/8 EHS	6360.00	42399.99	12204.10	25440.00	1.000	2.085 ✔
	160.38 (B) (581)	5/8 EHS	6360.00	42399.99	12446.00	25440.00	1.000	2.044 ✔
	160.38 (C) (574)	5/8 EHS	6360.00	42399.99	12329.20	25440.00	1.000	2.063 ✔
	160.38 (C) (575)	5/8 EHS	6360.00	42399.99	12266.00	25440.00	1.000	2.074 ✔
T4	120.38 (A) (604)	9/16 EHS	5250.00	35000.04	10217.90	21000.00	1.000	2.055 ✔
	120.38 (A) (605)	9/16 EHS	5250.00	35000.04	10170.90	21000.00	1.000	2.065 ✔
	120.38 (B) (598)	9/16 EHS	5250.00	35000.04	10113.60	21000.00	1.000	2.076 ✔
	120.38 (B) (599)	9/16 EHS	5250.00	35000.04	10136.80	21000.00	1.000	2.072 ✔
	120.38 (C) (592)	9/16 EHS	5250.00	35000.04	10145.10	21000.00	1.000	2.070 ✔
	120.38 (C) (593)	9/16 EHS	5250.00	35000.04	10170.40	21000.00	1.000	2.065 ✔
T7	60.38 (A) (612)	9/16 EHS	5250.00	35000.04	10126.30	21000.00	1.000	2.074 ✔
	60.38 (B) (611)	9/16 EHS	5250.00	35000.04	10123.40	21000.00	1.000	2.074 ✔
	60.38 (C) (610)	9/16 EHS	5250.00	35000.04	10110.70	21000.00	1.000	2.077 ✔

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	Mast Stability Index	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	190 - 180	P2.5x.203	10.00	3.08	39.1 K=1.00	1.7040	1.00	-18694.70	78157.90	0.239 [1] ✔
T2	180 - 160	P2.5x.203	20.00	3.21	40.6 K=1.00	1.7040	1.00	-39738.30	77325.90	0.514 [1] ✔
T3	160 - 140	P2.5x.203	20.00	3.21	40.6	1.7040	1.00	-41155.00	77325.90	0.532 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	Mast Stability Index	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
					K=1.00					✔
T4	140 - 120	P2.5x.203	20.00	3.21	40.6 K=1.00	1.7040	1.00	-60778.70	77325.90	0.786 [1] ✔
T5	120 - 100	P2.5x.203	20.00	3.21	40.6 K=1.00	1.7040	0.98	-60486.10	76111.80	0.795 [1] ✔
T6	100 - 80	P2.5x.203	20.00	3.21	40.6 K=1.00	1.7040	0.98	-63006.80	76077.50	0.828 [1] ✔
T7	80 - 60	P2.5x.203	20.00	3.21	40.6 K=1.00	1.7040	0.98	-67630.00	76059.50	0.889 [1] ✔
T8	60 - 40	P2.5x.203	20.00	3.21	40.6 K=1.00	1.7040	0.98	-72466.70	75961.30	0.954 [1] ✔
T9	40 - 20	P2.5x.203	20.00	3.21	40.6 K=1.00	1.7040	0.98	-75311.60	75972.60	0.991 [1] ✔
T10	20 - 0	P2.5x.203	20.00	3.21	40.6 K=1.00	1.7040	0.98	-75379.10	75966.80	0.992 [1] ✔

[1] P_u / ϕP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	190 - 180	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	0.5273	-5616.41	11503.00	0.488 [1] ✔
T2	180 - 160	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	0.5273	-5353.63	11503.00	0.465 [1] ✔
T3	160 - 140	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	0.5273	-4504.33	11503.00	0.392 [1] ✔
T4	140 - 120	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	0.5273	-4403.29	11503.00	0.383 [1] ✔
T5	120 - 100	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	0.5273	-3779.03	11503.00	0.329 [1] ✔
T6	100 - 80	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	0.5273	-3700.24	11503.00	0.322 [1] ✔
T7	80 - 60	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	0.5273	-3844.66	11503.00	0.334 [1] ✔
T8	60 - 40	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	0.5273	-3456.52	11503.00	0.300 [1] ✔
T9	40 - 20	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	0.5273	-3632.95	11503.00	0.316 [1] ✔
T10	20 - 0	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	0.5273	-3506.73	11503.00	0.305 [1] ✔

[1] P_u / ϕP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T2	180 - 160	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	0.5273	-2957.25	11503.00	0.257 [1] ✔
T3	160 - 140	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	0.5273	-3151.59	11503.00	0.274 [1] ✔
T4	140 - 120	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	0.5273	-2311.55	11503.00	0.201 [1] ✔
T5	120 - 100	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	0.5273	-3035.22	11503.00	0.264 [1] ✔
T6	100 - 80	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	0.5273	-1979.57	11503.00	0.172 [1] ✔
T7	80 - 60	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	0.5273	-2028.90	11503.00	0.176 [1] ✔
T8	60 - 40	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	0.5273	-1819.63	11503.00	0.158 [1] ✔
T9	40 - 20	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	0.5273	-1725.29	11503.00	0.150 [1] ✔
T10	20 - 0	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	0.5273	-1984.34	11503.00	0.173 [1] ✔

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	190 - 180	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	0.5273	-2885.67	11503.00	0.251 [1] ✔
T3	160 - 140	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	0.5273	-2341.35	11503.00	0.204 [1] ✔
T5	120 - 100	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	0.5273	-2091.52	11503.00	0.182 [1] ✔
T6	100 - 80	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	0.5273	-1828.58	11503.00	0.159 [1] ✔
T8	60 - 40	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	0.5273	-2034.16	11503.00	0.177 [1] ✔
T9	40 - 20	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	0.5273	-1793.27	11503.00	0.156 [1] ✔
T10	20 - 0	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	0.5273	-336.88	11503.00	0.029 [1] ✔

[1] P_u / ϕP_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 lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	190 - 180	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	0.5273	-2633.04	11503.00	0.229 [1] ✔
T2	180 - 160	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	0.5273	-7814.28	11503.00	0.679 [1] ✔
T4	140 - 120	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	0.5273	-6121.34	11503.00	0.532 [1] ✔
T7	80 - 60	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	0.5273	-665.08	11503.00	0.058 [1] ✔

[1] P_u / ϕP_n controls

Bottom Guy Pull-Off Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T2	180 - 160	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	0.5273	-3717.82	11503.00	0.323 [1] ✔
T4	140 - 120	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	0.5273	-3827.14	11503.00	0.333 [1] ✔

[1] P_u / ϕP_n controls

Torque-Arm Bottom Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T2	180 - 160 (578)	L3x3x1/4	3.50	3.38	68.5 K=1.00	1.4400	-8365.16	36439.50	0.230 [1] ✔
T2	180 - 160 (579)	L3x3x1/4	3.50	3.38	68.5 K=1.00	1.4400	-8320.38	36439.50	0.228 [1] ✔
T2	180 - 160 (584)	L3x3x1/4	3.50	3.38	68.5 K=1.00	1.4400	-8616.30	36439.50	0.236 [1] ✔
T2	180 - 160 (585)	L3x3x1/4	3.50	3.38	68.5 K=1.00	1.4400	-8604.81	36439.50	0.236 [1] ✔
T2	180 - 160 (590)	L3x3x1/4	3.50	3.38	68.5 K=1.00	1.4400	-8444.75	36439.50	0.232 [1] ✔
T2	180 - 160 (591)	L3x3x1/4	3.50	3.38	68.5 K=1.00	1.4400	-8434.57	36439.50	0.231 [1] ✔
T4	140 - 120 (596)	L3x3x1/4	3.50	3.38	68.5 K=1.00	1.4400	-5998.66	36439.50	0.165 [1] ✔
T4	140 - 120 (597)	L3x3x1/4	3.50	3.38	68.5 K=1.00	1.4400	-6007.76	36439.50	0.165 [1] ✔
T4	140 - 120 (602)	L3x3x1/4	3.50	3.38	68.5 K=1.00	1.4400	-6411.73	36439.50	0.176 [1] ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T4	140 - 120 (603)	L3x3x1/4	3.50	3.38	68.5 K=1.00	1.4400	-6387.76	36439.50	0.175 [1] ✔
T4	140 - 120 (608)	L3x3x1/4	3.50	3.38	68.5 K=1.00	1.4400	-6408.91	36439.50	0.176 [1] ✔
T4	140 - 120 (609)	L3x3x1/4	3.50	3.38	68.5 K=1.00	1.4400	-6441.93	36439.50	0.177 [1] ✔

[1] P_u / ϕP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	190 - 180	P2.5x.203	10.00	3.08	39.1	1.7040	0.02	88951.40	0.000 [1] ✔
T2	180 - 160	P2.5x.203	20.00	3.21	40.6	1.7040	48.17	88951.40	0.001 [1] ✔

[1] P_u / ϕP_n controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	190 - 180	5/8	4.66	4.35	333.7	0.3068	4489.49	9940.20	0.452 [1] ✔
T2	180 - 160	5/8	4.75	4.42	339.7	0.3068	6232.44	9940.20	0.627 [1] ✔
T3	160 - 140	5/8	4.75	4.42	339.7	0.3068	4840.29	9940.20	0.487 [1] ✔
T4	140 - 120	5/8	4.75	4.42	339.7	0.3068	4649.09	9940.20	0.468 [1] ✔
T5	120 - 100	5/8	4.75	4.42	339.7	0.3068	4797.49	9940.20	0.483 [1] ✔
T6	100 - 80	5/8	4.75	4.42	339.7	0.3068	3645.05	9940.20	0.367 [1] ✔
T7	80 - 60	5/8	4.75	4.42	339.7	0.3068	4058.15	9940.20	0.408 [1] ✔
T8	60 - 40	5/8	4.75	4.42	339.7	0.3068	4008.08	9940.20	0.403 [1] ✔
T9	40 - 20	5/8	4.75	4.42	339.7	0.3068	3019.72	9940.20	0.304 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T10	20 - 0	5/8	4.75	4.42	339.7	0.3068	3442.70	9940.20	0.346 [1]

[1] P_u / ϕP_n controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	190 - 180	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	323.80	17085.90	0.019 [1]
T2	180 - 160	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	688.29	17085.90	0.040 [1]
T3	160 - 140	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	712.83	17085.90	0.042 [1]
T4	140 - 120	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	1052.72	17085.90	0.062 [1]
T5	120 - 100	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	1047.65	17085.90	0.061 [1]
T6	100 - 80	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	1091.31	17085.90	0.064 [1]
T7	80 - 60	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	1171.39	17085.90	0.069 [1]
T8	60 - 40	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	1255.16	17085.90	0.073 [1]
T9	40 - 20	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	1304.44	17085.90	0.076 [1]
T10	20 - 0	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	1305.61	17085.90	0.076 [1]

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T8	60 - 40	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	223.05	17085.90	0.013 [1]
T10	20 - 0	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	60.08	17085.90	0.004 [1]

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T8	60 - 40	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	74.44	17085.90	0.004 [1] ✔
T10	20 - 0	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	1053.46	17085.90	0.062 [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 lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	190 - 180	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	777.78	17085.90	0.046 [1] ✔
T7	80 - 60	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	3976.45	17085.90	0.233 [1] ✔

[1] P_u / ϕP_n controls

Bottom Guy Pull-Off Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T4	140 - 120	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	0.5273	77.04	17085.90	0.005 [1] ✔

[1] P_u / ϕP_n controls

Torque-Arm Top Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T2	180 - 160 (576)	L2x2x5/16	4.75	4.59	91.6	1.1500	12820.10	37260.00	0.344 [1] ✔
T2	180 - 160 (577)	L2x2x5/16	4.75	4.59	91.6	1.1500	12767.00	37260.00	0.343 [1] ✔
T2	180 - 160 (582)	L2x2x5/16	4.75	4.59	91.6	1.1500	12754.00	37260.00	0.342 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T2	180 - 160 (583)	L2x2x5/16	4.75	4.59	91.6	1.1500	12819.30	37260.00	0.344 [1]
T2	180 - 160 (588)	L2x2x5/16	4.75	4.59	91.6	1.1500	12755.40	37260.00	0.342 [1]
T2	180 - 160 (589)	L2x2x5/16	4.75	4.59	91.6	1.1500	12766.50	37260.00	0.343 [1]
T4	140 - 120 (594)	L2x2x5/16	4.75	4.59	91.6	1.1500	9820.27	37260.00	0.264 [1]
T4	140 - 120 (595)	L2x2x5/16	4.75	4.59	91.6	1.1500	9802.56	37260.00	0.263 [1]
T4	140 - 120 (600)	L2x2x5/16	4.75	4.59	91.6	1.1500	9746.38	37260.00	0.262 [1]
T4	140 - 120 (601)	L2x2x5/16	4.75	4.59	91.6	1.1500	9815.22	37260.00	0.263 [1]
T4	140 - 120 (606)	L2x2x5/16	4.75	4.59	91.6	1.1500	9767.40	37260.00	0.262 [1]
T4	140 - 120 (607)	L2x2x5/16	4.75	4.59	91.6	1.1500	9819.17	37260.00	0.264 [1]

[1] $P_u / \phi P_n$ controls

Torque-Arm Bottom Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T2	180 - 160 (578)	L3x3x1/4	3.50	3.38	43.6	1.4400	2134.14	46656.00	0.046 [1]
T2	180 - 160 (579)	L3x3x1/4	3.50	3.38	43.6	1.4400	2128.82	46656.00	0.046 [1]
T2	180 - 160 (584)	L3x3x1/4	3.50	3.38	43.6	1.4400	2380.49	46656.00	0.051 [1]
T2	180 - 160 (585)	L3x3x1/4	3.50	3.38	43.6	1.4400	2398.60	46656.00	0.051 [1]
T2	180 - 160 (590)	L3x3x1/4	3.50	3.38	43.6	1.4400	2203.58	46656.00	0.047 [1]
T2	180 - 160 (591)	L3x3x1/4	3.50	3.38	43.6	1.4400	2172.23	46656.00	0.047 [1]
T4	140 - 120 (596)	L3x3x1/4	3.50	3.38	43.6	1.4400	2810.17	46656.00	0.060 [1]
T4	140 - 120 (597)	L3x3x1/4	3.50	3.38	43.6	1.4400	2806.72	46656.00	0.060 [1]
T4	140 - 120 (602)	L3x3x1/4	3.50	3.38	43.6	1.4400	3170.13	46656.00	0.068 [1]
T4	140 - 120 (603)	L3x3x1/4	3.50	3.38	43.6	1.4400	3195.56	46656.00	0.068 [1]
T4	140 - 120 (608)	L3x3x1/4	3.50	3.38	43.6	1.4400	3201.57	46656.00	0.069 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T4	140 - 120 (609)	L3x3x1/4	3.50	3.38	43.6	1.4400	3172.82	46656.00	0.068 [1] ✔

[1] $P_u / \phi P_n$ controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T1	190 - 180	Leg	P2.5x.203	2	-18694.70	78157.90	23.9	Pass
		Diagonal	5/8	33	4489.49	9940.20	45.2	Pass
		Horizontal	L1 1/2x1 1/2x3/16	27	-5616.41	11503.00	48.8	Pass
		Bottom Girt	L1 1/2x1 1/2x3/16	7	-2885.67	11503.00	25.1	Pass
		Guy A@189.625	9/16	615	10934.00	21000.00	52.1	Pass
		Guy B@189.625	9/16	614	10944.30	21000.00	52.1	Pass
		Guy C@189.625	9/16	613	11001.30	21000.00	52.4	Pass
		Top Guy Pull-Off@189.625	L1 1/2x1 1/2x3/16	6	-2633.04	11503.00	22.9	Pass
T2	180 - 160	Leg	P2.5x.203	36	-39738.30	77325.90	51.4	Pass
		Diagonal	5/8	54	6232.44	9940.20	62.7	Pass
		Horizontal	L1 1/2x1 1/2x3/16	85	-5353.63	11503.00	46.5	Pass
		Top Girt	L1 1/2x1 1/2x3/16	39	-2957.25	11503.00	25.7	Pass
		Guy A@160.375	5/8	586	12309.40	25440.00	48.4	Pass
		Guy B@160.375	5/8	581	12446.00	25440.00	48.9	Pass
		Guy C@160.375	5/8	574	12329.20	25440.00	48.5	Pass
		Top Guy Pull-Off@160.375	L1 1/2x1 1/2x3/16	51	-7814.28	11503.00	67.9	Pass
		Bottom Guy Pull-Off@160.375	L1 1/2x1 1/2x3/16	42	-3717.82	11503.00	32.3	Pass
		Torque Arm Top@160.375	L2x2x5/16	576	12820.10	37260.00	34.4 35.8 (b)	Pass
		Torque Arm Bottom@160.375	L3x3x1/4	584	-8616.30	36439.50	23.6 24.1 (b)	Pass
T3	160 - 140	Leg	P2.5x.203	96	-41155.00	77325.90	53.2	Pass
		Diagonal	5/8	149	4840.29	9940.20	48.7	Pass
		Horizontal	L1 1/2x1 1/2x3/16	147	-4504.33	11503.00	39.2	Pass
		Top Girt	L1 1/2x1 1/2x3/16	99	-3151.59	11503.00	27.4	Pass
		Bottom Girt	L1 1/2x1 1/2x3/16	100	-2341.35	11503.00	20.4	Pass
T4	140 - 120	Leg	P2.5x.203	156	-60778.70	77325.90	78.6	Pass
		Diagonal	5/8	177	4649.09	9940.20	46.8	Pass
		Horizontal	L1 1/2x1 1/2x3/16	205	-4403.29	11503.00	38.3	Pass
		Top Girt	L1 1/2x1 1/2x3/16	157	-2311.55	11503.00	20.1	Pass
		Guy A@120.375	9/16	604	10217.90	21000.00	48.7	Pass
		Guy B@120.375	9/16	599	10136.80	21000.00	48.3	Pass
		Guy C@120.375	9/16	593	10170.40	21000.00	48.4	Pass
		Top Guy Pull-Off@120.375	L1 1/2x1 1/2x3/16	169	-6121.34	11503.00	53.2	Pass
		Bottom Guy Pull-Off@120.375	L1 1/2x1 1/2x3/16	162	-3827.14	11503.00	33.3	Pass
		Torque Arm Top@120.375	L2x2x5/16	594	9820.27	37260.00	26.4 27.4 (b)	Pass
		Torque Arm Bottom@120.375	L3x3x1/4	609	-6441.93	36439.50	17.7 18.0 (b)	Pass
T5	120 - 100	Leg	P2.5x.203	216	-60486.10	76111.80	79.5	Pass
		Diagonal	5/8	269	4797.49	9940.20	48.3	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
		Horizontal	L1 1/2x1 1/2x3/16	267	-3779.03	11503.00	32.9	Pass
		Top Girt	L1 1/2x1 1/2x3/16	219	-3035.22	11503.00	26.4	Pass
		Bottom Girt	L1 1/2x1 1/2x3/16	220	-2091.52	11503.00	18.2	Pass
T6	100 - 80	Leg	P2.5x.203	275	-63006.80	76077.50	82.8	Pass
		Diagonal	5/8	328	3645.05	9940.20	36.7	Pass
		Horizontal	L1 1/2x1 1/2x3/16	289	-3700.24	11503.00	32.2	Pass
		Top Girt	L1 1/2x1 1/2x3/16	279	-1979.57	11503.00	17.2	Pass
		Bottom Girt	L1 1/2x1 1/2x3/16	281	-1828.58	11503.00	15.9	Pass
T7	80 - 60	Leg	P2.5x.203	335	-67630.00	76059.50	88.9	Pass
		Diagonal	5/8	347	4058.15	9940.20	40.8	Pass
		Horizontal	L1 1/2x1 1/2x3/16	349	-3844.66	11503.00	33.4	Pass
		Top Girt	L1 1/2x1 1/2x3/16	337	-2028.90	11503.00	17.6	Pass
		Guy A@60.375	9/16	612	10126.30	21000.00	48.2	Pass
		Guy B@60.375	9/16	611	10123.40	21000.00	48.2	Pass
		Guy C@60.375	9/16	610	10110.70	21000.00	48.1	Pass
		Top Guy Pull-Off@60.375	L1 1/2x1 1/2x3/16	342	3976.45	17085.90	23.3	Pass
T8	60 - 40	Leg	P2.5x.203	395	-72466.70	75961.30	95.4	Pass
		Diagonal	5/8	450	4008.08	9940.20	40.3	Pass
		Horizontal	L1 1/2x1 1/2x3/16	411	-3456.52	11503.00	30.0	Pass
		Top Girt	L1 1/2x1 1/2x3/16	399	-1819.63	11503.00	15.8	Pass
		Bottom Girt	L1 1/2x1 1/2x3/16	401	-2034.16	11503.00	17.7	Pass
T9	40 - 20	Leg	P2.5x.203	455	-75311.60	75972.60	99.1	Pass
		Diagonal	5/8	508	3019.72	9940.20	30.4	Pass
		Horizontal	L1 1/2x1 1/2x3/16	471	-3632.95	11503.00	31.6	Pass
		Top Girt	L1 1/2x1 1/2x3/16	459	-1725.29	11503.00	15.0	Pass
		Bottom Girt	L1 1/2x1 1/2x3/16	460	-1793.27	11503.00	15.6	Pass
T10	20 - 0	Leg	P2.5x.203	515	-75379.10	75966.80	99.2	Pass
		Diagonal	5/8	524	3442.70	9940.20	34.6	Pass
		Horizontal	L1 1/2x1 1/2x3/16	565	-3506.73	11503.00	30.5	Pass
		Top Girt	L1 1/2x1 1/2x3/16	519	-1984.34	11503.00	17.3	Pass
		Bottom Girt	L1 1/2x1 1/2x3/16	522	1053.46	17085.90	6.2	Pass
						Summary		
						Leg (T10)	99.2	Pass
						Diagonal (T2)	62.7	Pass
						Horizontal (T1)	48.8	Pass
						Top Girt (T3)	27.4	Pass
						Bottom Girt (T1)	25.1	Pass
						Guy A (T1)	52.1	Pass
						Guy B (T1)	52.1	Pass
						Guy C (T1)	52.4	Pass
						Top Guy Pull-Off (T2)	67.9	Pass
						Bottom Guy Pull-Off (T4)	33.3	Pass
						Torque Arm Top (T2)	35.8	Pass
						Torque Arm Bottom (T2)	24.1	Pass
						Bolt Checks	35.8	Pass
						RATING =	**99.2**	**Pass**

Site Name: **Ashford, CT**
Date: **7/8/2018**

Design Base Loads (Factored) per TIA-222-G

Moment (M_u):	0.0	k-ft	Concrete Compressive Strength (f'_c):	3000	psi
Shear/Leg (V_u):	2.0	k	Vertical Steel Rebar Size #:	5	
Compression/Leg (P_u):	219.0	k	Vertical Steel Rebar Area:	0.31	in^2
Uplift/Leg (T_u):	0.0	k	# of Vertical Steel Rebars:	8	
Tower Type (GT / SST):	GT		Vertical Steel Rebar Yield Strength (F_y):	60	ksi
Diameter of Prismatic Portion of Pier (d):	2.0	ft	Tie / Stirrup Size #:	4	
Depth to Base of Foundation:	4.5	ft	Tie / Stirrup Area:	0.20	in^2
Pier Height Above Ground (h):	1.00	ft	Tie / Stirrup Spacing:	10.0	in
Length / Width of Pad (w):	5.5	ft	Tie / Stirrup Steel Yield Strength (F_y):	40	ksi
Thickness of Pad (t):	1.5	ft	Rebar Cage Diameter:	16.0	in
Depth Below Ground Surface to Water Table (w):	20.0	ft	Bending/Tension Reduction Factor (ϕ_B):	0.90	
Unit Weight of Concrete:	150.0	pcf	Shear Reduction Factor (ϕ_V):	0.75	
Unit Weight of Water:	62.4	pcf	Compression Reduction Factor (ϕ_V):	0.65	
Unit Weight of Soil Above Water Table:	115.0	pcf	Steel Elastic Modulus:	29000	ksi
Unit Weight of Soil Below Water Table:	50.0	pcf	Pad Steel Rebar Size #:	5	
Friction Angle of Uplift from Top of Pad:	33	Degrees	Pad Steel Rebar Area:	0.31	in^2
Friction Angle of Uplift from Base of Pad:	33	Degrees	Pad Steel Rebar Yield Strength (F_y):	60	ksi
Uplift Angle Started at Top or Base of Pad (T/B):	B		# of Rebar in Top of Pad:	0	
Ultimate Skin Friction:	0	psf	# of Rebar in Base of Pad:	5	
Ultimate Compressive Bearing Pressure:	14000	psf	Pad Clear Cover:	3	in
Bearing Strength Reduction Factor (ϕ_s):	0.60				
Uplift Strength Reduction Factor (ϕ_s):	0.75				

Axial Capacities and Design Moment

Nominal Uplift Capacity per Leg ($\phi_s T_n$):	30.4	k
Nominal Compressive Capacity per Leg ($\phi_s P_n$):	254.1	k
P_u:	221.9	k
$T_u/\phi_s T_n$:	0.00	Result: OK
$P_u/\phi_s P_n$:	0.87	Result: OK

Pad Strength Capacity

β:	0.85	ACI318-05 - 10.2.7.3
Lower Pad Flexural Reinforcement Ratio:	0.0016	OK - Minimum Reinforcement Ratio Met - A
Upper Pad Flexural Reinforcement Ratio:	0.0000	OK - Minimum Reinforcement Ratio Met - A
Lower Pad Flexural Reinforcement Spacing:	15	in - Pad Reinforcing Spacing OK - ACI7.12.2.2 & 10.5.4
Upper Pad Flexural Reinforcement Spacing:	0	in - Pad Reinforcing Spacing OK - ACI7.12.2.2 & 10.5.4
One Way Design Shear (V_u):	21.2	k
One Way Shear Capacity (ϕV_c):	81.2	k - ACI318-05 - 11.3.1.1
V_u / ϕV_c:	0.26	Result: OK
Punching Design Shear (V_u):	159.3	k
Nominal Punching Shear Capacity ($\phi_c V_n$):	293.3	k - ACI318-05 - 11.12.2.1
V_u / ϕV_c:	0.54	Result: OK
Flexural Loading Due to Soil Pressure (M_u):	61.6	k-ft
Lower Steel Pad Moment Capacity (ϕM_n):	100.5	k-ft - ACI318-05 - 10.3
M_u / ϕM_n:	0.61	Result: OK
Flexural Loading Due to Uplift (M_u):	0.0	k-ft
Upper Steel Pad Moment Capacity (ϕM_n):	0.0	k-ft - ACI318-05 - 10.3
M_u / ϕM_n:	0.00	Result: OK

Pier Strength Capacity

Design Moment (M_u):	4.3	k-ft
Nominal Moment Capacity ($\phi_B M_n$):	88.9	k-ft - ACI318-005 - 10.2
$M_u/\phi_B M_n$:	0.05	Result: OK
Design Shear (V_u):	2.0	k
Nominal Shear Capacity ($\phi_V V_n$):	67.9	k - ACI318-05 - 11.3.1.1 or 11.5.7.2
$V_u/\phi_V V_n$:	0.03	Result: OK
Design Tension (T_u):	0.0	k
Nominal Tension Capacity ($\phi_T T_n$):	133.9	k - ACI318-05 - 10.2
$T_u/\phi_T T_n$:	0.00	Result: OK
Design Compression (P_u):	219.0	k
Nominal Compression Capacity ($\phi_P P_n$):	701.9	k - ACI318-05 - 10.3.6.2
$P_u/\phi_P P_n$:	0.31	Result: OK
Pier Reinforcement Ratio:	0.005	Reinforcement Ratio is Satisfactory - ACI318-05 - 10.9.1 & 10.8.4
$M_u/\phi_B M_n + T_u/\phi_T T_n$:	0.05	Result: OK

Site Name:	**Ashford, CT**
Date:	**7/8/2018**

Design Standard per TIA-222-G

Uplift (Factored - P_u):	42.3	k
Shear (Factored - V_u):	47.0	k
Anchor Base Depth (d):	8.0	ft
Width of Anchor (W):	5.5	ft
Length of Anchor (L):	11.5	ft
Thickness of Anchor (t):	2.0	ft
Depth Below Ground Surface to Water Table (w):	20.0	ft
Soil Uplift at Base / Top of Anchor (B/T):	T	
Unit Weight of Concrete:	150.0	pcf
Unit Weight of Soil Above Water Table:	115.0	pcf
Unit Weight of Water:	62.4	pcf
Submerged Soil Unit Weight:	50.0	pcf
Internal Angle of Friction:	33	Degrees
Cohesion:	0	psf
Ultimate Skin Friction of Pad Sides to Soil:	450	psf
Ultimate Coefficient of Shear Friction:	0.30	
Maximum Top Conical Failure Angle:	33	Degrees
Maximum Base Conical Failure Angle:	33	Degrees
Allowable Capacity Increase:	1.00	(Due to Transient Loads)
Uplift Strength Reduction Factor (ϕ_u):	0.75	
Shear Strength Reduction Factor (ϕ_v):	0.75	
Concrete Uplift Strength Reduction Factor (ϕ_u):	0.90	

Uplift

Weight of Concrete (Buoyancy Effect Considered):	19.0	k
Weight of Soil (Buoyancy Effect Considered):	100.3	k
Ultimate Uplift Resistance from Skin Friction:	20.3	k
Nominal Factored Uplift Resistance ($\phi_u P_n$):::	92.3	k
P_u / $\phi_u P_n$:	0.46	Result: OK

Shear

Ultimate Shear Friction Resistance Due to Normal Force - Uplift:	9.3	k
Passive Pressure:	2731	psf
Ultimate Passure Pressure Resistance:	62.8	k
Nominal Shear Resistance ($\phi_v V_n$):	54.0	k
V_u / $\phi_v V_n$:	0.87	Result: OK

Anchor Rod Capacity

# of Anchor Rods:	1		Rod F_y:	48 ksi
Anchor Rod Gross Area:	2.41	in^2	Rod F_u:	62 ksi
Anchor Rod Net Area:	2.41	in^2	ϕ_y:	0.80
Resultant Tensile Load (T_u):	63.2	k	ϕ_t:	0.65
Anchor Rod Tensile Resistance (ϕT_n):::	92.5	k		
T_u / ϕT_n:	0.68	Result: OK		

Strength Analysis of Reinforced Concrete

Concrete Compressive Srength (f'_c):	3000	psi
Longitudinal Rebar Yield Strength:	60000	psi
# Longitudinal Rebar (Top):	6	
# Longitudinal Rebar (1 Side):	5	
Rebar Size:	4	
Strength Reduction Factor for Shear (ϕ_v):	0.75	
Strength Reduction Factor for Flexure (ϕ_b):	0.9	
Compression Zone Factor (β_1):	0.85	
Area of Single Rebar:	0.20	in^2
One Way Shear due to Shear Load (V_u):	12.9	k
Nominal One Way Shear Capacity for Shear Load ($\phi_c V_n$):	122.3	k
$V_u/\phi_v V_n$:	0.11	Result: OK
One Way Shear due to Uplift (V_u):	18.1	k
Nominal One Way Shear Capacity for Uplift ($\phi_c V_n$):	108.4	k
$V_u/\phi_v V_n$:	0.17	Result: OK
Pad Flexure due to Shear Load (M_u):	67.5	k-ft
Nominal Flexural Capacity for Shear Load ($\phi_b M_n$):	279.0	k-ft
Pad Flexure due to Uplift (M_u):	60.9	k-ft
Nominal Flexural Capacity for Uplift ($\phi_b M_n$):	107.9	k-ft
$M_u/\phi_b M_n$ (Max.):	0.56	Result: OK