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

Internet: ct.gov/csc

Daniel F. Caruso
Chairman

March 4, 2010

Kenneth C. Baldwin
Robinson & Cole LLP
280 Trumbull Street
Hartford, CT 06103-3597

RE: **EM-VER-078-100114** - Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at North Eagleville Road, Storrs, Connecticut.

Dear Attorney Baldwin:

The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies.

The proposed modifications are to be implemented as specified here and in your notice dated January 14, 2010, including the placement of all necessary equipment and shelters within the tower compound. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

Thank you for your attention and cooperation.

Very truly yours,

S. Derek Phelps

S. Derek Phelps
Executive Director

SDP/MP/laf

c: The Honorable Elizabeth Patterson, Mayor, Town of Mansfield
Matthew W. Hart, Town Manager, Town of Mansfield
Gregory Padick, Town Planner, Town of Mansfield
George L. Davis, Tower Manager, University of Connecticut

ROBINSON & COLE LLP

KENNETH C. BALDWIN

80 Trumbull Street
Hartford, CT 06103-3597
Main (860) 275-8200
Fax (860) 275-8299
kbaldwin@rc.com
Direct (860) 275-8345

EM-VER-078-100114

ORIGINAL

January 14, 2010

Via Hand Delivery

S. Derek Phelps
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: **Notice of Exempt Modification – Antenna Swap**
North Eagleville Road, Storrs, Connecticut

Dear Mr. Phelps:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains wireless telecommunications antennas at the 84-foot level on the existing 327-foot tower at the above-referenced address. The tower and underlying property are owned by the University of Connecticut. The Council approved Cellco's shared use of the existing tower in 1997 in Docket No. 179. Cellco now intends to modify its installation by replacing six of its PCS antennas with three (3) model BXA-185063/12CF PCS antennas and three (3) model P65-16-XL-2 LTE (700 MHz) antennas, all at the same 84-foot level on the tower. Attached behind Tab 1 are the specifications for the proposed replacement antennas.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Matthew W. Hart, Town Manager for the Town of Mansfield.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

1. The proposed modifications will not result in any increase in the overall height of the existing tower. Cellco's antennas will be located at the same 84-foot level on the existing 327-foot tower.

2. The proposed modifications will not involve any modifications to ground-mounted equipment and, therefore, will not require the extension of the site boundaries.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more.

4. The operation of the replacement antennas will not increase radio frequency (RF) power density levels at the facility to a level at or above the Federal Communications Commission (FCC) adopted safety standard. A cumulative power density table for Cellco's modified facility is included behind Tab 2.

Also attached is a Structural Analysis Report confirming that the tower and foundation can support Cellco's proposed antennas modification. (See Tab 3).

For the foregoing reasons, Cellco respectfully submits that the proposed modifications to the above-referenced telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Kenneth C. Baldwin

Enclosures
Copy to:
Matthew W. Hart, Mansfield Town Manager
Sandy M. Carter

Slant +/- 45° Dual Polarized, Panel 63° / 20.5 dBi

BXA-185063/12CF ___

When ordering replace "___" with connector type.

Mechanical specifications

Length	1840 mm	72.4 in
Width	154 mm	6.1 in
Depth	105 mm	4.1 in
Depth with t-bracket	133 mm	5.2 in
[4] Weight	6.8 kg	15.0 lbs
Wind Area		
Fore/Aft	0.28 m^2	3.1 ft^2
Side	0.19 m^2	2.1 ft^2
Rated Wind Velocity (Safety factor 2.0)	>201 km/hr	>125 mph
Wind Load @ 100 mph (161 km/hr)		
Fore/Aft	460 N	103.4 lbs
Side	304 N	68.3 lbs

Antenna consisting of aluminum alloy with brass feedlines covered by a UV safe fiberglass radome.

Mounting and Downtilting

Mounting brackets attach to a pipe diameter of Ø50-102 mm (2.0-4.0 in).

Mounting bracket kit #26799997
Downtilt bracket kit #26799999

The downtilt bracket kit includes the mounting bracket kit.

Electrical specifications

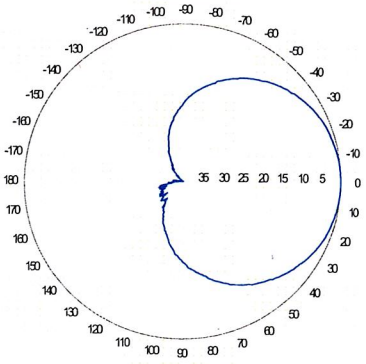
	Frequency Range	1850-1990 MHz
	Impedance	50Ω
[3]	Connector(s)	NE or E-DIN 2 ports / center
[1]	VSWR	≤ 1.4:1
	Polarization	Slant ± 45°
[1]	Isolation Between Ports	< -30 dB
[1]	Gain	20.5 dBi
[2]	Power Rating	250 W
[1]	Half Power Angle	
	H-Plane	63°
	E-Plane	5°
[1]	Electrical Downtilt	0°
[1]	Null Fill	5%
	Lightning Protection	Direct Ground

Patented Dipole Design: U.S. Patent No. 6,597,324 B2

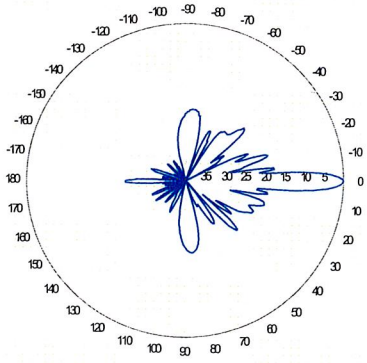
1) Typical values.
2) Power rating limited by connector only.
3) NE indicates an elongated N connector.
   E-DIN indicates an elongated DIN connector.
4) The antenna weight listed above does not include the bracket weight.

Improvements to mechanical and/or electrical performance of the antenna may be made without notice.

Radiation pattern[1]



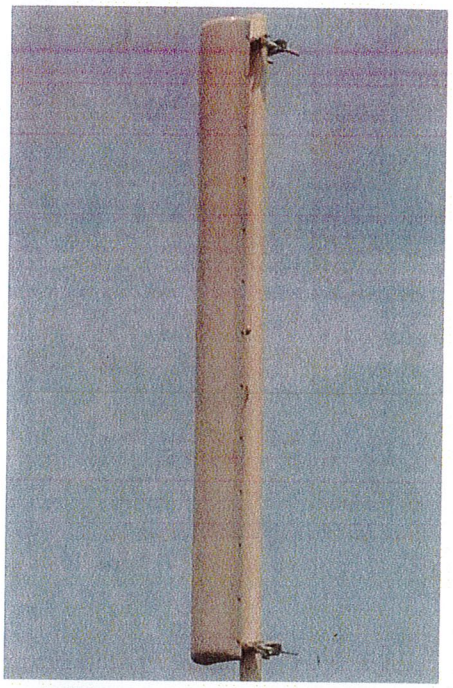
Horizontal



Vertical

Radiation patterns for all antennas are measured with the antenna mounted on a fiberglass pole.

Mounting on a metal pole will typically improve the Front-to-Back ratio.



Amphenol Antel's Exclusive 3T (True Transmission Line Technology) Antenna Design:

- Watercut brass feedline assembly for consistent performance.
- Unique feedline design eliminates the need for conventional solder joints in the signal path.
- A non-collinear system with access to every radiating element for broad band-width and superior performance.
- Air as insulation for virtually no internal signal loss.

This Amphenol Antel antenna is under a five-year limited warranty for repair or replacement.

Antenna available with center-fed connectors only.

CF Denotes a Center-Fed Connector.

1850-1990 MHz

Amphenol Antel, Inc. 1300 Capital Drive Rockford, Illinois 61109 USA Tel. (815) 399-0001
Toll-Free (888) 417-9562 Fax. (815) 399-0156 antel@antelinc.com www.antelinc.com

Amphenol Antel, Inc. The Antenna Technology Company

Revision Date: 7/11/07

P65-16-XL-2 Very Low Broadband Antennas

POLARIZATION: Dual linear ±45°
FREQUENCY (MHz): 698-894
HORIZONTAL BEAM WIDTH (°): 65
GAIN (dBi/dBd): 16.0/13.9
TILT: 2
LENGTH: 72"

ELECTRICAL SPECIFICATIONS*

Frequency range (MHz)	698-894	
Frequency band (MHz)	698-806	806-894
Gain (dBi/dBd)	15.5/13.4	16.0/13.9
Polarization		
Nominal Impedance (Ω)		
VSWR		
Horizontal beam width, -3 dB (°)	68	65
Vertical beam width, -3 dB (°)	10.5	9.5
Electrical down tilt (°)		
Side lobe suppression, vertical 1st upper (dB)	> 15	> 15
Isolation between inputs (dB)	> 30	> 30
Tracking, horizontal plane ±60° (dB)	< 2	< 2
First null fill (dB)	-	-
Vertical beam squint (°)	< 0.5	< 0.5
Front to back ratio (dB)	> 30	> 30
Front to back ratio, total power (dB)	> 25	> 25
Cross polar discrimination (XPD) 0° (dB)	> 15	> 15
Cross polar discrimination (XPD) ±60° (dB)	> 10	> 10
Far field coupling		
IM3, 2xTx@43dBm (dBc)	-153	
IM7, 2xTx@43dBm (dBc)		
Power handling, average per input (W)		
Power handling, average total (W)		

MECHANICAL SPECIFICATIONS*

Connector	2 X 7/16 DIN Female
Connector position	Bottom
Dimensions, HxWxD, mm (ft)	72" x 12" x 5" (1829 x 305 x 125)
Mounting	Pre-mounted Tilt Brackets
Weight, with brackets, kg (lbs)	44 (20)
Weight, without brackets, kg (lbs)	33 (15)
Wind load, frontal/lateral/rear side 42 m/s Cd=1.6 (N)	1380
Maximum operational wind speed, m/s (mph)	100 (45)
Survival wind speed, m/s (mph)	125 (55)
Lightning protection	DC Ground
Radome material	PVC
Radome colour	Light Grey
Package size, HxWxD, mm (ft)	82" x 16" x 10" (2082 x 400 x 255)
Shipping weight, kg (lbs)	55 (25)
RET	N/A
Brackets	7256.00, 7454.00, 2210.00

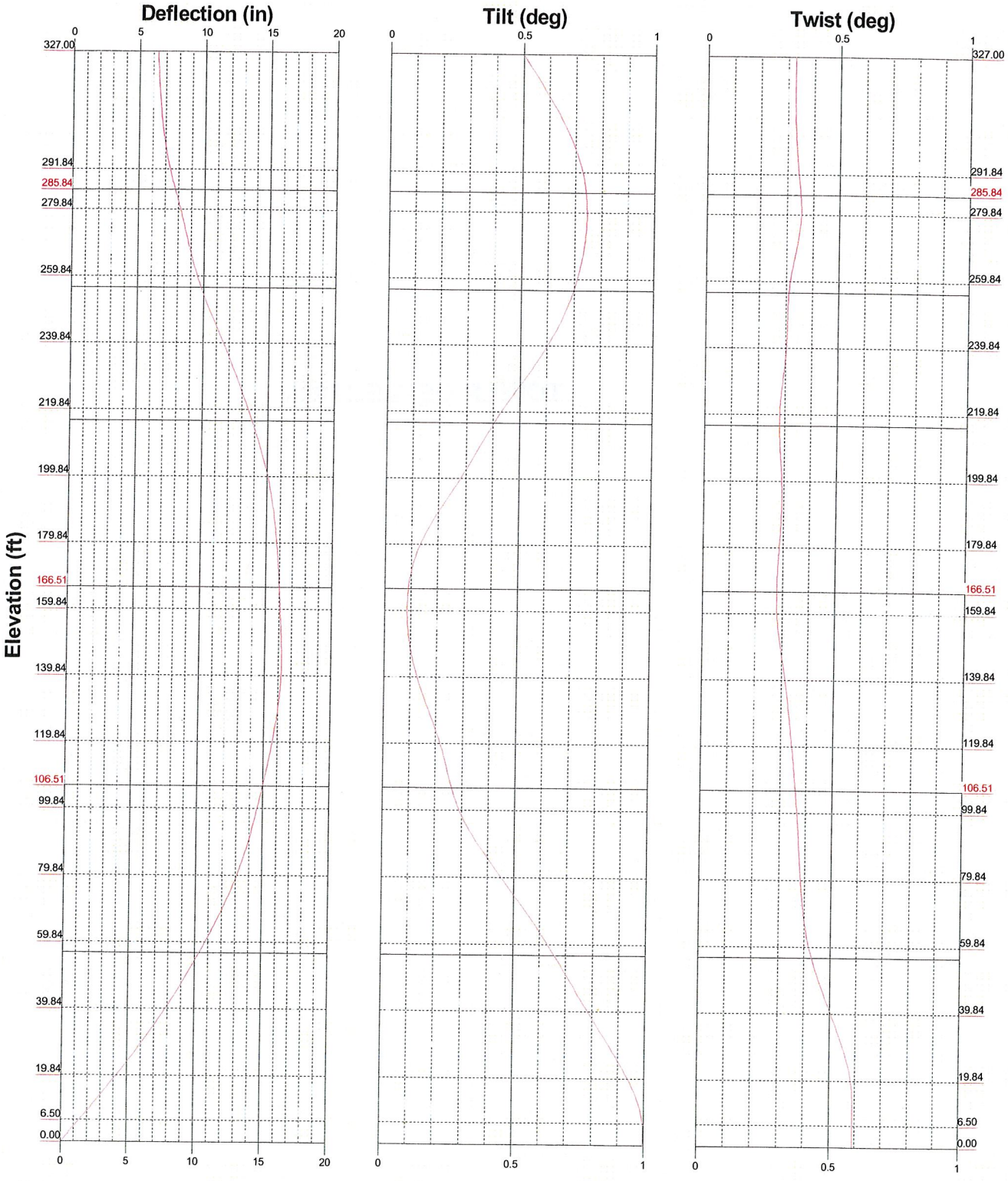
*All specifications subject to change without notice. Please contact your Powerwave representative for complete performance data.

ANTENNA PATTERNS*

For detailed patterns visit http://www.powerwave.com/rpa/.

TIA/EIA-222-F - Service - 90 mph

Maximum Values



URS Corporation
500 Enterprise Drive, Suite 3B
Rocky Hill, CT 06067
Phone: (860) 529-8882
FAX: (860) 529-3991

Job: ***327' Guyed Lattice Tower***			
Project: ***North Eagleville Road Storrs, CT***			
Client: Verizon Wireless	Drawn by: Kevin Barker	App'd:	
Code: TIA/EIA-222-F	Date: 01/06/10	Scale: NTS	
Path: P:\08\ERI Files\327' Guyed Tower Storrs, CT.eri		Dwg No. E-5	

TOWER DEFLECTION

General		Power	Density					
Site Name: Mansfield (Storrs)								
Tower Height: Verizon @ 84Ft.								
CARRIER	**# OF CHAN.**	**WATTS ERP**	**HEIGHT**	**CALC. POWER DENS**	**FREQ.**	**MAX. PERMISS. EXP.**	**FRACTION MPE**	**Total**
*UCONN Police	3	197	180	0.0066	866	0.5773	1.14%	
*Existing				0.153			14.12%	
*Cingular GSM	2	296	185	0.0062	880	0.5867	1.06%	
*Cingular GSM	2	427	185	0.0090	1930	1.0000	0.90%	
*Cingular UMTS	1	500	185	0.0053	1935	1.0000	0.53%	
*Nextel	9	100	240	0.0056	851	0.5673	0.99%	
*Pocket	3	631	230	0.0129	2130	1.0000	1.29%	
Verizon	**3**	**648**	**84**	**0.0991**	**1970**	**1.0000**	**9.91%**	
Verizon	**9**	**304**	**84**	**0.1394**	**869**	**0.5793**	**24.07%**	
Verizon	**1**	**767**	**84**	**0.0391**	**757**	**0.4973**	**7.86%**	
								61.85%
* Source: Siting Council								

DETAILED STRUCTURAL ANALYSIS AND EVALUATION OF AN EXISTING 327' GUYED LATTICE TOWER FOR NEW ANTENNA ARRANGEMENT

Site I.D: WHUS Tower
Address: North Eagleville Road
Storrs, CT

prepared for

verizonwireless

Verizon Wireless
99 East River Drive
East Hartford, Connecticut 06108

prepared by

URS

URS CORPORATION
500 ENTERPRISE DRIVE, SUITE 3B
ROCKY HILL, CT 06067
TEL. 860-529-8882

36931197.00000
VZ5-050 (Rev 1)

January 6, 2010

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY

This report summarizes the structural analysis of the existing 327' guyed lattice tower located on North Eagleville Road in Storrs, Connecticut. The analysis was conducted in accordance with the 2005 Connecticut State Building Code, the TIA/EIA-222-F standard, and the University of Connecticut (UCONN) requirements for a wind velocity of 90 mph (fastest mile) and 90 mph (fastest mile) concurrent with ½" ice. The antenna loading considered in the analysis consists of all existing and proposed antennas, transmission lines, and ancillary items as outlined in the Introduction Section of this report. The proposed Verizon Wireless modification is as follows:

Proposed Antenna and Mount	Carrier	Antenna Center Elevation
Remove: **(6) APL196516-42T2 antennas**	**Verizon (existing)**	
Install: **(3) P65-16-XL-2 antennas with** **(6) 1-5/8" dia. coaxial cables** **(3) BXA-185063/12CF antennas**	**Verizon (proposed)**	**@ 84'**

Note: Existing (6) six APL866513-42T9 at an elevation of 84' to remain with existing (12) 1-5/8" dia. coaxial cables.

The results of the analysis indicate that the tower structure is in compliance with the proposed loading conditions. **The tower and its foundation are considered structurally adequate with the wind load classification specified above and all the existing and proposed antenna loading.**

This analysis is based on:

1) The tower structure's theoretical capacity, not including any assessment of the condition of the tower.
2) Tower geometry and structural member sizes taken from original construction drawings (Sabre Job #: 98-0659) prepared by Sabre Communications Corporation, signed and sealed November 6, 1998.
3) Structural analysis performed by URS, job number F300001804.47/F12 for SNET Mobility, Inc signed and sealed April 27, 2000.
4) Structural analysis performed by Tectonic, W.O. 2993.0931C for Nextel Communications signed and sealed January 20, 2003.
5) Structural analysis performed by URS, job number VZ1-064 for Verizon Wireless signed and sealed June 10, 2004.
6) Structural analysis performed by URS, job number VZ1-064 Rev 1 for Verizon Wireless signed and sealed July 10, 2006.
7) Structural analysis performed by URS, job number PCI-079 Rev 1 for Pocket Wireless signed and sealed September 28, 2009.
8) Antenna and mount configuration as specified on the following page of this report.

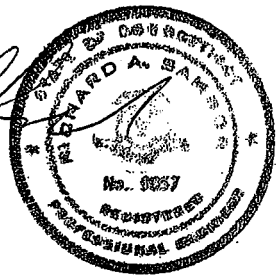
1. **EXECUTIVE SUMMARY** *(continued)*

This report is only valid as per the assumptions and data utilized in this report for antenna inventory, mounts and associated cables. The user of this report shall field verify the assumption of the antenna and mount configuration as well as the physical condition of the tower and connections. Notify the engineer in writing immediately if any of the information in this report is found to be other than specified.

If you should have any questions, please call.

Sincerely,

URS Corporation



Richard A. Sambor, P.E.
Senior Structural Engineer

RAS/kab

cc: IA, CF/Book – URS

2. INTRODUCTION

The subject tower is located on North Eagleville Road in Storrs, Connecticut. The structure is a 327' guyed lattice tower designed and manufactured by Sabre Communications Corporation.

The tower geometry and structural member sizes taken from original construction drawings (Sabre Job #: 98-0659) prepared by Sabre Communications Corporation, signed and sealed November 6, 1998.

The inventory is summarized in the table below:

Antenna Type	*Carrier*	*Mount*	*Antenna Centerline Elevation*	*Cable*
Lightning Rod	Tower (existing)	Direct Mount	325'	---
Flash Beacon	Tower (existing)	Direct Mount	323'	Rigid Conduit
(1) 2-Bay 6813 w/Radome	Unknown (existing)	Flush Mount	305'	(1) 7/8" coax cable
(1) PD1150 and (1) DB809M-XC	Unknown (existing)	(1) Sidearm	280'	(2) 1 5/8" coax cables
(2) OGC9-825, (1) AP-16-850/065, (2) DB810K, and (2) TMA's	Unknown (existing)	(3) Sidearms	260'	(4) 1 5/8" coax cables and (1) 7/8" coax cable
(12) DB844H90 antennas	Nextel (existing)	(3) T-Frames	240'	(12) 1 5/8" coax cables
(3) RFS APXV18-206517S antennas	Pocket (existing)	Leg Mount	230'	(6) 1 5/8" coax cables
(1) 1-Bay 6813 w/o Radome or equal	Unknown (existing)	(1) Sidearm	209'	(1) 7/8" coax cable
(1) 1-Bay 6813 w/Radome	Unknown (existing)	(1) Sidearm	198'	(1) 7/8" coax cable
(1) MB100RR650200DPAL (9) CSS DUO1417-8670 and (9) TMA's	Cingular (existing)	(3) T-Frames	186'	(12) 1 5/8" coax cables
(1) DB872	Unknown (existing)	Direct Mount	172'	(1) 7/8" coax cable
(1) DB806	Unknown (existing)	(1) Sidearm	170'	(1) 1 1/4" coax cable
(1) TMA	Unknown (existing)	Direct Mount	166'	---
(1) DB872	Unknown (existing)	Direct Mount	158'	(1) 7/8" coax cable
(1) DB589	Unknown (existing)	(1) Sidearm	154'	(1) 7/8" coax cable
(1) 7' Omni	Unknown (existing)	Direct Mount	142'	(1) 1/2" coax cable
(1) Andrew P4F-57W Dish	Verizon (existing)	(1) Dish Mount	138'	(1) EW63 coax cable
(1) PD1108	Unknown (existing)	(1) Sidearm	124'	(1) 1/2" coax cable
(1) 6FT Dish w/ Ice Shield	Unknown (existing)	(1) Dish Mount	115'	(1) EW63 coax cable
(1) 6FT Dish w/ Ice Shield	Unknown (existing)	(1) Dish Mount	112'	(1) EW63 coax cable

2. INTRODUCTION (continued)

Antenna Type	*Carrier*	*Mount*	*Antenna Centerline Elevation*	*Cable*
(1) PD1108	Unknown (existing)	(1) Sidearm	110'	(1) 1/2" coax cable
(1) 8FT Dish	Unknown (existing)	(1) Dish Mount	104'	(1) EW63 coax cable
(1) ASP-962 and (1) PR-850	Unknown (existing)	Direct Mount	94'	(2) 1/2" coax cables
(6) RFS APL866513-42T0	Verizon (existing)	(1) Platform (existing)	84'	(12) 1 5/8" coax cables
(3) P65-16-XL-2 (3) BXA-185063/12CF	**Verizon (proposed)**			**(6) 1 5/8" coax cables**
(1) DB212-C	Unknown (existing)	Direct Mount	74'	(1) 1/2" coax cable
(1) CL-24	Unknown (existing)	(1) Sidearm	18'	(1) 1/4" coax cable
(1) 1.2M Lightweight Satellite Dish	Unknown (existing)	(1) Sidearm	13'	(1) 1/4" coax cable

This structural analysis of the communications tower was performed by URS Corporation (URS) for Verizon Wireless. The purpose of this analysis was to investigate the structural integrity of the existing tower with its existing and proposed antenna loads. This analysis was conducted to evaluate stress on the tower and the effect of forces to the foundation of the tower resulting from existing and proposed antenna arrangements.

3. ANALYSIS METHODOLOGY AND LOADING CONDITIONS

The structural analysis was done in accordance with the 2005 Connecticut State Building Code, TIA/EIA-222-F—Structural Standard for Steel Antenna Towers and Antenna Supporting Structures, University of Connecticut (UCONN) requirements, and the American Institute of Steel Construction (AISC) Manual of Steel Construction—Allowable Stress Design (ASD).

The analysis was conducted using RISA Tower 5.3. Two load conditions were evaluated as shown below which were compared to allowable stresses according to AISC and TIA/EIA.

Load Condition 1 = 90 mph (fastest mile) Wind Load (without ice) + Tower Dead Load
Load Condition 2 = 90 mph (fastest mile) Wind Load (with ice) + Ice Load + Tower Dead Load

The TIA/EIA standard permits a one-third increase in allowable stresses for towers and monopoles less than 700 feet tall. For the purposes of this analysis, in computing the load capacity the allowable stresses of the tower members were increased by one-third.

4. FINDINGS AND EVALUATION

Stresses on the tower structure were evaluated to compare with allowable stresses in accordance with AISC. The calculated stresses under the proposed loading were below the allowable stresses. Detailed analysis and calculations for the proposed load condition are provided in section 6 of this report. Additionally, the foundation and guy anchors were found to be structurally adequate. At the microwave dish levels, the maximum twist is less than 0.5 degrees and the maximum sway is less than 0.3 degrees.

Tower Reactions

Component	Value (kips)
Base Shear	5.35
Base Compression	355.2
Anchor Uplift	148.8
Anchor Shear	179.3

Twist and Sway at Microwave Dishes

Height	Dish Model	Twist	Sway
138'	P4F-57W	0.3659	0.2189
115'	6 Ft Dish	0.3845	0.2844
112'	6 Ft Dish	0.3877	0.2895
104'	8 Ft Dish	0.3981	0.3036

Guy and torque arm usage:

Elevation (A.G.L.)	Guy Force (kips)	Guy Usage (%)	Torque Arm Usage (%)
286'	20.20	69.3	74.5
257'	22.17	76.0	80.1
217'	23.30	79.9	80.4
167'	25.94	89.0	79.9
107'	20.83	98.2	52.2
57'	9.46	90.9	22.2

For detailed reactions, see Section 6 of this report

Foundation:

Component / Controlling Element	Usage (%)
Base Foundation / Compression (%)	85.1
Guy Anchor / Uplift (%)	86.2
Guy Anchor / Shear (%)	85.8

For detailed reactions, see Section 6 of this report

4. FINDINGS AND EVALUATION (continued)

Member Usage Summary:

Elevation Range (from base)	Leg		Diagonal		Horizontal	
	Force (kips)	Usage (%)	Force (kips)	Usage (%)	Force (kips)	Usage (%)
327 - 291.84	3.87	17.0	---	---	---	---
291.84 - 279.84	29.03	33.7	5.47	23.8	0.92	8.2
279.84 - 259.84	35.51	44.6	3.86	17.9	0.99	8.9
259.84 - 239.84	86.73	78.9	8.07	37.1	0.91	8.1
239.84 - 219.84	87.56	79.7	8.57	39.3	1.69	15.1
219.84 - 199.84	97.88	67.9	8.87	30.4	0.84	7.4
199.84 - 179.84	98.67	68.5	10.86	70.2	1.76	15.5
179.84 - 159.84	106.80	58.6	13.97	47.6	1.44	6.3
159.84 - 139.84	105.54	73.2	9.44	43.0	1.14	5.1
139.84 - 119.84	107.84	59.2	6.15	39.3	1.34	5.9
119.84 - 99.84	118.45	65.0	15.22	51.9	1.99	8.8
99.84 - 79.84	164.38	73.2	12.00	53.7	2.49	11.0
79.84 - 59.84	168.59	75.1	5.84	36.9	1.56	6.9
59.84 - 39.84	179.12	79.8	6.60	41.6	1.55	6.9
39.84 - 19.84	177.05	79.8	6.54	41.3	1.49	6.9
19.84 - 6.5	161.91	72.1	8.38	53.0	1.70	7.5
6.5 - 0	143.72	71.2	---	---	25.53	19.7

For detailed member analysis, see RISA Tower output data in Section 6 of this report

5. CONCLUSIONS

The results of the analysis indicate that the tower structure is in compliance with the proposed loading conditions. **The tower and its foundation are structurally adequate under the wind load classification specified above and the proposed antenna loadings.**

Limitations/Assumptions:

This report is based on the following:

1. Tower inventory as listed in this report.
2. Tower is properly installed and maintained.
3. All members are as specified in the original design documents and are in good condition.
4. All required members are in place.
5. All bolts are in place and are properly tightened.
6. Tower is in plumb condition.
7. All member protective coatings are in good condition.
8. All tower members were properly designed, detailed, fabricated, and installed and have been properly maintained since erection.
9. Foundations were properly constructed to support original design loads as specified in the original design documents.
10. All coaxial cable is installed as specified in Section 6 of this report.

URS is not responsible for any modifications completed prior to or hereafter in which URS is not or was not directly involved. Modifications include but are not limited to:

A. Adding antennas
B. Removing/replacing antennas
C. Adding coaxial cables

URS hereby states that this document represents the entire report and that it assumes no liability for any factual changes that may occur after the date of this report. All representations, recommendations, and conclusions are based upon information contained and set forth herein. If you are aware of any information which conflicts with that which is contained herein, or you are aware of any defects arising from original design, material, fabrication, or erection deficiencies, you should disregard this report and immediately contact URS. URS disclaims all liability for any representation, recommendation, or conclusion not expressly stated herein.

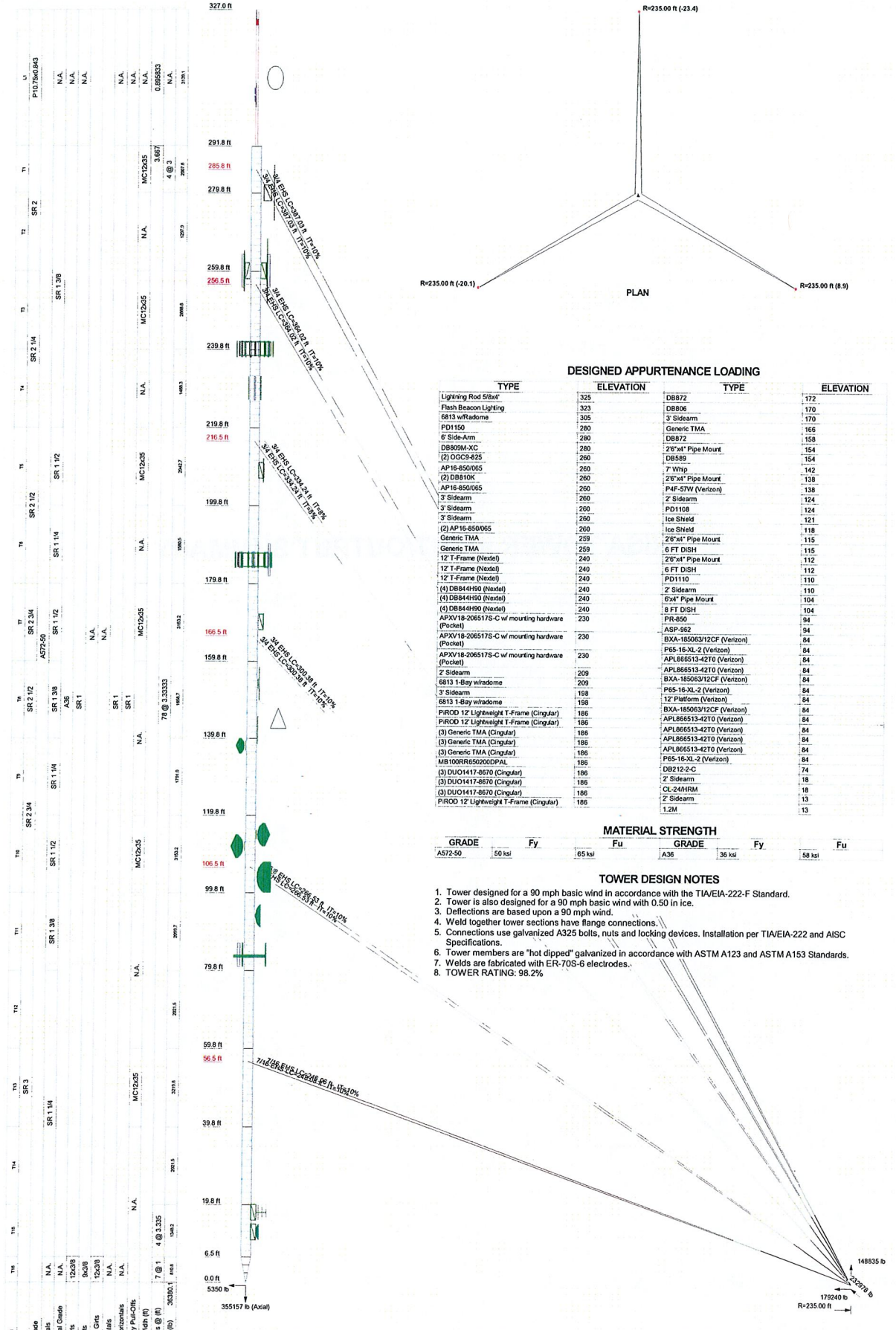
Ongoing and Periodic Inspection and Maintenance:

After the Contractor has successfully completed the installation and the work has been accepted, the owner will be responsible for the ongoing and periodic inspection and maintenance of the tower.

The owner shall refer to TIA/EIA-222-F for recommendations for maintenance and inspection. The frequency of the inspection and maintenance intervals is to be determined by the owner based upon actual site and environmental conditions. It is recommended that a complete and thorough inspection of the entire tower structural system be performed at least yearly and more frequently as conditions warrant. According to TIA/EIA-222-F section 14.1, Note 1: It is recommended that the structure be inspected after severe wind and/or ice storms or other extreme loading conditions.

6. DRAWINGS AND DATA

RISA TOWER INPUT/OUTPUT SUMMARY



PLAN

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod 5/8x4'	325	DB872	172
Flash Beacon Lighting	323	DB806	170
6813 w/Radome	305	3' Sidearm	170
PD1150	280	Generic TMA	166
6' Side-Arm	280	DB872	158
DB809M-XC	280	2'6"x4" Pipe Mount	154
(2) OGC9-825	260	DB589	154
AP16-850/065	260	7' Whip	142
(2) DB810K	260	2'6"x4" Pipe Mount	138
AP16-850/065	260	P4F-57W (Verizon)	138
3' Sidearm	260	2' Sidearm	124
3' Sidearm	260	PD1108	124
3' Sidearm	260	Ice Shield	121
(2) AP16-850/065	260	Ice Shield	118
Generic TMA	259	2'6"x4" Pipe Mount	115
Generic TMA	259	6 FT DISH	115
12' T-Frame (Nextel)	240	2'6"x4" Pipe Mount	112
12' T-Frame (Nextel)	240	6 FT DISH	112
12' T-Frame (Nextel)	240	PD1110	110
(4) DB844H90 (Nextel)	240	2' Sidearm	110
(4) DB844H90 (Nextel)	240	6'x4" Pipe Mount	104
(4) DB844H90 (Nextel)	240	8 FT DISH	104
APXV18-206517S-C w/ mounting hardware (Pocket)	230	PR-850	94
APXV18-206517S-C w/ mounting hardware (Pocket)	230	ASP-962	94
		BXA-185063/12CF (Verizon)	84
APXV18-206517S-C w/ mounting hardware (Pocket)	230	P65-16-XL-2 (Verizon)	84
		APL866513-42T0 (Verizon)	84
2' Sidearm	209	APL866513-42T0 (Verizon)	84
6813 1-Bay w/radome	209	BXA-185063/12CF (Verizon)	84
3' Sidearm	198	P65-16-XL-2 (Verizon)	84
6813 1-Bay w/radome	198	12' Platform (Verizon)	84
PiROD 12' Lightweight T-Frame (Cingular)	186	BXA-185063/12CF (Verizon)	84
PiROD 12' Lightweight T-Frame (Cingular)	186	APL866513-42T0 (Verizon)	84
(3) Generic TMA (Cingular)	186	APL866513-42T0 (Verizon)	84
(3) Generic TMA (Cingular)	186	APL866513-42T0 (Verizon)	84
(3) Generic TMA (Cingular)	186	APL866513-42T0 (Verizon)	84
MB100RR650200PAL	186	P65-16-XL-2 (Verizon)	84
(3) DUO1417-8670 (Cingular)	186	DB212-2-C	74
(3) DUO1417-8670 (Cingular)	186	2' Sidearm	18
(3) DUO1417-8670 (Cingular)	186	CL-24/HRM	18
PiROD 12' Lightweight T-Frame (Cingular)	186	2' Sidearm	13
		1.2M	13

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower designed for a 90 mph basic wind in accordance with the TIA/EIA-222-F Standard.
2. Tower is also designed for a 90 mph basic wind with 0.50 in ice.
3. Deflections are based upon a 90 mph wind.
4. Weld together tower sections have flange connections.
5. Connections use galvanized A325 bolts, nuts and locking devices. Installation per TIA/EIA-222 and AISC Specifications.
6. Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
7. Welds are fabricated with ER-70S-6 electrodes.
8. TOWER RATING: 98.2%

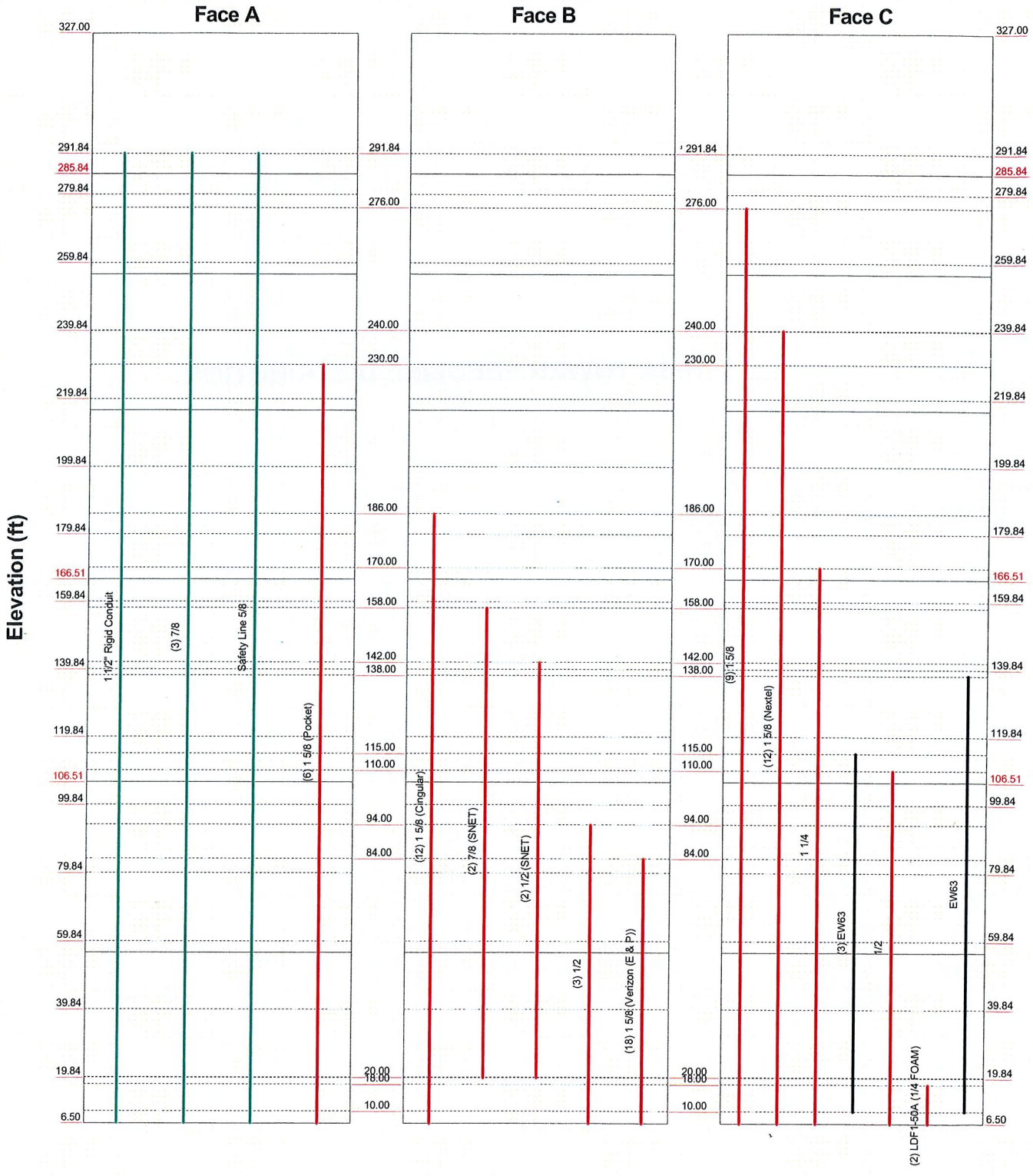
URS Corporation
500 Enterprise Drive, Suite 3B
Rocky Hill, CT 06067
Phone: (860) 529-8882
FAX: (860) 529-3991

Job:	*327' Guyed Lattice Tower*
Project:	*North Eagleville Road Storrs, CT*
Client: Verizon Wireless	Drawn by: Kevin Barker App'd:
Code: TIA/EIA-222-F	Date: 01/06/10 Scale: NTS
Path: P:\06ERI\Files\327' Guyed Tower Storrs, CT.eri	Dwg No. E-1

RISA TOWER FEEDLINE DISTRIBUTION

Feedline Distribution Chart
6'6" - 327'

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



URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-3991	Job: **327' Guyed Lattice Tower**		
	Project: **North Eagleville Road Storrs, CT**		
	Client: Verizon Wireless	Drawn by: Kevin Barker	App'd:
	Code: TIA/EIA-222-F	Date: 01/06/10	Scale: NTS
	Path: P:\08\ERI Files\327' Guyed Tower Storrs, CT.eri		Dwg No. E-7

GUY TENSIONS AND TOWER REACTIONS

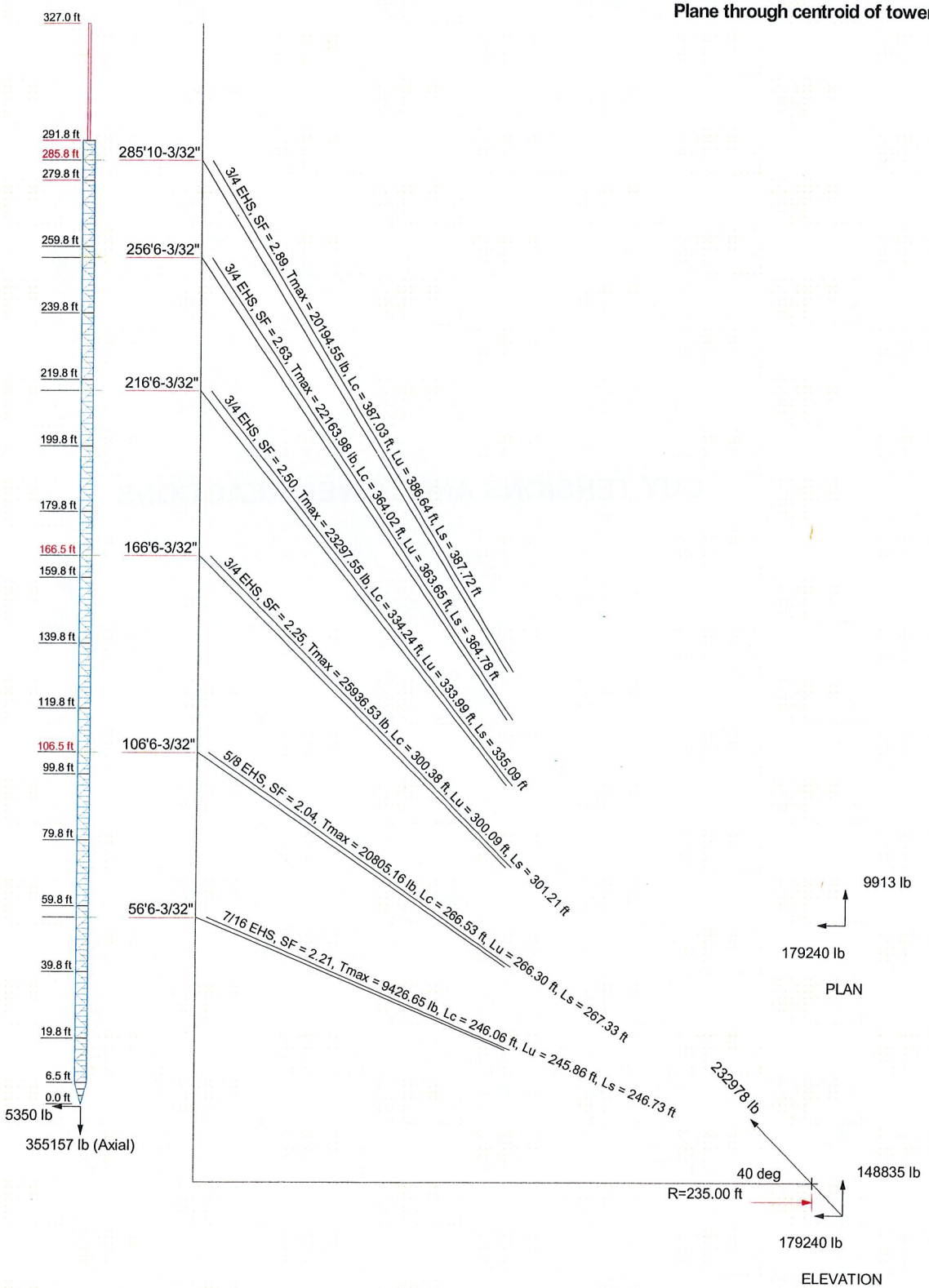
Guy Tensions and Tower Reactions

TIA/EIA-222-F - 90 mph/90 mph 0.5000 in Ice

Maximum Values

Anchor 'A'@235 ft Azimuth 0 deg Elev -23.4 ft

Plane through centroid of tower



URS Corporation	Job: ***327' Guyed Lattice Tower***		
500 Enterprise Drive, Suite 3B	Project: ***North Eagleville Road Storrs, CT***		
Rocky Hill, CT 06067	Client: Verizon Wireless	Drawn by: Kevin Barker	App'd:
Phone: (860) 529-8882	Code: TIA/EIA-222-F	Date: 01/06/10	Scale: NTS
FAX: (860) 529-3991	Path: P:\08\ERI Files\327' Guyed Tower Storrs, CT.eri		Dwg No. E-6

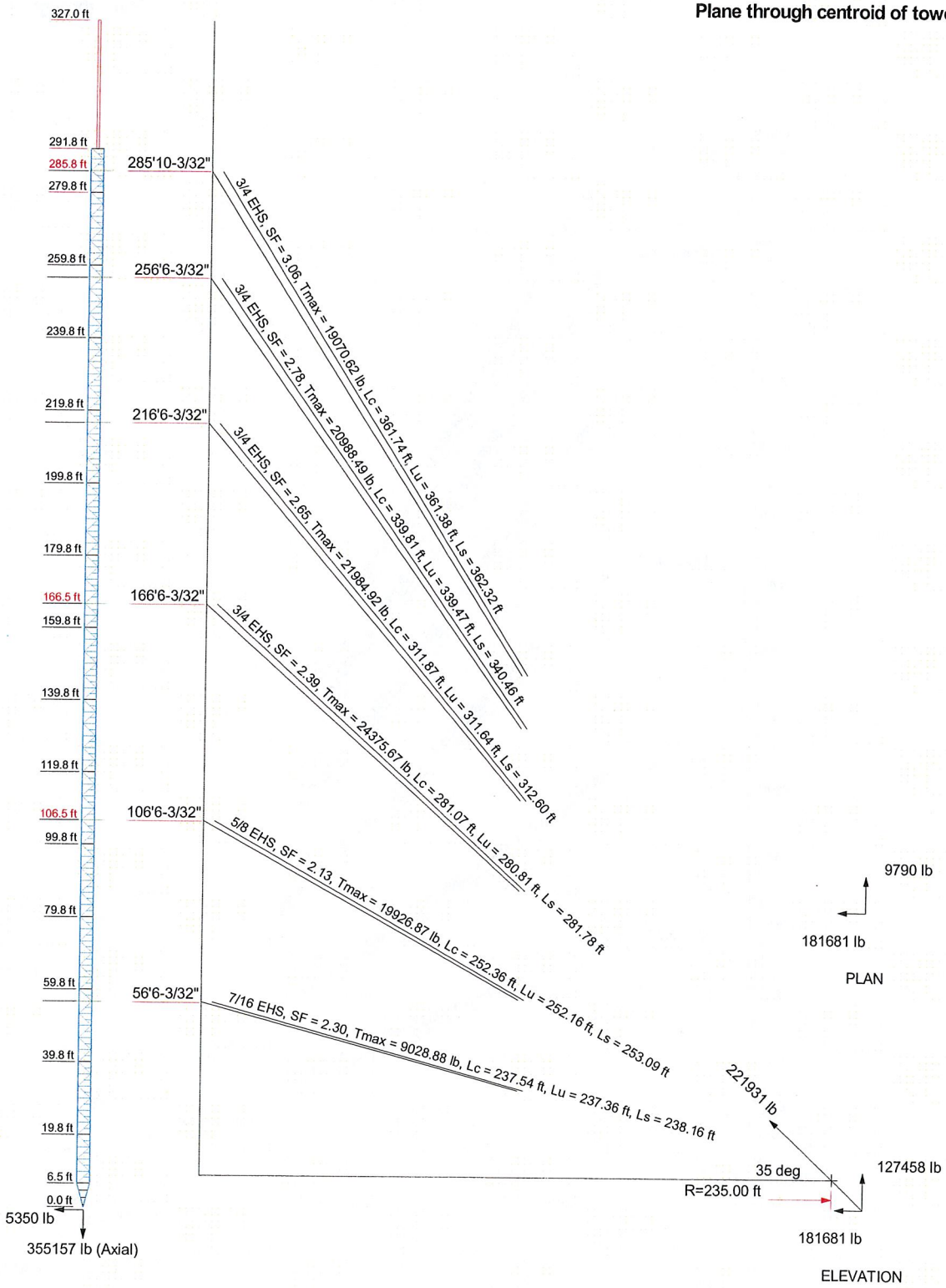
Guy Tensions and Tower Reactions

TIA/EIA-222-F - 90 mph/90 mph 0.5000 in Ice

Maximum Values

Anchor 'B'@235 ft Azimuth 120 deg Elev 8.9 ft

Plane through centroid of tower



URS Corporation
500 Enterprise Drive, Suite 3B
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Phone: (860) 529-8882
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Job: ***327' Guyed Lattice Tower***			
Project: ***North Eagleville Road Storrs, CT***			
Client: Verizon Wireless	Drawn by: Kevin Barker	App'd:	
Code: TIA/EIA-222-F	Date: 01/06/10	Scale: NTS	
Path: P:\08\ERI Files\327' Guyed Tower Storrs, CT.eri		Dwg No. E-6	

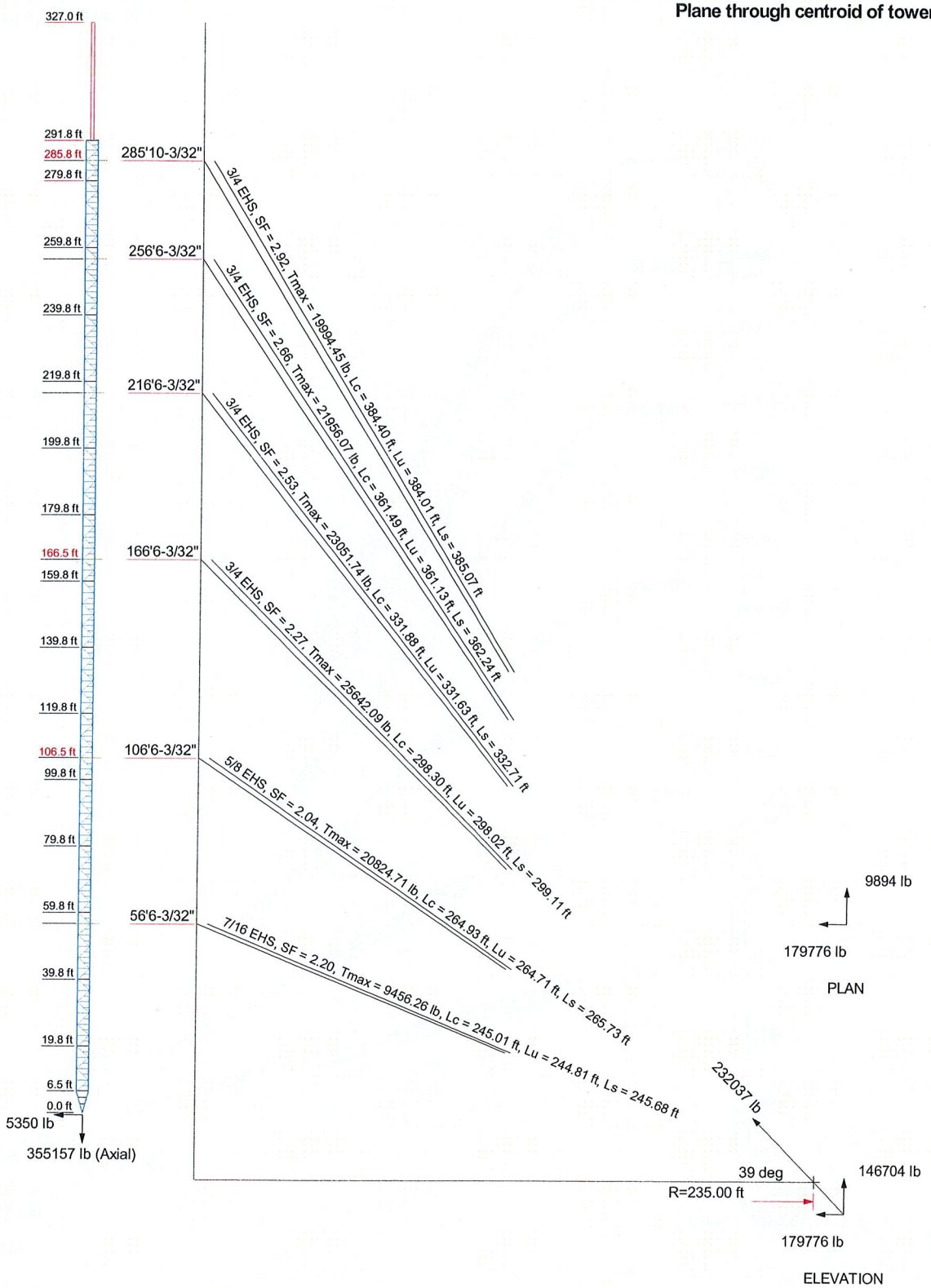
Guy Tensions and Tower Reactions

TIA/EIA-222-F - 90 mph/90 mph 0.5000 in Ice

Maximum Values

Anchor 'C'@235 ft Azimuth 240 deg Elev -20.1 ft

Plane through centroid of tower



URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-3991	Job: ***327' Guyed Lattice Tower*** Project: ***North Eagleville Road Storrs, CT*** Client: Verizon Wireless — Drawn by: Kevin Barker — App'd: Code: TIA/EIA-222-F — Date: 01/06/10 — Scale: NTS Path: P:\08\ERI Files\327' Guyed Tower Storrs, CT.eri — Dwg No. E-6

RISA TOWER DETAILED OUTPUT

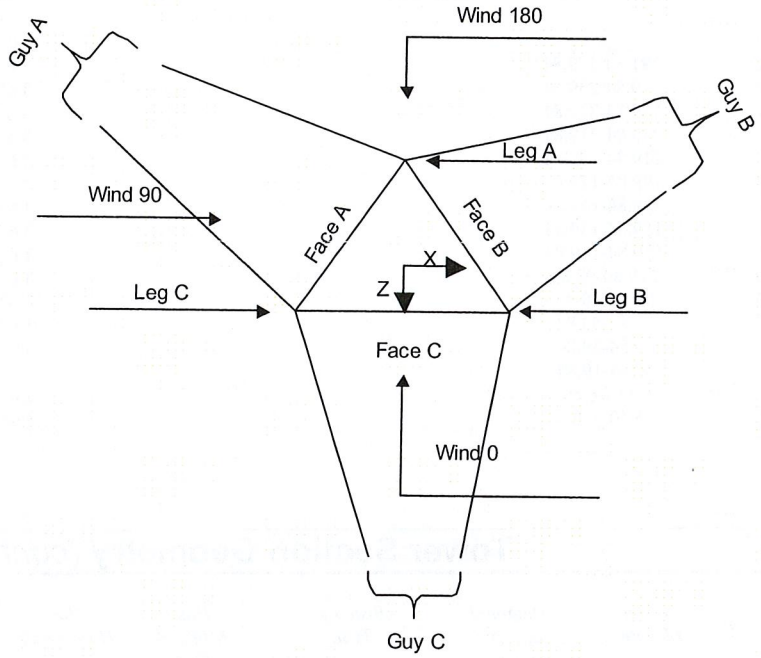
Tower Input Data

The main tower is a 3x guyed tower with an overall height of 327.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 3.67 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/EIA-222-F standard.
The following design criteria apply:

Basic wind speed of 90 mph.
Nominal ice thickness of 0.5000 in.
Ice density of 56 pcf.
A wind speed of 90 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 90 mph.
Weld together tower sections have flange connections..
Connections use galvanized A325 bolts, nuts and locking devices. Installation per TIA/EIA-222 and AISC Specifications..
Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards..
Welds are fabricated with ER-70S-6 electrodes..
Pressures are calculated at each section.
Stress ratio used in pole design is 1.0664.
Safety factor used in guy design is 2.
Stress ratio used in tower member design is 1.333.
Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

Options

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



Face Guyed

Pole Section Geometry

Section	Elevation ft	Section Length ft	Pole Size	Pole Grade	Socket Length ft
L1	327.00-291.84	35.16	P10.75x0.843	A572-50 (50 ksi)	

Tower Elevation ft	Gusset Area (per face) ft²	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
L1 327.00-291.84				1	1	1		

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	291.84-279.84			3.67	1	12.00
T2	279.84-259.84			3.67	1	20.00
T3	259.84-239.84			3.67	1	20.00
T4	239.84-219.84			3.67	1	20.00
T5	219.84-199.84			3.67	1	20.00
T6	199.84-179.84			3.67	1	20.00
T7	179.84-159.84			3.67	1	20.00
T8	159.84-139.84			3.67	1	20.00
T9	139.84-119.84			3.67	1	20.00
T10	119.84-99.84			3.67	1	20.00
T11	99.84-79.84			3.67	1	20.00
T12	79.84-59.84			3.67	1	20.00
T13	59.84-39.84			3.67	1	20.00
T14	39.84-19.84			3.67	1	20.00
T15	19.84-6.50			3.67	1	13.34
T16	6.50-0.00			3.67	1	6.50

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	291.84-279.84	3.00	K Brace Left	No	Yes+Steps	0.0000	0.0000
T2	279.84-259.84	3.33	K Brace Left	No	Yes+Steps	0.0000	0.0000
T3	259.84-239.84	3.33	K Brace Left	No	Yes+Steps	0.0000	0.0000
T4	239.84-219.84	3.33	K Brace Left	No	Yes+Steps	0.0000	0.0000
T5	219.84-199.84	3.33	K Brace Left	No	Yes+Steps	0.0000	0.0000
T6	199.84-179.84	3.33	K Brace Left	No	Yes+Steps	0.0000	0.0000
T7	179.84-159.84	3.33	K Brace Left	No	Yes+Steps	0.0000	0.0000
T8	159.84-139.84	3.33	K Brace Left	No	Yes+Steps	0.0000	0.0000
T9	139.84-119.84	3.33	K Brace Left	No	Yes+Steps	0.0000	0.0000
T10	119.84-99.84	3.33	K Brace Left	No	Yes+Steps	0.0000	0.0000
T11	99.84-79.84	3.33	K Brace Left	No	Yes+Steps	0.0000	0.0000
T12	79.84-59.84	3.33	K Brace Left	No	Yes+Steps	0.0000	0.0000
T13	59.84-39.84	3.33	K Brace Left	No	Yes+Steps	0.0000	0.0000
T14	39.84-19.84	3.33	K Brace Left	No	Yes+Steps	0.0000	0.0000
T15	19.84-6.50	3.34	K Brace Left	No	Yes+Steps	0.0000	0.0000
T16	6.50-0.00	1.00	K Brace Left	No	Yes	0.0000	6.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 291.84-279.84	Solid Round	2	A572-50 (50 ksi)	Solid Round	1 3/8	A36 (36 ksi)
T2 279.84-259.84	Solid Round	2	A572-50 (50 ksi)	Solid Round	1 3/8	A36 (36 ksi)

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T3 259.84-239.84	Solid Round	2 1/4	A572-50 (50 ksi)	Solid Round	1 3/8	A36 (36 ksi)
T4 239.84-219.84	Solid Round	2 1/4	A572-50 (50 ksi)	Solid Round	1 3/8	A36 (36 ksi)
T5 219.84-199.84	Solid Round	2 1/2	A572-50 (50 ksi)	Solid Round	1 1/2	A36 (36 ksi)
T6 199.84-179.84	Solid Round	2 1/2	A572-50 (50 ksi)	Solid Round	1 1/4	A36 (36 ksi)
T7 179.84-159.84	Solid Round	2 3/4	A572-50 (50 ksi)	Solid Round	1 1/2	A36 (36 ksi)
T8 159.84-139.84	Solid Round	2 1/2	A572-50 (50 ksi)	Solid Round	1 3/8	A36 (36 ksi)
T9 139.84-119.84	Solid Round	2 3/4	A572-50 (50 ksi)	Solid Round	1 1/4	A36 (36 ksi)
T10 119.84-99.84	Solid Round	2 3/4	A572-50 (50 ksi)	Solid Round	1 1/2	A36 (36 ksi)
T11 99.84-79.84	Solid Round	3	A572-50 (50 ksi)	Solid Round	1 3/8	A36 (36 ksi)
T12 79.84-59.84	Solid Round	3	A572-50 (50 ksi)	Solid Round	1 1/4	A36 (36 ksi)
T13 59.84-39.84	Solid Round	3	A572-50 (50 ksi)	Solid Round	1 1/4	A36 (36 ksi)
T14 39.84-19.84	Solid Round	3	A572-50 (50 ksi)	Solid Round	1 1/4	A36 (36 ksi)
T15 19.84-6.50	Solid Round	3	A572-50 (50 ksi)	Solid Round	1 1/4	A36 (36 ksi)
T16 6.50-0.00	Solid Round	3	A572-50 (50 ksi)	Solid Round		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 291.84-279.84	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T2 279.84-259.84	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T3 259.84-239.84	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T4 239.84-219.84	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T5 219.84-199.84	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T6 199.84-179.84	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T7 179.84-159.84	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T8 159.84-139.84	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T9 139.84-119.84	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T10 119.84-99.84	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T11 99.84-79.84	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T12 79.84-59.84	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T13 59.84-39.84	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T14 39.84-19.84	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T15 19.84-6.50	Solid Round	1	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T16 6.50-0.00	Flat Bar	12x3/8	A36 (36 ksi)	Flat Bar	12x3/8	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 291.84-279.84	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T2 279.84-259.84	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T3 259.84-239.84	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T4 239.84-219.84	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T5 219.84-199.84	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T6 199.84-179.84	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T7 179.84-159.84	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T8 159.84-139.84	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T9 139.84-119.84	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T10 119.84-99.84	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T11 99.84-79.84	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T12 79.84-59.84	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T13 59.84-39.84	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T14 39.84-19.84	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T15 19.84-6.50	None	Flat Bar		A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T16 6.50-0.00	2	Flat Bar	9x3/8	A36 (36 ksi)	Solid Round		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T1 291.84-279.84	Solid Round	1	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T2 279.84-259.84	Solid Round	1	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T3 259.84-239.84	Solid Round	1	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T4 239.84-219.84	Solid Round	1	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T5 219.84-199.84	Solid Round	1	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T6 199.84-179.84	Solid Round	1	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T7 179.84-159.84	Solid Round	1	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T8 159.84-139.84	Solid Round	1	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T9 139.84-119.84	Solid Round	1	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T10 119.84-99.84	Solid Round	1	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T11 99.84-79.84	Solid Round	1	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T12 79.84-59.84	Solid Round	1	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T13 59.84-39.84	Solid Round	1	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T14 39.84-19.84	Solid Round	1	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T15 19.84-6.50	Solid Round	1	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft²	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
T1 291.84-279.84	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T2 279.84-259.84	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T3 259.84-239.84	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T4 239.84-219.84	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T5 219.84-199.84	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T6 199.84-179.84	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T7 179.84-159.84	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T8 159.84-139.84	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T9 139.84-	0.00	0.0000	A36	1	1	1	36.0000	36.0000

Tower Elevation ft	Gusset Area (per face) ft²	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
119.84			(36 ksi)					
T10 119.84-99.84	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T11 99.84-79.84	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T12 79.84-59.84	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T13 59.84-39.84	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T14 39.84-19.84	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T15 19.84-6.50	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T16 6.50-0.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Legs	K Factors[1] X Brace Diags X	K Factors[1] X Brace Diags Y	K Factors[1] Single Diags X	K Factors[1] Single Diags Y	K Factors[1] Girts X	K Factors[1] Girts Y	K Factors[1] Horiz. X	K Factors[1] Horiz. Y	K Factors[1] Sec. Horiz. X	K Factors[1] Sec. Horiz. Y	K Factors[1] Inner Brace X	K Factors[1] Inner Brace Y
T1 291.84-279.84	No	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
T2 279.84-259.84	No	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
T3 259.84-239.84	No	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
T4 239.84-219.84	No	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
T5 219.84-199.84	No	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
T6 199.84-179.84	No	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
T7 179.84-159.84	No	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
T8 159.84-139.84	No	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
T9 139.84-119.84	No	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
T10 119.84-99.84	No	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
T11 99.84-79.84	No	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
T12 79.84-59.84	No	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
T13 59.84-39.84	No	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
T14 39.84-19.84	No	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
T15 19.84-6.50	No	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
T16 6.50-0.00	No	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Legs	K Factors[1] X Brace Diags X Y 1	K Brace Diags X Y 1	Single Diags X Y 1	Girts X Y 1	Horiz. X Y 1	Sec. Horiz. X Y 1	Inner Brace X Y 1

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

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 291.84-279.84	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 279.84-259.84	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 259.84-239.84	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 239.84-219.84	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 219.84-199.84	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 199.84-179.84	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 179.84-159.84	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 159.84-139.84	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 139.84-119.84	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T10 119.84-99.84	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T11 99.84-79.84	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T12 79.84-59.84	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T13 59.84-39.84	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T14 39.84-19.84	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T15 19.84-6.50	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T16 6.50-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Connection Type	Leg Bolt Size in	Leg No.	Diagonal Bolt Size in	Diagonal No.	Top Girt Bolt Size in	Top Girt No.	Bottom Girt Bolt Size in	Bottom Girt No.	Mid Girt Bolt Size in	Mid Girt No.	Long Horizontal Bolt Size in	Long Horizontal No.	Short Horizontal Bolt Size in	Short Horizontal No.
T1 291.84-279.84	Flange	1.0000 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T2 279.84-259.84	Flange	1.0000 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 259.84-239.84	Flange	1.0000 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T4 239.84-219.84	Flange	1.0000 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T5 219.84-199.84	Flange	1.0000 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T6 199.84-179.84	Flange	1.0000 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T7 179.84-159.84	Flange	1.0000 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T8 159.84-139.84	Flange	1.0000 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T9 139.84-119.84	Flange	1.0000 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T10 119.84-99.84	Flange	1.0000 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T11 99.84-79.84	Flange	1.0000 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T12 79.84-59.84	Flange	1.3750 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T13 59.84-39.84	Flange	1.3750 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T14 39.84-19.84	Flange	1.3750 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T15 19.84-6.50	Flange	1.3750 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T16 6.50-0.00	Flange	1.3750 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Guy Data

Guy Elevation ft	Guy Grade		Guy Size	Initial Tension lb	%	Guy Modulus ksi	Guy Weight plf	L_u ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %
285.84	EHS	A	3/4	5830.00	10%	19000	1.155	386.70	235.00	0.0000	-23.40	100%
		B	3/4	5830.00	10%	19000	1.155	361.43	235.00	0.0000	8.90	100%
		C	3/4	5830.00	10%	19000	1.155	384.07	235.00	0.0000	-20.10	100%
256.507	EHS	A	3/4	5830.00	10%	19000	1.155	363.71	235.00	0.0000	-23.40	100%
		B	3/4	5830.00	10%	19000	1.155	339.52	235.00	0.0000	8.90	100%
		C	3/4	5830.00	10%	19000	1.155	361.18	235.00	0.0000	-20.10	100%
216.507	EHS	A	3/4	4664.00	8%	19000	1.155	334.03	235.00	0.0000	-23.40	100%
		B	3/4	4664.00	8%	19000	1.155	311.67	235.00	0.0000	8.90	100%
		C	3/4	4664.00	8%	19000	1.155	331.67	235.00	0.0000	-20.10	100%
166.507	EHS	A	3/4	5830.00	10%	19000	1.155	300.12	235.00	0.0000	-23.40	100%
		B	3/4	5830.00	10%	19000	1.155	280.83	235.00	0.0000	8.90	100%
		C	3/4	5830.00	10%	19000	1.155	298.05	235.00	0.0000	-20.10	100%
106.507	EHS	A	5/8	4240.00	10%	21000	0.813	266.32	235.00	0.0000	-23.40	100%
		B	5/8	4240.00	10%	21000	0.813	252.17	235.00	0.0000	8.90	100%
		C	5/8	4240.00	10%	21000	0.813	264.73	235.00	0.0000	-20.10	100%

56.5067	EHS	A	7/16	2080.00	10%	21000	0.399	245.87	235.00	0.0000	-23.40	100%
		B	7/16	2080.00	10%	21000	0.399	237.36	235.00	0.0000	8.90	100%
		C	7/16	2080.00	10%	21000	0.399	244.82	235.00	0.0000	-20.10	100%

Guy Data(cont'd)

Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
285.84	Torque Arm	8.00	0.0000	Channel	A36 (36 ksi)	Channel	MC12x35
256.507	Torque Arm	8.00	0.0000	Channel	A36 (36 ksi)	Channel	MC12x35
216.507	Torque Arm	8.00	0.0000	Channel	A36 (36 ksi)	Channel	MC12x35
166.507	Torque Arm	8.00	0.0000	Channel	A36 (36 ksi)	Channel	MC12x35
106.507	Torque Arm	8.00	0.0000	Channel	A36 (36 ksi)	Channel	MC12x35
56.5067	Torque Arm	8.00	0.0000	Channel	A36 (36 ksi)	Channel	MC12x35

Guy Data (cont'd)

Guy Elevation ft	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap.	Pull-Off Grade	Pull-Off Type	Pull-Off Size
285.84	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Channel	MC12x35
256.51	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Channel	MC12x35
216.51	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Channel	MC12x35
166.51	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Channel	MC12x35
106.51	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Channel	MC12x35
56.51	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Channel	MC12x35

Guy Data (cont'd)

Guy Elevation ft	Cable Weight A lb	Cable Weight B lb	Cable Weight C lb	Cable Weight D lb	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft
285.84	446.63	417.45	443.60		14.39	12.61	14.20	
256.507	420.08	392.15	417.16		6.5 sec/pulse 12.76	6.1 sec/pulse 11.16	6.5 sec/pulse 12.59	

Guy Elevation ft	Cable Weight A lb	Cable Weight B lb	Cable Weight C lb	Cable Weight D lb	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft
					6.2 sec/pulse	5.8 sec/pulse	6.1 sec/pulse	
216.507	385.81	359.98	383.08		13.43	11.74	13.25	
					6.3 sec/pulse	5.9 sec/pulse	6.3 sec/pulse	
166.507	346.64	324.36	344.25		8.77	7.70	8.65	
					5.1 sec/pulse	4.8 sec/pulse	5.1 sec/pulse	
106.507	216.52	205.01	215.22		6.72	6.05	6.65	
					4.5 sec/pulse	4.2 sec/pulse	4.5 sec/pulse	
56.5067	98.10	94.71	97.68		5.76	5.38	5.71	
					4.1 sec/pulse	4.0 sec/pulse	4.1 sec/pulse	

Guy Data *(cont'd)*

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm K_x	Torque Arm K_y	Pull Off K_x	Pull Off K_y	Diagonal K_x	Diagonal K_y
285.84	No	No	1	1	1	1	1	1
256.507	No	No	1	1	1	1	1	1
216.507	No	No	1	1	1	1	1	1
166.507	No	No	1	1	1	1	1	1
106.507	No	No	1	1	1	1	1	1
56.5067	No	No	1	1	1	1	1	1

Guy Data *(cont'd)*

Guy Elevation ft	Torque-Arm Bolt Size in	Torque-Arm Number	Torque-Arm Net Width Deduct in	Torque-Arm U	Pull Off Bolt Size in	Pull Off Number	Pull Off Net Width Deduct in	Pull Off U	Diagonal Bolt Size in	Diagonal Number	Diagonal Net Width Deduct in	Diagonal U
285.84	0.6250 A325N	5	0.0000	1	0.6250 A325N	5	0.0000	0.75	0.6250 A325N	2	0.0000	0.75
256.507	0.6250 A325N	5	0.0000	1	0.6250 A325N	5	0.0000	0.75	0.6250 A325N	2	0.0000	0.75
216.507	0.6250 A325N	5	0.0000	1	0.6250 A325N	5	0.0000	0.75	0.6250 A325N	2	0.0000	0.75
166.507	0.6250 A325N	5	0.0000	1	0.6250 A325N	5	0.0000	0.75	0.6250 A325N	2	0.0000	0.75
106.507	0.6250 A325N	5	0.0000	1	0.6250 A325N	5	0.0000	0.75	0.6250 A325N	2	0.0000	0.75
56.5067	0.6250 A325N	5	0.0000	1	0.6250 A325N	5	0.0000	0.75	0.6250 A325N	2	0.0000	0.75

Guy Pressures

Guy Elevation ft	Guy Location	z ft	q_z psf	q_z Ice psf	Ice Thickness in
285.84	A	131.22	31	31	0.5000

Guy Elevation ft	Guy Location	z ft	q_z psf	q_z Ice psf	Ice Thickness in
	B	147.37	32	32	0.5000
	C	132.87	31	31	0.5000
256.507	A	116.55	30	30	0.5000
	B	132.70	31	31	0.5000
	C	118.20	30	30	0.5000
216.507	A	96.55	28	28	0.5000
	B	112.70	29	29	0.5000
	C	98.20	28	28	0.5000
166.507	A	71.55	26	26	0.5000
	B	87.70	27	27	0.5000
	C	73.20	26	26	0.5000
106.507	A	41.55	22	22	0.5000
	B	57.70	24	24	0.5000
	C	43.20	22	22	0.5000
56.5067	A	16.55	21	21	0.5000
	B	32.70	21	21	0.5000
	C	18.20	21	21	0.5000

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
1 5/8	C	Yes	Ar (CfAe)	276.00 - 6.00	0.0000	0	9	9	1.0000	1.9800		1.04
1 5/8 (Nextel)	C	Yes	Ar (CfAe)	240.00 - 6.00	-2.5000	0	12	12	0.5000	1.9800		1.04
1 5/8 (Cingular)	B	Yes	Ar (CfAe)	186.00 - 6.00	-2.0000	0	12	12	1.0000 1.9800	1.9800		1.04
1 1/4	C	Yes	Ar (CfAe)	170.00 - 6.00	0.0000	-0.4	1	1	1.5500	1.5500		0.66
7/8 (SNET)	B	Yes	Ar (CfAe)	158.00 - 20.00	-2.0000	0.4	2	2	1.1100	1.1100		0.54
1/2 (SNET)	B	Yes	Ar (CfAe)	142.00 - 20.00	-1.0000	0.4	2	2	0.5800	0.5800		0.25
EW63	C	Yes	Af (CfAe)	115.00 - 10.00	0.0000	0.4	3	2	0.5000	1.5742	5.0668	0.51
1/2	C	Yes	Ar (CfAe)	110.00 - 6.00	1.0000	0.45	1	1	0.5800	0.5800		0.25
1/2	B	Yes	Ar (CfAe)	94.00 - 6.00	2.0000	0.4	3	3	0.5800	0.5800		0.25
1 5/8 (Verizon (E & P))	B	Yes	Ar (CfAe)	84.00 - 6.00	0.0000	0	18	9	1.0000	1.9800		1.04
LDF1-50A (1/4 FOAM)	C	Yes	Ar (CfAe)	18.00 - 6.00	0.0000	0	2	2	0.3500	0.3500		0.06
EW63	C	Yes	Af (CfAe)	138.00 - 10.00	0.0000	0.35	1	1	0.5000	1.5742	5.0668	0.51
1 5/8 (Pocket)	A	Yes	Ar (CfAe)	230.00 - 6.00	-2.0000	0	6	6	1.9800	1.9800		1.04

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#		C_AA_A ft^2/ft	Weight plf
1 1/2" Rigid Conduit	A	No	CaAa (Out Of Face)	291.84 - 6.00	0.0000	0.3	1	No Ice	0.15	1.00
								1/2" Ice	0.25	2.22
7/8	A	No	CaAa (Out Of Face)	291.84 - 6.00	0.0000	0	3	No Ice	0.11	0.54
								1/2" Ice	0.21	1.52

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#		C_AA_A ft^2/ft	Weight plf
Safety Line 5/8	A	No	CaAa (Out Of Face)	291.84 - 6.00	0.0000	0.2	1	No Ice	0.09	0.40
								1/2" Ice	0.19	1.24

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
L1	327.00-291.84	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
T1	291.84-279.84	A	0.000	0.000	0.000	6.852	36.24
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
T2	279.84-259.84	A	0.000	0.000	0.000	11.420	60.40
		B	0.000	0.000	0.000	0.000	0.00
		C	23.998	0.000	0.000	0.000	151.26
T3	259.84-239.84	A	0.000	0.000	0.000	11.420	60.40
		B	0.000	0.000	0.000	0.000	0.00
		C	30.017	0.000	0.000	0.000	189.20
T4	239.84-219.84	A	10.058	0.000	0.000	11.420	123.80
		B	0.000	0.000	0.000	0.000	0.00
		C	69.300	0.000	0.000	0.000	436.80
T5	219.84-199.84	A	19.800	0.000	0.000	11.420	185.20
		B	0.000	0.000	0.000	0.000	0.00
		C	69.300	0.000	0.000	0.000	436.80
T6	199.84-179.84	A	19.800	0.000	0.000	11.420	185.20
		B	12.197	0.000	0.000	0.000	76.88
		C	69.300	0.000	0.000	0.000	436.80
T7	179.84-159.84	A	19.800	0.000	0.000	11.420	185.20
		B	39.600	0.000	0.000	0.000	249.60
		C	70.612	0.000	0.000	0.000	443.51
T8	159.84-139.84	A	19.800	0.000	0.000	11.420	185.20
		B	43.168	0.000	0.000	0.000	270.29
		C	71.883	0.000	0.000	0.000	450.00
T9	139.84-119.84	A	19.800	0.000	0.000	11.420	185.20
		B	45.233	0.000	0.000	0.000	281.20
		C	71.883	2.382	0.000	0.000	459.26
T10	119.84-99.84	A	19.800	0.000	0.000	11.420	185.20
		B	45.233	0.000	0.000	0.000	281.20
		C	72.374	6.601	0.000	0.000	485.93
T11	99.84-79.84	A	19.800	0.000	0.000	11.420	185.20
		B	53.464	0.000	0.000	0.000	369.70
		C	72.850	7.871	0.000	0.000	495.80
T12	79.84-59.84	A	19.800	0.000	0.000	11.420	185.20
		B	77.833	0.000	0.000	0.000	670.60
		C	72.850	7.871	0.000	0.000	495.80
T13	59.84-39.84	A	19.800	0.000	0.000	11.420	185.20
		B	77.833	0.000	0.000	0.000	670.60
		C	72.850	7.871	0.000	0.000	495.80
T14	39.84-19.84	A	19.800	0.000	0.000	11.420	185.20
		B	77.788	0.000	0.000	0.000	670.35
		C	72.850	7.871	0.000	0.000	495.80
T15	19.84-6.50	A	13.207	0.000	0.000	7.617	123.53
		B	48.157	0.000	0.000	0.000	426.21
		C	49.262	3.873	0.000	0.000	324.94
T16	6.50-0.00	A	0.495	0.000	0.000	0.285	4.63
		B	1.805	0.000	0.000	0.000	15.98

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
		C	1.850	0.000	0.000	0.000	11.44

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
L1	327.00-291.84	A	0.500	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
T1	291.84-279.84	A	0.500	0.000	0.000	0.000	12.852	96.30
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
T2	279.84-259.84	A	0.500	0.000	0.000	0.000	21.420	160.49
		B		0.000	0.000	0.000	0.000	0.00
		C		4.013	32.105	0.000	0.000	467.40
T3	259.84-239.84	A	0.500	0.000	0.000	0.000	21.420	160.49
		B		0.000	0.000	0.000	0.000	0.00
		C		5.006	40.097	0.000	0.000	583.66
T4	239.84-219.84	A	0.500	15.138	0.000	0.000	21.420	316.24
		B		0.000	0.000	0.000	0.000	0.00
		C		9.933	85.200	0.000	0.000	1227.23
T5	219.84-199.84	A	0.500	29.800	0.000	0.000	21.420	467.09
		B		0.000	0.000	0.000	0.000	0.00
		C		9.933	85.200	0.000	0.000	1227.23
T6	199.84-179.84	A	0.500	29.800	0.000	0.000	21.420	467.09
		B		1.530	16.827	0.000	0.000	239.08
		C		9.933	85.200	0.000	0.000	1227.23
T7	179.84-159.84	A	0.500	29.800	0.000	0.000	21.420	467.09
		B		4.967	54.633	0.000	0.000	776.23
		C		12.092	85.200	0.000	0.000	1246.66
T8	159.84-139.84	A	0.500	29.800	0.000	0.000	21.420	467.09
		B		11.637	54.842	0.000	0.000	835.39
		C		14.183	85.200	0.000	0.000	1265.47
T9	139.84-119.84	A	0.500	29.800	0.000	0.000	21.420	467.09
		B		14.633	56.567	0.000	0.000	872.57
		C		14.183	88.591	0.000	0.000	1299.31
T10	119.84-99.84	A	0.500	29.800	0.000	0.000	21.420	467.09
		B		14.633	56.567	0.000	0.000	872.57
		C		15.521	94.386	0.000	0.000	1383.91
T11	99.84-79.84	A	0.500	29.800	0.000	0.000	21.420	467.09
		B		17.531	67.569	0.000	0.000	1150.45
		C		16.817	96.127	0.000	0.000	1415.83
T12	79.84-59.84	A	0.500	29.800	0.000	0.000	21.420	467.09
		B		22.233	100.167	0.000	0.000	2082.10
		C		16.817	96.127	0.000	0.000	1415.83
T13	59.84-39.84	A	0.500	29.800	0.000	0.000	21.420	467.09
		B		22.233	100.167	0.000	0.000	2082.10
		C		16.817	96.127	0.000	0.000	1415.83
T14	39.84-19.84	A	0.500	29.800	0.000	0.000	21.420	467.09
		B		22.156	100.151	0.000	0.000	2081.33
		C		16.817	96.127	0.000	0.000	1415.83
T15	19.84-6.50	A	0.500	19.877	0.000	0.000	14.287	311.55
		B		8.382	65.522	0.000	0.000	1324.51
		C		12.510	62.875	0.000	0.000	932.38
T16	6.50-0.00	A	0.500	0.745	0.000	0.000	0.535	11.68
		B		0.314	2.456	0.000	0.000	49.64
		C		0.477	2.159	0.000	0.000	32.58

Feed Line Shielding

Section	Elevation	Face	A_R	A_R Ice	A_F	A_F Ice
	ft		ft^2	ft^2	ft^2	ft^2
L1	327.00-291.84		0.000	0.000	0.000	0.000
			0.000	0.000	0.000	0.000
			0.000	0.000	0.000	0.000
T1	291.84-279.84	A	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000
T2	279.84-259.84	A	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000
		C	2.015	5.607	0.000	0.000
T3	259.84-239.84	A	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000
		C	2.395	6.814	1.501	2.255
T4	239.84-219.84	A	0.719	1.972	0.000	0.000
		B	0.000	0.000	0.000	0.000
		C	5.818	14.768	0.000	0.000
T5	219.84-199.84	A	1.416	3.883	0.990	1.490
		B	0.000	0.000	0.000	0.000
		C	5.822	14.774	3.465	4.757
T6	199.84-179.84	A	1.331	3.755	0.000	0.000
		B	0.820	2.313	0.000	0.000
		C	5.525	14.367	0.000	0.000
T7	179.84-159.84	A	1.416	3.883	0.990	1.490
		B	2.832	7.766	1.980	2.980
		C	5.932	15.109	3.531	4.865
T8	159.84-139.84	A	1.415	3.881	0.000	0.000
		B	3.085	8.658	0.000	0.000
		C	6.035	15.428	0.000	0.000
T9	139.84-119.84	A	1.331	3.755	0.000	0.000
		B	3.041	8.972	0.000	0.000
		C	5.921	15.597	0.000	0.000
T10	119.84-99.84	A	1.416	3.883	0.990	1.490
		B	3.235	9.277	2.262	3.560
		C	6.635	17.220	3.949	5.544
T11	99.84-79.84	A	1.415	3.881	0.000	0.000
		B	3.820	11.083	0.000	0.000
		C	6.777	17.706	0.000	0.000
T12	79.84-59.84	A	1.331	3.755	0.000	0.000
		B	5.233	15.424	0.000	0.000
		C	6.436	17.224	0.000	0.000
T13	59.84-39.84	A	1.249	3.631	0.990	1.490
		B	4.909	14.914	3.892	6.120
		C	6.100	16.749	4.036	5.703
T14	39.84-19.84	A	1.331	3.755	0.000	0.000
		B	5.230	15.413	0.000	0.000
		C	6.436	17.224	0.000	0.000
T15	19.84-6.50	A	0.888	2.504	0.000	0.000
		B	3.237	9.310	0.000	0.000
		C	4.235	11.463	0.000	0.000
T16	6.50-0.00	A	0.000	0.031	0.191	0.290
		B	0.000	0.116	0.697	1.079
		C	0.000	0.111	0.714	1.027

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L1	327.00-291.84	0.0000	0.0000	0.0000	0.0000
T1	291.84-279.84	0.0000	-3.4909	0.0000	-3.9408
T2	279.84-259.84	0.0000	-0.4270	0.0000	-1.5999
T3	259.84-239.84	0.0000	0.0937	0.0000	-1.1399
T4	239.84-219.84	-0.5011	2.0164	-0.4602	0.3681
T5	219.84-199.84	-0.8400	1.3688	-0.7907	-0.0770
T6	199.84-179.84	-0.3331	1.2273	-0.3574	-0.1470
T7	179.84-159.84	0.7825	0.3989	0.6200	-0.6716
T8	159.84-139.84	1.2094	0.7553	1.0717	-0.2987
T9	139.84-119.84	1.1886	0.9631	1.0146	-0.1141
T10	119.84-99.84	0.7593	1.0359	0.6191	-0.0206
T11	99.84-79.84	1.1497	1.1141	0.9008	0.1154
T12	79.84-59.84	2.2489	0.3995	1.8098	-0.4024
T13	59.84-39.84	2.1246	0.3092	1.7012	-0.4932
T14	39.84-19.84	2.2463	0.3979	1.8074	-0.4040
T15	19.84-6.50	2.0552	0.1435	1.6080	-0.6844
T16	6.50-0.00	0.2981	-0.1018	0.2494	-0.2860

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Lightning Rod 5/8x4'	A	From Face	0.00	0.00	0.0000	325.00	No Ice	0.25	0.25	31.00
			0.00				1/2" Ice	0.66	0.66	33.82
Flash Beacon Lighting	B	None			0.0000	323.00	No Ice	2.70	2.70	50.00
							1/2" Ice	3.10	3.10	70.00
6813 w/Radome	A	From Face	0.00	0.00	0.0000	305.00	No Ice	10.10	10.10	175.00
			0.00				1/2" Ice	12.50	12.50	380.00
PD1150	B	From Leg	6.00	0.00	0.0000	280.00	No Ice	1.22	1.22	8.00
			0.00				1/2" Ice	2.43	2.43	16.00
6' Side-Arm	B	From Leg	3.00	0.00	0.0000	280.00	No Ice	10.60	10.60	140.00
			0.00				1/2" Ice	15.40	15.40	212.00
(2) AP16-850/065	A	From Leg	3.00	0.00	0.0000	260.00	No Ice	10.61	5.64	26.80
			0.00				1/2" Ice	11.25	6.28	77.92
(2) OGC9-825	C	From Leg	3.00	0.00	0.0000	260.00	No Ice	2.10	2.10	16.00
			0.00				1/2" Ice	3.18	3.18	32.29
AP16-850/065	C	From Leg	3.00	0.00	0.0000	260.00	No Ice	10.61	5.64	26.80
			0.00				1/2" Ice	11.25	6.28	77.92
(2) DB810K	B	From Leg	3.00	0.00	0.0000	260.00	No Ice	4.08	4.08	35.00
			0.00				1/2" Ice	5.73	5.73	65.18

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			0.00						
AP16-850/065	B	From Leg	3.00	0.0000	260.00	No Ice	10.61	5.64	26.80
			0.00			1/2" Ice	11.25	6.28	77.92
			0.00						
3' Sidearm	A	From Leg	1.50	0.0000	260.00	No Ice	5.90	5.90	130.00
			0.00			1/2" Ice	6.60	6.60	145.60
			0.00						
3' Sidearm	B	From Leg	1.50	0.0000	260.00	No Ice	5.90	5.90	130.00
			0.00			1/2" Ice	6.60	6.60	145.60
			0.00						
3' Sidearm	C	From Leg	1.50	0.0000	260.00	No Ice	5.90	5.90	130.00
			0.00			1/2" Ice	6.60	6.60	145.60
			0.00						
(4) DB844H90 (Nextel)	A	From Leg	3.00	0.0000	240.00	No Ice	2.87	3.97	10.00
			0.00			1/2" Ice	3.18	4.34	36.27
			0.00						
(4) DB844H90 (Nextel)	B	From Leg	3.00	0.0000	240.00	No Ice	2.87	3.97	10.00
			0.00			1/2" Ice	3.18	4.34	36.27
			0.00						
(4) DB844H90 (Nextel)	C	From Leg	3.00	0.0000	240.00	No Ice	2.87	3.97	10.00
			0.00			1/2" Ice	3.18	4.34	36.27
			0.00						
12' T-Frame (Nextel)	A	From Leg	1.50	0.0000	240.00	No Ice	13.60	13.60	465.00
			0.00			1/2" Ice	18.40	18.40	600.00
			0.00						
12' T-Frame (Nextel)	B	From Leg	1.50	0.0000	240.00	No Ice	13.60	13.60	465.00
			0.00			1/2" Ice	18.40	18.40	600.00
			0.00						
12' T-Frame (Nextel)	C	From Leg	1.50	0.0000	240.00	No Ice	13.60	13.60	465.00
			0.00			1/2" Ice	18.40	18.40	600.00
			0.00						
6813 1-Bay w/radome	B	From Leg	2.00	0.0000	209.00	No Ice	4.90	4.90	97.00
			0.00			1/2" Ice	6.00	6.00	195.00
			0.00						
6813 1-Bay w/radome	A	From Leg	3.00	0.0000	198.00	No Ice	4.90	4.90	97.00
			0.00			1/2" Ice	6.00	6.00	195.00
			0.00						
2' Sidearm	B	From Leg	1.00	0.0000	209.00	No Ice	3.90	3.90	87.00
			0.00			1/2" Ice	4.40	4.40	97.00
			0.00						
3' Sidearm	A	From Leg	1.50	0.0000	198.00	No Ice	5.90	5.90	130.00
			0.00			1/2" Ice	6.60	6.60	145.60
			0.00						
Generic TMA	A	From Leg	3.00	0.0000	259.00	No Ice	1.05	0.35	15.00
			0.00			1/2" Ice	1.19	0.45	21.35
			0.00						
Generic TMA	B	From Leg	3.00	0.0000	259.00	No Ice	1.05	0.35	15.00
			0.00			1/2" Ice	1.19	0.45	21.35
			0.00						
(3) DUO1417-8670 (Cingular)	A	From Leg	3.00	0.0000	186.00	No Ice	6.53	4.20	20.30
			0.00			1/2" Ice	6.94	4.57	62.49
			0.00						
(3) DUO1417-8670 (Cingular)	B	From Leg	3.00	0.0000	186.00	No Ice	6.53	4.20	20.30
			0.00			1/2" Ice	6.94	4.57	62.49
			0.00						
(3) DUO1417-8670 (Cingular)	C	From Leg	3.00	0.0000	186.00	No Ice	6.53	4.20	20.30
			0.00			1/2" Ice	6.94	4.57	62.49

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			0.00						
PiROD 12' Lightweight T-Frame (Cingular)	A	From Leg	1.50 0.00 0.00	0.0000	186.00	No Ice 1/2" Ice	10.20 16.20	10.20 16.20	253.00 355.00
PiROD 12' Lightweight T-Frame (Cingular)	B	From Leg	1.50 0.00 0.00	0.0000	186.00	No Ice 1/2" Ice	10.20 16.20	10.20 16.20	253.00 355.00
PiROD 12' Lightweight T-Frame (Cingular)	C	From Leg	1.50 0.00 0.00	0.0000	186.00	No Ice 1/2" Ice	10.20 16.20	10.20 16.20	253.00 355.00
(3) Generic TMA (Cingular)	A	From Leg	3.00 0.00 0.00	0.0000	186.00	No Ice 1/2" Ice	1.05 1.19	0.35 0.45	15.00 21.35
(3) Generic TMA (Cingular)	B	From Leg	3.00 0.00 0.00	0.0000	186.00	No Ice 1/2" Ice	1.05 1.19	0.35 0.45	15.00 21.35
(3) Generic TMA (Cingular)	C	From Leg	3.00 0.00 0.00	0.0000	186.00	No Ice 1/2" Ice	1.05 1.19	0.35 0.45	15.00 21.35
MB100RR650200DPAL	A	From Leg	3.00 6.00 0.00	0.0000	186.00	No Ice 1/2" Ice	8.80 9.41	3.82 4.78	31.00 70.17
DB872	A	From Leg	0.50 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice	2.80 3.04	1.17 1.36	7.00 23.53
DB806	B	From Leg	3.00 0.00 0.00	0.0000	170.00	No Ice 1/2" Ice	1.14 1.68	1.14 1.68	21.00 29.93
3' Sidearm	B	From Leg	1.50 0.00 0.00	0.0000	170.00	No Ice 1/2" Ice	5.90 6.60	5.90 6.60	130.00 145.60
Generic TMA	A	From Leg	0.50 0.00 0.00	0.0000	166.00	No Ice 1/2" Ice	1.05 1.19	0.35 0.45	15.00 21.35
DB872	B	From Leg	0.50 0.00 0.00	0.0000	158.00	No Ice 1/2" Ice	2.80 3.04	1.17 1.36	7.00 23.53
DB589	B	From Leg	1.00 0.00 0.00	0.0000	154.00	No Ice 1/2" Ice	2.13 3.00	2.13 3.00	11.50 27.39
DB809M-XC	B	From Leg	6.00 0.00 0.00	0.0000	280.00	No Ice 1/2" Ice	2.84 4.29	2.84 4.29	25.00 46.91
7' Whip	B	From Leg	0.50 0.00 0.00	0.0000	142.00	No Ice 1/2" Ice	1.74 2.60	1.74 2.60	37.30 52.85
PD1108	A	From Leg	2.00 0.00 0.00	0.0000	124.00	No Ice 1/2" Ice	1.53 2.81	1.53 2.81	10.00 18.00
2' Sidearm	A	From Leg	1.00 0.00 0.00	0.0000	124.00	No Ice 1/2" Ice	3.50 4.20	3.50 4.20	91.00 120.00
2'6"x4" Pipe Mount	B	From Leg	0.50 0.00 0.00	0.0000	154.00	No Ice 1/2" Ice	0.75 0.95	0.75 0.95	27.00 35.41
2'6"x4" Pipe Mount	B	From Leg	0.50 0.00	0.0000	115.00	No Ice 1/2" Ice	0.75 0.95	0.75 0.95	27.00 35.41

Description	Face or Leg	Offset Type	Offsets: Horz Lateral / Vert (ft / ft / ft)	Azimuth Adjustment (°)	Placement (ft)		C_AA_A Front (ft^2)	C_AA_A Side (ft^2)	Weight (lb)
			0.00						
2'6"x4" Pipe Mount	C	From Leg	0.50	0.0000	112.00	No Ice	0.75	0.75	27.00
			0.00			1/2" Ice	0.95	0.95	35.41
			0.00						
2'6"x4" Pipe Mount	C	From Leg	0.50	0.0000	138.00	No Ice	0.75	0.75	27.00
			0.00			1/2" Ice	0.95	0.95	35.41
			0.00						
Ice Shield	B	From Leg	1.00	0.0000	121.00	No Ice	2.80	2.80	200.00
			0.00			1/2" Ice	3.50	3.50	300.00
			0.00						
Ice Shield	C	From Leg	1.00	0.0000	118.00	No Ice	2.80	2.80	200.00
			0.00			1/2" Ice	3.50	3.50	300.00
			0.00						
6'x4" Pipe Mount	B	From Leg	0.50	0.0000	104.00	No Ice	2.09	2.09	54.72
			0.00			1/2" Ice	2.46	2.46	71.85
			0.00						
2' Sidearm	B	From Leg	1.00	0.0000	13.00	No Ice	3.90	3.90	87.00
			0.00			1/2" Ice	4.40	4.40	97.00
			0.00						
PD1110	A	From Leg	2.00	0.0000	110.00	No Ice	3.06	3.06	25.00
			0.00			1/2" Ice	5.10	5.10	60.00
			0.00						
2' Sidearm	A	From Leg	1.00	0.0000	110.00	No Ice	3.90	3.90	87.00
			0.00			1/2" Ice	4.40	4.40	97.00
			0.00						
PR-850	B	From Leg	0.50	0.0000	94.00	No Ice	6.35	6.35	38.00
			0.00			1/2" Ice	11.43	11.43	49.40
			0.00						
ASP-962	A	From Leg	0.50	0.0000	94.00	No Ice	0.16	0.16	1.13
			0.00			1/2" Ice	0.29	0.29	1.47
			0.00						
APL866513-42T0 (Verizon)	A	From Leg	3.00	0.0000	84.00	No Ice	4.29	3.73	15.70
			6.00			1/2" Ice	4.67	4.10	46.99
			0.00						
APL866513-42T0 (Verizon)	A	From Leg	3.00	0.0000	84.00	No Ice	4.29	3.73	15.70
			-6.00			1/2" Ice	4.67	4.10	46.99
			0.00						
BXA-185063/12CF (Verizon)	A	From Leg	3.00	0.0000	84.00	No Ice	3.10	2.10	36.29
			4.00			1/2" Ice	4.00	3.00	76.84
			0.00						
P65-16-XL-2 (Verizon)	A	From Leg	3.00	0.0000	84.00	No Ice	8.54	5.99	81.64
			-4.00			1/2" Ice	9.13	6.89	144.34
			0.00						
APL866513-42T0 (Verizon)	B	From Leg	3.00	0.0000	84.00	No Ice	4.29	3.73	15.70
			6.00			1/2" Ice	4.67	4.10	46.99
			0.00						
APL866513-42T0 (Verizon)	B	From Leg	3.00	0.0000	84.00	No Ice	4.29	3.73	15.70
			-6.00			1/2" Ice	4.67	4.10	46.99
			0.00						
BXA-185063/12CF (Verizon)	B	From Leg	3.00	0.0000	84.00	No Ice	3.10	2.10	36.29
			4.00			1/2" Ice	4.00	3.00	76.84
			0.00						
P65-16-XL-2 (Verizon)	B	From Leg	3.00	0.0000	84.00	No Ice	8.54	5.99	81.64
			-4.00			1/2" Ice	9.13	6.89	144.34
			0.00						
APL866513-42T0 (Verizon)	C	From Leg	3.00	0.0000	84.00	No Ice	4.29	3.73	15.70
			6.00			1/2" Ice	4.67	4.10	46.99

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			0.00						
APL866513-42T0 (Verizon)	C	From Leg	3.00 -6.00 0.00	0.0000	84.00	No Ice 1/2" Ice	4.29 4.67	3.73 4.10	15.70 46.99
BXA-185063/12CF (Verizon)	C	From Leg	3.00 4.00 0.00	0.0000	84.00	No Ice 1/2" Ice	3.10 4.00	2.10 3.00	36.29 76.84
P65-16-XL-2 (Verizon)	C	From Leg	3.00 -4.00 0.00	0.0000	84.00	No Ice 1/2" Ice	8.54 9.13	5.99 6.89	81.64 144.34
12' Platform (Verizon)	C	None		0.0000	84.00	No Ice 1/2" Ice	40.00 50.00	40.00 50.00	2000.00 2800.00
DB212-2-C	C	From Leg	0.50 0.00 0.00	0.0000	74.00	No Ice 1/2" Ice	3.10 6.22	3.10 6.22	27.00 55.51
CL-24/HRM	B	From Leg	2.00 0.00 0.00	0.0000	18.00	No Ice 1/2" Ice	12.46 13.95	12.46 13.95	50.00 80.00
2' Sidearm	B	From Leg	1.00 0.00 0.00	0.0000	18.00	No Ice 1/2" Ice	3.90 4.40	3.90 4.40	87.00 97.00
APXV18-206517S-C w/ mounting hardware (Pocket)	A	From Leg	0.50 0.00 0.00	0.0000	230.00	No Ice 1/2" Ice	5.08 5.53	4.46 5.39	47.20 86.89
APXV18-206517S-C w/ mounting hardware (Pocket)	B	From Leg	0.50 0.00 0.00	0.0000	230.00	No Ice 1/2" Ice	5.08 5.53	4.46 5.39	47.20 86.89
APXV18-206517S-C w/ mounting hardware (Pocket)	C	From Leg	0.50 0.00 0.00	0.0000	230.00	No Ice 1/2" Ice	5.08 5.53	4.46 5.39	47.20 86.89

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight lb
P4F-57W (Verizon)	C	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	0.0000		138.00	4.00	No Ice 1/2" Ice	12.57 13.10	335.00 402.25
6 FT DISH	B	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	0.0000		115.00	6.00	No Ice 1/2" Ice	28.27 29.05	143.00 292.13
6 FT DISH	C	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	60.0000		112.00	6.00	No Ice 1/2" Ice	28.27 29.05	143.00 292.13
8 FT DISH	B	Paraboloid w/Shroud (HP)	From Leg	1.00 0.00 0.00	-30.0000		104.00	8.00	No Ice 1/2" Ice	50.30 51.29	251.00 514.30
1.2M	B	Paraboloid w/o	From	2.00	0.0000		13.00	4.00	No Ice	12.17	165.00

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	3 dB Beam Width	Elevation	Outside Diameter		Aperture Area	Weight
				ft	°	°	ft	ft		ft^2	lb
		Radome	Leg	0.00 0.00					1/2" Ice	13.09	232.19

Tower Pressures - No Ice

G_H = 1.089 (base tower), 1.089 (upper structure)

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft^2	Face	A_F ft^2	A_R ft^2	A_{leg} ft^2	Leg %	C_AA_A In Face ft^2	C_AA_A Out Face ft^2
L1 327.00-291.84	309.49	1.896	39	31.497	A	0.000	31.497	31.497	100.00	0.000	0.000
					B	0.000	31.497		100.00	0.000	0.000
					C	0.000	31.497		100.00	0.000	0.000
T1 291.84-279.84	285.84	1.853	38	46.004	A	3.500	6.948	4.000	38.28	0.000	6.852
					B	3.500	6.948		38.28	0.000	0.000
					C	3.500	7.531		36.26	0.000	0.000
T2 279.84-259.84	269.84	1.823	38	76.673	A	0.000	11.669	6.667	57.13	0.000	11.420
					B	0.000	11.669		57.13	0.000	0.000
					C	0.000	34.527		19.31	0.000	0.000
T3 259.84-239.84	249.84	1.783	37	77.090	A	3.479	12.186	7.500	47.88	0.000	11.420
					B	3.479	12.186		47.88	0.000	0.000
					C	1.979	40.678		17.58	0.000	0.000
T4 239.84-219.84	229.84	1.741	36	77.090	A	0.000	21.812	7.500	34.38	0.000	11.420
					B	0.000	12.473		60.13	0.000	0.000
					C	0.000	76.824		9.76	0.000	0.000
T5 219.84-199.84	209.84	1.696	35	77.507	A	2.469	31.668	8.333	24.41	0.000	11.420
					B	3.459	13.283		49.77	0.000	0.000
					C	0.000	77.626		10.74	0.000	0.000
T6 199.84-179.84	189.84	1.649	34	77.507	A	0.000	31.453	8.333	26.49	0.000	11.420
					B	0.000	24.361		34.21	0.000	0.000
					C	0.000	77.623		10.74	0.000	0.000
T7 179.84-159.84	169.84	1.597	33	77.923	A	2.448	32.471	9.167	26.25	0.000	11.420
					B	1.458	50.855		17.52	0.000	0.000
					C	0.000	79.627		11.51	0.000	0.000
T8 159.84-139.84	149.84	1.541	32	77.507	A	0.000	31.658	8.333	26.32	0.000	11.420
					B	0.000	53.357		15.62	0.000	0.000
					C	0.000	79.986		10.42	0.000	0.000
T9 139.84-119.84	129.84	1.479	31	77.923	A	0.000	32.261	9.167	28.41	0.000	11.420
					B	0.000	55.985		16.37	0.000	0.000
					C	2.382	80.614		11.04	0.000	0.000
T10 119.84-99.84	109.84	1.41	29	77.923	A	2.448	32.468	9.167	26.25	0.000	11.420
					B	1.176	56.082		16.01	0.000	0.000
					C	6.090	80.683		10.56	0.000	0.000
T11 99.84-79.84	89.84	1.331	28	78.340	A	0.000	33.272	10.000	30.06	0.000	11.420
					B	0.000	64.530		15.50	0.000	0.000
					C	7.871	81.814		11.15	0.000	0.000
T12 79.84-59.84	69.84	1.239	26	78.340	A	0.000	33.063	10.000	30.24	0.000	11.420
					B	0.000	87.195		11.47	0.000	0.000
					C	7.871	81.863		11.14	0.000	0.000
T13 59.84-39.84	49.84	1.125	23	78.340	A	2.427	32.861	10.000	28.34	0.000	11.420
					B	0.000	87.235		11.46	0.000	0.000
					C	7.252	81.915		11.21	0.000	0.000
T14 39.84-19.84	29.84	1	21	78.340	A	0.000	33.063	10.000	30.24	0.000	11.420
					B	0.000	87.153		11.47	0.000	0.000

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T15 19.84-6.50	13.17	1	21	52.253	C	7.871	81.863		11.14	0.000	0.000
					A	0.000	22.053	6.670	30.25	0.000	7.617
					B	0.000	54.654		12.20	0.000	0.000
T16 6.50-0.00	3.25	1	21	13.606	C	3.873	55.330		11.27	0.000	0.000
					A	5.845	3.913	3.418	35.03	0.000	0.285
					B	5.339	5.223		32.36	0.000	0.000
					C	5.322	5.268		32.28	0.000	0.000

Tower Pressure - With Ice

G_H = 1.089 (base tower), 1.089 (upper structure)

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1 327.00-291.84	309.49	1.896	39	0.5000	34.428	A	0.000	34.428	34.428	100.00	0.000	0.000
						B	0.000	34.428		100.00	0.000	0.000
						C	0.000	34.428		100.00	0.000	0.000
T1 291.84-279.84	285.84	1.853	38	0.5000	47.004	A	3.500	11.622	6.000	39.68	0.000	12.852
						B	3.500	11.622		39.68	0.000	0.000
						C	3.500	12.789		36.83	0.000	0.000
T2 279.84-259.84	269.84	1.823	38	0.5000	78.340	A	0.000	19.118	10.000	52.31	0.000	21.420
						B	0.000	19.118		52.31	0.000	0.000
						C	32.105	19.274		19.46	0.000	0.000
T3 259.84-239.84	249.84	1.783	37	0.5000	78.757	A	3.479	19.613	10.833	46.91	0.000	21.420
						B	3.479	19.613		46.91	0.000	0.000
						C	41.321	19.545		17.80	0.000	0.000
T4 239.84-219.84	229.84	1.741	36	0.5000	78.757	A	0.000	33.063	10.833	32.77	0.000	21.420
						B	0.000	19.897		54.45	0.000	0.000
						C	85.200	16.801		10.62	0.000	0.000
T5 219.84-199.84	209.84	1.696	35	0.5000	79.173	A	1.969	46.603	11.667	24.02	0.000	21.420
						B	3.459	20.686		48.32	0.000	0.000
						C	83.902	17.575		11.50	0.000	0.000
T6 199.84-179.84	189.84	1.649	34	0.5000	79.173	A	0.000	46.428	11.667	25.13	0.000	21.420
						B	16.827	19.600		32.03	0.000	0.000
						C	85.200	17.680		11.34	0.000	0.000
T7 179.84-159.84	169.84	1.597	33	0.5000	79.590	A	1.948	47.382	12.500	25.34	0.000	21.420
						B	55.091	18.666		16.95	0.000	0.000
						C	83.773	20.167		12.03	0.000	0.000
T8 159.84-139.84	149.84	1.541	32	0.5000	79.173	A	0.000	46.588	11.667	25.04	0.000	21.420
						B	54.842	23.649		14.86	0.000	0.000
						C	85.200	21.154		10.97	0.000	0.000
T9 139.84-119.84	129.84	1.479	31	0.5000	79.590	A	0.000	47.215	12.500	26.47	0.000	21.420
						B	56.567	26.832		14.99	0.000	0.000
						C	88.591	21.476		11.36	0.000	0.000
T10 119.84-99.84	109.84	1.41	29	0.5000	79.590	A	1.948	47.376	12.500	25.34	0.000	21.420
						B	56.444	26.815		15.01	0.000	0.000
						C	92.280	21.479		10.99	0.000	0.000
T11 99.84-79.84	89.84	1.331	28	0.5000	80.007	A	0.000	48.159	13.333	27.69	0.000	21.420
						B	67.569	28.688		13.85	0.000	0.000
						C	96.127	23.060		11.19	0.000	0.000
T12 79.84-59.84	69.84	1.239	26	0.5000	80.007	A	0.000	47.990	13.333	27.78	0.000	21.420
						B	100.167	28.754		10.34	0.000	0.000
						C	96.127	23.247		11.17	0.000	0.000
T13 59.84-39.84	49.84	1.125	23	0.5000	80.007	A	1.927	47.829	13.333	26.80	0.000	21.420

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
						B	97.464	28.979		10.54	0.000	0.000
						C	93.841	23.437		11.37	0.000	0.000
T14 39.84-19.84	29.84	1	21	0.5000	80.007	A	0.000	47.990	13.333	27.78	0.000	21.420
						B	100.151	28.689		10.35	0.000	0.000
						C	96.127	23.247		11.17	0.000	0.000
T15 19.84-6.50	13.17	1	21	0.5000	53.364	A	0.000	32.008	8.893	27.78	0.000	14.287
						B	65.522	13.708		11.22	0.000	0.000
						C	62.875	16.822		11.16	0.000	0.000
T16 6.50-0.00	3.25	1	21	0.5000	14.169	A	5.746	5.846	4.557	39.32	0.000	0.535
						B	7.413	5.330		35.76	0.000	0.000
						C	7.168	5.498		35.98	0.000	0.000

Tower Pressure - Service

G_H = 1.089 (base tower), 1.089 (upper structure)

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1 327.00-291.84	309.49	1.896	39	31.497	A	0.000	31.497	31.497	100.00	0.000	0.000
					B	0.000	31.497		100.00	0.000	0.000
					C	0.000	31.497		100.00	0.000	0.000
T1 291.84-279.84	285.84	1.853	38	46.004	A	3.500	6.948	4.000	38.28	0.000	6.852
					B	3.500	6.948		38.28	0.000	0.000
					C	3.500	7.531		36.26	0.000	0.000
T2 279.84-259.84	269.84	1.823	38	76.673	A	0.000	11.669	6.667	57.13	0.000	11.420
					B	0.000	11.669		57.13	0.000	0.000
					C	0.000	34.527		19.31	0.000	0.000
T3 259.84-239.84	249.84	1.783	37	77.090	A	3.479	12.186	7.500	47.88	0.000	11.420
					B	3.479	12.186		47.88	0.000	0.000
					C	1.979	40.678		17.58	0.000	0.000
T4 239.84-219.84	229.84	1.741	36	77.090	A	0.000	21.812	7.500	34.38	0.000	11.420
					B	0.000	12.473		60.13	0.000	0.000
					C	0.000	76.824		9.76	0.000	0.000
T5 219.84-199.84	209.84	1.696	35	77.507	A	2.469	31.668	8.333	24.41	0.000	11.420
					B	3.459	13.283		49.77	0.000	0.000
					C	0.000	77.626		10.74	0.000	0.000
T6 199.84-179.84	189.84	1.649	34	77.507	A	0.000	31.453	8.333	26.49	0.000	11.420
					B	0.000	24.361		34.21	0.000	0.000
					C	0.000	77.623		10.74	0.000	0.000
T7 179.84-159.84	169.84	1.597	33	77.923	A	2.448	32.471	9.167	26.25	0.000	11.420
					B	1.458	50.855		17.52	0.000	0.000
					C	0.000	79.627		11.51	0.000	0.000
T8 159.84-139.84	149.84	1.541	32	77.507	A	0.000	31.658	8.333	26.32	0.000	11.420
					B	0.000	53.357		15.62	0.000	0.000
					C	0.000	79.986		10.42	0.000	0.000
T9 139.84-119.84	129.84	1.479	31	77.923	A	0.000	32.261	9.167	28.41	0.000	11.420
					B	0.000	55.985		16.37	0.000	0.000
					C	2.382	80.614		11.04	0.000	0.000
T10 119.84-99.84	109.84	1.41	29	77.923	A	2.448	32.468	9.167	26.25	0.000	11.420
					B	1.176	56.082		16.01	0.000	0.000
					C	6.090	80.683		10.56	0.000	0.000
T11 99.84-79.84	89.84	1.331	28	78.340	A	0.000	33.272	10.000	30.06	0.000	11.420
					B	0.000	64.530		15.50	0.000	0.000

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
					C	7.871	81.814		11.15	0.000	0.000
T12 79.84-59.84	69.84	1.239	26	78.340	A	0.000	33.063	10.000	30.24	0.000	11.420
					B	0.000	87.195		11.47	0.000	0.000
					C	7.871	81.863		11.14	0.000	0.000
T13 59.84-39.84	49.84	1.125	23	78.340	A	2.427	32.861	10.000	28.34	0.000	11.420
					B	0.000	87.235		11.46	0.000	0.000
					C	7.252	81.915		11.21	0.000	0.000
T14 39.84-19.84	29.84	1	21	78.340	A	0.000	33.063	10.000	30.24	0.000	11.420
					B	0.000	87.153		11.47	0.000	0.000
					C	7.871	81.863		11.14	0.000	0.000
T15 19.84-6.50	13.17	1	21	52.253	A	0.000	22.053	6.670	30.25	0.000	7.617
					B	0.000	54.654		12.20	0.000	0.000
					C	3.873	55.330		11.27	0.000	0.000
T16 6.50-0.00	3.25	1	21	13.606	A	5.845	3.913	3.418	35.03	0.000	0.285
					B	5.339	5.223		32.36	0.000	0.000
					C	5.322	5.268		32.28	0.000	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
L1 327.00-291.84	0.00	3139.09	A	1	0.59	1	1	1	31.497	795.71	22.63	C
			B	1	0.59	1	1	1	31.497			
			C	1	0.59	1	1	1	31.497			
T1 291.84-279.84	36.24	1165.49 TA 842.14	A	0.227	2.508	0.596	1	1	7.643	1114.98	92.91	C
			B	0.227	2.508	0.596	1	1	7.643			
			C	0.24	2.468	0.599	1	1	8.014			
T2 279.84-259.84	211.66	1297.93	A	0.152	2.763	0.582	1	1	6.789	2359.32	117.97	C
			B	0.152	2.763	0.582	1	1	6.789			
			C	0.45	1.973	0.673	1	1	23.251			
T3 259.84-239.84	249.60	1824.47 TA 842.14	A	0.203	2.585	0.591	1	1	10.682	2796.50	139.83	C
			B	0.203	2.585	0.591	1	1	10.682			
			C	0.553	1.84	0.726	1	1	31.517			
T4 239.84-219.84	560.60	1468.30	A	0.283	2.342	0.611	1	1	13.324	6513.70*	325.69	C
			B	0.162	2.729	0.583	1	1	7.276			
			C	0.997	2.093	1	1	1	76.824			
T5 219.84-199.84	622.00	2100.56 TA 842.14	A	0.44	1.99	0.669	1	1	23.652	6378.40*	318.92	C
			B	0.216	2.543	0.594	1	1	11.346			
			C	1	2.1	1	1	1	77.626			
T6 199.84-179.84	698.88	1580.50	A	0.406	2.053	0.654	1	1	20.570	6198.45*	309.92	C
			B	0.314	2.259	0.62	1	1	15.113			
			C	1	2.1	1	1	1	77.623			
T7 179.84-159.84	878.31	2311.03 TA 842.14	A	0.448	1.977	0.672	1	1	24.282	6034.46*	301.72	C
			B	0.671	1.777	0.8	1	1	42.135			
			C	1	2.1	1	1	1	79.627			
T8 159.84-139.84	905.49	1658.72	A	0.408	2.048	0.655	1	1	20.739	5793.26*	289.66	C
			B	0.688	1.776	0.812	1	1	43.309			
			C	1	2.1	1	1	1	79.986			
T9 139.84-119.84	925.66	1790.96	A	0.414	2.037	0.657	1	1	21.209	5588.76*	279.44	C
			B	0.718	1.778	0.833	1	1	46.649			
			C	1	2.1	1	1	1	82.996			
T10 119.84-99.84	952.33	2311.03 TA 842.14	A	0.448	1.977	0.672	1	1	24.279	5327.93*	266.40	C
			B	0.735	1.782	0.845	1	1	48.586			
			C	1	2.1	1	1	1	86.773			
T11 99.84-	1050.70	2099.69	A	0.425	2.017	0.662	1	1	22.026	5055.65*	252.78	C

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
79.84			B	0.824	1.835	0.916	1	1	59.113			
			C	1	2.1	1	1	1	89.685			
T12 79.84-59.84	1351.60	2021.47	A	0.422	2.022	0.661	1	1	21.850	4704.67*	235.23	C
			B	1	2.1	1	1	1	87.195			
			C	1	2.1	1	1	1	89.734			
T13 59.84-39.84	1351.60	2377.64 TA 842.14	A	0.45	1.973	0.673	1	1	24.558	4272.33*	213.62	C
			B	1	2.1	1	1	1	87.235			
			C	1	2.1	1	1	1	89.167			
T14 39.84-19.84	1351.35	2021.47	A	0.422	2.022	0.661	1	1	21.850	3797.55*	189.88	C
			B	1	2.1	1	1	1	87.153			
			C	1	2.1	1	1	1	89.734			
T15 19.84-6.50	874.68	1348.18	A	0.422	2.022	0.661	1	1	14.573	2532.97*	189.88	C
			B	1	2.1	1	1	1	54.654			
			C	1	2.1	1	1	1	59.203			
T16 6.50-0.00	32.04	810.75	A	0.717	1.778	0.832	1	1	9.102	411.50	63.31	C
			B	0.776	1.8	0.877	1	1	9.922			
			C	0.778	1.802	0.879	1	1	9.952			
Sum Weight:	12052.73	36380.13			*2A_g limit					69676.13		

Tower Forces - No Ice - Wind 45 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
L1 327.00-291.84	0.00	3139.09	A	1	0.59	1	1	1	31.497	795.71	22.63	C
			B	1	0.59	1	1	1	31.497			
			C	1	0.59	1	1	1	31.497			
T1 291.84-279.84	36.24	1165.49 TA 842.14	A	0.227	2.508	0.596	0.825	1	7.031	1051.68	87.64	C
			B	0.227	2.508	0.596	0.825	1	7.031			
			C	0.24	2.468	0.599	0.825	1	7.402			
T2 279.84-259.84	211.66	1297.93	A	0.152	2.763	0.582	0.825	1	6.789	2359.32	117.97	C
			B	0.152	2.763	0.582	0.825	1	6.789			
			C	0.45	1.973	0.673	0.825	1	23.251			
T3 259.84-239.84	249.60	1824.47 TA 842.14	A	0.203	2.585	0.591	0.825	1	10.073	2770.83	138.54	C
			B	0.203	2.585	0.591	0.825	1	10.073			
			C	0.553	1.84	0.726	0.825	1	31.170			
T4 239.84-219.84	560.60	1468.30	A	0.283	2.342	0.611	0.825	1	13.324	6513.70*	325.69	C
			B	0.162	2.729	0.583	0.825	1	7.276			
			C	0.997	2.093	1	0.825	1	76.824			
T5 219.84-199.84	622.00	2100.56 TA 842.14	A	0.44	1.99	0.669	0.825	1	23.220	6378.40*	318.92	C
			B	0.216	2.543	0.594	0.825	1	10.741			
			C	1	2.1	1	0.825	1	77.626			
T6 199.84-179.84	698.88	1580.50	A	0.406	2.053	0.654	0.825	1	20.570	6198.45*	309.92	C
			B	0.314	2.259	0.62	0.825	1	15.113			
			C	1	2.1	1	0.825	1	77.623			
T7 179.84-159.84	878.31	2311.03 TA 842.14	A	0.448	1.977	0.672	0.825	1	23.853	6034.46*	301.72	C
			B	0.671	1.777	0.8	0.825	1	41.880			
			C	1	2.1	1	0.825	1	79.627			
T8 159.84-139.84	905.49	1658.72	A	0.408	2.048	0.655	0.825	1	20.739	5793.26*	289.66	C
			B	0.688	1.776	0.812	0.825	1	43.309			
			C	1	2.1	1	0.825	1	79.986			
T9 139.84-119.84	925.66	1790.96	A	0.414	2.037	0.657	0.825	1	21.209	5588.76*	279.44	C
			B	0.718	1.778	0.833	0.825	1	46.649			
			C	1	2.1	1	0.825	1	82.579			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T10 119.84-99.84	952.33	2311.03 TA 842.14	A B C	0.448 0.735 1	1.977 1.782 2.1	0.672 0.845 1	0.825 0.825 0.825	1 1 1	23.850 48.380 85.707	5327.93*	266.40	C
T11 99.84-79.84	1050.70	2099.69	A B C	0.425 0.824 1	2.017 1.835 2.1	0.662 0.916 1	0.825 0.825 0.825	1 1 1	22.026 59.113 88.308	5055.65*	252.78	C
T12 79.84-59.84	1351.60	2021.47	A B C	0.422 1 1	2.022 2.1 2.1	0.661 1 1	0.825 0.825 0.825	1 1 1	21.850 87.195 88.357	4704.67*	235.23	C
T13 59.84-39.84	1351.60	2377.64 TA 842.14	A B C	0.45 1 1	1.973 2.1 2.1	0.673 1 1	0.825 0.825 0.825	1 1 1	24.134 87.235 87.897	4272.33*	213.62	C
T14 39.84-19.84	1351.35	2021.47	A B C	0.422 1 1	2.022 2.1 2.1	0.661 1 1	0.825 0.825 0.825	1 1 1	21.850 87.153 88.357	3797.55*	189.88	C
T15 19.84-6.50	874.68	1348.18	A B C	0.422 1 1	2.022 2.1 2.1	0.661 1 1	0.825 0.825 0.825	1 1 1	14.573 54.654 58.525	2532.97*	189.88	C
T16 6.50-0.00	32.04	810.75	A B C	0.717 0.776 0.778	1.778 1.8 1.802 *2Ag limit	0.832 0.877 0.879	0.825 0.825 0.825	1 1 1	8.079 8.987 9.021	373.60	57.48	C
Sum Weight:	12052.73	36380.13								69549.26		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
L1 327.00-291.84	0.00	3139.09	A B C	1 1 1	0.59 0.59 0.59	1 1 1	1 1 1	1 1 1	31.497 31.497 31.497	795.71	22.63	C
T1 291.84-279.84	36.24	1165.49 TA 842.14	A B C	0.227 0.227 0.24	2.508 2.508 2.468	0.596 0.596 0.599	0.8 0.8 0.8	1 1 1	6.943 6.943 7.314	1042.64	86.89	C
T2 279.84-259.84	211.66	1297.93	A B C	0.152 0.152 0.45	2.763 2.763 1.973	0.582 0.582 0.673	0.8 0.8 0.8	1 1 1	6.789 6.789 23.251	2359.32	117.97	C
T3 259.84-239.84	249.60	1824.47 TA 842.14	A B C	0.203 0.203 0.553	2.585 2.585 1.84	0.591 0.591 0.726	0.8 0.8 0.8	1 1 1	9.986 9.986 31.121	2767.17	138.36	C
T4 239.84-219.84	560.60	1468.30	A B C	0.283 0.162 0.997	2.342 2.729 2.093	0.611 0.583 1	0.8 0.8 0.8	1 1 1	13.324 7.276 76.824	6513.70*	325.69	C
T5 219.84-199.84	622.00	2100.56 TA 842.14	A B C	0.44 0.216 1	1.99 2.543 2.1	0.669 0.594 1	0.8 0.8 0.8	1 1 1	23.158 10.655 77.626	6378.40*	318.92	C
T6 199.84-179.84	698.88	1580.50	A B C	0.406 0.314 1	2.053 2.259 2.1	0.654 0.62 1	0.8 0.8 0.8	1 1 1	20.570 15.113 77.623	6198.45*	309.92	C
T7 179.84-159.84	878.31	2311.03 TA 842.14	A B C	0.448 0.671 1	1.977 1.777 2.1	0.672 0.8 1	0.8 0.8 0.8	1 1 1	23.792 41.843 79.627	6034.46*	301.72	C
T8 159.84-139.84	905.49	1658.72	A B	0.408 0.688	2.048 1.776	0.655 0.812	0.8 0.8	1 1	20.739 43.309	5793.26*	289.66	C

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
			C	1	2.1	1	0.8	1	79.986			
T9 139.84-119.84	925.66	1790.96	A	0.414	2.037	0.657	0.8	1	21.209	5588.76*	279.44	C
			B	0.718	1.778	0.833	0.8	1	46.649			
			C	1	2.1	1	0.8	1	82.520			
T10 119.84-99.84	952.33	2311.03 TA 842.14	A	0.448	1.977	0.672	0.8	1	23.789	5327.93*	266.40	C
			B	0.735	1.782	0.845	0.8	1	48.351			
			C	1	2.1	1	0.8	1	85.555			
T11 99.84-79.84	1050.70	2099.69	A	0.425	2.017	0.662	0.8	1	22.026	5055.65*	252.78	C
			B	0.824	1.835	0.916	0.8	1	59.113			
			C	1	2.1	1	0.8	1	88.111			
T12 79.84-59.84	1351.60	2021.47	A	0.422	2.022	0.661	0.8	1	21.850	4704.67*	235.23	C
			B	1	2.1	1	0.8	1	87.195			
			C	1	2.1	1	0.8	1	88.160			
T13 59.84-39.84	1351.60	2377.64 TA 842.14	A	0.45	1.973	0.673	0.8	1	24.073	4272.33*	213.62	C
			B	1	2.1	1	0.8	1	87.235			
			C	1	2.1	1	0.8	1	87.716			
T14 39.84-19.84	1351.35	2021.47	A	0.422	2.022	0.661	0.8	1	21.850	3797.55*	189.88	C
			B	1	2.1	1	0.8	1	87.153			
			C	1	2.1	1	0.8	1	88.160			
T15 19.84-6.50	874.68	1348.18	A	0.422	2.022	0.661	0.8	1	14.573	2532.97*	189.88	C
			B	1	2.1	1	0.8	1	54.654			
			C	1	2.1	1	0.8	1	58.428			
T16 6.50-0.00	32.04	810.75	A	0.717	1.778	0.832	0.8	1	7.933	368.19	56.64	C
			B	0.776	1.8	0.877	0.8	1	8.854			
			C	0.778	1.802	0.879	0.8	1	8.888			
Sum Weight:	12052.73	36380.13			*2A_g limit					69531.14		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
L1 327.00-291.84	0.00	3139.09	A	1	0.59	1	1	1	31.497	795.71	22.63	C
			B	1	0.59	1	1	1	31.497			
			C	1	0.59	1	1	1	31.497			
T1 291.84-279.84	36.24	1165.49 TA 842.14	A	0.227	2.508	0.596	0.85	1	7.118	1060.72	88.39	C
			B	0.227	2.508	0.596	0.85	1	7.118			
			C	0.24	2.468	0.599	0.85	1	7.489			
T2 279.84-259.84	211.66	1297.93	A	0.152	2.763	0.582	0.85	1	6.789	2359.32	117.97	C
			B	0.152	2.763	0.582	0.85	1	6.789			
			C	0.45	1.973	0.673	0.85	1	23.251			
T3 259.84-239.84	249.60	1824.47 TA 842.14	A	0.203	2.585	0.591	0.85	1	10.160	2774.50	138.72	C
			B	0.203	2.585	0.591	0.85	1	10.160			
			C	0.553	1.84	0.726	0.85	1	31.220			
T4 239.84-219.84	560.60	1468.30	A	0.283	2.342	0.611	0.85	1	13.324	6513.70*	325.69	C
			B	0.162	2.729	0.583	0.85	1	7.276			
			C	0.997	2.093	1	0.85	1	76.824			
T5 219.84-199.84	622.00	2100.56 TA 842.14	A	0.44	1.99	0.669	0.85	1	23.282	6378.40*	318.92	C
			B	0.216	2.543	0.594	0.85	1	10.828			
			C	1	2.1	1	0.85	1	77.626			
T6 199.84-179.84	698.88	1580.50	A	0.406	2.053	0.654	0.85	1	20.570	6198.45*	309.92	C
			B	0.314	2.259	0.62	0.85	1	15.113			
			C	1	2.1	1	0.85	1	77.623			
T7 179.84-	878.31	2311.03	A	0.448	1.977	0.672	0.85	1	23.915	6034.46*	301.72	C

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
159.84		TA 842.14	B	0.671	1.777	0.8	0.85	1	41.916			
			C	1	2.1	1	0.85	1	79.627			
T8 159.84-139.84	905.49	1658.72	A	0.408	2.048	0.655	0.85	1	20.739	5793.26*	289.66	C
			B	0.688	1.776	0.812	0.85	1	43.309			
			C	1	2.1	1	0.85	1	79.986			
T9 139.84-119.84	925.66	1790.96	A	0.414	2.037	0.657	0.85	1	21.209	5588.76*	279.44	C
			B	0.718	1.778	0.833	0.85	1	46.649			
			C	1	2.1	1	0.85	1	82.639			
T10 119.84-99.84	952.33	2311.03	A	0.448	1.977	0.672	0.85	1	23.912	5327.93*	266.40	C
		TA 842.14	B	0.735	1.782	0.845	0.85	1	48.410			
			C	1	2.1	1	0.85	1	85.859			
T11 99.84-79.84	1050.70	2099.69	A	0.425	2.017	0.662	0.85	1	22.026	5055.65*	252.78	C
			B	0.824	1.835	0.916	0.85	1	59.113			
			C	1	2.1	1	0.85	1	88.504			
T12 79.84-59.84	1351.60	2021.47	A	0.422	2.022	0.661	0.85	1	21.850	4704.67*	235.23	C
			B	1	2.1	1	0.85	1	87.195			
			C	1	2.1	1	0.85	1	88.553			
T13 59.84-39.84	1351.60	2377.64	A	0.45	1.973	0.673	0.85	1	24.194	4272.33*	213.62	C
		TA 842.14	B	1	2.1	1	0.85	1	87.235			
			C	1	2.1	1	0.85	1	88.079			
T14 39.84-19.84	1351.35	2021.47	A	0.422	2.022	0.661	0.85	1	21.850	3797.55*	189.88	C
			B	1	2.1	1	0.85	1	87.153			
			C	1	2.1	1	0.85	1	88.553			
T15 19.84-6.50	874.68	1348.18	A	0.422	2.022	0.661	0.85	1	14.573	2532.97*	189.88	C
			B	1	2.1	1	0.85	1	54.654			
			C	1	2.1	1	0.85	1	58.622			
T16 6.50-0.00	32.04	810.75	A	0.717	1.778	0.832	0.85	1	8.225	379.02	58.31	C
			B	0.776	1.8	0.877	0.85	1	9.121			
			C	0.778	1.802	0.879	0.85	1	9.154			
Sum Weight:	12052.73	36380.13			*2A_g limit					69567.39		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
L1 327.00-291.84	0.00	3380.72	A	1	0.59	1	1	1	34.428	869.72	24.74	C
			B	1	0.59	1	1	1	34.428			
			C	1	0.59	1	1	1	34.428			
T1 291.84-279.84	96.30	1411.16	A	0.322	2.24	0.623	1	1	10.738	1593.98	132.83	C
		TA	B	0.322	2.24	0.623	1	1	10.738			
		1035.67	C	0.347	2.18	0.631	1	1	11.573			
T2 279.84-259.84	627.90	1562.29	A	0.244	2.456	0.6	1	1	11.478	4350.42	217.52	C
			B	0.244	2.456	0.6	1	1	11.478			
			C	0.656	1.78	0.789	1	1	47.319			
T3 259.84-239.84	744.15	2176.53	A	0.293	2.314	0.614	1	1	15.519	5094.83	254.74	C
		TA	B	0.293	2.314	0.614	1	1	15.519			
		1035.67	C	0.773	1.798	0.875	1	1	58.416			
T4 239.84-219.84	1543.47	1741.83	A	0.42	2.026	0.66	1	1	21.818	7038.15*	351.91	C
			B	0.253	2.43	0.603	1	1	11.989			
			C	1	2.1	1	1	1	102.001			
T5 219.84-199.84	1694.32	2468.59	A	0.613	1.796	0.762	1	1	37.478	6889.38*	344.47	C
		TA	B	0.305	2.283	0.617	1	1	16.231			
		1035.67	C	1	2.1	1	1	1	101.477			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T6 199.84-179.84	1933.40	1856.37	A	0.586	1.813	0.745	1	1	34.607	6695.01*	334.75	C
			B	0.46	1.957	0.678	1	1	30.115			
			C	1	2.1	1	1	1	102.880			
T7 179.84-159.84	2489.98	2688.22	A	0.62	1.793	0.766	1	1	38.239	6515.48*	325.77	C
		TA	B	0.927	1.964	1	1	1	73.757			
		1035.67	C	1	2.1	1	1	1	103.941			
T8 159.84-139.84	2567.95	1941.41	A	0.588	1.812	0.747	1	1	34.782	6257.36*	312.87	C
			B	0.991	2.082	1	1	1	78.491			
			C	1	2.1	1	1	1	106.354			
T9 139.84-119.84	2638.97	2076.00	A	0.593	1.808	0.749	1	1	35.387	6034.24*	301.71	C
			B	1	2.1	1	1	1	83.398			
			C	1	2.1	1	1	1	110.067			
T10 119.84-99.84	2723.57	2688.22	A	0.62	1.793	0.766	1	1	38.232	5752.63*	287.63	C
		TA	B	1	2.1	1	1	1	83.259			
		1035.67	C	1	2.1	1	1	1	113.759			
T11 99.84-79.84	3033.36	2400.70	A	0.602	1.803	0.755	1	1	36.350	5456.64*	272.83	C
			B	1	2.1	1	1	1	96.256			
			C	1	2.1	1	1	1	119.186			
T12 79.84-59.84	3965.02	2315.67	A	0.6	1.804	0.753	1	1	36.160	5077.83*	253.89	C
			B	1	2.1	1	1	1	128.921			
			C	1	2.1	1	1	1	119.373			
T13 59.84-39.84	3965.02	2750.37	A	0.622	1.792	0.767	1	1	38.624	4611.20*	230.56	C
		TA	B	1	2.1	1	1	1	126.443			
		1035.67	C	1	2.1	1	1	1	117.278			
T14 39.84-19.84	3964.25	2315.67	A	0.6	1.804	0.753	1	1	36.160	4098.76*	204.94	C
			B	1	2.1	1	1	1	128.840			
			C	1	2.1	1	1	1	119.373			
T15 19.84-6.50	2568.43	1544.37	A	0.6	1.804	0.753	1	1	24.117	2733.87*	204.94	C
			B	1	2.1	1	1	1	79.229			
			C	1	2.1	1	1	1	79.698			
T16 6.50-0.00	93.90	962.05	A	0.818	1.831	0.911	1	1	11.073	561.63	86.41	B
			B	0.899	1.923	0.982	1	1	12.649			
			C	0.894	1.916	0.978	1	1	12.543			
Sum Weight:	34649.97	42494.21			*2A_g limit					79631.13		

Tower Forces - With Ice - Wind 45 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
L1 327.00-291.84	0.00	3380.72	A	1	0.59	1	1	1	34.428	869.72	24.74	C
			B	1	0.59	1	1	1	34.428			
			C	1	0.59	1	1	1	34.428			
T1 291.84-279.84	96.30	1411.16	A	0.322	2.24	0.623	0.825	1	10.126	1538.09	128.17	C
		TA	B	0.322	2.24	0.623	0.825	1	10.126			
		1035.67	C	0.347	2.18	0.631	0.825	1	10.961			
T2 279.84-259.84	627.90	1562.29	A	0.244	2.456	0.6	0.825	1	11.478	3938.61	196.93	C
			B	0.244	2.456	0.6	0.825	1	11.478			
			C	0.656	1.78	0.789	0.825	1	41.701			
T3 259.84-239.84	744.15	2176.53	A	0.293	2.314	0.614	0.825	1	14.910	4570.96	228.55	C
		TA	B	0.293	2.314	0.614	0.825	1	14.910			
		1035.67	C	0.773	1.798	0.875	0.825	1	51.185			
T4 239.84-219.84	1543.47	1741.83	A	0.42	2.026	0.66	0.825	1	21.818	7038.15*	351.91	C
			B	0.253	2.43	0.603	0.825	1	11.989			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
			C	1	2.1	1	0.825	1	87.091			
T5 219.84-199.84	1694.32	2468.59	A	0.613	1.796	0.762	0.825	1	37.133	6889.38*	344.47	C
		TA	B	0.305	2.283	0.617	0.825	1	15.626			
		1035.67	C	1	2.1	1	0.825	1	86.794			
T6 199.84-179.84	1933.40	1856.37	A	0.586	1.813	0.745	0.825	1	34.607	6695.01*	334.75	C
			B	0.46	1.957	0.678	0.825	1	27.170			
			C	1	2.1	1	0.825	1	87.970			
T7 179.84-159.84	2489.98	2688.22	A	0.62	1.793	0.766	0.825	1	37.898	6515.48*	325.77	C
		TA	B	0.927	1.964	1	0.825	1	64.116			
		1035.67	C	1	2.1	1	0.825	1	89.280			
T8 159.84-139.84	2567.95	1941.41	A	0.588	1.812	0.747	0.825	1	34.782	6257.36*	312.87	C
			B	0.991	2.082	1	0.825	1	68.893			
			C	1	2.1	1	0.825	1	91.444			
T9 139.84-119.84	2638.97	2076.00	A	0.593	1.808	0.749	0.825	1	35.387	6034.24*	301.71	C
			B	1	2.1	1	0.825	1	73.499			
			C	1	2.1	1	0.825	1	94.564			
T10 119.84-99.84	2723.57	2688.22	A	0.62	1.793	0.766	0.825	1	37.891	5752.63*	287.63	C
		TA	B	1	2.1	1	0.825	1	73.382			
		1035.67	C	1	2.1	1	0.825	1	97.610			
T11 99.84-79.84	3033.36	2400.70	A	0.602	1.803	0.755	0.825	1	36.350	5456.64*	272.83	C
			B	1	2.1	1	0.825	1	84.432			
			C	1	2.1	1	0.825	1	102.364			
T12 79.84-59.84	3965.02	2315.67	A	0.6	1.804	0.753	0.825	1	36.160	5077.83*	253.89	C
			B	1	2.1	1	0.825	1	111.392			
			C	1	2.1	1	0.825	1	102.551			
T13 59.84-39.84	3965.02	2750.37	A	0.622	1.792	0.767	0.825	1	38.287	4611.20*	230.56	C
		TA	B	1	2.1	1	0.825	1	109.387			
		1035.67	C	1	2.1	1	0.825	1	100.856			
T14 39.84-19.84	3964.25	2315.67	A	0.6	1.804	0.753	0.825	1	36.160	4098.76*	204.94	C
			B	1	2.1	1	0.825	1	111.313			
			C	1	2.1	1	0.825	1	102.551			
T15 19.84-6.50	2568.43	1544.37	A	0.6	1.804	0.753	0.825	1	24.117	2733.87*	204.94	C
			B	1	2.1	1	0.825	1	67.763			
			C	1	2.1	1	0.825	1	68.694			
T16 6.50-0.00	93.90	962.05	A	0.818	1.831	0.911	0.825	1	10.068	505.28	77.74	B
			B	0.899	1.923	0.982	0.825	1	11.352			
			C	0.894	1.916	0.978	0.825	1	11.289			
Sum Weight:	34649.97	42494.21			*2A_g limit					78583.21		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
L1 327.00-291.84	0.00	3380.72	A	1	0.59	1	1	1	34.428	869.72	24.74	C
			B	1	0.59	1	1	1	34.428			
			C	1	0.59	1	1	1	34.428			
T1 291.84-279.84	96.30	1411.16	A	0.322	2.24	0.623	0.8	1	10.038	1530.10	127.51	C
		TA	B	0.322	2.24	0.623	0.8	1	10.038			
		1035.67	C	0.347	2.18	0.631	0.8	1	10.873			
T2 279.84-259.84	627.90	1562.29	A	0.244	2.456	0.6	0.8	1	11.478	3879.78	193.99	C
			B	0.244	2.456	0.6	0.8	1	11.478			
			C	0.656	1.78	0.789	0.8	1	40.898			
T3 259.84-	744.15	2176.53	A	0.293	2.314	0.614	0.8	1	14.823	4496.12	224.81	C

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
239.84		TA	B	0.293	2.314	0.614	0.8	1	14.823			
		1035.67	C	0.773	1.798	0.875	0.8	1	50.152			
T4 239.84-219.84	1543.47	1741.83	A	0.42	2.026	0.66	0.8	1	21.818	7038.15*	351.91	C
			B	0.253	2.43	0.603	0.8	1	11.989			
			C	1	2.1	1	0.8	1	84.961			
T5 219.84-199.84	1694.32	2468.59	A	0.613	1.796	0.762	0.8	1	37.084	6889.38*	344.47	C
		TA	B	0.305	2.283	0.617	0.8	1	15.539			
		1035.67	C	1	2.1	1	0.8	1	84.697			
T6 199.84-179.84	1933.40	1856.37	A	0.586	1.813	0.745	0.8	1	34.607	6695.01*	334.75	C
			B	0.46	1.957	0.678	0.8	1	26.750			
			C	1	2.1	1	0.8	1	85.840			
T7 179.84-159.84	2489.98	2688.22	A	0.62	1.793	0.766	0.8	1	37.849	6515.48*	325.77	C
		TA	B	0.927	1.964	1	0.8	1	62.739			
		1035.67	C	1	2.1	1	0.8	1	87.186			
T8 159.84-139.84	2567.95	1941.41	A	0.588	1.812	0.747	0.8	1	34.782	6257.36*	312.87	C
			B	0.991	2.082	1	0.8	1	67.522			
			C	1	2.1	1	0.8	1	89.314			
T9 139.84-119.84	2638.97	2076.00	A	0.593	1.808	0.749	0.8	1	35.387	6034.24*	301.71	C
			B	1	2.1	1	0.8	1	72.085			
			C	1	2.1	1	0.8	1	92.349			
T10 119.84-99.84	2723.57	2688.22	A	0.62	1.793	0.766	0.8	1	37.842	5752.63*	287.63	C
		TA	B	1	2.1	1	0.8	1	71.971			
		1035.67	C	1	2.1	1	0.8	1	95.303			
T11 99.84-79.84	3033.36	2400.70	A	0.602	1.803	0.755	0.8	1	36.350	5456.64*	272.83	C
			B	1	2.1	1	0.8	1	82.743			
			C	1	2.1	1	0.8	1	99.961			
T12 79.84-59.84	3965.02	2315.67	A	0.6	1.804	0.753	0.8	1	36.160	5077.83*	253.89	C
			B	1	2.1	1	0.8	1	108.888			
			C	1	2.1	1	0.8	1	100.148			
T13 59.84-39.84	3965.02	2750.37	A	0.622	1.792	0.767	0.8	1	38.239	4611.20*	230.56	C
		TA	B	1	2.1	1	0.8	1	106.950			
		1035.67	C	1	2.1	1	0.8	1	98.510			
T14 39.84-19.84	3964.25	2315.67	A	0.6	1.804	0.753	0.8	1	36.160	4098.76*	204.94	C
			B	1	2.1	1	0.8	1	108.810			
			C	1	2.1	1	0.8	1	100.148			
T15 19.84-6.50	2568.43	1544.37	A	0.6	1.804	0.753	0.8	1	24.117	2733.87*	204.94	C
			B	1	2.1	1	0.8	1	66.125			
			C	1	2.1	1	0.8	1	67.123			
T16 6.50-0.00	93.90	962.05	A	0.818	1.831	0.911	0.8	1	9.924	497.23	76.50	B
			B	0.899	1.923	0.982	0.8	1	11.167			
			C	0.894	1.916	0.978	0.8	1	11.109			
Sum Weight:	34649.97	42494.21			*$2A_g$ limit					78433.50		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
L1 327.00-291.84	0.00	3380.72	A	1	0.59	1	1	1	34.428	869.72	24.74	C
			B	1	0.59	1	1	1	34.428			
			C	1	0.59	1	1	1	34.428			
T1 291.84-279.84	96.30	1411.16	A	0.322	2.24	0.623	0.85	1	10.213	1546.07	128.84	C
		TA	B	0.322	2.24	0.623	0.85	1	10.213			
		1035.67	C	0.347	2.18	0.631	0.85	1	11.048			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T2 279.84-259.84	627.90	1562.29	A	0.244	2.456	0.6	0.85	1	11.478	3997.44	199.87	C
			B	0.244	2.456	0.6	0.85	1	11.478			
			C	0.656	1.78	0.789	0.85	1	42.503			
T3 259.84-239.84	744.15	2176.53	A	0.293	2.314	0.614	0.85	1	14.997	4645.80	232.29	C
		TA	B	0.293	2.314	0.614	0.85	1	14.997			
		1035.67	C	0.773	1.798	0.875	0.85	1	52.218			
T4 239.84-219.84	1543.47	1741.83	A	0.42	2.026	0.66	0.85	1	21.818	7038.15*	351.91	C
			B	0.253	2.43	0.603	0.85	1	11.989			
			C	1	2.1	1	0.85	1	89.221			
T5 219.84-199.84	1694.32	2468.59	A	0.613	1.796	0.762	0.85	1	37.183	6889.38*	344.47	C
		TA	B	0.305	2.283	0.617	0.85	1	15.712			
		1035.67	C	1	2.1	1	0.85	1	88.892			
T6 199.84-179.84	1933.40	1856.37	A	0.586	1.813	0.745	0.85	1	34.607	6695.01*	334.75	C
			B	0.46	1.957	0.678	0.85	1	27.591			
			C	1	2.1	1	0.85	1	90.100			
T7 179.84-159.84	2489.98	2688.22	A	0.62	1.793	0.766	0.85	1	37.947	6515.48*	325.77	C
		TA	B	0.927	1.964	1	0.85	1	65.494			
		1035.67	C	1	2.1	1	0.85	1	91.375			
T8 159.84-139.84	2567.95	1941.41	A	0.588	1.812	0.747	0.85	1	34.782	6257.36*	312.87	C
			B	0.991	2.082	1	0.85	1	70.264			
			C	1	2.1	1	0.85	1	93.574			
T9 139.84-119.84	2638.97	2076.00	A	0.593	1.808	0.749	0.85	1	35.387	6034.24*	301.71	C
			B	1	2.1	1	0.85	1	74.913			
			C	1	2.1	1	0.85	1	96.779			
T10 119.84-99.84	2723.57	2688.22	A	0.62	1.793	0.766	0.85	1	37.939	5752.63*	287.63	C
		TA	B	1	2.1	1	0.85	1	74.793			
		1035.67	C	1	2.1	1	0.85	1	99.917			
T11 99.84-79.84	3033.36	2400.70	A	0.602	1.803	0.755	0.85	1	36.350	5456.64*	272.83	C
			B	1	2.1	1	0.85	1	86.121			
			C	1	2.1	1	0.85	1	104.767			
T12 79.84-59.84	3965.02	2315.67	A	0.6	1.804	0.753	0.85	1	36.160	5077.83*	253.89	C
			B	1	2.1	1	0.85	1	113.896			
			C	1	2.1	1	0.85	1	104.954			
T13 59.84-39.84	3965.02	2750.37	A	0.622	1.792	0.767	0.85	1	38.335	4611.20*	230.56	C
		TA	B	1	2.1	1	0.85	1	111.824			
		1035.67	C	1	2.1	1	0.85	1	103.202			
T14 39.84-19.84	3964.25	2315.67	A	0.6	1.804	0.753	0.85	1	36.160	4098.76*	204.94	C
			B	1	2.1	1	0.85	1	113.817			
			C	1	2.1	1	0.85	1	104.954			
T15 19.84-6.50	2568.43	1544.37	A	0.6	1.804	0.753	0.85	1	24.117	2733.87*	204.94	C
			B	1	2.1	1	0.85	1	69.401			
			C	1	2.1	1	0.85	1	70.266			
T16 6.50-0.00	93.90	962.05	A	0.818	1.831	0.911	0.85	1	10.211	513.33	78.97	B
			B	0.899	1.923	0.982	0.85	1	11.537			
			C	0.894	1.916	0.978	0.85	1	11.468			
Sum Weight:	34649.97	42494.21			*$2A_g$ limit					78732.91		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
L1 327.00-291.84	0.00	3139.09	A	1	0.59	1	1	1	31.497	795.71	22.63	C
			B	1	0.59	1	1	1	31.497			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
			C	1	0.59	1	1	1	31.497			
T1 291.84-279.84	36.24	1165.49 TA 842.14	A	0.227	2.508	0.596	1	1	7.643	1114.98	92.91	C
			B	0.227	2.508	0.596	1	1	7.643			
			C	0.24	2.468	0.599	1	1	8.014			
T2 279.84-259.84	211.66	1297.93	A	0.152	2.763	0.582	1	1	6.789	2359.32	117.97	C
			B	0.152	2.763	0.582	1	1	6.789			
			C	0.45	1.973	0.673	1	1	23.251			
T3 259.84-239.84	249.60	1824.47 TA 842.14	A	0.203	2.585	0.591	1	1	10.682	2796.50	139.83	C
			B	0.203	2.585	0.591	1	1	10.682			
			C	0.553	1.84	0.726	1	1	31.517			
T4 239.84-219.84	560.60	1468.30	A	0.283	2.342	0.611	1	1	13.324	6513.70*	325.69	C
			B	0.162	2.729	0.583	1	1	7.276			
			C	0.997	2.093	1	1	1	76.824			
T5 219.84-199.84	622.00	2100.56 TA 842.14	A	0.44	1.99	0.669	1	1	23.652	6378.40*	318.92	C
			B	0.216	2.543	0.594	1	1	11.346			
			C	1	2.1	1	1	1	77.626			
T6 199.84-179.84	698.88	1580.50	A	0.406	2.053	0.654	1	1	20.570	6198.45*	309.92	C
			B	0.314	2.259	0.62	1	1	15.113			
			C	1	2.1	1	1	1	77.623			
T7 179.84-159.84	878.31	2311.03 TA 842.14	A	0.448	1.977	0.672	1	1	24.282	6034.46*	301.72	C
			B	0.671	1.777	0.8	1	1	42.135			
			C	1	2.1	1	1	1	79.627			
T8 159.84-139.84	905.49	1658.72	A	0.408	2.048	0.655	1	1	20.739	5793.26*	289.66	C
			B	0.688	1.776	0.812	1	1	43.309			
			C	1	2.1	1	1	1	79.986			
T9 139.84-119.84	925.66	1790.96	A	0.414	2.037	0.657	1	1	21.209	5588.76*	279.44	C
			B	0.718	1.778	0.833	1	1	46.649			
			C	1	2.1	1	1	1	82.996			
T10 119.84-99.84	952.33	2311.03 TA 842.14	A	0.448	1.977	0.672	1	1	24.279	5327.93*	266.40	C
			B	0.735	1.782	0.845	1	1	48.586			
			C	1	2.1	1	1	1	86.773			
T11 99.84-79.84	1050.70	2099.69	A	0.425	2.017	0.662	1	1	22.026	5055.65*	252.78	C
			B	0.824	1.835	0.916	1	1	59.113			
			C	1	2.1	1	1	1	89.685			
T12 79.84-59.84	1351.60	2021.47	A	0.422	2.022	0.661	1	1	21.850	4704.67*	235.23	C
			B	1	2.1	1	1	1	87.195			
			C	1	2.1	1	1	1	89.734			
T13 59.84-39.84	1351.60	2377.64 TA 842.14	A	0.45	1.973	0.673	1	1	24.558	4272.33*	213.62	C
			B	1	2.1	1	1	1	87.235			
			C	1	2.1	1	1	1	89.167			
T14 39.84-19.84	1351.35	2021.47	A	0.422	2.022	0.661	1	1	21.850	3797.55*	189.88	C
			B	1	2.1	1	1	1	87.153			
			C	1	2.1	1	1	1	89.734			
T15 19.84-6.50	874.68	1348.18	A	0.422	2.022	0.661	1	1	14.573	2532.97*	189.88	C
			B	1	2.1	1	1	1	54.654			
			C	1	2.1	1	1	1	59.203			
T16 6.50-0.00	32.04	810.75	A	0.717	1.778	0.832	1	1	9.102	411.50	63.31	C
			B	0.776	1.8	0.877	1	1	9.922			
			C	0.778	1.802	0.879	1	1	9.952			
Sum Weight:	12052.73	36380.13			*2A_g limit					69676.13		

Tower Forces - Service - Wind 45 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
L1 327.00-291.84	0.00	3139.09	A	1	0.59	1	1	1	31.497	795.71	22.63	C
			B	1	0.59	1	1	1	31.497			
			C	1	0.59	1	1	1	31.497			
T1 291.84-279.84	36.24	1165.49 TA 842.14	A	0.227	2.508	0.596	0.825	1	7.031	1051.68	87.64	C
			B	0.227	2.508	0.596	0.825	1	7.031			
			C	0.24	2.468	0.599	0.825	1	7.402			
T2 279.84-259.84	211.66	1297.93	A	0.152	2.763	0.582	0.825	1	6.789	2359.32	117.97	C
			B	0.152	2.763	0.582	0.825	1	6.789			
			C	0.45	1.973	0.673	0.825	1	23.251			
T3 259.84-239.84	249.60	1824.47 TA 842.14	A	0.203	2.585	0.591	0.825	1	10.073	2770.83	138.54	C
			B	0.203	2.585	0.591	0.825	1	10.073			
			C	0.553	1.84	0.726	0.825	1	31.170			
T4 239.84-219.84	560.60	1468.30	A	0.283	2.342	0.611	0.825	1	13.324	6513.70*	325.69	C
			B	0.162	2.729	0.583	0.825	1	7.276			
			C	0.997	2.093	1	0.825	1	76.824			
T5 219.84-199.84	622.00	2100.56 TA 842.14	A	0.44	1.99	0.669	0.825	1	23.220	6378.40*	318.92	C
			B	0.216	2.543	0.594	0.825	1	10.741			
			C	1	2.1	1	0.825	1	77.626			
T6 199.84-179.84	698.88	1580.50	A	0.406	2.053	0.654	0.825	1	20.570	6198.45*	309.92	C
			B	0.314	2.259	0.62	0.825	1	15.113			
			C	1	2.1	1	0.825	1	77.623			
T7 179.84-159.84	878.31	2311.03 TA 842.14	A	0.448	1.977	0.672	0.825	1	23.853	6034.46*	301.72	C
			B	0.671	1.777	0.8	0.825	1	41.880			
			C	1	2.1	1	0.825	1	79.627			
T8 159.84-139.84	905.49	1658.72	A	0.408	2.048	0.655	0.825	1	20.739	5793.26*	289.66	C
			B	0.688	1.776	0.812	0.825	1	43.309			
			C	1	2.1	1	0.825	1	79.986			
T9 139.84-119.84	925.66	1790.96	A	0.414	2.037	0.657	0.825	1	21.209	5588.76*	279.44	C
			B	0.718	1.778	0.833	0.825	1	46.649			
			C	1	2.1	1	0.825	1	82.579			
T10 119.84-99.84	952.33	2311.03 TA 842.14	A	0.448	1.977	0.672	0.825	1	23.850	5327.93*	266.40	C
			B	0.735	1.782	0.845	0.825	1	48.380			
			C	1	2.1	1	0.825	1	85.707			
T11 99.84-79.84	1050.70	2099.69	A	0.425	2.017	0.662	0.825	1	22.026	5055.65*	252.78	C
			B	0.824	1.835	0.916	0.825	1	59.113			
			C	1	2.1	1	0.825	1	88.308			
T12 79.84-59.84	1351.60	2021.47	A	0.422	2.022	0.661	0.825	1	21.850	4704.67*	235.23	C
			B	1	2.1	1	0.825	1	87.195			
			C	1	2.1	1	0.825	1	88.357			
T13 59.84-39.84	1351.60	2377.64 TA 842.14	A	0.45	1.973	0.673	0.825	1	24.134	4272.33*	213.62	C
			B	1	2.1	1	0.825	1	87.235			
			C	1	2.1	1	0.825	1	87.897			
T14 39.84-19.84	1351.35	2021.47	A	0.422	2.022	0.661	0.825	1	21.850	3797.55*	189.88	C
			B	1	2.1	1	0.825	1	87.153			
			C	1	2.1	1	0.825	1	88.357			
T15 19.84-6.50	874.68	1348.18	A	0.422	2.022	0.661	0.825	1	14.573	2532.97*	189.88	C
			B	1	2.1	1	0.825	1	54.654			
			C	1	2.1	1	0.825	1	58.525			
T16 6.50-0.00	32.04	810.75	A	0.717	1.778	0.832	0.825	1	8.079	373.60	57.48	C
			B	0.776	1.8	0.877	0.825	1	8.987			
			C	0.778	1.802	0.879	0.825	1	9.021			
Sum Weight:	12052.73	36380.13			*2A_g limit					69549.26		

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
L1 327.00-291.84	0.00	3139.09	A	1	0.59	1	1	1	31.497	795.71	22.63	C
			B	1	0.59	1	1	1	31.497			
			C	1	0.59	1	1	1	31.497			
T1 291.84-279.84	36.24	1165.49 TA 842.14	A	0.227	2.508	0.596	0.8	1	6.943	1042.64	86.89	C
			B	0.227	2.508	0.596	0.8	1	6.943			
			C	0.24	2.468	0.599	0.8	1	7.314			
T2 279.84-259.84	211.66	1297.93	A	0.152	2.763	0.582	0.8	1	6.789	2359.32	117.97	C
			B	0.152	2.763	0.582	0.8	1	6.789			
			C	0.45	1.973	0.673	0.8	1	23.251			
T3 259.84-239.84	249.60	1824.47 TA 842.14	A	0.203	2.585	0.591	0.8	1	9.986	2767.17	138.36	C
			B	0.203	2.585	0.591	0.8	1	9.986			
			C	0.553	1.84	0.726	0.8	1	31.121			
T4 239.84-219.84	560.60	1468.30	A	0.283	2.342	0.611	0.8	1	13.324	6513.70*	325.69	C
			B	0.162	2.729	0.583	0.8	1	7.276			
			C	0.997	2.093	1	0.8	1	76.824			
T5 219.84-199.84	622.00	2100.56 TA 842.14	A	0.44	1.99	0.669	0.8	1	23.158	6378.40*	318.92	C
			B	0.216	2.543	0.594	0.8	1	10.655			
			C	1	2.1	1	0.8	1	77.626			
T6 199.84-179.84	698.88	1580.50	A	0.406	2.053	0.654	0.8	1	20.570	6198.45*	309.92	C
			B	0.314	2.259	0.62	0.8	1	15.113			
			C	1	2.1	1	0.8	1	77.623			
T7 179.84-159.84	878.31	2311.03 TA 842.14	A	0.448	1.977	0.672	0.8	1	23.792	6034.46*	301.72	C
			B	0.671	1.777	0.8	0.8	1	41.843			
			C	1	2.1	1	0.8	1	79.627			
T8 159.84-139.84	905.49	1658.72	A	0.408	2.048	0.655	0.8	1	20.739	5793.26*	289.66	C
			B	0.688	1.776	0.812	0.8	1	43.309			
			C	1	2.1	1	0.8	1	79.986			
T9 139.84-119.84	925.66	1790.96	A	0.414	2.037	0.657	0.8	1	21.209	5588.76*	279.44	C
			B	0.718	1.778	0.833	0.8	1	46.649			
			C	1	2.1	1	0.8	1	82.520			
T10 119.84-99.84	952.33	2311.03 TA 842.14	A	0.448	1.977	0.672	0.8	1	23.789	5327.93*	266.40	C
			B	0.735	1.782	0.845	0.8	1	48.351			
			C	1	2.1	1	0.8	1	85.555			
T11 99.84-79.84	1050.70	2099.69	A	0.425	2.017	0.662	0.8	1	22.026	5055.65*	252.78	C
			B	0.824	1.835	0.916	0.8	1	59.113			
			C	1	2.1	1	0.8	1	88.111			
T12 79.84-59.84	1351.60	2021.47	A	0.422	2.022	0.661	0.8	1	21.850	4704.67*	235.23	C
			B	1	2.1	1	0.8	1	87.195			
			C	1	2.1	1	0.8	1	88.160			
T13 59.84-39.84	1351.60	2377.64 TA 842.14	A	0.45	1.973	0.673	0.8	1	24.073	4272.33*	213.62	C
			B	1	2.1	1	0.8	1	87.235			
			C	1	2.1	1	0.8	1	87.716			
T14 39.84-19.84	1351.35	2021.47	A	0.422	2.022	0.661	0.8	1	21.850	3797.55*	189.88	C
			B	1	2.1	1	0.8	1	87.153			
			C	1	2.1	1	0.8	1	88.160			
T15 19.84-6.50	874.68	1348.18	A	0.422	2.022	0.661	0.8	1	14.573	2532.97*	189.88	C
			B	1	2.1	1	0.8	1	54.654			
			C	1	2.1	1	0.8	1	58.428			
T16 6.50-0.00	32.04	810.75	A	0.717	1.778	0.832	0.8	1	7.933	368.19	56.64	C
			B	0.776	1.8	0.877	0.8	1	8.854			
			C	0.778	1.802	0.879	0.8	1	8.888			
Sum Weight:	12052.73	36380.13			*2A_g limit					69531.14		

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
L1 327.00-291.84	0.00	3139.09	A	1	0.59	1	1	1	31.497	795.71	22.63	C
			B	1	0.59	1	1	1	31.497			
			C	1	0.59	1	1	1	31.497			
T1 291.84-279.84	36.24	1165.49 TA 842.14	A	0.227	2.508	0.596	0.85	1	7.118	1060.72	88.39	C
			B	0.227	2.508	0.596	0.85	1	7.118			
			C	0.24	2.468	0.599	0.85	1	7.489			
T2 279.84-259.84	211.66	1297.93	A	0.152	2.763	0.582	0.85	1	6.789	2359.32	117.97	C
			B	0.152	2.763	0.582	0.85	1	6.789			
			C	0.45	1.973	0.673	0.85	1	23.251			
T3 259.84-239.84	249.60	1824.47 TA 842.14	A	0.203	2.585	0.591	0.85	1	10.160	2774.50	138.72	C
			B	0.203	2.585	0.591	0.85	1	10.160			
			C	0.553	1.84	0.726	0.85	1	31.220			
T4 239.84-219.84	560.60	1468.30	A	0.283	2.342	0.611	0.85	1	13.324	6513.70*	325.69	C
			B	0.162	2.729	0.583	0.85	1	7.276			
			C	0.997	2.093	1	0.85	1	76.824			
T5 219.84-199.84	622.00	2100.56 TA 842.14	A	0.44	1.99	0.669	0.85	1	23.282	6378.40*	318.92	C
			B	0.216	2.543	0.594	0.85	1	10.828			
			C	1	2.1	1	0.85	1	77.626			
T6 199.84-179.84	698.88	1580.50	A	0.406	2.053	0.654	0.85	1	20.570	6198.45*	309.92	C
			B	0.314	2.259	0.62	0.85	1	15.113			
			C	1	2.1	1	0.85	1	77.623			
T7 179.84-159.84	878.31	2311.03 TA 842.14	A	0.448	1.977	0.672	0.85	1	23.915	6034.46*	301.72	C
			B	0.671	1.777	0.8	0.85	1	41.916			
			C	1	2.1	1	0.85	1	79.627			
T8 159.84-139.84	905.49	1658.72	A	0.408	2.048	0.655	0.85	1	20.739	5793.26*	289.66	C
			B	0.688	1.776	0.812	0.85	1	43.309			
			C	1	2.1	1	0.85	1	79.986			
T9 139.84-119.84	925.66	1790.96	A	0.414	2.037	0.657	0.85	1	21.209	5588.76*	279.44	C
			B	0.718	1.778	0.833	0.85	1	46.649			
			C	1	2.1	1	0.85	1	82.639			
T10 119.84-99.84	952.33	2311.03 TA 842.14	A	0.448	1.977	0.672	0.85	1	23.912	5327.93*	266.40	C
			B	0.735	1.782	0.845	0.85	1	48.410			
			C	1	2.1	1	0.85	1	85.859			
T11 99.84-79.84	1050.70	2099.69	A	0.425	2.017	0.662	0.85	1	22.026	5055.65*	252.78	C
			B	0.824	1.835	0.916	0.85	1	59.113			
			C	1	2.1	1	0.85	1	88.504			
T12 79.84-59.84	1351.60	2021.47	A	0.422	2.022	0.661	0.85	1	21.850	4704.67*	235.23	C
			B	1	2.1	1	0.85	1	87.195			
			C	1	2.1	1	0.85	1	88.553			
T13 59.84-39.84	1351.60	2377.64 TA 842.14	A	0.45	1.973	0.673	0.85	1	24.194	4272.33*	213.62	C
			B	1	2.1	1	0.85	1	87.235			
			C	1	2.1	1	0.85	1	88.079			
T14 39.84-19.84	1351.35	2021.47	A	0.422	2.022	0.661	0.85	1	21.850	3797.55*	189.88	C
			B	1	2.1	1	0.85	1	87.153			
			C	1	2.1	1	0.85	1	88.553			
T15 19.84-6.50	874.68	1348.18	A	0.422	2.022	0.661	0.85	1	14.573	2532.97*	189.88	C
			B	1	2.1	1	0.85	1	54.654			
			C	1	2.1	1	0.85	1	58.622			
T16 6.50-0.00	32.04	810.75	A	0.717	1.778	0.832	0.85	1	8.225	379.02	58.31	C
			B	0.776	1.8	0.877	0.85	1	9.121			
			C	0.778	1.802	0.879	0.85	1	9.154			
Sum Weight:	12052.73	36380.13			*2A_g limit					69567.39		

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	19662.12			
Bracing Weight	16718.01			
Total Member Self-Weight	36380.13			
Guy Weight	11216.87			
Total Weight	68662.86			
Wind 0 deg - No Ice		-249.56	-93776.14	17269.31
Wind 30 deg - No Ice		47068.83	-80679.34	19442.26
Wind 45 deg - No Ice		66556.62	-65690.82	18577.59
Wind 60 deg - No Ice		81370.93	-46455.12	16787.07
Wind 90 deg - No Ice		94261.61	83.86	10948.66
Wind 120 deg - No Ice		81936.24	46906.09	1833.83
Wind 135 deg - No Ice		66936.86	66198.28	-3152.35
Wind 150 deg - No Ice		47484.51	81122.71	-8132.44
Wind 180 deg - No Ice		341.84	93406.10	-16050.31
Wind 210 deg - No Ice		-47374.10	80468.39	-19110.82
Wind 225 deg - No Ice		-66995.45	65583.82	-18727.70
Wind 240 deg - No Ice		-82089.57	46368.41	-17142.63
Wind 270 deg - No Ice		-94660.87	-292.87	-10747.50
Wind 300 deg - No Ice		-82203.79	-46992.67	-1746.47
Wind 315 deg - No Ice		-67372.82	-66285.46	2889.08
Wind 330 deg - No Ice		-48000.88	-81077.15	7675.74
Member Ice	6114.08			
Guy Ice	8099.93			
Total Weight Ice	110515.59			
Wind 0 deg - Ice		-274.71	-107922.13	19553.18
Wind 30 deg - Ice		53755.84	-92228.58	18509.44
Wind 45 deg - Ice		75926.09	-75022.58	16092.78
Wind 60 deg - Ice		92729.47	-52989.33	12934.75
Wind 90 deg - Ice		107651.06	87.00	5191.33
Wind 120 deg - Ice		94221.84	53981.12	-4366.38
Wind 135 deg - Ice		76317.69	75549.08	-8823.74
Wind 150 deg - Ice		54186.61	92687.45	-12986.30
Wind 180 deg - Ice		352.67	106486.23	-18319.87
Wind 210 deg - Ice		-54065.46	92011.35	-18169.93
Wind 225 deg - Ice		-76380.56	74907.57	-16244.12
Wind 240 deg - Ice		-94384.18	53412.96	-13177.35
Wind 270 deg - Ice		-108062.68	-311.78	-4953.92
Wind 300 deg - Ice		-93589.29	-53548.29	4358.33
Wind 315 deg - Ice		-76770.34	-75639.96	8544.06
Wind 330 deg - Ice		-54724.58	-92642.67	12501.28
Total Weight	68662.86			
Wind 0 deg - Service		-249.56	-93776.14	17269.31
Wind 30 deg - Service		47068.83	-80679.34	19442.26
Wind 45 deg - Service		66556.62	-65690.82	18577.59
Wind 60 deg - Service		81370.93	-46455.12	16787.07
Wind 90 deg - Service		94261.61	83.86	10948.66
Wind 120 deg - Service		81936.24	46906.09	1833.83
Wind 135 deg - Service		66936.86	66198.28	-3152.35
Wind 150 deg - Service		47484.51	81122.71	-8132.44
Wind 180 deg - Service		341.84	93406.10	-16050.31
Wind 210 deg - Service		-47374.10	80468.39	-19110.82
Wind 225 deg - Service		-66995.45	65583.82	-18727.70
Wind 240 deg - Service		-82089.57	46368.41	-17142.63
Wind 270 deg - Service		-94660.87	-292.87	-10747.50
Wind 300 deg - Service		-82203.79	-46992.67	-1746.47
Wind 315 deg - Service		-67372.82	-66285.46	2889.08
Wind 330 deg - Service		-48000.88	-81077.15	7675.74

Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice+Guy
3	Dead+Wind 30 deg - No Ice+Guy
4	Dead+Wind 45 deg - No Ice+Guy
5	Dead+Wind 60 deg - No Ice+Guy
6	Dead+Wind 90 deg - No Ice+Guy
7	Dead+Wind 120 deg - No Ice+Guy
8	Dead+Wind 135 deg - No Ice+Guy
9	Dead+Wind 150 deg - No Ice+Guy
10	Dead+Wind 180 deg - No Ice+Guy
11	Dead+Wind 210 deg - No Ice+Guy
12	Dead+Wind 225 deg - No Ice+Guy
13	Dead+Wind 240 deg - No Ice+Guy
14	Dead+Wind 270 deg - No Ice+Guy
15	Dead+Wind 300 deg - No Ice+Guy
16	Dead+Wind 315 deg - No Ice+Guy
17	Dead+Wind 330 deg - No Ice+Guy
18	Dead+Ice+Temp+Guy
19	Dead+Wind 0 deg+Ice+Temp+Guy
20	Dead+Wind 30 deg+Ice+Temp+Guy
21	Dead+Wind 45 deg+Ice+Temp+Guy
22	Dead+Wind 60 deg+Ice+Temp+Guy
23	Dead+Wind 90 deg+Ice+Temp+Guy
24	Dead+Wind 120 deg+Ice+Temp+Guy
25	Dead+Wind 135 deg+Ice+Temp+Guy
26	Dead+Wind 150 deg+Ice+Temp+Guy
27	Dead+Wind 180 deg+Ice+Temp+Guy
28	Dead+Wind 210 deg+Ice+Temp+Guy
29	Dead+Wind 225 deg+Ice+Temp+Guy
30	Dead+Wind 240 deg+Ice+Temp+Guy
31	Dead+Wind 270 deg+Ice+Temp+Guy
32	Dead+Wind 300 deg+Ice+Temp+Guy
33	Dead+Wind 315 deg+Ice+Temp+Guy
34	Dead+Wind 330 deg+Ice+Temp+Guy
35	Dead+Wind 0 deg - Service+Guy
36	Dead+Wind 30 deg - Service+Guy
37	Dead+Wind 45 deg - Service+Guy
38	Dead+Wind 60 deg - Service+Guy
39	Dead+Wind 90 deg - Service+Guy
40	Dead+Wind 120 deg - Service+Guy
41	Dead+Wind 135 deg - Service+Guy
42	Dead+Wind 150 deg - Service+Guy
43	Dead+Wind 180 deg - Service+Guy
44	Dead+Wind 210 deg - Service+Guy
45	Dead+Wind 225 deg - Service+Guy
46	Dead+Wind 240 deg - Service+Guy
47	Dead+Wind 270 deg - Service+Guy
48	Dead+Wind 300 deg - Service+Guy
49	Dead+Wind 315 deg - Service+Guy
50	Dead+Wind 330 deg - Service+Guy

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
L1	327 - 291.84	Pole	Max Tension	28	0.03	-2.99	-9.10
			Max. Compression	24	-3881.45	-23203.90	-13306.13
			Max. Mx	31	-3874.16	27419.72	403.46
			Max. My	27	-3869.82	-3.96	-27356.25
			Max. Vy	31	-1540.85	27419.72	403.46
			Max. Vx	27	1554.80	-3.96	-27356.25
			Max. Torque	28			-252.87
T1	291.84 - 279.84	Leg	Max Tension	32	9772.53	-683.88	-457.54
			Max. Compression	27	-29032.82	-167.62	-815.95
			Max. Mx	22	9740.77	-2706.76	1546.21
			Max. My	27	9514.95	2.20	-3145.50
			Max. Vy	22	1176.32	-2706.76	1546.21
			Max. Vx	27	1359.75	2.20	-3145.50
		Diagonal	Max Tension	19	5106.49	0.00	0.00
			Max. Compression	26	-5469.28	0.00	0.00
			Max. Mx	24	3136.97	13.57	0.00
			Max. My	28	2038.81	0.00	0.13
			Max. Vy	24	-11.46	0.00	0.00
			Max. Vx	28	-0.11	0.00	0.00
		Horizontal	Max Tension	22	1051.28	0.00	0.00
			Max. Compression	23	-915.77	0.00	0.00
			Max. Mx	18	491.94	6.03	0.00
			Max. My	20	-54.85	0.00	0.00
			Max. Vy	18	-6.58	0.00	0.00
			Max. Vx	20	-0.00	0.00	0.00
		Secondary Horizontal	Max Tension	30	0.04	-1.57	-0.01
			Max. Compression	24	-0.05	-1.78	-0.01
			Max. Mx	20	-0.00	-2.57	0.01
			Max. My	2	-0.00	-1.16	0.01
			Max. Vy	20	4.69	-2.57	0.01
			Max. Vx	2	-0.01	-1.16	0.01
		Top Girt	Max Tension	24	0.06	0.00	0.00
			Max. Compression	24	-0.06	0.00	0.00
			Max. Mx	18	0.00	6.03	0.00
			Max. My	28	0.05	0.00	0.00
			Max. Vy	18	-6.58	0.00	0.00
			Max. Vx	28	-0.00	0.00	0.00
		Guy A	Bottom Tension	27	19607.67		
			Top Tension	27	20194.55		
			Top Cable Vert	27	16656.73		
			Top Cable Norm	27	11418.10		
			Top Cable Tan	27	14.57		
			Bot Cable Vert	27	-15044.48		
			Bot Cable Norm	27	12574.73		
			Bot Cable Tan	27	16.57		
		Guy B	Bottom Tension	32	18544.44		
			Top Tension	32	19070.62		
			Top Cable Vert	32	15114.56		
			Top Cable Norm	32	11629.20		
			Top Cable Tan	32	14.28		
			Bot Cable Vert	32	-13595.15		
			Bot Cable Norm	32	12612.22		
			Bot Cable Tan	32	14.55		
		Guy C	Bottom Tension	22	19413.72		
			Top Tension	22	19994.45		
			Top Cable Vert	22	16434.68		
			Top Cable Norm	22	11387.69		
			Top Cable Tan	22	13.74		
			Bot Cable Vert	22	-14831.16		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Bot Cable Norm	22	12527.14		
			Bot Cable Tan	22	17.18		
		Top Guy Pull-Off	Max Tension	28	5771.80	0.00	0.00
			Max. Compression	20	-5087.49	0.00	0.00
			Max. Mx	18	182.77	72.45	0.00
			Max. My	28	-1300.97	0.00	0.00
			Max. Vy	18	-79.03	0.00	0.00
			Max. Vx	28	-0.00	0.00	0.00
		Torque Arm Top	Max Tension	34	9940.92	-25366.11	0.00
			Max. Compression	26	-1535.27	-59403.80	0.00
			Max. Mx	27	-34.03	-64391.19	-0.00
			Max. My	28	7087.30	-38798.24	-0.01
			Max. Vy	27	16165.56	-64391.19	-0.00
			Max. Vx	28	-0.01	-38798.24	-0.00
T2	279.84 - 259.84	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	27	-35521.68	-154.49	-197.85
			Max. Mx	32	-31792.91	-673.05	-150.33
			Max. My	27	-33607.26	154.76	712.29
			Max. Vy	23	1051.41	-238.66	-35.97
			Max. Vx	19	-1095.43	-479.36	-132.08
		Diagonal	Max Tension	28	3467.35	0.00	0.00
			Max. Compression	20	-3858.18	0.00	0.00
			Max. Mx	24	2141.62	14.21	0.00
			Max. My	20	-741.82	0.00	-0.15
			Max. Vy	24	-11.47	0.00	0.00
			Max. Vx	20	0.12	0.00	0.00
		Horizontal	Max Tension	27	416.03	0.00	0.00
			Max. Compression	19	-415.95	0.00	0.00
			Max. Mx	18	103.16	6.03	0.00
			Max. My	20	339.51	0.00	0.00
			Max. Vy	18	-6.58	0.00	0.00
			Max. Vx	20	-0.00	0.00	0.00
		Secondary Horizontal	Max Tension	29	0.04	-1.89	-0.00
			Max. Compression	24	-0.04	-1.77	-0.01
			Max. Mx	20	-0.00	-2.29	0.01
			Max. My	2	-0.00	-1.08	0.01
			Max. Vy	20	4.54	-2.29	0.01
			Max. Vx	2	-0.01	0.00	0.00
		Top Girt	Max Tension	21	1586.25	0.00	0.00
			Max. Compression	29	-993.15	0.00	0.00
			Max. Mx	18	184.09	6.03	0.00
			Max. My	28	-146.04	0.00	0.00
			Max. Vy	18	-6.58	0.00	0.00
			Max. Vx	28	-0.00	0.00	0.00
T3	259.84 - 239.84	Leg	Max Tension	7	11104.44	55.07	-96.03
			Max. Compression	27	-86729.58	390.14	-39.59
			Max. Mx	22	-66007.46	2987.91	-1272.70
			Max. My	27	-66747.71	-330.95	3265.83
			Max. Vy	31	-1471.72	323.24	51.74
			Max. Vx	19	-1475.90	-203.68	295.02
		Diagonal	Max Tension	20	7126.87	0.00	0.00
			Max. Compression	28	-8074.26	0.00	0.00
			Max. Mx	25	-1805.66	14.19	0.00
			Max. My	28	1661.98	0.00	0.13
			Max. Vy	25	-11.46	0.00	0.00
			Max. Vx	28	0.11	0.00	0.00
		Horizontal	Max Tension	23	722.51	0.00	0.00
			Max. Compression	24	-909.79	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. Mx	18	-116.46	6.03	0.00
			Max. My	28	-679.13	0.00	-0.00
			Max. Vy	18	-6.58	0.00	0.00
			Max. Vx	28	0.00	0.00	0.00
		Secondary Horizontal	Max Tension	29	0.03	-1.64	-0.00
			Max. Compression	25	-0.04	-1.68	-0.01
			Max. Mx	20	-0.00	-2.15	0.01
			Max. My	2	-0.00	-0.56	0.01
			Max. Vy	20	4.46	-2.15	0.01
			Max. Vx	2	-0.01	0.00	0.00
		Top Girt	Max Tension	21	1839.39	0.00	0.00
			Max. Compression	29	-654.00	0.00	0.00
			Max. Mx	18	392.63	6.03	0.00
			Max. My	28	1344.57	0.00	0.00
			Max. Vy	18	-6.58	0.00	0.00
			Max. Vx	28	-0.00	0.00	0.00
		Guy A	Bottom Tension	27	21633.02		
			Top Tension	27	22163.98		
			Top Cable Vert	27	17521.64		
			Top Cable Norm	27	13573.29		
			Top Cable Tan	27	12.32		
			Bot Cable Vert	27	-16044.60		
			Bot Cable Norm	27	14510.62		
			Bot Cable Tan	27	14.93		
		Guy B	Bottom Tension	32	20518.23		
			Top Tension	32	20988.49		
			Top Cable Vert	32	15763.19		
			Top Cable Norm	32	13857.80		
			Top Cable Tan	32	12.20		
			Bot Cable Vert	32	-14385.59		
			Bot Cable Norm	32	14630.53		
			Bot Cable Tan	32	12.82		
		Guy C	Bottom Tension	22	21431.27		
			Top Tension	22	21956.07		
			Top Cable Vert	22	17279.48		
			Top Cable Norm	22	13545.80		
			Top Cable Tan	22	11.73		
			Bot Cable Vert	22	-15811.76		
			Bot Cable Norm	22	14466.77		
			Bot Cable Tan	22	15.31		
		Top Guy Pull-Off	Max Tension	20	9522.61	0.00	0.00
			Max. Compression	28	-8376.45	0.00	0.00
			Max. Mx	18	344.02	72.45	0.00
			Max. My	20	-2836.04	0.00	0.00
			Max. Vy	18	-79.03	0.00	0.00
			Max. Vx	20	-0.00	0.00	0.00
		Torque Arm Top	Max Tension	34	13092.20	-20149.50	0.00
			Max. Compression	26	-4122.89	-62253.79	-0.00
			Max. Mx	27	-2380.00	-67777.38	-0.00
			Max. My	20	9305.05	-37239.31	0.01
			Max. Vy	27	17011.13	-67777.38	-0.00
			Max. Vx	20	0.00	-37239.31	0.00
T4	239.84 - 219.84	Leg	Max Tension	7	12611.69	92.29	-57.16
			Max. Compression	27	-87561.73	-385.03	56.17
			Max. Mx	32	-53792.32	-717.30	-22.13
			Max. My	27	-57619.63	355.25	670.12
			Max. Vy	23	407.52	-287.59	50.76
			Max. Vx	19	-391.16	201.92	248.18
		Diagonal	Max Tension	23	7604.06	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. Compression	31	-8565.81	0.00	0.00
			Max. Mx	25	-1024.78	14.16	0.00
			Max. My	20	-2464.52	0.00	-0.10
			Max. Vy	25	-11.43	0.00	0.00
			Max. Vx	20	0.08	0.00	0.00
		Horizontal	Max Tension	32	1025.18	0.00	0.00
			Max. Compression	7	-498.52	0.00	0.00
			Max. Mx	18	158.11	6.03	0.00
			Max. My	20	-126.65	0.00	-0.00
			Max. Vy	18	-6.58	0.00	0.00
			Max. Vx	20	0.00	0.00	0.00
		Secondary Horizontal	Max Tension	13	0.02	-0.97	-0.00
			Max. Compression	25	-0.03	-1.61	-0.00
			Max. Mx	20	0.00	-1.99	0.00
			Max. My	2	-0.00	-0.73	0.01
			Max. Vy	20	4.38	-1.99	0.00
			Max. Vx	2	-0.00	0.00	0.00
		Top Girt	Max Tension	27	2193.46	0.00	0.00
			Max. Compression	24	-1689.84	0.00	0.00
			Max. Mx	18	195.97	6.03	0.00
			Max. My	28	-1395.03	0.00	-0.00
			Max. Vy	18	-6.58	0.00	0.00
			Max. Vx	28	0.00	0.00	0.00
T5	219.84 - 199.84	Leg	Max Tension	7	7188.92	157.14	-137.15
			Max. Compression	27	-97880.23	591.82	-13.63
			Max. Mx	22	-79737.60	2967.28	-1010.82
			Max. My	27	-48556.38	-407.78	-3263.41
			Max. Vy	22	1195.24	-966.36	-117.32
			Max. Vx	27	1199.51	-407.78	-3263.41
		Diagonal	Max Tension	31	7577.51	0.00	0.00
			Max. Compression	34	-8867.67	0.00	0.00
			Max. Mx	25	-5646.15	16.50	0.00
			Max. My	28	4020.28	0.00	0.09
			Max. Vy	25	-13.32	0.00	0.00
			Max. Vx	28	-0.07	0.00	0.00
		Horizontal	Max Tension	28	1350.34	0.00	0.00
			Max. Compression	19	-836.62	0.00	0.00
			Max. Mx	18	320.63	6.03	0.00
			Max. My	28	-567.95	0.00	-0.00
			Max. Vy	18	-6.58	0.00	0.00
			Max. Vx	28	0.00	0.00	0.00
		Secondary Horizontal	Max Tension	13	0.02	-1.02	-0.00
			Max. Compression	7	-0.02	-1.19	-0.00
			Max. Mx	20	0.00	-1.79	0.00
			Max. My	2	-0.00	-0.94	0.00
			Max. Vy	20	4.27	-1.79	0.00
			Max. Vx	2	-0.00	0.00	0.00
		Top Girt	Max Tension	28	1017.12	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	18	446.95	6.03	0.00
			Max. My	28	682.41	0.00	-0.00
			Max. Vy	18	-6.58	0.00	0.00
			Max. Vx	28	0.00	0.00	0.00
		Guy A	Bottom Tension	27	22842.19		
			Top Tension	27	23297.55		
			Top Cable Vert	27	17142.42		
			Top Cable Norm	27	15776.98		
			Top Cable Tan	27	10.00		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Bot Cable Vert	27	-15857.95		
			Bot Cable Norm	27	16440.52		
			Bot Cable Tan	27	12.14		
		Guy B	Bottom Tension	32	21590.37		
			Top Tension	32	21984.92		
			Top Cable Vert	32	15042.33		
			Top Cable Norm	32	16033.24		
			Top Cable Tan	32	9.20		
			Bot Cable Vert	32	-13865.72		
			Bot Cable Norm	32	16549.49		
			Bot Cable Tan	32	10.82		
		Guy C	Bottom Tension	22	22602.56		
			Top Tension	22	23051.74		
			Top Cable Vert	22	16854.23		
			Top Cable Norm	22	15726.33		
			Top Cable Tan	22	9.56		
			Bot Cable Vert	22	-15579.85		
			Bot Cable Norm	22	16375.09		
			Bot Cable Tan	22	12.38		
		Top Guy Pull-Off	Max Tension	20	13615.93	0.00	0.00
			Max. Compression	28	-12030.64	0.00	0.00
			Max. Mx	18	448.29	72.45	0.00
			Max. My	3	11319.04	0.00	-0.00
			Max. Vy	18	-79.03	0.00	0.00
			Max. Vx	3	0.00	0.00	0.00
		Torque Arm Top	Max Tension	34	16339.62	0.00	0.00
			Max. Compression	26	-6908.12	-61322.53	-0.00
			Max. Mx	27	-4753.63	-66486.40	-0.00
			Max. My	20	-246.34	-61735.44	0.00
			Max. Vy	27	16688.76	-66486.40	-0.00
			Max. Vx	20	0.00	-61735.44	0.00
T6	199.84 - 179.84	Leg	Max Tension	7	9001.37	156.59	-202.80
			Max. Compression	27	-98666.16	-587.75	8.15
			Max. Mx	24	-86371.81	874.68	-19.27
			Max. My	27	-62133.89	265.43	840.81
			Max. Vy	31	1660.60	710.25	28.74
			Max. Vx	19	1838.56	-306.44	677.61
		Diagonal	Max Tension	34	9138.59	0.00	0.00
			Max. Compression	26	-10858.94	0.00	0.00
			Max. Mx	27	7288.14	11.97	0.00
			Max. My	28	-5946.44	0.00	0.08
			Max. Vy	27	-9.66	0.00	0.00
			Max. Vx	28	0.06	0.00	0.00
		Horizontal	Max Tension	32	2714.08	0.00	0.00
			Max. Compression	24	-1757.62	0.00	0.00
			Max. Mx	18	352.20	6.03	0.00
			Max. My	20	1046.21	0.00	-0.00
			Max. Vy	18	-6.58	0.00	0.00
			Max. Vx	20	0.00	0.00	0.00
		Secondary Horizontal	Max Tension	22	0.02	-1.20	-0.00
			Max. Compression	32	-0.02	-1.48	-0.00
			Max. Mx	34	-0.01	-1.72	0.00
			Max. My	27	-0.00	-0.40	0.00
			Max. Vy	34	4.23	-1.72	0.00
			Max. Vx	27	-0.00	0.00	0.00
		Top Girt	Max Tension	32	1217.38	0.00	0.00
			Max. Compression	7	-304.19	0.00	0.00
			Max. Mx	18	334.55	6.03	0.00
			Max. My	28	653.94	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. Vy	18	-6.58	0.00	0.00
			Max. Vx	28	-0.00	0.00	0.00
T7	179.84 - 159.84	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	21	-106797.51	561.05	-409.16
			Max. Mx	23	-31746.70	-3317.87	593.64
			Max. My	27	-21548.33	407.24	-3434.65
			Max. Vy	23	1305.86	-3317.87	593.64
			Max. Vx	27	1282.84	407.24	-3434.65
		Diagonal	Max Tension	26	12764.32	0.00	0.00
			Max. Compression	34	-13969.32	0.00	0.00
			Max. Mx	27	8711.78	16.50	0.00
			Max. My	28	-6985.24	0.00	0.10
			Max. Vy	27	-13.32	0.00	0.00
			Max. Vx	28	-0.08	0.00	0.00
		Horizontal	Max Tension	29	1435.31	0.00	0.00
			Max. Compression	7	-493.52	0.00	0.00
			Max. Mx	18	419.61	6.03	0.00
			Max. My	20	906.91	0.00	-0.00
			Max. Vy	18	-6.58	0.00	0.00
			Max. Vx	20	0.00	0.00	0.00
		Secondary Horizontal	Max Tension	22	0.02	-1.21	-0.00
			Max. Compression	32	-0.02	-1.48	-0.00
			Max. Mx	34	-0.01	-1.70	0.00
			Max. My	27	-0.00	-0.44	0.00
			Max. Vy	34	4.21	-1.70	0.00
			Max. Vx	27	-0.00	0.00	0.00
		Top Girt	Max Tension	27	938.87	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	18	371.72	6.03	0.00
			Max. My	28	858.23	0.00	-0.00
			Max. Vy	18	-6.58	0.00	0.00
			Max. Vx	28	0.00	0.00	0.00
		Guy A	Bottom Tension	27	25575.49		
			Top Tension	27	25936.53		
			Top Cable Vert	27	16741.88		
			Top Cable Norm	27	19809.42		
			Top Cable Tan	27	8.53		
			Bot Cable Vert	27	-15707.75		
			Bot Cable Norm	27	20183.46		
			Bot Cable Tan	27	7.55		
		Guy B	Bottom Tension	32	24075.69		
			Top Tension	32	24375.67		
			Top Cable Vert	32	13996.66		
			Top Cable Norm	32	19956.62		
			Top Cable Tan	32	4.66		
			Bot Cable Vert	32	-13075.70		
			Bot Cable Norm	32	20215.46		
			Bot Cable Tan	32	9.50		
		Guy C	Bottom Tension	22	25287.26		
			Top Tension	22	25642.09		
			Top Cable Vert	22	16384.52		
			Top Cable Norm	22	19724.72		
			Top Cable Tan	22	8.32		
			Bot Cable Vert	22	-15361.04		
			Bot Cable Norm	22	20086.91		
			Bot Cable Tan	22	7.59		
		Top Guy Pull-Off	Max Tension	28	20241.96	0.00	0.00
			Max. Compression	20	-17974.81	0.00	0.00
			Max. Mx	18	669.32	72.45	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. My	28	-6730.55	0.00	-0.00
			Max. Vy	18	-79.03	0.00	0.00
			Max. Vx	28	0.00	0.00	0.00
		Torque Arm Top	Max Tension	26	21779.20	0.00	0.00
			Max. Compression	25	-10652.25	0.00	0.00
			Max. Mx	27	-6926.21	-64439.91	-0.00
			Max. My	28	-4255.20	-29093.09	-0.00
			Max. Vy	27	16177.72	-64439.91	-0.00
			Max. Vx	28	-0.00	-29093.09	-0.00
T8	159.84 - 139.84	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	25	-105539.56	793.81	-49.55
			Max. Mx	25	-105539.56	793.81	-49.55
			Max. My	34	-95534.41	-226.08	-693.94
			Max. Vy	26	-487.75	-709.01	58.00
			Max. Vx	28	-456.68	306.02	-641.05
		Diagonal	Max Tension	23	7840.61	0.00	0.00
			Max. Compression	31	-9439.37	0.00	0.00
			Max. Mx	28	-2633.72	14.13	0.00
			Max. My	20	-2509.40	0.00	-0.09
			Max. Vy	28	-11.40	0.00	0.00
			Max. Vx	20	0.07	0.00	0.00
		Horizontal	Max Tension	27	1142.38	0.00	0.00
			Max. Compression	13	-9.92	0.00	0.00
			Max. Mx	18	437.02	6.03	0.00
			Max. My	20	959.36	0.00	-0.00
			Max. Vy	18	-6.58	0.00	0.00
			Max. Vx	20	0.00	0.00	0.00
		Secondary Horizontal	Max Tension	23	0.01	-1.53	-0.00
			Max. Compression	31	-0.01	-1.56	-0.00
			Max. Mx	34	0.00	-1.62	0.00
			Max. My	27	-0.00	-0.71	0.00
			Max. Vy	34	4.17	-1.62	0.00
			Max. Vx	27	-0.00	0.00	0.00
		Top Girt	Max Tension	32	1136.47	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	18	543.68	6.03	0.00
			Max. My	28	1022.67	0.00	-0.00
			Max. Vy	18	-6.58	0.00	0.00
			Max. Vx	28	0.00	0.00	0.00
T9	139.84 - 119.84	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	24	-107842.36	408.02	751.79
			Max. Mx	25	-107194.26	854.14	-34.91
			Max. My	23	-100056.54	399.61	753.65
			Max. Vy	23	650.29	-788.73	57.72
			Max. Vx	22	-527.31	392.85	712.84
		Diagonal	Max Tension	29	3769.03	0.00	0.00
			Max. Compression	20	-6145.99	0.00	0.00
			Max. Mx	28	3686.97	11.97	0.00
			Max. My	20	341.82	0.00	-0.09
			Max. Vy	28	-9.66	0.00	0.00
			Max. Vx	20	0.07	0.00	0.00
		Horizontal	Max Tension	23	1337.50	0.00	0.00
			Max. Compression	7	-18.90	0.00	0.00
			Max. Mx	18	517.05	6.03	0.00
			Max. My	20	1170.58	0.00	-0.00
			Max. Vy	18	-6.58	0.00	0.00
			Max. Vx	20	0.00	0.00	0.00
		Secondary	Max Tension	23	0.02	-1.50	-0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
		Horizontal					
			Max. Compression	31	-0.02	-1.53	-0.00
			Max. Mx	34	0.00	-1.60	0.00
			Max. My	19	0.00	-1.07	0.00
			Max. Vy	34	4.16	-1.60	0.00
			Max. Vx	19	-0.00	0.00	0.00
		Top Girt	Max Tension	22	1228.14	0.00	0.00
			Max. Compression	13	-21.97	0.00	0.00
			Max. Mx	18	477.60	6.03	0.00
			Max. My	28	1090.09	0.00	-0.00
			Max. Vy	18	-6.58	0.00	0.00
			Max. Vx	28	0.00	0.00	0.00
T10	119.84 - 99.84	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-118448.21	503.17	-1149.04
			Max. Mx	23	-77191.06	-2437.16	17.44
			Max. My	27	-65696.30	723.45	-2269.97
			Max. Vy	31	-1510.71	962.71	-687.66
			Max. Vx	19	-967.84	205.26	-1058.33
		Diagonal	Max Tension	23	12504.05	0.00	0.00
			Max. Compression	31	-15220.25	0.00	0.00
			Max. Mx	28	5329.70	16.52	0.00
			Max. My	20	1691.55	0.00	-0.13
			Max. Vy	28	-13.33	0.00	0.00
			Max. Vx	20	0.10	0.00	0.00
		Horizontal	Max Tension	31	1986.65	0.00	0.00
			Max. Compression	6	-781.68	0.00	0.00
			Max. Mx	22	21.23	6.03	0.00
			Max. My	20	1021.90	0.00	-0.00
			Max. Vy	22	-6.58	0.00	0.00
			Max. Vx	20	0.00	0.00	0.00
		Secondary Horizontal	Max Tension	23	0.02	-1.50	-0.00
			Max. Compression	30	-0.02	-1.05	-0.00
			Max. Mx	33	-0.00	-1.58	0.00
			Max. My	19	0.00	-0.98	0.00
			Max. Vy	33	4.15	-1.58	0.00
			Max. Vx	19	-0.00	0.00	0.00
		Top Girt	Max Tension	21	1241.97	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	18	537.43	6.03	0.00
			Max. My	28	1113.29	0.00	-0.00
			Max. Vy	18	-6.58	0.00	0.00
			Max. Vx	28	0.00	0.00	0.00
		Guy A	Bottom Tension	27	20611.67		
			Top Tension	27	20805.16		
			Top Cable Vert	27	10363.44		
			Top Cable Norm	27	18040.33		
			Top Cable Tan	27	6.16		
			Bot Cable Vert	27	-9747.26		
			Bot Cable Norm	27	18161.28		
			Bot Cable Tan	27	2.59		
		Guy B	Bottom Tension	32	19781.37		
			Top Tension	32	19926.87		
			Top Cable Vert	32	7913.62		
			Top Cable Norm	32	18288.10		
			Top Cable Tan	32	4.76		
			Bot Cable Vert	32	-7385.43		
			Bot Cable Norm	32	18350.97		
			Bot Cable Tan	32	2.46		
		Guy C	Bottom Tension	22	20636.13		
			Top Tension	22	20824.71		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Top Cable Vert	22	10172.96		
			Top Cable Norm	22	18170.84		
			Top Cable Tan	22	6.96		
			Bot Cable Vert	22	-9565.21		
			Bot Cable Norm	22	18285.42		
			Bot Cable Tan	22	1.67		
		Top Guy Pull-Off	Max Tension	28	19247.18	0.00	0.00
			Max. Compression	20	-16922.21	0.00	0.00
			Max. Mx	22	17033.43	72.45	0.00
			Max. My	28	-6014.84	0.00	-0.00
			Max. Vy	22	-79.03	0.00	0.00
			Max. Vx	28	0.00	0.00	0.00
		Torque Arm Top	Max Tension	31	20463.71	-4457.75	-0.00
			Max. Compression	23	-10271.25	0.00	0.00
			Max. Mx	27	-6842.25	-40028.67	-0.00
			Max. My	28	-4521.47	-17210.92	-0.00
			Max. Vy	27	10081.95	-40028.67	-0.00
			Max. Vx	28	-0.00	-17210.92	-0.00
T11	99.84 - 79.84	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	22	-164379.68	-445.63	-1112.69
			Max. Mx	25	-151283.22	1256.86	-3.47
			Max. My	21	-162026.02	-486.53	-1123.08
			Max. Vy	23	1449.40	-1075.96	128.67
			Max. Vx	19	-1378.35	604.57	975.34
		Diagonal	Max Tension	34	9043.93	0.00	0.00
			Max. Compression	26	-12003.89	0.00	0.00
			Max. Mx	24	-1533.30	14.17	0.00
			Max. My	20	-3030.44	0.00	-0.12
			Max. Vy	24	-11.44	0.00	0.00
			Max. Vx	20	0.10	0.00	0.00
		Horizontal	Max Tension	27	2493.72	0.00	0.00
			Max. Compression	2	-562.67	0.00	0.00
			Max. Mx	24	1952.05	6.03	0.00
			Max. My	20	2200.03	0.00	-0.00
			Max. Vy	24	-6.58	0.00	0.00
			Max. Vx	20	0.00	0.00	0.00
		Secondary Horizontal	Max Tension	24	0.03	-1.29	-0.00
			Max. Compression	30	-0.02	-0.96	-0.00
			Max. Mx	33	-0.01	-1.58	0.00
			Max. My	19	0.01	-0.89	0.01
			Max. Vy	33	4.15	-1.58	0.00
			Max. Vx	19	-0.00	0.00	0.00
		Top Girt	Max Tension	26	1379.54	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	18	704.73	6.03	0.00
			Max. My	28	1260.23	0.00	-0.00
			Max. Vy	18	-6.58	0.00	0.00
			Max. Vx	28	0.00	0.00	0.00
T12	79.84 - 59.84	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	22	-168588.60	687.40	972.42
			Max. Mx	24	-135830.82	1313.81	43.49
			Max. My	21	-159957.88	-376.30	-1171.33
			Max. Vy	27	-743.06	1188.57	86.85
			Max. Vx	24	677.27	-311.14	-961.55
		Diagonal	Max Tension	6	3569.14	0.00	0.00
			Max. Compression	31	-5843.37	0.00	0.00
			Max. Mx	24	3391.98	12.02	0.00
			Max. My	20	-25.49	0.00	-0.12
			Max. Vy	24	9.71	0.00	0.00
			Max. Vx	20	0.10	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
		Horizontal	Max Tension	26	1560.61	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	24	1415.60	6.03	0.00
			Max. My	20	1349.41	0.00	-0.00
			Max. Vy	24	-6.58	0.00	0.00
			Max. Vx	20	0.00	0.00	0.00
		Secondary Horizontal	Max Tension	23	0.04	-1.49	-0.01
			Max. Compression	31	-0.04	-1.43	-0.01
			Max. Mx	33	-0.01	-1.60	0.00
			Max. My	19	0.01	-0.63	0.01
			Max. Vy	33	4.16	-1.60	0.00
			Max. Vx	19	-0.01	0.00	0.00
		Top Girt	Max Tension	26	1378.65	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	24	1350.39	6.03	0.00
			Max. My	28	1162.47	0.00	-0.00
			Max. Vy	24	-6.58	0.00	0.00
			Max. Vx	28	0.00	0.00	0.00
T13	59.84 - 39.84	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	27	-179115.44	1257.84	105.15
			Max. Mx	24	-135672.68	-1490.99	-393.90
			Max. My	20	-150463.74	155.23	1430.16
			Max. Vy	24	-916.33	-1106.54	655.41
			Max. Vx	27	-903.17	184.22	-1136.59
		Diagonal	Max Tension	26	3857.51	0.00	0.00
			Max. Compression	34	-6595.62	0.00	0.00
			Max. Mx	23	-2713.39	12.05	0.00
			Max. My	20	-3159.31	0.00	-0.14
			Max. Vy	23	9.73	0.00	0.00
			Max. Vx	20	-0.11	0.00	0.00
		Horizontal	Max Tension	28	1549.51	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	18	753.79	6.03	0.00
			Max. My	20	1330.04	0.00	-0.00
			Max. Vy	18	-6.58	0.00	0.00
			Max. Vx	20	0.00	0.00	0.00
		Secondary Horizontal	Max Tension	23	0.05	-1.49	-0.02
			Max. Compression	31	-0.04	-1.42	-0.01
			Max. Mx	28	-0.03	1.80	0.01
			Max. My	23	0.05	-1.49	-0.02
			Max. Vy	33	4.17	-1.61	0.00
			Max. Vx	23	0.01	0.00	0.00
		Top Girt	Max Tension	31	1363.67	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	18	768.52	6.03	0.00
			Max. My	28	1123.58	0.00	-0.00
			Max. Vy	18	-6.58	0.00	0.00
			Max. Vx	28	0.00	0.00	0.00
		Guy A	Bottom Tension	27	9349.41		
			Top Tension	27	9426.65		
			Top Cable Vert	27	3198.15		
			Top Cable Norm	27	8867.56		
			Top Cable Tan	27	2.95		
			Bot Cable Vert	27	-2879.52		
			Bot Cable Norm	27	8894.94		
			Bot Cable Tan	27	1.51		
		Guy B	Bottom Tension	32	8982.83		
			Top Tension	32	9028.88		
			Top Cable Vert	32	1929.35		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Top Cable Norm	32	8820.33		
			Top Cable Tan	32	0.26		
			Bot Cable Vert	32	-1668.28		
			Bot Cable Norm	32	8826.56		
			Bot Cable Tan	32	2.40		
		Guy C	Bottom Tension	22	9382.20		
			Top Tension	22	9456.26		
			Top Cable Vert	22	3091.36		
			Top Cable Norm	22	8936.68		
			Top Cable Tan	22	3.27		
			Bot Cable Vert	22	-2779.56		
			Bot Cable Norm	22	8961.01		
			Bot Cable Tan	22	1.01		
		Top Guy Pull-Off	Max Tension	20	9128.45	0.00	0.00
			Max. Compression	29	-6667.51	0.00	0.00
			Max. Mx	18	877.48	72.45	0.00
			Max. My	20	-898.61	0.00	-0.00
			Max. Vy	18	-79.03	0.00	0.00
			Max. Vx	20	0.00	0.00	0.00
		Torque Arm Top	Max Tension	23	9538.60	0.00	0.00
			Max. Compression	23	-4390.60	0.00	0.00
			Max. Mx	27	-2597.85	-12683.95	-0.00
			Max. My	20	-1923.61	-5358.98	0.01
			Max. Vy	27	3253.64	-12683.95	-0.00
			Max. Vx	20	0.00	-5358.98	0.00
T14	39.84 - 19.84	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	22	-179054.23	731.15	1031.07
			Max. Mx	26	-168277.13	1290.31	27.64
			Max. My	22	-179045.67	-508.66	-1149.54
			Max. Vy	27	-762.67	-1256.14	145.67
			Max. Vx	32	-661.99	-695.75	1016.32
		Diagonal	Max Tension	12	3698.14	0.00	0.00
			Max. Compression	20	-6541.46	0.00	0.00
			Max. Mx	25	1290.39	12.08	0.00
			Max. My	27	-121.73	0.00	0.17
			Max. Vy	25	-9.75	0.00	0.00
			Max. Vx	27	-0.14	0.00	0.00
		Horizontal	Max Tension	23	1489.15	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	18	767.63	6.03	0.00
			Max. My	20	1324.59	0.00	-0.00
			Max. Vy	18	-6.58	0.00	0.00
			Max. Vx	20	0.00	0.00	0.00
		Secondary Horizontal	Max Tension	23	0.06	-1.49	-0.03
			Max. Compression	31	-0.06	-1.41	-0.02
			Max. Mx	27	-0.00	2.14	0.02
			Max. My	23	0.06	-1.49	-0.03
			Max. Vy	33	4.17	-1.62	0.00
			Max. Vx	23	0.01	0.00	0.00
		Top Girt	Max Tension	20	1484.54	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	18	762.54	6.03	0.00
			Max. My	28	1312.13	0.00	-0.00
			Max. Vy	18	-6.58	0.00	0.00
			Max. Vx	28	0.00	0.00	0.00
T15	19.84 - 6.5	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	22	-161909.79	-578.08	-1127.26
			Max. Mx	28	-153121.99	-1260.79	24.04
			Max. My	22	-161909.79	-578.08	-1127.26
			Max. Vy	27	864.23	-1259.84	69.99

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
		Diagonal	Max. Vx	28	814.51	457.40	-977.90
			Max Tension	23	6564.71	0.00	0.00
			Max. Compression	31	-8384.51	0.00	0.00
			Max. Mx	25	5572.31	12.10	0.00
			Max. My	29	336.35	0.00	0.19
			Max. Vy	25	9.76	0.00	0.00
		Horizontal	Max. Vx	29	0.15	0.00	0.00
			Max Tension	28	1704.51	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	18	622.14	6.03	0.00
			Max. My	28	1243.55	0.00	-0.00
			Max. Vy	18	-6.58	0.00	0.00
		Secondary Horizontal	Max. Vx	28	0.00	0.00	0.00
			Max Tension	23	0.07	-1.49	-0.03
			Max. Compression	31	-0.06	-1.41	-0.03
			Max. Mx	27	-0.00	2.34	0.03
			Max. My	23	0.07	-1.49	-0.03
			Max. Vy	33	4.18	-1.62	0.01
		Top Girt	Max. Vx	23	0.02	0.00	0.00
			Max Tension	21	1671.64	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	18	779.77	6.03	0.00
			Max. My	28	1261.22	0.00	-0.00
			Max. Vy	18	-6.58	0.00	0.00
T16	6.5 - 0	Leg	Max. Vx	28	0.00	0.00	0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	27	-143715.07	20.02	198.29
			Max. Mx	24	-110547.34	2425.44	-214.62
			Max. My	27	-111767.25	1525.20	-1001.37
			Max. Vy	30	7658.30	-1622.42	128.49
		Top Girt	Max. Vx	27	-2418.80	-1578.15	269.57
			Max Tension	27	25525.67	-644.99	-33.79
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	21	21342.72	-1003.96	-46.95
			Max. My	21	21342.72	-1003.96	-46.95
			Max. Vy	21	-467.07	-1003.96	-46.95
		Bottom Girt	Max. Vx	23	-29.32	-941.22	-45.63
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	28	-4989.81	-2510.54	-24.60
			Max. Mx	28	-4989.81	-2510.54	-24.60
			Max. My	20	-3614.56	-2008.90	-39.17
			Max. Vy	29	-7403.04	-2378.59	-17.24
		Mid Girt	Max. Vx	21	-260.87	-2094.63	-39.07
			Max Tension	21	400.62	0.00	0.00
			Max. Compression	21	-269.43	0.00	0.00
			Max. Mx	27	278.85	12.27	0.00
			Max. My	27	399.73	0.00	2.00
			Max. Vy	27	-19.34	0.00	0.00
			Max. Vx	27	-3.15	0.00	0.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Mast	Max. Vert	26	355157.46	-980.03	-3492.57

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
	Max. H_x	47	234331.80	5004.36	438.91
	Max. H_z	2	237719.82	431.22	4831.67
	Max. M_x	1	0.00	44.25	14.77
	Max. M_z	1	0.00	44.25	14.77
	Max. Torsion	1	0.00	44.25	14.77
	Min. Vert	1	175210.02	44.25	14.77
	Min. H_x	6	243378.77	-4525.78	246.29
	Min. H_z	10	232371.25	7.90	-4871.52
	Min. M_x	1	0.00	44.25	14.77
	Min. M_z	1	0.00	44.25	14.77
	Min. Torsion	1	0.00	44.25	14.77
Guy C @ 235 ft Elev -20.1 ft Azimuth 240 deg	Max. Vert	13	-9670.13	-6701.86	3868.29
	Max. H_x	46	-9670.13	-6701.86	3868.29
	Max. H_z	21	-145228.85	-153207.57	90658.02
	Min. Vert	22	-146703.83	-155710.89	89852.48
	Min. H_x	22	-146703.83	-155710.89	89852.48
	Min. H_z	13	-9670.13	-6701.86	3868.29
Guy B @ 235 ft Elev 8.9 ft Azimuth 120 deg	Max. Vert	7	-7263.80	6084.43	3512.37
	Max. H_x	32	-127457.52	157337.91	90845.62
	Max. H_z	33	-125515.30	154176.84	91124.97
	Min. Vert	32	-127457.52	157337.91	90845.62
	Min. H_x	7	-7263.80	6084.43	3512.37
	Min. H_z	7	-7263.80	6084.43	3512.37
Guy A @ 235 ft Elev -23.4 ft Azimuth 0 deg	Max. Vert	2	-9879.83	-0.33	-7774.17
	Max. H_x	31	-86010.59	9864.79	-99196.62
	Max. H_z	2	-9879.83	-0.33	-7774.17
	Min. Vert	27	-148835.27	-53.29	-179239.94
	Min. H_x	23	-83175.83	-9913.18	-96597.14
	Min. H_z	27	-148835.27	-53.29	-179239.94

Tower Mast Reaction Summary

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x lb-ft	Overturning Moment, M_z lb-ft	Torque lb-ft
Dead Only	175210.02	-44.25	-14.77	0.00	0.00	0.00
Dead+Wind 0 deg - No Ice+Guy	237719.82	-431.22	-4831.67	0.00	0.00	0.00
Dead+Wind 30 deg - No Ice+Guy	238336.96	2373.14	-3868.96	0.00	0.00	0.00
Dead+Wind 45 deg - No Ice+Guy	234420.01	3499.04	-3182.45	0.00	0.00	0.00
Dead+Wind 60 deg - No Ice+Guy	231711.53	4212.31	-2420.38	0.00	0.00	0.00
Dead+Wind 90 deg - No Ice+Guy	243378.77	4525.78	-246.29	0.00	0.00	0.00
Dead+Wind 120 deg - No Ice+Guy	247242.83	3864.06	2249.18	0.00	0.00	0.00
Dead+Wind 135 deg - No Ice+Guy	247113.69	3002.85	3235.03	0.00	0.00	0.00
Dead+Wind 150 deg - No	244021.24	2022.76	4058.14	0.00	0.00	0.00

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft
Ice+Guy						
Dead+Wind 180 deg - No Ice+Guy	232371.25	-7.90	4871.52	0.00	0.00	0.00
Dead+Wind 210 deg - No Ice+Guy	239724.65	-2128.95	4020.79	0.00	0.00	0.00
Dead+Wind 225 deg - No Ice+Guy	240588.22	-3372.23	3120.53	0.00	0.00	0.00
Dead+Wind 240 deg - No Ice+Guy	238905.00	-4362.64	2063.26	0.00	0.00	0.00
Dead+Wind 270 deg - No Ice+Guy	234331.80	-5004.36	-438.91	0.00	0.00	0.00
Dead+Wind 300 deg - No Ice+Guy	225015.52	-4635.95	-2669.36	0.00	0.00	0.00
Dead+Wind 315 deg - No Ice+Guy	228180.99	-3912.24	-3484.51	0.00	0.00	0.00
Dead+Wind 330 deg - No Ice+Guy	233291.51	-2882.64	-4125.27	0.00	0.00	0.00
Dead+Ice+Temp+Guy	241071.05	-99.46	-18.38	0.00	0.00	0.00
Dead+Wind 0 deg+Ice+Temp+Guy	344401.80	-588.23	-3755.55	0.00	0.00	0.00
Dead+Wind 30 deg+Ice+Temp+Guy	350219.45	2289.41	-2841.70	0.00	0.00	0.00
Dead+Wind 45 deg+Ice+Temp+Guy	351586.53	3235.83	-2496.89	0.00	0.00	0.00
Dead+Wind 60 deg+Ice+Temp+Guy	352090.37	3659.43	-2205.38	0.00	0.00	0.00
Dead+Wind 90 deg+Ice+Temp+Guy	354381.24	3501.11	-837.84	0.00	0.00	0.00
Dead+Wind 120 deg+Ice+Temp+Guy	353149.26	2820.83	1664.45	0.00	0.00	0.00
Dead+Wind 135 deg+Ice+Temp+Guy	353864.77	1874.91	2652.59	0.00	0.00	0.00
Dead+Wind 150 deg+Ice+Temp+Guy	355157.46	980.03	3492.57	0.00	0.00	0.00
Dead+Wind 180 deg+Ice+Temp+Guy	352960.97	-89.08	4315.06	0.00	0.00	0.00
Dead+Wind 210 deg+Ice+Temp+Guy	351563.41	-1244.86	3458.05	0.00	0.00	0.00
Dead+Wind 225 deg+Ice+Temp+Guy	347917.03	-2418.33	2516.26	0.00	0.00	0.00
Dead+Wind 240 deg+Ice+Temp+Guy	345469.29	-3498.72	1414.28	0.00	0.00	0.00
Dead+Wind 270 deg+Ice+Temp+Guy	344723.51	-4293.38	-1085.83	0.00	0.00	0.00
Dead+Wind 300 deg+Ice+Temp+Guy	343606.72	-4413.96	-2564.07	0.00	0.00	0.00
Dead+Wind 315 deg+Ice+Temp+Guy	343800.73	-3964.60	-2918.42	0.00	0.00	0.00
Dead+Wind 330 deg+Ice+Temp+Guy	343891.21	-3097.74	-3211.77	0.00	0.00	0.00
Dead+Wind 0 deg - Service+Guy	237719.82	-431.22	-4831.67	0.00	0.00	0.00
Dead+Wind 30 deg - Service+Guy	238336.96	2373.14	-3868.96	0.00	0.00	0.00
Dead+Wind 45 deg - Service+Guy	234420.01	3499.04	-3182.45	0.00	0.00	0.00
Dead+Wind 60 deg - Service+Guy	231711.53	4212.31	-2420.38	0.00	0.00	0.00
Dead+Wind 90 deg - Service+Guy	243378.77	4525.78	-246.29	0.00	0.00	0.00
Dead+Wind 120 deg -	247242.83	3864.06	2249.18	0.00	0.00	0.00

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft
Service+Guy						
Dead+Wind 135 deg - Service+Guy	247113.69	3002.85	3235.03	0.00	0.00	0.00
Dead+Wind 150 deg - Service+Guy	244021.24	2022.76	4058.14	0.00	0.00	0.00
Dead+Wind 180 deg - Service+Guy	232371.25	-7.90	4871.52	0.00	0.00	0.00
Dead+Wind 210 deg - Service+Guy	239724.65	-2128.95	4020.79	0.00	0.00	0.00
Dead+Wind 225 deg - Service+Guy	240588.22	-3372.23	3120.53	0.00	0.00	0.00
Dead+Wind 240 deg - Service+Guy	238905.00	-4362.64	2063.26	0.00	0.00	0.00
Dead+Wind 270 deg - Service+Guy	234331.80	-5004.36	-438.91	0.00	0.00	0.00
Dead+Wind 300 deg - Service+Guy	225015.52	-4635.95	-2669.36	0.00	0.00	0.00
Dead+Wind 315 deg - Service+Guy	228180.99	-3912.24	-3484.51	0.00	0.00	0.00
Dead+Wind 330 deg - Service+Guy	233291.51	-2882.64	-4125.27	0.00	0.00	0.00

Solution Summary

Load Comb.	Sum of Applied Forces PX lb	PY lb	PZ lb	Sum of Reactions PX lb	PY lb	PZ lb	% Error
1	0.00	-68661.71	0.00	1.02	68661.72	0.75	0.002%
2	-100.78	-69425.23	-108963.51	99.79	69425.01	108961.03	0.002%
3	54705.23	-68643.60	-93924.17	-54706.56	68643.47	93922.23	0.002%
4	77288.23	-68073.81	-76533.95	-77289.92	68073.74	76532.34	0.002%
5	94415.85	-67864.89	-54178.26	-94411.32	67864.72	54180.98	0.004%
6	109173.18	-68855.07	12.68	-109169.35	68854.69	-11.28	0.003%
7	94855.20	-69811.16	54384.71	-94851.14	69810.63	-54381.71	0.004%
8	77494.38	-69533.64	76750.11	-77490.91	69533.15	-76746.65	0.004%
9	54890.54	-68873.25	94110.89	-54887.84	68872.86	-94107.43	0.003%
10	193.06	-67898.32	108593.47	-189.33	67898.16	-108590.89	0.004%
11	-55010.50	-68679.96	93713.21	55007.68	68679.83	-93713.71	0.002%
12	-77727.05	-69249.75	76426.95	77723.82	69249.55	-76427.21	0.003%
13	-95134.48	-69458.66	54091.56	95131.28	69458.43	-54091.43	0.002%
14	-109572.44	-68468.48	-221.69	109570.42	68468.32	222.32	0.002%
15	-95122.75	-67512.39	-54471.29	95121.16	67512.37	54473.67	0.002%
16	-77930.34	-67789.91	-76837.28	77931.38	67789.70	76833.19	0.003%
17	-55406.91	-68450.30	-94065.33	55406.89	68449.89	94059.79	0.004%
18	0.00	-110513.60	0.00	1.49	110513.59	1.12	0.002%
19	84.06	-112378.68	-144321.86	-86.46	112378.14	144315.54	0.004%
20	72054.45	-110467.23	-123965.06	-72058.81	110466.96	123960.42	0.004%
21	101651.58	-109073.30	-101001.16	-101655.03	109073.26	100998.27	0.003%
22	123994.06	-108563.35	-71502.26	-123989.09	108563.18	71506.73	0.004%
23	143380.21	-111001.32	-77.68	-143377.21	111000.94	80.36	0.002%
24	125196.04	-113351.57	71912.13	-125192.76	113351.04	-71908.56	0.003%
25	101637.55	-112668.25	100826.46	-101634.47	112667.72	-100822.69	0.003%
26	71937.81	-111047.81	123805.15	-71934.94	111047.35	-123801.35	0.003%
27	-6.10	-108648.77	142885.96	11.37	108648.53	-142882.63	0.003%
28	-72364.08	-110560.22	123747.82	72356.50	110559.97	-123750.94	0.005%
29	-102106.04	-111954.15	100886.15	102097.61	111953.67	-100887.84	0.005%
30	-125648.77	-112464.09	71925.90	125640.81	112463.51	-71925.39	0.004%
31	-143791.84	-110026.13	-147.09	143787.22	110025.71	150.01	0.003%

Load Comb.	Sum of Applied Forces PX lb	PY lb	PZ lb	Sum of Reactions PX lb	PY lb	PZ lb	% Error
32	-124563.49	-107675.88	-71479.30	124561.86	107675.85	71482.12	0.002%
33	-102090.20	-108359.19	-100917.33	102093.14	108358.90	100909.84	0.004%
34	-72475.78	-109979.64	-123760.38	72476.51	109979.29	123755.57	0.003%
35	-100.78	-69425.23	-108963.51	99.79	69425.01	108961.03	0.002%
36	54705.23	-68643.60	-93924.17	-54706.56	68643.47	93922.23	0.002%
37	77288.23	-68073.81	-76533.95	-77289.92	68073.74	76532.34	0.002%
38	94415.85	-67864.89	-54178.26	-94411.32	67864.72	54180.98	0.004%
39	109173.18	-68855.07	12.68	-109169.35	68854.69	-11.28	0.003%
40	94855.20	-69811.16	54384.71	-94851.14	69810.63	-54381.71	0.004%
41	77494.38	-69533.64	76750.11	-77490.91	69533.15	-76746.65	0.004%
42	54890.54	-68873.25	94110.89	-54887.84	68872.86	-94107.43	0.003%
43	193.06	-67898.32	108593.47	-189.33	67898.16	-108590.89	0.004%
44	-55010.50	-68679.96	93713.21	55007.68	68679.83	-93713.71	0.002%
45	-77727.05	-69249.75	76426.95	77723.82	69249.55	-76427.21	0.003%
46	-95134.48	-69458.66	54091.56	95131.28	69458.43	-54091.43	0.002%
47	-109572.44	-68468.48	-221.69	109570.42	68468.32	222.32	0.002%
48	-95122.75	-67512.39	-54471.29	95121.16	67512.37	54473.67	0.002%
49	-77930.34	-67789.91	-76837.28	77931.38	67789.70	76833.19	0.003%
50	-55406.91	-68450.30	-94065.33	55406.89	68449.89	94059.79	0.004%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	9	0.00000001	0.00005842
2	Yes	15	0.00000001	0.00006501
3	Yes	15	0.00000001	0.00006003
4	Yes	15	0.00000001	0.00006293
5	Yes	13	0.00010205	0.00011856
6	Yes	15	0.00006479	0.00011407
7	Yes	15	0.00007023	0.00013164
8	Yes	15	0.00006804	0.00012742
9	Yes	15	0.00006396	0.00011344
10	Yes	13	0.00007849	0.00008654
11	Yes	15	0.00000001	0.00006581
12	Yes	15	0.00000001	0.00007216
13	Yes	15	0.00000001	0.00007332
14	Yes	15	0.00000001	0.00005777
15	Yes	12	0.00007802	0.00007028
16	Yes	14	0.00009431	0.00011114
17	Yes	14	0.00009782	0.00014214
18	Yes	9	0.00000001	0.00004416
19	Yes	15	0.00006832	0.00010161
20	Yes	15	0.00006956	0.00010372
21	Yes	15	0.00006358	0.00008262
22	Yes	13	0.00008990	0.00009628
23	Yes	16	0.00006238	0.00009650
24	Yes	16	0.00005817	0.00009240
25	Yes	16	0.00005966	0.00009773
26	Yes	16	0.00006002	0.00009291
27	Yes	13	0.00006688	0.00006448
28	Yes	15	0.00007486	0.00011235
29	Yes	15	0.00007718	0.00011842
30	Yes	15	0.00007695	0.00011588
31	Yes	15	0.00007881	0.00009986
32	Yes	12	0.00008103	0.00006466

33	Yes	14	0.00012400	0.00011651
34	Yes	15	0.00006871	0.00008590
35	Yes	15	0.00000001	0.00006501
36	Yes	15	0.00000001	0.00006003
37	Yes	15	0.00000001	0.00006293
38	Yes	13	0.00010205	0.00011856
39	Yes	15	0.00006479	0.00011407
40	Yes	15	0.00007023	0.00013164
41	Yes	15	0.00006804	0.00012742
42	Yes	15	0.00006396	0.00011344
43	Yes	13	0.00007849	0.00008654
44	Yes	15	0.00000001	0.00006581
45	Yes	15	0.00000001	0.00007216
46	Yes	15	0.00000001	0.00007332
47	Yes	15	0.00000001	0.00005777
48	Yes	12	0.00007802	0.00007028
49	Yes	14	0.00009431	0.00011114
50	Yes	14	0.00009782	0.00014214

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	327 - 291.84	6.359	43	0.5012	0.3266
T1	291.84 - 279.84	7.362	43	0.7266	0.3419
T2	279.84 - 259.84	8.177	43	0.7438	0.3576
T3	259.84 - 239.84	9.503	43	0.7130	0.3130
T4	239.84 - 219.84	11.537	41	0.6004	0.3062
T5	219.84 - 199.84	13.478	40	0.4289	0.2818
T6	199.84 - 179.84	15.036	40	0.2824	0.2934
T7	179.84 - 159.84	15.781	40	0.1305	0.2893
T8	159.84 - 139.84	16.110	40	0.0887	0.2821
T9	139.84 - 119.84	16.240	40	0.1259	0.3146
T10	119.84 - 99.84	15.641	40	0.2161	0.3460
T11	99.84 - 79.84	14.561	40	0.2944	0.3661
T12	79.84 - 59.84	13.084	40	0.4534	0.3858
T13	59.84 - 39.84	10.765	40	0.6321	0.4167
T14	39.84 - 19.84	7.811	40	0.7878	0.5020
T15	19.84 - 6.5	4.151	40	0.9385	0.5819
T16	6.5 - 0	1.380	40	0.9972	0.5913

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
325.00	Lightning Rod 5/8x4'	43	6.385	0.5175	0.3370	16818
323.00	Flash Beacon Lighting	43	6.413	0.5338	0.3356	16818
305.00	6813 w/Radome	43	6.783	0.6656	0.3301	3823
285.84	Guy	43	7.752	0.7393	0.3526	5374
280.00	PD1150	43	8.166	0.7437	0.3576	21152
260.00	(2) AP16-850/065	43	9.492	0.7135	0.3133	58987
259.00	Generic TMA	44	9.557	0.7100	0.3117	60381
256.51	Guy	44	9.817	0.7002	0.3088	26568
240.00	(4) DB844H90	41	11.518	0.6016	0.3063	4799

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
230.00	APXV18-206517S-C w/ mounting hardware	41	12.564	0.5158	0.2938	6999
216.51	Guy	40	13.778	0.4043	0.2813	11758
209.00	6813 1-Bay w/radome	40	14.406	0.3529	0.2857	6869
198.00	6813 1-Bay w/radome	40	15.138	0.2654	0.2943	4908
186.00	(3) DUO1417-8670	40	15.623	0.1486	0.2931	8232
172.00	DB872	40	15.931	0.1255	0.2836	23022
170.00	DB806	40	15.964	0.1195	0.2824	21965
166.51	Guy	40	16.016	0.1075	0.2811	15768
166.00	Generic TMA	40	16.023	0.1058	0.2809	15148
158.00	DB872	40	16.136	0.0866	0.2835	13276
154.00	DB589	40	16.190	0.0871	0.2881	18428
142.00	7' Whip	40	16.256	0.1179	0.3100	5471
138.00	P4F-57W	40	16.218	0.1327	0.3183	5152
124.00	PD1108	40	15.819	0.1954	0.3410	8956
121.00	Ice Shield	40	15.692	0.2093	0.3447	10552
118.00	Ice Shield	40	15.556	0.2255	0.3479	12006
115.00	6 FT DISH	40	15.410	0.2380	0.3509	13078
112.00	6 FT DISH	40	15.256	0.2490	0.3538	14182
110.00	PD1110	40	15.149	0.2559	0.3560	15028
106.51	Guy	40	14.955	0.2674	0.3596	16775
104.00	8 FT DISH	40	14.810	0.2763	0.3620	18287
94.00	PR-850	40	14.191	0.3309	0.3727	10120
84.00	APL866513-42T0	40	13.452	0.4148	0.3832	5305
74.00	DB212-2-C	40	12.492	0.5075	0.3935	5275
56.51	Guy	40	10.314	0.6591	0.4270	8943
18.00	CL-24/HRM	40	3.780	0.9502	0.5852	8672
13.00	1.2M	40	2.750	0.9773	0.5900	13838

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	327 - 291.84	14.261	27	0.5012	0.4313
T1	291.84 - 279.84	14.349	27	0.7266	0.5320
T2	279.84 - 259.84	14.936	27	0.7438	0.5139
T3	259.84 - 239.84	15.786	27	0.7130	0.4380
T4	239.84 - 219.84	16.608	28	0.6004	0.4103
T5	219.84 - 199.84	17.200	24	0.4289	0.3634
T6	199.84 - 179.84	17.904	24	0.2824	0.3668
T7	179.84 - 159.84	17.851	24	0.2675	0.3524
T8	159.84 - 139.84	17.550	24	0.1855	0.3412
T9	139.84 - 119.84	17.286	24	0.2104	0.3639
T10	119.84 - 99.84	16.441	24	0.2778	0.3801
T11	99.84 - 79.84	15.237	24	0.3170	0.4047
T12	79.84 - 59.84	13.709	24	0.4701	0.4372
T13	59.84 - 39.84	11.304	24	0.6570	0.4577
T14	39.84 - 19.84	8.234	24	0.8238	0.5405
T15	19.84 - 6.5	4.391	24	0.9902	0.6240
T16	6.5 - 0	1.462	24	1.0555	0.6303

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
325.00	Lightning Rod 5/8x4'	27	14.230	0.5175	0.5290	16818
323.00	Flash Beacon Lighting	27	14.199	0.5338	0.5300	16818
305.00	6813 w/Radome	27	14.073	0.6656	0.5356	3823
285.84	Guy	27	14.624	0.7393	0.5262	5374
280.00	PD1150	27	14.928	0.7437	0.5143	13887
260.00	(2) AP16-850/065	27	15.780	0.7135	0.4384	17069
259.00	Generic TMA	27	15.817	0.7100	0.4358	15611
256.51	Guy	27	15.909	0.7002	0.4305	11516
240.00	(4) DB844H90	28	16.601	0.6016	0.4106	3781
230.00	APXV18-206517S-C w/ mounting hardware	28	16.892	0.5158	0.3858	6192
216.51	Guy	24	17.353	0.4043	0.3608	11758
209.00	6813 1-Bay w/radome	24	17.659	0.3529	0.3621	6869
198.00	6813 1-Bay w/radome	24	17.930	0.2654	0.3669	4908
186.00	(3) DUO1417-8670	24	17.927	0.2546	0.3592	8232
172.00	DB872	24	17.727	0.2457	0.3446	14395
170.00	DB806	24	17.695	0.2358	0.3431	12271
166.51	Guy	24	17.640	0.2170	0.3412	9756
166.00	Generic TMA	24	17.632	0.2142	0.3411	9475
158.00	DB872	24	17.531	0.1799	0.3422	8538
154.00	DB589	24	17.494	0.1729	0.3457	13573
142.00	7' Whip	24	17.336	0.2009	0.3613	5471
138.00	P4F-57W	24	17.236	0.2186	0.3659	5152
124.00	PD1108	24	16.660	0.2713	0.3769	8956
121.00	Ice Shield	24	16.504	0.2766	0.3792	10552
118.00	Ice Shield	24	16.340	0.2807	0.3817	12006
115.00	6 FT DISH	24	16.170	0.2844	0.3845	13078
112.00	6 FT DISH	24	15.994	0.2895	0.3877	14182
110.00	PD1110	24	15.875	0.2925	0.3900	15028
106.51	Guy	24	15.660	0.2982	0.3945	16775
104.00	8 FT DISH	24	15.503	0.3036	0.3981	18287
94.00	PR-850	24	14.850	0.3483	0.4152	10120
84.00	APL866513-42T0	24	14.088	0.4307	0.4322	5080
74.00	DB212-2-C	24	13.097	0.5258	0.4413	4971
56.51	Guy	24	10.836	0.6862	0.4672	8648
18.00	CL-24/HRM	24	4.000	1.0070	0.6295	7763
13.00	1.2M	24	2.911	1.0463	0.6392	12364

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load lb	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	291.84	Leg	A325N	1.0000	4	2090.45	34556.80	0.060 ✔	1.333	Bolt Tension
		Top Guy Pull-Off@285.84	A325N	0.6250	5	1154.36	6442.72	0.179 ✔	1.333	Bolt Shear
		Torque Arm Top@285.84	A325N	0.6250	5	1988.18	6442.72	0.309 ✔	1.333	Bolt Shear
T2	279.84	Leg	A325N	1.0000	4	0.00	34557.40	0.000 ✔	1.333	Bolt Tension
T3	259.84	Leg	A325N	1.0000	4	0.00	34552.00	0.000 ✔	1.333	Bolt Tension
		Top Guy Pull-Off@256.507	A325N	0.6250	5	1904.52	6442.72	0.296 ✔	1.333	Bolt Shear

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load lb	Ratio Load / Allowable	Allowable Ratio	Criteria
		Torque Arm Top@256.507	A325N	0.6250	5	2618.44	6442.72	0.406 ✓	1.333	Bolt Shear
T4	239.84	Leg	A325N	1.0000	4	3150.48	34557.50	0.091 ✓	1.333	Bolt Tension
T5	219.84	Leg	A325N	1.0000	4	0.00	34551.60	0.000 ✓	1.333	Bolt Tension
		Top Guy Pull-Off@216.507	A325N	0.6250	5	2723.19	6442.72	0.423 ✓	1.333	Bolt Shear
		Torque Arm Top@216.507	A325N	0.6250	5	3267.92	6442.72	0.507 ✓	1.333	Bolt Shear
T6	199.84	Leg	A325N	1.0000	4	2250.34	34557.20	0.065 ✓	1.333	Bolt Tension
T7	179.84	Leg	A325N	1.0000	4	0.00	34556.90	0.000 ✓	1.333	Bolt Tension
		Top Guy Pull-Off@166.507	A325N	0.6250	5	4048.39	6442.72	0.628 ✓	1.333	Bolt Shear
		Torque Arm Top@166.507	A325N	0.6250	5	4355.84	6442.72	0.676 ✓	1.333	Bolt Shear
T8	159.84	Leg	A325N	1.0000	4	0.00	34556.60	0.000 ✓	1.333	Bolt Tension
T9	139.84	Leg	A325N	1.0000	4	0.00	34556.20	0.000 ✓	1.333	Bolt Tension
T10	119.84	Leg	A325N	1.0000	4	0.00	34556.30	0.000 ✓	1.333	Bolt Tension
		Top Guy Pull-Off@106.507	A325N	0.6250	5	3849.44	6442.72	0.597 ✓	1.333	Bolt Shear
		Torque Arm Top@106.507	A325N	0.6250	5	4092.74	6442.72	0.635 ✓	1.333	Bolt Shear
T11	99.84	Leg	A325N	1.0000	4	0.00	34555.90	0.000 ✓	1.333	Bolt Tension
T12	79.84	Leg	A325N	1.3750	4	0.00	65334.20	0.000 ✓	1.333	Bolt Tension
T13	59.84	Leg	A325N	1.3750	4	0.00	65333.70	0.000 ✓	1.333	Bolt Tension
		Top Guy Pull-Off@56.5067	A325N	0.6250	5	1825.69	6442.72	0.283 ✓	1.333	Bolt Shear
		Torque Arm Top@56.5067	A325N	0.6250	5	1907.72	6442.72	0.296 ✓	1.333	Bolt Shear
T14	39.84	Leg	A325N	1.3750	4	0.00	65334.10	0.000 ✓	1.333	Bolt Tension
T15	19.84	Leg	A325N	1.3750	4	0.00	65333.60	0.000 ✓	1.333	Bolt Tension
T16	6.5	Leg	A325N	1.3750	4	0.00	65334.80	0.000 ✓	1.333	Bolt Tension

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension lb	Breaking Load lb	Actual T lb	Allowable T_a lb	Required S.F.	Actual S.F.
T1	285.84 (A) (672)	3/4 EHS	5830.00	58299.92	20194.50	29150.00	2.000	2.887 ✓
	285.84 (A) (673)	3/4 EHS	5830.00	58299.92	19831.70	29150.00	2.000	2.940 ✓
	285.84 (B) (668)	3/4 EHS	5830.00	58299.92	18962.90	29150.00	2.000	3.074 ✓
	285.84 (B) (669)	3/4 EHS	5830.00	58299.92	19070.60	29150.00	2.000	3.057 ✓
	285.84 (C) (664)	3/4 EHS	5830.00	58299.92	19755.90	29150.00	2.000	2.951 ✓

Section No.	Elevation ft	Size	Initial Tension lb	Breaking Load lb	Actual T lb	Allowable T_a lb	Required S.F.	Actual S.F.
	285.84 (C) (665)	3/4 EHS	5830.00	58299.92	19994.50	29150.00	2.000	2.916 ✔
T3	256.51 (A) (684)	3/4 EHS	5830.00	58299.92	22164.00	29150.00	2.000	2.630 ✔
	256.51 (A) (685)	3/4 EHS	5830.00	58299.92	21822.80	29150.00	2.000	2.672 ✔
	256.51 (B) (680)	3/4 EHS	5830.00	58299.92	20809.00	29150.00	2.000	2.802 ✔
	256.51 (B) (681)	3/4 EHS	5830.00	58299.92	20988.50	29150.00	2.000	2.778 ✔
	256.51 (C) (676)	3/4 EHS	5830.00	58299.92	21685.90	29150.00	2.000	2.688 ✔
	256.51 (C) (677)	3/4 EHS	5830.00	58299.92	21956.10	29150.00	2.000	2.655 ✔
T5	216.51 (A) (696)	3/4 EHS	4664.00	58299.92	23297.50	29150.00	2.000	2.502 ✔
	216.51 (A) (697)	3/4 EHS	4664.00	58299.92	22913.80	29150.00	2.000	2.544 ✔
	216.51 (B) (692)	3/4 EHS	4664.00	58299.92	21750.90	29150.00	2.000	2.680 ✔
	216.51 (B) (693)	3/4 EHS	4664.00	58299.92	21984.90	29150.00	2.000	2.652 ✔
	216.51 (C) (688)	3/4 EHS	4664.00	58299.92	22792.60	29150.00	2.000	2.558 ✔
	216.51 (C) (689)	3/4 EHS	4664.00	58299.92	23051.70	29150.00	2.000	2.529 ✔
T7	166.51 (A) (708)	3/4 EHS	5830.00	58299.92	25936.50	29150.00	2.000	2.248 ✔
	166.51 (A) (709)	3/4 EHS	5830.00	58299.92	25274.10	29150.00	2.000	2.307 ✔
	166.51 (B) (704)	3/4 EHS	5830.00	58299.92	24236.70	29150.00	2.000	2.405 ✔
	166.51 (B) (705)	3/4 EHS	5830.00	58299.92	24375.70	29150.00	2.000	2.392 ✔
	166.51 (C) (700)	3/4 EHS	5830.00	58299.92	25329.90	29150.00	2.000	2.302 ✔
	166.51 (C) (701)	3/4 EHS	5830.00	58299.92	25642.10	29150.00	2.000	2.274 ✔
T10	106.51 (A) (720)	5/8 EHS	4240.00	42399.99	20805.20	21200.00	2.000	2.038 ✔
	106.51 (A) (721)	5/8 EHS	4240.00	42399.99	20081.70	21200.00	2.000	2.111 ✔
	106.51 (B) (716)	5/8 EHS	4240.00	42399.99	19926.90	21200.00	2.000	2.128 ✔
	106.51 (B) (717)	5/8 EHS	4240.00	42399.99	19855.40	21200.00	2.000	2.135 ✔
	106.51 (C) (712)	5/8 EHS	4240.00	42399.99	20282.10	21200.00	2.000	2.091 ✔
	106.51 (C) (713)	5/8 EHS	4240.00	42399.99	20824.70	21200.00	2.000	2.036 ✔
T13	56.51 (A) (732)	7/16 EHS	2080.00	20800.02	9426.66	10400.00	2.000	2.207 ✔
	56.51 (A) (733)	7/16 EHS	2080.00	20800.02	8996.31	10400.00	2.000	2.312 ✔
	56.51 (B) (728)	7/16 EHS	2080.00	20800.02	8913.97	10400.00	2.000	2.333 ✔
	56.51 (B) (729)	7/16 EHS	2080.00	20800.02	9028.88	10400.00	2.000	2.304 ✔
	56.51 (C) (724)	7/16 EHS	2080.00	20800.02	9058.95	10400.00	2.000	2.296 ✔
	56.51 (C) (725)	7/16 EHS	2080.00	20800.02	9456.26	10400.00	2.000	2.200 ✔

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
L1	327 - 291.84 (1)	P10.75x0.843	35.16	35.16	120.0	10.366	26.2373	-3868.81	271981.00	0.014

Pole Bending Design Data

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L1	327 - 291.84 (1)	P10.75x0.843	27680.17	-5.507	33.000	0.167	0.00	0.000	33.000	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	327 - 291.84 (1)	P10.75x0.843	0.014	0.167	0.000	0.181 ✔	1.066	H1-3 ✔

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	Mast Stability Index	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	291.84 - 279.84	2	12.00	3.00	72.0 K=1.00	1.00	20.564	3.1416	-29032.80	64605.00	0.449
T2	279.84 - 259.84	2	20.00	3.33	80.0 K=1.00	1.00	19.012	3.1416	-35521.70	59729.20	0.595
T3	259.84 - 239.84	2 1/4	20.00	3.33	71.1 K=1.00	1.00	20.731	3.9761	-86729.60	82428.30	1.052
T4	239.84 - 219.84	2 1/4	20.00	3.33	71.1 K=1.00	1.00	20.731	3.9761	-87561.70	82428.30	1.062
T5	219.84 - 199.84	2 1/2	20.00	3.33	64.0 K=1.00	1.00	22.023	4.9087	-97880.20	108105.00	0.905
T6	199.84 - 179.84	2 1/2	20.00	3.33	64.0 K=1.00	1.00	22.023	4.9087	-98666.20	108105.00	0.913
T7	179.84 - 159.84	2 3/4	20.00	3.33	58.2 K=1.00	1.00	23.025	5.9396	-106798.00	136761.00	0.781
T8	159.84 - 139.84	2 1/2	20.00	3.33	64.0	1.00	22.023	4.9087	-105540.00	108105.00	0.976

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	Mast Stability Index	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T9	139.84 - 119.84	2 3/4	20.00	3.33	K=1.00 58.2	1.00	23.025	5.9396	-107842.00	136761.00	0.789
T10	119.84 - 99.84	2 3/4	20.00	3.33	K=1.00 58.2	1.00	23.025	5.9396	-118447.00	136761.00	0.866
T11	99.84 - 79.84	3	20.00	3.33	K=1.00 53.3	1.00	23.823	7.0686	-164380.00	168393.00	0.976
T12	79.84 - 59.84	3	20.00	3.33	K=1.00 53.3	1.00	23.823	7.0686	-168589.00	168393.00	1.001
T13	59.84 - 39.84	3	20.00	3.33	K=1.00 53.3	1.00	23.823	7.0686	-179115.00	168393.00	1.064
T14	39.84 - 19.84	3	20.00	3.33	K=1.00 53.3	1.00	23.823	7.0686	-179054.00	168393.00	1.063
T15	19.84 - 6.5	3	13.34	3.34	K=1.00 53.4	1.00	23.819	7.0686	-161910.00	168363.00	0.962
T16	6.5 - 0	3	6.84	2.10	K=1.00 67.3	1.00	21.431	7.0686	-143715.00	151486.00	0.949
					K=2.00						

Leg Bending Design Data (Compression)

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
T1	291.84 - 279.84	2	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T2	279.84 - 259.84	2	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T3	259.84 - 239.84	2 1/4	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T4	239.84 - 219.84	2 1/4	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T5	219.84 - 199.84	2 1/2	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T6	199.84 - 179.84	2 1/2	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T7	179.84 - 159.84	2 3/4	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T8	159.84 - 139.84	2 1/2	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T9	139.84 - 119.84	2 3/4	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T10	119.84 - 99.84	2 3/4	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T11	99.84 - 79.84	3	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T12	79.84 - 59.84	3	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T13	59.84 - 39.84	3	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T14	39.84 - 19.84	3	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T15	19.84 - 6.5	3	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T16	6.5 - 0	3	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000

Leg Interaction Design Data (Compression)

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	291.84 - 279.84	2	0.449	0.000	0.000	0.449 ✓	1.333	H1-3 ✓
T2	279.84 - 259.84	2	0.595	0.000	0.000	0.595 ✓	1.333	H1-3 ✓
T3	259.84 - 239.84	2 1/4	1.052	0.000	0.000	1.052 ✓	1.333	H1-3 ✓
T4	239.84 - 219.84	2 1/4	1.062	0.000	0.000	1.062 ✓	1.333	H1-3 ✓
T5	219.84 - 199.84	2 1/2	0.905	0.000	0.000	0.905 ✓	1.333	H1-3 ✓
T6	199.84 - 179.84	2 1/2	0.913	0.000	0.000	0.913 ✓	1.333	H1-3 ✓
T7	179.84 - 159.84	2 3/4	0.781	0.000	0.000	0.781 ✓	1.333	H1-3 ✓
T8	159.84 - 139.84	2 1/2	0.976	0.000	0.000	0.976 ✓	1.333	H1-3 ✓
T9	139.84 - 119.84	2 3/4	0.789	0.000	0.000	0.789 ✓	1.333	H1-3 ✓
T10	119.84 - 99.84	2 3/4	0.866	0.000	0.000	0.866 ✓	1.333	H1-3 ✓
T11	99.84 - 79.84	3	0.976	0.000	0.000	0.976 ✓	1.333	H1-3 ✓
T12	79.84 - 59.84	3	1.001	0.000	0.000	1.001 ✓	1.333	H1-3 ✓
T13	59.84 - 39.84	3	1.064	0.000	0.000	1.064 ✓	1.333	H1-3 ✓
T14	39.84 - 19.84	3	1.063	0.000	0.000	1.063 ✓	1.333	H1-3 ✓
T15	19.84 - 6.5	3	0.962	0.000	0.000	0.962 ✓	1.333	H1-3 ✓
T16	6.5 - 0	3	0.949	0.000	0.000	0.949 ✓	1.333	H1-3 ✓

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	291.84 - 279.84	1 3/8	4.74	4.52	110.5 K=0.70	11.603	1.4849	-5469.28	17228.70	0.317 ✓
T2	279.84 - 259.84	1 3/8	4.96	4.73	115.6 K=0.70	10.905	1.4849	-3858.18	16193.40	0.238 ✓
T3	259.84 - 239.84	1 3/8	4.96	4.70	114.9 K=0.70	11.001	1.4849	-8074.26	16335.50	0.494 ✓
T4	239.84 - 219.84	1 3/8	4.96	4.70	114.9 K=0.70	11.001	1.4849	-8565.81	16335.50	0.524 ✓
T5	219.84 - 199.84	1 1/2	4.96	4.67	104.7 K=0.70	12.374	1.7672	-8867.67	21867.00	0.406 ✓
T6	199.84 - 179.84	1 1/4	4.96	4.67	125.6 K=0.70	9.460	1.2272	-10858.90	11608.90	0.935 ✓
T7	179.84 - 159.84	1 1/2	4.96	4.65	104.1 K=0.70	12.456	1.7672	-13969.30	22012.00	0.635 ✓
T8	159.84 - 139.84	1 3/8	4.96	4.67	114.2 K=0.70	11.097	1.4849	-9439.37	16477.10	0.573 ✓
T9	139.84 - 119.84	1 1/4	4.96	4.65	124.9 K=0.70	9.572	1.2272	-6145.99	11746.50	0.523 ✓

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T10	119.84 - 99.84	1 1/2	4.96	4.65	104.1 K=0.70	12.456	1.7672	-15220.30	22012.00	0.691 ✓
T11	99.84 - 79.84	1 3/8	4.96	4.62	112.8 K=0.70	11.286	1.4849	-12003.90	16758.30	0.716 ✓
T12	79.84 - 59.84	1 1/4	4.96	4.62	124.1 K=0.70	9.684	1.2272	-5843.37	11883.50	0.492 ✓
T13	59.84 - 39.84	1 1/4	4.96	4.62	124.1 K=0.70	9.684	1.2272	-6595.62	11883.50	0.555 ✓
T14	39.84 - 19.84	1 1/4	4.96	4.62	124.1 K=0.70	9.684	1.2272	-6541.46	11883.50	0.550 ✓
T15	19.84 - 6.5	1 1/4	4.96	4.62	124.2 K=0.70	9.679	1.2272	-8384.51	11878.40	0.706 ✓

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	291.84 - 279.84	1	3.67	3.50	117.6 K=0.70	10.622	0.7854	-915.77	8342.71	0.110 ✓
T2	279.84 - 259.84	1	3.67	3.50	117.6 K=0.70	10.622	0.7854	-415.95	8342.71	0.050 ✓
T3	259.84 - 239.84	1	3.67	3.48	116.9 K=0.70	10.721	0.7854	-909.79	8420.16	0.108 ✓
T4	239.84 - 219.84	1	3.67	3.48	116.9 K=0.70	10.721	0.7854	-498.52	8420.16	0.059 ✓
T5	219.84 - 199.84	1	3.67	3.46	116.2 K=0.70	10.819	0.7854	-836.62	8497.28	0.098 ✓
T6	199.84 - 179.84	1	3.67	3.46	116.2 K=0.70	10.819	0.7854	-1757.62	8497.28	0.207 ✓
T7	179.84 - 159.84	1	3.67	3.44	115.5 K=0.70	10.917	0.7854	-493.52	8574.06	0.058 ✓
T8	159.84 - 139.84	1	3.67	3.46	116.2 K=0.70	10.819	0.7854	-9.92	8497.28	0.001 ✓
T9	139.84 - 119.84	1	3.67	3.44	115.5 K=0.70	10.917	0.7854	-18.90	8574.06	0.002 ✓
T10	119.84 - 99.84	1	3.67	3.44	115.5 K=0.70	10.917	0.7854	-781.68	8574.06	0.091 ✓
T11	99.84 - 79.84	1	3.67	3.42	114.8 K=0.70	11.014	0.7854	-562.67	8650.51	0.065 ✓

Secondary Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	291.84 - 279.84	1	1.83	1.75	81.5	15.189	0.7854	-0.05	11929.50	0.000

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T2	279.84 - 259.84	1	1.83	1.75	81.5 K=0.97	15.189	0.7854	-0.04	11929.50	0.000
T3	259.84 - 239.84	1	1.83	1.74	81.3 K=0.97	15.208	0.7854	-0.04	11944.70	0.000
T4	239.84 - 219.84	1	1.83	1.74	81.3 K=0.97	15.208	0.7854	-0.03	11944.70	0.000
T5	219.84 - 199.84	1	1.83	1.73	81.1 K=0.98	15.228	0.7854	-0.02	11960.10	0.000
T6	199.84 - 179.84	1	1.83	1.73	81.1 K=0.98	15.228	0.7854	-0.02	11960.10	0.000
T7	179.84 - 159.84	1	1.83	1.72	81.0 K=0.98	15.248	0.7854	-0.02	11975.90	0.000
T8	159.84 - 139.84	1	1.83	1.73	81.1 K=0.98	15.228	0.7854	-0.01	11960.10	0.000
T9	139.84 - 119.84	1	1.83	1.72	81.0 K=0.98	15.248	0.7854	-0.02	11975.90	0.000
T10	119.84 - 99.84	1	1.83	1.72	81.0 K=0.98	15.248	0.7854	-0.02	11975.90	0.000
T11	99.84 - 79.84	1	1.83	1.71	80.8 K=0.98	15.269	0.7854	-0.02	11992.00	0.000
T12	79.84 - 59.84	1	1.83	1.71	80.8 K=0.98	15.269	0.7854	-0.04	11992.00	0.000
T13	59.84 - 39.84	1	1.83	1.71	80.8 K=0.98	15.269	0.7854	-0.04	11992.00	0.000
T14	39.84 - 19.84	1	1.83	1.71	80.8 K=0.98	15.269	0.7854	-0.06	11992.00	0.000
T15	19.84 - 6.5	1	1.83	1.71	80.8 K=0.98	15.269	0.7854	-0.06	11992.00	0.000

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	291.84 - 279.84	1	3.67	3.50	117.6 K=0.70	10.622	0.7854	-0.06	8342.71	0.000
T2	279.84 - 259.84	1	3.67	3.50	117.6 K=0.70	10.622	0.7854	-993.15	8342.71	0.119
T3	259.84 - 239.84	1	3.67	3.50	117.6 K=0.70	10.622	0.7854	-654.00	8342.71	0.078
T4	239.84 - 219.84	1	3.67	3.48	116.9 K=0.70	10.721	0.7854	-1689.84	8420.16	0.201
T6	199.84 - 179.84	1	3.67	3.46	116.2 K=0.70	10.819	0.7854	-304.19	8497.28	0.036
T9	139.84 - 119.84	1	3.67	3.46	116.2 K=0.70	10.819	0.7854	-21.97	8497.28	0.003

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T16	6.5 - 0	12x3/8	0.28	0.03	3.6 K=1.00	21.455	4.5000	-4989.81	96549.00	0.052

Mid Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T16	6.5 - 0	9x3/8	1.41	1.16	128.6 K=1.00	9.025	3.3750	-269.43	30460.70	0.009

Top Guy Pull-Off Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	291.84 - 279.84	MC12x35	3.67	3.50	115.1 K=1.00	10.968	10.3000	-5087.44	112971.00	0.045
T3	259.84 - 239.84	MC12x35	3.67	3.48	114.6 K=1.00	11.042	10.3000	-8376.45	113735.00	0.074
T5	219.84 - 199.84	MC12x35	3.67	3.46	114.1 K=1.00	11.116	10.3000	-12030.50	114498.00	0.105
T7	179.84 - 159.84	MC12x35	3.67	3.44	113.5 K=1.00	11.191	10.3000	-17974.70	115263.00	0.156
T10	119.84 - 99.84	MC12x35	3.67	3.44	113.5 K=1.00	11.191	10.3000	-16922.10	115263.00	0.147
T13	59.84 - 39.84	MC12x35	3.67	3.42	113.0 K=1.00	11.265	10.3000	-6667.34	116028.00	0.057

Top Guy Pull-Off Bending Design Data

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
T1	291.84 - 279.84	MC12x35	72.45	-0.024	21.600	0.001	-0.00	-0.000	21.600	0.000
T3	259.84 - 239.84	MC12x35	72.45	-0.024	21.600	0.001	-0.00	-0.000	21.600	0.000
T5	219.84 - 199.84	MC12x35	72.45	-0.024	21.600	0.001	0.00	-0.000	21.600	0.000
T7	179.84 - 159.84	MC12x35	72.45	-0.024	21.600	0.001	0.00	-0.000	21.600	0.000
T10	119.84 - 99.84	MC12x35	72.45	-0.024	21.600	0.001	0.00	-0.000	21.600	0.000

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
T13	59.84 - 39.84	MC12x35	72.45	-0.024	21.600	0.001	0.00	-0.000	21.600	0.000

Top Guy Pull-Off Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	291.84 - 279.84	MC12x35	0.045	0.001	0.000	0.046 ✔	1.333	H1-3 ✔
T3	259.84 - 239.84	MC12x35	0.074	0.001	0.000	0.075 ✔	1.333	H1-3 ✔
T5	219.84 - 199.84	MC12x35	0.105	0.001	0.000	0.106 ✔	1.333	H1-3 ✔
T7	179.84 - 159.84	MC12x35	0.156	0.001	0.000	0.157 ✔	1.333	H1-3 ✔
T10	119.84 - 99.84	MC12x35	0.147	0.001	0.000	0.148 ✔	1.333	H1-3 ✔
T13	59.84 - 39.84	MC12x35	0.057	0.001	0.000	0.059 ✔	1.333	H1-3 ✔

Torque-Arm Top Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	291.84 - 279.84 (666)	MC12x35	4.00	3.92	125.5 K=1.00	9.483	10.3000	-88.85	97670.50	0.001
T1	291.84 - 279.84 (667)	MC12x35	4.00	3.92	125.5 K=1.00	9.483	10.3000	-34.31	97670.50	0.000
T1	291.84 - 279.84 (670)	MC12x35	4.00	3.92	125.5 K=1.00	9.483	10.3000	-280.11	97670.50	0.003
T1	291.84 - 279.84 (671)	MC12x35	4.00	3.92	125.5 K=1.00	9.483	10.3000	-26.45	97670.50	0.000
T1	291.84 - 279.84 (674)	MC12x35	4.00	3.92	125.5 K=1.00	9.483	10.3000	-188.85	97670.50	0.002
T1	291.84 - 279.84 (675)	MC12x35	4.00	3.92	125.5 K=1.00	9.483	10.3000	-408.72	97670.50	0.004
T3	259.84 - 239.84 (678)	MC12x35	4.00	3.91	125.2 K=1.00	9.519	10.3000	-1991.90	98045.70	0.020
T3	259.84 - 239.84 (679)	MC12x35	4.00	3.91	125.2 K=1.00	9.519	10.3000	-1994.01	98045.70	0.020
T3	259.84 - 239.84 (682)	MC12x35	4.00	3.91	125.2 K=1.00	9.519	10.3000	-1918.08	98045.70	0.020
T3	259.84 - 239.84 (683)	MC12x35	4.00	3.91	125.2 K=1.00	9.519	10.3000	-2272.97	98045.70	0.023
T3	259.84 - 239.84 (686)	MC12x35	4.00	3.91	125.2 K=1.00	9.519	10.3000	-2148.57	98045.70	0.022
T3	259.84 - 239.84 (687)	MC12x35	4.00	3.91	125.2 K=1.00	9.519	10.3000	-2380.22	98045.70	0.024
T5	219.84 - 199.84 (690)	MC12x35	4.00	3.90	125.0 K=1.00	9.555	10.3000	-4297.36	98421.10	0.044
T5	219.84 - 199.84 (691)	MC12x35	4.00	3.90	125.0 K=1.00	9.555	10.3000	-4316.05	98421.10	0.044

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T5	219.84 - 199.84 (694)	MC12x35	4.00	3.90	125.0 K=1.00	9.555	10.3000	-4205.79	98421.10	0.043
T5	219.84 - 199.84 (695)	MC12x35	4.00	3.90	125.0 K=1.00	9.555	10.3000	-4630.26	98421.10	0.047
T5	219.84 - 199.84 (698)	MC12x35	4.00	3.90	125.0 K=1.00	9.555	10.3000	-4462.61	98421.10	0.045
T5	219.84 - 199.84 (699)	MC12x35	4.00	3.90	125.0 K=1.00	9.555	10.3000	-4753.81	98421.10	0.048
T7	179.84 - 159.84 (702)	MC12x35	4.00	3.89	124.7 K=1.00	9.592	10.3000	-8993.27	98796.70	0.091
T7	179.84 - 159.84 (703)	MC12x35	4.00	3.89	124.7 K=1.00	9.592	10.3000	-6926.42	98796.70	0.070
T7	179.84 - 159.84 (706)	MC12x35	4.00	3.89	124.7 K=1.00	9.592	10.3000	-7583.72	98796.70	0.077
T7	179.84 - 159.84 (707)	MC12x35	4.00	3.89	124.7 K=1.00	9.592	10.3000	-7087.08	98796.70	0.072
T7	179.84 - 159.84 (710)	MC12x35	4.00	3.89	124.7 K=1.00	9.592	10.3000	-9212.89	98796.70	0.093
T7	179.84 - 159.84 (711)	MC12x35	4.00	3.89	124.7 K=1.00	9.592	10.3000	-7771.31	98796.70	0.079
T10	119.84 - 99.84 (714)	MC12x35	4.00	3.89	124.7 K=1.00	9.592	10.3000	-8764.89	98796.70	0.089
T10	119.84 - 99.84 (715)	MC12x35	4.00	3.89	124.7 K=1.00	9.592	10.3000	-6842.36	98796.70	0.069
T10	119.84 - 99.84 (718)	MC12x35	4.00	3.89	124.7 K=1.00	9.592	10.3000	-10270.90	98796.70	0.104
T10	119.84 - 99.84 (719)	MC12x35	4.00	3.89	124.7 K=1.00	9.592	10.3000	-10258.50	98796.70	0.104
T10	119.84 - 99.84 (722)	MC12x35	4.00	3.89	124.7 K=1.00	9.592	10.3000	-9151.97	98796.70	0.093
T10	119.84 - 99.84 (723)	MC12x35	4.00	3.89	124.7 K=1.00	9.592	10.3000	-10176.60	98796.70	0.103
T13	59.84 - 39.84 (726)	MC12x35	4.00	3.88	124.5 K=1.00	9.628	10.3000	-3955.65	99172.50	0.040
T13	59.84 - 39.84 (727)	MC12x35	4.00	3.88	124.5 K=1.00	9.628	10.3000	-3137.76	99172.50	0.032
T13	59.84 - 39.84 (730)	MC12x35	4.00	3.88	124.5 K=1.00	9.628	10.3000	-4231.50	99172.50	0.043
T13	59.84 - 39.84 (731)	MC12x35	4.00	3.88	124.5 K=1.00	9.628	10.3000	-4390.03	99172.50	0.044
T13	59.84 - 39.84 (734)	MC12x35	4.00	3.88	124.5 K=1.00	9.628	10.3000	-4230.04	99172.50	0.043
T13	59.84 - 39.84 (735)	MC12x35	4.00	3.88	124.5 K=1.00	9.628	10.3000	-4362.72	99172.50	0.044

Torque-Arm Top Bending Design Data

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
T1	291.84 - 279.84 (666)	MC12x35	-63611.00	-21.145	21.600	0.979	0.00	-0.000	21.600	0.000
T1	291.84 - 279.84 (667)	MC12x35	-64391.17	-21.404	21.600	0.991	-0.00	-0.000	21.600	0.000

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
T1	291.84 - 279.84 (670)	MC12x35	-63717.92	-21.180	21.600	0.981	0.00	-0.000	21.600	0.000
T1	291.84 - 279.84 (671)	MC12x35	-58770.75	-19.536	21.600	0.904	0.00	-0.000	21.600	0.000
T1	291.84 - 279.84 (674)	MC12x35	-58899.67	-19.579	21.600	0.906	0.00	-0.000	21.600	0.000
T1	291.84 - 279.84 (675)	MC12x35	-64251.25	-21.358	21.600	0.989	-0.00	-0.000	21.600	0.000
T3	259.84 - 239.84 (678)	MC12x35	-67657.67	-22.490	21.600	1.041	-0.00	-0.000	21.600	0.000
T3	259.84 - 239.84 (679)	MC12x35	-67028.58	-22.281	21.600	1.032	0.00	-0.000	21.600	0.000
T3	259.84 - 239.84 (682)	MC12x35	-61260.67	-20.364	21.600	0.943	0.00	-0.000	21.600	0.000
T3	259.84 - 239.84 (683)	MC12x35	-66754.08	-22.190	21.600	1.027	0.00	-0.000	21.600	0.000
T3	259.84 - 239.84 (686)	MC12x35	-61080.67	-20.304	21.600	0.940	0.00	-0.000	21.600	0.000
T3	259.84 - 239.84 (687)	MC12x35	-67777.42	-22.530	21.600	1.043	-0.00	-0.000	21.600	0.000
T5	219.84 - 199.84 (690)	MC12x35	-66283.42	-22.033	21.600	1.020	-0.00	-0.000	21.600	0.000
T5	219.84 - 199.84 (691)	MC12x35	-65575.83	-21.798	21.600	1.009	0.00	-0.000	21.600	0.000
T5	219.84 - 199.84 (694)	MC12x35	-58548.25	-19.462	21.600	0.901	0.00	-0.000	21.600	0.000
T5	219.84 - 199.84 (695)	MC12x35	-65291.00	-21.703	21.600	1.005	0.00	-0.000	21.600	0.000
T5	219.84 - 199.84 (698)	MC12x35	-58379.08	-19.406	21.600	0.898	0.00	-0.000	21.600	0.000
T5	219.84 - 199.84 (699)	MC12x35	-66486.42	-22.101	21.600	1.023	-0.00	-0.000	21.600	0.000
T7	179.84 - 159.84 (702)	MC12x35	-62364.25	-20.730	21.600	0.960	0.00	-0.000	21.600	0.000
T7	179.84 - 159.84 (703)	MC12x35	-64439.92	-21.421	21.600	0.992	-0.00	-0.000	21.600	0.000
T7	179.84 - 159.84 (706)	MC12x35	-63383.33	-21.069	21.600	0.975	0.00	-0.000	21.600	0.000
T7	179.84 - 159.84 (707)	MC12x35	-54172.67	-18.008	21.600	0.834	0.00	-0.000	21.600	0.000

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
T7	179.84 - 159.84 (710)	MC12x35	-53536.00	-17.796	21.600	0.824	0.00	-0.000	21.600	0.000
T7	179.84 - 159.84 (711)	MC12x35	-64111.08	-21.311	21.600	0.987	-0.00	-0.000	21.600	0.000
T10	119.84 - 99.84 (714)	MC12x35	-38565.92	-12.820	21.600	0.594	0.00	-0.000	21.600	0.000
T10	119.84 - 99.84 (715)	MC12x35	-40028.67	-13.306	21.600	0.616	-0.00	-0.000	21.600	0.000
T10	119.84 - 99.84 (718)	MC12x35	-38184.00	-12.693	21.600	0.588	0.00	-0.000	21.600	0.000
T10	119.84 - 99.84 (719)	MC12x35	-29793.83	-9.904	21.600	0.459	-0.00	-0.000	21.600	0.000
T10	119.84 - 99.84 (722)	MC12x35	-30565.83	-10.160	21.600	0.470	-0.00	-0.000	21.600	0.000
T10	119.84 - 99.84 (723)	MC12x35	-38489.08	-12.794	21.600	0.592	-0.00	-0.000	21.600	0.000
T13	59.84 - 39.84 (726)	MC12x35	-11795.17	-3.921	21.600	0.182	-0.00	-0.000	21.600	0.000
T13	59.84 - 39.84 (727)	MC12x35	-12040.08	-4.002	21.600	0.185	0.00	-0.000	21.600	0.000
T13	59.84 - 39.84 (730)	MC12x35	-7586.62	-2.522	21.600	0.117	0.00	-0.000	21.600	0.000
T13	59.84 - 39.84 (731)	MC12x35	-11789.25	-3.919	21.600	0.181	0.00	-0.000	21.600	0.000
T13	59.84 - 39.84 (734)	MC12x35	-7584.10	-2.521	21.600	0.117	0.00	-0.000	21.600	0.000
T13	59.84 - 39.84 (735)	MC12x35	-12310.00	-4.092	21.600	0.189	-0.00	-0.000	21.600	0.000

Torque-Arm Top Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	291.84 - 279.84 (666)	MC12x35	0.001	0.979	0.000	0.980 ✔	1.333	H1-3 ✔
T1	291.84 - 279.84 (667)	MC12x35	0.000	0.991	0.000	0.991 ✔	1.333	H1-3 ✔
T1	291.84 - 279.84 (670)	MC12x35	0.003	0.981	0.000	0.983 ✔	1.333	H1-3 ✔
T1	291.84 - 279.84 (671)	MC12x35	0.000	0.904	0.000	0.905 ✔	1.333	H1-3 ✔
T1	291.84 - 279.84 (674)	MC12x35	0.002	0.906	0.000	0.908 ✔	1.333	H1-3 ✔

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	291.84 - 279.84 (675)	MC12x35	0.004	0.989	0.000	0.993 ✔	1.333	H1-3 ✔
T3	259.84 - 239.84 (678)	MC12x35	0.020	1.041	0.000	1.062 ✔	1.333	H1-3 ✔
T3	259.84 - 239.84 (679)	MC12x35	0.020	1.032	0.000	1.052 ✔	1.333	H1-3 ✔
T3	259.84 - 239.84 (682)	MC12x35	0.020	0.943	0.000	0.962 ✔	1.333	H1-3 ✔
T3	259.84 - 239.84 (683)	MC12x35	0.023	1.027	0.000	1.050 ✔	1.333	H1-3 ✔
T3	259.84 - 239.84 (686)	MC12x35	0.022	0.940	0.000	0.962 ✔	1.333	H1-3 ✔
T3	259.84 - 239.84 (687)	MC12x35	0.024	1.043	0.000	1.067 ✔	1.333	H1-3 ✔
T5	219.84 - 199.84 (690)	MC12x35	0.044	1.020	0.000	1.064 ✔	1.333	H1-3 ✔
T5	219.84 - 199.84 (691)	MC12x35	0.044	1.009	0.000	1.053 ✔	1.333	H1-3 ✔
T5	219.84 - 199.84 (694)	MC12x35	0.043	0.901	0.000	0.944 ✔	1.333	H1-3 ✔
T5	219.84 - 199.84 (695)	MC12x35	0.047	1.005	0.000	1.052 ✔	1.333	H1-3 ✔
T5	219.84 - 199.84 (698)	MC12x35	0.045	0.898	0.000	0.944 ✔	1.333	H1-3 ✔
T5	219.84 - 199.84 (699)	MC12x35	0.048	1.023	0.000	1.071 ✔	1.333	H1-3 ✔
T7	179.84 - 159.84 (702)	MC12x35	0.091	0.960	0.000	1.051 ✔	1.333	H1-3 ✔
T7	179.84 - 159.84 (703)	MC12x35	0.070	0.992	0.000	1.062 ✔	1.333	H1-3 ✔
T7	179.84 - 159.84 (706)	MC12x35	0.077	0.975	0.000	1.052 ✔	1.333	H1-3 ✔
T7	179.84 - 159.84 (707)	MC12x35	0.072	0.834	0.000	0.905 ✔	1.333	H1-3 ✔
T7	179.84 - 159.84 (710)	MC12x35	0.093	0.824	0.000	0.917 ✔	1.333	H1-3 ✔
T7	179.84 - 159.84 (711)	MC12x35	0.079	0.987	0.000	1.065 ✔	1.333	H1-3 ✔
T10	119.84 - 99.84 (714)	MC12x35	0.089	0.594	0.000	0.682 ✔	1.333	H1-3 ✔
T10	119.84 - 99.84 (715)	MC12x35	0.069	0.616	0.000	0.685 ✔	1.333	H1-3 ✔
T10	119.84 - 99.84 (718)	MC12x35	0.104	0.588	0.000	0.692 ✔	1.333	H1-3 ✔
T10	119.84 - 99.84 (719)	MC12x35	0.104	0.459	0.000	0.562 ✔	1.333	H1-3 ✔
T10	119.84 - 99.84 (722)	MC12x35	0.093	0.470	0.000	0.563 ✔	1.333	H1-3 ✔
T10	119.84 - 99.84 (723)	MC12x35	0.103	0.592	0.000	0.695 ✔	1.333	H1-3 ✔
T13	59.84 - 39.84 (726)	MC12x35	0.040	0.182	0.000	0.221 ✔	1.333	H1-3 ✔
T13	59.84 - 39.84 (727)	MC12x35	0.032	0.185	0.000	0.217 ✔	1.333	H1-3 ✔
T13	59.84 - 39.84 (730)	MC12x35	0.043	0.117	0.000	0.159 ✔	1.333	H1-3 ✔
T13	59.84 - 39.84 (731)	MC12x35	0.044	0.181	0.000	0.226 ✔	1.333	H1-3 ✔
T13	59.84 - 39.84 (734)	MC12x35	0.043	0.117	0.000	0.159 ✔	1.333	H1-3 ✔

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T13	59.84 - 39.84 (735)	MC12x35	0.044	0.189	0.000	0.233 ✔	1.333	H1-3 ✔

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	291.84 - 279.84	2	12.00	3.00	72.0	30.000	3.1416	9772.53	94247.80	0.104
T3	259.84 - 239.84	2 1/4	20.00	3.33	71.1	30.000	3.9761	11104.40	119282.00	0.093
T4	239.84 - 219.84	2 1/4	20.00	3.33	71.1	30.000	3.9761	12611.70	119282.00	0.106
T5	219.84 - 199.84	2 1/2	20.00	3.33	64.0	30.000	4.9087	7188.92	147262.00	0.049
T6	199.84 - 179.84	2 1/2	20.00	3.33	64.0	30.000	4.9087	9001.37	147262.00	0.061

Leg Bending Design Data (Tension)

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
T1	291.84 - 279.84	2	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T3	259.84 - 239.84	2 1/4	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T4	239.84 - 219.84	2 1/4	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T5	219.84 - 199.84	2 1/2	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T6	199.84 - 179.84	2 1/2	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000

Leg Interaction Design Data (Tension)

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	291.84 - 279.84	2	0.104	0.000	0.000	0.104 ✔	1.333	H2-1 ✔
T3	259.84 - 239.84	2 1/4	0.093	0.000	0.000	0.093 ✔	1.333	H2-1 ✔
T4	239.84 - 219.84	2 1/4	0.106	0.000	0.000	0.106 ✔	1.333	H2-1 ✔
T5	219.84 - 199.84	2 1/2	0.049	0.000	0.000	0.049 ✔	1.333	H2-1 ✔
T6	199.84 -	2 1/2	0.061	0.000	0.000	0.061 ✔	1.333	H2-1 ✔

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	179.84							

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	291.84 - 279.84	1 3/8	4.74	4.52	157.9	21.600	1.4849	5106.49	32073.70	0.159 ✓
T2	279.84 - 259.84	1 3/8	4.96	4.73	165.1	21.600	1.4849	3467.35	32073.70	0.108 ✓
T3	259.84 - 239.84	1 3/8	4.96	4.70	164.1	21.600	1.4849	7126.87	32073.70	0.222 ✓
T4	239.84 - 219.84	1 3/8	4.96	4.70	164.1	21.600	1.4849	7604.06	32073.70	0.237 ✓
T5	219.84 - 199.84	1 1/2	4.96	4.67	149.6	21.600	1.7672	7577.51	38170.40	0.199 ✓
T6	199.84 - 179.84	1 1/4	4.96	4.67	179.5	21.600	1.2272	9138.59	26507.20	0.345 ✓
T7	179.84 - 159.84	1 1/2	4.96	4.65	148.7	21.600	1.7672	12764.30	38170.40	0.334 ✓
T8	159.84 - 139.84	1 3/8	4.96	4.67	163.2	21.600	1.4849	7840.61	32073.70	0.244 ✓
T9	139.84 - 119.84	1 1/4	4.96	4.65	178.4	21.600	1.2272	3769.03	26507.20	0.142 ✓
T10	119.84 - 99.84	1 1/2	4.96	4.65	148.7	21.600	1.7672	12504.00	38170.40	0.328 ✓
T11	99.84 - 79.84	1 3/8	4.96	4.62	161.2	21.600	1.4849	9043.93	32073.70	0.282 ✓
T12	79.84 - 59.84	1 1/4	4.96	4.62	177.3	21.600	1.2272	3569.14	26507.20	0.135 ✓
T13	59.84 - 39.84	1 1/4	4.96	4.62	177.3	21.600	1.2272	3857.51	26507.20	0.146 ✓
T14	39.84 - 19.84	1 1/4	4.96	4.62	177.3	21.600	1.2272	3698.14	26507.20	0.140 ✓
T15	19.84 - 6.5	1 1/4	4.96	4.62	177.4	21.600	1.2272	6564.71	26507.20	0.248 ✓

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	291.84 - 279.84	1	3.67	3.50	168.0	21.600	0.7854	1051.28	16964.60	0.062 ✓
T2	279.84 - 259.84	1	3.67	3.50	168.0	21.600	0.7854	416.03	16964.60	0.025 ✓

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T3	259.84 - 239.84	1	3.67	3.48	167.0	21.600	0.7854	722.51	16964.60	0.043 ✓
T4	239.84 - 219.84	1	3.67	3.48	167.0	21.600	0.7854	1025.18	16964.60	0.060 ✓
T5	219.84 - 199.84	1	3.67	3.46	166.0	21.600	0.7854	1350.34	16964.60	0.080 ✓
T6	199.84 - 179.84	1	3.67	3.46	166.0	21.600	0.7854	2714.08	16964.60	0.160 ✓
T7	179.84 - 159.84	1	3.67	3.44	165.0	21.600	0.7854	1435.31	16964.60	0.085 ✓
T8	159.84 - 139.84	1	3.67	3.46	166.0	21.600	0.7854	1142.38	16964.60	0.067 ✓
T9	139.84 - 119.84	1	3.67	3.44	165.0	21.600	0.7854	1337.50	16964.60	0.079 ✓
T10	119.84 - 99.84	1	3.67	3.44	165.0	21.600	0.7854	1986.65	16964.60	0.117 ✓
T11	99.84 - 79.84	1	3.67	3.42	164.0	21.600	0.7854	2493.72	16964.60	0.147 ✓
T12	79.84 - 59.84	1	3.67	3.42	164.0	21.600	0.7854	1560.61	16964.60	0.092 ✓
T13	59.84 - 39.84	1	3.67	3.42	164.0	21.600	0.7854	1549.51	16964.60	0.091 ✓
T14	39.84 - 19.84	1	3.67	3.42	164.0	21.600	0.7854	1489.15	16964.60	0.088 ✓
T15	19.84 - 6.5	1	3.67	3.42	164.0	21.600	0.7854	1704.51	16964.60	0.100 ✓

Secondary Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	291.84 - 279.84	1	1.83	1.75	84.0	21.600	0.7854	0.04	16964.60	0.000 ✓
T2	279.84 - 259.84	1	1.83	1.75	84.0	21.600	0.7854	0.04	16964.60	0.000 ✓
T3	259.84 - 239.84	1	1.83	1.74	83.5	21.600	0.7854	0.03	16964.60	0.000 ✓
T4	239.84 - 219.84	1	1.83	1.74	83.5	21.600	0.7854	0.02	16964.60	0.000 ✓
T5	219.84 - 199.84	1	1.83	1.73	83.0	21.600	0.7854	0.02	16964.60	0.000 ✓
T6	199.84 - 179.84	1	1.83	1.73	83.0	21.600	0.7854	0.02	16964.60	0.000 ✓
T7	179.84 - 159.84	1	1.83	1.72	82.5	21.600	0.7854	0.02	16964.60	0.000 ✓
T8	159.84 - 139.84	1	1.83	1.73	83.0	21.600	0.7854	0.01	16964.60	0.000 ✓
T9	139.84 - 119.84	1	1.83	1.72	82.5	21.600	0.7854	0.02	16964.60	0.000 ✓

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio P / P_a
T10	119.84 - 99.84	1	1.83	1.72	82.5	21.600	0.7854	0.02	16964.60	0.000 ✓
T11	99.84 - 79.84	1	1.83	1.71	82.0	21.600	0.7854	0.03	16964.60	0.000 ✓
T12	79.84 - 59.84	1	1.83	1.71	82.0	21.600	0.7854	0.04	16964.60	0.000 ✓
T13	59.84 - 39.84	1	1.83	1.71	82.0	21.600	0.7854	0.05	16964.60	0.000 ✓
T14	39.84 - 19.84	1	1.83	1.71	82.0	21.600	0.7854	0.06	16964.60	0.000 ✓
T15	19.84 - 6.5	1	1.83	1.71	82.0	21.600	0.7854	0.07	16964.60	0.000 ✓

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio P / P_a
T1	291.84 - 279.84	1	3.67	3.50	168.0	21.600	0.7854	0.06	16964.60	0.000 ✓
T2	279.84 - 259.84	1	3.67	3.50	168.0	21.600	0.7854	1586.25	16964.60	0.094 ✓
T3	259.84 - 239.84	1	3.67	3.50	168.0	21.600	0.7854	1839.39	16964.60	0.108 ✓
T4	239.84 - 219.84	1	3.67	3.48	167.0	21.600	0.7854	2193.46	16964.60	0.129 ✓
T5	219.84 - 199.84	1	3.67	3.48	167.0	21.600	0.7854	1017.12	16964.60	0.060 ✓
T6	199.84 - 179.84	1	3.67	3.46	166.0	21.600	0.7854	1217.38	16964.60	0.072 ✓
T7	179.84 - 159.84	1	3.67	3.46	166.0	21.600	0.7854	938.87	16964.60	0.055 ✓
T8	159.84 - 139.84	1	3.67	3.44	165.0	21.600	0.7854	1136.47	16964.60	0.067 ✓
T9	139.84 - 119.84	1	3.67	3.46	166.0	21.600	0.7854	1228.14	16964.60	0.072 ✓
T10	119.84 - 99.84	1	3.67	3.44	165.0	21.600	0.7854	1241.97	16964.60	0.073 ✓
T11	99.84 - 79.84	1	3.67	3.44	165.0	21.600	0.7854	1379.54	16964.60	0.081 ✓
T12	79.84 - 59.84	1	3.67	3.42	164.0	21.600	0.7854	1378.65	16964.60	0.081 ✓
T13	59.84 - 39.84	1	3.67	3.42	164.0	21.600	0.7854	1363.67	16964.60	0.080 ✓
T14	39.84 - 19.84	1	3.67	3.42	164.0	21.600	0.7854	1484.54	16964.60	0.088 ✓
T15	19.84 - 6.5	1	3.67	3.42	164.0	21.600	0.7854	1671.64	16964.60	0.099 ✓
T16	6.5 - 0	12x3/8	3.67	3.42	378.8	21.600	4.5000	25525.70	97200.00	0.263 ✓

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$

Mid Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T16	6.5 - 0	9x3/8	2.54	2.29	253.7	21.600	3.3750	400.62	72900.00	0.005 ✔

Top Guy Pull-Off Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	291.84 - 279.84	MC12x35	3.67	3.50	37.8	21.600	10.3000	5771.25	222480.00	0.026
T3	259.84 - 239.84	MC12x35	3.67	3.48	37.6	21.600	10.3000	9522.14	222480.00	0.043
T5	219.84 - 199.84	MC12x35	3.67	3.46	37.4	21.600	10.3000	13615.80	222480.00	0.061
T7	179.84 - 159.84	MC12x35	3.67	3.44	37.2	21.600	10.3000	20241.90	222480.00	0.091
T10	119.84 - 99.84	MC12x35	3.67	3.44	37.2	21.600	10.3000	19246.90	222480.00	0.087
T13	59.84 - 39.84	MC12x35	3.67	3.42	36.9	21.600	10.3000	9128.02	222480.00	0.041

Top Guy Pull-Off Bending Design Data

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
T1	291.84 - 279.84	MC12x35	72.45	0.024	21.600	0.001	-0.00	0.000	27.000	0.000
T3	259.84 - 239.84	MC12x35	72.45	0.024	21.600	0.001	-0.00	0.000	27.000	0.000
T5	219.84 - 199.84	MC12x35	72.45	0.024	21.600	0.001	-0.00	0.000	27.000	0.000
T7	179.84 - 159.84	MC12x35	72.45	0.024	21.600	0.001	0.00	0.000	27.000	0.000
T10	119.84 - 99.84	MC12x35	72.45	0.024	21.600	0.001	0.00	0.000	27.000	0.000
T13	59.84 - 39.84	MC12x35	72.45	0.024	21.600	0.001	0.00	0.000	27.000	0.000

Top Guy Pull-Off Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	291.84 - 279.84	MC12x35	0.026	0.001	0.000	0.027 ✔	1.333	H2-1 ✔

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T3	259.84 - 239.84	MC12x35	0.043	0.001	0.000	0.044 ✔	1.333	H2-1 ✔
T5	219.84 - 199.84	MC12x35	0.061	0.001	0.000	0.062 ✔	1.333	H2-1 ✔
T7	179.84 - 159.84	MC12x35	0.091	0.001	0.000	0.092 ✔	1.333	H2-1 ✔
T10	119.84 - 99.84	MC12x35	0.087	0.001	0.000	0.088 ✔	1.333	H2-1 ✔
T13	59.84 - 39.84	MC12x35	0.041	0.001	0.000	0.042 ✔	1.333	H2-1 ✔

Torque-Arm Top Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	291.84 - 279.84 (666)	MC12x35	4.00	3.92	42.4	21.600	10.3000	1645.69	222480.00	0.007
T1	291.84 - 279.84 (667)	MC12x35	4.00	3.92	42.4	21.600	10.3000	1733.23	222480.00	0.008
T1	291.84 - 279.84 (670)	MC12x35	4.00	3.92	42.4	21.600	10.3000	573.20	222480.00	0.003
T1	291.84 - 279.84 (671)	MC12x35	4.00	3.92	42.4	21.600	10.3000	878.06	222480.00	0.004
T1	291.84 - 279.84 (674)	MC12x35	4.00	3.92	42.4	21.600	10.3000	1790.63	222480.00	0.008
T1	291.84 - 279.84 (675)	MC12x35	4.00	3.92	42.4	21.600	10.3000	1511.80	222480.00	0.007
T3	259.84 - 239.84 (678)	MC12x35	4.00	3.91	42.3	21.600	10.3000	949.54	222480.00	0.004
T3	259.84 - 239.84 (679)	MC12x35	4.00	3.91	42.3	21.600	10.3000	911.76	222480.00	0.004
T3	259.84 - 239.84 (682)	MC12x35	4.00	3.91	42.3	21.600	10.3000	1226.70	222480.00	0.006
T3	259.84 - 239.84 (683)	MC12x35	4.00	3.91	42.3	21.600	10.3000	784.08	222480.00	0.004
T3	259.84 - 239.84 (686)	MC12x35	4.00	3.91	42.3	21.600	10.3000	1001.78	222480.00	0.005
T3	259.84 - 239.84 (687)	MC12x35	4.00	3.91	42.3	21.600	10.3000	738.10	222480.00	0.003
T5	219.84 - 199.84 (690)	MC12x35	4.00	3.90	42.2	21.600	10.3000	2680.87	222480.00	0.012
T5	219.84 - 199.84 (691)	MC12x35	4.00	3.90	42.2	21.600	10.3000	5527.08	222480.00	0.025
T5	219.84 - 199.84 (694)	MC12x35	4.00	3.90	42.2	21.600	10.3000	300.94	222480.00	0.001
T5	219.84 - 199.84 (695)	MC12x35	4.00	3.90	42.2	21.600	10.3000	5542.29	222480.00	0.025
T5	219.84 - 199.84 (698)	MC12x35	4.00	3.90	42.2	21.600	10.3000	18.71	222480.00	0.000
T5	219.84 - 199.84 (699)	MC12x35	4.00	3.90	42.2	21.600	10.3000	2552.46	222480.00	0.011
T7	179.84 - 159.84 (702)	MC12x35	4.00	3.89	42.1	21.600	10.3000	7449.07	222480.00	0.033
T7	179.84 - 159.84 (703)	MC12x35	4.00	3.89	42.1	21.600	10.3000	3767.67	222480.00	0.017
T7	179.84 - 159.84	MC12x35	4.00	3.89	42.1	21.600	10.3000	7307.56	222480.00	0.033

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T7	179.84 - 159.84 (706)	MC12x35	4.00	3.89	42.1	21.600	10.3000	8190.09	222480.00	0.037
T7	179.84 - 159.84 (707)	MC12x35	4.00	3.89	42.1	21.600	10.3000	8051.62	222480.00	0.036
T7	179.84 - 159.84 (710)	MC12x35	4.00	3.89	42.1	21.600	10.3000	3197.04	222480.00	0.014
T10	119.84 - 99.84 (711)	MC12x35	4.00	3.89	42.1	21.600	10.3000	7081.40	222480.00	0.032
T10	119.84 - 99.84 (714)	MC12x35	4.00	3.89	42.1	21.600	10.3000	3588.09	222480.00	0.016
T10	119.84 - 99.84 (715)	MC12x35	4.00	3.89	42.1	21.600	10.3000	6449.52	222480.00	0.029
T10	119.84 - 99.84 (718)	MC12x35	4.00	3.89	42.1	21.600	10.3000	7670.08	222480.00	0.034
T10	119.84 - 99.84 (719)	MC12x35	4.00	3.89	42.1	21.600	10.3000	7448.02	222480.00	0.033
T10	119.84 - 99.84 (722)	MC12x35	4.00	3.89	42.1	21.600	10.3000	2797.82	222480.00	0.013
T13	59.84 - 39.84 (723)	MC12x35	4.00	3.88	41.9	21.600	10.3000	931.35	222480.00	0.004
T13	59.84 - 39.84 (726)	MC12x35	4.00	3.88	41.9	21.600	10.3000	786.83	222480.00	0.004
T13	59.84 - 39.84 (727)	MC12x35	4.00	3.88	41.9	21.600	10.3000	4016.66	222480.00	0.018
T13	59.84 - 39.84 (730)	MC12x35	4.00	3.88	41.9	21.600	10.3000	63.26	222480.00	0.000
T13	59.84 - 39.84 (731)	MC12x35	4.00	3.88	41.9	21.600	10.3000	3784.78	222480.00	0.017
T13	59.84 - 39.84 (734)	MC12x35	4.00	3.88	41.9	21.600	10.3000	356.88	222480.00	0.002
	59.84 - 39.84 (735)									

Torque-Arm Top Bending Design Data

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
T1	291.84 - 279.84 (666)	MC12x35	-58959.58	19.599	21.600	0.907	-0.00	0.000	27.000	0.000
T1	291.84 - 279.84 (667)	MC12x35	-59797.75	19.877	21.600	0.920	-0.00	0.000	27.000	0.000
T1	291.84 - 279.84 (670)	MC12x35	-63074.75	20.967	21.600	0.971	0.00	0.000	27.000	0.000
T1	291.84 - 279.84 (671)	MC12x35	-58000.92	19.280	21.600	0.893	0.00	0.000	27.000	0.000
T1	291.84 - 279.84 (674)	MC12x35	-55287.83	18.378	21.600	0.851	0.00	0.000	27.000	0.000
T1	291.84 - 279.84 (675)	MC12x35	-60689.42	20.174	21.600	0.934	-0.00	0.000	27.000	0.000
T3	259.84 -	MC12x35	-	20.781	21.600	0.962	0.00	0.000	27.000	0.000

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
	239.84 (678)		62515.00							
T3	259.84 - 239.84 (679)	MC12x35	-61798.50	20.542	21.600	0.951	-0.00	0.000	27.000	0.000
T3	259.84 - 239.84 (682)	MC12x35	-57526.08	19.122	21.600	0.885	0.00	0.000	27.000	0.000
T3	259.84 - 239.84 (683)	MC12x35	-62905.17	20.910	21.600	0.968	0.00	0.000	27.000	0.000
T3	259.84 - 239.84 (686)	MC12x35	-56916.75	18.920	21.600	0.876	0.00	0.000	27.000	0.000
T3	259.84 - 239.84 (687)	MC12x35	-63733.25	21.186	21.600	0.981	-0.00	0.000	27.000	0.000
T5	219.84 - 199.84 (690)	MC12x35	-56029.00	18.625	21.600	0.862	-0.00	0.000	27.000	0.000
T5	219.84 - 199.84 (691)	MC12x35	-48875.67	16.247	21.600	0.752	-0.00	0.000	27.000	0.000
T5	219.84 - 199.84 (694)	MC12x35	-55224.67	18.357	21.600	0.850	0.00	0.000	27.000	0.000
T5	219.84 - 199.84 (695)	MC12x35	-50530.92	16.797	21.600	0.778	0.00	0.000	27.000	0.000
T5	219.84 - 199.84 (698)	MC12x35	-54566.67	18.139	21.600	0.840	0.00	0.000	27.000	0.000
T5	219.84 - 199.84 (699)	MC12x35	-57459.50	19.100	21.600	0.884	-0.00	0.000	27.000	0.000
T7	179.84 - 159.84 (702)	MC12x35	-49805.25	16.556	21.600	0.766	-0.00	0.000	27.000	0.000
T7	179.84 - 159.84 (703)	MC12x35	-57669.67	19.170	21.600	0.887	-0.00	0.000	27.000	0.000
T7	179.84 - 159.84 (706)	MC12x35	-50501.58	16.787	21.600	0.777	0.00	0.000	27.000	0.000
T7	179.84 - 159.84 (707)	MC12x35	-43670.58	14.517	21.600	0.672	0.00	0.000	27.000	0.000
T7	179.84 - 159.84 (710)	MC12x35	-43859.50	14.579	21.600	0.675	-0.00	0.000	27.000	0.000
T7	179.84 - 159.84 (711)	MC12x35	-57144.08	18.995	21.600	0.879	-0.00	0.000	27.000	0.000
T10	119.84 - 99.84 (714)	MC12x35	-32406.25	10.772	21.600	0.499	0.00	0.000	27.000	0.000
T10	119.84 - 99.84 (715)	MC12x35	-36880.00	12.259	21.600	0.568	0.00	0.000	27.000	0.000
T10	119.84 - 99.84	MC12x35	-	10.329	21.600	0.478	-0.00	0.000	27.000	0.000

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
	(718)		31073.25							
T10	119.84 - 99.84 (719)	MC12x35	-24768.83	8.233	21.600	0.381	-0.00	0.000	27.000	0.000
T10	119.84 - 99.84 (722)	MC12x35	-25665.42	8.531	21.600	0.395	0.00	0.000	27.000	0.000
T10	119.84 - 99.84 (723)	MC12x35	-35554.25	11.819	21.600	0.547	0.00	0.000	27.000	0.000
T13	59.84 - 39.84 (726)	MC12x35	-12487.17	4.151	21.600	0.192	0.00	0.000	27.000	0.000
T13	59.84 - 39.84 (727)	MC12x35	-12168.58	4.045	21.600	0.187	-0.00	0.000	27.000	0.000
T13	59.84 - 39.84 (730)	MC12x35	-7121.93	2.367	21.600	0.110	-0.00	0.000	27.000	0.000
T13	59.84 - 39.84 (731)	MC12x35	-11636.58	3.868	21.600	0.179	-0.00	0.000	27.000	0.000
T13	59.84 - 39.84 (734)	MC12x35	-7185.72	2.389	21.600	0.111	0.00	0.000	27.000	0.000
T13	59.84 - 39.84 (735)	MC12x35	-12087.00	4.018	21.600	0.186	0.00	0.000	27.000	0.000

Torque-Arm Top Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	291.84 - 279.84 (666)	MC12x35	0.007	0.907	0.000	0.915 ✔	1.333	H2-1 ✔
T1	291.84 - 279.84 (667)	MC12x35	0.008	0.920	0.000	0.928 ✔	1.333	H2-1 ✔
T1	291.84 - 279.84 (670)	MC12x35	0.003	0.971	0.000	0.973 ✔	1.333	H2-1 ✔
T1	291.84 - 279.84 (671)	MC12x35	0.004	0.893	0.000	0.897 ✔	1.333	H2-1 ✔
T1	291.84 - 279.84 (674)	MC12x35	0.008	0.851	0.000	0.859 ✔	1.333	H2-1 ✔
T1	291.84 - 279.84 (675)	MC12x35	0.007	0.934	0.000	0.941 ✔	1.333	H2-1 ✔
T3	259.84 - 239.84 (678)	MC12x35	0.004	0.962	0.000	0.966 ✔	1.333	H2-1 ✔
T3	259.84 - 239.84 (679)	MC12x35	0.004	0.951	0.000	0.955 ✔	1.333	H2-1 ✔
T3	259.84 - 239.84 (682)	MC12x35	0.006	0.885	0.000	0.891 ✔	1.333	H2-1 ✔
T3	259.84 - 239.84 (683)	MC12x35	0.004	0.968	0.000	0.972 ✔	1.333	H2-1 ✔
T3	259.84 - 239.84 (686)	MC12x35	0.005	0.876	0.000	0.880 ✔	1.333	H2-1 ✔
T3	259.84 -	MC12x35	0.003	0.981	0.000	0.984 ✔	1.333	H2-1 ✔

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T5	239.84 (687) 219.84 - 199.84 (690)	MC12x35	0.012	0.862	0.000	0.874 ✔	1.333	H2-1 ✔
T5	219.84 - 199.84 (691)	MC12x35	0.025	0.752	0.000	0.777 ✔	1.333	H2-1 ✔
T5	219.84 - 199.84 (694)	MC12x35	0.001	0.850	0.000	0.851 ✔	1.333	H2-1 ✔
T5	219.84 - 199.84 (695)	MC12x35	0.025	0.778	0.000	0.803 ✔	1.333	H2-1 ✔
T5	219.84 - 199.84 (698)	MC12x35	0.000	0.840	0.000	0.840 ✔	1.333	H2-1 ✔
T5	219.84 - 199.84 (699)	MC12x35	0.011	0.884	0.000	0.896 ✔	1.333	H2-1 ✔
T7	179.84 - 159.84 (702)	MC12x35	0.033	0.766	0.000	0.800 ✔	1.333	H2-1 ✔
T7	179.84 - 159.84 (703)	MC12x35	0.017	0.887	0.000	0.904 ✔	1.333	H2-1 ✔
T7	179.84 - 159.84 (706)	MC12x35	0.033	0.777	0.000	0.810 ✔	1.333	H2-1 ✔
T7	179.84 - 159.84 (707)	MC12x35	0.037	0.672	0.000	0.709 ✔	1.333	H2-1 ✔
T7	179.84 - 159.84 (710)	MC12x35	0.036	0.675	0.000	0.711 ✔	1.333	H2-1 ✔
T7	179.84 - 159.84 (711)	MC12x35	0.014	0.879	0.000	0.894 ✔	1.333	H2-1 ✔
T10	119.84 - 99.84 (714)	MC12x35	0.032	0.499	0.000	0.531 ✔	1.333	H2-1 ✔
T10	119.84 - 99.84 (715)	MC12x35	0.016	0.568	0.000	0.584 ✔	1.333	H2-1 ✔
T10	119.84 - 99.84 (718)	MC12x35	0.029	0.478	0.000	0.507 ✔	1.333	H2-1 ✔
T10	119.84 - 99.84 (719)	MC12x35	0.034	0.381	0.000	0.416 ✔	1.333	H2-1 ✔
T10	119.84 - 99.84 (722)	MC12x35	0.033	0.395	0.000	0.428 ✔	1.333	H2-1 ✔
T10	119.84 - 99.84 (723)	MC12x35	0.013	0.547	0.000	0.560 ✔	1.333	H2-1 ✔
T13	59.84 - 39.84 (726)	MC12x35	0.004	0.192	0.000	0.196 ✔	1.333	H2-1 ✔
T13	59.84 - 39.84 (727)	MC12x35	0.004	0.187	0.000	0.191 ✔	1.333	H2-1 ✔
T13	59.84 - 39.84 (730)	MC12x35	0.018	0.110	0.000	0.128 ✔	1.333	H2-1 ✔
T13	59.84 - 39.84 (731)	MC12x35	0.000	0.179	0.000	0.179 ✔	1.333	H2-1 ✔
T13	59.84 - 39.84 (734)	MC12x35	0.017	0.111	0.000	0.128 ✔	1.333	H2-1 ✔
T13	59.84 - 39.84 (735)	MC12x35	0.002	0.186	0.000	0.188 ✔	1.333	H2-1 ✔

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
L1	327 - 291.84	Pole	P10.75x0.843	1	-3868.81	290040.55	17.0	Pass
T1	291.84 - 279.84	Leg	2	4	-29032.80	86118.46	33.7	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
T2	279.84 - 259.84	Leg	2	38	-35521.70	79619.02	44.6	Pass
T3	259.84 - 239.84	Leg	2 1/4	83	-86729.60	109876.92	78.9	Pass
T4	239.84 - 219.84	Leg	2 1/4	128	-87561.70	109876.92	79.7	Pass
T5	219.84 - 199.84	Leg	2 1/2	173	-97880.20	144103.96	67.9	Pass
T6	199.84 - 179.84	Leg	2 1/2	218	-98666.20	144103.96	68.5	Pass
T7	179.84 - 159.84	Leg	2 3/4	262	-106798.00	182302.41	58.6	Pass
T8	159.84 - 139.84	Leg	2 1/2	308	-105540.00	144103.96	73.2	Pass
T9	139.84 - 119.84	Leg	2 3/4	351	-107842.00	182302.41	59.2	Pass
T10	119.84 - 99.84	Leg	2 3/4	396	-118447.00	182302.41	65.0	Pass
T11	99.84 - 79.84	Leg	3	441	-164380.00	224467.86	73.2	Pass
T12	79.84 - 59.84	Leg	3	486	-168589.00	224467.86	75.1	Pass
T13	59.84 - 39.84	Leg	3	533	-179115.00	224467.86	79.8	Pass
T14	39.84 - 19.84	Leg	3	576	-179054.00	224467.86	79.8	Pass
T15	19.84 - 6.5	Leg	3	621	-161910.00	224427.87	72.1	Pass
T16	6.5 - 0	Leg	3	654	-143715.00	201930.83	71.2	Pass
T1	291.84 - 279.84	Diagonal	1 3/8	19	-5469.28	22965.86	23.8	Pass
T2	279.84 - 259.84	Diagonal	1 3/8	79	-3858.18	21585.80	17.9	Pass
T3	259.84 - 239.84	Diagonal	1 3/8	117	-8074.26	21775.22	37.1	Pass
T4	239.84 - 219.84	Diagonal	1 3/8	132	-8565.81	21775.22	39.3	Pass
T5	219.84 - 199.84	Diagonal	1 1/2	206	-8867.67	29148.71	30.4	Pass
T6	199.84 - 179.84	Diagonal	1 1/4	223	-10858.90	15474.66	70.2	Pass
T7	179.84 - 159.84	Diagonal	1 1/2	289	-13969.30	29341.99	47.6	Pass
T8	159.84 - 139.84	Diagonal	1 3/8	347	-9439.37	21963.97	43.0	Pass
T9	139.84 - 119.84	Diagonal	1 1/4	359	-6145.99	15658.08	39.3	Pass
T10	119.84 - 99.84	Diagonal	1 1/2	409	-15220.30	29341.99	51.9	Pass
T11	99.84 - 79.84	Diagonal	1 3/8	483	-12003.90	22338.81	53.7	Pass
T12	79.84 - 59.84	Diagonal	1 1/4	492	-5843.37	15840.70	36.9	Pass
T13	59.84 - 39.84	Diagonal	1 1/4	566	-6595.62	15840.70	41.6	Pass
T14	39.84 - 19.84	Diagonal	1 1/4	584	-6541.46	15840.70	41.3	Pass
T15	19.84 - 6.5	Diagonal	1 1/4	627	-8384.51	15833.91	53.0	Pass
T1	291.84 - 279.84	Horizontal	1	15	-915.77	11120.83	8.2	Pass
T2	279.84 - 259.84	Horizontal	1	47	-415.95	11120.83	3.7	Pass
T3	259.84 - 239.84	Horizontal	1	113	-909.79	11224.07	8.1	Pass
T4	239.84 - 219.84	Horizontal	1	150	1025.18	22613.81	4.5	Pass
T5	219.84 - 199.84	Horizontal	1	204	-836.62	11326.87	7.4	Pass
T6	199.84 - 179.84	Horizontal	1	234	-1757.62	11326.87	15.5	Pass
T7	179.84 - 159.84	Horizontal	1	287	1435.31	22613.81	6.3	Pass
T8	159.84 - 139.84	Horizontal	1	317	1142.38	22613.81	5.1	Pass
T9	139.84 - 119.84	Horizontal	1	363	1337.50	22613.81	5.9	Pass
T10	119.84 - 99.84	Horizontal	1	406	1986.65	22613.81	8.8	Pass
T11	99.84 - 79.84	Horizontal	1	452	2493.72	22613.81	11.0	Pass
T12	79.84 - 59.84	Horizontal	1	519	1560.61	22613.81	6.9	Pass
T13	59.84 - 39.84	Horizontal	1	556	1549.51	22613.81	6.9	Pass
T14	39.84 - 19.84	Horizontal	1	616	1489.15	22613.81	6.6	Pass
T15	19.84 - 6.5	Horizontal	1	646	1704.51	22613.81	7.5	Pass
T1	291.84 - 279.84	Secondary Horizontal	1	35	-0.04	15902.02	0.0	Pass
T2	279.84 - 259.84	Secondary Horizontal	1	80	-0.04	15902.02	0.0	Pass
T3	259.84 - 239.84	Secondary Horizontal	1	111	-0.04	15922.28	0.0	Pass
T4	239.84 - 219.84	Secondary Horizontal	1	170	-0.03	15922.28	0.0	Pass
T5	219.84 - 199.84	Secondary Horizontal	1	201	-0.02	15942.81	0.0	Pass
T6	199.84 - 179.84	Secondary Horizontal	1	225	0.02	22613.81	0.0	Pass
T7	179.84 - 159.84	Secondary Horizontal	1	298	0.02	22613.81	0.0	Pass
T8	159.84 - 139.84	Secondary Horizontal	1	315	0.01	22613.81	0.0	Pass
T9	139.84 - 119.84	Secondary Horizontal	1	360	0.02	22613.81	0.0	Pass
T10	119.84 - 99.84	Secondary Horizontal	1	405	0.02	22613.81	0.0	Pass
T11	99.84 - 79.84	Secondary Horizontal	1	450	-0.02	15985.34	0.0	Pass
T12	79.84 - 59.84	Secondary Horizontal	1	495	-0.03	15985.34	0.0	Pass
T13	59.84 - 39.84	Secondary Horizontal	1	568	-0.03	15985.34	0.0	Pass
T14	39.84 - 19.84	Secondary Horizontal	1	585	-0.05	15985.34	0.0	Pass
T15	19.84 - 6.5	Secondary Horizontal	1	644	-0.06	15985.34	0.0	Pass
T1	291.84 - 279.84	Top Girt	1	5	-0.06	11120.83	0.0	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	SF*P_{allow} lb	% Capacity	Pass Fail
T2	279.84 - 259.84	Top Girt	1	8	-993.15	11120.83	8.9	Pass
T3	259.84 - 239.84	Top Girt	1	39	1839.39	22613.81	8.1	Pass
T4	239.84 - 219.84	Top Girt	1	85	-1689.84	11224.07	15.1	Pass
T5	219.84 - 199.84	Top Girt	1	130	1017.12	22613.81	4.5	Pass
T6	199.84 - 179.84	Top Girt	1	175	1217.38	22613.81	5.4	Pass
T7	179.84 - 159.84	Top Girt	1	221	938.87	22613.81	4.2	Pass
T8	159.84 - 139.84	Top Girt	1	265	1136.47	22613.81	5.0	Pass
T9	139.84 - 119.84	Top Girt	1	309	1228.14	22613.81	5.4	Pass
T10	119.84 - 99.84	Top Girt	1	354	1241.97	22613.81	5.5	Pass
T11	99.84 - 79.84	Top Girt	1	401	1379.54	22613.81	6.1	Pass
T12	79.84 - 59.84	Top Girt	1	446	1378.65	22613.81	6.1	Pass
T13	59.84 - 39.84	Top Girt	1	490	1363.67	22613.81	6.0	Pass
T14	39.84 - 19.84	Top Girt	1	534	1484.54	22613.81	6.6	Pass
T15	19.84 - 6.5	Top Girt	1	579	1671.64	22613.81	7.4	Pass
T16	6.5 - 0	Top Girt	12x3/8	625	25525.70	129567.59	19.7	Pass
T16	6.5 - 0	Bottom Girt	12x3/8	657	-4989.81	128699.81	8.6	Pass
T16	6.5 - 0	Mid Girt	9x3/8	660	-269.43	40604.11	0.7	Pass
T1	291.84 - 279.84	Guy A@285.84	3/4	672	20194.50	29150.00	69.3	Pass
T3	259.84 - 239.84	Guy A@256.507	3/4	684	22164.00	29150.00	76.0	Pass
T5	219.84 - 199.84	Guy A@216.507	3/4	696	23297.50	29150.00	79.9	Pass
T7	179.84 - 159.84	Guy A@166.507	3/4	708	25936.50	29150.00	89.0	Pass
T10	119.84 - 99.84	Guy A@106.507	5/8	720	20805.20	21200.00	98.1	Pass
T13	59.84 - 39.84	Guy A@56.5067	7/16	732	9426.66	10400.00	90.6	Pass
T1	291.84 - 279.84	Guy B@285.84	3/4	669	19070.60	29150.00	65.4	Pass
T3	259.84 - 239.84	Guy B@256.507	3/4	681	20988.50	29150.00	72.0	Pass
T5	219.84 - 199.84	Guy B@216.507	3/4	693	21984.90	29150.00	75.4	Pass
T7	179.84 - 159.84	Guy B@166.507	3/4	705	24375.70	29150.00	83.6	Pass
T10	119.84 - 99.84	Guy B@106.507	5/8	716	19926.90	21200.00	94.0	Pass
T13	59.84 - 39.84	Guy B@56.5067	7/16	729	9028.88	10400.00	86.8	Pass
T1	291.84 - 279.84	Guy C@285.84	3/4	665	19994.50	29150.00	68.6	Pass
T3	259.84 - 239.84	Guy C@256.507	3/4	677	21956.10	29150.00	75.3	Pass
T5	219.84 - 199.84	Guy C@216.507	3/4	689	23051.70	29150.00	79.1	Pass
T7	179.84 - 159.84	Guy C@166.507	3/4	701	25642.10	29150.00	88.0	Pass
T10	119.84 - 99.84	Guy C@106.507	5/8	713	20824.70	21200.00	98.2	Pass
T13	59.84 - 39.84	Guy C@56.5067	7/16	725	9456.26	10400.00	90.9	Pass
T1	291.84 - 279.84	Top Guy Pull-Off@285.84	MC12x35	22	-5087.44	150590.34	3.5	Pass
T3	259.84 - 239.84	Top Guy Pull-Off@256.507	MC12x35	120	-8376.45	151608.75	13.4 (b) 5.6	Pass
T5	219.84 - 199.84	Top Guy Pull-Off@216.507	MC12x35	210	-12030.50	152625.83	22.2 (b) 8.0	Pass
T7	179.84 - 159.84	Top Guy Pull-Off@166.507	MC12x35	278	-17974.70	153645.57	31.7 (b) 11.8	Pass
T10	119.84 - 99.84	Top Guy Pull-Off@106.507	MC12x35	413	-16922.10	153645.57	47.1 (b) 11.1	Pass
T13	59.84 - 39.84	Top Guy Pull-Off@56.5067	MC12x35	570	-6667.34	154665.32	44.8 (b) 4.4	Pass
T1	291.84 - 279.84	Torque Arm Top@285.84	MC12x35	675	1511.80	296565.83	21.3 (b) 74.5	Pass
T3	259.84 - 239.84	Torque Arm Top@256.507	MC12x35	687	-2380.22	130694.92	80.1	Pass
T5	219.84 - 199.84	Torque Arm Top@216.507	MC12x35	699	-4753.81	131195.32	80.4	Pass
T7	179.84 - 159.84	Torque Arm Top@166.507	MC12x35	711	-7771.31	131696.00	79.9	Pass
T10	119.84 - 99.84	Torque Arm Top@106.507	MC12x35	723	-10176.60	131696.00	52.2	Pass
T13	59.84 - 39.84	Torque Arm Top@56.5067	MC12x35	735	-4362.72	132196.94	17.5	Pass
							22.2 (b)	
							Summary	
						Pole (L1)	17.0	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
						Leg (T13)	79.8	Pass
						Diagonal (T6)	70.2	Pass
						Horizontal (T6)	15.5	Pass
						Secondary Horizontal (T2)	0.0	Pass
						Top Girt (T16)	19.7	Pass
						Bottom Girt (T16)	8.6	Pass
						Mid Girt (T16)	0.7	Pass
						Guy A (T10)	98.1	Pass
						Guy B (T10)	94.0	Pass
						Guy C (T10)	98.2	Pass
						Top Guy Pull-Off (T7)	47.1	Pass
						Torque Arm Top (T5)	80.4	Pass
						Bolt Checks	50.7	Pass
						RATING =	**98.2**	**Pass**

FOUNDATION ANALYSIS

URS

Job	WHUS Guyed Tower, Storrs, CT	Project No.	VZ5-050 (Rev 1)	Page / Sheet	of / 1 of 9
Description	Foundation and Pier Analysis	Computed by	KAB	Date	01/06/10
		Checked by		Date	

FOUNDATION ANALYSIS

TOWER FORCES:

Moment Caused by Tower	$M_t := 0.010 \cdot ft \cdot kips$
Shear at Base of Tower	$S_t := 5.4 kip$
Max Compressive Force	$C_t := 355 \cdot kip$
Height of Tower	$H_t := 327 \cdot ft$
Base Plate Bolt Circle	$MP := 1.0 ft$

FOOTING DIMENSIONS:

Overall Depth of Footing	$D_f := 4 ft$
Length of Pier	$L_p := 2.5 \cdot ft$
Extension of Pier Above Grade	$L_{pag} := 0.5 \cdot ft$
Diameter of Pier	$d_p := 3.0 \cdot ft$
Thickness of Footing	$T_f := 2.0 \cdot ft$
Width of Footing:	$W_f := 10.0 ft$
Length of Anchor Bolts:	$L_{st} := 24 in$
Projection of anchor bolts above pier	$A_{BP} := 12 \cdot in$
Anchor bolts area	$A_{anchor} := 3.97 \cdot in^2$

PROPERTIES:

Compressive Strength of Concrete	$fc := 3000 psi$
Yield Strength of Steel Reinforcement	$fy := 60000 \cdot psi$
Internal Friction Angle of Soil	$\phi_s := 30 \cdot deg$
Allowable Bearing Capacity	$q_s := 5000 \cdot psf$
Unit Weight of Soil	$\gamma_s := 125 \cdot pcf$
Unit Weight of Concrete	$\gamma_c := 150 \cdot pcf$
Depth to Neglect	$n := 1 ft$
Cohesion of Clay Type Soil Note: Use 0 for Sandy Soil	$c := 0 \cdot ksf$
Seismic Zone Factor: UBC Fig 23-2	$Z := 2$
Coefficient of Friction between soil and Concrete:	$\mu := 0.5$
Clear Cover of Reinforcement Pier:	$Cvr_{pier} := 3 \cdot in$
Clear Cover of Reinforcement Pad:	$Cvr_{pad} := 3 \cdot in$

PIER REINFORCEMENT:

Bar Size	$BSpier := 7$	Bar Diameter	$d_{bpier} := 0.875 \cdot in$
Number of Bars	$NBpier := 10$	Bar Area	$A_{bpier} := 0.60 \cdot in^2$

PAD REINFORCEMENT:

TOP:	Bar Size	$BS_{top} := 7$	Bar Diameter	$d_{btop} := 0.875 \cdot in$
	Number of Bars	$NB_{top} := 0$	Bar Area	$A_{btop} := 0.60 \cdot in^2$
BOTTOM:	Bar Size	$BS_{bot} := 7$	Bar Diameter	$d_{bbot} := 0.875 \cdot in$
	Number of Bars	$NB_{bot} := 18$	Bar Area	$A_{bot} := 0.60 \cdot in^2$

Coefficient of Lateral Soil Pressure: $K_p := \frac{1 + \sin(\phi_s)}{1 - \sin(\phi_s)}$ $K_p = 3$

Load Factor (EIA 3.1.1): $LF := \text{if}\left[H_t \le 700 \cdot ft, 1.3, \text{if}\left[H_t \ge 1200, 1.7, 1.3 + \left(\frac{H_t - 700}{1200 - 700}\right) \cdot 0.4\right]\right]$ $LF = 1.3$

CHECK ANCHOR STEEL EMBEDMENT

Depth:

$D_{ab} := L_{st} - A_{BP}$ $D_{ab} = 1 \cdot ft$

$DepthCheck := if(D_{ab} \geq L_{anchor}, "Okay", "No Good")$

$DepthCheck = "No Good"$ anchor plate is provided

$L_{anchor} := \frac{(0.11 \cdot fy) \cdot in}{\sqrt{fc \cdot psi}}$

$L_{anchor} = 10.0416 \cdot ft$

STABILITY OF FOOTING

Passive Pressure:

$P_{pn} := K_p \cdot \gamma_s \cdot n + c \cdot 2 \cdot \sqrt{K_p}$ $P_{pn} = 0.375 \cdot ksf$

$P_{pt} := K_p \cdot \gamma_s \cdot (D_f - T_f) + c \cdot 2 \cdot \sqrt{K_p}$ $P_{pt} = 0.75 \cdot ksf$

$P_{top} := if[n < (D_f - T_f), P_{pt}, P_{pn}]$ $P_{top} = 0.75 \cdot ksf$

$P_{bot} := K_p \cdot \gamma_s \cdot D_f + c \cdot 2 \cdot \sqrt{K_p}$ $P_{bot} = 1.5 \cdot ksf$

$P_{ave} := \frac{P_{top} + P_{bot}}{2}$ $P_{ave} = 1.125 \cdot ksf$

$T_p := if[n < (D_f - T_f), T_f, (D_f - n)]$ $T_p = 2 \cdot ft$

$A_p := W_f \cdot T_p$ $A_p = 20 \cdot ft^2$

Ultimate Shear:

$S_u := P_{ave} \cdot A_p$ $S_u = 22.5 \cdot kip$

Weight of Concrete Pad:

$WT_c := \left[\left(W_f^2 \cdot T_f \right) + \frac{d_p^2 \cdot \pi}{4} L_p \right] \cdot \gamma_c$ $WT_c = 32.6507 \cdot kip$

Weight of Soil: above Footing:

$WT_{s1} := \left[W_f^2 \cdot \left(|L_p - L_{pag}| \right) - \frac{d_p^2 \cdot \pi}{4} \cdot \left(|L_p - L_{pag}| \right) \right] \cdot \gamma_s$ $WT_{s1} = 23.2329 \cdot kip$

Weight of Soil Wedge at back face:

$WT_{s2} := \left(\frac{D_f^2 \cdot \tan(\phi_s)}{2} \cdot W_f \right) \cdot \gamma_s$ $WT_{s2} = 5.7735 \cdot kip$

Total Weight:

$WT_{tot} := WT_c + WT_{s1} + C_t$ $WT_{tot} = 410.8836 \cdot kip$

Resisting Moment:

$M_r := (WT_{tot}) \cdot \frac{W_f}{2} + S_u \cdot \frac{T_f}{3} + WT_{s2} \cdot \left(W_f + \frac{D_f \cdot \tan(\phi_s)}{3} \right)$ $M_r = 2131.5973 \cdot kip \cdot ft$

Overturning Moment:

$M_{ot} := M_t + S_t \cdot (L_p + T_f)$ $M_{ot} = 24.31 \cdot kip \cdot ft$

Factor of Safety:

$FS := \frac{M_r}{M_{ot}}$ $FS_{req} := 2$ $FS = 87.68$

$SafetyCheck := if(FS > FS_{req}, "Okay", "No Good")$ $SafetyCheck = "Okay"$

SHEAR CAPACITY IN PIER

$FS := 2$

$$S_p := \frac{P_{ave} \cdot A_p + \mu \cdot WT_{tot}}{FS}$$

$S_p = 113.9709 \cdot kips$

$ShearCheck := if(S_p > S_t, "Okay", "No Good")$

$ShearCheck = "Okay"$

BEARING PRESSURE CAUSED BY FOOTING

$A_{mat} := W_f^2$ $\quad A_{mat} = 100 \cdot ft^2$

$S := \frac{W_f^3}{6}$ $\quad S = 166.6667 \cdot ft^3$

$P_{max} := \frac{WT_{tot}}{A_{mat}} + \frac{M_{ot}}{S}$ $\quad P_{max} = 4.2547 \cdot ksf$

$P_{min} := \frac{WT_{tot}}{A_{mat}} - \frac{M_{ot}}{S}$ $\quad P_{min} = 3.963 \cdot ksf$

$MaxPressure := if(P_{max} < q_s, "Okay", "No Good")$ $\quad MaxPressure = "Okay"$

$MinPressure := if[(P_{min} \geq 0) \cdot (P_{min} < q_s), "Okay", "No Good"]$ $\quad MinPressure = "Okay"$

Distance to Resultant of Pressure Distribution:

$$X_p := \frac{P_{max}}{\frac{P_{max} - P_{min}}{W_f}} \cdot \frac{1}{3}$$

$X_p = 48.6162 \cdot ft$

Distance to Kern: $X_k := \frac{W_f}{3}$ $\quad X_k = 3.3333 \cdot ft$

Since Resultant Force is Not in Kern, Area to which Pressure is Applied Must be Reduced.

Eccentricity: $e := \frac{M_{ot}}{WT_{tot}}$ $\quad e = 0.0592$

Adjusted Soil Pressure: $P_a := \frac{2 \cdot WT_{tot}}{3 \cdot W_f \cdot \left(\frac{W_f}{2} - e\right)}$ $\quad P_a = 5.5441 \cdot ksf$

$q_{adj} := if\left(P_{min} < 0, P_a, \frac{P_{max}}{ft^2}\right)$ $\quad q_{adj} = 4.2547 \cdot ksf$

$PressureCheck := if(q_{adj} < q_s, "Okay", "No Good")$ $\quad PressureCheck = "Okay"$

CONCRETE BEARING CAPACITY (ACI 10.17)

$\phi_c := 0.75$ (ACI 9.3.2.2)

$P_b := \phi_c \cdot 0.85 \cdot fc \cdot \frac{d_p^2 \cdot \pi}{4}$ $P_b = 1946.6879 \cdot kip$

$BearingCheck := if(P_b > LF \cdot C_t, "Okay", "No Good")$ $BearingCheck = "Okay"$

SHEAR STRENGTH OF CONCRETE

Beam Shear: (Critical section located at a distance d from the face of Pier) (ACI 11.3.1.1)

$\phi_{vc} := .85$ (ACI 9.3.2.3)

$d := T_f - Cvr_{pier} - .5 \cdot in$ $d = 20.5 \cdot in$

$d_1 := \frac{W_f}{2} - \frac{d_p}{2}$ $d_1 = 3.5 \cdot ft$

$d_2 := d_1 - d$ $d_2 = 1.7917 \cdot ft$

$L := \left(\frac{W_f}{2} - e\right) \cdot 3$ $L = 14.8225 \cdot ft$

$Slope := if\left(L > W_f, \frac{P_{max} - P_{min}}{W_f}, \frac{q_{adj}}{L}\right)$ $Slope = 0.0292 \cdot kcf$

$V_{req} := LF \cdot \left[\left(q_{adj} - Slope \cdot d_1\right) + \left(\frac{Slope \cdot d_1}{2}\right)\right] \cdot W_f \cdot d_1$ $V_{req} = 191.2658 \cdot kip$

ACI 11.3.1.1 $V_{Avail} := \phi_c \cdot 2 \cdot \sqrt{fc \cdot psi} \cdot W_f \cdot d$ $V_{Avail} = 229.0576 \cdot kip$

$BeamShearCheck := if(V_{req} < V_{Avail}, "Okay", "No Good")$ $BeamShearCheck = "Okay"$

Punching Shear: (Critical Section Located at a distance of d/2 from the face of pier) (ACI 11.12.2.1)

$b_o := (d_p + d) \cdot \pi$ $b_o = 14.7917 \cdot ft$

Area included inside bo: $A_{bo} := \frac{\pi \cdot (d_p + d)^2}{4}$ $A_{bo} = 17.411 \cdot ft^2$

Area outside of bo: $A_{out} := A_{mat} - A_{bo}$ $A_{out} = 82.589 \cdot ft^2$

Guess Value: $v_u := 1ksf$

(From "Foundation Analysis and design", By Joseph Bowles, Eq. 8-9)

Given $d^2 + d_p \cdot d = \frac{WT_{tot}}{\pi \cdot v_u}$

$v_u := \text{Find}(v_u)$ $v_u = 16.2603 \cdot ksf$

$V_u := v_u \cdot d \cdot W_f$ $V_u = 277.7805 \cdot kips$

$V_{req} := LF \cdot V_u$ $V_{req} = 361.1146 \cdot kips$

$V_{Avail} := \phi_c \cdot 4 \cdot \sqrt{f'c \cdot psi} \cdot b_o \cdot d$ $V_{Avail} = 677.6286 \cdot kips$

$PunchingShearCheck := \text{if}(V_{req} < V_{Avail}, \text{"Okay"}, \text{"No Good"})$

STEEL REINFORCEMENT IN THE PAD $\phi_m := .90$ ACI 9.3.2.2

Take Maximum Bending at face of Pier:

$q_b := q_{adj} - d_1 \cdot Slope$ $q_b = 4.1526 \cdot ksf$

$M_n := \frac{LF}{\phi_m} \cdot \left[(q_{adj} - q_b) \cdot \frac{d_1^2}{3} + q_b \cdot \frac{d_1^2}{2} \right] \cdot W_f$ $M_n = 373.4113 \cdot kip \cdot ft$

ACI 10.2.7.3 $\beta := \text{if}\left[f'c \le 4000 \cdot psi, .85, \text{if}\left[f'c \ge 8000 \cdot psi, .65, .85 - \left(\frac{\frac{f'c}{psi} - 4000}{1000} \right) \cdot .05 \right] \right]$ $\beta = 0.85$

$A_s := \frac{M_n}{\phi_m \cdot fy \cdot d}$ $A_s = 4.0478 \cdot in^2$

$a := \frac{A_s \cdot fy}{\beta \cdot f'c \cdot W_f}$ $a = 0.7937 \cdot in$

$A_s := \frac{M_n}{fy \cdot \left(d - \frac{a}{2} \right)}$ $A_s = 3.715 \cdot in^2$

$\rho := \frac{A_s}{W_f \cdot d}$ $\rho = 0.0015$

$\rho_{min} := \frac{3 \cdot \sqrt{f'c \cdot psi}}{fy}$ $\rho_{min} = 0.0027$

Temperature and Shrinkage: $\rho_{sh} := if(fy \geq 60000 \cdot psi, 0.0018, 0.0020)$ $\rho_{sh} = 0.0018$

(ACI 7.12.2.1b)

FOR BOTTOM BARS: $As := \max(\rho, \rho_{min}, \rho_{sh}) \cdot W_f \cdot d$ $As = 6.737 \cdot in^2$

$As_{prov} := A_{bot} \cdot NB_{bot}$ $As_{prov} = 10.8 \cdot in^2$

$PadReinforcement := if(As_{prov} > As, "Okay", "No Good")$ $PadReinforcement = "Okay"$

TENSION (ACI 12.2.3) **DEVELOPMENT LENGTH OF PAD REINFORCEMENT**

Bar Spacing: $B_{sPad} := \frac{W_f - 2 \cdot Cvr_{pad} - NB_{bot} \cdot d_{bbot}}{NB_{bot} - 1}$ $B_{sPad} = 5.7794 \cdot in$

Development Length Factors:

Reinforcement Location Factor	$\alpha := 1.0$
Coating Factor	$\beta := 1.0$
Concrete strength Factor	$\lambda := 1.0$
Reinforcement Size Factor	$\gamma := 1.0$

Spacing or Cover Dimension: $c := if\left(Cvr_{pad} < \frac{B_{sPad}}{2}, Cvr_{pad}, \frac{B_{sPad}}{2}\right)$ $c = 2.8897 \cdot in$

Transverse Reinforcement Index As allowed by ACI 12.2.4 $k_{tr} := 0$

$L_{dbt} := \frac{3}{40} \cdot \frac{fy}{\sqrt{fc \cdot psi}} \cdot \frac{\alpha \cdot \beta \cdot \gamma \cdot \lambda}{\frac{c + k_{tr}}{d_{bbot}}} \cdot d_{bbot}$ $L_{dbt} = 21.7678 \cdot in$

$L_{dbmin} := 12 \cdot in$

Minimum Development Length: (ACI 12.2.1) $L_{dbtCheck} := if(L_{dbt} \geq L_{dbmin}, "Use\ L.dbt", "Use\ L.dbmin")$ $L_{dbtCheck} = "Use\ L.dbt"$

Available Length in Pad: $L_{Pad} := \frac{W_f}{2} - \frac{d_p}{2} - Cvr_{pad}$ $L_{Pad} = 39 \cdot in$

$LpadTension := if(L_{Pad} > L_{dbt}, "Okay", "No Good")$ $LpadTension = "Okay"$

REINFORCEMENT IN PIER

Pier Area: $A_{pv} := \frac{\pi \cdot d_p^{\,2}}{4}$ $\quad A_p = 1017.876 \cdot in^2$

(ACI 10.8.4 and 10.9.1) $\quad A_{smin} := 0.01 \cdot 0.05 \cdot A_p$ $\quad A_{smin} = 0.5089 \cdot in^2$

$A_{sprov} := NBpier \cdot A_{bpier}$ $\quad A_{sprov} = 6 \cdot in^2$

$SteelAreaCheck := if(A_{sprov} > A_{smin}, "Okay", "No Good")$ $\quad SteelAreaCheck = "Okay"$

NOTE: Anchor Bolts are not accounted for in reinforcement calculation and will provide additional reinforcement to satisfy minimum requirement of steel.

Bar Spacing In Pier: $B_{sPier} := \frac{d_p \cdot \pi}{NBpier} - d_{bpier}$ $\quad B_{sPier} = 10.4347 \cdot in$

Diamter of Reinforcement Cage: $Diam_{cage} := d_p - 2 \cdot Cvr_{pier}$ $\quad Diam_{cage} = 30 \cdot in$

Maximum Moment in Pier: $M_p := \left[M_t + S_t \cdot \left(L_p + \frac{A_{BP}}{2} \right) \right] \cdot LF$ $\quad M_p = 252.876 \cdot in \cdot kips$

Pier Check evaluated from outside program and results are listed below;

(defined variables) $\quad (f'_c \;\; f_y \;\; cl \;\; Spiral) = (4 \;\; 60 \;\; 3 \;\; 0)$

The required input is column diameter in inches, number of reinforcing bars, bar size number, factored axial load in kips and moment in kip inches:

$(D \;\; N \;\; n \;\; P_u \;\; M_{xu}) := (36 \;\; 10 \;\; 7 \;\; 353 \;\; 253)$

Clears any previous output: $\quad (\phi P_n \;\; \phi M_{xn} \;\; f_{sp} \;\; \rho) := (0 \;\; 0 \;\; 0 \;\; 0)$

$(\phi P_n \;\; \phi M_{xn} \;\; f_{sp} \;\; \rho) := \phi P'_n(D, N, n, P_u, M_{xu})^T$

The Output is given as useable axial load in kips, moment capacity in kip inches, splicing stress in ksi, and reinforcement ratio:

$(\phi P_n \;\; \phi M_{xn} \;\; f_{sp} \;\; \rho) = (2512.5263 \;\; 1800.7625 \;\; 5.4233 \;\; 0.0059)$

Column size and reinforcement may be changed to match capacity to the applied load.

$AxialLoadCheck := if(\phi P_n \geq P_u, "Okay", "No Good")$ $\quad AxialLoadCheck = "Okay"$

$BendingCheck := if(\phi M_{xn} \geq M_{xu}, "Okay", "No Good")$ $\quad BendingCheck = "Okay"$

DEVELOPMENT LENGTH OF PIER REINFORCEMENT

TENSION (ACI 12.2.3)

Factors for development:

Reinforcement Location Factor $\alpha := 1.0$

Coating Factor $\beta := 1.0$

Concrete strength Factor $\lambda := 1.0$

Reinforcement Size Factor $\gamma := 1.0$

Spacing or Cover Dimension: $c := \text{if}\left(Cvr_{pier} < \frac{B_{sPier}}{2}, Cvr_{pier}, \frac{B_{sPier}}{2}\right)$ $c = 3 \cdot in$

Transverse Reinforcement: As allowed by ACI 12.2.4 $k_{tr} := 0$

$$L_{dbt} := \frac{3}{40} \cdot \frac{fy}{\sqrt{f'c \cdot psi}} \cdot \frac{\alpha \cdot \beta \cdot \gamma \cdot \lambda}{\frac{c + k_{tr}}{d_{bpier}}} \cdot d_{bpier} \qquad L_{dbt} = 20.9675 \cdot in$$

Minimum Development Length: (ACI 12.2.1) $L_{dbmin} := 12 \cdot in$

Pier reinforcement bars are standard 90 degree hooks and therefore developement in the pad is computed as follows:

$$L_{dh} := \frac{1200 \cdot d_{bpier}}{\sqrt{\frac{f'c}{psi}}} \cdot .7 \qquad L_{dh} = 13.4192 \cdot in$$

$$L_{db} := \max\left(L_{dbt}, L_{dbmin}\right) \qquad L_{db} = 20.9675 \cdot in$$

COMPRESSION: (ACI 12.3.2)

$$L_{dbc1} := \frac{.02 \cdot d_{bpier} \cdot fy}{\sqrt{f'c \cdot psi}} \qquad L_{dbc1} = 19.1703 \cdot in$$

$$L_{dbmin} := 0.0003 \cdot \frac{in^2}{lb} \cdot \left(d_{bpier} \cdot fy\right) \qquad L_{dbmin} = 15.75 \cdot in$$

$$L_{dbc} := \text{if}\left(L_{dbc1} \geq L_{dbmin}, L_{dbc1}, L_{dbmin}\right) \qquad L_{dbc} = 19.1703 \cdot in$$

Available Length in Pier: $L_{pier} := L_p - 3 \cdot in$ $L_{pier} = 27 \cdot in$

$L_{piertension} := \text{if}\left(L_{pier} > L_{dbt}, \text{"Okay"}, \text{"No Good"}\right)$ $L_{piertension} = \text{"Okay"}$

$L_{piercompression} := \text{if}\left(L_{pier} > L_{dbc}, \text{"Okay"}, \text{"No Good"}\right)$

Available Length in Pad: $L_{pad} := T_f - 3 \cdot in$ $L_{pad} = 21 \cdot in$

$L_{padtension} := \text{if}\left(L_{pad} > L_{dh}, \text{"Okay"}, \text{"No Good"}\right)$ $L_{padtension} = \text{"Okay"}$

$L_{padcompression} := \text{if}\left(L_{pad} > L_{dbc}, \text{"Okay"}, \text{"No Good"}\right)$

TIE SIZE AND SPACING IN COLUMN

Minimum Tie Size:

$Tie_{min} := if(BSpier \le 10, 3, 4)$ $\quad Tie_{min} = 3$

Used #4 Ties $\quad d_{Tie} := 3$

Seismic factor:
(ACI 21.10.5)

$z := if(Z \le 2, 1, 0.5)$ $\quad z = 1$

$s_{lim1} := 16 \cdot d_{bpier} \cdot z$ $\quad s_{lim1} = 14 \cdot in$

$s_{lim2} := \frac{48 \cdot d_{Tie} \cdot in}{8} \cdot z$ $\quad s_{lim2} = 18 \cdot in$

$s_{lim3} := D_f z$ $\quad s_{lim3} = 48 \cdot in$

$s_{lim4} := 18in$ $\quad s_{lim4} = 18 \cdot in$

Maximum Spacing:

$$s_{tie} := \min\left(\begin{pmatrix} s_{lim1} \\ s_{lim2} \\ s_{lim3} \\ s_{lim4} \end{pmatrix}\right) \quad s_{tie} = 14 \cdot in$$

Number of Ties Required:

$$n_{tie} := \frac{L_{pier} - 3 \cdot in}{s_{tie}} + 1 \quad n_{tie} = 2.7143$$

GUY ANCHOR ANALYSIS

URS

Job :	WHUS Guyed Tower - Storrs, CT	Project No.:	VZ5-050 (Rev 1)	Page	of
Description:	Anchor Block Evaluation - UCONN	Computed by:	KAB	Sheet	1 of 2
	Typical Anchor Block	Checked by:		Date	1/6/10
				Date	

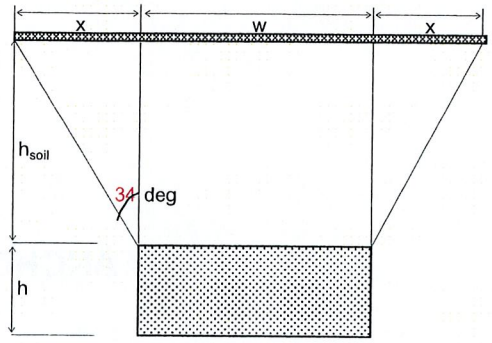
CHECK UPLIFT RESISTANCE

RESULTS FROM COMPUTER ANALYSIS:

Uplift =	148.8	kips
Sliding =	179.3	kips

CONCRETE PARAMETERS:

γ conc =	150	pcf
w =	4.5	ft
h =	4	ft
d =	24	ft
Vol. =	*432*	ft^3
Wc =	*64.80*	kips



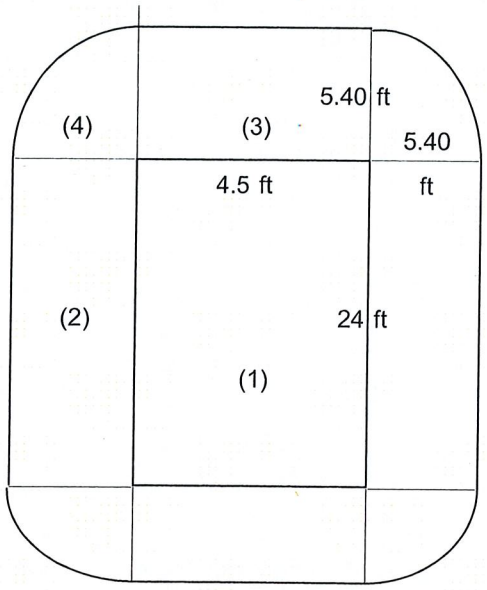
Foundation Section

SOIL PARAMETERS:

γ_{soil} =	120	pcf
h_{soil} =	8	ft
x =	*5.40*	ft

Soil Weight (Wr):

(1) =	103.68	kips
(2) =	124.33	kips
(3) =	23.31	kips
(4) =	29.27	kips
*(5) Anchor Reinf. =	0	kips
Total =	280.59	kips



Foundation Plan View

CHECK UPLIFT (PER EIA/TIA-222-F STANDARD):

Wr / 2.0 + Wc / 1.25 > UPLIFT

192.13 > *148.8* ***OK***

(Wr + Wc) / 1.5 > UPLIFT

230.26 > *148.8* ***OK***

CHECK UPLIFT (PER 2005 CT BLDG CODE 3108.4):

(Wr + Wc) / 2.0 > UPLIFT

172.69 > *148.8* ***OK***

→ ***GUY ANCHORS AGAINST UPLIFT ARE ADEQUATE***

URS

Job :	WHUS Guyed Tower - Storrs, CT	Project No.:	VZ5-050 (Rev 1)	Page	of
Description:	Anchor Block Evaluation - UCONN	Computed by:	KAB	Sheet	2 of 2
	Typical Anchor Block	Checked by:		Date	1/6/10
				Date	

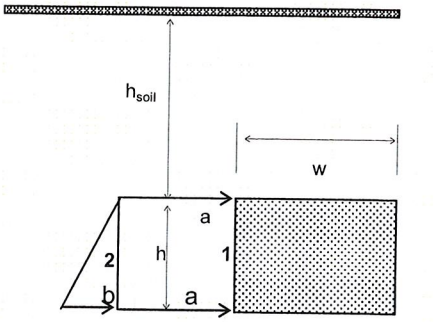
CHECK SLIDING RESISTANCE

SOIL PARAMETERS

γ soil =	120	pcf
h_{soil} =	8	ft
h =	4	ft
ϕ =	34	degrees

ANCHOR PARAMETERS

w = 4.5 ft
h = 4.0 ft
d = 24.0 ft



Foundation Elevation View

K_a = 0.28

K_p = 3.54

Δ = 3.25

HORIZONTAL FORCES

1 =	299.93	k
2 =	18.75	k
RESIST TO SLIDING =	318.67	k

SOIL & CONCRETE WEIGHT =	Wr + Wc =	345.39	k
UPLIFT REACTIONS =		-148.8	k
SUM =		196.59	k

COEF. OF FRICTION, (0.5) =	98.29	k
RESIST TO SLIDING =	318.67	k
SUM =	416.97	k

SF AGAINST SLIDING

SF = 2.33 > 2.0 OK

→ *GUY ANCHORS AGAINST SLIDING ARE ADEQUATE*