



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

Web Site: portal.ct.gov/csc

VIA ELECTRONIC MAIL

May 2, 2023

Allison Conwell
Site Acquisition Consultant
Centerline Communications, LLC
750 West Center Street, Suite 301
West Bridgewater, MA 02379
aconwell@clinellc.com

RE: **EM-ATT-078-230418** - AT&T notice of intent to modify an existing telecommunications facility located at 60 North Eagleville Road, Mansfield, Connecticut.

Dear Allison Conwell:

The Connecticut Siting Council (Council) is in receipt of your correspondence of May 1, 2023 submitted in response to the Council's April 28, 2023 notification of an incomplete request for exempt modification with regard to the above-referenced matter.

The submission renders the request for exempt modification complete and the Council will process the request in accordance with the Federal Communications Commission 60-day timeframe.

Thank you for your attention and cooperation.

Sincerely,

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

Melanie Bachman
Executive Director

MAB/ANM/laf

From: Allison Conwell <aconwell@clinellc.com>

Sent: Monday, May 1, 2023 4:51 PM

To: Fontaine, Lisa <Lisa.Fontaine@ct.gov>

Cc: CSC-DL Siting Council <Siting.Council@ct.gov>

Subject: RE: Council Incomplete Letter - EM-ATT-078-230418 (North Eagleville Road) Mansfield

Hi Lisa

Please see attached revised structural analysis. The hard copy is going in the mail tonight.



**Allison Conwell (formerly Hebel) | Site Acquisition
Consultant**

750 West Center St. Suite 301 | West Bridgewater, MA 02379

Phone: 215.588.7035 Fax: 508.819.3017

aconwell@clinellc.com | www.centerlinecommunications.com

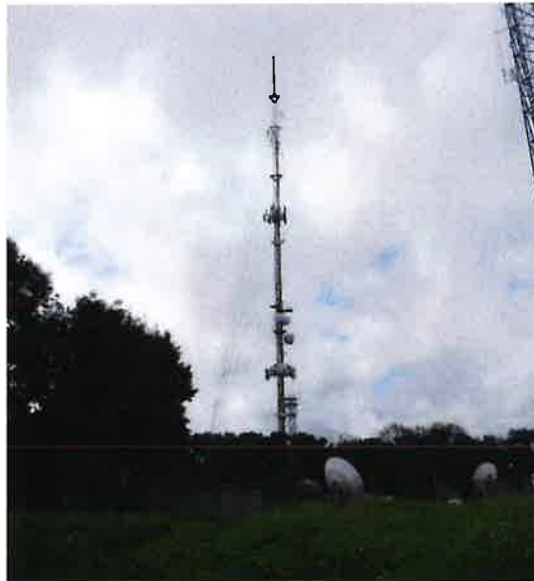
(REVISED)
STRUCTURAL ANALYSIS REPORT

For

AT&T SITE NUMBER: CT1077
SITE NAME: STORRS-UCONN
TEP SITE NUMBER: 316532. 841091

1298 Storrs Road
Storrs, CT 06268

Antennas Mounted on the Tower



Prepared for:



CENTERLINE
COMMUNICATIONS



at&t

Dated: May 1, 2023 (Rev. 3)

April 11, 2023 (Rev.2)

February 20, 2023 (Rev.1)

October 19, 2022

Prepared by:



(TEP OPCO, LLC)
45 Beechwood Drive
North Andover, MA 01845
(P) 978.557.5553
www.tepgroup.net





SCOPE OF WORK:

TEP Northeast (TEP NE) has been authorized by AT&T to conduct a structural evaluation of the 317' guyed tower supporting the proposed AT&T's antennas located at elevation 185' above the ground level.

This report represents this office's findings, conclusions and recommendations pertaining to the support of AT&T's existing and proposed antennas listed below.

The following documents were used for our reference:

- Tower Drawings designed by Sabre Communications dated July 21, 1998.
- Foundation Drawings designed by Sabre Communications dated July 21, 1998.
- Tower Mapping Report prepared by ProVertic LLC dated July 15, 2022.
- Mount Structural Analysis Report prepared by Hudson Design Group LLC dated August 17, 2022.

CONCLUSION SUMMARY:

Based on our evaluation, we have determined that the existing tower is in conformance with the ANSI/TIA-222-H Standard for the loading considered under the criteria listed in this report. The tower structure is rated at 97.5 % - (Horizontals at Tower Section T10 from EL.100' to EL.120' Controlling).

TOWER BASE FOUNDATION SUMMARY:

Based on our evaluation, we have determined that the existing tower base foundation is in conformance with the ANSI/TIA-222-H Standard for the loading considered under the criteria listed in this report. The foundation is rated at 66.1 % - (Bearing Controlling).

TOWER ANCHOR FOUNDATION SUMMARY:

Based on our evaluation, we have determined that the existing tower anchor foundation is in conformance with the ANSI/TIA-222-H Standard for the loading considered under the criteria listed in this report. The foundation is rated at 41.6 % - (Shear Controlling).

APPURTENANCES CONFIGURATION:

Tenant	Appurtenances	Elev.	Mount
	(1) Lightning Rod	317'-0"	Top of Spine
	(1) Beacon	317'-0"	Top of Spine
	(1) FM Antenna	305'-0"	Spine
	(1) FM Antenna	305'-0"	Spine
	(1) FM Antenna	305'-0"	Spine
	(1) 10' Omni	274'-0"	6' Standoff
	(1) 8' Omni	274'-0"	6' Standoff
	(1) 8' Omni	274'-0"	4' Standoff
	(1) WPA-70063-2CF-EDIN Antenna	259'-0"	4' Standoff
	(1) WPA-70063-2CF-EDIN Antenna	258'-0"	4' Standoff
	(1) WPA-70063-2CF-EDIN Antenna	258'-0"	3' Standoff
	(1) TMA	255'-0"	Tower Leg
	(1) TMA	250'-0"	Tower Leg
	(2) 15' Omni	252'-0"	3' Standoff w/ Stiff Arm
	(1) 15' Omni	252'-0"	3' Standoff w/ Stiff Arm
	(2) 15' Omni	246'-0"	3' Standoff w/ Stiff Arm
	(1) 15' Omni	246'-0"	3' Standoff w/ Stiff Arm
	(1) TMA	242'-0"	Tower Leg
	(1) FM Antenna	210'-0"	Tower Leg
	(1) FM Antenna	196'-0"	2' Standoff
AT&T	(3) 4478 B14 RRH	185'-0"	Sector Frame
AT&T	(2) RRUS-32 B66A RRH	185'-0"	Sector Frame
AT&T	(3) RRUS-32 B30 RRH's	185'-0"	Sector Frame
AT&T	(3) DC6-48-60-18-8F Surge Arrestors	185'-0"	Sector Frame
AT&T	(2) QD8616-7 Antennas	185'-0"	Sector Frame
AT&T	(1) QD6616-7 Antenna	185'-0"	Sector Frame
AT&T	(3) AIR6419 Antennas	185'-0"	Sector Frame
AT&T	(3) AIR6449 Antennas	185'-0"	Sector Frame
AT&T	(2) DMP65R-BU8DA Antennas	185'-0"	Sector Frame
AT&T	(1) MS-MBA-3.2-H4-L4 Antenna	185'-0"	Sector Frame
AT&T	(2) 4415 B25 RRH's	185'-0"	Sector Frame
AT&T	(4) 4449 B5/B12 RRH's	185'-0"	Sector Frame
AT&T	(3) 8843 B2/B66A RRH's	185'-0"	Sector Frame
AT&T	(6) DBC0051F3V51-2 Duplexers	185'-0"	Sector Frame
AT&T	(3) DC6-48-60-0-8C-EC Surge Arrestors	185'-0"	Sector Frame
	(1) DB872H120-X Antenna	170'-0"	Tower Leg
	(1) 8' Omni	165'-0"	3' Standoff
	(1) TMA	165'-0"	3' Standoff
	(2) Side Marker Lights	156'-0"	Tower Leg
	(2) 7' Ice Shields	126'-0"	Tower Leg



APPURTENANCES CONFIGURATION: (CONT.)

Tenant	Appurtenances	Elev.	Mount
	(2) 6' Dish Antennas	118'-0"	Pipe Mast
	(1) 10' Omni	109'-0"	2' Standoff
	(1) 6' Dish Antenna	105'-0"	Pipe Mast
	(1) Grid Dish	95'-0"	Tower Leg
	(1) 2' Yagi	92'-0"	Tower Leg
	(2) JAHH-45B-R3B Antennas	83'-0"	Platform
	(3) BXA-80063-4CF-EDIN Antennas	83'-0"	Platform
	(6) JAHH-65B-R3B Antennas	83'-0"	Platform
	(4) B66A RRH 4x45 RRH's	83'-0"	Platform
	(4) B25 RRH 4x30 RRH's	83'-0"	Platform
	(4) B13 RRH 4x30 RRH's	83'-0"	Platform
	(5) AHCA RRH's	83'-0"	Platform
	(1) 2' Dipole	71'-0"	Tower Leg
	(1) 6' Yagi	18'-0"	Tower Leg

*Proposed AT&T Appurtenances shown in Bold.

AT&T EXISTING/PROPOSED COAX CABLES:

Tenant	Coax Cables	Elev.	Mount
AT&T	(3) Fiber Cables	186'-6"	Tower Face
AT&T	(6) DC Cables	186'-6"	Tower Face
AT&T	(6) 1-5/8" Cables	186'-6"	Tower Face
AT&T	(6) DC Cables	186'-6"	Tower Face

*Proposed AT&T Coax Cables shown in Bold.

ANALYSIS RESULTS SUMMARY:

Component	Max. Stress Ratio	Elev. of Component (ft)	Pass/Fail	Comments
Pole	23.2%	287 – 317	PASS	
Leg	61.7%	60 – 80	PASS	
Diagonal	45.0%	80 – 100	PASS	
Horizontal	97.5%	100 – 120	PASS	Controlling
Top Girt	37.2%	280 – 287	PASS	
Bottom Girt	21.2%	60 – 80	PASS	
Guy A	53.8%	100 – 120	PASS	
Guy B	55.6%	100 – 120	PASS	
Guy C	56.2%	100 – 120	PASS	
Torque Arm	33.3%	160 – 180	PASS	
Bolt Checks	11.9%	--	PASS	

TOWER BASE FOUNDATION RESULTS SUMMARY:

Component	Max. Stress Ratio	Pass/Fail	Comments
Lateral (Sliding)	3.4%	PASS	
Bearing	66.1%	PASS	Controlling
Overtopping	2.7%	PASS	
Pier Flexure	1.9%	PASS	
Pier Compression	10.2%	PASS	
Pad Flexure	34.5%	PASS	
Pad Shear	43.8%	PASS	

TOWER ANCHOR FOUNDATION RESULTS SUMMARY:

Component	Max. Stress Ratio	Pass/Fail	Comments
Shear	41.6%	PASS	Controlling
Uplift	32.3%	PASS	



DESIGN CRITERIA:

1. EIA/TIA-222-H Structural Standards for Steel Antenna Towers and Antenna Supporting Structures

County: Tolland

Ultimate Wind Speed: 120 mph (2022 Connecticut State Building Code)

Structural Class: II

Exposure Category: C

Topographic Category: 1

Nominal Ice Thickness: 1.5 inch

2. Approximate height above grade to proposed antennas: 185'

*Calculations and referenced documents are attached.

ASSUMPTIONS:

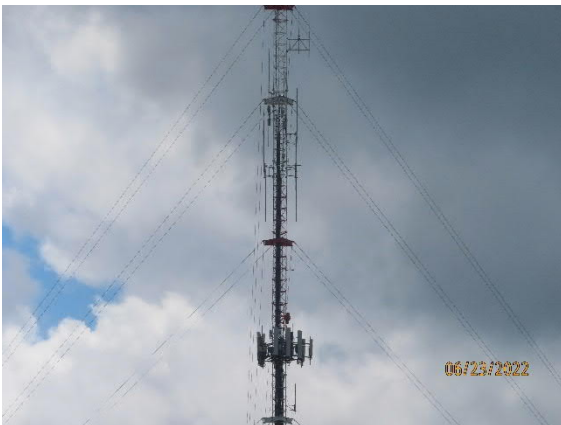
1. The appurtenances configuration is as stated in this report. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.
2. The tower and foundation are properly constructed and maintained. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.
3. The support mounts and platforms are not analyzed and are considered adequate to support the loading. The analysis is limited to the primary support structure itself.

SUPPORT RECOMMENDATIONS:

TEP NE recommends that the proposed antennas, RRHs, and surge arrestor be mounted on existing T-frames supported by the tower.

Reference TEP NE's Latest Construction Drawings for all component and connection requirements.

FIELD PHOTOS:



CALCULATIONS

<i>tnxTower</i> <i>TEP Northeast</i> 45 Beechwood Drive North Andover, MA 01845 Phone: (978) 557-5553 FAX:	Job CT1077 (C-BAND)	Page 1 of 47
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	Client AT&T	Designed by RL

Tower Input Data

The main tower is a 3x guyed tower with an overall height of 317.00 ft above the ground line.

The base of the tower is set at an elevation of 0.75 ft above the ground line.

The face width of the tower is 3.67 ft at the top and tapered at the base.

An index plate is provided at the 3x guyed -tower connection.

There is a pole section.

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

The following design criteria apply:

Tower base elevation above sea level: 729.00 ft.

Basic wind speed of 120.0 mph.

Risk Category II.

Exposure Category C.

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

Topographic Category: 1.

Crest Height: 0.00 ft.

Nominal ice thickness of 1.5000 in.

Ice thickness is considered to increase with height.

Ice density of 56.0 pcf.

A wind speed of 50.0 mph is used in combination with ice.

Temperature drop of 50.0 °F.

Deflections calculated using a wind speed of 60.0 mph.

Pressures are calculated at each section.

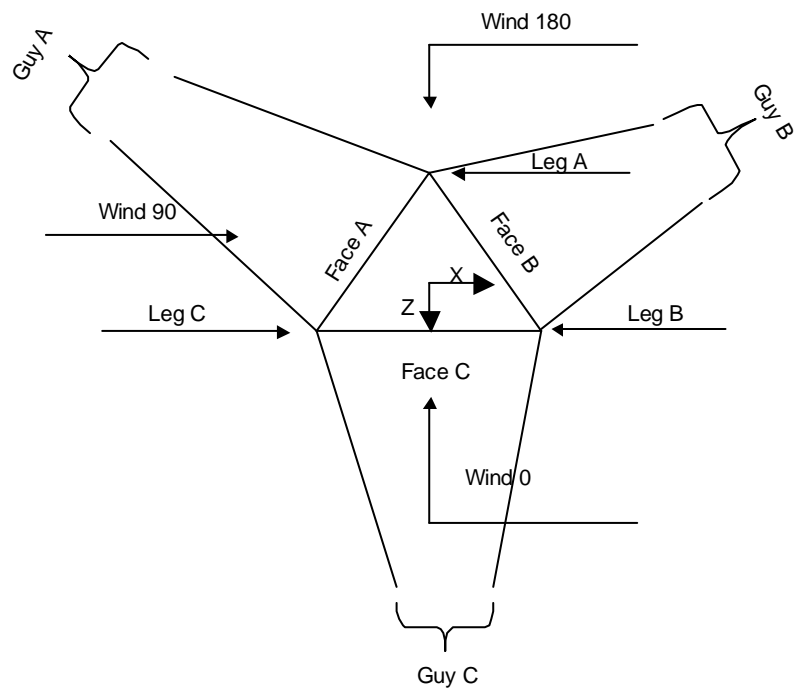
Stress ratio used in pole design is 1.

Stress ratio used in tower member design is 1.

Safety factor used in guy design is 1.

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

tnxTower TEP Northeast 45 Beechwood Drive North Andover, MA 01845 Phone: (978) 557-5553 FAX:	Job	CT1077 (C-BAND)	Page	2 of 47
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Face Guyed

Pole Section Geometry

Section	Elevation	Section Length	Pole Size	Pole Grade	Socket Length
	ft	ft			ft
L1	317.00-287.00	30.00	P12x.5	A53-B-35 (35 ksi)	

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals	Double Angle Stitch Bolt Spacing Redundants
ft	ft ²	in					in	in	in
L1 317.00-287.00				1	1	1			

<i>tnxTower</i> <i>TEP Northeast</i> 45 Beechwood Drive North Andover, MA 01845 Phone: (978) 557-5553 FAX:	Job	CT1077 (C-BAND)	Page	3 of 47
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Tower Section Geometry

<i>Tower Section</i>	<i>Tower Elevation</i>	<i>Assembly Database</i>	<i>Description</i>	<i>Section Width</i>	<i>Number of Sections</i>	<i>Section Length</i>
	<i>ft</i>			<i>ft</i>		<i>ft</i>
T1	287.00-280.00			3.67	1	7.00
T2	280.00-260.00			3.67	1	20.00
T3	260.00-240.00			3.67	1	20.00
T4	240.00-220.00			3.67	1	20.00
T5	220.00-200.00			3.67	1	20.00
T6	200.00-180.00			3.67	1	20.00
T7	180.00-160.00			3.67	1	20.00
T8	160.00-140.00			3.67	1	20.00
T9	140.00-120.00			3.67	1	20.00
T10	120.00-100.00			3.67	1	20.00
T11	100.00-80.00			3.67	1	20.00
T12	80.00-60.00			3.67	1	20.00
T13	60.00-40.00			3.67	1	20.00
T14	40.00-20.00			3.67	1	20.00
T15	20.00-7.25			3.67	1	12.75
T16	7.25-0.75			3.67	1	6.50

Tower Section Geometry (cont'd)

<i>Tower Section</i>	<i>Tower Elevation</i>	<i>Diagonal Spacing</i>	<i>Bracing Type</i>	<i>Has K Brace End Panels</i>	<i>Has Horizontals</i>	<i>Top Girt Offset</i>	<i>Bottom Girt Offset</i>
	<i>ft</i>	<i>ft</i>				<i>in</i>	<i>in</i>
T1	287.00-280.00	3.42	K Brace Left	No	Yes	1.0000	1.0000
T2	280.00-260.00	3.31	K Brace Left	No	Yes	1.0000	1.0000
T3	260.00-240.00	3.31	K Brace Left	No	Yes	1.0000	1.0000
T4	240.00-220.00	3.31	K Brace Left	No	Yes	1.0000	1.0000
T5	220.00-200.00	3.31	K Brace Left	No	Yes	1.0000	1.0000
T6	200.00-180.00	3.31	K Brace Left	No	Yes	1.0000	1.0000
T7	180.00-160.00	3.31	K Brace Left	No	Yes	1.0000	1.0000
T8	160.00-140.00	3.31	K Brace Left	No	Yes	1.0000	1.0000
T9	140.00-120.00	3.31	K Brace Left	No	Yes	1.0000	1.0000
T10	120.00-100.00	3.31	K Brace Left	No	Yes	1.0000	1.0000
T11	100.00-80.00	3.31	K Brace Left	No	Yes	1.0000	1.0000
T12	80.00-60.00	3.31	K Brace Left	No	Yes	1.0000	1.0000
T13	60.00-40.00	3.31	K Brace Left	No	Yes	1.0000	1.0000
T14	40.00-20.00	3.31	K Brace Left	No	Yes	1.0000	1.0000
T15	20.00-7.25	3.15	K Brace Left	No	Yes	1.0000	1.0000
T16	7.25-0.75	1.63	X Brace	No	Yes	0.0000	0.0000

Tower Section Geometry (cont'd)

<i>Tower Elevation</i>	<i>Leg Type</i>	<i>Leg Size</i>	<i>Leg Grade</i>	<i>Diagonal Type</i>	<i>Diagonal Size</i>	<i>Diagonal Grade</i>
<i>ft</i>						
T1 287.00-280.00	Solid Round	2	A572-50 (50 ksi)	Solid Round	1 3/8	A36 (36 ksi)
T2 280.00-260.00	Solid Round	2	A572-50 (50 ksi)	Solid Round	1 3/8	A36 (36 ksi)
T3 260.00-240.00	Solid Round	2 1/4	A572-50 (50 ksi)	Solid Round	1 3/8	A36 (36 ksi)

<i>tnxTower</i> <i>TEP Northeast</i> 45 Beechwood Drive North Andover, MA 01845 Phone: (978) 557-5553 FAX:	Job	CT1077 (C-BAND)	Page	4 of 47
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	Client	AT&T	Designed by	RL

<i>Tower Elevation ft</i>	<i>Leg Type</i>	<i>Leg Size</i>	<i>Leg Grade</i>	<i>Diagonal Type</i>	<i>Diagonal Size</i>	<i>Diagonal Grade</i>
T4 240.00-220.00	Solid Round	2 1/4	A572-50 (50 ksi)	Solid Round	1 3/8	A36 (36 ksi)
T5 220.00-200.00	Solid Round	2 1/2	A572-50 (50 ksi)	Solid Round	1 1/4	A36 (36 ksi)
T6 200.00-180.00	Solid Round	2 1/2	A572-50 (50 ksi)	Solid Round	1 1/4	A36 (36 ksi)
T7 180.00-160.00	Solid Round	2 1/2	A572-50 (50 ksi)	Solid Round	1 1/2	A36 (36 ksi)
T8 160.00-140.00	Solid Round	2 1/2	A572-50 (50 ksi)	Solid Round	1 3/8	A36 (36 ksi)
T9 140.00-120.00	Solid Round	2 3/4	A572-50 (50 ksi)	Solid Round	1 1/4	A36 (36 ksi)
T10 120.00-100.00	Solid Round	2 3/4	A572-50 (50 ksi)	Solid Round	1 1/2	A36 (36 ksi)
T11 100.00-80.00	Solid Round	3	A572-50 (50 ksi)	Solid Round	1 3/8	A36 (36 ksi)
T12 80.00-60.00	Solid Round	3	A572-50 (50 ksi)	Solid Round	1 1/4	A36 (36 ksi)
T13 60.00-40.00	Solid Round	3	A572-50 (50 ksi)	Solid Round	1 1/4	A36 (36 ksi)
T14 40.00-20.00	Solid Round	3	A572-50 (50 ksi)	Solid Round	1 1/4	A36 (36 ksi)
T15 20.00-7.25	Solid Round	3	A572-50 (50 ksi)	Solid Round	1 1/4	A36 (36 ksi)
T16 7.25-0.75	Solid Round	3	A572-50 (50 ksi)	Solid Round		A36 (36 ksi)

Tower Section Geometry (cont'd)

<i>Tower Elevation ft</i>	<i>Top Girt Type</i>	<i>Top Girt Size</i>	<i>Top Girt Grade</i>	<i>Bottom Girt Type</i>	<i>Bottom Girt Size</i>	<i>Bottom Girt Grade</i>
T1 287.00-280.00	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T2 280.00-260.00	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T3 260.00-240.00	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T4 240.00-220.00	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T5 220.00-200.00	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T6 200.00-180.00	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T7 180.00-160.00	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T8 160.00-140.00	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T9 140.00-120.00	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T10 120.00-100.00	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T11 100.00-80.00	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T12 80.00-60.00	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T13 60.00-40.00	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)

<i>tnxTower</i> <i>TEP Northeast</i> 45 Beechwood Drive North Andover, MA 01845 Phone: (978) 557-5553 FAX:	Job	CT1077 (C-BAND)	Page	5 of 47
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<i>Tower Elevation ft</i>	<i>Top Girt Type</i>	<i>Top Girt Size</i>	<i>Top Girt Grade</i>	<i>Bottom Girt Type</i>	<i>Bottom Girt Size</i>	<i>Bottom Girt Grade</i>
T14 40.00-20.00	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T15 20.00-7.25	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T16 7.25-0.75	Flat Bar	12x3/8	A36 (36 ksi)	Flat Bar	11 11/16x3/8	A36 (36 ksi)

Tower Section Geometry (*cont'd*)

<i>Tower Elevation ft</i>	<i>No. of Mid Girts</i>	<i>Mid Girt Type</i>	<i>Mid Girt Size</i>	<i>Mid Girt Grade</i>	<i>Horizontal Type</i>	<i>Horizontal Size</i>	<i>Horizontal Grade</i>
T1 287.00-280.00	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T2 280.00-260.00	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T3 260.00-240.00	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T4 240.00-220.00	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T5 220.00-200.00	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T6 200.00-180.00	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T7 180.00-160.00	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T8 160.00-140.00	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T9 140.00-120.00	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T10 120.00-100.00	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T11 100.00-80.00	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T12 80.00-60.00	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T13 60.00-40.00	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T14 40.00-20.00	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T15 20.00-7.25	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T16 7.25-0.75	None	Flat Bar		A36 (36 ksi)	Flat Bar	9x3/8	A36 (36 ksi)

<i>tnxTower</i> <i>TEP Northeast</i> 45 Beechwood Drive North Andover, MA 01845 Phone: (978) 557-5553 FAX:	Job	CT1077 (C-BAND)	Page	6 of 47
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Tower Section Geometry (cont'd)

<i>Tower Elevation</i>	<i>Secondary Horizontal Type</i>	<i>Secondary Horizontal Size</i>	<i>Secondary Horizontal Grade</i>	<i>Inner Bracing Type</i>	<i>Inner Bracing Size</i>	<i>Inner Bracing Grade</i>
<i>ft</i>						
T1 287.00-280.00	Solid Round	1	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T2 280.00-260.00	Solid Round	1	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T3 260.00-240.00	Solid Round	1	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T4 240.00-220.00	Solid Round	1	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T5 220.00-200.00	Solid Round	1	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T6 200.00-180.00	Solid Round	1	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T7 180.00-160.00	Solid Round	1	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T8 160.00-140.00	Solid Round	1	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T9 140.00-120.00	Solid Round	1	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T10 120.00-100.00	Solid Round	1	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T11 100.00-80.00	Solid Round	1	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T12 80.00-60.00	Solid Round	1	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T13 60.00-40.00	Solid Round	1	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T14 40.00-20.00	Solid Round	1	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T15 20.00-7.25	Solid Round	1	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T16 7.25-0.75	Flat Bar	9x3/8	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)

Tower Section Geometry (cont'd)

<i>Tower Elevation</i>	<i>Gusset Area (per face)</i>	<i>Gusset Thickness</i>	<i>Gusset Grade</i>	<i>Adjust. Factor A_f</i>	<i>Adjust. Factor A_r</i>	<i>Weight Mult.</i>	<i>Double Angle Stitch Bolt Spacing Diagonals</i>	<i>Double Angle Stitch Bolt Spacing Horizontals</i>	<i>Double Angle Stitch Bolt Spacing Redundants</i>
<i>ft</i>	<i>ft²</i>	<i>in</i>					<i>in</i>	<i>in</i>	<i>in</i>
T1 287.00-280.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T2 280.00-260.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T3 260.00-240.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T4 240.00-220.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T5 220.00-200.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T6 200.00-180.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000

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<i>Tower Elevation</i>	<i>Gusset Area (per face)</i>	<i>Gusset Thickness</i>	<i>Gusset Grade</i>	<i>Adjust. Factor A_f</i>	<i>Adjust. Factor A_r</i>	<i>Weight Mult.</i>	<i>Double Angle Stitch Bolt Spacing Diagonals in</i>	<i>Double Angle Stitch Bolt Spacing Horizontals in</i>	<i>Double Angle Stitch Bolt Spacing Redundants in</i>
<i>ft</i>	<i>ft²</i>	<i>in</i>							
T7 180.00-160.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T8 160.00-140.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T9 140.00-120.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T10 120.00-100.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T11 100.00-80.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T12 80.00-60.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T13 60.00-40.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T14 40.00-20.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T15 20.00-7.25	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T16 7.25-0.75	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000

Tower Section Geometry (cont'd)

<i>Tower Elevation</i>	<i>Calc K Single Angles</i>	<i>Calc K Solid Rounds</i>	<i>K Factors¹</i>							
			<i>Legs</i>	<i>X Brace Diags</i>	<i>K Brace Diags</i>	<i>Single Diags</i>	<i>Girts</i>	<i>Horiz.</i>	<i>Sec. Horiz.</i>	<i>Inner Brace</i>
				<i>X Y</i>	<i>X Y</i>	<i>X Y</i>	<i>X Y</i>	<i>X Y</i>	<i>X Y</i>	<i>X Y</i>
T1 287.00-280.00	No	Yes	1	1	1	1	1	1	1	1
T2 280.00-260.00	No	Yes	1	1	1	1	1	1	1	1
T3 260.00-240.00	No	Yes	1	1	1	1	1	1	1	1
T4 240.00-220.00	No	Yes	1	1	1	1	1	1	1	1
T5 220.00-200.00	No	Yes	1	1	1	1	1	1	1	1
T6 200.00-180.00	No	Yes	1	1	1	1	1	1	1	1
T7 180.00-160.00	No	Yes	1	1	1	1	1	1	1	1
T8 160.00-140.00	No	Yes	1	1	1	1	1	1	1	1
T9 140.00-120.00	No	Yes	1	1	1	1	1	1	1	1
T10 120.00-100.00	No	Yes	1	1	1	1	1	1	1	1
T11 100.00-80.00	No	Yes	1	1	1	1	1	1	1	1
T12 80.00-60.00	No	Yes	1	1	1	1	1	1	1	1
T13 60.00-40.00	No	Yes	1	1	1	1	1	1	1	1
T14 40.00-20.00	No	Yes	1	1	1	1	1	1	1	1

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Guy Data

Guy Elevation	Guy Grade	Guy Size	Initial Tension	%	Guy Modulus	Guy Weight	L_u	Anchor Radius	Anchor Azimuth Adj.	Anchor Elevation	End Fitting Efficiency
ft			lb		ksi	plf	ft	ft	°	ft	%
284.25	EHS	A 3/4	5830.00	10%	19000.0	1.155	355.48	233.80	0.0000	14.00	100%
		B 3/4	5830.00	10%	19000.0	1.155	388.99	241.50	0.0000	-23.00	100%
		C 3/4	5830.00	10%	19000.0	1.155	388.47	243.20	0.0000	-21.00	100%
257.33	EHS	A 3/4	5830.00	10%	19000.0	1.155	335.51	233.80	0.0000	14.00	100%
		B 3/4	5830.00	10%	19000.0	1.155	368.14	241.50	0.0000	-23.00	100%
		C 3/4	5830.00	10%	19000.0	1.155	367.73	243.20	0.0000	-21.00	100%
217.33	EHS	A 3/4	5830.00	10%	19000.0	1.155	307.79	233.80	0.0000	14.00	100%
		B 3/4	5830.00	10%	19000.0	1.155	338.73	241.50	0.0000	-23.00	100%
		C 3/4	5830.00	10%	19000.0	1.155	338.52	243.20	0.0000	-21.00	100%
167.42	EHS	A 3/4	5830.00	10%	19000.0	1.155	277.41	233.80	0.0000	14.00	100%
		B 3/4	5830.00	10%	19000.0	1.155	305.41	241.50	0.0000	-23.00	100%
		C 3/4	5830.00	10%	19000.0	1.155	305.50	243.20	0.0000	-21.00	100%
107.42	EHS	A 5/8	4240.00	10%	21000.0	0.813	249.36	233.80	0.0000	14.00	100%
		B 5/8	4240.00	10%	21000.0	0.813	272.15	241.50	0.0000	-23.00	100%
		C 5/8	4240.00	10%	21000.0	0.813	272.70	243.20	0.0000	-21.00	100%
58	EHS	A 7/16	2080.00	10%	21000.0	0.399	235.37	233.80	0.0000	14.00	100%
		B 7/16	2080.00	10%	21000.0	0.399	252.26	241.50	0.0000	-23.00	100%
		C 7/16	2080.00	10%	21000.0	0.399	253.24	243.20	0.0000	-21.00	100%

Guy Data(cont'd)

Guy Elevation	Mount Type	Torque-Arm Spread	Torque-Arm Leg Angle	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
ft		ft	°				
284.25	Torque Arm	8.42	0.0000	Channel	A36 (36 ksi)	Channel	C15x40
257.33	Torque Arm	8.42	0.0000	Channel	A36 (36 ksi)	Channel	C15x40
217.33	Torque Arm	8.42	0.0000	Channel	A36 (36 ksi)	Channel	C15x40
167.42	Torque Arm	8.42	0.0000	Channel	A36 (36 ksi)	Channel	C15x40
107.42	Torque Arm	8.42	0.0000	Channel	A36 (36 ksi)	Channel	C15x40
58	Torque Arm	8.42	0.0000	Channel	A36 (36 ksi)	Channel	C15x40

Guy-Tensioning Information

Temperature At Time Of Tensioning																	
Guy Elevation	H	V	0 F		20 F		40 F		60 F		80 F		100 F		120 F		
			Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	
			lb	ft	lb	ft	lb	ft	lb	ft	lb	ft	lb	ft	lb	ft	
284.25	A	231.41	270.25	6752	10.57	6439	11.07	6132	11.62	5830	12.21	5535	12.84	5248	13.52	4970	14.26
	B	239.11	307.25	6644	12.82	6368	13.36	6097	13.94	5830	14.56	5569	15.23	5314	15.94	5067	16.69
	C	240.81	305.25	6656	12.76	6376	13.31	6100	13.90	5830	14.53	5565	15.20	5307	15.92	5056	16.68
257.33	A	231.41	243.33	6868	9.28	6515	9.78	6169	10.31	5830	10.90	5500	11.54	5180	12.24	4871	12.99
	B	239.11	280.33	6740	11.35	6431	11.88	6128	12.46	5830	13.08	5539	13.75	5257	14.47	4983	15.24
	C	240.81	278.33	6754	11.30	6440	11.84	6132	12.42	5830	13.05	5535	13.73	5249	14.46	4972	15.24
217.33	A	231.41	203.33	7070	7.62	6647	8.09	6234	8.62	5830	9.21	5439	9.86	5063	10.58	4704	11.37
	B	239.11	240.33	6909	9.41	6542	9.93	6182	10.49	5830	11.11	5488	11.79	5157	12.53	4840	13.33

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Temperature At Time Of Tensioning																	
Guy Elevation	H	V	0 F		20 F		40 F		60 F		80 F		100 F		120 F		
			Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	
			lb	ft	lb	ft	lb	ft	lb	ft	lb	ft	lb	ft	lb	ft	
167.42	C	240.81	238.33	6925	9.38	6552	9.90	6187	10.47	5830	11.10	5484	11.79	5149	12.54	4828	13.35
	A	231.41	153.42	7361	5.97	6837	6.42	6326	6.93	5830	7.52	5353	8.18	4898	8.92	4472	9.76
	B	239.11	190.42	7167	7.41	6715	7.90	6264	8.46	5830	9.08	5411	9.77	5011	10.53	4632	11.38
107.42	C	240.81	188.42	7187	7.39	6726	7.89	6275	8.45	5830	9.09	5407	9.78	5003	10.56	4620	11.42
	A	231.41	93.42	5722	4.39	5213	4.82	4718	5.32	4240	5.91	3787	6.62	3365	7.44	2982	8.38
	B	239.11	130.42	5554	5.37	5103	5.84	4664	6.39	4240	7.02	3836	7.75	3458	8.59	3109	9.54
58	C	240.81	128.42	5566	5.38	5110	5.86	4667	6.41	4240	7.05	3833	7.79	3452	8.64	3102	9.60
	A	231.41	44.00	2899	3.80	2617	4.21	2343	4.70	2080	5.30	1832	6.01	1604	6.86	1402	7.85
	B	239.11	81.00	2834	4.46	2574	4.90	2322	5.43	2080	6.06	1851	6.81	1640	7.68	1449	8.68
	C	240.81	79.00	2838	4.49	2577	4.94	2323	5.47	2080	6.11	1850	6.86	1638	7.75	1448	8.75

Feed Line/Linear Appurtenances - Entered As Round Or Flat

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

1 1/4" Rigid Conduit	B	No	Yes	Ar (CaAa)	287.00 - 10.00	0.0000	0.38	1	1	1.2500	1.2500		0.70
1 1/4" Rigid Conduit	B	No	Yes	Ar (CaAa)	287.00 - 10.00	0.0000	0.38	1	1	1.2500	1.2500		0.70
7/8	B	No	Yes	Ar (CaAa)	287.00 - 10.00	0.0000	0.34	1	1	1.1100	1.1100		0.54
7/8	B	No	Yes	Ar (CaAa)	275.00 - 10.00	0.0000	0.3	1	1	1.1100	1.1100		0.54
LDF4-50A (1/2 FOAM)	A	No	Yes	Ar (CaAa)	274.00 - 10.00	0.0000	0.46	1	1	0.6300	0.6300		0.15
1 5/8	A	No	Yes	Ar (CaAa)	275.00 - 10.00	2.0000	0.325	1	1	0.2500	1.9800		1.04
1 5/8	A	No	Yes	Ar (CaAa)	259.00 - 10.00	2.0000	0.375	1	1	0.2500	1.9800		1.04
1 5/8	A	No	Yes	Ar (CaAa)	258.00 - 10.00	2.0000	0.425	3	3	0.2500	1.9800		1.04
1 5/8	A	No	Yes	Ar (CaAa)	246.00 - 10.00	0.0000	0.3	3	3	0.2500	1.9800		1.04
7/8	B	No	Yes	Ar (CaAa)	210.00 - 10.00	0.0000	0.3	1	1	0.2500	1.1100		0.54
1/2	A	No	Yes	Ar (CaAa)	196.00 - 10.00	0.0000	0.475	1	1	0.5800	0.5800		0.25

Fiber Cable (1-1/4")	B	No	Yes	Ar (CaAa)	186.50 - 10.00	0.0000	0.25	3	3	0.2500	1.2500		0.48
DC Cable	B	No	Yes	Ar (CaAa)	186.50 - 10.00	1.3750	0.35	6	6	0.3750	0.9570		0.88
1 5/8	B	No	Yes	Ar (CaAa)	186.50 - 10.00	0.0000	0.14	6	3	0.2500	1.9800		1.04
DC Cable	B	No	Yes	Ar (CaAa)	186.50 - 10.00	1.7500	0.27	6	6	0.3750	0.9570		0.88

7/8	A	No	Yes	Ar (CaAa)	169.00 - 10.00	1.7500	0.2	1	1	0.2500	1.1100		0.54
7/8	A	No	Yes	Ar (CaAa)	165.00 - 10.00	0.0000	0.18	1	1	0.2500	1.1100		0.54
1 1/2	A	No	Yes	Ar (CaAa)	165.00 - 10.00	0.0000	0.22	1	1	0.2500	1.5000		1.04
1 1/4" Rigid Conduit	B	No	Yes	Ar (CaAa)	150.00 - 10.00	0.0000	0.1	1	1	1.2500	1.2500		0.70

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Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
EW63	A	No	Yes	Ar (CaAa)	118.00 - 10.00	0.0000	0.125	2	2	0.2500	1.5742		0.51
7/8	B	No	Yes	Ar (CaAa)	109.00 - 10.00	0.0000	0.45	1	1	1.1100 0.2500	1.1100		0.54
EW63	A	No	Yes	Ar (CaAa)	105.00 - 10.00	1.7500	0.16	1	1	0.2500	1.5742		0.51
FSJ2-50 (3/8 SUPERFLEX. FOAM)	A	No	Yes	Ar (CaAa)	95.00 - 10.00	2.0000	0.23	1	1	0.2500	0.4300		0.08
FSJ2-50 (3/8 SUPERFLEX. FOAM)	B	No	Yes	Ar (CaAa)	92.00 - 10.00	2.0000	0.23	1	1	0.2500	0.4300		0.08

1 5/8	C	No	Yes	Ar (CaAa)	86.50 - 10.00	0.0000	0.3	2	1	0.2500	1.9800		1.04
1 5/8	C	No	Yes	Ar (CaAa)	86.50 - 10.00	0.0000	0.4	6	3	0.2500	1.9800		1.04

7/8	B	No	Yes	Ar (CaAa)	70.00 - 10.00	1.3750	0.42	1	1	0.2500	1.1100		0.54
1/4	A	No	Yes	Ar (CaAa)	18.00 - 10.00	1.7500	0.235	2	2	0.4000 0.2500	0.4000		0.25

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C _{AA} ft ² /ft	Weight plf
1 1/4" Rigid Conduit	B	No	Yes	Inside Pole	317.00 - 287.00	1	No Ice	0.00	0.70
							1/2" Ice	0.00	0.70
							1" Ice	0.00	0.70
							2" Ice	0.00	0.70
1 1/4" Rigid Conduit	B	No	Yes	Inside Pole	317.00 - 287.00	1	No Ice	0.00	0.70
							1/2" Ice	0.00	0.70
							1" Ice	0.00	0.70
							2" Ice	0.00	0.70

7/8	B	No	Yes	Inside Pole	293.00 - 287.00	1	No Ice	0.00	0.54
							1/2" Ice	0.00	0.54
							1" Ice	0.00	0.54
							2" Ice	0.00	0.54

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight lb
L1	317.00-287.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	45.24
		C	0.000	0.000	0.000	0.000	0.00
T1	287.00-280.00	A	0.000	0.000	0.000	0.000	0.00

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<i>Tower Section</i>	<i>Tower Elevation ft</i>	<i>Face</i>	<i>A_R</i>	<i>A_F</i>	<i>C_AA_A In Face</i>	<i>C_AA_A Out Face</i>	<i>Weight</i>
			<i>ft²</i>	<i>ft²</i>	<i>ft²</i>	<i>ft²</i>	<i>lb</i>
T2	280.00-260.00	B	0.000	0.000	2.527	0.000	13.58
		C	0.000	0.000	0.000	0.000	0.00
		A	0.000	0.000	3.852	0.000	17.70
T3	260.00-240.00	B	0.000	0.000	8.885	0.000	46.90
		C	0.000	0.000	0.000	0.000	0.00
		A	0.000	0.000	23.238	0.000	118.44
T4	240.00-220.00	B	0.000	0.000	9.440	0.000	49.60
		C	0.000	0.000	0.000	0.000	0.00
		A	0.000	0.000	32.940	0.000	169.40
T5	220.00-200.00	B	0.000	0.000	9.440	0.000	49.60
		C	0.000	0.000	0.000	0.000	0.00
		A	0.000	0.000	32.940	0.000	169.40
T6	200.00-180.00	B	0.000	0.000	10.550	0.000	55.00
		C	0.000	0.000	0.000	0.000	0.00
		A	0.000	0.000	33.868	0.000	173.40
T7	180.00-160.00	B	0.000	0.000	29.284	0.000	178.80
		C	0.000	0.000	0.000	0.000	0.00
		A	0.000	0.000	36.404	0.000	187.16
T8	160.00-140.00	B	0.000	0.000	65.888	0.000	424.72
		C	0.000	0.000	0.000	0.000	0.00
		A	0.000	0.000	41.540	0.000	216.80
T9	140.00-120.00	B	0.000	0.000	67.138	0.000	431.72
		C	0.000	0.000	0.000	0.000	0.00
		A	0.000	0.000	41.540	0.000	216.80
T10	120.00-100.00	B	0.000	0.000	68.388	0.000	438.72
		C	0.000	0.000	0.000	0.000	0.00
		A	0.000	0.000	47.994	0.000	237.71
T11	100.00-80.00	B	0.000	0.000	69.387	0.000	443.58
		C	0.000	0.000	0.000	0.000	0.00
		A	0.000	0.000	51.630	0.000	248.60
T12	80.00-60.00	B	0.000	0.000	71.124	0.000	450.48
		C	0.000	0.000	10.296	0.000	54.08
		A	0.000	0.000	51.845	0.000	249.00
T13	60.00-40.00	B	0.000	0.000	72.578	0.000	456.52
		C	0.000	0.000	31.680	0.000	166.40
		A	0.000	0.000	51.845	0.000	249.00
T14	40.00-20.00	B	0.000	0.000	73.688	0.000	461.92
		C	0.000	0.000	31.680	0.000	166.40
		A	0.000	0.000	51.845	0.000	249.00
T15	20.00-7.25	B	0.000	0.000	73.688	0.000	461.92
		C	0.000	0.000	31.680	0.000	166.40
		A	0.000	0.000	26.563	0.000	128.50
T16	7.25-0.75	B	0.000	0.000	36.844	0.000	230.96
		C	0.000	0.000	15.840	0.000	83.20
		A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00

Feed Line/Linear Appurtenances Section Areas - With Ice

<i>Tower Section</i>	<i>Tower Elevation ft</i>	<i>Face or Leg</i>	<i>Ice Thickness in</i>	<i>A_R</i>	<i>A_F</i>	<i>C_AA_A In Face</i>	<i>C_AA_A Out Face</i>	<i>Weight</i>
				<i>ft²</i>	<i>ft²</i>	<i>ft²</i>	<i>ft²</i>	<i>lb</i>
L1	317.00-287.00	A	1.872	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	45.24
		C		0.000	0.000	0.000	0.000	0.00
T1	287.00-280.00	A	1.860	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	10.339	0.000	159.76

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Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight lb
T2	280.00-260.00	C	1.851	0.000	0.000	0.000	0.000	0.00
		A		0.000	0.000	14.587	0.000	226.18
		B		0.000	0.000	36.648	0.000	561.71
T3	260.00-240.00	C	1.837	0.000	0.000	0.000	0.000	0.00
		A		0.000	0.000	65.414	0.000	946.55
		B		0.000	0.000	38.827	0.000	591.14
T4	240.00-220.00	C	1.821	0.000	0.000	0.000	0.000	0.00
		A		0.000	0.000	88.761	0.000	1249.56
		B		0.000	0.000	38.583	0.000	583.93
T5	220.00-200.00	C	1.805	0.000	0.000	0.000	0.000	0.00
		A		0.000	0.000	88.338	0.000	1236.51
		B		0.000	0.000	43.039	0.000	645.86
T6	200.00-180.00	C	1.787	0.000	0.000	0.000	0.000	0.00
		A		0.000	0.000	94.525	0.000	1309.06
		B		0.000	0.000	84.792	0.000	1242.82
T7	180.00-160.00	C	1.767	0.000	0.000	0.000	0.000	0.00
		A		0.000	0.000	104.621	0.000	1448.27
		B		0.000	0.000	161.526	0.000	2331.82
T8	160.00-140.00	C	1.745	0.000	0.000	0.000	0.000	0.00
		A		0.000	0.000	123.334	0.000	1718.30
		B		0.000	0.000	165.236	0.000	2371.94
T9	140.00-120.00	C	1.720	0.000	0.000	0.000	0.000	0.00
		A		0.000	0.000	122.303	0.000	1688.18
		B		0.000	0.000	168.714	0.000	2405.53
T10	120.00-100.00	C	1.692	0.000	0.000	0.000	0.000	0.00
		A		0.000	0.000	142.499	0.000	1879.77
		B		0.000	0.000	171.309	0.000	2420.03
T11	100.00-80.00	C	1.658	0.000	0.000	0.000	0.000	0.00
		A		0.000	0.000	155.890	0.000	2025.39
		B		0.000	0.000	178.905	0.000	2488.16
T12	80.00-60.00	C	1.617	0.000	0.000	17.490	0.000	273.61
		A		0.000	0.000	155.437	0.000	1984.01
		B		0.000	0.000	183.826	0.000	2513.83
T13	60.00-40.00	C	1.564	0.000	0.000	53.239	0.000	821.75
		A		0.000	0.000	152.413	0.000	1903.69
		B		0.000	0.000	184.811	0.000	2480.45
T14	40.00-20.00	C	1.486	0.000	0.000	52.492	0.000	795.94
		A		0.000	0.000	148.013	0.000	1789.79
		B		0.000	0.000	179.926	0.000	2348.85
T15	20.00-7.25	C	1.373	0.000	0.000	51.404	0.000	759.13
		A		0.000	0.000	75.870	0.000	850.81
		B		0.000	0.000	86.430	0.000	1082.55
T16	7.25-0.75	C	1.215	0.000	0.000	24.915	0.000	353.70
		A		0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00

Feed Line Center of Pressure

Section	Elevation ft	CP _x in	CP _z in	CP _x Ice in	CP _z Ice in
L1	317.00-287.00	0.0000	0.0000	0.0000	0.0000
T1	287.00-280.00	0.0000	0.0000	0.0000	0.0000
T2	280.00-260.00	0.0000	0.0000	0.0000	0.0000
T3	260.00-240.00	0.0000	0.0000	0.0000	0.0000
T4	240.00-220.00	0.0000	0.0000	0.0000	0.0000
T5	220.00-200.00	0.0000	0.0000	0.0000	0.0000

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Section	Elevation	CP _x	CP _z	CP _x	CP _z
	ft	in	in	Ice in	Ice in
T6	200.00-180.00	0.0000	0.0000	0.0000	0.0000
T7	180.00-160.00	0.0000	0.0000	0.0000	0.0000
T8	160.00-140.00	0.0000	0.0000	0.0000	0.0000
T9	140.00-120.00	0.0000	0.0000	0.0000	0.0000
T10	120.00-100.00	0.0000	0.0000	0.0000	0.0000
T11	100.00-80.00	0.0000	0.0000	0.0000	0.0000
T12	80.00-60.00	0.0000	0.0000	0.0000	0.0000
T13	60.00-40.00	0.0000	0.0000	0.0000	0.0000
T14	40.00-20.00	0.0000	0.0000	0.0000	0.0000
T15	20.00-7.25	0.0000	0.0000	0.0000	0.0000
T16	7.25-0.75	0.0000	0.0000	0.0000	0.0000

Note: For pole sections, center of pressure calculations do not consider feed line shielding.

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight lb
Lightning Rod 5/8x4'	C	From Face	0.00 0.00 5.00	0.0000	317.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.25 0.66 0.97 1.49	0.25 0.66 0.97 1.49	31.00 33.82 39.29 58.83
(2) Flash Beacon Lighting	C	From Face	2.00 0.00 2.00	0.0000	317.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.70 3.10 3.50 4.30	2.70 3.10 3.50 4.30	50.00 70.00 90.00 130.00
1 Bay FM Antenna w/ Mounting Pipe	C	From Leg	2.00 0.00 0.00	0.0000	305.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.83 4.36 4.82 5.78	4.42 5.16 5.78 7.05	71.90 117.57 168.61 290.08
1 Bay FM Antenna w/ Mounting Pipe	C	From Leg	2.00 0.00 -2.50	0.0000	305.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.83 4.36 4.82 5.78	4.42 5.16 5.78 7.05	71.90 117.57 168.61 290.08
1 Bay FM Antenna w/ Mounting Pipe	C	From Leg	2.00 0.00 2.50	0.0000	305.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.83 4.36 4.82 5.78	4.42 5.16 5.78 7.05	71.90 117.57 168.61 290.08
10' Omni	C	From Leg	3.00 0.00 0.00	0.0000	274.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.50 3.53 4.58 5.98	2.50 3.53 4.58 5.98	80.00 98.64 123.79 194.26
8' Omni	C	From Leg	3.00 0.00 0.00	0.0000	274.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.00 2.83 3.46 4.45	2.00 2.83 3.46 4.45	40.00 54.97 75.24 132.27
8' Omni	A	From Leg	4.00 0.00 0.00	0.0000	274.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.00 2.83 3.46 4.45	2.00 2.83 3.46 4.45	40.00 54.97 75.24 132.27
Pirol 4' Side Mount Standoff (1)	A	From Face	0.00 0.00 0.00	0.0000	274.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.72 4.91 7.10 11.48	2.72 4.91 7.10 11.48	50.00 89.00 128.00 206.00

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<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert ft ft ft</i>	<i>Azimuth Adjustment °</i>	<i>Placement ft</i>		<i>C_{AA} Front ft²</i>	<i>C_{AA} Side ft²</i>	<i>Weight lb</i>
Pirot 4' Side Mount Standoff (1)	C	From Face	0.00 0.00 0.00	0.0000	274.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.72 4.91 7.10 11.48	2.72 4.91 7.10 11.48	50.00 89.00 128.00 206.00
WPA-70063-2CF-EDIN-X Antenna w/ Mounting Pipe	B	From Leg	2.50 0.00 -3.00	0.0000	259.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.94 3.32 3.72 4.54	2.30 2.77 3.24 4.25	28.25 57.40 90.83 173.43
WPA-70063-2CF-EDIN-X Antenna w/ Mounting Pipe	B	From Leg	2.50 0.00 -4.00	0.0000	258.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.94 3.32 3.72 4.54	2.30 2.77 3.24 4.25	28.25 57.40 90.83 173.43
WPA-70063-2CF-EDIN-X Antenna w/ Mounting Pipe	B	From Leg	2.50 0.00 -2.00	0.0000	258.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.94 3.32 3.72 4.54	2.30 2.77 3.24 4.25	28.25 57.40 90.83 173.43
Pirot 4' Side Mount Standoff (1)	B	From Face	0.00 0.00 0.00	0.0000	257.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.72 4.91 7.10 11.48	2.72 4.91 7.10 11.48	50.00 89.00 128.00 206.00
Pirot 4' Side Mount Standoff (1)	B	From Face	0.00 0.00 0.00	0.0000	257.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.72 4.91 7.10 11.48	2.72 4.91 7.10 11.48	50.00 89.00 128.00 206.00
Gen. TMA	A	From Face	0.00 0.00 0.00	0.0000	255.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.50 0.59 0.69 0.91	0.33 0.41 0.50 0.70	16.00 20.70 26.89 44.52
Gen. TMA	B	From Face	0.00 0.00 0.00	0.0000	250.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.50 0.59 0.69 0.91	0.33 0.41 0.50 0.70	16.00 20.70 26.89 44.52
Gen. TMA	C	From Face	0.00 0.00 0.00	0.0000	242.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.50 0.59 0.69 0.91	0.33 0.41 0.50 0.70	16.00 20.70 26.89 44.52
15' Omni	B	From Face	2.00 0.00 0.00	0.0000	252.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.75 5.28 6.83 9.97	3.75 5.28 6.83 9.97	100.00 127.80 165.17 269.24
15' Omni	B	From Leg	2.00 0.00 0.00	0.0000	252.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.75 5.28 6.83 9.97	3.75 5.28 6.83 9.97	100.00 127.80 165.17 269.24
15' Omni	C	From Leg	2.00 0.00 0.00	0.0000	252.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.75 5.28 6.83 9.97	3.75 5.28 6.83 9.97	100.00 127.80 165.17 269.24
15' Omni	C	From Leg	2.00 0.00 0.00	0.0000	246.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.75 5.28 6.83 9.97	3.75 5.28 6.83 9.97	100.00 127.80 165.17 269.24
15' Omni	C	From Leg	2.00 0.00 0.00	0.0000	246.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.75 5.28 6.83 9.97	3.75 5.28 6.83 9.97	100.00 127.80 165.17 269.24
15' Omni	A	From Leg	2.00	0.0000	246.00	No Ice	3.75	3.75	100.00

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<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert ft ft ft</i>	<i>Azimuth Adjustment °</i>	<i>Placement ft</i>		<i>C_{AA} Front ft²</i>	<i>C_{AA} Side ft²</i>	<i>Weight lb</i>
			0.00			1/2" Ice	5.28	5.28	127.80
			0.00			1" Ice	6.83	6.83	165.17
						2" Ice	9.97	9.97	269.24
1 Bay FM Antenna w/ Mounting Pipe	B	From Leg	2.00	0.0000	210.00	No Ice	3.83	4.42	71.90
			0.00			1/2" Ice	4.36	5.16	117.57
			2.00			1" Ice	4.82	5.78	168.61
						2" Ice	5.78	7.05	290.08
MM02 Stand-Off Mount	B	From Leg	2.00	0.0000	210.00	No Ice	0.13	0.80	40.00
			0.00			1/2" Ice	0.18	0.96	47.81
			0.00			1" Ice	0.24	1.13	57.89
						2" Ice	0.37	1.48	85.63
1 Bay FM Antenna w/ Mounting Pipe	C	From Face	2.00	0.0000	196.00	No Ice	3.83	4.42	71.90
			0.00			1/2" Ice	4.36	5.16	117.57
			-2.00			1" Ice	4.82	5.78	168.61
						2" Ice	5.78	7.05	290.08

12'-6" Sector Frame	A	From Leg	3.00	0.0000	185.00	No Ice	13.50	9.50	700.00
			0.00			1/2" Ice	20.00	15.00	850.00
			0.00			1" Ice	26.00	20.00	1050.00
						2" Ice	39.50	31.50	1300.00
12'-6" Sector Frame	B	From Leg	3.00	0.0000	185.00	No Ice	13.50	9.50	700.00
			0.00			1/2" Ice	20.00	15.00	850.00
			0.00			1" Ice	26.00	20.00	1050.00
						2" Ice	39.50	31.50	1300.00
12'-6" Sector Frame	C	From Leg	3.00	0.0000	185.00	No Ice	13.50	9.50	700.00
			0.00			1/2" Ice	20.00	15.00	850.00
			0.00			1" Ice	26.00	20.00	1050.00
						2" Ice	39.50	31.50	1300.00
Horizontal Pipe + SFS-V-L Kit	A	From Leg	3.00	0.0000	185.00	No Ice	6.72	3.96	123.00
			0.00			1/2" Ice	7.26	4.46	159.90
			4.00			1" Ice	7.92	5.06	196.80
						2" Ice	8.88	5.96	270.60
Horizontal Pipe + SFS-V-L Kit	B	From Leg	3.00	0.0000	185.00	No Ice	6.72	3.96	123.00
			0.00			1/2" Ice	7.26	4.46	159.90
			4.00			1" Ice	7.92	5.06	196.80
						2" Ice	8.88	5.96	270.60
Horizontal Pipe + SFS-V-L Kit	C	From Leg	3.00	0.0000	185.00	No Ice	6.72	3.96	123.00
			0.00			1/2" Ice	7.26	4.46	159.90
			4.00			1" Ice	7.92	5.06	196.80
						2" Ice	8.88	5.96	270.60
4478 RRH	A	From Leg	2.00	0.0000	185.00	No Ice	2.02	1.25	60.00
			-2.00			1/2" Ice	2.20	1.40	77.66
			0.00			1" Ice	2.39	1.56	98.08
						2" Ice	2.78	1.90	148.04
4478 RRH	B	From Leg	2.00	0.0000	185.00	No Ice	2.02	1.25	60.00
			-2.00			1/2" Ice	2.20	1.40	77.66
			0.00			1" Ice	2.39	1.56	98.08
						2" Ice	2.78	1.90	148.04
4478 RRH	C	From Leg	2.00	0.0000	185.00	No Ice	2.02	1.25	60.00
			-2.00			1/2" Ice	2.20	1.40	77.66
			0.00			1" Ice	2.39	1.56	98.08
						2" Ice	2.78	1.90	148.04
RRUS 32 B66A	A	From Leg	2.50	0.0000	185.00	No Ice	2.74	1.67	60.00
			0.00			1/2" Ice	2.96	1.86	81.11
			0.00			1" Ice	3.19	2.05	105.42
						2" Ice	3.68	2.46	164.41
RRUS 32 B66A	C	From Leg	2.50	0.0000	185.00	No Ice	2.74	1.67	60.00

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight lb
			0.00			1/2" Ice	2.96	1.86	81.11
			0.00			1" Ice	3.19	2.05	105.42
						2" Ice	3.68	2.46	164.41
RRUS 32 B30	A	From Leg	2.50	0.0000	185.00	No Ice	2.74	1.67	60.00
			-3.00			1/2" Ice	2.96	1.86	81.11
			0.00			1" Ice	3.19	2.05	105.42
						2" Ice	3.68	2.46	164.41
RRUS 32 B30	B	From Leg	2.50	0.0000	185.00	No Ice	2.74	1.67	60.00
			-3.00			1/2" Ice	2.96	1.86	81.11
			0.00			1" Ice	3.19	2.05	105.42
						2" Ice	3.68	2.46	164.41
RRUS 32 B30	C	From Leg	2.50	0.0000	185.00	No Ice	2.74	1.67	60.00
			-3.00			1/2" Ice	2.96	1.86	81.11
			0.00			1" Ice	3.19	2.05	105.42
						2" Ice	3.68	2.46	164.41
DC6-48-60-18 Surge Arrestor w/ Mounting Pipe	A	From Leg	0.00	0.0000	185.00	No Ice	2.33	2.33	51.25
			0.00			1/2" Ice	3.28	3.28	84.83
			1.00			1" Ice	3.80	3.80	122.67
						2" Ice	4.90	4.90	213.90
DC6-48-60-18 Surge Arrestor w/ Mounting Pipe	B	From Leg	0.00	0.0000	185.00	No Ice	2.33	2.33	51.25
			0.00			1/2" Ice	3.28	3.28	84.83
			1.00			1" Ice	3.80	3.80	122.67
						2" Ice	4.90	4.90	213.90
DC6-48-60-18 Surge Arrestor w/ Mounting Pipe	C	From Leg	0.00	0.0000	185.00	No Ice	2.33	2.33	51.25
			0.00			1/2" Ice	3.28	3.28	84.83
			1.00			1" Ice	3.80	3.80	122.67
						2" Ice	4.90	4.90	213.90
QD8616-7 Antenna w/ Mounting Pipe	A	From Leg	3.00	0.0000	185.00	No Ice	18.81	11.50	179.20
			-6.00			1/2" Ice	19.45	12.93	309.62
			0.00			1" Ice	20.10	14.22	450.59
						2" Ice	21.41	16.46	768.16
QD8616-7 Antenna w/ Mounting Pipe	C	From Leg	3.00	0.0000	185.00	No Ice	18.81	11.50	179.20
			-6.00			1/2" Ice	19.45	12.93	309.62
			0.00			1" Ice	20.10	14.22	450.59
						2" Ice	21.41	16.46	768.16
QD6616-7 Antenna w/ Mounting Pipe	B	From Leg	3.00	0.0000	185.00	No Ice	14.05	8.70	159.20
			-6.00			1/2" Ice	14.77	9.99	264.27
			0.00			1" Ice	15.45	11.12	378.32
						2" Ice	16.75	13.04	637.40
AIR 6419 Antenna w/ Mounting Pipe	A	From Leg	3.00	0.0000	185.00	No Ice	4.97	3.43	87.90
			1.00			1/2" Ice	5.52	4.14	132.90
			2.50			1" Ice	6.00	4.73	183.30
						2" Ice	7.01	5.95	303.56
AIR 6419 Antenna w/ Mounting Pipe	B	From Leg	3.00	0.0000	185.00	No Ice	4.97	3.43	87.90
			1.00			1/2" Ice	5.52	4.14	132.90
			2.50			1" Ice	6.00	4.73	183.30
						2" Ice	7.01	5.95	303.56
AIR 6419 Antenna w/ Mounting Pipe	C	From Leg	3.00	0.0000	185.00	No Ice	4.97	3.43	87.90
			1.00			1/2" Ice	5.52	4.14	132.90
			2.50			1" Ice	6.00	4.73	183.30
						2" Ice	7.01	5.95	303.56
AIR 6449 Antenna	A	From Leg	3.00	0.0000	185.00	No Ice	4.05	2.74	82.00
			1.00			1/2" Ice	4.32	2.97	115.62
			-2.50			1" Ice	4.59	3.20	153.14
						2" Ice	5.15	3.68	240.65
AIR 6449 Antenna	B	From Leg	3.00	0.0000	185.00	No Ice	4.05	2.74	82.00
			1.00			1/2" Ice	4.32	2.97	115.62

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight lb
			-2.50			1" Ice 4.59	3.20	153.14
						2" Ice 5.15	3.68	240.65
AIR 6449 Antenna	C	From Leg	3.00	0.0000	185.00	No Ice 4.05	2.74	82.00
			1.00			1/2" Ice 4.32	2.97	115.62
			-2.50			1" Ice 4.59	3.20	153.14
						2" Ice 5.15	3.68	240.65
DMP65R-BU8DA Antenna w/ Mounting Pipe	A	From Leg	3.00	0.0000	185.00	No Ice 17.87	10.02	125.20
			6.00			1/2" Ice 18.50	11.44	243.88
			0.00			1" Ice 19.14	12.72	372.91
						2" Ice 20.44	14.94	665.96
DMP65R-BU8DA Antenna w/ Mounting Pipe	C	From Leg	3.00	0.0000	185.00	No Ice 17.87	10.02	125.20
			6.00			1/2" Ice 18.50	11.44	243.88
			0.00			1" Ice 19.14	12.72	372.91
						2" Ice 20.44	14.94	665.96
MS-MBA-3.2-H4-L4 Antenna w/ Mounting Pipe	B	From Leg	3.00	0.0000	185.00	No Ice 15.14	17.66	161.20
			6.00			1/2" Ice 15.87	19.01	323.17
			0.00			1" Ice 16.56	20.22	495.33
						2" Ice 17.88	22.30	874.19
4415 B25 RRH	A	From Leg	2.00	0.0000	185.00	No Ice 1.84	0.82	46.00
			-2.00			1/2" Ice 2.01	0.94	60.07
			0.00			1" Ice 2.19	1.07	76.66
						2" Ice 2.57	1.37	118.17
4415 B25 RRH	C	From Leg	2.00	0.0000	185.00	No Ice 1.84	0.82	46.00
			-2.00			1/2" Ice 2.01	0.94	60.07
			0.00			1" Ice 2.19	1.07	76.66
						2" Ice 2.57	1.37	118.17
4449 B5/B12 RRH	A	From Leg	2.00	0.0000	185.00	No Ice 1.97	1.40	7.20
			3.00			1/2" Ice 2.15	1.56	25.68
			0.00			1" Ice 2.33	1.72	46.97
						2" Ice 2.72	2.07	98.80
(2) 4449 B5/B12 RRH	B	From Leg	2.00	0.0000	185.00	No Ice 1.97	1.40	7.20
			3.00			1/2" Ice 2.15	1.56	25.68
			0.00			1" Ice 2.33	1.72	46.97
						2" Ice 2.72	2.07	98.80
4449 B5/B12 RRH	C	From Leg	2.00	0.0000	185.00	No Ice 1.97	1.40	7.20
			3.00			1/2" Ice 2.15	1.56	25.68
			0.00			1" Ice 2.33	1.72	46.97
						2" Ice 2.72	2.07	98.80
(2) B2/B66A 8843 RRH	B	From Leg	2.00	0.0000	185.00	No Ice 1.64	1.35	72.00
			4.00			1/2" Ice 1.80	1.50	89.60
			0.00			1" Ice 1.97	1.65	109.91
						2" Ice 2.32	1.99	159.50
B2/B66A 8843 RRH	B	From Leg	2.00	0.0000	185.00	No Ice 1.64	1.35	72.00
			-4.00			1/2" Ice 1.80	1.50	89.60
			0.00			1" Ice 1.97	1.65	109.91
						2" Ice 2.32	1.99	159.50
(2) DBC0051F3V51-2 Diplexer	A	From Leg	2.50	0.0000	185.00	No Ice 0.36	0.32	15.00
			-4.00			1/2" Ice 0.43	0.39	18.95
			0.00			1" Ice 0.52	0.48	24.26
						2" Ice 0.72	0.66	39.75
(2) DBC0051F3V51-2 Diplexer	B	From Leg	2.50	0.0000	185.00	No Ice 0.36	0.32	15.00
			-4.00			1/2" Ice 0.43	0.39	18.95
			0.00			1" Ice 0.52	0.48	24.26
						2" Ice 0.72	0.66	39.75
(2) DBC0051F3V51-2 Diplexer	C	From Leg	2.50	0.0000	185.00	No Ice 0.36	0.32	15.00
			-4.00			1/2" Ice 0.43	0.39	18.95
			0.00			1" Ice 0.52	0.48	24.26

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<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert ft ft ft</i>	<i>Azimuth Adjustment °</i>	<i>Placement ft</i>	<i>C_{AA} Front ft²</i>	<i>C_{AA} Side ft²</i>	<i>Weight lb</i>
DC6-48-60-0-8C-EC Surge Arrestor	A	From Leg	1.00 0.00 -2.00	0.0000	185.00	2" Ice 0.72 No Ice 1.14 1/2" Ice 1.79 1" Ice 2.00 2" Ice 2.44	0.66 1.14 1.79 2.00 2.44	39.75 29.00 49.30 72.38 127.53
DC6-48-60-0-8C-EC Surge Arrestor	B	From Leg	1.00 0.00 -2.00	0.0000	185.00	2" Ice 1.14 No Ice 1.14 1/2" Ice 1.79 1" Ice 2.00 2" Ice 2.44	1.14 1.14 1.79 2.00 2.44	29.00 49.30 72.38 127.53
DC6-48-60-0-8C-EC Surge Arrestor	C	From Leg	1.00 0.00 -2.00	0.0000	185.00	2" Ice 1.14 No Ice 1.14 1/2" Ice 1.79 1" Ice 2.00 2" Ice 2.44	1.14 1.14 1.79 2.00 2.44	29.00 49.30 72.38 127.53

DB872H120-X Antenna	C	From Leg	2.50 0.00 1.00	0.0000	170.00	No Ice 2.40 1/2" Ice 2.60 1" Ice 2.81 2" Ice 3.26	1.09 1.24 1.41 1.77	7.00 23.53 42.91 91.00
Gen. TMA	C	From Leg	3.00 0.00 0.00	0.0000	165.00	No Ice 0.50 1/2" Ice 0.59 1" Ice 0.69 2" Ice 0.91	0.33 0.41 0.50 0.70	16.00 20.70 26.89 44.52
8' Omni	C	From Leg	3.00 0.00 4.00	0.0000	165.00	No Ice 2.00 1/2" Ice 2.83 1" Ice 3.46 2" Ice 4.45	2.00 2.83 3.46 4.45	40.00 54.97 75.24 132.27
MM03 Stand-Off Mount	C	From Leg	0.00 0.00 0.00	0.0000	165.00	No Ice 0.13 1/2" Ice 0.18 1" Ice 0.24 2" Ice 0.37	1.20 1.43 1.66 2.15	50.00 61.31 75.67 114.30
Side Marker Light	A	From Face	0.00 0.00 0.00	0.0000	156.00	No Ice 2.70 1/2" Ice 3.10 1" Ice 3.50 2" Ice 4.30	2.70 3.10 3.50 4.30	50.00 70.00 90.00 130.00
Side Marker Light	B	From Face	0.00 0.00 0.00	0.0000	156.00	No Ice 2.70 1/2" Ice 3.10 1" Ice 3.50 2" Ice 4.30	2.70 3.10 3.50 4.30	50.00 70.00 90.00 130.00
7' Ice Shield	C	From Face	0.00 0.00 0.00	0.0000	126.00	No Ice 1.40 1/2" Ice 1.88 1" Ice 2.37 2" Ice 3.37	0.80 1.08 1.37 1.97	285.00 428.60 581.07 913.44
7' Ice Shield	A	From Face	0.00 0.00 0.00	0.0000	126.00	No Ice 1.40 1/2" Ice 1.88 1" Ice 2.37 2" Ice 3.37	0.80 1.08 1.37 1.97	285.00 428.60 581.07 913.44
10' Omni	B	From Leg	2.50 0.00 5.00	0.0000	109.00	No Ice 2.50 1/2" Ice 3.53 1" Ice 4.58 2" Ice 5.98	2.50 3.53 4.58 5.98	80.00 98.64 123.79 194.26
MM02 Stand-Off Mount	B	From Leg	0.00 0.00 0.00	0.0000	109.00	No Ice 0.13 1/2" Ice 0.18 1" Ice 0.24 2" Ice 0.37	0.80 0.96 1.13 1.48	40.00 47.81 57.89 85.63
2' Yagi	B	From Leg	2.50 0.00 1.00	0.0000	92.00	No Ice 0.41 1/2" Ice 0.54 1" Ice 0.69	0.41 0.54 0.69	20.00 24.68 31.05

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight lb
*****						2" Ice	1.00	1.00	49.42
12'-6" Platform w/ Handrail	C	From Face	3.00 0.00 0.00	0.0000	83.00	No Ice 1/2" Ice 1" Ice 2" Ice	21.50 26.00 31.00 39.50	20.00 24.50 29.00 38.00	1500.00 1850.00 2300.00 2900.00
JAHH-45B-R3B Antenna w/ Mounting Pipe	C	From Leg	3.50 -5.50 3.00	0.0000	83.00	No Ice 1/2" Ice 1" Ice 2" Ice	11.40 11.89 12.38 13.39	7.01 7.82 8.66 10.37	126.74 211.06 304.34 516.23
JAHH-45B-R3B Antenna w/ Mounting Pipe	C	From Leg	3.50 -4.00 3.00	0.0000	83.00	No Ice 1/2" Ice 1" Ice 2" Ice	11.40 11.89 12.38 13.39	7.01 7.82 8.66 10.37	126.74 211.06 304.34 516.23
BXA-80063-4CF-EDIN Antenna w/ Mounting Pipe	A	From Leg	3.50 -3.00 3.00	0.0000	83.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.19 5.68 6.14 7.07	3.67 4.47 5.15 6.55	31.90 75.61 125.29 245.80
BXA-80063-4CF-EDIN Antenna w/ Mounting Pipe	B	From Leg	3.50 -3.00 3.00	0.0000	83.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.19 5.68 6.14 7.07	3.67 4.47 5.15 6.55	31.90 75.61 125.29 245.80
BXA-80063-4CF-EDIN Antenna w/ Mounting Pipe	C	From Leg	3.50 -3.00 3.00	0.0000	83.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.19 5.68 6.14 7.07	3.67 4.47 5.15 6.55	31.90 75.61 125.29 245.80
JAHH-65B-R3B Antenna w/ Mounting Pipe	A	From Leg	3.50 5.50 3.00	0.0000	83.00	No Ice 1/2" Ice 1" Ice 2" Ice	9.11 9.58 10.05 11.02	7.71 8.53 9.37 11.09	103.74 180.55 266.12 462.01
JAHH-65B-R3B Antenna w/ Mounting Pipe	A	From Leg	3.50 4.00 3.00	0.0000	83.00	No Ice 1/2" Ice 1" Ice 2" Ice	9.11 9.58 10.05 11.02	7.71 8.53 9.37 11.09	103.74 180.55 266.12 462.01
JAHH-65B-R3B Antenna w/ Mounting Pipe	B	From Leg	3.50 5.50 3.00	0.0000	83.00	No Ice 1/2" Ice 1" Ice 2" Ice	9.11 9.58 10.05 11.02	7.71 8.53 9.37 11.09	103.74 180.55 266.12 462.01
JAHH-65B-R3B Antenna w/ Mounting Pipe	B	From Leg	3.50 4.00 3.00	0.0000	83.00	No Ice 1/2" Ice 1" Ice 2" Ice	9.11 9.58 10.05 11.02	7.71 8.53 9.37 11.09	103.74 180.55 266.12 462.01
JAHH-65B-R3B Antenna w/ Mounting Pipe	C	From Leg	3.50 5.50 3.00	0.0000	83.00	No Ice 1/2" Ice 1" Ice 2" Ice	9.11 9.58 10.05 11.02	7.71 8.53 9.37 11.09	103.74 180.55 266.12 462.01
JAHH-65B-R3B Antenna w/ Mounting Pipe	C	From Leg	3.50 4.00 3.00	0.0000	83.00	No Ice 1/2" Ice 1" Ice 2" Ice	9.11 9.58 10.05 11.02	7.71 8.53 9.37 11.09	103.74 180.55 266.12 462.01
(2) B66A RRH 4x45 RRH	A	From Face	2.50 -2.00 1.00	0.0000	83.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.45 3.98 4.44 5.40	3.04 3.72 4.27 5.43	78.90 114.91 155.70 254.87
B66A RRH 4x45 RRH	B	From Face	2.50 -2.00 1.00	0.0000	83.00	No Ice 1/2" Ice 1" Ice	3.45 3.98 4.44	3.04 3.72 4.27	78.90 114.91 155.70

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Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft ²	Weight lb
6' Dish	A	Paraboloid w/Radome	From Leg	0.00 0.00 0.00	0.0000		118.00	6.00	No Ice 28.27 1/2" Ice 29.07 1" Ice 29.86 2" Ice 31.44	250.00 399.23 548.45 846.90
6' Dish	C	Paraboloid w/Radome	From Leg	0.00 0.00 0.00	0.0000		118.00	6.00	No Ice 28.27 1/2" Ice 29.07 1" Ice 29.86 2" Ice 31.44	250.00 399.23 548.45 846.90
6' Dish	C	Paraboloid w/Radome	From Leg	0.00 0.00 0.00	0.0000		105.00	6.00	No Ice 28.27 1/2" Ice 29.07 1" Ice 29.86 2" Ice 31.44	250.00 399.23 548.45 846.90
Grid Dish	C	Grid	From Leg	0.00 0.00 0.00	0.0000		95.00	4.50	No Ice 28.27 1/2" Ice 29.07 1" Ice 29.86 2" Ice 31.44	175.00 324.23 473.45 771.90

Force Totals (Does not include forces on guys)

Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Z lb	Sum of Torques lb-ft
Leg Weight	18074.00			
Bracing Weight	15310.58			
Total Member Self-Weight	33384.58			
Guy Weight	11302.03			
Total Weight	64194.13			
Wind 0 deg - No Ice		532.15	-67146.50	-4560.76
Wind 30 deg - No Ice		33991.10	-58619.61	2373.34
Wind 60 deg - No Ice		58377.50	-33888.35	7538.78
Wind 90 deg - No Ice		67259.27	-211.71	10926.71
Wind 120 deg - No Ice		57941.85	33181.84	12703.82
Wind 150 deg - No Ice		33219.20	57555.40	11166.09
Wind 180 deg - No Ice		-285.90	66776.08	5740.60
Wind 210 deg - No Ice		-33879.02	58383.04	-1804.13
Wind 240 deg - No Ice		-58335.73	34023.73	-8143.06
Wind 270 deg - No Ice		-66731.09	490.80	-12138.78
Wind 300 deg - No Ice		-57208.47	-32883.28	-13279.38
Wind 330 deg - No Ice		-32731.76	-57528.20	-10523.23
Member Ice	28823.55			
Guy Ice	52696.73			
Total Weight Ice	206754.51			
Wind 0 deg - Ice		299.27	-19558.01	-1164.93
Wind 30 deg - Ice		9962.76	-16971.29	631.40
Wind 60 deg - Ice		17007.99	-9852.17	1890.48
Wind 90 deg - Ice		19587.01	-156.31	2689.13
Wind 120 deg - Ice		17001.24	9533.04	3170.35
Wind 150 deg - Ice		9675.38	16743.90	2980.68
Wind 180 deg - Ice		-48.81	19413.45	1651.74
Wind 210 deg - Ice		-9782.00	16924.70	-238.11
Wind 240 deg - Ice		-16916.84	9829.88	-2005.42
Wind 270 deg - Ice		-19405.45	72.12	-3204.69

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<i>Load Case</i>	<i>Vertical Forces</i>	<i>Sum of Forces X</i>	<i>Sum of Forces Z</i>	<i>Sum of Torques</i>
	<i>lb</i>	<i>lb</i>	<i>lb</i>	<i>lb-ft</i>
Wind 300 deg - Ice		-16695.76	-9615.54	-3542.22
Wind 330 deg - Ice		-9570.88	-16745.53	-2858.40
Total Weight	64194.13			
Wind 0 deg - Service		133.04	-16790.79	-1140.19
Wind 30 deg - Service		8499.86	-14658.51	593.34
Wind 60 deg - Service		14597.98	-8474.17	1884.69
Wind 90 deg - Service		16818.98	-52.93	2731.68
Wind 120 deg - Service		14489.07	8297.54	3175.96
Wind 150 deg - Service		8306.88	14392.45	2791.52
Wind 180 deg - Service		-71.48	16698.18	1435.15
Wind 210 deg - Service		-8471.84	14599.36	-451.03
Wind 240 deg - Service		-14587.54	8508.01	-2035.77
Wind 270 deg - Service		-16686.93	122.70	-3034.70
Wind 300 deg - Service		-14305.72	-8222.90	-3319.85
Wind 330 deg - Service		-8185.02	-14385.65	-2630.81

Load Combinations

<i>Comb. No.</i>	<i>Description</i>
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice+1.0 Guy
3	1.2 Dead+1.0 Wind 30 deg - No Ice+1.0 Guy
4	1.2 Dead+1.0 Wind 60 deg - No Ice+1.0 Guy
5	1.2 Dead+1.0 Wind 90 deg - No Ice+1.0 Guy
6	1.2 Dead+1.0 Wind 120 deg - No Ice+1.0 Guy
7	1.2 Dead+1.0 Wind 150 deg - No Ice+1.0 Guy
8	1.2 Dead+1.0 Wind 180 deg - No Ice+1.0 Guy
9	1.2 Dead+1.0 Wind 210 deg - No Ice+1.0 Guy
10	1.2 Dead+1.0 Wind 240 deg - No Ice+1.0 Guy
11	1.2 Dead+1.0 Wind 270 deg - No Ice+1.0 Guy
12	1.2 Dead+1.0 Wind 300 deg - No Ice+1.0 Guy
13	1.2 Dead+1.0 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

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Maximum Reactions

<i>Location</i>	<i>Condition</i>	<i>Gov. Load Comb.</i>	<i>Vertical lb</i>	<i>Horizontal, X lb</i>	<i>Horizontal, Z lb</i>
Mast	Max. Vert	15	407606.72	78.56	765.78
	Max. H _x	11	225782.37	4802.53	-28.74
	Max. H _z	2	224665.60	30.63	5238.06
	Max. M _x	1	0.00	9.71	42.49
	Max. M _z	1	0.00	9.71	42.49
	Max. Torsion	1	0.00	9.71	42.49
	Min. Vert	1	174023.33	9.71	42.49
	Min. H _x	5	225200.76	-4772.29	-60.12
	Min. H _z	8	224921.00	8.92	-4586.18
	Min. M _x	1	0.00	9.71	42.49
	Min. M _z	1	0.00	9.71	42.49
	Min. Torsion	1	0.00	9.71	42.49
	Max. Vert	10	-16893.95	-12510.91	7230.63
Guy C @ 243.2 ft Elev -21 ft Azimuth 240 deg	Max. H _x	10	-16893.95	-12510.91	7230.63
	Max. H _z	4	-86580.23	-96013.38	55407.49
	Min. Vert	4	-86580.23	-96013.38	55407.49
	Min. H _x	4	-86580.23	-96013.38	55407.49
	Min. H _z	10	-16893.95	-12510.91	7230.63
Guy B @ 241.5 ft Elev -23 ft Azimuth 120 deg	Max. Vert	6	-17289.12	12593.07	7281.32
	Max. H _x	12	-87313.76	94825.79	54700.50
	Max. H _z	12	-87313.76	94825.79	54700.50
	Min. Vert	12	-87313.76	94825.79	54700.50
Guy A @ 233.8 ft Elev 14 ft Azimuth 0 deg	Min. H _x	6	-17289.12	12593.07	7281.32
	Min. H _z	6	-17289.12	12593.07	7281.32
	Max. Vert	2	-14208.91	-2.14	-13899.37
	Max. H _x	11	-45301.00	4154.57	-63287.55
	Max. H _z	2	-14208.91	-2.14	-13899.37
	Min. Vert	8	-75706.13	18.88	-112224.33
	Min. H _x	5	-45256.64	-4154.65	-62991.84
	Min. H _z	8	-75706.13	18.88	-112224.33

Tower Mast Reaction Summary

<i>Load Combination</i>	<i>Vertical lb</i>	<i>Shear_x lb</i>	<i>Shear_z lb</i>	<i>Overturning Moment, M_x lb-ft</i>	<i>Overturning Moment, M_z lb-ft</i>	<i>Torque lb-ft</i>
Dead Only	174023.33	-9.71	-42.49	0.00	0.00	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice+1.0 Guy	224665.60	-30.63	-5238.06	0.00	0.00	0.00
1.2 Dead+1.0 Wind 30 deg - No Ice+1.0 Guy	228152.25	2217.76	-4282.84	0.00	0.00	0.00
1.2 Dead+1.0 Wind 60 deg - No Ice+1.0 Guy	228039.59	3933.97	-2395.52	0.00	0.00	0.00
1.2 Dead+1.0 Wind 90 deg - No Ice+1.0 Guy	225200.76	4772.29	60.12	0.00	0.00	0.00
1.2 Dead+1.0 Wind 120 deg - No Ice+1.0 Guy	218395.45	4549.33	2569.49	0.00	0.00	0.00
1.2 Dead+1.0 Wind 150 deg - No Ice+1.0 Guy	222766.04	2518.45	4067.29	0.00	0.00	0.00
1.2 Dead+1.0 Wind 180 deg - No Ice+1.0 Guy	224921.00	-8.92	4586.18	0.00	0.00	0.00
1.2 Dead+1.0 Wind 210 deg - No Ice+1.0 Guy	223658.14	-2529.12	4033.71	0.00	0.00	0.00
1.2 Dead+1.0 Wind 240 deg - No Ice+1.0 Guy	219580.65	-4548.37	2534.65	0.00	0.00	0.00
1.2 Dead+1.0 Wind 270 deg - No Ice+1.0 Guy	225782.37	-4802.53	28.74	0.00	0.00	0.00
1.2 Dead+1.0 Wind 300 deg - No Ice+1.0 Guy	228247.27	-4000.93	-2434.25	0.00	0.00	0.00

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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
1.2 Dead+1.0 Wind 330 deg - No Ice+1.0 Guy	227646.66	-2293.31	-4316.92	0.00	0.00	0.00
1.2 Dead+1.0 Ice+1.0 Temp+Guy	396758.16	-61.51	-89.69	0.00	0.00	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy	407606.72	-78.56	-765.78	0.00	0.00	0.00
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy	404903.94	234.49	-683.24	0.00	0.00	0.00
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy	401836.13	498.37	-432.94	0.00	0.00	0.00
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy	402377.11	612.30	-66.91	0.00	0.00	0.00
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy	403466.81	541.56	290.11	0.00	0.00	0.00
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy	401032.95	307.42	535.96	0.00	0.00	0.00
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy	399148.99	-56.01	622.43	0.00	0.00	0.00
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy	401220.79	-416.95	521.14	0.00	0.00	0.00
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy	403839.03	-658.49	269.40	0.00	0.00	0.00
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy	402769.06	-743.06	-83.61	0.00	0.00	0.00
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy	402166.57	-642.63	-451.25	0.00	0.00	0.00
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy	405091.78	-384.25	-701.22	0.00	0.00	0.00
Dead+Wind 0 deg - Service+Guy	177648.27	-13.52	-1317.16	0.00	0.00	0.00
Dead+Wind 30 deg - Service+Guy	176985.33	605.74	-1123.58	0.00	0.00	0.00
Dead+Wind 60 deg - Service+Guy	176254.14	1061.18	-665.56	0.00	0.00	0.00
Dead+Wind 90 deg - Service+Guy	176311.59	1240.69	-43.90	0.00	0.00	0.00
Dead+Wind 120 deg - Service+Guy	176575.99	1098.80	592.28	0.00	0.00	0.00
Dead+Wind 150 deg - Service+Guy	176044.16	619.43	1033.17	0.00	0.00	0.00
Dead+Wind 180 deg - Service+Guy	175672.24	-9.80	1188.92	0.00	0.00	0.00
Dead+Wind 210 deg - Service+Guy	176107.59	-638.40	1026.77	0.00	0.00	0.00
Dead+Wind 240 deg - Service+Guy	176704.34	-1118.24	586.56	0.00	0.00	0.00
Dead+Wind 270 deg - Service+Guy	176433.59	-1265.89	-48.94	0.00	0.00	0.00
Dead+Wind 300 deg - Service+Guy	176347.53	-1091.01	-673.00	0.00	0.00	0.00
Dead+Wind 330 deg - Service+Guy	177027.51	-635.63	-1130.69	0.00	0.00	0.00

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	
1	0.00	-64193.14	-0.00	-0.02	64193.17	-1.37	0.002%
2	502.94	-76128.92	-82983.18	-502.93	76128.89	82982.20	0.001%
3	41888.89	-75071.65	-72257.30	-41889.19	75071.57	72254.80	0.002%
4	72240.64	-73951.31	-41746.76	-72241.98	73951.32	41744.31	0.003%
5	83291.14	-74762.42	-193.78	-83290.17	74762.38	194.38	0.001%
6	71836.76	-75573.33	41092.32	-71835.56	75573.28	-41091.78	0.001%
7	41166.87	-74462.43	71243.63	-41165.99	74462.41	-71243.34	0.001%
8	-256.69	-73414.39	82612.76	251.55	73414.38	-82612.99	0.005%
9	-41776.81	-74471.67	72020.73	41775.82	74471.64	-72020.39	0.001%
10	-72198.88	-75592.00	41882.14	72197.58	75591.95	-41881.56	0.001%
11	-82762.96	-74780.89	472.87	82761.95	74780.85	-472.29	0.001%
12	-71103.38	-73969.97	-40793.76	71104.42	73969.99	40790.86	0.003%
13	-40679.44	-75080.88	-71216.43	40679.78	75080.83	71214.16	0.002%
14	0.00	-217326.48	-0.00	-0.74	217326.48	-4.76	0.002%
15	267.21	-218641.04	-35048.89	-267.22	218640.97	35044.21	0.002%
16	17721.93	-217591.24	-30306.95	-17721.87	217591.20	30303.77	0.001%
17	30673.56	-216490.45	-17539.54	-30671.56	216490.40	17535.13	0.002%
18	35405.84	-217319.83	-136.51	-35401.26	217319.77	135.87	0.002%
19	30701.85	-218148.12	17277.66	-30699.42	218148.08	-17276.75	0.001%
20	17489.46	-217055.09	30135.05	-17486.25	217055.04	-30132.99	0.002%
21	-16.75	-216011.96	34904.33	15.09	216011.92	-34898.69	0.003%
22	-17541.17	-217061.76	30260.36	17536.76	217061.70	-30258.24	0.002%
23	-30582.41	-218162.55	17517.25	30579.60	218162.51	-17516.30	0.001%
24	-35224.28	-217333.17	52.31	35219.00	217333.09	-52.75	0.002%
25	-30396.37	-216504.88	-17360.17	30393.92	216504.84	17356.11	0.002%
26	-17384.96	-217597.91	-30136.68	17384.84	217597.88	30133.68	0.001%

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Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	
27	125.74	-64532.46	-20749.96	-125.76	64532.45	20748.21	0.003%
28	10474.30	-64268.14	-18067.93	-10474.35	64268.13	18066.84	0.002%
29	18063.76	-63988.05	-10438.77	-18062.62	63988.04	10437.38	0.003%
30	20826.95	-64190.83	-48.45	-20823.76	64190.81	49.34	0.005%
31	17962.79	-64393.56	10275.16	-17961.64	64393.55	-10274.74	0.002%
32	10293.80	-64115.84	17814.51	-10291.03	64115.82	-17813.47	0.004%
33	-64.17	-63853.82	20657.35	63.55	63853.81	-20654.22	0.005%
34	-10446.28	-64118.15	18008.79	10443.04	64118.12	-18007.70	0.005%
35	-18053.32	-64398.23	10472.62	18052.01	64398.22	-10472.17	0.002%
36	-20694.90	-64195.45	118.22	20694.07	64195.44	-118.01	0.001%
37	-17779.45	-63992.72	-10200.52	17778.08	63992.71	10199.22	0.003%
38	-10171.94	-64270.45	-17807.71	10171.93	64270.44	17806.72	0.001%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	9	0.00000001	0.00003853
2	Yes	16	0.00000001	0.00006177
3	Yes	15	0.00000001	0.00012853
4	Yes	12	0.00000001	0.00008213
5	Yes	15	0.00000001	0.00006516
6	Yes	15	0.00000001	0.00008690
7	Yes	15	0.00000001	0.00006190
8	Yes	10	0.00013128	0.00012746
9	Yes	15	0.00000001	0.00006409
10	Yes	15	0.00000001	0.00009789
11	Yes	15	0.00000001	0.00007928
12	Yes	11	0.00000001	0.00010289
13	Yes	15	0.00000001	0.00014558
14	Yes	10	0.00000001	0.00005595
15	Yes	12	0.00015000	0.00012433
16	Yes	12	0.00000001	0.00008343
17	Yes	11	0.00000001	0.00007906
18	Yes	11	0.00015000	0.00012204
19	Yes	12	0.00000001	0.00008227
20	Yes	11	0.00015000	0.00013331
21	Yes	10	0.00000001	0.00008731
22	Yes	11	0.00015000	0.00014574
23	Yes	12	0.00000001	0.00009215
24	Yes	11	0.00015000	0.00013464
25	Yes	11	0.00000001	0.00008215
26	Yes	12	0.00000001	0.00009115
27	Yes	10	0.00000001	0.00008342
28	Yes	10	0.00000001	0.00004944
29	Yes	9	0.00000001	0.00004808
30	Yes	9	0.00000001	0.00013734
31	Yes	10	0.00000001	0.00006076
32	Yes	9	0.00000001	0.00012257
33	Yes	8	0.00000001	0.00009398
34	Yes	9	0.00000001	0.00013755
35	Yes	10	0.00000001	0.00007078
36	Yes	10	0.00000001	0.00004584
37	Yes	9	0.00000001	0.00005292
38	Yes	10	0.00000001	0.00004999

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Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load per Bolt lb	Ratio Load Allowable	Allowable Ratio	Criteria
T1	287	Leg	A325N	1.0000	4	2066.57	54517.00	0.038 ✓	1	Bolt Tension
T2	280	Leg	A325N	1.0000	4	2863.92	54517.00	0.053 ✓	1	Bolt Tension
T3	260	Leg	A325N	1.0000	4	4150.80	54517.00	0.076 ✓	1	Bolt Tension
T4	240	Leg	A325N	1.0000	4	4759.16	54517.00	0.087 ✓	1	Bolt Tension
T5	220	Leg	A325N	1.3750	4	6269.42	103939.00	0.060 ✓	1	Bolt Tension
T6	200	Leg	A325N	1.3750	4	6671.25	103939.00	0.064 ✓	1	Bolt Tension
T7	180	Leg	A325N	1.3750	4	8049.31	103939.00	0.077 ✓	1	Bolt Tension
T8	160	Leg	A325N	1.3750	4	8528.88	103939.00	0.082 ✓	1	Bolt Tension
T9	140	Leg	A325N	1.3750	4	8600.04	103939.00	0.083 ✓	1	Bolt Tension
T10	120	Leg	A325N	1.3750	4	9955.40	103939.00	0.096 ✓	1	Bolt Tension
T11	100	Leg	A325N	1.3750	4	11619.10	103939.00	0.112 ✓	1	Bolt Tension
T12	80	Leg	A325N	1.3750	4	11656.50	103939.00	0.112 ✓	1	Bolt Tension
T13	60	Leg	A325N	1.3750	4	12343.90	103939.00	0.119 ✓	1	Bolt Tension
T14	40	Leg	A325N	1.3750	4	12008.90	103939.00	0.116 ✓	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	284.25 (A) (619)	3/4 EHS	5830.00	58299.91	13421.00	34980.00	1.000	2.606 ✓
	284.25 (A) (620)	3/4 EHS	5830.00	58299.91	13485.70	34980.00	1.000	2.594 ✓
	284.25 (B) (615)	3/4 EHS	5830.00	58299.91	14182.60	34980.00	1.000	2.466 ✓
	284.25 (B) (616)	3/4 EHS	5830.00	58299.91	14181.10	34980.00	1.000	2.467 ✓
	284.25 (C) (611)	3/4 EHS	5830.00	58299.91	14042.30	34980.00	1.000	2.491 ✓
	284.25 (C) (612)	3/4 EHS	5830.00	58299.91	14079.90	34980.00	1.000	2.484 ✓
T3	257.33 (A) (631)	3/4 EHS	5830.00	58299.91	13216.40	34980.00	1.000	2.647 ✓
	257.33 (A) (632)	3/4 EHS	5830.00	58299.91	13252.30	34980.00	1.000	2.640 ✓
	257.33 (B) (627)	3/4 EHS	5830.00	58299.91	14050.80	34980.00	1.000	2.490 ✓
	257.33 (B) (628)	3/4 EHS	5830.00	58299.91	14030.80	34980.00	1.000	2.493 ✓
	257.33 (C) (623)	3/4 EHS	5830.00	58299.91	13933.80	34980.00	1.000	2.510 ✓
	257.33 (C) (624)	3/4 EHS	5830.00	58299.91	13959.20	34980.00	1.000	2.506 ✓
T5	217.33 (A) (643)	3/4 EHS	5830.00	58299.91	13144.10	34980.00	1.000	2.661 ✓

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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.
T7	217.33 (A) (644)	3/4 EHS	5830.00	58299.91	13175.50	34980.00	1.000	2.655 ✓
	217.33 (B) (639)	3/4 EHS	5830.00	58299.91	14033.70	34980.00	1.000	2.493 ✓
	217.33 (B) (640)	3/4 EHS	5830.00	58299.91	14007.80	34980.00	1.000	2.497 ✓
	217.33 (C) (635)	3/4 EHS	5830.00	58299.91	13939.40	34980.00	1.000	2.509 ✓
	217.33 (C) (636)	3/4 EHS	5830.00	58299.91	13968.10	34980.00	1.000	2.504 ✓
	167.42 (A) (655)	3/4 EHS	5830.00	58299.91	14950.10	34980.00	1.000	2.340 ✓
	167.42 (A) (656)	3/4 EHS	5830.00	58299.91	15044.70	34980.00	1.000	2.325 ✓
	167.42 (B) (651)	3/4 EHS	5830.00	58299.91	15626.00	34980.00	1.000	2.239 ✓
	167.42 (B) (652)	3/4 EHS	5830.00	58299.91	15184.90	34980.00	1.000	2.304 ✓
	167.42 (C) (647)	3/4 EHS	5830.00	58299.91	15481.90	34980.00	1.000	2.259 ✓
T10	167.42 (C) (648)	3/4 EHS	5830.00	58299.91	15680.90	34980.00	1.000	2.231 ✓
	107.42 (A) (667)	5/8 EHS	4240.00	42399.99	13379.80	25440.00	1.000	1.901 ✓
	107.42 (A) (668)	5/8 EHS	4240.00	42399.99	13682.10	25440.00	1.000	1.859 ✓
	107.42 (B) (663)	5/8 EHS	4240.00	42399.99	14154.30	25440.00	1.000	1.797 ✓
	107.42 (B) (664)	5/8 EHS	4240.00	42399.99	13489.20	25440.00	1.000	1.886 ✓
	107.42 (C) (659)	5/8 EHS	4240.00	42399.99	13996.70	25440.00	1.000	1.818 ✓
T13	107.42 (C) (660)	5/8 EHS	4240.00	42399.99	14296.80	25440.00	1.000	1.779 ✓
	58.00 (A) (679)	7/16 EHS	2080.00	20800.02	6226.97	12480.00	1.000	2.004 ✓
	58.00 (A) (680)	7/16 EHS	2080.00	20800.02	6376.48	12480.00	1.000	1.957 ✓
	58.00 (B) (675)	7/16 EHS	2080.00	20800.02	6689.42	12480.00	1.000	1.866 ✓
	58.00 (B) (676)	7/16 EHS	2080.00	20800.02	6406.26	12480.00	1.000	1.948 ✓
	58.00 (C) (671)	7/16 EHS	2080.00	20800.02	6494.43	12480.00	1.000	1.922 ✓
	58.00 (C) (672)	7/16 EHS	2080.00	20800.02	6743.83	12480.00	1.000	1.851 ✓

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	KL/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
L1	317 - 287 (1)	P12x.5	30.00	30.00	83.1	19.2423	-2825.39	425839.00	0.007

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Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} lb-ft	ϕM_{nx} lb-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} lb-ft	ϕM_{ny} lb-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	317 - 287 (1)	P12x.5	44194.92	197066.67	0.224	0.00	197066.67	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u lb	ϕV_n lb	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u lb-ft	ϕT_n lb-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	317 - 287 (1)	P12x.5	2417.63	181839.00	0.013	2562.92	195840.83	0.013

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	317 - 287 (1)	0.007	0.224	0.000	0.013	0.013	0.232 ✓	1.000	4.8.2 ✓

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	287 - 280	2	7.00	3.42	82.0 K=1.00	3.1416	1.00	-25085.90	86466.00	0.290 ¹
T2	280 - 260	2	20.00	3.31	79.3 K=1.00	3.1416	1.00	-32451.60	89229.20	0.364 ¹
T3	260 - 240	2 1/4	20.00	3.31	70.5 K=1.00	3.9761	1.00	-49418.40	124382.00	0.397 ¹
T4	240 - 220	2 1/4	20.00	3.31	70.5 K=1.00	3.9761	1.00	-54746.20	124382.00	0.440 ¹
T5	220 - 200	2 1/2	20.00	3.31	63.5 K=1.00	4.9087	1.00	-74068.70	164541.00	0.450 ¹
T6	200 - 180	2 1/2	20.00	3.31	63.5 K=1.00	4.9087	1.00	-82201.30	164541.00	0.500 ¹
T7	180 - 160	2 1/2	20.00	3.31	63.5 K=1.00	4.9087	1.00	-95844.30	164541.00	0.582 ¹
T8	160 - 140	2 1/2	20.00	3.31	63.5 K=1.00	4.9087	1.00	-101486.00	164541.00	0.617 ¹
T9	140 - 120	2 3/4	20.00	3.31	57.7 K=1.00	5.9396	1.00	-102790.00	209536.00	0.491 ¹

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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 $\frac{P_u}{\phi P_n}$
T10	120 - 100	2 3/4	20.00	3.31	57.7 K=1.00	5.9396	1.00	-117836.00	209536.00	0.562 ¹
T11	100 - 80	3	20.00	3.31	52.9 K=1.00	7.0686	1.00	-138071.00	259251.00	0.533 ¹
T12	80 - 60	3	20.00	3.31	52.9 K=1.00	7.0686	1.00	-139924.00	259251.00	0.540 ¹
T13	60 - 40	3	20.00	3.31	52.9 K=1.00	7.0686	1.00	-147104.00	259251.00	0.567 ¹
T14	40 - 20	3	20.00	3.31	52.9 K=1.00	7.0686	1.00	-147082.00	259251.00	0.567 ¹
T15	20 - 7.25	3	12.75	3.15	50.3 K=1.00	7.0686	1.00	-142681.00	264300.00	0.540 ¹
T16	7.25 - 0.75	3	6.84	1.71	27.3 K=1.00	7.0686	0.95	-146152.00	285055.00	0.513 ¹

¹ P_u / φP_n controls

Leg Bending Design Data (Compression)

Section No.	Elevation ft	Size	M _{ux} lb-ft	φM _{ux} lb-ft	Ratio $\frac{M_{ux}}{\phi M_{ux}}$	M _{uy} lb-ft	φM _{uy} lb-ft	Ratio $\frac{M_{uy}}{\phi M_{uy}}$
T1	287 - 280	2	0.00	5000.00	0.000	0.00	5000.00	0.000
T2	280 - 260	2	0.00	5000.00	0.000	0.00	5000.00	0.000
T3	260 - 240	2 1/4	0.00	7119.14	0.000	0.00	7119.14	0.000
T4	240 - 220	2 1/4	0.00	7119.14	0.000	0.00	7119.14	0.000
T5	220 - 200	2 1/2	0.00	9765.67	0.000	0.00	9765.67	0.000
T6	200 - 180	2 1/2	0.00	9765.67	0.000	0.00	9765.67	0.000
T7	180 - 160	2 1/2	0.00	9765.67	0.000	0.00	9765.67	0.000
T8	160 - 140	2 1/2	0.00	9765.67	0.000	0.00	9765.67	0.000
T9	140 - 120	2 3/4	0.00	12998.08	0.000	0.00	12998.08	0.000
T10	120 - 100	2 3/4	0.00	12998.08	0.000	0.00	12998.08	0.000
T11	100 - 80	3	0.00	16875.00	0.000	0.00	16875.00	0.000
T12	80 - 60	3	0.00	16875.00	0.000	0.00	16875.00	0.000
T13	60 - 40	3	0.00	16875.00	0.000	0.00	16875.00	0.000
T14	40 - 20	3	0.00	16875.00	0.000	0.00	16875.00	0.000
T15	20 - 7.25	3	0.00	16875.00	0.000	0.00	16875.00	0.000
T16	7.25 - 0.75	3	0.00	16875.00	0.000	0.00	16875.00	0.000

Leg Interaction Design Data (Compression)

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{ux}}$	Ratio $\frac{M_{uy}}{\phi M_{uy}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	287 - 280	2	0.290	0.000	0.000	0.290 ¹ ✓	1.000	4.8.1 ✓
T2	280 - 260	2	0.364	0.000	0.000	0.364 ¹ ✓	1.000	4.8.1 ✓
T3	260 - 240	2 1/4	0.397	0.000	0.000	0.397 ¹ ✓	1.000	4.8.1 ✓
T4	240 - 220	2 1/4	0.440	0.000	0.000	0.440 ¹ ✓	1.000	4.8.1 ✓
T5	220 - 200	2 1/2	0.450	0.000	0.000	0.450 ¹ ✓	1.000	4.8.1 ✓

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Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T6	200 - 180	2 1/2	0.500	0.000	0.000	0.500 ¹ ✓	1.000	4.8.1 ✓
T7	180 - 160	2 1/2	0.582	0.000	0.000	0.582 ¹ ✓	1.000	4.8.1 ✓
T8	160 - 140	2 1/2	0.617	0.000	0.000	0.617 ¹ ✓	1.000	4.8.1 ✓
T9	140 - 120	2 3/4	0.491	0.000	0.000	0.491 ¹ ✓	1.000	4.8.1 ✓
T10	120 - 100	2 3/4	0.562	0.000	0.000	0.562 ¹ ✓	1.000	4.8.1 ✓
T11	100 - 80	3	0.533	0.000	0.000	0.533 ¹ ✓	1.000	4.8.1 ✓
T12	80 - 60	3	0.540	0.000	0.000	0.540 ¹ ✓	1.000	4.8.1 ✓
T13	60 - 40	3	0.567	0.000	0.000	0.567 ¹ ✓	1.000	4.8.1 ✓
T14	40 - 20	3	0.567	0.000	0.000	0.567 ¹ ✓	1.000	4.8.1 ✓
T15	20 - 7.25	3	0.540	0.000	0.000	0.540 ¹ ✓	1.000	4.8.1 ✓
T16	7.25 - 0.75	3	0.513	0.000	0.000	0.513 ¹ ✓	1.000	4.8.1 ✓

¹ $P_u / \phi P_n$ controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	287 - 280	1 3/8	5.01	4.79	117.0 K=0.70	1.4849	-2118.24	23412.80	0.090 ¹ ✓
T2	280 - 260	1 3/8	4.94	4.71	115.2 K=0.70	1.4849	-2824.95	23919.10	0.118 ¹ ✓
T3	260 - 240	1 3/8	4.94	4.69	114.5 K=0.70	1.4849	-2244.94	24118.10	0.093 ¹ ✓
T4	240 - 220	1 3/8	4.94	4.69	114.5 K=0.70	1.4849	-3489.95	24118.10	0.145 ¹ ✓
T5	220 - 200	1 1/4	4.94	4.66	125.2 K=0.70	1.2272	-6258.58	17414.40	0.359 ¹ ✓
T6	200 - 180	1 1/4	4.94	4.66	125.2 K=0.70	1.2272	-6827.81	17414.40	0.392 ¹ ✓
T7	180 - 160	1 1/2	4.94	4.66	104.4 K=0.70	1.7672	-8270.06	32272.10	0.256 ¹ ✓
T8	160 - 140	1 3/8	4.94	4.66	113.8 K=0.70	1.4849	-5859.88	24317.60	0.241 ¹ ✓
T9	140 - 120	1 1/4	4.94	4.63	124.5 K=0.70	1.2272	-3627.32	17587.80	0.206 ¹ ✓
T10	120 - 100	1 1/2	4.94	4.63	103.7 K=0.70	1.7672	-13046.40	32494.90	0.401 ¹ ✓
T11	100 - 80	1 3/8	4.94	4.60	112.5 K=0.70	1.4849	-11120.30	24717.90	0.450 ¹ ✓
T12	80 - 60	1 1/4	4.94	4.60	123.7 K=0.70	1.2272	-6741.58	17761.80	0.380 ¹ ✓
T13	60 - 40	1 1/4	4.94	4.60	123.7 K=0.70	1.2272	-4323.65	17761.80	0.243 ¹ ✓
T14	40 - 20	1 1/4	4.94	4.60	123.7	1.2272	-5793.19	17761.80	0.326 ¹ ✓

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Section No.	Elevation ft	Size	L ft	L _u ft	KL/r	A in ²	P _u lb	φP _n lb	Ratio $\frac{P_u}{\phi P_n}$
T15	20 - 7.25	1 1/4	4.83	4.50	K=0.70 121.1 K=0.70	1.2272	-6900.38	18376.80	0.375 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	287 - 280	1	3.67	3.50	117.7 K=0.70	0.7854	-2662.20	12269.90	0.217 ¹ ✓
T2	280 - 260	1	3.67	3.50	117.7 K=0.70	0.7854	-723.12	12269.90	0.059 ¹ ✓
T3	260 - 240	1	3.67	3.48	117.0 K=0.70	0.7854	-3711.36	12376.50	0.300 ¹ ✓
T4	240 - 220	1	3.67	3.48	117.0 K=0.70	0.7854	-1104.78	12376.50	0.089 ¹ ✓
T5	220 - 200	1	3.67	3.46	116.3 K=0.70	0.7854	-6631.40	12483.30	0.531 ¹ ✓
T6	200 - 180	1	3.67	3.46	116.3 K=0.70	0.7854	-1528.81	12483.30	0.122 ¹ ✓
T7	180 - 160	1	3.67	3.46	116.3 K=0.70	0.7854	-11236.40	12483.30	0.900 ¹ ✓
T8	160 - 140	1	3.67	3.46	116.3 K=0.70	0.7854	-1840.98	12483.30	0.147 ¹ ✓
T9	140 - 120	1	3.67	3.44	115.6 K=0.70	0.7854	-1787.48	12590.50	0.142 ¹ ✓
T10	120 - 100	1	3.67	3.44	115.6 K=0.70	0.7854	-12280.40	12590.50	0.975 ¹ ✓
T11	100 - 80	1	3.67	3.42	114.9 K=0.70	0.7854	-2414.99	12697.90	0.190 ¹ ✓
T12	80 - 60	1	3.67	3.42	114.9 K=0.70	0.7854	-2423.55	12697.90	0.191 ¹ ✓
T13	60 - 40	1	3.67	3.42	114.9 K=0.70	0.7854	-3485.34	12697.90	0.274 ¹ ✓
T14	40 - 20	1	3.67	3.42	114.9 K=0.70	0.7854	-2565.63	12697.90	0.202 ¹ ✓
T15	20 - 7.25	1	3.67	3.42	114.9 K=0.70	0.7854	-2496.07	12697.90	0.197 ¹ ✓
T16	7.25 - 0.75	9x3/8	2.75	2.50	277.4 K=1.00	3.3750	-2627.85	9907.96	0.265 ¹ ✓
KL/R > 200 (C) - 608									

¹ P_u / φP_n controls

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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 $\frac{P_u}{\phi P_n}$
T1	287 - 280	1	3.67	3.50	117.7 K=0.70	0.7854	-540.71	12269.90	0.044 ¹ ✓
T2	280 - 260	1	3.67	3.50	117.7 K=0.70	0.7854	-723.12	12269.90	0.059 ¹ ✓
T3	260 - 240	1	3.67	3.48	117.0 K=0.70	0.7854	-963.56	12376.50	0.078 ¹ ✓
T4	240 - 220	1	3.67	3.48	117.0 K=0.70	0.7854	-1104.78	12376.50	0.089 ¹ ✓
T5	220 - 200	1	3.67	3.46	116.3 K=0.70	0.7854	-1353.27	12483.30	0.108 ¹ ✓
T6	200 - 180	1	3.67	3.46	116.3 K=0.70	0.7854	-1478.61	12483.30	0.118 ¹ ✓
T7	180 - 160	1	3.67	3.46	116.3 K=0.70	0.7854	-1737.46	12483.30	0.139 ¹ ✓
T8	160 - 140	1	3.67	3.46	116.3 K=0.70	0.7854	-1840.98	12483.30	0.147 ¹ ✓
T9	140 - 120	1	3.67	3.44	115.6 K=0.70	0.7854	-1787.48	12590.50	0.142 ¹ ✓
T10	120 - 100	1	3.67	3.44	115.6 K=0.70	0.7854	-2069.19	12590.50	0.164 ¹ ✓
T11	100 - 80	1	3.67	3.42	114.9 K=0.70	0.7854	-2414.99	12697.90	0.190 ¹ ✓
T12	80 - 60	1	3.67	3.42	114.9 K=0.70	0.7854	-2423.55	12697.90	0.191 ¹ ✓
T13	60 - 40	1	3.67	3.42	114.9 K=0.70	0.7854	-2565.62	12697.90	0.202 ¹ ✓
T14	40 - 20	1	3.67	3.42	114.9 K=0.70	0.7854	-2565.63	12697.90	0.202 ¹ ✓
T15	20 - 7.25	1	3.67	3.42	114.9 K=0.70	0.7854	-2496.07	12697.90	0.197 ¹ ✓
T16	7.25 - 0.75	12x3/8	3.67	3.42	379.1 K=1.00	4.5000	-2627.85	7073.25	0.372 ¹ ✓

KL/R > 200 (C) - 599

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	287 - 280	1	3.67	3.50	117.7 K=0.70	0.7854	-1084.55	12269.90	0.088 ¹ ✓
T2	280 - 260	1	3.67	3.50	117.7 K=0.70	0.7854	-2599.62	12269.90	0.212 ¹ ✓
T3	260 - 240	1	3.67	3.48	117.0 K=0.70	0.7854	-963.56	12376.50	0.078 ¹ ✓

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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	240 - 220	1	3.67	3.48	117.0 K=0.70	0.7854	-1608.64	12376.50	0.130 ¹ ✓
T5	220 - 200	1	3.67	3.46	116.3 K=0.70	0.7854	-1353.27	12483.30	0.108 ¹ ✓
T6	200 - 180	1	3.67	3.46	116.3 K=0.70	0.7854	-1478.61	12483.30	0.118 ¹ ✓
T7	180 - 160	1	3.67	3.46	116.3 K=0.70	0.7854	-1737.46	12483.30	0.139 ¹ ✓
T8	160 - 140	1	3.67	3.46	116.3 K=0.70	0.7854	-1840.98	12483.30	0.147 ¹ ✓
T9	140 - 120	1	3.67	3.44	115.6 K=0.70	0.7854	-1787.48	12590.50	0.142 ¹ ✓
T10	120 - 100	1	3.67	3.44	115.6 K=0.70	0.7854	-2069.19	12590.50	0.164 ¹ ✓
T11	100 - 80	1	3.67	3.42	114.9 K=0.70	0.7854	-2414.99	12697.90	0.190 ¹ ✓
T12	80 - 60	1	3.67	3.42	114.9 K=0.70	0.7854	-2423.55	12697.90	0.191 ¹ ✓
T13	60 - 40	1	3.67	3.42	114.9 K=0.70	0.7854	-2565.62	12697.90	0.202 ¹ ✓
T14	40 - 20	1	3.67	3.42	114.9 K=0.70	0.7854	-2565.63	12697.90	0.202 ¹ ✓
T15	20 - 7.25	1	3.67	3.42	114.9 K=0.70	0.7854	-2496.07	12697.90	0.197 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 $\frac{P_u}{\phi P_n}$
T1	287 - 280 (617)	C15x40	4.22	4.14	56.0 K=1.00	11.8000	-33.73	324045.00	0.000
T1	287 - 280 (618)	C15x40	4.22	4.14	56.0 K=1.00	11.8000	-5.02	324045.00	0.000
T3	260 - 240 (625)	C15x40	4.22	4.13	55.9 K=1.00	11.8000	-86.59	324315.00	0.000
T3	260 - 240 (626)	C15x40	4.22	4.13	55.9 K=1.00	11.8000	-19.77	324315.00	0.000
T3	260 - 240 (629)	C15x40	4.22	4.13	55.9 K=1.00	11.8000	-192.70	324315.00	0.001
T3	260 - 240 (630)	C15x40	4.22	4.13	55.9 K=1.00	11.8000	-239.21	324315.00	0.001
T3	260 - 240 (633)	C15x40	4.22	4.13	55.9 K=1.00	11.8000	-642.97	324315.00	0.002
T3	260 - 240 (634)	C15x40	4.22	4.13	55.9 K=1.00	11.8000	-16.35	324315.00	0.000
T5	220 - 200 (637)	C15x40	4.22	4.12	55.8 K=1.00	11.8000	-1525.76	324584.00	0.005
T5	220 - 200 (638)	C15x40	4.22	4.12	55.8 K=1.00	11.8000	-1570.80	324584.00	0.005

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u lb	φP _n lb	Ratio $\frac{P_u}{\phi P_n}$
T5	220 - 200 (641)	C15x40	4.22	4.12	55.8 K=1.00	11.8000	-1719.58	324584.00	0.005
T5	220 - 200 (642)	C15x40	4.22	4.12	55.8 K=1.00	11.8000	-1709.99	324584.00	0.005
T5	220 - 200 (645)	C15x40	4.22	4.12	55.8 K=1.00	11.8000	-1407.29	324584.00	0.004
T5	220 - 200 (646)	C15x40	4.22	4.12	55.8 K=1.00	11.8000	-1461.85	324584.00	0.005
T7	180 - 160 (649)	C15x40	4.22	4.12	55.8 K=1.00	11.8000	-4437.43	324584.00	0.014
T7	180 - 160 (650)	C15x40	4.22	4.12	55.8 K=1.00	11.8000	-4540.26	324584.00	0.014
T7	180 - 160 (653)	C15x40	4.22	4.12	55.8 K=1.00	11.8000	-4641.32	324584.00	0.014
T7	180 - 160 (654)	C15x40	4.22	4.12	55.8 K=1.00	11.8000	-4613.71	324584.00	0.014
T7	180 - 160 (657)	C15x40	4.22	4.12	55.8 K=1.00	11.8000	-4231.26	324584.00	0.013
T7	180 - 160 (658)	C15x40	4.22	4.12	55.8 K=1.00	11.8000	-4144.67	324584.00	0.013
T10	120 - 100 (661)	C15x40	4.22	4.11	55.6 K=1.00	11.8000	-7885.84	324853.00	0.024
T10	120 - 100 (662)	C15x40	4.22	4.11	55.6 K=1.00	11.8000	-6068.92	324853.00	0.019
T10	120 - 100 (665)	C15x40	4.22	4.11	55.6 K=1.00	11.8000	-8046.52	324853.00	0.025
T10	120 - 100 (666)	C15x40	4.22	4.11	55.6 K=1.00	11.8000	-7967.89	324853.00	0.025
T10	120 - 100 (669)	C15x40	4.22	4.11	55.6 K=1.00	11.8000	-5729.99	324853.00	0.018
T10	120 - 100 (670)	C15x40	4.22	4.11	55.6 K=1.00	11.8000	-5504.76	324853.00	0.017
T13	60 - 40 (673)	C15x40	4.22	4.10	55.5 K=1.00	11.8000	-2774.40	325121.00	0.009
T13	60 - 40 (674)	C15x40	4.22	4.10	55.5 K=1.00	11.8000	-3778.32	325121.00	0.012
T13	60 - 40 (677)	C15x40	4.22	4.10	55.5 K=1.00	11.8000	-3024.56	325121.00	0.009
T13	60 - 40 (678)	C15x40	4.22	4.10	55.5 K=1.00	11.8000	-3927.12	325121.00	0.012
T13	60 - 40 (681)	C15x40	4.22	4.10	55.5 K=1.00	11.8000	-3529.45	325121.00	0.011
T13	60 - 40 (682)	C15x40	4.22	4.10	55.5 K=1.00	11.8000	-2451.94	325121.00	0.008

Torque-Arm Top Bending Design Data

Section No.	Elevation ft	Size	M _{ux} lb-ft	φM _{ux} lb-ft	Ratio $\frac{M_{ux}}{\phi M_{ux}}$	M _{uy} lb-ft	φM _{uy} lb-ft	Ratio $\frac{M_{uy}}{\phi M_{uy}}$
T1	287 - 280 (617)	C15x40	-38044.25	152076.67	0.250	0.00	13648.50	0.000
T1	287 - 280 (618)	C15x40	-38551.50	152076.67	0.254	0.00	13648.50	0.000
T3	260 - 240 (625)	C15x40	-37015.25	152131.67	0.243	0.00	13648.50	0.000
T3	260 - 240 (626)	C15x40	-39306.42	152131.67	0.258	0.00	13648.50	0.000
T3	260 - 240 (629)	C15x40	-39351.33	152131.67	0.259	0.00	13648.50	0.000
T3	260 - 240 (630)	C15x40	-39989.92	152131.67	0.263	-0.00	13648.50	0.000

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Section No.	Elevation ft	Size	M_{ux} lb-ft	ϕM_{nx} lb-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} lb-ft	ϕM_{ny} lb-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
T3	260 - 240 (633)	C15x40	-34742.83	152131.67	0.228	-0.00	13648.50	0.000
T3	260 - 240 (634)	C15x40	-39900.00	152131.67	0.262	-0.00	13648.50	0.000
T5	220 - 200 (637)	C15x40	-37332.75	152186.67	0.245	0.00	13648.50	0.000
T5	220 - 200 (638)	C15x40	-40543.17	152186.67	0.266	0.00	13648.50	0.000
T5	220 - 200 (641)	C15x40	-40915.08	152186.67	0.269	0.00	13648.50	0.000
T5	220 - 200 (642)	C15x40	-41029.67	152186.67	0.270	-0.00	13648.50	0.000
T5	220 - 200 (645)	C15x40	-37092.00	152186.67	0.244	0.00	13648.50	0.000
T5	220 - 200 (646)	C15x40	-41056.08	152186.67	0.270	-0.00	13648.50	0.000
T7	180 - 160 (649)	C15x40	-39168.83	152186.67	0.257	-0.00	13648.50	0.000
T7	180 - 160 (650)	C15x40	-44836.42	152186.67	0.295	0.00	13648.50	0.000
T7	180 - 160 (653)	C15x40	-44579.67	152186.67	0.293	0.00	13648.50	0.000
T7	180 - 160 (654)	C15x40	-44912.17	152186.67	0.295	-0.00	13648.50	0.000
T7	180 - 160 (657)	C15x40	-39399.92	152186.67	0.259	0.00	13648.50	0.000
T7	180 - 160 (658)	C15x40	-44241.67	152186.67	0.291	-0.00	13648.50	0.000
T10	120 - 100 (661)	C15x40	-26143.08	152241.67	0.172	-0.00	13648.50	0.000
T10	120 - 100 (662)	C15x40	-33348.17	152241.67	0.219	0.00	13648.50	0.000
T10	120 - 100 (665)	C15x40	-32866.75	152241.67	0.216	0.00	13648.50	0.000
T10	120 - 100 (666)	C15x40	-33627.83	152241.67	0.221	-0.00	13648.50	0.000
T10	120 - 100 (669)	C15x40	-26687.08	152241.67	0.175	0.00	13648.50	0.000
T10	120 - 100 (670)	C15x40	-32204.67	152241.67	0.212	-0.00	13648.50	0.000
T13	60 - 40 (673)	C15x40	-7481.43	152296.67	0.049	-0.00	13648.50	0.000
T13	60 - 40 (674)	C15x40	-9504.67	152296.67	0.062	0.00	13648.50	0.000
T13	60 - 40 (677)	C15x40	-11106.33	152296.67	0.073	-0.00	13648.50	0.000
T13	60 - 40 (678)	C15x40	-9772.33	152296.67	0.064	-0.00	13648.50	0.000
T13	60 - 40 (681)	C15x40	-5893.22	152296.67	0.039	0.00	13648.50	0.000
T13	60 - 40 (682)	C15x40	-11162.92	152296.67	0.073	0.00	13648.50	0.000

Torque-Arm Top Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	287 - 280 (617)	C15x40	0.000	0.250	0.000	0.250	1.000	4.8.1 ✓
T1	287 - 280 (618)	C15x40	0.000	0.254	0.000	0.254	1.000	4.8.1 ✓
T3	260 - 240 (625)	C15x40	0.000	0.243	0.000	0.243	1.000	4.8.1 ✓
T3	260 - 240 (626)	C15x40	0.000	0.258	0.000	0.258	1.000	4.8.1 ✓
T3	260 - 240 (629)	C15x40	0.001	0.259	0.000	0.259	1.000	4.8.1 ✓
T3	260 - 240 (630)	C15x40	0.001	0.263	0.000	0.263	1.000	4.8.1 ✓
T3	260 - 240 (633)	C15x40	0.002	0.228	0.000	0.229	1.000	4.8.1 ✓
T3	260 - 240 (634)	C15x40	0.000	0.262	0.000	0.262	1.000	4.8.1 ✓
T5	220 - 200 (637)	C15x40	0.005	0.245	0.000	0.248	1.000	4.8.1 ✓
T5	220 - 200 (638)	C15x40	0.005	0.266	0.000	0.269	1.000	4.8.1 ✓
T5	220 - 200 (641)	C15x40	0.005	0.269	0.000	0.271	1.000	4.8.1 ✓

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Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T5	220 - 200 (642)	C15x40	0.005	0.270	0.000	0.272	1.000	4.8.1 ✓
T5	220 - 200 (645)	C15x40	0.004	0.244	0.000	0.246	1.000	4.8.1 ✓
T5	220 - 200 (646)	C15x40	0.005	0.270	0.000	0.272	1.000	4.8.1 ✓
T7	180 - 160 (649)	C15x40	0.014	0.257	0.000	0.264	1.000	4.8.1 ✓
T7	180 - 160 (650)	C15x40	0.014	0.295	0.000	0.302	1.000	4.8.1 ✓
T7	180 - 160 (653)	C15x40	0.014	0.293	0.000	0.300	1.000	4.8.1 ✓
T7	180 - 160 (654)	C15x40	0.014	0.295	0.000	0.302	1.000	4.8.1 ✓
T7	180 - 160 (657)	C15x40	0.013	0.259	0.000	0.265	1.000	4.8.1 ✓
T7	180 - 160 (658)	C15x40	0.013	0.291	0.000	0.297	1.000	4.8.1 ✓
T10	120 - 100 (661)	C15x40	0.024	0.172	0.000	0.184	1.000	4.8.1 ✓
T10	120 - 100 (662)	C15x40	0.019	0.219	0.000	0.228	1.000	4.8.1 ✓
T10	120 - 100 (665)	C15x40	0.025	0.216	0.000	0.228	1.000	4.8.1 ✓
T10	120 - 100 (666)	C15x40	0.025	0.221	0.000	0.233	1.000	4.8.1 ✓
T10	120 - 100 (669)	C15x40	0.018	0.175	0.000	0.184	1.000	4.8.1 ✓
T10	120 - 100 (670)	C15x40	0.017	0.212	0.000	0.220	1.000	4.8.1 ✓
T13	60 - 40 (673)	C15x40	0.009	0.049	0.000	0.053	1.000	4.8.1 ✓
T13	60 - 40 (674)	C15x40	0.012	0.062	0.000	0.068	1.000	4.8.1 ✓
T13	60 - 40 (677)	C15x40	0.009	0.073	0.000	0.078	1.000	4.8.1 ✓
T13	60 - 40 (678)	C15x40	0.012	0.064	0.000	0.070	1.000	4.8.1 ✓
T13	60 - 40 (681)	C15x40	0.011	0.039	0.000	0.044	1.000	4.8.1 ✓
T13	60 - 40 (682)	C15x40	0.008	0.073	0.000	0.077	1.000	4.8.1 ✓

Tension Checks

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Leg Design Data (Tension)

Section No.	Elevation	Size	L	L _u	KL/r	A	P _u	φP _n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in ²	lb	lb	
T1	287 - 280	2	7.00	3.42	82.0	3.1416	14597.60	141372.00	0.103 ¹
T3	260 - 240	2 1/4	20.00	3.31	70.5	3.9761	521.63	178924.00	0.003 ¹
T11	100 - 80	3	20.00	3.31	52.9	7.0686	21164.60	318086.00	0.067 ¹
T12	80 - 60	3	20.00	0.08	1.3	7.0686	19783.30	318086.00	0.062 ¹
T13	60 - 40	3	20.00	3.31	52.9	7.0686	2447.54	318086.00	0.008 ¹

¹ P_u / φP_n controls

Leg Bending Design Data (Tension)

Section No.	Elevation	Size	M _{ux}	φM _{nx}	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M _{uy}	φM _{ny}	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
	ft		lb-ft	lb-ft		lb-ft	lb-ft	
T1	287 - 280	2	0.00	5000.00	0.000	0.00	5000.00	0.000
T3	260 - 240	2 1/4	0.00	7119.14	0.000	0.00	7119.14	0.000
T11	100 - 80	3	0.00	16875.00	0.000	0.00	16875.00	0.000
T12	80 - 60	3	0.00	16875.00	0.000	0.00	16875.00	0.000
T13	60 - 40	3	0.00	16875.00	0.000	0.00	16875.00	0.000

Leg Interaction Design Data (Tension)

Section No.	Elevation	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	287 - 280	2	0.103	0.000	0.000	0.103 ¹	1.000	4.8.1 ✓
T3	260 - 240	2 1/4	0.003	0.000	0.000	0.003 ¹	1.000	4.8.1 ✓
T11	100 - 80	3	0.067	0.000	0.000	0.067 ¹	1.000	4.8.1 ✓
T12	80 - 60	3	0.062	0.000	0.000	0.062 ¹	1.000	4.8.1 ✓
T13	60 - 40	3	0.008	0.000	0.000	0.008 ¹	1.000	4.8.1 ✓

¹ P_u / φP_n controls

Diagonal Design Data (Tension)

Section No.	Elevation	Size	L	L _u	KL/r	A	P _u	φP _n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in ²	lb	lb	
T1	287 - 280	1 3/8	5.01	4.79	167.1	1.4849	1888.42	48110.50	0.039 ¹

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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	280 - 260	1 3/8	4.94	4.71	164.6	1.4849	2145.60	48110.50	0.045 ¹ ✓
T3	260 - 240	1 3/8	4.94	4.69	163.6	1.4849	1661.31	48110.50	0.035 ¹ ✓
T4	240 - 220	1 3/8	4.94	4.69	163.6	1.4849	2349.73	48110.50	0.049 ¹ ✓
T5	220 - 200	1 1/4	4.94	4.66	178.9	1.2272	5310.88	39760.80	0.134 ¹ ✓
T6	200 - 180	1 1/4	4.94	4.66	178.9	1.2272	5662.10	39760.80	0.142 ¹ ✓
T7	180 - 160	1 1/2	4.94	4.66	149.1	1.7672	7427.96	57255.50	0.130 ¹ ✓
T8	160 - 140	1 3/8	4.94	4.66	162.6	1.4849	4883.07	48110.50	0.101 ¹ ✓
T9	140 - 120	1 1/4	4.94	4.63	177.8	1.2272	2473.74	39760.80	0.062 ¹ ✓
T10	120 - 100	1 1/2	4.94	4.63	148.2	1.7672	11748.30	57255.50	0.205 ¹ ✓
T11	100 - 80	1 3/8	4.94	4.60	160.7	1.4849	9457.23	48110.50	0.197 ¹ ✓
T12	80 - 60	1 1/4	4.94	4.60	176.7	1.2272	4869.84	39760.80	0.122 ¹ ✓
T13	60 - 40	1 1/4	4.94	4.60	176.7	1.2272	2240.95	39760.80	0.056 ¹ ✓
T14	40 - 20	1 1/4	4.94	4.60	176.7	1.2272	3846.48	39760.80	0.097 ¹ ✓
T15	20 - 7.25	1 1/4	4.83	4.50	173.0	1.2272	5450.47	39760.80	0.137 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	287 - 280	1	3.67	3.50	168.2	0.7854	2157.23	25446.90	0.085 ¹ ✓
T2	280 - 260	1	3.67	3.50	168.2	0.7854	723.12	25446.90	0.028 ¹ ✓
T3	260 - 240	1	3.67	3.48	167.2	0.7854	3423.74	25446.90	0.135 ¹ ✓
T4	240 - 220	1	3.67	3.48	167.2	0.7854	1104.78	25446.90	0.043 ¹ ✓
T5	220 - 200	1	3.67	3.46	166.2	0.7854	6585.92	25446.90	0.259 ¹ ✓
T6	200 - 180	1	3.67	3.46	166.2	0.7854	2244.26	25446.90	0.088 ¹ ✓

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<i>Section No.</i>	<i>Elevation</i> <i>ft</i>	<i>Size</i>	<i>L</i> <i>ft</i>	<i>L_u</i> <i>ft</i>	<i>Kl/r</i>	<i>A</i> <i>in²</i>	<i>P_u</i> <i>lb</i>	ϕP_n <i>lb</i>	<i>Ratio</i> $\frac{P_u}{\phi P_n}$
T7	180 - 160	1	3.67	3.46	166.2	0.7854	11926.00	25446.90	0.469 ¹
T8	160 - 140	1	3.67	3.46	166.2	0.7854	1840.98	25446.90	0.072 ¹
T9	140 - 120	1	3.67	3.44	165.2	0.7854	1787.48	25446.90	0.070 ¹
T10	120 - 100	1	3.67	3.44	165.2	0.7854	13717.30	25446.90	0.539 ¹
T11	100 - 80	1	3.67	3.42	164.2	0.7854	2982.50	25446.90	0.117 ¹
T12	80 - 60	1	3.67	3.42	164.2	0.7854	2423.55	25446.90	0.095 ¹
T13	60 - 40	1	3.67	3.42	164.2	0.7854	5723.43	25446.90	0.225 ¹
T14	40 - 20	1	3.67	3.42	164.2	0.7854	2565.63	25446.90	0.101 ¹
T15	20 - 7.25	1	3.67	3.42	164.2	0.7854	2496.07	25446.90	0.098 ¹
T16	7.25 - 0.75	9x3/8	2.75	2.50	277.4	3.3750	2627.85	109350.00	0.024 ¹

¹ $P_u / \phi P_n$ controls

Top Girt Design Data (Tension)

<i>Section No.</i>	<i>Elevation</i> <i>ft</i>	<i>Size</i>	<i>L</i> <i>ft</i>	<i>L_u</i> <i>ft</i>	<i>Kl/r</i>	<i>A</i> <i>in²</i>	<i>P_u</i> <i>lb</i>	ϕP_n <i>lb</i>	<i>Ratio</i> $\frac{P_u}{\phi P_n}$
T1	287 - 280	1	3.67	3.50	168.2	0.7854	7805.71	25446.90	0.307 ¹
T2	280 - 260	1	3.67	3.50	168.2	0.7854	818.70	25446.90	0.032 ¹
T3	260 - 240	1	3.67	3.48	167.2	0.7854	4008.27	25446.90	0.158 ¹
T4	240 - 220	1	3.67	3.48	167.2	0.7854	1104.78	25446.90	0.043 ¹
T5	220 - 200	1	3.67	3.46	166.2	0.7854	3129.83	25446.90	0.123 ¹
T6	200 - 180	1	3.67	3.46	166.2	0.7854	1478.61	25446.90	0.058 ¹
T7	180 - 160	1	3.67	3.46	166.2	0.7854	1737.46	25446.90	0.068 ¹
T8	160 - 140	1	3.67	3.46	166.2	0.7854	1840.98	25446.90	0.072 ¹
T9	140 - 120	1	3.67	3.44	165.2	0.7854	1787.48	25446.90	0.070 ¹
T10	120 - 100	1	3.67	3.44	165.2	0.7854	2069.19	25446.90	0.081 ¹
T11	100 - 80	1	3.67	3.42	164.2	0.7854	2414.99	25446.90	0.095 ¹

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u lb	φP _n lb	Ratio $\frac{P_u}{\phi P_n}$
T12	80 - 60	1	3.67	3.42	164.2	0.7854	2423.55	25446.90	0.095 ¹ ✓
T13	60 - 40	1	3.67	3.42	164.2	0.7854	2819.35	25446.90	0.111 ¹ ✓
T14	40 - 20	1	3.67	3.42	164.2	0.7854	2565.63	25446.90	0.101 ¹ ✓
T15	20 - 7.25	1	3.67	3.42	164.2	0.7854	2496.07	25446.90	0.098 ¹ ✓
T16	7.25 - 0.75	12x3/8	3.67	3.42	379.1	4.5000	22010.80	145800.00	0.151 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 $\frac{P_u}{\phi P_n}$
T1	287 - 280	1	3.67	3.50	168.2	0.7854	540.71	25446.90	0.021 ¹ ✓
T2	280 - 260	1	3.67	3.50	168.2	0.7854	723.12	25446.90	0.028 ¹ ✓
T3	260 - 240	1	3.67	3.48	167.2	0.7854	963.56	25446.90	0.038 ¹ ✓
T4	240 - 220	1	3.67	3.48	167.2	0.7854	1104.78	25446.90	0.043 ¹ ✓
T5	220 - 200	1	3.67	3.46	166.2	0.7854	1353.27	25446.90	0.053 ¹ ✓
T6	200 - 180	1	3.67	3.46	166.2	0.7854	1478.61	25446.90	0.058 ¹ ✓
T7	180 - 160	1	3.67	3.46	166.2	0.7854	1737.46	25446.90	0.068 ¹ ✓
T8	160 - 140	1	3.67	3.46	166.2	0.7854	1840.98	25446.90	0.072 ¹ ✓
T9	140 - 120	1	3.67	3.44	165.2	0.7854	1787.48	25446.90	0.070 ¹ ✓
T10	120 - 100	1	3.67	3.44	165.2	0.7854	2069.19	25446.90	0.081 ¹ ✓
T11	100 - 80	1	3.67	3.42	164.2	0.7854	2414.99	25446.90	0.095 ¹ ✓
T12	80 - 60	1	3.67	3.42	164.2	0.7854	2423.55	25446.90	0.095 ¹ ✓
T13	60 - 40	1	3.67	3.42	164.2	0.7854	2565.62	25446.90	0.101 ¹ ✓
T14	40 - 20	1	3.67	3.42	164.2	0.7854	2565.63	25446.90	0.101 ¹ ✓
T15	20 - 7.25	1	3.67	3.42	164.2	0.7854	3896.58	25446.90	0.153 ¹ ✓

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Section No.	Elevation	Size	L	L _u	Kl/r	A	P _u	φP _n	Ratio
	ft		ft	ft		in ²	lb	lb	$\frac{P_u}{\phi P_n}$

¹ P_u / φP_n controls

Torque-Arm Top Design Data

Section No.	Elevation	Size	L	L _u	Kl/r	A	P _u	φP _n	Ratio
	ft		ft	ft		in ²	lb	lb	$\frac{P_u}{\phi P_n}$
T1	287 - 280 (613)	C15x40	4.22	4.14	56.0	11.8000	2293.10	382320.00	0.006
T1	287 - 280 (614)	C15x40	4.22	4.14	56.0	11.8000	2503.18	382320.00	0.007
T1	287 - 280 (617)	C15x40	4.22	4.14	56.0	11.8000	2362.27	382320.00	0.006
T1	287 - 280 (618)	C15x40	4.22	4.14	56.0	11.8000	2394.93	382320.00	0.006
T1	287 - 280 (621)	C15x40	4.22	4.14	56.0	11.8000	2370.89	382320.00	0.006
T1	287 - 280 (622)	C15x40	4.22	4.14	56.0	11.8000	2451.38	382320.00	0.006
T3	260 - 240 (625)	C15x40	4.22	4.13	55.9	11.8000	2314.38	382320.00	0.006
T3	260 - 240 (626)	C15x40	4.22	4.13	55.9	11.8000	2388.32	382320.00	0.006
T3	260 - 240 (629)	C15x40	4.22	4.13	55.9	11.8000	2309.21	382320.00	0.006
T3	260 - 240 (630)	C15x40	4.22	4.13	55.9	11.8000	2341.15	382320.00	0.006
T3	260 - 240 (633)	C15x40	4.22	4.13	55.9	11.8000	2340.05	382320.00	0.006
T3	260 - 240 (634)	C15x40	4.22	4.13	55.9	11.8000	2380.76	382320.00	0.006
T5	220 - 200 (637)	C15x40	4.22	4.12	55.8	11.8000	2188.47	382320.00	0.006
T5	220 - 200 (638)	C15x40	4.22	4.12	55.8	11.8000	2173.04	382320.00	0.006
T5	220 - 200 (641)	C15x40	4.22	4.12	55.8	11.8000	2129.35	382320.00	0.006
T5	220 - 200 (642)	C15x40	4.22	4.12	55.8	11.8000	2179.69	382320.00	0.006
T5	220 - 200 (645)	C15x40	4.22	4.12	55.8	11.8000	2214.36	382320.00	0.006
T5	220 - 200 (646)	C15x40	4.22	4.12	55.8	11.8000	2195.68	382320.00	0.006
T7	180 - 160 (649)	C15x40	4.22	4.12	55.8	11.8000	1990.67	382320.00	0.005
T7	180 - 160 (650)	C15x40	4.22	4.12	55.8	11.8000	1790.57	382320.00	0.005
T7	180 - 160 (653)	C15x40	4.22	4.12	55.8	11.8000	1909.14	382320.00	0.005
T7	180 - 160 (654)	C15x40	4.22	4.12	55.8	11.8000	1851.14	382320.00	0.005
T7	180 - 160 (657)	C15x40	4.22	4.12	55.8	11.8000	1981.73	382320.00	0.005
T7	180 - 160 (658)	C15x40	4.22	4.12	55.8	11.8000	1956.75	382320.00	0.005
T10	120 - 100 (661)	C15x40	4.22	4.11	55.6	11.8000	1639.02	382320.00	0.004
T10	120 - 100 (662)	C15x40	4.22	4.11	55.6	11.8000	1450.87	382320.00	0.004
T10	120 - 100 (665)	C15x40	4.22	4.11	55.6	11.8000	1526.68	382320.00	0.004
T10	120 - 100 (666)	C15x40	4.22	4.11	55.6	11.8000	1489.62	382320.00	0.004
T10	120 - 100 (669)	C15x40	4.22	4.11	55.6	11.8000	1733.65	382320.00	0.005
T10	120 - 100 (670)	C15x40	4.22	4.11	55.6	11.8000	1633.28	382320.00	0.004
T13	60 - 40 (673)	C15x40	4.22	4.10	55.5	11.8000	2170.40	382320.00	0.006
T13	60 - 40 (674)	C15x40	4.22	4.10	55.5	11.8000	1547.43	382320.00	0.004
T13	60 - 40 (677)	C15x40	4.22	4.10	55.5	11.8000	2159.57	382320.00	0.006
T13	60 - 40 (678)	C15x40	4.22	4.10	55.5	11.8000	1364.54	382320.00	0.004
T13	60 - 40 (681)	C15x40	4.22	4.10	55.5	11.8000	1396.48	382320.00	0.004
T13	60 - 40 (682)	C15x40	4.22	4.10	55.5	11.8000	2454.36	382320.00	0.006

Torque-Arm Top Bending Design Data

Section No.	Elevation	Size	M _{ux}	φM _{nx}	Ratio	M _{uy}	φM _{ny}	Ratio
	ft		lb-ft	lb-ft	$\frac{M_{ux}}{\phi M_{nx}}$	lb-ft	lb-ft	$\frac{M_{uy}}{\phi M_{ny}}$
T1	287 - 280 (613)	C15x40	-46292.17	152076.67	0.304	0.00	13648.50	0.000
T1	287 - 280 (614)	C15x40	-49503.17	152076.67	0.326	-0.00	13648.50	0.000

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Section No.	Elevation ft	Size	M_{ux} lb-ft	ϕM_{ux} lb-ft	Ratio $\frac{M_{ux}}{\phi M_{ux}}$	M_{uy} lb-ft	ϕM_{uy} lb-ft	Ratio $\frac{M_{uy}}{\phi M_{uy}}$
T1	287 - 280 (617)	C15x40	-49464.92	152076.67	0.325	0.00	13648.50	0.000
T1	287 - 280 (618)	C15x40	-50229.17	152076.67	0.330	-0.00	13648.50	0.000
T1	287 - 280 (621)	C15x40	-46435.00	152076.67	0.305	0.00	13648.50	0.000
T1	287 - 280 (622)	C15x40	-50009.25	152076.67	0.329	0.00	13648.50	0.000
T3	260 - 240 (625)	C15x40	-43929.00	152131.67	0.289	0.00	13648.50	0.000
T3	260 - 240 (626)	C15x40	-47532.58	152131.67	0.312	-0.00	13648.50	0.000
T3	260 - 240 (629)	C15x40	-47685.42	152131.67	0.313	0.00	13648.50	0.000
T3	260 - 240 (630)	C15x40	-48141.92	152131.67	0.316	-0.00	13648.50	0.000
T3	260 - 240 (633)	C15x40	-43796.25	152131.67	0.288	-0.00	13648.50	0.000
T3	260 - 240 (634)	C15x40	-48141.58	152131.67	0.316	0.00	13648.50	0.000
T5	220 - 200 (637)	C15x40	-40593.25	152186.67	0.267	0.00	13648.50	0.000
T5	220 - 200 (638)	C15x40	-44687.92	152186.67	0.294	0.00	13648.50	0.000
T5	220 - 200 (641)	C15x40	-45146.67	152186.67	0.297	0.00	13648.50	0.000
T5	220 - 200 (642)	C15x40	-45266.58	152186.67	0.297	-0.00	13648.50	0.000
T5	220 - 200 (645)	C15x40	-40273.25	152186.67	0.265	-0.00	13648.50	0.000
T5	220 - 200 (646)	C15x40	-45492.50	152186.67	0.299	-0.00	13648.50	0.000
T7	180 - 160 (649)	C15x40	-35098.42	152186.67	0.231	0.00	13648.50	0.000
T7	180 - 160 (650)	C15x40	-41206.92	152186.67	0.271	-0.00	13648.50	0.000
T7	180 - 160 (653)	C15x40	-40624.83	152186.67	0.267	0.00	13648.50	0.000
T7	180 - 160 (654)	C15x40	-41761.58	152186.67	0.274	-0.00	13648.50	0.000
T7	180 - 160 (657)	C15x40	-35760.58	152186.67	0.235	-0.00	13648.50	0.000
T7	180 - 160 (658)	C15x40	-40941.00	152186.67	0.269	-0.00	13648.50	0.000
T10	120 - 100 (661)	C15x40	-20978.33	152241.67	0.138	0.00	13648.50	0.000
T10	120 - 100 (662)	C15x40	-27429.33	152241.67	0.180	0.00	13648.50	0.000
T10	120 - 100 (665)	C15x40	-26547.08	152241.67	0.174	0.00	13648.50	0.000
T10	120 - 100 (666)	C15x40	-27903.67	152241.67	0.183	-0.00	13648.50	0.000
T10	120 - 100 (669)	C15x40	-21933.42	152241.67	0.144	0.00	13648.50	0.000
T10	120 - 100 (670)	C15x40	-26660.08	152241.67	0.175	-0.00	13648.50	0.000
T13	60 - 40 (673)	C15x40	-9070.75	152296.67	0.060	-0.00	13648.50	0.000
T13	60 - 40 (674)	C15x40	-9872.25	152296.67	0.065	0.00	13648.50	0.000
T13	60 - 40 (677)	C15x40	-12386.58	152296.67	0.081	-0.00	13648.50	0.000
T13	60 - 40 (678)	C15x40	-10153.58	152296.67	0.067	-0.00	13648.50	0.000
T13	60 - 40 (681)	C15x40	-6858.68	152296.67	0.045	0.00	13648.50	0.000
T13	60 - 40 (682)	C15x40	-12305.17	152296.67	0.081	0.00	13648.50	0.000

Torque-Arm Top Interaction Design Data

Section No.	Elevation ft	Size	Ratio P_u ϕP_n	Ratio M_{ux} ϕM_{ux}	Ratio M_{uy} ϕM_{uy}	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	287 - 280 (613)	C15x40	0.006	0.304	0.000	0.307	1.000	4.8.1 ✓
T1	287 - 280 (614)	C15x40	0.007	0.326	0.000	0.329	1.000	4.8.1 ✓
T1	287 - 280 (617)	C15x40	0.006	0.325	0.000	0.328	1.000	4.8.1 ✓
T1	287 - 280 (618)	C15x40	0.006	0.330	0.000	0.333	1.000	4.8.1 ✓
T1	287 - 280 (621)	C15x40	0.006	0.305	0.000	0.308	1.000	4.8.1 ✓
T1	287 - 280 (622)	C15x40	0.006	0.329	0.000	0.332	1.000	4.8.1 ✓
T3	260 - 240 (625)	C15x40	0.006	0.289	0.000	0.292	1.000	4.8.1 ✓

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Section No.	Elevation ft	Size	Ratio P_u ϕP_n	Ratio M_{ux} ϕM_{nx}	Ratio M_{uy} ϕM_{ny}	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T3	260 - 240 (626)	C15x40	0.006	0.312	0.000	0.316	1.000	4.8.1 ✓
T3	260 - 240 (629)	C15x40	0.006	0.313	0.000	0.316	1.000	4.8.1 ✓
T3	260 - 240 (630)	C15x40	0.006	0.316	0.000	0.320	1.000	4.8.1 ✓
T3	260 - 240 (633)	C15x40	0.006	0.288	0.000	0.291	1.000	4.8.1 ✓
T3	260 - 240 (634)	C15x40	0.006	0.316	0.000	0.320	1.000	4.8.1 ✓
T5	220 - 200 (637)	C15x40	0.006	0.267	0.000	0.270	1.000	4.8.1 ✓
T5	220 - 200 (638)	C15x40	0.006	0.294	0.000	0.296	1.000	4.8.1 ✓
T5	220 - 200 (641)	C15x40	0.006	0.297	0.000	0.299	1.000	4.8.1 ✓
T5	220 - 200 (642)	C15x40	0.006	0.297	0.000	0.300	1.000	4.8.1 ✓
T5	220 - 200 (645)	C15x40	0.006	0.265	0.000	0.268	1.000	4.8.1 ✓
T5	220 - 200 (646)	C15x40	0.006	0.299	0.000	0.302	1.000	4.8.1 ✓
T7	180 - 160 (649)	C15x40	0.005	0.231	0.000	0.233	1.000	4.8.1 ✓
T7	180 - 160 (650)	C15x40	0.005	0.271	0.000	0.273	1.000	4.8.1 ✓
T7	180 - 160 (653)	C15x40	0.005	0.267	0.000	0.269	1.000	4.8.1 ✓
T7	180 - 160 (654)	C15x40	0.005	0.274	0.000	0.277	1.000	4.8.1 ✓
T7	180 - 160 (657)	C15x40	0.005	0.235	0.000	0.238	1.000	4.8.1 ✓
T7	180 - 160 (658)	C15x40	0.005	0.269	0.000	0.272	1.000	4.8.1 ✓
T10	120 - 100 (661)	C15x40	0.004	0.138	0.000	0.140	1.000	4.8.1 ✓
T10	120 - 100 (662)	C15x40	0.004	0.180	0.000	0.182	1.000	4.8.1 ✓
T10	120 - 100 (665)	C15x40	0.004	0.174	0.000	0.176	1.000	4.8.1 ✓
T10	120 - 100 (666)	C15x40	0.004	0.183	0.000	0.185	1.000	4.8.1 ✓
T10	120 - 100 (669)	C15x40	0.005	0.144	0.000	0.146	1.000	4.8.1 ✓
T10	120 - 100 (670)	C15x40	0.004	0.175	0.000	0.177	1.000	4.8.1 ✓
T13	60 - 40 (673)	C15x40	0.006	0.060	0.000	0.062	1.000	4.8.1 ✓
T13	60 - 40 (674)	C15x40	0.004	0.065	0.000	0.067	1.000	4.8.1 ✓
T13	60 - 40 (677)	C15x40	0.006	0.081	0.000	0.084	1.000	4.8.1 ✓

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Section No.	Elevation ft	Size	Ratio P_u	Ratio M_{ux}	Ratio M_{uy}	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T13	60 - 40 (678)	C15x40	0.004	0.067	0.000	0.068	1.000	4.8.1 ✓
T13	60 - 40 (681)	C15x40	0.004	0.045	0.000	0.047	1.000	4.8.1 ✓
T13	60 - 40 (682)	C15x40	0.006	0.081	0.000	0.084	1.000	4.8.1 ✓

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
L1	317 - 287	Pole	P12x.5	1	-2825.39	425839.00	23.2	Pass
T1	287 - 280	Leg	2	2	-25085.90	86466.00	29.0	Pass
T2	280 - 260	Leg	2	22	-32451.60	89229.20	36.4	Pass
T3	260 - 240	Leg	2 1/4	62	-49418.40	124382.00	39.7	Pass
T4	240 - 220	Leg	2 1/4	106	-54746.20	124382.00	44.0	Pass
T5	220 - 200	Leg	2 1/2	146	-74068.70	164541.00	45.0	Pass
T6	200 - 180	Leg	2 1/2	188	-82201.30	164541.00	50.0	Pass
T7	180 - 160	Leg	2 1/2	230	-95844.30	164541.00	58.2	Pass
T8	160 - 140	Leg	2 1/2	273	-101486.00	164541.00	61.7	Pass
T9	140 - 120	Leg	2 3/4	316	-102790.00	209536.00	49.1	Pass
T10	120 - 100	Leg	2 3/4	356	-117836.00	209536.00	56.2	Pass
T11	100 - 80	Leg	3	398	-138071.00	259251.00	53.3	Pass
T12	80 - 60	Leg	3	440	-139924.00	259251.00	54.0	Pass
T13	60 - 40	Leg	3	483	-147104.00	259251.00	56.7	Pass
T14	40 - 20	Leg	3	524	-147082.00	259251.00	56.7	Pass
T15	20 - 7.25	Leg	3	567	-142681.00	264300.00	54.0	Pass
T16	7.25 - 0.75	Leg	3	597	-146152.00	285055.00	51.3	Pass
T1	287 - 280	Diagonal	1 3/8	17	-2118.24	23412.80	9.0	Pass
T2	280 - 260	Diagonal	1 3/8	31	-2824.95	23919.10	11.8	Pass
T3	260 - 240	Diagonal	1 3/8	95	-2244.94	24118.10	9.3	Pass
T4	240 - 220	Diagonal	1 3/8	115	-3489.95	24118.10	14.5	Pass
T5	220 - 200	Diagonal	1 1/4	179	-6258.58	17414.40	35.9	Pass
T6	200 - 180	Diagonal	1 1/4	197	-6827.81	17414.40	39.2	Pass
T7	180 - 160	Diagonal	1 1/2	257	-8270.06	32272.10	25.6	Pass
T8	160 - 140	Diagonal	1 3/8	313	-5859.88	24317.60	24.1	Pass
T9	140 - 120	Diagonal	1 1/4	324	-3627.32	17587.80	20.6	Pass
T10	120 - 100	Diagonal	1 1/2	371	-13046.40	32494.90	40.1	Pass
T11	100 - 80	Diagonal	1 3/8	437	-11120.30	24717.90	45.0	Pass
T12	80 - 60	Diagonal	1 1/4	449	-6741.58	17761.80	38.0	Pass
T13	60 - 40	Diagonal	1 1/4	521	-4323.65	17761.80	24.3	Pass
T14	40 - 20	Diagonal	1 1/4	535	-5793.19	17761.80	32.6	Pass
T15	20 - 7.25	Diagonal	1 1/4	582	-6900.38	18376.80	37.5	Pass
T1	287 - 280	Horizontal	1	14	-2662.20	12269.90	21.7	Pass
T2	280 - 260	Horizontal	1	33	-723.12	12269.90	5.9	Pass
T3	260 - 240	Horizontal	1	98	-3711.36	12376.50	30.0	Pass
T4	240 - 220	Horizontal	1	117	-1104.78	12376.50	8.9	Pass
T5	220 - 200	Horizontal	1	182	-6631.40	12483.30	53.1	Pass
T6	200 - 180	Horizontal	1	201	-1528.81	12483.30	12.2	Pass
T7	180 - 160	Horizontal	1	248	-11236.40	12483.30	90.0	Pass
T8	160 - 140	Horizontal	1	284	-1840.98	12483.30	14.7	Pass
T9	140 - 120	Horizontal	1	333	-1787.48	12590.50	14.2	Pass
T10	120 - 100	Horizontal	1	376	-12280.40	12590.50	97.5	Pass
T11	100 - 80	Horizontal	1	418	-2414.99	12697.90	19.0	Pass
T12	80 - 60	Horizontal	1	454	-2423.55	12697.90	19.1	Pass

<i>tnxTower</i> <i>TEP Northeast</i> 45 Beechwood Drive North Andover, MA 01845 Phone: (978) 557-5553 FAX:	Job	CT1077 (C-BAND)	Page 46 of 47
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	Client	AT&T	Designed by RL

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T13	60 - 40	Horizontal	1	519	-3485.34	12697.90	27.4	Pass
T14	40 - 20	Horizontal	1	544	-2565.63	12697.90	20.2	Pass
T15	20 - 7.25	Horizontal	1	578	-2496.07	12697.90	19.7	Pass
T16	7.25 - 0.75	Horizontal	9x3/8	608	-2627.85	9907.96	26.5	Pass
T1	287 - 280	Top Girt	1	5	7805.71	25446.90	30.7	Pass
T2	280 - 260	Top Girt	1	24	-723.12	12269.90	5.9	Pass
T3	260 - 240	Top Girt	1	65	4008.27	25446.90	15.8	Pass
T4	240 - 220	Top Girt	1	108	-1104.78	12376.50	8.9	Pass
T5	220 - 200	Top Girt	1	149	3129.83	25446.90	12.3	Pass
T6	200 - 180	Top Girt	1	193	-1478.61	12483.30	11.8	Pass
T7	180 - 160	Top Girt	1	233	-1737.46	12483.30	13.9	Pass
T8	160 - 140	Top Girt	1	275	-1840.98	12483.30	14.7	Pass
T9	140 - 120	Top Girt	1	318	-1787.48	12590.50	14.2	Pass
T10	120 - 100	Top Girt	1	361	-2069.19	12590.50	16.4	Pass
T11	100 - 80	Top Girt	1	403	-2414.99	12697.90	19.0	Pass
T12	80 - 60	Top Girt	1	445	-2423.55	12697.90	19.1	Pass
T13	60 - 40	Top Girt	1	487	-2565.62	12697.90	20.2	Pass
T14	40 - 20	Top Girt	1	529	-2565.63	12697.90	20.2	Pass
T15	20 - 7.25	Top Girt	1	569	-2496.07	12697.90	19.7	Pass
T16	7.25 - 0.75	Top Girt	12x3/8	599	-2627.85	7073.25	37.2	Pass
T1	287 - 280	Bottom Girt	1	8	-1084.55	12269.90	8.8	Pass
T2	280 - 260	Bottom Girt	1	26	-2599.62	12269.90	21.2	Pass
T3	260 - 240	Bottom Girt	1	70	-963.56	12376.50	7.8	Pass
T4	240 - 220	Bottom Girt	1	110	-1608.64	12376.50	13.0	Pass
T5	220 - 200	Bottom Girt	1	154	-1353.27	12483.30	10.8	Pass
T6	200 - 180	Bottom Girt	1	196	-1478.61	12483.30	11.8	Pass
T7	180 - 160	Bottom Girt	1	236	-1737.46	12483.30	13.9	Pass
T8	160 - 140	Bottom Girt	1	278	-1840.98	12483.30	14.7	Pass
T9	140 - 120	Bottom Girt	1	321	-1787.48	12590.50	14.2	Pass
T10	120 - 100	Bottom Girt	1	364	-2069.19	12590.50	16.4	Pass
T11	100 - 80	Bottom Girt	1	406	-2414.99	12697.90	19.0	Pass
T12	80 - 60	Bottom Girt	1	448	-2423.55	12697.90	19.1	Pass
T13	60 - 40	Bottom Girt	1	490	-2565.62	12697.90	20.2	Pass
T14	40 - 20	Bottom Girt	1	532	-2565.63	12697.90	20.2	Pass
T15	20 - 7.25	Bottom Girt	1	572	-2496.07	12697.90	19.7	Pass
T1	287 - 280	Guy A@284.25	3/4	620	13485.70	34980.00	38.6	Pass
T3	260 - 240	Guy A@257.33	3/4	632	13252.30	34980.00	37.9	Pass
T5	220 - 200	Guy A@217.33	3/4	644	13175.50	34980.00	37.7	Pass
T7	180 - 160	Guy A@167.42	3/4	656	15044.70	34980.00	43.0	Pass
T10	120 - 100	Guy A@107.42	5/8	668	13682.10	25440.00	53.8	Pass
T13	60 - 40	Guy A@58	7/16	680	6376.48	12480.00	51.1	Pass
T1	287 - 280	Guy B@284.25	3/4	615	14182.60	34980.00	40.5	Pass
T3	260 - 240	Guy B@257.33	3/4	627	14050.80	34980.00	40.2	Pass
T5	220 - 200	Guy B@217.33	3/4	639	14033.70	34980.00	40.1	Pass
T7	180 - 160	Guy B@167.42	3/4	651	15626.00	34980.00	44.7	Pass
T10	120 - 100	Guy B@107.42	5/8	663	14154.30	25440.00	55.6	Pass
T13	60 - 40	Guy B@58	7/16	675	6689.42	12480.00	53.6	Pass
T1	287 - 280	Guy C@284.25	3/4	612	14079.90	34980.00	40.3	Pass
T3	260 - 240	Guy C@257.33	3/4	624	13959.20	34980.00	39.9	Pass
T5	220 - 200	Guy C@217.33	3/4	636	13968.10	34980.00	39.9	Pass
T7	180 - 160	Guy C@167.42	3/4	648	15680.90	34980.00	44.8	Pass
T10	120 - 100	Guy C@107.42	5/8	660	14296.80	25440.00	56.2	Pass
T13	60 - 40	Guy C@58	7/16	672	6743.83	12480.00	54.0	Pass
T1	287 - 280	Torque Arm Top@284.25	C15x40	618	2394.93	382320.00	33.3	Pass
T3	260 - 240	Torque Arm Top@257.33	C15x40	634	2380.76	382320.00	32.0	Pass
T5	220 - 200	Torque Arm Top@217.33	C15x40	646	2195.68	382320.00	30.2	Pass
T7	180 - 160	Torque Arm Top@167.42	C15x40	654	-4613.71	324584.00	30.2	Pass

<i>tnxTower</i> <i>TEP Northeast</i> <i>45 Beechwood Drive</i> <i>North Andover, MA 01845</i> <i>Phone: (978) 557-5553</i> <i>FAX:</i>	Job	CT1077 (C-BAND)	Page	47 of 47
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	Client	AT&T	Designed by	RL

<i>Section No.</i>	<i>Elevation ft</i>	<i>Component Type</i>	<i>Size</i>	<i>Critical Element</i>	<i>P lb</i>	<i>ϕP_{allow} lb</i>	<i>% Capacity</i>	<i>Pass Fail</i>
T10	120 - 100	Torque Arm Top@107.42	C15x40	666	-7967.89	324853.00	23.3	Pass
T13	60 - 40	Torque Arm Top@58	C15x40	677	-3024.56	325121.00	8.4	Pass
							Summary	
							Pole (L1)	23.2 Pass
							Leg (T8)	61.7 Pass
							Diagonal (T11)	45.0 Pass
							Horizontal (T10)	97.5 Pass
							Top Girt (T16)	37.2 Pass
							Bottom Girt (T2)	21.2 Pass
							Guy A (T10)	53.8 Pass
							Guy B (T10)	55.6 Pass
							Guy C (T10)	56.2 Pass
							Torque Arm Top (T1)	33.3 Pass
							Bolt Checks	11.9 Pass
							RATING =	97.5 Pass

Pier and Pad Foundation



Site Number: CT1077
 Site Name: STORRS-UCONN
 TEP Site Number: 351041

TIA-222 Revision: H
 Tower Type: Guyed

Top & Bot. Pad Rein. Different?: ☐
 Block Foundation?: ☐
 Rectangular Pad?: ☐

Superstructure Analysis Reactions		
Compression, P_{comp} :	407.61	kips
Base Shear, V_{u_comp} :	5.24	kips
Moment, M_u :	0	ft-kips
Tower Height, H :	317	ft
BP Dist. Above Fdn, bp_{dist} :	1.5	in
Bolt Circle / Bearing Plate Width, BC :	16	in

Pier Properties		
Pier Shape:	Square	
Pier Diameter, $dpier$:	2.83	ft
Ext. Above Grade, E :	0.54	ft
Pier Rebar Size, Sc :	7	
Pier Rebar Quantity, mc :	12	
Pier Tie/Spiral Size, St :	3	
Pier Tie/Spiral Quantity, mt :	5	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier} :	3	in

Pad Properties		
Depth, D :	4	ft
Pad Width, W_1 :	12	ft
Pad Thickness, T :	2	ft
Pad Rebar Size (Bottom dir. 2), Sp_2 :	7	
Pad Rebar Quantity (Bottom dir. 2), mp_2 :	20	
Pad Clear Cover, cc_{pad} :	3	in

Material Properties		
Rebar Grade, F_y :	60	ksi
Concrete Compressive Strength, F'_c :	3	ksi
Dry Concrete Density, δc :	150	pcf

Soil Properties		
Total Soil Unit Weight, γ :	110	pcf
Ultimate Net Bearing, Q_{net} :	8.000	ksf
Cohesion, C_u :	0.000	ksf
Friction Angle, ϕ :	30	degrees
SPT Blow Count, N_{blows} :	30	
Base Friction, μ :	0.58	
Neglected Depth, N :	0.00	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, gw :	N/A	ft

Foundation Analysis Checks				
	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	145.62	5.24	3.4%	Pass
Bearing Pressure (ksf)	5.06	3.51	66.1%	Pass
Overtuning (kip*ft)	912.11	24.44	2.7%	Pass
Pier Flexure (Comp.) (kip*ft)	661.66	13.30	1.9%	Pass
Pier Compression (kip)	3823.13	411.27	10.2%	Pass
Pad Flexure (kip*ft)	1010.18	366.36	34.5%	Pass
Pad Shear - 1-way (kips)	232.92	102.65	42.0%	Pass
Pad Shear - 2-way (Comp) (ksi)	0.164	0.076	43.8%	Pass
Flexural 2-way (Comp) (kip*ft)	1483.31	7.98	0.5%	Pass

*Rating per TIA-222-H Section 15.5

Structural Rating*:	43.8%
Soil Rating*:	66.1%

<--Toggle between Gross and Net

Anchor Block Foundation

Checks capacity of anchor blocks with or without a berm
for a guyed tower

AT&T Site Number: CT1077
TEP Site Number: 351041
Site Name: STORRS-UCONN

Design Reactions		
Shear, S:	110.85	kips
Uplift, Ua:	86.58	kips
Resultant Force, Rf:	140.66	kips
Tower Height, H:	317.00	ft
Guy Anchor Radius, R:	243.20	ft

Guyed Anchor Properties		
Depth to Bottom of Deadman, Da:	10.5	ft
Anchor Width, Wa:	6.0	ft
Anchor Thickness, Ta:	3.0	ft
Anchor Length, La:	23.0	ft
Concrete Volume, Vc:	15.3	yd ³
Frost Depth, Fd:	4	ft
Guyed Anchor Rebar Size, Sa:	7	
No. of Bars in Top of Block:	10	4
No. of Bars in Front of Block:	4	3

Material Properties		
Rebar Tensile, Fy:	60000	psi
Concrete Strength, F'c:	3000	psi
Concrete Density, δx:	0.150	kcf
Clear Cover, cc:	3	in
Strength Reduction Factor, φ:	0.9	

Skin Friction		
Ultimate Soil Friction, f_s =	0.5	ksf

Design Checks				
	Capacity/ Availability	Demand/ Limits	Check	%
<i>Shear (kips):</i>	266.23	110.85	OK	41.6%
<i>Uplift Capacity (kips):</i>	267.69	86.58	OK	32.3%

