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EM-VER-028-080508

May 8, 2008

Via Hand Delivery

ORIGINAL

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

Re: **Notice of Exempt Modification – Antenna Swap**
112 Munn Road, Colchester, Connecticut

Dear Mr. Phelps:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains a wireless telecommunications facility at the above referenced location. The Council approved Cellco's use of this facility on April 30, 1990. On December 21, 2004, the Council granted Cellco's request to replace eight cellular antennas with two newer model cellular antennas and six PCS antennas. Cellco now intends to modify its installation further by attaching four (4) tower mounted amplifiers (TMAs) to the mounting mast behind four of the existing antennas. Cellco's existing antennas are located at the 220-foot level on the existing 320-foot lattice tower. The tower is owned by the Connecticut Department of Public Safety ("DPS"). Attached behind Tab 1 are the specifications for the proposed TMAs as well as a mounting detail for the TMAs.

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 Linda Hodge, First Selectman of the Town of Colchester. Pursuant to a Council directive, a copy of this letter is also being sent to the DPS, the owner of the property on which the facility is located.

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 the increase in the overall height of the existing structure. Cellco's TMAs will not extend above the top of Cellco's existing antennas.

2. The proposed modifications will not involve any 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 TMAs 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 the facility, including the TMAs, is included behind Tab 2.

Also attached is a Structural Analysis Report confirming that the tower can support the proposed modifications. (See Tab 3).

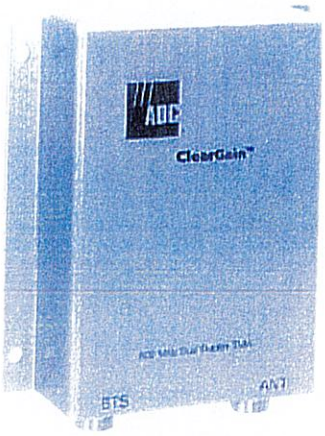
For the foregoing reasons, Cellco respectfully submits that the proposed modifications to the above-referenced telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Kenneth C. Baldwin

Enclosures
Copy to:
Linda Hodge, Colchester First Selectman
Brian Benito, Connecticut Department of Public Safety
Sandy M. Carter

ClearGain® Tower-Mounted Amplifiers
Americas



As mobile usage continues to increase, service providers are faced with the challenge of optimizing and expanding their wireless networks to provide new and existing services. ADC's ClearGain® Tower-Mounted Amplifiers (TMAs) minimize the cost of network expansion and improve quality of service, allowing service providers to increase profitability from new and existing services.

The ClearGain TMAs improve signal quality by boosting the uplink signal of a mobile system to increase receiver performance and improve overall coverage.

Features:

- Provides amplification of the Band
- Highly advanced LNA amplifies RX signal for improved receiver performance and increase in coverage
- Dual duplex feature reduces the number of feeder cable runs by providing simultaneous operation of TX and RX with low TX loss
- Full Band feature provides amplification of the entire band
- Advanced filtering maintains the lowest possible noise figure for improved quality of service
- Slim, stackable design conserves tower space and reduces tower-related costs
- Seamless aluminum sleeve construction protects components from the elements
- Modular system is fully compatible with all base stations
- Power and alarming for up to six masthead units is provided from a single unit at the base station

ClearGain® Tower-Mounted Amplifiers
Americas

Introduction

Unacceptable network quality is one of the main reasons for mobile subscriber churn. With industry churn at their current rates, a service provider's entire customer base could be lost in as few as three years. The cost of acquiring new subscribers to replace the existing customer base can be enormous. Improvements in quality of service can directly impact a service provider's profitability through the cost savings associated with increased subscriber retention and the additional revenue gained from increased billable minutes of use resulting from improved signal quality.

While subscribers are willing to pay a premium for data services, improved quality of service is necessary to provide new data services. Due to the tradeoff between bit rate and bandwidth inherent to data services, improved signal quality is required to achieve the same level of performance at even higher data rates. ADC's ClearGain Tower-Mounted Amplifiers help provide this improvement in signal quality.

TMAs improve signal quality by boosting the uplink (RX) signal of a mobile system immediately after the antenna. This compensates for the loss in signal strength that occurs when the signal is passed through the coaxial feeder cable to the base transceiver station (BTS) at the base of the tower. ClearGain TMAs perform this amplification with the lowest possible noise contribution, resulting in a substantial increase in receiver performance and an improvement in overall coverage. These improvements in quality of service allow mobile subscribers to place more calls, make longer calls, and successfully complete calls in an expanded geographic area, resulting in increased revenue.

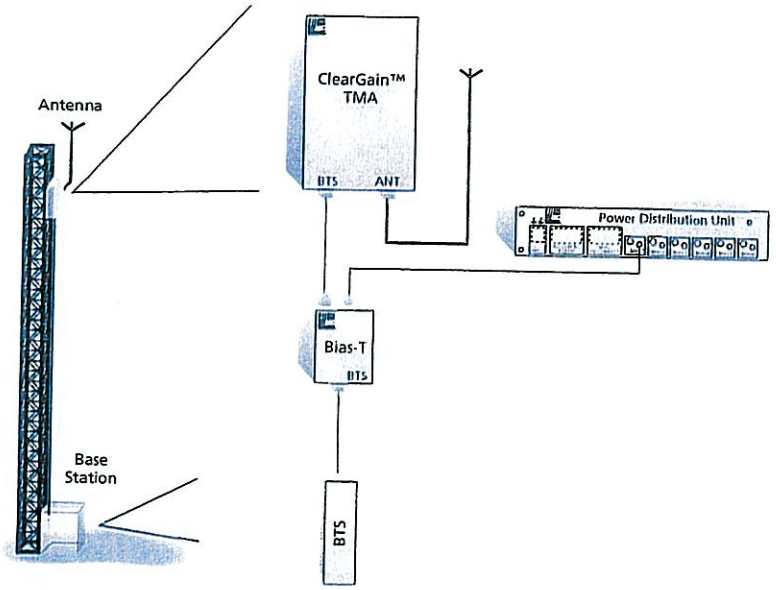
System Overview

The ClearGain TMA system is modular, consisting of a Masthead Unit (MHU), a Power Distribution Unit (PDU) and a Bias-T Unit. This system provides full compatibility with all base stations. The ClearGain MHU offers dual duplex operation and incorporates a highly advanced fixed-gain, low-noise amplifier (LNA) and high-performance filters for added reliability. The MHU amplifies each band to maximize signal quality and optimize coverage.

The ClearGain MHU features a slim, lightweight design. This allows two ClearGain TMAs to be mounted with one set of brackets thereby, conserving valuable and costly tower space and reducing clutter on the tower. The TMA is protected with a strong, aluminum sleeve construction designed to ensure superior weather protection and resistance to corrosion, resulting in increased reliability.

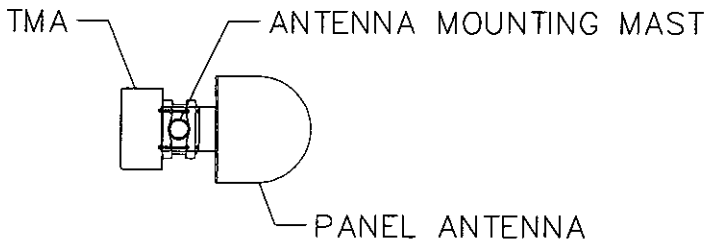
In the ClearGain TMA system, DC power is supplied to the MHU from a ClearGain PDU. The PDU also provides alarming and monitoring of the feeder cable and up to six MHUs from a single unit. The flexible design of the ClearGain PDU allows it to be rack- or wall-mounted on the side of a BTS cabinet.

An external Bias-T Unit is used in conjunction with the ClearGain PDU. The Bias-T inserts DC power onto the coaxial cable and extracts alarm and monitoring signals from the coaxial cable.

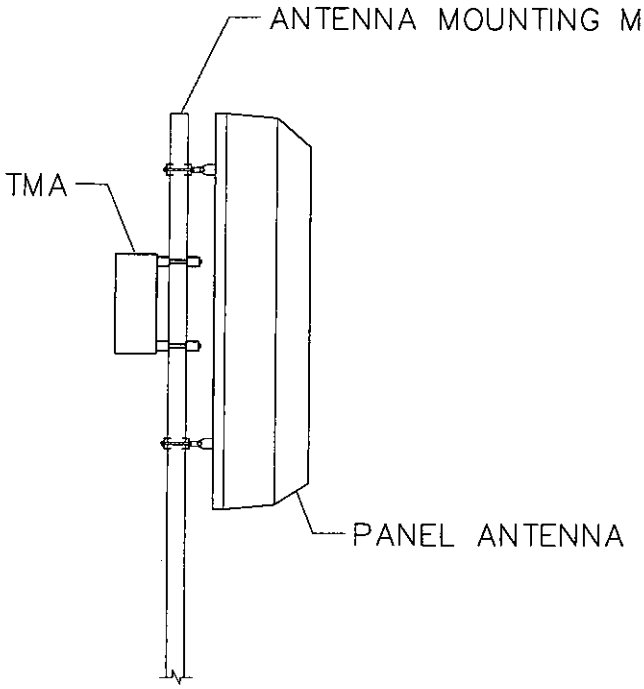


Dual Band 800/1900 MHz Full Band Typical Specifications

ELECTRICAL	
Nominal Impedance of RF Inputs and Outputs:	50 Ohm
Frequency Range	
TX: 800:	869-894 MHz
1900:	1930-1990 MHz
RX: 800:	824-849 MHz
1900:	1850-1910 MHz
Filter Bandwidth:	25/60 MHz
Passband (RX)	
Gain:	12 dB
Noise Figure:	
800:	1.5 dB
1900:	1.6 dB
Dynamic Range	
Input at 1 dB Gain Compression:	+0 dBm
IIP3:	+13 dBm
Max. Input Power:	+10 dBm
851 MHz Rejection:	<30 dB
1915 MHz Rejection:	<15 dB
1916 MHz Rejection:	<30 dB
Bypass Insertion Loss:	2.0 dB
Isolation in TX Path:	80 dB
Insertion Loss of TX Path (TX to Antenna):	4 dB
Passband Return Loss:	
TX Band:	>18 dB
RX Band:	>18 dB
Intemodulation:	-120 dBm
Max. Input Power (RMS Power):	
800:	500 W
1900:	250 W
Tx Filter Rejection in RX Path:	40 dB
POWER	
Operational Voltage:	7 to 20 Vdc
Operational Current:	280 ± 10 mA
Alarm Current Level:	350-520 mA
PHYSICAL	
Dimensions (HxWxD):	357 mm x 287 mm x 149 mm
Weight:	10.5 kg (22.5 lbs.)
Color:	Silver
Housing:	Aluminum
CONNECTORS	
Antenna Connector:	7/16 DIN female
BTS Connector:	7/16 DIN female
ENVIRONMENTAL	
Operating Temperature:	-40° to +60 °C
Lightning Protection:	IEC 61000-4-5
Vibration:	
Storage:	ETS3019-1-1
Transport:	ETS3019-1-2
Operation:	ETS3019-1-3
REGULATORY	
EMC:	ETS300 342-2
APPROVALS	
FCC:	Part 15, Class A
UL:	1950
QUALITY	
MTBF:	900,000 hours



PLAN VIEW



SIDE ELEVATION

TYPICAL TOWER MOUNTED AMPLIFIER (TMA) - MOUNTING DETAIL

NOT TO SCALE

	General	Power	Density					
Site Name: Colchester								
Tower Height: Verizon @ 220Ft.								
CARRIER	# OF CHAN.	WATTS ERP	HEIGHT	CALC. POWER DENS	FREQ.	MAX. PERMISS. EXP.	FRACTION MPE	Total
*Antenna no. 2 (CSP/FBI)	1	330	320	0.0001799	154.665	0.2000	0.09%	
*Antenna no. 3 (CSP)	1	1015	315	0.0000014	2141	1.0000	0.00%	
*Antenna no. 4 (SHP)	1	398	294	0.0002404	151.355	0.2000	0.12%	
*Antenna no. 5 (DEP)	1	175	292	0.0001103	44.72	0.2000	0.06%	
*Antenna no. 6	1	100	257	0.000081	153.935	0.2000	0.04%	
*Antenna no. 7 (OEM)	1	178	243	0.0001605	45.2	0.2000	0.08%	
*Antenna no. 8 (CSP)	1	330	227	0.000349	42.04	0.2000	0.17%	
*Antenna no. 9 (DEP)	1	125	138	0.0003697	75.5	0.2000	0.18%	
*Antenna no. 10 (CSP)	1	569	97	0.0000116	2138	1.0000	0.00%	
*Antenna no. 11 (CSP)	1	252	90	0.0000087	2133.2	1.0000	0.00%	
*Antenna no. 12 (CSP)	1	5750	105	0.0004957	6795	1.0000	0.05%	
*Antenna no. 13 (CSP)	1	1545	112	0.0000115	10567.5	1.0000	0.00%	
*Antenna no. 14	5	200	320	0.0005254	867.4	0.5783	0.09%	
*Antenna no. 15	5	200	320	0.0005303	867.5	0.5783	0.09%	
*Antenna no. 18 (FBI)	1	473	100	0.0023223	453.625	0.3024	0.77%	
*Antenna no. 31 (CTT)	1	10	100	0.0000562	406	0.2707	0.02%	
*Verizon Microwave	1	4265.8	115	0.1160	6004.5	1.0000	11.60%	
*Verizon Microwave	1	4265.8	175	0.0501	6093.45	1.0000	5.01%	
*Cingular	6	296	200	0.0160	880	0.5867	2.72%	
*Cingular	3	427	200	0.0115	1930	1.0000	1.15%	
Verizon	**9**	**170**	**220**	**0.0119**	**880**	**0.5866**	**2.03%**	
Verizon **	**3**	**452**	**220**	**0.0090**	**1900**	**1.0000**	**0.90%**	23.41%
* Source: Siting Council								
** Including Tower Mounted Amplifiers (TMAs)								

NATCOMM INC.
CONSULTING ENGINEERS

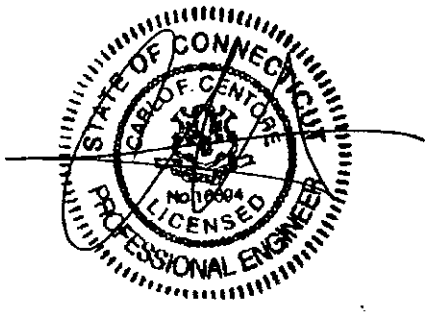
Structural Analysis Report

320' Existing Lattice Tower

Connecticut State Police
112 Munn Road
Colchester, CT

Natcomm Project No. 08007.CO13

Date: April 11, 2008



Prepared for:

Verizon Wireless
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East Hartford, CT 06108

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Branford, CT 06405

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Natcomm, Inc.
Structural Lattice Tower Analysis
320' Existing ROHN Lattice Tower
Colchester, CT
April 11, 2008

Introduction

The purpose of this report is to summarize the results of the non-linear, P-Δ structural analysis of the Tower Mounted Amplifier (TMA) installation proposed by Verizon Wireless on the existing self supporting lattice tower located in Colchester, Connecticut. The host tower is a 320-ft, three legged, tapered lattice tower originally designed and manufactured by ROHN Industries, Inc. circa 2001 (ROHN file no. 43233AE). The manufacturer's drawings and calculations were unavailable for use in this report. The tower geometry, structure member sizes and foundation information were taken from a structural analysis report prepared by URS Corporation; project no. 36921843.00008 CW1-079, dated April 3, 2006 (Revision 3). Antenna and appurtenance inventory were taken from a condition assessment report prepared by All-Points Technology Corporation, P.C. (APT); project no. CT1411250, dated March 26, 2008 and the aforementioned URS report. Both APT's condition assessment and URS's structural analysis are available for reference in Section 4 of this report.

The tower is made of fifteen (15) tapered vertical sections consisting of steel pipe legs. Diagonal and horizontal lateral support bracing consists of steel piping and angle shapes. The vertical tower sections are connected by bolted flange plates while the pipe legs and bracing are connected by welded and bolted gusset connections. The width of the tower face is 6.81-ft at the top and 40.69-ft at the base.

Verizon Wireless is proposing the addition of four (4) TMA's on two (2) of their existing 15' T-Frame Sector Mounts. Refer to the Antenna and Appurtenance Summary below for a description of Verizon's existing and proposed appurtenance configuration.

Antenna and Appurtenance Summary

The existing tower supports several communication antennas. The existing, proposed and reserved loads considered in the analysis consist of the following:

- UNKNOWN (Existing):
  Antenna: One (1) Flash Beacon mounted with an elevation of ±320-ft above the tower base.
  Coax Cable: One (1) 1" rigid conduit on a leg/face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
  Antenna: One (1) PD128-1 antenna on a 6' Side Mount Standoff with an elevation of ±318-ft above the tower base.
  Coax Cable: One (1) 7/8" ∅ coax cable on a leg/face of the existing tower as specified in Section 3 of this report.
- CT STATE POLICE (Reserved):
  Antenna: Three (3) 6' ∅ Dish antennas on three (3) 4' by 4" ∅ Pipe Mounts with an elevation of ±317-ft above the tower base.
  Coax Cable: Three EW63 cables on a leg/face of the existing tower as specified in Section 3 of this report.

- UNKNOWN (Existing):
  Antenna: One (1) PD128-1 antenna on a 6' Side Mount Standoff with an elevation of ±312-ft above the tower base.
  Coax Cable: One (1) 7/8" ∅ coax cable on a leg/face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
  Antenna: One (1) 8' ∅ Dish antenna on one (3) 6' by 4" ∅ Pipe Mount with an elevation of ±310-ft above the tower base.
  Coax Cable: One (1) 7/8" ∅ coax cable on a leg/face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
  Antenna: One (1) PD1142-1 antenna on a 6' Side Mount Standoff with an elevation of ±292-ft above the tower base.
  Coax Cable: One (1) 7/8" ∅ coax cable on a leg/face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
  Antenna: One (1) DB224 antenna on a 6' Side Mount Standoff with an elevation of ±285-ft above the tower base.
  Coax Cable: One (1) 7/8" ∅ coax cable on a leg/face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
  Antenna: Two (2) OGT9-840 antennas on a 6' Side Mount Standoff with an elevation of ±280-ft above the tower base.
  Coax Cable: Two (2) 1-5/8" ∅ coax cables on a leg/face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
  Antenna: One (1) 14' by 3" ∅ omnidirectional (whip) antenna on a 6' Side Mount Standoff with an elevation of ±280-ft above the tower base.
  Coax Cable: One (1) 1-5/8" ∅ coax cable on a leg/face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
  Antenna: One (1) 9' by 3" ∅ omnidirectional (whip) antenna on a 6' Side Mount Standoff with an elevation of ±280-ft above the tower base.
  Coax Cable: One (1) 1-5/8" ∅ coax cable on a leg/face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
  Antenna: One (1) PD440-2 antenna on a 6' Side Mount Standoff with an elevation of ±255-ft above the tower base.
  Coax Cable: One (1) 7/8" ∅ coax cable on a leg/face of the existing tower as specified in Section 3 of this report.

- UNKNOWN (Existing):
  Antenna: One (1) PD1142-1 antenna on a 6' Side Mount Standoff with an elevation of ±240-ft above the tower base.
  Coax Cable: One (1) 7/8" ∅ coax cable on a leg/face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
  Antenna: One (1) PD128-1 antenna on a 6' Side Mount Standoff with an elevation of ±230-ft above the tower base.
  Coax Cable: One (1) 7/8" ∅ coax cable on a leg/face of the existing tower as specified in Section 3 of this report.
- VERIZON (Existing/Removed/Reconfigured):
  Antennas: Six (6) Decibel DB844H90E-XY and six (6) Decibel DB948F85T2E-M panel antennas mounted on (3) 15' T-Frame Sector Mounts with a RAD center elevation of ±225-ft above the existing tower base.
  Coax Cables: Twelve (12) 1-5/8" ∅ coax cables running on a leg/face of the existing tower as specified in Section 3 of this report.
- **VERIZON (Proposed/Reconfigured):**
  Antennas: Four (4) 14" by 11.3" by 6" TMA's (proposed), six (6) Decibel DB844H90E-XY panel antennas (existing to remain) and six (6) Decibel DB948F85T2E-M panel antennas (existing to remain) mounted on (3) 15' T-Frame Sector Mounts with a RAD center elevation of ±225-ft above the existing tower base.
  Coax Cables: Twelve (12) 1-5/8" ∅ coax cables running on a leg/face of the existing tower as specified in Section 3 of this report.
- AT&T (Existing):
  Antennas: Six (6) Powerwave 7770.00 panel antennas and six (6) LPG21401 TMA's mounted on (3) 15' T-Frame Sector Mounts with a RAD center elevation of ±196-ft above the existing tower base.
  Coax Cables: Twelve (12) 1-5/8" ∅ coax cables running on a leg/face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Reserved):
  Antenna: One (1) 6' ∅ Dish antenna on a 4' by 4" ∅ Pipe Mount with an elevation of ±175-ft above the tower base.
  Coax Cable: One EW63 cable on a leg/face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
  Antenna: One (1) 20' by 3" ∅ omnidirectional (whip) antenna on a 6' Side Mount Standoff with an elevation of ±174-ft above the tower base.
  Coax Cable: One (1) 7/8" ∅ coax cable on a leg/face of the existing tower as specified in Section 3 of this report.

- UNKNOWN (Existing):
  Antenna: Three (3) Flash Beacons mounted with an elevation of ±160-ft above the tower base.
  Coax Cable: One (1) 1" rigid conduit on a leg/face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
  Antenna: One (1) 4' by 3" ∅ omnidirectional (whip) antenna on a 1.5' Side Mount Standoff with an elevation of ±150-ft above the tower base.
  Coax Cable: One (1) 7/8" ∅ coax cable on a leg/face of the existing tower as specified in Section 3 of this report.
- NORTHEAST UTILITIES (Existing):
  Antenna: One (1) PD688S-4 and one (1) PD212-1 antenna on a 6' Side Mount Standoff with an elevation of ±136-ft above the tower base.
  Coax Cable: Two (2) 7/8" ∅ coax cables on a leg/face of the existing tower as specified in Section 3 of this report.
- DEPARTMENT OF ENVIRONMENTAL PROTECTION (Existing):
  Antenna: One (1) PD156S-4 antenna on a 1.5' Side Mount Standoff with an elevation of ±130-ft above the tower base.
  Coax Cable: One (1) 7/8" ∅ coax cable on a leg/face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
  Antenna: One (1) 8' Ice Shield on two (2) 4" ∅ Pipe Mounts with an elevation of ±125-ft above the tower base.
  Coax Cable: N/A.
- UNKNOWN (Existing):
  Antenna: One (1) 6' ∅ Dish antenna mounted with an elevation of ±116-ft above the tower base.
  Coax Cable: One EW63 cable on a leg/face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
  Antenna: One (1) 2' ∅ Dish antenna on a 4' by 4" ∅ Pipe Mount with an elevation of ±110-ft above the tower base.
  Coax Cable: One EW90 cable on a leg/face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
  Antenna: One (1) 6' ∅ Dish antenna on a 4' by 4" ∅ Pipe Mount with an elevation of ±105-ft above the tower base.
  Coax Cable: One EW63 cable on a leg/face of the existing tower as specified in Section 3 of this report.

- UNKNOWN (Existing):
  Antenna: One (1) DB437-A and one (1) PD458-1 antenna on a 6' Side Mount Standoff with an elevation of ±105-ft above the tower base.
  Coax Cable: Two (2) 7/8" ∅ coax cables on a leg/face of the existing tower as specified in Section 3 of this report.
- UNKNOWN (Existing):
  Antenna: One (1) 6' ∅ Dish antenna and one (1) 4' ∅ Dish antenna on two (2) 4' by 4" ∅ Pipe Mounts with an elevation of ±90-ft above the tower base.
  Coax Cable: Two (2) 7/8" ∅ coax cables on a leg/face of the existing tower as specified in Section 3 of this report.

Primary Assumptions Used in the Analysis

- The tower structure's theoretical capacity not including any assessment of the condition of the tower.
- The tower carries the horizontal and vertical loads due to the weight of antennas, ice load and wind.
- Tower is properly installed and maintained.
- Tower is in plumb condition.
- Tower loading for antennas and mounts as listed in this report.
- All bolts are appropriately tightened providing the necessary connection continuity.
- All welds are fabricated with ER-70S-6 electrodes.
- All members are assumed to be as specified in the original tower design documents.
- All members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
- All member protective coatings are in good condition.
- All tower members were properly designed, detailed, fabricated, installed and have been properly maintained since erection.
- Any deviation from the analyzed antenna loading will require a new analysis for verification of structural adequacy.
- All coax cables to be routed as specified in Section 3 of this report.

Analysis

The existing tower was analyzed using a comprehensive computer program entitled RISATower. The program analyzes the tower, considering the worst case loading condition. The tower is considered as loaded by concentric forces along the tower legs, and the model assumes that the leg members are subjected to bending, axial, and shear forces.

The existing tower was analyzed for 90 mph basic wind speed (fastest mile) with no ice and for 90 mph basic wind speed (fastest mile) concurrent with ½ inch accumulative ice to determine stresses in members as per guidelines of the Connecticut State Police (CSP), TIA/EIA-222-F-96 entitled "Structural Standards for Steel Antenna Towers and Antenna Supporting Structures", the American Institute of Steel Construction (AISC) and the Manual of Steel Construction; Allowable Stress Design (ASD).

Tower Loading

Tower loading was determined by the basic wind speed as applied to projected surface areas with modification factors per TIA/EIA-222-F, gravity loads of the tower structure and its components, and the application of ½" radial ice tower structure and its components.

Basic Wind Speed:	New London; v = 85 mph (fastest mile)	*[Section 16 of TIA/EIA-222-F-96]*
	Colchester; v = 105 mph (3 second gust) equivalent to v = 85 mph (fastest mile)	*[Appendix K of the 2005 CT Building Code Supplement]*
	CSP; v = 90 mph (fastest mile) *CSP specification wind speed Controls*	*[Connecticut State Police specification]*
Load Cases:	Load Case 1; 90 mph wind speed w/ no ice plus gravity load – used in calculation of tower stresses and rotation. This load case typically controls the design.	*[Connecticut State Police specification]*
	Load Case 2; 90 mph wind speed w/ ½" radial ice plus gravity load – used in calculation of tower stresses.	*[Connecticut State Police specification]*
	Load Case 3; Seismic – not checked	*[Section 1610.1.3 of State Bldg. Code 2005] does not control in the design of this structure type*

Natcomm, Inc.
Structural Lattice Tower Analysis
320' Existing ROHN Lattice Tower
Colchester, CT
April 11, 2008

Tower Capacity

Tower stresses were calculated utilizing the structural analysis software RISATower. Allowable stresses were determined based on Table 5 of the TIA/EIA code with a 1/3 increase per Section 3.1.1.1 of the same code.

Calculated stresses were found to be within allowable limits. In Load Case 2, per RISATower "Section Capacity Table", this tower was found to be at **91.0%** of its total capacity.

In compliance with the Connecticut State Police limit of 0.75 degrees (°) for twist and sway, calculated values from Load Case 2 are **0.3°** twist and **0.74°** sway.

Foundation and Anchors

The existing foundation consists of three (3) 7.5-ft ∅ by 35.5-ft deep reinforced concrete caissons concentrically bearing directly on existing sub grade. The sub grade conditions used in the analysis of the existing foundation were derived from the aforementioned URS structural analysis available for reference in Section 4 of this report. Tower legs are connected to the three (3) caissons by means of twenty-four (24) 1"∅, ASTM A354 Grade BC anchor bolts per leg, embedded into the concrete foundation structure.

Review of the foundation and anchor design consisted of verification of applied loads obtained from the tower design calculations and code checks of allowable stresses:

- The tower base reactions developed from the governing Load Case 2 were used in the verification of the foundation and its anchors:
  - Uplift @ top of caisson = **524.3** kips
  - Shear @ top of caisson = **82.4** kips
  - Compression @ top of caisson = **669.0** kips
- Base plates, anchor bolts and the foundation were found to be within allowable limits.
- Foundation resists two times the calculated wind load per the requirements of section 3108.4.2 of the 2005 CT State Building Code Supplement to the 2003 International Building Code (IBC).

Conclusions

This analysis shows that the subject tower **is adequate** to support the proposed TMA installation.

The analysis is based, in part, on the information provided to this office by Verizon Wireless. If the existing conditions are different than the information in this report, Natcomm, Inc. must be contacted for resolution of any potential issues.

Please feel free to call with any questions or comments.

Respectfully Submitted by:

Carlo F. Centore, PE
Principal ~ Structural Engineer
REPORT

Standard Conditions for Furnishing of Professional Engineering Services on Existing Structures

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessarily limited to:

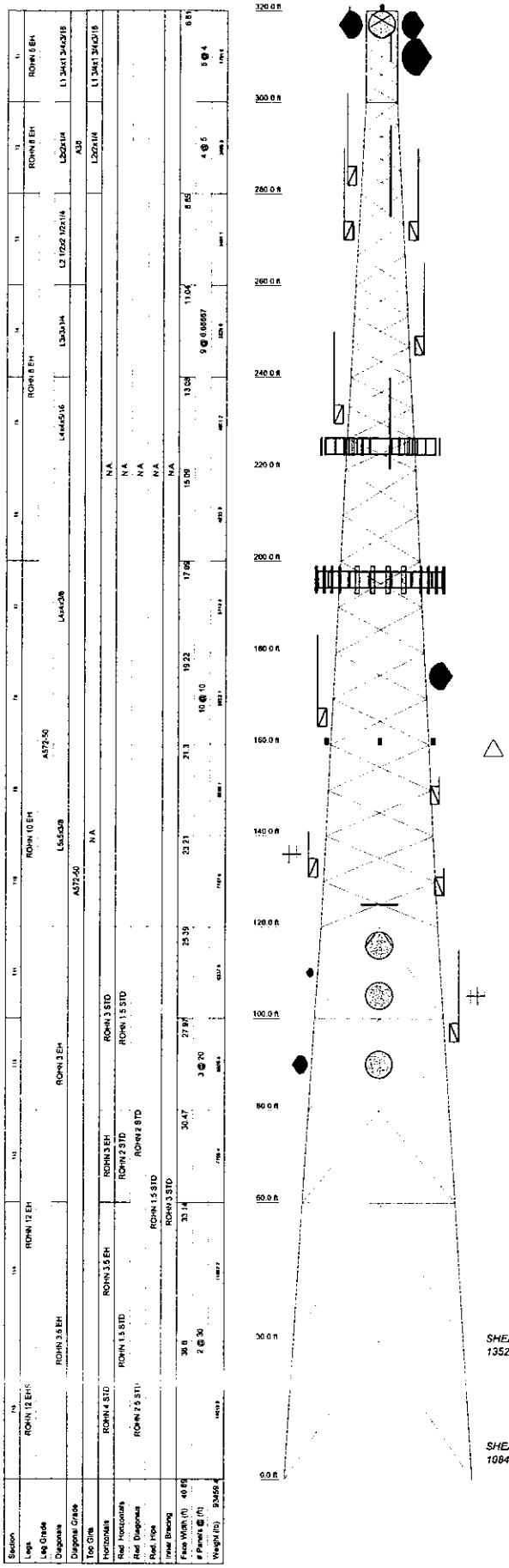
- Information supplied by the client regarding the structure itself, its foundations, the soil conditions, the antenna and feed line loading on the structure and its components, or other relevant information.
- Information from the field and/or drawings in the possession of Natcomm, Inc. or generated by field inspections or measurements of the structure.
- It is the responsibility of the client to ensure that the information provide to Natcomm, Inc. and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and are in an un-corroded condition and have not deteriorated. It is therefore assumed that its capacity has not significantly changed from the "as new" condition.
- All services will be performed to the codes specified by the client, and we do not imply to meet any other codes or requirements unless explicitly agreed in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement. In the absence of information to the contrary, all work will be performed in accordance with the latest revision of ANSI/ASCE10 & ANSI/EIA-222
- All services performed, results obtained, and recommendations made are in accordance with generally accepted engineering principles and practices. Natcomm, Inc. is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAM

RISATower, is an integrated structural analysis and design software package for Designed specifically for the telecommunications industry, RISATower, formerly ERITower, automates much of the tower analysis and design required by the TIA/EIA 222 Standard.

RISATower Features:

- RISATower can analyze and design 3- and 4-sided guyed towers, 3- and 4-sided self-supporting towers and either round or tapered ground mounted poles with or without guys.
- The program analyzes towers using the TIA-222-G (2005) standard or any of the previous TIA/EIA standards back to RS-222 (1959). Steel design is checked using the AISC ASD 9th Edition or the AISC LRFD specifications.
- Linear and non-linear (P-delta) analyses can be used in determining displacements and forces in the structure. Wind pressures and forces are automatically calculated.
- Extensive graphics plots include material take-off, shear-moment, leg compression, displacement, twist, feed line, guy anchor and stress plots.
- RISATower contains unique features such as True Cable behavior, hog rod take-up, foundation stiffness and much more.



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Flash Beacon	320	D8844H90E-XY (Verizon)	225
6' Side Mount Standoff	318	D8844H90E-XY (Verizon)	225
PD128-1	318	D8948F65T2E-M (Verizon)	225
4'x4" Pipe Mount (CSP Reserved)	317	15' T-Frame Sector Mount (ATT)	196
4'x4" Pipe Mount (CSP Reserved)	317	15' T-Frame Sector Mount (ATT)	196
4'x4" Pipe Mount (CSP Reserved)	317	15' T-Frame Sector Mount (ATT)	196
8 FT DISH (CSP Reserved)	317	(2) 7770.00 (ATT)	196
8 FT DISH (CSP Reserved)	317	(2) 7770.00 (ATT)	196
6 FT DISH (CSP Reserved)	317	(2) 7770.00 (ATT)	196
6' Side Mount Standoff	312	(2) LPG21401 TMA (ATT)	196
PD128-1	312	(2) LPG21401 TMA (ATT)	196
6'x4" Pipe Mount	310	(2) LPG21401 TMA (ATT)	196
8 FT DISH	310	4'x4" Pipe Mount (Reserved)	175
6' Side Mount Standoff	292	6 FT DISH (Reserved)	175
PD1142-1	292	20' x 3" Dia Omni	174
6' Side Mount Standoff	285	6' Side Mount Standoff	174
DB224	285	Flash Beacon	160
6' Side Mount Standoff	280	Flash Beacon	160
(2) OGT9-840	280	Flash Beacon	160
6' Side Mount Standoff	280	1.5' Side Mount Standoff	150
14' x 3" Dia Omni	280	4' x 3" DIA Omni	150
8' x 3" Dia Omni	280	PD6668-4 (NEU)	136
6' Side Mount Standoff	255	6' Side Mount Standoff (NEU)	136
PD440-2	255	DB212-1 (NEU)	136
6' Side Mount Standoff	240	1.5' Side Mount Standoff (DEP)	130
PD1142-1	240	PD1568-4 (DEP)	130
6' Side Mount Standoff	230	4'x4" Pipe Mount	125
PD128-1	230	8' Ice Shield	125
15' T-Frame Sector Mount (Verizon)	225	6'x4" Pipe Mount	125
15' T-Frame Sector Mount (Verizon)	225	6 FT DISH	116
15' T-Frame Sector Mount (Verizon)	225	2 FT DISH	110
D8948F65T2E-M (Verizon)	225	4'x4" Pipe Mount	110
D8844H90E-XY (Verizon)	225	6 FT DISH	105
D8948F65T2E-M (Verizon)	225	DB437-A	105
D8844H90E-XY (Verizon)	225	6' Side Mount Standoff	105
(2) TMA 14"x11.3"x5" (Verizon)	225	4'x4" Pipe Mount	105
(3) TMA 14"x11.3"x5" (Verizon)	225	PD458-1	105
D8844H90E-XY (Verizon)	225	4'x4" Pipe Mount	90
D8844H90E-XY (Verizon)	225	6 FT DISH	90
D8948F65T2E-M (Verizon)	225	4 FT DISH	90
D8948F65T2E-M (Verizon)	225	4'x4" Pipe Mount	90
D8948F65T2E-M (Verizon)	225		

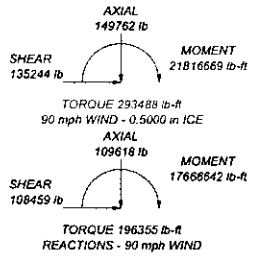
MATERIAL STRENGTH

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: 91%

MAX. CORNER REACTIONS AT BASE:
DOWN: 669023 lb
UPLIFT: -524332 lb
SHEAR: 82382 lb



NATCOMM 63-2 N. Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job 320' ROHN SSVMW Self-Support Lattic	
	Project 08007.C013 - 112 Munn Rd, Colchester, CT	
	Client Verizon	Drawn by Staff / App'd
	Code TIA/EIA-222-F	Date 04/01/08 / Scale NTS
	Path:	Dwg No E-1

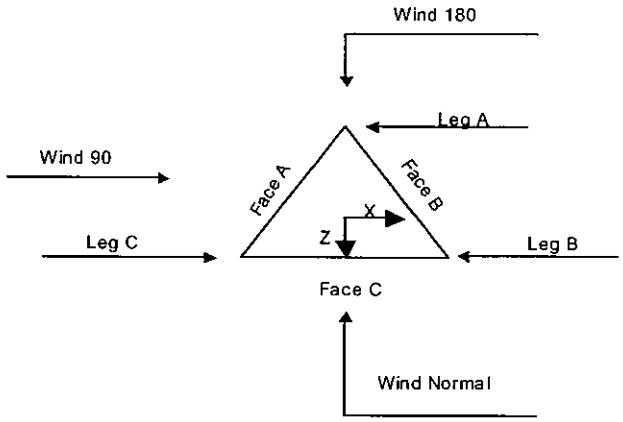
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 320.00 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 6.81 ft at the top and 40.69 ft at the base.
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..
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
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		



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	320.00-300.00			6.81	1	20.00
T2	300.00-280.00			6.81	1	20.00
T3	280.00-260.00			8.85	1	20.00
T4	260.00-240.00			11.04	1	20.00
T5	240.00-220.00			13.08	1	20.00
T6	220.00-200.00			15.09	1	20.00
T7	200.00-180.00			17.09	1	20.00
T8	180.00-160.00			19.22	1	20.00
T9	160.00-140.00			21.30	1	20.00
T10	140.00-120.00			23.21	1	20.00
T11	120.00-100.00			25.39	1	20.00
T12	100.00-80.00			27.97	1	20.00
T13	80.00-60.00			30.47	1	20.00
T14	60.00-30.00			33.14	1	30.00
T15	30.00-0.00			36.80	1	30.00

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in

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	320.00-300.00	4.00	X Brace	No	No	0.0000	0.0000
T2	300.00-280.00	5.00	X Brace	No	No	0.0000	0.0000
T3	280.00-260.00	6.67	X Brace	No	No	0.0000	0.0000
T4	260.00-240.00	6.67	X Brace	No	No	0.0000	0.0000
T5	240.00-220.00	6.67	X Brace	No	No	0.0000	0.0000
T6	220.00-200.00	10.00	X Brace	No	No	0.0000	0.0000
T7	200.00-180.00	10.00	X Brace	No	No	0.0000	0.0000
T8	180.00-160.00	10.00	X Brace	No	No	0.0000	0.0000
T9	160.00-140.00	10.00	X Brace	No	No	0.0000	0.0000
T10	140.00-120.00	10.00	X Brace	No	No	0.0000	0.0000
T11	120.00-100.00	20.00	K1 Down	No	Yes	0.0000	0.0000
T12	100.00-80.00	20.00	K1 Down	No	Yes	0.0000	0.0000
T13	80.00-60.00	20.00	K1 Down	No	Yes	0.0000	0.0000
T14	60.00-30.00	30.00	K2 Down	No	Yes	0.0000	0.0000
T15	30.00-0.00	30.00	K2 Down	No	Yes	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 320.00-300.00	Pipe	ROHN 5 EH	A572-50 (50 ksi)	Equal Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T2 300.00-280.00	Pipe	ROHN 6 EH	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T3 280.00-260.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)
T4 260.00-240.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A572-50 (50 ksi)
T5 240.00-220.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Equal Angle	L4x4x5/16	A572-50 (50 ksi)
T6 220.00-200.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Equal Angle	L4x4x3/8	A572-50 (50 ksi)
T7 200.00-180.00	Pipe	ROHN 10 EH	A572-50 (50 ksi)	Equal Angle	L4x4x3/8	A572-50 (50 ksi)
T8 180.00-160.00	Pipe	ROHN 10 EH	A572-50 (50 ksi)	Equal Angle	L4x4x3/8	A572-50 (50 ksi)
T9 160.00-140.00	Pipe	ROHN 10 EH	A572-50 (50 ksi)	Equal Angle	L5x5x3/8	A572-50 (50 ksi)
T10 140.00-120.00	Pipe	ROHN 10 EH	A572-50 (50 ksi)	Equal Angle	L5x5x3/8	A572-50 (50 ksi)
T11 120.00-100.00	Pipe	ROHN 10 EH	A572-50 (50 ksi)	Pipe	ROHN 3 EH	A572-50 (50 ksi)
T12 100.00-80.00	Pipe	ROHN 10 EH	A572-50 (50 ksi)	Pipe	ROHN 3 EH	A572-50 (50 ksi)
T13 80.00-60.00	Pipe	ROHN 12 EH	A572-50 (50 ksi)	Pipe	ROHN 3 EH	A572-50 (50 ksi)
T14 60.00-30.00	Pipe	ROHN 12 EH	A572-50 (50 ksi)	Pipe	ROHN 3.5 EH	A572-50 (50 ksi)
T15 30.00-0.00	Pipe	ROHN 12 EHS	A572-50 (50 ksi)	Pipe	ROHN 3.5 EH	A572-50 (50 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 320.00-300.00	Equal Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)	Equal Angle		A36 (36 ksi)
T2 300.00-280.00	Equal Angle	L2x2x1/4	A36 (36 ksi)	Equal Angle		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
T11 120.00-100.00	None	Single Angle		A36 (36 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T12 100.00-80.00	None	Single Angle		A36 (36 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T13 80.00-60.00	None	Single Angle		A36 (36 ksi)	Pipe	ROHN 3 EH	A572-50 (50 ksi)
T14 60.00-30.00	None	Single Angle		A36 (36 ksi)	Pipe	ROHN 3.5 EH	A572-50 (50 ksi)
T15 30.00-0.00	None	Single Angle		A36 (36 ksi)	Pipe	ROHN 4 STD	A572-50 (50 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
T11 120.00-100.00	Equal Angle		A36 (36 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T12 100.00-80.00	Equal Angle		A36 (36 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T13 80.00-60.00	Equal Angle		A36 (36 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T14 60.00-30.00	Equal Angle		A36 (36 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T15 30.00-0.00	Equal Angle		A36 (36 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Redundant Bracing Grade		Redundant Type	Redundant Size	K Factor
T11 120.00-100.00	A572-50 (50 ksi)	Horizontal (1)	Pipe	ROHN 1.5 STD	0.75
		Diagonal (1)	Pipe	ROHN 2 STD	0.75
		Hip (1)	Pipe	ROHN 1.5 STD	1
		Hip Diagonal		ROHN 2.5 STD	1
T12 100.00-80.00	A572-50 (50 ksi)	Horizontal (1)	Pipe	ROHN 1.5 STD	0.75
		Diagonal (1)	Pipe	ROHN 2 STD	0.75
		Hip (1)	Pipe	ROHN 1.5 STD	1
		Hip Diagonal		ROHN 2.5 STD	1
T13 80.00-60.00	A572-50 (50 ksi)	Horizontal (1)	Pipe	ROHN 2 STD	0.75
		Diagonal (1)	Pipe	ROHN 2 STD	0.75
		Hip (1)	Pipe	ROHN 1.5 STD	1
		Hip Diagonal		ROHN 3 STD	1
T14 60.00-30.00	A572-50 (50 ksi)	Horizontal (1)	Pipe	ROHN 1.5 STD	0.75
		Horizontal (2)		ROHN 2 EH	
		Diagonal (1)	Pipe	ROHN 2 STD	0.75
		Diagonal (2)		ROHN 2.5 STD	
		Hip (1)	Pipe	ROHN 1.5 STD	1
		Hip (2)		ROHN 2 STD	
		Hip Diagonal		ROHN 2 STD	1
T15 30.00-0.00	A572-50 (50 ksi)	Horizontal (1)	Pipe	ROHN 1.5 STD	0.75
		Horizontal (2)		ROHN 2.5 EH	
		Diagonal (1)	Pipe	ROHN 2.5 STD	0.75
		Diagonal (2)		ROHN 2.5 STD	
		Hip (1)	Pipe	ROHN 1.5 STD	1
		Hip (2)		ROHN 2 STD	
		Hip Diagonal		ROHN 2.5 STD	1

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 320.00-300.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T2 300.00-280.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T3 280.00-260.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T4 260.00-240.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T5 240.00-220.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T6 220.00-200.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T7 200.00-180.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T8 180.00-160.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T9 160.00-140.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T10 140.00-120.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T11 120.00-100.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T12 100.00-	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
80.00			(36 ksi)					
T13 80.00-60.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T14 60.00-30.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T15 30.00-0.00	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	K Factors[1] Legs	X Brace Diags X	X Brace Diags Y	Single Diags X	Single Diags Y	Girts X	Girts Y	Horiz. X	Horiz. Y	Sec. Horiz. X	Sec. Horiz. Y	Inner Brace X	Inner Brace Y
T1 320.00-300.00	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
T2 300.00-280.00	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
T3 280.00-260.00	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
T4 260.00-240.00	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
T5 240.00-220.00	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
T6 220.00-200.00	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
T7 200.00-180.00	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
T8 180.00-160.00	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
T9 160.00-140.00	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
T10 140.00-120.00	Yes	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
T11 120.00-100.00	No	No	1	1	0.9	1	1	1	1	0.9	1	1	1	1	1
T12 100.00-80.00	No	No	1	1	0.9	1	1	1	1	0.9	1	1	1	1	1
T13 80.00-60.00	No	No	1	1	0.9	1	1	1	1	0.9	1	1	1	1	1
T14 60.00-30.00	No	No	1	1	0.9	1	1	1	1	0.9	1	1	1	1	1
T15 30.00-0.00	No	No	1	1	0.9	1	1	1	1	0.9	1	1	1	1	1

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

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 320.00-300.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T2 300.00-280.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T3 280.00-260.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T4 260.00-240.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T5 240.00-220.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T6 220.00-200.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T7 200.00-180.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T8 180.00-160.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T9 160.00-140.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T10 140.00-120.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T11 120.00-100.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T12 100.00-80.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T13 80.00-60.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T14 60.00-30.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T15 30.00-0.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 320.00-300.00	Flange	1.0000 A325N	6	0.6250 A325X	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T2 300.00-280.00	Flange	1.0000 A325N	8	0.6250 A325X	1	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 280.00-260.00	Flange	1.0000 A325N	8	0.7500 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T4 260.00-240.00	Flange	1.0000 A325N	8	0.7500 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T5 240.00-220.00	Flange	1.0000 A325N	8	0.7500 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T6 220.00-200.00	Flange	1.0000 A325N	12	0.7500 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T7 200.00-180.00	Flange	1.0000 A325N	12	0.8750 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

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.
T8 180.00-160.00	Flange	1.0000 A325N	12	0.8750 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T9 160.00-140.00	Flange	1.0000 A325N	12	0.8750 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T10 140.00-120.00	Flange	1.0000 A325N	12	0.8750 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T11 120.00-100.00	Flange	1.0000 A325N	12	0.7500 A325X	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.7500 A325X	2	0.6250 A325N	0
T12 100.00-80.00	Flange	1.0000 A325N	16	0.7500 A325X	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.7500 A325X	2	0.6250 A325N	0
T13 80.00-60.00	Flange	1.0000 A325N	16	0.7500 A325X	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.7500 A325X	2	0.6250 A325N	0
T14 60.00-30.00	Flange	1.0000 A325N	16	0.8750 A325X	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.7500 A325X	2	0.6250 A325N	0
T15 30.00-0.00	Flange	1.0000 A325N	24	0.8750 A325X	3	0.6250 A325N	0	0.6250 A325X	0	0.6250 A325X	0	0.7500 A325X	2	0.6250 A325X	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
1 5/8 (Verizon)	C	Yes	Ar (CfAe)	220.00 - 6.00	0.0000	-0.4	12	12	1.9800	1.9800		1.04
1 5/8 (ATT)	A	Yes	Ar (CfAe)	196.00 - 6.00	0.0000	-0.42	12	12	1.9800	1.9800		1.04
1" Rigid Conduit	B	Yes	Ar (CfAe)	320.00 - 6.00	0.0000	0.48	2	2	1.0000	1.0000		0.70
7/8	B	Yes	Ar (CfAe)	315.00 - 6.00	0.0000	0.46	3	3	1.1100	1.1100		0.54
7/8	B	Yes	Ar (CfAe)	290.00 - 6.00	0.0000	0.44	2	2	1.1100	1.1100		0.54
1 5/8	B	Yes	Ar (CfAe)	280.00 - 6.00	0.0000	0.4	4	4	1.9800	1.9800		1.04
7/8	B	Yes	Ar (CfAe)	255.00 - 6.00	0.0000	0.38	1	1	1.1100	1.1100		0.54
7/8	B	Yes	Ar (CfAe)	235.00 - 6.00	0.0000	0.36	2	2	1.1100	1.1100		0.54
7/8	B	Yes	Ar (CfAe)	174.00 - 6.00	0.0000	0.34	1	1	1.1100	1.1100		0.54
7/8	B	Yes	Ar (CfAe)	150.00 - 6.00	0.0000	0.32	1	1	1.1100	1.1100		0.54
7/8	B	Yes	Ar (CfAe)	135.00 - 6.00	0.0000	0.3	3	3	1.1100	1.1100		0.54
EW63	C	Yes	Af (CfAe)	116.00 - 6.00	0.0000	-0.45	1	1	1.5742	1.5742	5.0668	0.51
EW90	B	Yes	Af (CfAe)	110.00 - 6.00	0.0000	0.28	1	1	0.9869	0.9869	3.2550	0.32
EW63	B	Yes	Af (CfAe)	105.00 - 6.00	0.0000	0.26	1	1	1.5742	1.5742	5.0668	0.51
7/8	B	Yes	Ar (CfAe)	105.00 - 6.00	0.0000	0.24	2	2	1.1100	1.1100		0.54
7/8	B	Yes	Ar (CfAe)	90.00 - 6.00	0.0000	0.22	2	2	1.1100	1.1100		0.54
EW63 (Reserved)	C	Yes	Af (CfAe)	175.00 - 6.00	0.0000	-0.47	1	1	1.5742	1.5742	5.0668	0.51
EW63 (CSP Reserved)	B	Yes	Af (CfAe)	317.00 - 6.00	0.0000	0.42	3	3	1.5742	1.5742	5.0668	0.51

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T1	320.00-300.00	A	0.000	0.000	0.000	0.000	0.00
		B	7.496	6.690	0.000	0.000	78.31
		C	0.000	0.000	0.000	0.000	0.00
T2	300.00-280.00	A	0.000	0.000	0.000	0.000	0.00
		B	10.733	7.871	0.000	0.000	101.80
		C	0.000	0.000	0.000	0.000	0.00
T3	280.00-260.00	A	0.000	0.000	0.000	0.000	0.00
		B	25.783	7.871	0.000	0.000	195.80
		C	0.000	0.000	0.000	0.000	0.00
T4	260.00-240.00	A	0.000	0.000	0.000	0.000	0.00
		B	27.171	7.871	0.000	0.000	203.90
		C	0.000	0.000	0.000	0.000	0.00
T5	240.00-220.00	A	0.000	0.000	0.000	0.000	0.00
		B	30.408	7.871	0.000	0.000	222.80
		C	0.000	0.000	0.000	0.000	0.00
T6	220.00-200.00	A	0.000	0.000	0.000	0.000	0.00
		B	31.333	7.871	0.000	0.000	228.20
		C	39.600	0.000	0.000	0.000	249.60
T7	200.00-180.00	A	31.680	0.000	0.000	0.000	199.68
		B	31.333	7.871	0.000	0.000	228.20
		C	39.600	0.000	0.000	0.000	249.60
T8	180.00-160.00	A	39.600	0.000	0.000	0.000	249.60
		B	32.628	7.871	0.000	0.000	235.76
		C	39.600	1.968	0.000	0.000	257.25
T9	160.00-140.00	A	39.600	0.000	0.000	0.000	249.60
		B	34.108	7.871	0.000	0.000	244.40
		C	39.600	2.624	0.000	0.000	259.80
T10	140.00-120.00	A	39.600	0.000	0.000	0.000	249.60
		B	39.196	7.871	0.000	0.000	274.10
		C	39.600	2.624	0.000	0.000	259.80
T11	120.00-100.00	A	39.600	0.000	0.000	0.000	249.60
		B	41.508	9.349	0.000	0.000	293.35
		C	39.600	4.723	0.000	0.000	267.96
T12	100.00-80.00	A	39.600	0.000	0.000	0.000	249.60
		B	46.133	12.140	0.000	0.000	331.20
		C	39.600	5.247	0.000	0.000	270.00
T13	80.00-60.00	A	39.600	0.000	0.000	0.000	249.60
		B	47.983	12.140	0.000	0.000	342.00
		C	39.600	5.247	0.000	0.000	270.00
T14	60.00-30.00	A	59.400	0.000	0.000	0.000	374.40
		B	71.975	18.209	0.000	0.000	513.00
		C	59.400	7.871	0.000	0.000	405.00
T15	30.00-0.00	A	47.520	0.000	0.000	0.000	299.52
		B	57.580	14.568	0.000	0.000	410.40
		C	47.520	6.297	0.000	0.000	324.00

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T1	320.00-300.00	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		11.246	12.857	0.000	0.000	234.91
		C		0.000	0.000	0.000	0.000	0.00
T2	300.00-280.00	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		17.400	14.538	0.000	0.000	305.00
		C		0.000	0.000	0.000	0.000	0.00
T3	280.00-260.00	A	0.500	0.000	0.000	0.000	0.000	0.00

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
		B		40.783	14.538	0.000	0.000	539.87
		C		0.000	0.000	0.000	0.000	0.00
T4	260.00-240.00	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		43.421	14.538	0.000	0.000	562.72
		C		0.000	0.000	0.000	0.000	0.00
T5	240.00-220.00	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		49.575	14.538	0.000	0.000	616.04
		C		0.000	0.000	0.000	0.000	0.00
T6	220.00-200.00	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		51.333	14.538	0.000	0.000	631.28
		C		59.600	0.000	0.000	0.000	613.19
T7	200.00-180.00	A	0.500	47.680	0.000	0.000	0.000	490.55
		B		51.333	14.538	0.000	0.000	631.28
		C		59.600	0.000	0.000	0.000	613.19
T8	180.00-160.00	A	0.500	59.600	0.000	0.000	0.000	613.19
		B		53.795	14.538	0.000	0.000	652.61
		C		59.600	2.801	0.000	0.000	641.14
T9	160.00-140.00	A	0.500	59.600	0.000	0.000	0.000	613.19
		B		56.608	14.538	0.000	0.000	676.98
		C		59.600	3.735	0.000	0.000	650.45
T10	140.00-120.00	A	0.500	59.600	0.000	0.000	0.000	613.19
		B		66.279	14.538	0.000	0.000	760.77
		C		59.600	3.735	0.000	0.000	650.45
T11	120.00-100.00	A	0.500	59.600	0.000	0.000	0.000	613.19
		B		70.675	16.849	0.000	0.000	821.39
		C		59.600	6.723	0.000	0.000	680.26
T12	100.00-80.00	A	0.500	59.600	0.000	0.000	0.000	613.19
		B		79.467	21.029	0.000	0.000	938.72
		C		59.600	7.470	0.000	0.000	687.72
T13	80.00-60.00	A	0.500	59.600	0.000	0.000	0.000	613.19
		B		82.983	21.029	0.000	0.000	969.19
		C		59.600	7.470	0.000	0.000	687.72
T14	60.00-30.00	A	0.500	89.400	0.000	0.000	0.000	919.78
		B		124.475	31.543	0.000	0.000	1453.78
		C		89.400	11.204	0.000	0.000	1031.57
T15	30.00-0.00	A	0.500	71.520	0.000	0.000	0.000	735.82
		B		99.580	25.234	0.000	0.000	1163.03
		C		71.520	8.964	0.000	0.000	825.26

Feed Line Shielding

Section	Elevation ft	Face	A_R ft^2	A_R Ice ft^2	A_F ft^2	A_F Ice ft^2
T1	320.00-300.00	A	0.000	0.000	0.000	0.000
		B	0.000	1.340	1.303	2.344
		C	0.000	0.000	0.000	0.000
T2	300.00-280.00	A	0.000	0.000	0.000	0.000
		B	0.000	1.472	1.630	2.944
		C	0.000	0.000	0.000	0.000
T3	280.00-260.00	A	0.000	0.000	0.000	0.000
		B	0.000	1.718	2.536	4.294
		C	0.000	0.000	0.000	0.000
T4	260.00-240.00	A	0.000	0.000	0.000	0.000
		B	0.000	1.704	3.005	5.113
		C	0.000	0.000	0.000	0.000
T5	240.00-220.00	A	0.000	0.000	0.000	0.000

Section	Elevation ft	Face	A_R ft^2	A_R Ice ft^2	A_F ft^2	A_F Ice ft^2
		B	0.000	1.820	4.237	7.280
		C	0.000	0.000	0.000	0.000
T6	220.00-200.00	A	0.000	0.000	0.000	0.000
		B	0.000	1.326	3.078	5.303
		C	0.000	1.170	3.109	4.680
T7	200.00-180.00	A	0.000	0.907	2.412	3.630
		B	0.000	1.285	2.985	5.142
		C	0.000	1.134	3.015	4.537
T8	180.00-160.00	A	0.000	1.108	2.945	4.432
		B	0.000	1.301	3.011	5.205
		C	0.000	1.168	3.091	4.671
T9	160.00-140.00	A	0.000	1.089	3.618	5.446
		B	0.000	1.331	3.836	6.653
		C	0.000	1.168	3.858	5.838
T10	140.00-120.00	A	0.000	1.074	3.569	5.371
		B	0.000	1.487	4.242	7.434
		C	0.000	1.152	3.805	5.758
T11	120.00-100.00	A	2.688	5.475	0.000	0.000
		B	3.452	8.232	0.000	0.000
		C	3.008	6.185	0.000	0.000
T12	100.00-80.00	A	2.572	5.239	0.000	0.000
		B	3.785	9.078	0.000	0.000
		C	2.913	5.993	0.000	0.000
T13	80.00-60.00	A	2.560	5.173	0.000	0.000
		B	3.887	9.269	0.000	0.000
		C	2.899	5.918	0.000	0.000
T14	60.00-30.00	A	4.171	8.402	0.000	0.000
		B	6.332	15.055	0.000	0.000
		C	4.723	9.612	0.000	0.000
T15	30.00-0.00	A	3.452	6.820	0.000	0.000
		B	5.242	12.220	0.000	0.000
		C	3.910	7.802	0.000	0.000

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	320.00-300.00	4.8656	2.4280	4.7282	2.3486
T2	300.00-280.00	6.3219	3.1544	6.8012	3.3849
T3	280.00-260.00	10.9201	5.1838	12.5821	5.9684
T4	260.00-240.00	12.2504	5.8098	14.3328	6.7836
T5	240.00-220.00	12.7619	5.9798	15.4198	7.1864
T6	220.00-200.00	26.1107	15.4619	30.4445	17.8900
T7	200.00-180.00	13.2969	18.8554	15.8777	21.8093
T8	180.00-160.00	12.5273	21.6205	15.0399	24.8795
T9	160.00-140.00	12.9429	21.4786	15.8363	25.1341
T10	140.00-120.00	15.1356	22.9818	18.8062	26.9100
T11	120.00-100.00	20.4439	28.5524	24.3135	31.9931
T12	100.00-80.00	24.4400	30.7462	29.1001	34.3232
T13	80.00-60.00	24.9874	30.7253	30.3405	34.8591
T14	60.00-30.00	26.7940	32.9456	32.4903	37.3435
T15	30.00-0.00	24.0602	29.5832	29.7516	34.1983

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
15' T-Frame Sector Mount (Verizon)	A	From Leg	1.50 0.00 0.00	0.0000	225.00	No Ice 1/2" Ice	15.00 20.60	15.00 20.60	500.00 650.00
15' T-Frame Sector Mount (Verizon)	B	From Leg	1.50 0.00 0.00	0.0000	225.00	No Ice 1/2" Ice	15.00 20.60	15.00 20.60	500.00 650.00
15' T-Frame Sector Mount (Verizon)	C	From Leg	1.50 0.00 0.00	0.0000	225.00	No Ice 1/2" Ice	15.00 20.60	15.00 20.60	500.00 650.00
DB844H90E-XY (Verizon)	A	From Leg	3.00 -6.00 0.00	0.0000	225.00	No Ice 1/2" Ice	2.87 3.18	3.73 4.10	10.00 35.38
DB948F85T2E-M (Verizon)	A	From Leg	3.00 -4.00 0.00	0.0000	225.00	No Ice 1/2" Ice	1.92 2.22	3.26 3.62	8.50 27.57
DB948F85T2E-M (Verizon)	A	From Leg	3.00 4.00 0.00	0.0000	225.00	No Ice 1/2" Ice	1.92 2.22	3.26 3.62	8.50 27.57
DB844H90E-XY (Verizon)	A	From Leg	3.00 6.00 0.00	0.0000	225.00	No Ice 1/2" Ice	2.87 3.18	3.73 4.10	10.00 35.38
DB844H90E-XY (Verizon)	B	From Leg	3.00 -6.00 0.00	0.0000	225.00	No Ice 1/2" Ice	2.87 3.18	3.73 4.10	10.00 35.38
DB948F85T2E-M (Verizon)	B	From Leg	3.00 -4.00 0.00	0.0000	225.00	No Ice 1/2" Ice	1.92 2.22	3.26 3.62	8.50 27.57
DB948F85T2E-M (Verizon)	B	From Leg	3.00 4.00 0.00	0.0000	225.00	No Ice 1/2" Ice	1.92 2.22	3.26 3.62	8.50 27.57
DB844H90E-XY (Verizon)	B	From Leg	3.00 6.00 0.00	0.0000	225.00	No Ice 1/2" Ice	2.87 3.18	3.73 4.10	10.00 35.38
DB844H90E-XY (Verizon)	C	From Leg	3.00 -6.00 0.00	0.0000	225.00	No Ice 1/2" Ice	2.87 3.18	3.73 4.10	10.00 35.38
DB948F85T2E-M (Verizon)	C	From Leg	3.00 -4.00 0.00	0.0000	225.00	No Ice 1/2" Ice	1.92 2.22	3.26 3.62	8.50 27.57
DB948F85T2E-M (Verizon)	C	From Leg	3.00 4.00 0.00	0.0000	225.00	No Ice 1/2" Ice	1.92 2.22	3.26 3.62	8.50 27.57
DB844H90E-XY (Verizon)	C	From Leg	3.00 6.00 0.00	0.0000	225.00	No Ice 1/2" Ice	2.87 3.18	3.73 4.10	10.00 35.38
(2) TMA 14"x11.3"x6" (Verizon)	B	From Leg	3.00 0.00 0.00	0.0000	225.00	No Ice 1/2" Ice	1.54 1.71	0.82 0.95	22.50 33.59
(2) TMA 14"x11.3"x6" (Verizon)	C	From Leg	3.00 0.00 0.00	0.0000	225.00	No Ice 1/2" Ice	1.54 1.71	0.82 0.95	22.50 33.59
15' T-Frame Sector Mount	A	From Leg	1.50	0.0000	196.00	No Ice	15.00	15.00	500.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
(ATT)			0.00			1/2" Ice	20.60	20.60	650.00
			0.00						
15' T-Frame Sector Mount	B	From Leg	1.50	0.0000	196.00	No Ice	15.00	15.00	500.00
(ATT)			0.00			1/2" Ice	20.60	20.60	650.00
			0.00						
15' T-Frame Sector Mount	C	From Leg	1.50	0.0000	196.00	No Ice	15.00	15.00	500.00
(ATT)			0.00			1/2" Ice	20.60	20.60	650.00
			0.00						
(2) 7770.00	A	From Leg	3.00	0.0000	196.00	No Ice	5.88	2.93	35.00
(ATT)			0.00			1/2" Ice	6.31	3.27	67.63
			0.00						
(2) 7770.00	B	From Leg	3.00	0.0000	196.00	No Ice	5.88	2.93	35.00
(ATT)			0.00			1/2" Ice	6.31	3.27	67.63
			0.00						
(2) 7770.00	C	From Leg	3.00	0.0000	196.00	No Ice	5.88	2.93	35.00
(ATT)			0.00			1/2" Ice	6.31	3.27	67.63
			0.00						
(2) LPG21401 TMA	A	From Leg	3.00	0.0000	196.00	No Ice	0.95	0.37	17.50
(ATT)			0.00			1/2" Ice	1.09	0.48	23.31
			0.00						
(2) LPG21401 TMA	B	From Leg	3.00	0.0000	196.00	No Ice	0.95	0.37	17.50
(ATT)			0.00			1/2" Ice	1.09	0.48	23.31
			0.00						
(2) LPG21401 TMA	C	From Leg	3.00	0.0000	196.00	No Ice	0.95	0.37	17.50
(ATT)			0.00			1/2" Ice	1.09	0.48	23.31
			0.00						
4'x4" Pipe Mount	B	From Leg	0.50	0.0000	175.00	No Ice	1.32	1.32	44.00
(Reserved)			0.00			1/2" Ice	1.58	1.58	56.99
			0.00						
6' Side Mount Standoff	C	From Leg	3.00	0.0000	174.00	No Ice	4.97	4.97	70.00
			0.00			1/2" Ice	6.12	6.12	130.00
			0.00						
20' x 3" Dia Omni	C	From Leg	6.00	0.0000	174.00	No Ice	6.00	6.00	50.00
			0.00			1/2" Ice	8.03	8.03	93.17
			0.00						
Flash Beacon	A	From Leg	1.00	0.0000	160.00	No Ice	1.00	1.00	10.00
			0.00			1/2" Ice	1.50	1.50	15.00
			0.00						
Flash Beacon	B	From Leg	1.00	0.0000	160.00	No Ice	1.00	1.00	10.00
			0.00			1/2" Ice	1.50	1.50	15.00
			0.00						
Flash Beacon	C	From Leg	1.00	0.0000	160.00	No Ice	1.00	1.00	10.00
			0.00			1/2" Ice	1.50	1.50	15.00
			0.00						
1.5' Side Mount Standoff	B	From Leg	1.00	0.0000	150.00	No Ice	1.75	1.75	35.00
			0.00			1/2" Ice	2.25	2.25	70.00
			0.00						
4' x 3" DIA Omni	B	From Leg	2.00	0.0000	150.00	No Ice	1.00	1.00	15.00
			0.00			1/2" Ice	1.25	1.25	23.96
			0.00						
DB212-1	C	From Leg	6.00	0.0000	136.00	No Ice	4.40	4.40	31.00
(NEU)			0.00			1/2" Ice	8.42	8.42	70.21
			0.00						
PD688S-4	C	From Leg	6.00	0.0000	136.00	No Ice	0.35	0.35	3.75
(NEU)			0.00			1/2" Ice	0.63	0.63	4.88
			0.00						
6' Side Mount Standoff	C	From Leg	3.00	0.0000	136.00	No Ice	4.97	4.97	70.00

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
(NEU)			0.00			1/2" Ice	6.12	6.12	130.00
			0.00						
1.5' Side Mount Standoff	B	From Leg	1.00	0.0000	130.00	No Ice	1.75	1.75	35.00
(DEP)			0.00			1/2" Ice	2.25	2.25	70.00
			0.00						
PD156S-4	B	From Leg	2.00	0.0000	130.00	No Ice	0.44	0.44	5.00
(DEP)			0.00			1/2" Ice	0.79	0.79	6.50
			0.00						
4'x4" Pipe Mount	A	From Leg	0.50	0.0000	125.00	No Ice	1.32	1.32	44.00
			0.00			1/2" Ice	1.58	1.58	56.99
			0.00						
8' Ice Shield	A	From Leg	2.00	0.0000	125.00	No Ice	3.73	1.87	300.00
			0.00			1/2" Ice	4.39	2.21	472.83
			0.00						
6'x4" Pipe Mount	C	From Leg	0.50	0.0000	125.00	No Ice	2.09	2.09	54.72
			0.00			1/2" Ice	2.46	2.46	71.85
			0.00						
4'x4" Pipe Mount	C	From Leg	0.50	0.0000	110.00	No Ice	1.32	1.32	44.00
			0.00			1/2" Ice	1.58	1.58	56.99
			0.00						
4'x4" Pipe Mount	A	From Leg	0.50	0.0000	105.00	No Ice	1.32	1.32	44.00
			0.00			1/2" Ice	1.58	1.58	56.99
			0.00						
PD458-1	B	From Leg	6.00	0.0000	105.00	No Ice	2.88	2.88	24.00
			0.00			1/2" Ice	4.34	4.34	46.22
			0.00						
DB437-A	B	From Leg	6.00	0.0000	105.00	No Ice	0.45	0.45	7.00
			0.00			1/2" Ice	0.81	0.81	9.10
			0.00						
6' Side Mount Standoff	B	From Leg	3.00	0.0000	105.00	No Ice	4.97	4.97	70.00
			0.00			1/2" Ice	6.12	6.12	130.00
			0.00						
4'x4" Pipe Mount	A	From Leg	0.50	0.0000	90.00	No Ice	1.32	1.32	44.00
			0.00			1/2" Ice	1.58	1.58	56.99
			0.00						
4'x4" Pipe Mount	C	From Leg	0.50	0.0000	90.00	No Ice	1.32	1.32	44.00
			0.00			1/2" Ice	1.58	1.58	56.99
			0.00						
Flash Beacon	A	From Leg	0.00	0.0000	320.00	No Ice	1.00	1.00	10.00
			0.00			1/2" Ice	1.50	1.50	15.00
			0.00						
6' Side Mount Standoff	C	From Leg	3.00	0.0000	318.00	No Ice	4.97	4.97	70.00
			0.00			1/2" Ice	6.12	6.12	130.00
			0.00						
PD128-1	C	From Leg	6.00	0.0000	318.00	No Ice	1.00	1.00	13.00
			0.00			1/2" Ice	1.80	1.80	16.90
			0.00						
6' Side Mount Standoff	A	From Leg	3.00	0.0000	312.00	No Ice	4.97	4.97	70.00
			0.00			1/2" Ice	6.12	6.12	130.00
			0.00						
PD128-1	A	From Leg	6.00	0.0000	312.00	No Ice	1.00	1.00	13.00
			0.00			1/2" Ice	1.80	1.80	16.90
			0.00						
6' Side Mount Standoff	C	From Leg	3.00	0.0000	292.00	No Ice	4.97	4.97	70.00
			0.00			1/2" Ice	6.12	6.12	130.00
			0.00						
PD1142-1	C	From Leg	6.00	0.0000	292.00	No Ice	1.32	1.32	10.00

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			1/2" Ice	3.21	3.21	23.85
			0.00						
6' Side Mount Standoff	A	From Leg	3.00	0.0000	285.00	No Ice	4.97	4.97	70.00
			0.00			1/2" Ice	6.12	6.12	130.00
			0.00						
DB224	C	From Leg	6.00	0.0000	285.00	No Ice	3.15	3.15	32.00
			0.00			1/2" Ice	5.67	5.67	41.60
			0.00						
6' Side Mount Standoff	C	From Leg	3.00	0.0000	280.00	No Ice	4.97	4.97	70.00
			0.00			1/2" Ice	6.12	6.12	130.00
			0.00						
(2) OGT9-840	C	From Leg	6.00	0.0000	280.00	No Ice	2.27	2.27	18.50
			0.00			1/2" Ice	3.44	3.44	36.09
			0.00						
6' Side Mount Standoff	B	From Leg	3.00	0.0000	280.00	No Ice	4.97	4.97	70.00
			0.00			1/2" Ice	6.12	6.12	130.00
			0.00						
14' x 3" Dia Omni	B	From Leg	6.00	0.0000	280.00	No Ice	4.20	4.20	40.00
			0.00			1/2" Ice	5.63	5.63	70.34
			0.00						
9' x 3" Dia Omni	B	From Leg	6.00	0.0000	280.00	No Ice	2.70	2.70	30.00
			0.00			1/2" Ice	3.63	3.63	49.65
			0.00						
6' Side Mount Standoff	B	From Leg	3.00	0.0000	255.00	No Ice	4.97	4.97	70.00
			0.00			1/2" Ice	6.12	6.12	130.00
			0.00						
PD440-2	B	From Leg	6.00	0.0000	255.00	No Ice	1.38	1.38	19.00
			0.00			1/2" Ice	2.48	2.48	24.70
			0.00						
6' Side Mount Standoff	C	From Leg	3.00	0.0000	240.00	No Ice	4.97	4.97	70.00
			0.00			1/2" Ice	6.12	6.12	130.00
			0.00						
PD1142-1	C	From Leg	6.00	0.0000	240.00	No Ice	1.32	1.32	10.00
			0.00			1/2" Ice	3.21	3.21	23.85
			0.00						
6' Side Mount Standoff	A	From Leg	3.00	0.0000	230.00	No Ice	4.97	4.97	70.00
			0.00			1/2" Ice	6.12	6.12	130.00
			0.00						
PD128-1	A	From Leg	6.00	0.0000	230.00	No Ice	1.00	1.00	13.00
			0.00			1/2" Ice	1.80	1.80	16.90
			0.00						
6'x4" Pipe Mount	B	From Leg	0.50	0.0000	310.00	No Ice	2.09	2.09	54.72
			0.00			1/2" Ice	2.46	2.46	71.85
			0.00						
4'x4" Pipe Mount (CSP Reserved)	A	From Leg	0.50	0.0000	317.00	No Ice	1.32	1.32	44.00
			0.00			1/2" Ice	1.58	1.58	56.99
			0.00						
4'x4" Pipe Mount (CSP Reserved)	B	From Leg	0.50	0.0000	317.00	No Ice	1.32	1.32	44.00
			0.00			1/2" Ice	1.58	1.58	56.99
			0.00						
4'x4" Pipe Mount (CSP Reserved)	C	From Leg	0.50	0.0000	317.00	No Ice	1.32	1.32	44.00
			0.00			1/2" Ice	1.58	1.58	56.99
			0.00						

Dishes

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		ft²	lb
6 FT DISH	A	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	0.0000		116.00	6.00	No Ice 1/2" Ice	28.27 29.05	143.00 292.13
2 FT DISH	C	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	0.0000		110.00	2.00	No Ice 1/2" Ice	3.14 3.41	25.00 42.49
6 FT DISH	A	Paraboloid w/Shroud (HP)	From Leg	1.00 0.00 0.00	0.0000		105.00	6.00	No Ice 1/2" Ice	28.27 29.05	143.00 292.13
6 FT DISH	A	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	0.0000		90.00	6.00	No Ice 1/2" Ice	28.27 29.05	143.00 292.13
4 FT DISH	C	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	0.0000		90.00	4.00	No Ice 1/2" Ice	12.56 13.09	170.00 237.19
6 FT DISH (Reserved)	B	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	0.0000		175.00	6.00	No Ice 1/2" Ice	28.27 29.05	143.00 292.13
8 FT DISH	B	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	0.0000		310.00	8.00	No Ice 1/2" Ice	50.30 51.29	251.00 514.30
6 FT DISH (CSP Reserved)	A	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	0.0000		317.00	6.00	No Ice 1/2" Ice	28.27 29.05	143.00 292.13
6 FT DISH (CSP Reserved)	B	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	0.0000		317.00	6.00	No Ice 1/2" Ice	28.27 29.05	143.00 292.13
6 FT DISH (CSP Reserved)	C	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	0.0000		317.00	6.00	No Ice 1/2" Ice	28.27 29.05	143.00 292.13

Tower Pressures - No Ice

$G_H = 1.084$

Section Elevation	z	K_Z	q_z	A_G	Face	A_F	A_R	A_{leg}	Leg %	C_AA_A In Face	C_AA_A Out Face
ft	ft		psf	ft²		ft²	ft²	ft²		ft²	ft²
T1 320.00-300.00	310.00	1.897	39	145.472	A	11.659	18.543	18.543	61.40	0.000	0.000
					B	17.046	26.039		43.04		
					C	11.659	18.543		61.40		
T2 300.00-280.00	290.00	1.861	39	167.656	A	12.596	22.122	22.122	63.72	0.000	0.000
					B	18.837	32.855		42.79		
					C	12.596	22.122		63.72		
T3 280.00-260.00	270.00	1.823	38	213.297	A	13.934	28.807	28.807	67.40	0.000	0.000
					B	19.269	54.591		39.00		
					C	13.934	28.807		67.40		
T4 260.00-240.00	250.00	1.783	37	255.594	A	19.443	28.800	28.800	59.70	0.000	0.000
					B	24.309	55.971		35.87		

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	19.443	28.800		59.70		
T5 240.00-220.00	230.00	1.741	36	296.093	A	29.581	28.798	28.798	49.33	0.000	0.000
					B	33.215	59.207		31.16		
					C	29.581	28.798		49.33		
T6 220.00-200.00	210.00	1.697	35	336.193	A	24.136	28.798	28.798	54.40	0.000	0.000
					B	28.929	60.131		32.34		
					C	21.026	68.398		32.20		
T7 200.00-180.00	190.00	1.649	34	381.042	A	23.933	67.581	35.901	39.23	0.000	0.000
					B	31.231	67.234		36.46		
					C	23.330	75.501		36.33		
T8 180.00-160.00	170.00	1.597	33	423.141	A	25.852	75.498	35.898	35.42	0.000	0.000
					B	33.656	68.526		35.13		
					C	27.674	75.498		34.79		
T9 160.00-140.00	150.00	1.541	32	463.037	A	35.413	75.488	35.888	32.36	0.000	0.000
					B	43.066	69.996		31.74		
					C	37.797	75.488		31.68		
T10 140.00-120.00	130.00	1.48	31	503.943	A	38.616	75.504	35.904	31.46	0.000	0.000
					B	45.814	75.100		29.69		
					C	41.004	75.504		30.82		
T11 120.00-100.00	110.00	1.411	29	551.554	A	0.000	108.112	35.933	33.24	0.000	0.000
					B	9.349	105.626		31.25		
					C	4.723	100.531		34.14		
T12 100.00-80.00	90.00	1.332	28	602.352	A	0.000	110.303	35.927	32.57	0.000	0.000
					B	12.140	111.790		28.99		
					C	5.247	102.296		33.41		
T13 80.00-60.00	70.00	1.24	26	657.397	A	0.000	121.332	42.626	35.13	0.000	0.000
					B	12.140	123.466		31.43		
					C	5.247	111.148		36.62		
T14 60.00-30.00	45.00	1.093	23	1081.034	A	0.000	181.831	63.908	35.15	0.000	0.000
					B	18.209	188.699		30.89		
					C	7.871	174.188		35.10		
T15 30.00-0.00	15.00	1	21	1194.292	A	0.000	180.496	63.928	35.42	0.000	0.000
					B	14.568	184.147		32.17		
					C	6.297	170.799		36.10		

Tower Pressure - With Ice

$G_H = 1.084$

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1 320.00-300.00	310.00	1.897	39	0.5000	147.138	A	11.659	28.539	21.877	54.42	0.000	0.000
						B	22.172	38.445		36.09		
						C	11.659	28.539		54.42		
T2 300.00-280.00	290.00	1.861	39	0.5000	169.325	A	12.596	31.759	25.461	57.40	0.000	0.000
						B	24.190	47.687		35.42		
						C	12.596	31.759		57.40		
T3 280.00-260.00	270.00	1.823	38	0.5000	214.966	A	13.934	37.721	32.147	62.24	0.000	0.000
						B	24.177	76.787		31.84		
						C	13.934	37.721		62.24		
T4 260.00-240.00	250.00	1.783	37	0.5000	257.263	A	19.443	38.620	32.139	55.35	0.000	0.000
						B	28.868	80.337		29.43		
						C	19.443	38.620		55.35		
T5 240.00-	230.00	1.741	36	0.5000	297.762	A	29.581	39.533	32.137	46.50	0.000	0.000

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
220.00						B	36.839	87.287		25.89		
						C	29.581	39.533		46.50		
T6 220.00-200.00	210.00	1.697	35	0.5000	337.862	A	24.136	38.171	32.137	51.58	0.000	0.000
						B	33.371	88.178		26.44		
						C	19.456	96.601		27.69		
T7 200.00-180.00	190.00	1.649	34	0.5000	382.711	A	22.715	92.599	39.241	34.03	0.000	0.000
						B	35.741	95.875		29.81		
						C	21.808	104.293		31.12		
T8 180.00-160.00	170.00	1.597	33	0.5000	424.810	A	24.365	104.928	39.237	30.35	0.000	0.000
						B	38.129	98.930		28.63		
						C	26.927	104.869		29.77		
T9 160.00-140.00	150.00	1.541	32	0.5000	464.706	A	33.585	105.543	39.226	28.19	0.000	0.000
						B	46.916	102.310		26.29		
						C	36.928	105.465		27.55		
T10 140.00-120.00	130.00	1.48	31	0.5000	505.612	A	36.814	106.207	39.244	27.44	0.000	0.000
						B	49.289	112.474		24.26		
						C	40.162	106.130		26.83		
T11 120.00-100.00	110.00	1.411	29	0.5000	553.224	A	0.000	140.454	39.275	27.96	0.000	0.000
						B	16.849	143.879		24.44		
						C	6.723	129.958		28.73		
T12 100.00-80.00	90.00	1.332	28	0.5000	604.022	A	0.000	143.481	39.269	27.37	0.000	0.000
						B	21.029	154.342		22.39		
						C	7.470	132.394		28.08		
T13 80.00-60.00	70.00	1.24	26	0.5000	659.068	A	0.000	155.248	45.969	29.61	0.000	0.000
						B	21.029	168.206		24.29		
						C	7.470	141.845		30.79		
T14 60.00-30.00	45.00	1.093	23	0.5000	1083.539	A	0.000	233.054	68.920	29.57	0.000	0.000
						B	31.543	256.439		23.93		
						C	11.204	221.769		29.58		
T15 30.00-0.00	15.00	1	21	0.5000	1196.797	A	0.000	228.041	68.942	30.23	0.000	0.000
						B	25.234	244.474		25.56		
						C	8.964	214.605		30.84		

Tower Pressure - Service

$G_H = 1.084$

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1 320.00-300.00	310.00	1.897	39	145.472	A	11.659	18.543	18.543	61.40	0.000	0.000
					B	17.046	26.039		43.04		
					C	11.659	18.543		61.40		
T2 300.00-280.00	290.00	1.861	39	167.656	A	12.596	22.122	22.122	63.72	0.000	0.000
					B	18.837	32.855		42.79		
					C	12.596	22.122		63.72		
T3 280.00-260.00	270.00	1.823	38	213.297	A	13.934	28.807	28.807	67.40	0.000	0.000
					B	19.269	54.591		39.00		
					C	13.934	28.807		67.40		
T4 260.00-240.00	250.00	1.783	37	255.594	A	19.443	28.800	28.800	59.70	0.000	0.000
					B	24.309	55.971		35.87		
					C	19.443	28.800		59.70		
T5 240.00-220.00	230.00	1.741	36	296.093	A	29.581	28.798	28.798	49.33	0.000	0.000
					B	33.215	59.207		31.16		

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	29.581	28.798		49.33		
T6 220.00-200.00	210.00	1.697	35	336.193	A	24.136	28.798	28.798	54.40	0.000	0.000
					B	28.929	60.131		32.34		
					C	21.026	68.398		32.20		
T7 200.00-180.00	190.00	1.649	34	381.042	A	23.933	67.581	35.901	39.23	0.000	0.000
					B	31.231	67.234		36.46		
					C	23.330	75.501		36.33		
T8 180.00-160.00	170.00	1.597	33	423.141	A	25.852	75.498	35.898	35.42	0.000	0.000
					B	33.656	68.526		35.13		
					C	27.674	75.498		34.79		
T9 160.00-140.00	150.00	1.541	32	463.037	A	35.413	75.488	35.888	32.36	0.000	0.000
					B	43.066	69.996		31.74		
					C	37.797	75.488		31.68		
T10 140.00-120.00	130.00	1.48	31	503.943	A	38.616	75.504	35.904	31.46	0.000	0.000
					B	45.814	75.100		29.69		
					C	41.004	75.504		30.82		
T11 120.00-100.00	110.00	1.411	29	551.554	A	0.000	108.112	35.933	33.24	0.000	0.000
					B	9.349	105.626		31.25		
					C	4.723	100.531		34.14		
T12 100.00-80.00	90.00	1.332	28	602.352	A	0.000	110.303	35.927	32.57	0.000	0.000
					B	12.140	111.790		28.99		
					C	5.247	102.296		33.41		
T13 80.00-60.00	70.00	1.24	26	657.397	A	0.000	121.332	42.626	35.13	0.000	0.000
					B	12.140	123.466		31.43		
					C	5.247	111.148		36.62		
T14 60.00-30.00	45.00	1.093	23	1081.034	A	0.000	181.831	63.908	35.15	0.000	0.000
					B	18.209	188.699		30.89		
					C	7.871	174.188		35.10		
T15 30.00-0.00	15.00	1	21	1194.292	A	0.000	180.496	63.928	35.42	0.000	0.000
					B	14.568	184.147		32.17		
					C	6.297	170.799		36.10		

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
T1 320.00-300.00	78.31	1791.79	A	0.208	2.571	0.592	1	1	22.637	3248.75	162.44	B
			B	0.296	2.306	0.615	1	1	33.054			
			C	0.208	2.571	0.592	1	1	22.637			
T2 300.00-280.00	101.80	2496.33	A	0.207	2.573	0.592	1	1	25.689	3723.45	186.17	B
			B	0.308	2.274	0.618	1	1	39.158			
			C	0.207	2.573	0.592	1	1	25.689			
T3 280.00-260.00	195.80	3484.06	A	0.2	2.595	0.59	1	1	30.944	4798.61	239.93	B
			B	0.346	2.18	0.631	1	1	53.724			
			C	0.2	2.595	0.59	1	1	30.944			
T4 260.00-240.00	203.90	3825.99	A	0.189	2.634	0.588	1	1	36.382	5344.67	267.23	B
			B	0.314	2.259	0.62	1	1	59.029			
			C	0.189	2.634	0.588	1	1	36.382			
T5 240.00-220.00	222.80	4901.25	A	0.197	2.605	0.59	1	1	46.567	6194.19	309.71	B
			B	0.312	2.264	0.62	1	1	69.905			
			C	0.197	2.605	0.59	1	1	46.567			
T6 220.00-200.00	477.80	4822.92	A	0.157	2.744	0.583	1	1	40.915	5964.74	298.24	B
			B	0.265	2.394	0.606	1	1	65.355			
			C	0.266	2.39	0.606	1	1	62.481			
T7 200.00-	677.48	5714.43	A	0.24	2.467	0.599	1	1	64.442	6422.64	321.13	B

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
180.00			B	0.258	2.413	0.604	1	1	71.845			
			C	0.259	2.41	0.604	1	1	68.956			
T8 180.00-160.00	742.61	5932.06	A	0.24	2.469	0.599	1	1	71.095	6609.99	330.50	B
			B	0.241	2.463	0.6	1	1	74.754			
			C	0.244	2.456	0.6	1	1	72.996			
T9 160.00-140.00	753.80	6889.09	A	0.24	2.469	0.599	1	1	80.649	7235.65	361.78	B
			B	0.244	2.455	0.6	1	1	85.093			
			C	0.245	2.454	0.601	1	1	83.129			
T10 140.00-120.00	783.50	7167.59	A	0.226	2.51	0.596	1	1	83.628	7452.91	372.65	B
			B	0.24	2.468	0.599	1	1	90.826			
			C	0.231	2.495	0.597	1	1	86.099			
T11 120.00-100.00	810.91	6337.81	A	0.196	2.609	0.59	1	1	63.742	5852.46	292.62	B
			B	0.208	2.568	0.592	1	1	71.897			
			C	0.191	2.627	0.589	1	1	63.892			
T12 100.00-80.00	850.80	6508.65	A	0.183	2.653	0.587	1	1	64.759	6037.41	301.87	B
			B	0.206	2.577	0.592	1	1	78.274			
			C	0.179	2.669	0.586	1	1	65.219			
T13 80.00-60.00	861.60	7705.44	A	0.185	2.648	0.587	1	1	71.267	6111.79	305.59	B
			B	0.206	2.575	0.592	1	1	85.195			
			C	0.177	2.674	0.586	1	1	70.379			
T14 60.00-30.00	1292.40	11862.19	A	0.168	2.706	0.584	1	1	106.267	8333.51	277.78	B
			B	0.191	2.625	0.589	1	1	129.294			
			C	0.168	2.705	0.584	1	1	109.678			
T15 30.00-0.00	1033.92	14019.81	A	0.151	2.767	0.582	1	1	104.985	7443.44	248.11	B
			B	0.166	2.712	0.584	1	1	122.131			
			C	0.148	2.778	0.581	1	1	105.568			
Sum Weight:	9087.43	93459.41						OTM	13895810.53 lb-ft	90774.21		

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
T1 320.00-300.00	78.31	1791.79	A	0.208	2.571	0.592	0.8	1	20.305	2913.66	145.68	B
			B	0.296	2.306	0.615	0.8	1	29.644			
			C	0.208	2.571	0.592	0.8	1	20.305			
T2 300.00-280.00	101.80	2496.33	A	0.207	2.573	0.592	0.8	1	23.170	3365.20	168.26	B
			B	0.308	2.274	0.618	0.8	1	35.390			
			C	0.207	2.573	0.592	0.8	1	23.170			
T3 280.00-260.00	195.80	3484.06	A	0.2	2.595	0.59	0.8	1	28.157	4454.39	222.72	B
			B	0.346	2.18	0.631	0.8	1	49.870			
			C	0.2	2.595	0.59	0.8	1	28.157			
T4 260.00-240.00	203.90	3825.99	A	0.189	2.634	0.588	0.8	1	32.494	4904.45	245.22	B
			B	0.314	2.259	0.62	0.8	1	54.167			
			C	0.189	2.634	0.588	0.8	1	32.494			
T5 240.00-220.00	222.80	4901.25	A	0.197	2.605	0.59	0.8	1	40.651	5605.56	280.28	B
			B	0.312	2.264	0.62	0.8	1	63.262			
			C	0.197	2.605	0.59	0.8	1	40.651			
T6 220.00-200.00	477.80	4822.92	A	0.157	2.744	0.583	0.8	1	36.088	5436.70	271.83	B
			B	0.265	2.394	0.606	0.8	1	59.570			
			C	0.266	2.39	0.606	0.8	1	58.276			
T7 200.00-180.00	677.48	5714.43	A	0.24	2.467	0.599	0.8	1	59.656	5864.25	293.21	B
			B	0.258	2.413	0.604	0.8	1	65.598			
			C	0.259	2.41	0.604	0.8	1	64.290			

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
T8 180.00-160.00	742.61	5932.06	A	0.24	2.469	0.599	0.8	1	65.924	6014.80	300.74	B
			B	0.241	2.463	0.6	0.8	1	68.023			
			C	0.244	2.456	0.6	0.8	1	67.462			
T9 160.00-140.00	753.80	6889.09	A	0.24	2.469	0.599	0.8	1	73.567	6503.24	325.16	B
			B	0.244	2.455	0.6	0.8	1	76.479			
			C	0.245	2.454	0.601	0.8	1	75.570			
T10 140.00-120.00	783.50	7167.59	A	0.226	2.51	0.596	0.8	1	75.905	6701.03	335.05	B
			B	0.24	2.468	0.599	0.8	1	81.664			
			C	0.231	2.495	0.597	0.8	1	77.898			
T11 120.00-100.00	810.91	6337.81	A	0.196	2.609	0.59	0.8	1	63.742	5700.25	285.01	B
			B	0.208	2.568	0.592	0.8	1	70.027			
			C	0.191	2.627	0.589	0.8	1	62.948			
T12 100.00-80.00	850.80	6508.65	A	0.183	2.653	0.587	0.8	1	64.759	5850.14	292.51	B
			B	0.206	2.577	0.592	0.8	1	75.846			
			C	0.179	2.669	0.586	0.8	1	64.170			
T13 80.00-60.00	861.60	7705.44	A	0.185	2.648	0.587	0.8	1	71.267	5937.61	296.88	B
			B	0.206	2.575	0.592	0.8	1	82.767			
			C	0.177	2.674	0.586	0.8	1	69.329			
T14 60.00-30.00	1292.40	11862.19	A	0.168	2.706	0.584	0.8	1	106.267	8098.77	269.96	B
			B	0.191	2.625	0.589	0.8	1	125.652			
			C	0.168	2.705	0.584	0.8	1	108.104			
T15 30.00-0.00	1033.92	14019.81	A	0.151	2.767	0.582	0.8	1	104.985	7265.88	242.20	B
			B	0.166	2.712	0.584	0.8	1	119.218			
			C	0.148	2.778	0.581	0.8	1	104.308			
Sum Weight:	9087.43	93459.41						OTM	12764875.72 lb-ft	84615.93		

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
T1 320.00-300.00	78.31	1791.79	A	0.208	2.571	0.592	0.85	1	20.888	2997.43	149.87	B
			B	0.296	2.306	0.615	0.85	1	30.497			
			C	0.208	2.571	0.592	0.85	1	20.888			
T2 300.00-280.00	101.80	2496.33	A	0.207	2.573	0.592	0.85	1	23.800	3454.76	172.74	B
			B	0.308	2.274	0.618	0.85	1	36.332			
			C	0.207	2.573	0.592	0.85	1	23.800			
T3 280.00-260.00	195.80	3484.06	A	0.2	2.595	0.59	0.85	1	28.854	4540.44	227.02	B
			B	0.346	2.18	0.631	0.85	1	50.834			
			C	0.2	2.595	0.59	0.85	1	28.854			
T4 260.00-240.00	203.90	3825.99	A	0.189	2.634	0.588	0.85	1	33.466	5014.51	250.73	B
			B	0.314	2.259	0.62	0.85	1	55.382			
			C	0.189	2.634	0.588	0.85	1	33.466			
T5 240.00-220.00	222.80	4901.25	A	0.197	2.605	0.59	0.85	1	42.130	5752.72	287.64	B
			B	0.312	2.264	0.62	0.85	1	64.923			
			C	0.197	2.605	0.59	0.85	1	42.130			
T6 220.00-200.00	477.80	4822.92	A	0.157	2.744	0.583	0.85	1	37.294	5568.71	278.44	B
			B	0.265	2.394	0.606	0.85	1	61.016			
			C	0.266	2.39	0.606	0.85	1	59.327			
T7 200.00-180.00	677.48	5714.43	A	0.24	2.467	0.599	0.85	1	60.852	6003.85	300.19	B
			B	0.258	2.413	0.604	0.85	1	67.160			
			C	0.259	2.41	0.604	0.85	1	65.457			
T8 180.00-160.00	742.61	5932.06	A	0.24	2.469	0.599	0.85	1	67.217	6163.60	308.18	B
			B	0.241	2.463	0.6	0.85	1	69.706			

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	0.244	2.456	0.6	0.85	1	68.845			
T9 160.00-140.00	753.80	6889.09	A	0.24	2.469	0.599	0.85	1	75.337	6686.34	334.32	B
			B	0.244	2.455	0.6	0.85	1	78.633			
			C	0.245	2.454	0.601	0.85	1	77.460			
T10 140.00-120.00	783.50	7167.59	A	0.226	2.51	0.596	0.85	1	77.836	6889.00	344.45	B
			B	0.24	2.468	0.599	0.85	1	83.954			
			C	0.231	2.495	0.597	0.85	1	79.949			
T11 120.00-100.00	810.91	6337.81	A	0.196	2.609	0.59	0.85	1	63.742	5738.31	286.92	B
			B	0.208	2.568	0.592	0.85	1	70.495			
			C	0.191	2.627	0.589	0.85	1	63.184			
T12 100.00-80.00	850.80	6508.65	A	0.183	2.653	0.587	0.85	1	64.759	5896.96	294.85	B
			B	0.206	2.577	0.592	0.85	1	76.453			
			C	0.179	2.669	0.586	0.85	1	64.432			
T13 80.00-60.00	861.60	7705.44	A	0.185	2.648	0.587	0.85	1	71.267	5981.15	299.06	B
			B	0.206	2.575	0.592	0.85	1	83.374			
			C	0.177	2.674	0.586	0.85	1	69.592			
T14 60.00-30.00	1292.40	11862.19	A	0.168	2.706	0.584	0.85	1	106.267	8157.46	271.92	B
			B	0.191	2.625	0.589	0.85	1	126.562			
			C	0.168	2.705	0.584	0.85	1	108.497			
T15 30.00-0.00	1033.92	14019.81	A	0.151	2.767	0.582	0.85	1	104.985	7310.27	243.68	B
			B	0.166	2.712	0.584	0.85	1	119.946			
			C	0.148	2.778	0.581	0.85	1	104.623			
Sum Weight:	9087.43	93459.41						OTM	13047609.42 lb-ft	86155.50		

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
T1 320.00-300.00	234.91	2462.57	A	0.273	2.37	0.608	1	1	29.013	4123.78	206.19	B
			B	0.412	2.041	0.657	1	1	47.414			
			C	0.273	2.37	0.608	1	1	29.013			
T2 300.00-280.00	305.00	3229.77	A	0.262	2.402	0.605	1	1	31.810	4703.49	235.17	B
			B	0.424	2.018	0.662	1	1	55.754			
			C	0.262	2.402	0.605	1	1	31.810			
T3 280.00-260.00	539.87	4320.78	A	0.24	2.467	0.599	1	1	36.545	6094.90	304.74	B
			B	0.47	1.943	0.683	1	1	76.584			
			C	0.24	2.467	0.599	1	1	36.545			
T4 260.00-240.00	562.72	4834.67	A	0.226	2.512	0.596	1	1	42.460	6633.89	331.69	B
			B	0.424	2.018	0.662	1	1	82.042			
			C	0.226	2.512	0.596	1	1	42.460			
T5 240.00-220.00	616.04	6216.19	A	0.232	2.492	0.597	1	1	53.201	7499.51	374.98	B
			B	0.417	2.032	0.659	1	1	94.328			
			C	0.232	2.492	0.597	1	1	53.201			
T6 220.00-200.00	1244.46	5952.14	A	0.184	2.649	0.587	1	1	46.555	7330.54	366.53	B
			B	0.36	2.149	0.636	1	1	89.453			
			C	0.344	2.187	0.63	1	1	80.332			
T7 200.00-180.00	1735.01	6996.47	A	0.301	2.293	0.616	1	1	79.784	7789.45	389.47	B
			B	0.344	2.186	0.63	1	1	96.173			
			C	0.329	2.221	0.625	1	1	87.029			
T8 180.00-160.00	1906.93	7292.27	A	0.304	2.284	0.617	1	1	89.131	8013.55	400.68	B
			B	0.323	2.238	0.623	1	1	99.772			
			C	0.31	2.269	0.619	1	1	91.850			
T9 160.00-	1940.62	8552.55	A	0.299	2.298	0.616	1	1	98.570	8586.84	429.34	B

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
140.00			B	0.321	2.241	0.623	1	1	110.613			
			C	0.306	2.279	0.618	1	1	102.093			
T10 140.00-120.00	2024.41	8927.54	A	0.283	2.343	0.611	1	1	101.686	8899.83	444.99	B
			B	0.32	2.244	0.622	1	1	119.271			
			C	0.289	2.325	0.613	1	1	105.187			
T11 120.00-100.00	2114.84	7687.26	A	0.254	2.426	0.603	1	1	84.676	7730.64	386.53	B
			B	0.291	2.321	0.613	1	1	105.054			
			C	0.247	2.446	0.601	1	1	84.845			
T12 100.00-80.00	2239.62	7914.54	A	0.238	2.475	0.599	1	1	85.913	8037.16	401.86	B
			B	0.29	2.322	0.613	1	1	115.639			
			C	0.232	2.494	0.597	1	1	86.554			
T13 80.00-60.00	2270.09	9274.37	A	0.236	2.482	0.598	1	1	92.884	8050.10	402.51	B
			B	0.287	2.331	0.612	1	1	123.978			
			C	0.227	2.51	0.596	1	1	92.034			
T14 60.00-30.00	3405.14	14280.57	A	0.215	2.546	0.594	1	1	138.339	10975.76	365.86	B
			B	0.266	2.391	0.606	1	1	186.951			
			C	0.215	2.547	0.594	1	1	142.842			
T15 30.00-0.00	2724.11	16659.95	A	0.191	2.628	0.589	1	1	134.206	9653.86	321.80	B
			B	0.225	2.513	0.596	1	1	170.917			
			C	0.187	2.641	0.588	1	1	135.108			
Sum Weight:	23863.78	114601.64						OTM	17274021.21 lb-ft	114123.29		

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
T1 320.00-300.00	234.91	2462.57	A	0.273	2.37	0.608	0.8	1	26.681	3738.10	186.91	B
			B	0.412	2.041	0.657	0.8	1	42.979			
			C	0.273	2.37	0.608	0.8	1	26.681			
T2 300.00-280.00	305.00	3229.77	A	0.262	2.402	0.605	0.8	1	29.291	4295.35	214.77	B
			B	0.424	2.018	0.662	0.8	1	50.916			
			C	0.262	2.402	0.605	0.8	1	29.291			
T3 280.00-260.00	539.87	4320.78	A	0.24	2.467	0.599	0.8	1	33.759	5710.07	285.50	B
			B	0.47	1.943	0.683	0.8	1	71.749			
			C	0.24	2.467	0.599	0.8	1	33.759			
T4 260.00-240.00	562.72	4834.67	A	0.226	2.512	0.596	0.8	1	38.571	6167.04	308.35	B
			B	0.424	2.018	0.662	0.8	1	76.269			
			C	0.226	2.512	0.596	0.8	1	38.571			
T5 240.00-220.00	616.04	6216.19	A	0.232	2.492	0.597	0.8	1	47.285	6913.75	345.69	B
			B	0.417	2.032	0.659	0.8	1	86.961			
			C	0.232	2.492	0.597	0.8	1	47.285			
T6 220.00-200.00	1244.46	5952.14	A	0.184	2.649	0.587	0.8	1	41.728	6783.61	339.18	B
			B	0.36	2.149	0.636	0.8	1	82.779			
			C	0.344	2.187	0.63	0.8	1	76.441			
T7 200.00-180.00	1735.01	6996.47	A	0.301	2.293	0.616	0.8	1	75.241	7210.48	360.52	B
			B	0.344	2.186	0.63	0.8	1	89.024			
			C	0.329	2.221	0.625	0.8	1	82.667			
T8 180.00-160.00	1906.93	7292.27	A	0.304	2.284	0.617	0.8	1	84.258	7401.05	370.05	B
			B	0.323	2.238	0.623	0.8	1	92.146			
			C	0.31	2.269	0.619	0.8	1	86.464			
T9 160.00-140.00	1940.62	8552.55	A	0.299	2.298	0.616	0.8	1	91.853	7858.43	392.92	B
			B	0.321	2.241	0.623	0.8	1	101.230			
			C	0.306	2.279	0.618	0.8	1	94.708			

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 140.00-120.00	2024.41	8927.54	A	0.283	2.343	0.611	0.8	1	94.323	8164.25	408.21	B
			B	0.32	2.244	0.622	0.8	1	109.413			
			C	0.289	2.325	0.613	0.8	1	97.155			
T11 120.00-100.00	2114.84	7687.26	A	0.254	2.426	0.603	0.8	1	84.676	7482.66	374.13	B
			B	0.291	2.321	0.613	0.8	1	101.685			
			C	0.247	2.446	0.601	0.8	1	83.500			
T12 100.00-80.00	2239.62	7914.54	A	0.238	2.475	0.599	0.8	1	85.913	7744.85	387.24	B
			B	0.29	2.322	0.613	0.8	1	111.433			
			C	0.232	2.494	0.597	0.8	1	85.061			
T13 80.00-60.00	2270.09	9274.37	A	0.236	2.482	0.598	0.8	1	92.884	7777.02	388.85	B
			B	0.287	2.331	0.612	0.8	1	119.772			
			C	0.227	2.51	0.596	0.8	1	90.540			
T14 60.00-30.00	3405.14	14280.57	A	0.215	2.546	0.594	0.8	1	138.339	10605.39	353.51	B
			B	0.266	2.391	0.606	0.8	1	180.643			
			C	0.215	2.547	0.594	0.8	1	140.601			
T15 30.00-0.00	2724.11	16659.95	A	0.191	2.628	0.589	0.8	1	134.206	9368.80	312.29	B
			B	0.225	2.513	0.596	0.8	1	165.870			
			C	0.187	2.641	0.588	0.8	1	133.315			
Sum Weight:	23863.78	114601.64						OTM	16053241.22 lb-ft	107220.83		

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
T1 320.00-300.00	234.91	2462.57	A	0.273	2.37	0.608	0.85	1	27.264	3834.52	191.73	B
			B	0.412	2.041	0.657	0.85	1	44.088			
			C	0.273	2.37	0.608	0.85	1	27.264			
T2 300.00-280.00	305.00	3229.77	A	0.262	2.402	0.605	0.85	1	29.920	4397.38	219.87	B
			B	0.424	2.018	0.662	0.85	1	52.125			
			C	0.262	2.402	0.605	0.85	1	29.920			
T3 280.00-260.00	539.87	4320.78	A	0.24	2.467	0.599	0.85	1	34.455	5806.28	290.31	B
			B	0.47	1.943	0.683	0.85	1	72.958			
			C	0.24	2.467	0.599	0.85	1	34.455			
T4 260.00-240.00	562.72	4834.67	A	0.226	2.512	0.596	0.85	1	39.544	6283.75	314.19	B
			B	0.424	2.018	0.662	0.85	1	77.712			
			C	0.226	2.512	0.596	0.85	1	39.544			
T5 240.00-220.00	616.04	6216.19	A	0.232	2.492	0.597	0.85	1	48.764	7060.19	353.01	B
			B	0.417	2.032	0.659	0.85	1	88.802			
			C	0.232	2.492	0.597	0.85	1	48.764			
T6 220.00-200.00	1244.46	5952.14	A	0.184	2.649	0.587	0.85	1	42.935	6920.34	346.02	B
			B	0.36	2.149	0.636	0.85	1	84.447			
			C	0.344	2.187	0.63	0.85	1	77.413			
T7 200.00-180.00	1735.01	6996.47	A	0.301	2.293	0.616	0.85	1	76.377	7355.22	367.76	B
			B	0.344	2.186	0.63	0.85	1	90.811			
			C	0.329	2.221	0.625	0.85	1	83.758			
T8 180.00-160.00	1906.93	7292.27	A	0.304	2.284	0.617	0.85	1	85.477	7554.18	377.71	B
			B	0.323	2.238	0.623	0.85	1	94.052			
			C	0.31	2.269	0.619	0.85	1	87.811			
T9 160.00-140.00	1940.62	8552.55	A	0.299	2.298	0.616	0.85	1	93.532	8040.53	402.03	B
			B	0.321	2.241	0.623	0.85	1	103.576			
			C	0.306	2.279	0.618	0.85	1	96.554			
T10 140.00-120.00	2024.41	8927.54	A	0.283	2.343	0.611	0.85	1	96.164	8348.14	417.41	B
			B	0.32	2.244	0.622	0.85	1	111.877			

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	0.289	2.325	0.613	0.85	1	99.163			
T11 120.00-100.00	2114.84	7687.26	A	0.254	2.426	0.603	0.85	1	84.676	7544.65	377.23	B
			B	0.291	2.321	0.613	0.85	1	102.527			
			C	0.247	2.446	0.601	0.85	1	83.836			
T12 100.00-80.00	2239.62	7914.54	A	0.238	2.475	0.599	0.85	1	85.913	7817.93	390.90	B
			B	0.29	2.322	0.613	0.85	1	112.485			
			C	0.232	2.494	0.597	0.85	1	85.434			
T13 80.00-60.00	2270.09	9274.37	A	0.236	2.482	0.598	0.85	1	92.884	7845.29	392.26	B
			B	0.287	2.331	0.612	0.85	1	120.824			
			C	0.227	2.51	0.596	0.85	1	90.914			
T14 60.00-30.00	3405.14	14280.57	A	0.215	2.546	0.594	0.85	1	138.339	10697.98	356.60	B
			B	0.266	2.391	0.606	0.85	1	182.220			
			C	0.215	2.547	0.594	0.85	1	141.161			
T15 30.00-0.00	2724.11	16659.95	A	0.191	2.628	0.589	0.85	1	134.206	9440.06	314.67	B
			B	0.225	2.513	0.596	0.85	1	167.131			
			C	0.187	2.641	0.588	0.85	1	133.763			
Sum Weight:	23863.78	114601.64						OTM	16358436.22 lb-ft	108946.45		

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
T1 320.00-300.00	78.31	1791.79	A	0.208	2.571	0.592	1	1	22.637	3248.75	162.44	B
			B	0.296	2.306	0.615	1	1	33.054			
			C	0.208	2.571	0.592	1	1	22.637			
T2 300.00-280.00	101.80	2496.33	A	0.207	2.573	0.592	1	1	25.689	3723.45	186.17	B
			B	0.308	2.274	0.618	1	1	39.158			
			C	0.207	2.573	0.592	1	1	25.689			
T3 280.00-260.00	195.80	3484.06	A	0.2	2.595	0.59	1	1	30.944	4798.61	239.93	B
			B	0.346	2.18	0.631	1	1	53.724			
			C	0.2	2.595	0.59	1	1	30.944			
T4 260.00-240.00	203.90	3825.99	A	0.189	2.634	0.588	1	1	36.382	5344.67	267.23	B
			B	0.314	2.259	0.62	1	1	59.029			
			C	0.189	2.634	0.588	1	1	36.382			
T5 240.00-220.00	222.80	4901.25	A	0.197	2.605	0.59	1	1	46.567	6194.19	309.71	B
			B	0.312	2.264	0.62	1	1	69.905			
			C	0.197	2.605	0.59	1	1	46.567			
T6 220.00-200.00	477.80	4822.92	A	0.157	2.744	0.583	1	1	40.915	5964.74	298.24	B
			B	0.265	2.394	0.606	1	1	65.355			
			C	0.266	2.39	0.606	1	1	62.481			
T7 200.00-180.00	677.48	5714.43	A	0.24	2.467	0.599	1	1	64.442	6422.64	321.13	B
			B	0.258	2.413	0.604	1	1	71.845			
			C	0.259	2.41	0.604	1	1	68.956			
T8 180.00-160.00	742.61	5932.06	A	0.24	2.469	0.599	1	1	71.095	6609.99	330.50	B
			B	0.241	2.463	0.6	1	1	74.754			
			C	0.244	2.456	0.6	1	1	72.996			
T9 160.00-140.00	753.80	6889.09	A	0.24	2.469	0.599	1	1	80.649	7235.65	361.78	B
			B	0.244	2.455	0.6	1	1	85.093			
			C	0.245	2.454	0.601	1	1	83.129			
T10 140.00-120.00	783.50	7167.59	A	0.226	2.51	0.596	1	1	83.628	7452.91	372.65	B
			B	0.24	2.468	0.599	1	1	90.826			
			C	0.231	2.495	0.597	1	1	86.099			
T11 120.00-	810.91	6337.81	A	0.196	2.609	0.59	1	1	63.742	5852.46	292.62	B

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
100.00			B	0.208	2.568	0.592	1	1	71.897			
			C	0.191	2.627	0.589	1	1	63.892			
T12 100.00-80.00	850.80	6508.65	A	0.183	2.653	0.587	1	1	64.759	6037.41	301.87	B
			B	0.206	2.577	0.592	1	1	78.274			
			C	0.179	2.669	0.586	1	1	65.219			
T13 80.00-60.00	861.60	7705.44	A	0.185	2.648	0.587	1	1	71.267	6111.79	305.59	B
			B	0.206	2.575	0.592	1	1	85.195			
			C	0.177	2.674	0.586	1	1	70.379			
T14 60.00-30.00	1292.40	11862.19	A	0.168	2.706	0.584	1	1	106.267	8333.51	277.78	B
			B	0.191	2.625	0.589	1	1	129.294			
			C	0.168	2.705	0.584	1	1	109.678			
T15 30.00-0.00	1033.92	14019.81	A	0.151	2.767	0.582	1	1	104.985	7443.44	248.11	B
			B	0.166	2.712	0.584	1	1	122.131			
			C	0.148	2.778	0.581	1	1	105.568			
Sum Weight:	9087.43	93459.41						OTM	13895810.53 lb-ft	90774.21		

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
T1 320.00-300.00	78.31	1791.79	A	0.208	2.571	0.592	0.8	1	20.305	2913.66	145.68	B
			B	0.296	2.306	0.615	0.8	1	29.644			
			C	0.208	2.571	0.592	0.8	1	20.305			
T2 300.00-280.00	101.80	2496.33	A	0.207	2.573	0.592	0.8	1	23.170	3365.20	168.26	B
			B	0.308	2.274	0.618	0.8	1	35.390			
			C	0.207	2.573	0.592	0.8	1	23.170			
T3 280.00-260.00	195.80	3484.06	A	0.2	2.595	0.59	0.8	1	28.157	4454.39	222.72	B
			B	0.346	2.18	0.631	0.8	1	49.870			
			C	0.2	2.595	0.59	0.8	1	28.157			
T4 260.00-240.00	203.90	3825.99	A	0.189	2.634	0.588	0.8	1	32.494	4904.45	245.22	B
			B	0.314	2.259	0.62	0.8	1	54.167			
			C	0.189	2.634	0.588	0.8	1	32.494			
T5 240.00-220.00	222.80	4901.25	A	0.197	2.605	0.59	0.8	1	40.651	5605.56	280.28	B
			B	0.312	2.264	0.62	0.8	1	63.262			
			C	0.197	2.605	0.59	0.8	1	40.651			
T6 220.00-200.00	477.80	4822.92	A	0.157	2.744	0.583	0.8	1	36.088	5436.70	271.83	B
			B	0.265	2.394	0.606	0.8	1	59.570			
			C	0.266	2.39	0.606	0.8	1	58.276			
T7 200.00-180.00	677.48	5714.43	A	0.24	2.467	0.599	0.8	1	59.656	5864.25	293.21	B
			B	0.258	2.413	0.604	0.8	1	65.598			
			C	0.259	2.41	0.604	0.8	1	64.290			
T8 180.00-160.00	742.61	5932.06	A	0.24	2.469	0.599	0.8	1	65.924	6014.80	300.74	B
			B	0.241	2.463	0.6	0.8	1	68.023			
			C	0.244	2.456	0.6	0.8	1	67.462			
T9 160.00-140.00	753.80	6889.09	A	0.24	2.469	0.599	0.8	1	73.567	6503.24	325.16	B
			B	0.244	2.455	0.6	0.8	1	76.479			
			C	0.245	2.454	0.601	0.8	1	75.570			
T10 140.00-120.00	783.50	7167.59	A	0.226	2.51	0.596	0.8	1	75.905	6701.03	335.05	B
			B	0.24	2.468	0.599	0.8	1	81.664			
			C	0.231	2.495	0.597	0.8	1	77.898			
T11 120.00-100.00	810.91	6337.81	A	0.196	2.609	0.59	0.8	1	63.742	5700.25	285.01	B
			B	0.208	2.568	0.592	0.8	1	70.027			
			C	0.191	2.627	0.589	0.8	1	62.948			

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
T12 100.00-80.00	850.80	6508.65	A	0.183	2.653	0.587	0.8	1	64.759	5850.14	292.51	B
			B	0.206	2.577	0.592	0.8	1	75.846			
			C	0.179	2.669	0.586	0.8	1	64.170			
T13 80.00-60.00	861.60	7705.44	A	0.185	2.648	0.587	0.8	1	71.267	5937.61	296.88	B
			B	0.206	2.575	0.592	0.8	1	82.767			
			C	0.177	2.674	0.586	0.8	1	69.329			
T14 60.00-30.00	1292.40	11862.19	A	0.168	2.706	0.584	0.8	1	106.267	8098.77	269.96	B
			B	0.191	2.625	0.589	0.8	1	125.652			
			C	0.168	2.705	0.584	0.8	1	108.104			
T15 30.00-0.00	1033.92	14019.81	A	0.151	2.767	0.582	0.8	1	104.985	7265.88	242.20	B
			B	0.166	2.712	0.584	0.8	1	119.218			
			C	0.148	2.778	0.581	0.8	1	104.308			
Sum Weight:	9087.43	93459.41						OTM	12764875.72 lb-ft	84615.93		

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
T1 320.00-300.00	78.31	1791.79	A	0.208	2.571	0.592	0.85	1	20.888	2997.43	149.87	B
			B	0.296	2.306	0.615	0.85	1	30.497			
			C	0.208	2.571	0.592	0.85	1	20.888			
T2 300.00-280.00	101.80	2496.33	A	0.207	2.573	0.592	0.85	1	23.800	3454.76	172.74	B
			B	0.308	2.274	0.618	0.85	1	36.332			
			C	0.207	2.573	0.592	0.85	1	23.800			
T3 280.00-260.00	195.80	3484.06	A	0.2	2.595	0.59	0.85	1	28.854	4540.44	227.02	B
			B	0.346	2.18	0.631	0.85	1	50.834			
			C	0.2	2.595	0.59	0.85	1	28.854			
T4 260.00-240.00	203.90	3825.99	A	0.189	2.634	0.588	0.85	1	33.466	5014.51	250.73	B
			B	0.314	2.259	0.62	0.85	1	55.382			
			C	0.189	2.634	0.588	0.85	1	33.466			
T5 240.00-220.00	222.80	4901.25	A	0.197	2.605	0.59	0.85	1	42.130	5752.72	287.64	B
			B	0.312	2.264	0.62	0.85	1	64.923			
			C	0.197	2.605	0.59	0.85	1	42.130			
T6 220.00-200.00	477.80	4822.92	A	0.157	2.744	0.583	0.85	1	37.294	5568.71	278.44	B
			B	0.265	2.394	0.606	0.85	1	61.016			
			C	0.266	2.39	0.606	0.85	1	59.327			
T7 200.00-180.00	677.48	5714.43	A	0.24	2.467	0.599	0.85	1	60.852	6003.85	300.19	B
			B	0.258	2.413	0.604	0.85	1	67.160			
			C	0.259	2.41	0.604	0.85	1	65.457			
T8 180.00-160.00	742.61	5932.06	A	0.24	2.469	0.599	0.85	1	67.217	6163.60	308.18	B
			B	0.241	2.463	0.6	0.85	1	69.706			
			C	0.244	2.456	0.6	0.85	1	68.845			
T9 160.00-140.00	753.80	6889.09	A	0.24	2.469	0.599	0.85	1	75.337	6686.34	334.32	B
			B	0.244	2.455	0.6	0.85	1	78.633			
			C	0.245	2.454	0.601	0.85	1	77.460			
T10 140.00-120.00	783.50	7167.59	A	0.226	2.51	0.596	0.85	1	77.836	6889.00	344.45	B
			B	0.24	2.468	0.599	0.85	1	83.954			
			C	0.231	2.495	0.597	0.85	1	79.949			
T11 120.00-100.00	810.91	6337.81	A	0.196	2.609	0.59	0.85	1	63.742	5738.31	286.92	B
			B	0.208	2.568	0.592	0.85	1	70.495			
			C	0.191	2.627	0.589	0.85	1	63.184			
T12 100.00-80.00	850.80	6508.65	A	0.183	2.653	0.587	0.85	1	64.759	5896.96	294.85	B
			B	0.206	2.577	0.592	0.85	1	76.453			

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
			C	0.179	2.669	0.586	0.85	1	64.432			
T13 80.00-60.00	861.60	7705.44	A	0.185	2.648	0.587	0.85	1	71.267	5981.15	299.06	B
			B	0.206	2.575	0.592	0.85	1	83.374			
			C	0.177	2.674	0.586	0.85	1	69.592			
T14 60.00-30.00	1292.40	11862.19	A	0.168	2.706	0.584	0.85	1	106.267	8157.46	271.92	B
			B	0.191	2.625	0.589	0.85	1	126.562			
			C	0.168	2.705	0.584	0.85	1	108.497			
T15 30.00-0.00	1033.92	14019.81	A	0.151	2.767	0.582	0.85	1	104.985	7310.27	243.68	B
			B	0.166	2.712	0.584	0.85	1	119.946			
			C	0.148	2.778	0.581	0.85	1	104.623			
Sum Weight:	9087.43	93459.41						OTM	13047609.42 lb-ft	86155.50		

Force Totals

Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Z lb	Sum of Overturning Moments, M_x lb-ft	Sum of Overturning Moments, M_z lb-ft	Sum of Torques lb-ft
Leg Weight	50331.99					
Bracing Weight	43127.42					
Total Member Self-Weight	93459.41			50344.77	-39481.65	
Total Weight	109618.03			50344.77	-39481.65	
Wind 0 deg - No Ice		-301.37	-108458.50	-17776651.11	49964.42	130712.07
Wind 30 deg - No Ice		50614.70	-89461.85	-14524177.87	-8230962.87	175167.63
Wind 60 deg - No Ice		86725.78	-50530.81	-8136014.11	-14107223.56	184886.02
Wind 90 deg - No Ice		102776.22	354.79	132557.31	-16853167.07	148752.14
Wind 120 deg - No Ice		93458.87	54775.15	9034092.65	-15455487.81	65408.43
Wind 150 deg - No Ice		51827.87	89987.70	14688338.63	-8531660.85	-42401.83
Wind 180 deg - No Ice		-85.44	101457.27	16437536.43	-14122.18	-121002.34
Wind 210 deg - No Ice		-51841.15	89419.39	14519663.71	8456640.16	-171555.80
Wind 240 deg - No Ice		-93494.39	54447.67	8936895.36	15387065.99	-196120.50
Wind 270 deg - No Ice		-103524.71	223.95	93721.91	16996357.89	-150502.70
Wind 300 deg - No Ice		-87887.71	-51102.99	-8305839.24	14373124.96	-63883.68
Wind 330 deg - No Ice		-51601.07	-90317.29	-14778074.34	8444757.15	40540.56
Member Ice	21142.23					
Total Weight Ice	149762.36			134122.34	-118365.37	
Wind 0 deg - Ice		-306.52	-135243.31	-21830908.99	-27166.85	194471.42
Wind 30 deg - Ice		63693.77	-112166.32	-17963041.86	-10337921.04	264551.58
Wind 60 deg - Ice		109225.87	-63537.01	-10072532.26	-17681915.88	277466.60
Wind 90 deg - Ice		128969.58	363.90	218453.45	-20997876.19	221461.20
Wind 120 deg - Ice		116635.74	68181.10	11188586.45	-19116524.68	98322.31
Wind 150 deg - Ice		64935.06	112700.25	18295586.42	-10645577.80	-59585.68
Wind 180 deg - Ice		-86.90	127476.09	20562049.49	-92509.05	-181727.29
Wind 210 deg - Ice		-64948.57	112122.23	18123606.75	10412866.91	-260866.10
Wind 240 deg - Ice		-116671.86	67848.02	11089484.83	18890541.94	-292793.72
Wind 270 deg - Ice		-129730.87	230.82	178857.17	20987652.09	-223224.43
Wind 300 deg - Ice		-110407.66	-64118.97	-10245684.66	17796806.55	-95739.31
Wind 330 deg - Ice		-64697.00	-113036.38	-18221912.78	10399683.70	57663.43
Total Weight	109618.03			50344.77	-39481.65	
Wind 0 deg - Service		-301.37	-108458.50	-17831800.82	92521.15	130712.07
Wind 30 deg - Service		50614.70	-89461.85	-14579327.58	-8188406.13	175167.63
Wind 60 deg - Service		86725.78	-50530.81	-8191163.82	-14064666.83	184886.02
Wind 90 deg - Service		102776.22	354.79	77407.61	-16810610.33	148752.14
Wind 120 deg - Service		93458.87	54775.15	8978942.94	-15412931.07	65408.43
Wind 150 deg - Service		51827.87	89987.70	14633188.93	-8489104.11	-42401.83

Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Z lb	Sum of Overturning Moments, M_x lb-ft	Sum of Overturning Moments, M_z lb-ft	Sum of Torques lb-ft
Wind 180 deg - Service		-85.44	101457.27	16382386.72	28434.56	-121002.34
Wind 210 deg - Service		-51841.15	89419.39	14464514.00	8499196.90	-171555.80
Wind 240 deg - Service		-93494.39	54447.67	8881745.65	15429622.73	-196120.50
Wind 270 deg - Service		-103524.71	223.95	38572.20	17038914.63	-150502.70
Wind 300 deg - Service		-87887.71	-51102.99	-8360988.94	14415681.70	-63883.68
Wind 330 deg - Service		-51601.07	-90317.29	-14833224.05	8487313.89	40540.56

Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice
3	Dead+Wind 30 deg - No Ice
4	Dead+Wind 60 deg - No Ice
5	Dead+Wind 90 deg - No Ice
6	Dead+Wind 120 deg - No Ice
7	Dead+Wind 150 deg - No Ice
8	Dead+Wind 180 deg - No Ice
9	Dead+Wind 210 deg - No Ice
10	Dead+Wind 240 deg - No Ice
11	Dead+Wind 270 deg - No Ice
12	Dead+Wind 300 deg - No Ice
13	Dead+Wind 330 deg - No Ice
14	Dead+Ice+Temp
15	Dead+Wind 0 deg+Ice+Temp
16	Dead+Wind 30 deg+Ice+Temp
17	Dead+Wind 60 deg+Ice+Temp
18	Dead+Wind 90 deg+Ice+Temp
19	Dead+Wind 120 deg+Ice+Temp
20	Dead+Wind 150 deg+Ice+Temp
21	Dead+Wind 180 deg+Ice+Temp
22	Dead+Wind 210 deg+Ice+Temp
23	Dead+Wind 240 deg+Ice+Temp
24	Dead+Wind 270 deg+Ice+Temp
25	Dead+Wind 300 deg+Ice+Temp
26	Dead+Wind 330 deg+Ice+Temp
27	Dead+Wind 0 deg - Service
28	Dead+Wind 30 deg - Service
29	Dead+Wind 60 deg - Service
30	Dead+Wind 90 deg - Service
31	Dead+Wind 120 deg - Service
32	Dead+Wind 150 deg - Service
33	Dead+Wind 180 deg - Service
34	Dead+Wind 210 deg - Service
35	Dead+Wind 240 deg - Service
36	Dead+Wind 270 deg - Service
37	Dead+Wind 300 deg - Service
38	Dead+Wind 330 deg - Service

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
T1	320 - 300	Leg	Max Tension	25	13408.83	-87.63	-34.67
			Max. Compression	19	-18189.09	-626.98	-207.59
			Max. Mx	23	-17368.97	800.06	128.97
			Max. My	15	2144.41	-74.42	-835.00
			Max. Vy	18	852.16	-142.73	-86.98
			Max. Vx	15	-865.52	-82.25	70.38
		Diagonal	Max Tension	26	3748.78	0.00	0.00
			Max. Compression	26	-3790.34	0.00	0.00
			Max. Mx	19	54.52	8.26	0.56
			Max. My	26	-3679.16	5.77	-3.12
			Max. Vy	23	-8.68	8.19	0.49
			Max. Vx	26	0.80	5.77	-3.12
		Top Girt	Max Tension	19	37.25	0.00	0.00
			Max. Compression	25	-66.34	0.00	0.00
			Max. Mx	14	-13.78	-22.36	0.00
			Max. My	23	-37.21	0.00	-0.00
			Max. Vy	14	-13.13	0.00	0.00
			Max. Vx	23	-0.00	0.00	0.00
T2	300 - 280	Leg	Max Tension	25	37058.33	-113.67	-7.25
			Max. Compression	19	-45473.64	637.32	79.43
			Max. Mx	19	-24355.41	646.77	-133.49
			Max. My	23	9415.42	-295.20	818.63
			Max. Vy	15	-201.03	346.27	25.56
			Max. Vx	20	-313.05	-14.63	-223.04
		Diagonal	Max Tension	24	4483.38	0.00	0.00
			Max. Compression	24	-4512.85	0.00	0.00
			Max. Mx	26	1944.24	17.98	-3.05
			Max. My	26	-3930.12	7.00	-5.61
			Max. Vy	25	14.90	17.86	2.83
			Max. Vx	26	1.65	0.00	0.00
		Top Girt	Max Tension	19	133.48	0.00	0.00
			Max. Compression	25	-152.71	0.00	0.00
			Max. Mx	23	131.98	-29.72	0.00
			Max. My	23	-88.01	0.00	0.88
			Max. Vy	23	17.46	0.00	0.00
			Max. Vx	23	-0.51	0.00	0.00
T3	280 - 260	Leg	Max Tension	25	62793.42	-530.49	-3.89
			Max. Compression	19	-76690.91	894.61	-13.00
			Max. Mx	19	-76690.91	894.61	-13.00
			Max. My	22	-2982.05	-41.59	907.29
			Max. Vy	15	523.76	624.05	-34.17
			Max. Vx	22	-235.95	-41.59	907.29
		Diagonal	Max Tension	24	6429.89	0.00	0.00
			Max. Compression	24	-6471.61	0.00	0.00
			Max. Mx	26	2593.73	35.58	-6.04
			Max. My	24	-5930.34	14.62	11.21
			Max. Vy	25	23.12	35.32	5.79
			Max. Vx	24	-2.57	0.00	0.00
T4	260 - 240	Leg	Max Tension	25	91732.16	-509.47	-2.61
			Max. Compression	19	-111761.73	1822.29	-4.06
			Max. Mx	19	-111761.73	1822.29	-4.06
			Max. My	22	-4761.37	11.92	1435.02
			Max. Vy	23	-305.80	1815.93	305.46
			Max. Vx	16	352.55	-18.43	-611.40
		Diagonal	Max Tension	24	7780.20	0.00	0.00
			Max. Compression	24	-7872.08	0.00	0.00
			Max. Mx	25	5404.82	58.56	7.98
			Max. My	17	-6417.53	35.07	-15.38
			Max. Vy	25	32.94	58.56	7.98
			Max. Vx	17	3.03	0.00	0.00
T5	240 - 220	Leg	Max Tension	25	123857.66	-1472.34	-46.98

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. Compression	19	-151730.19	1935.03	-36.52
			Max. Mx	19	-151730.19	1935.03	-36.52
			Max. My	22	-7726.95	-63.00	1828.47
			Max. Vy	25	-1127.63	-1472.34	-46.98
			Max. Vx	16	-1048.34	29.83	-668.47
		Diagonal	Max Tension	24	10572.96	0.00	0.00
			Max. Compression	24	-10619.93	0.00	0.00
			Max. Mx	26	4424.03	134.77	-16.57
			Max. My	17	-8947.93	69.97	-29.58
			Max. Vy	26	60.34	134.77	-16.57
			Max. Vx	17	5.04	0.00	0.00
T6	220 - 200	Leg	Max Tension	25	158456.98	-617.12	-12.52
			Max. Compression	19	-194450.86	2414.38	-45.88
			Max. Mx	19	-194450.86	2414.38	-45.88
			Max. My	22	-8140.49	-63.02	1828.48
			Max. Vy	25	347.85	-2323.53	43.42
			Max. Vx	16	-346.77	-59.01	-1827.59
		Diagonal	Max Tension	24	13123.75	0.00	0.00
			Max. Compression	24	-13288.41	0.00	0.00
			Max. Mx	19	10048.27	215.34	-18.46
			Max. My	17	-10964.06	92.91	-44.05
			Max. Vy	25	77.15	203.78	25.26
			Max. Vx	17	6.59	0.00	0.00
T7	200 - 180	Leg	Max Tension	25	196939.19	-2711.73	42.39
			Max. Compression	19	-243490.17	2062.43	-164.13
			Max. Mx	25	196939.19	-2711.73	42.39
			Max. My	22	-12633.18	-114.13	2811.62
			Max. Vy	25	-916.83	-2323.53	43.38
			Max. Vx	16	-914.18	-27.08	-1711.95
		Diagonal	Max Tension	24	15475.61	0.00	0.00
			Max. Compression	24	-15632.58	0.00	0.00
			Max. Mx	25	11332.56	227.19	26.61
			Max. My	17	-13643.41	141.49	-48.61
			Max. Vy	25	84.58	227.19	26.61
			Max. Vx	17	6.77	0.00	0.00
T8	180 - 160	Leg	Max Tension	25	238088.64	-2463.36	181.31
			Max. Compression	19	-294508.38	2932.03	-99.84
			Max. Mx	19	-294508.38	2932.03	-99.84
			Max. My	22	-17712.88	93.23	2636.55
			Max. Vy	25	526.31	-2463.36	181.32
			Max. Vx	23	589.53	-1066.09	2260.77
		Diagonal	Max Tension	24	17669.32	0.00	0.00
			Max. Compression	24	-17941.00	0.00	0.00
			Max. Mx	25	12208.63	262.66	31.15
			Max. My	17	-15346.55	176.49	-57.08
			Max. Vy	25	92.81	262.66	31.15
			Max. Vx	17	7.26	0.00	0.00
T9	160 - 140	Leg	Max Tension	25	281099.82	-1882.54	37.22
			Max. Compression	19	-347709.99	3733.23	-243.76
			Max. Mx	19	-347709.99	3733.23	-243.76
			Max. My	22	-19499.84	-291.16	3167.92
			Max. Vy	15	-405.50	3702.91	-55.20
			Max. Vx	22	635.98	-291.18	3167.92
		Diagonal	Max Tension	24	20029.93	0.00	0.00
			Max. Compression	24	-20501.66	0.00	0.00
			Max. Mx	19	14003.26	425.97	-37.53
			Max. My	17	-16929.18	213.02	-73.71
			Max. Vy	25	128.30	406.55	46.62
			Max. Vx	17	8.90	0.00	0.00
T10	140 - 120	Leg	Max Tension	25	322273.94	-2702.06	160.30
			Max. Compression	19	-399931.69	-4022.48	138.36

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. Mx	19	-399931.69	-4022.48	138.36
			Max. My	22	-25153.48	-837.18	5887.03
			Max. Vy	19	881.14	2596.70	-142.84
			Max. Vx	20	743.53	-208.33	-4764.16
		Diagonal	Max Tension	24	20806.91	0.00	0.00
			Max. Compression	24	-21220.54	0.00	0.00
			Max. Mx	19	16921.80	495.57	45.10
			Max. My	17	-17328.18	273.76	-104.32
			Max. Vy	26	138.59	456.43	52.60
			Max. Vx	17	11.49	0.00	0.00
T11	120 - 100	Leg	Max Tension	25	327988.30	1648.36	-14.67
			Max. Compression	19	-411250.36	-14720.55	-396.06
			Max. Mx	19	-410053.59	18174.63	667.32
			Max. My	22	-27721.64	-1938.86	11563.67
			Max. Vy	19	3623.17	18174.63	667.32
			Max. Vx	22	-2279.58	-1938.86	11563.67
		Diagonal	Max Tension	24	31743.42	-203.01	-54.58
			Max. Compression	24	-32957.87	0.00	0.00
			Max. Mx	24	11923.53	-265.36	26.03
			Max. My	24	-32830.46	-24.10	-169.89
			Max. Vy	24	66.41	-265.26	27.05
			Max. Vx	24	13.94	-24.39	-169.85
		Horizontal	Max Tension	24	17720.09	-213.75	0.09
			Max. Compression	24	-17929.55	-216.45	0.14
			Max. Mx	25	-1854.44	-298.57	-36.16
			Max. My	15	2691.62	-122.42	38.19
			Max. Vy	25	87.16	-298.57	-36.16
			Max. Vx	15	-3.35	-122.42	38.19
		Redund Horz 1 Bracing	Max Tension	19	7137.85	0.00	0.00
			Max. Compression	19	-7137.85	0.00	0.00
			Max. Mx	14	443.57	21.08	0.00
			Max. My	16	5820.70	0.00	-0.00
			Max. Vy	14	-13.29	0.00	0.00
			Max. Vx	16	0.00	0.00	0.00
		Redund Diag 1 Bracing	Max Tension	19	6475.90	0.00	0.00
			Max. Compression	19	-6475.90	0.00	0.00
			Max. Mx	18	5425.92	44.97	0.00
			Max. My	23	3034.11	0.00	0.45
			Max. Vy	18	-15.62	0.00	0.00
			Max. Vx	23	-0.16	0.00	0.00
		Redund Hip 1 Bracing	Max Tension	1	0.00	0.00	0.00
			Max. Compression	18	-95.36	0.00	0.00
			Max. Mx	14	-9.15	21.08	0.00
			Max. My	23	-45.27	0.00	-0.00
			Max. Vy	14	-13.29	0.00	0.00
			Max. Vx	23	0.00	0.00	0.00
		Redund Hip Diagonal Bracing	Max Tension	18	153.83	0.00	0.00
			Max. Compression	23	-104.23	0.00	0.00
			Max. Mx	19	124.18	170.18	0.00
			Max. My	23	72.66	0.00	0.73
			Max. Vy	19	-44.92	0.00	0.00
			Max. Vx	23	-0.19	0.00	0.00
		Inner Bracing	Max Tension	24	310.55	0.00	0.00
			Max. Compression	24	-310.55	0.00	0.00
			Max. Mx	14	0.87	201.99	0.00
			Max. My	19	265.90	0.00	1.08
			Max. Vy	14	-63.64	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. Vx	19	-0.34	0.00	0.00
T12	100 - 80	Leg	Max Tension	25	360671.81	8573.08	495.42
			Max. Compression	19	-453619.71	-15644.64	-659.06
			Max. Mx	19	-453074.66	19708.25	404.19
			Max. My	22	-31284.72	-2219.12	11887.16
			Max. Vy	19	3943.91	19708.25	404.16
			Max. Vx	22	-2111.24	-2219.12	11887.16
		Diagonal	Max Tension	24	33187.45	-208.56	-45.36
			Max. Compression	23	-34763.90	0.00	0.00
			Max. Mx	24	13315.90	-273.10	25.66
			Max. My	24	-34498.00	-53.15	-156.09
			Max. Vy	24	70.31	-273.01	26.54
			Max. Vx	24	12.44	-53.33	-156.03
		Horizontal	Max Tension	24	19453.05	-254.65	-0.11
			Max. Compression	23	-20178.68	-297.69	-21.23
			Max. Mx	25	-176.96	-329.29	-37.27
			Max. My	15	4094.14	-177.42	41.86
			Max. Vy	25	-93.66	-329.29	-37.27
			Max. Vx	15	-3.32	-177.42	41.86
		Redund Horz 1 Bracing	Max Tension	19	7872.23	0.00	0.00
			Max. Compression	19	-7872.23	0.00	0.00
			Max. Mx	14	610.13	25.59	0.00
			Max. My	16	6430.62	0.00	-0.00
			Max. Vy	14	-14.64	0.00	0.00
			Max. Vx	16	-0.00	0.00	0.00
		Redund Diag 1 Bracing	Max Tension	19	6676.43	0.00	0.00
			Max. Compression	19	-6676.43	0.00	0.00
			Max. Mx	18	5591.19	51.56	0.00
			Max. My	23	3777.92	0.00	0.38
			Max. Vy	18	-17.39	0.00	0.00
			Max. Vx	23	-0.13	0.00	0.00
		Redund Hip 1 Bracing	Max Tension	1	0.00	0.00	0.00
			Max. Compression	18	-91.37	0.00	0.00
			Max. Mx	14	-9.37	25.59	0.00
			Max. My	23	-8.53	0.00	0.00
			Max. Vy	14	-14.64	0.00	0.00
			Max. Vx	23	-0.00	0.00	0.00
		Redund Hip Diagonal Bracing	Max Tension	18	144.47	0.00	0.00
			Max. Compression	23	-96.61	0.00	0.00
			Max. Mx	19	114.59	196.85	0.00
			Max. My	23	74.66	0.00	0.61
			Max. Vy	19	-49.22	0.00	0.00
			Max. Vx	23	-0.15	0.00	0.00
		Inner Bracing	Max Tension	23	349.51	0.00	0.00
			Max. Compression	23	-349.51	0.00	0.00
			Max. Mx	14	1.71	245.12	0.00
			Max. My	23	349.51	0.00	1.08
			Max. Vy	14	-70.11	0.00	0.00
			Max. Vx	23	-0.31	0.00	0.00
T13	80 - 60	Leg	Max Tension	25	395297.27	8943.40	741.05
			Max. Compression	19	-498473.54	-15770.91	-974.75
			Max. Mx	19	-497885.76	23647.38	723.79
			Max. My	22	-35488.74	-3060.75	19564.89
			Max. Vy	19	4052.01	23647.38	723.76
			Max. Vx	22	-2941.62	-3060.75	19564.89
		Diagonal	Max Tension	24	31259.92	-212.98	-35.78
			Max. Compression	23	-33731.74	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	24	12896.16	-263.06	15.87
			Max. My	24	-33006.41	-95.35	-130.56
			Max. Vy	24	73.05	-263.02	16.54
			Max. Vx	24	10.07	-95.46	-130.48
		Horizontal	Max Tension	24	19530.15	-377.42	-0.12
			Max. Compression	23	-20536.22	-419.04	-18.79
			Max. Mx	25	-3224.93	-448.53	-34.59
			Max. My	15	4357.28	-303.41	37.63
			Max. Vy	25	126.23	-448.53	-34.59
			Max. Vx	15	-2.82	-303.41	37.63
		Redund Horz 1 Bracing	Max Tension	19	8653.00	0.00	0.00
			Max. Compression	19	-8653.00	0.00	0.00
			Max. Mx	14	555.49	39.26	0.00
			Max. My	16	7078.83	0.00	-0.00
			Max. Vy	14	-20.62	0.00	0.00
			Max. Vx	16	0.00	0.00	0.00
		Redund Diag 1 Bracing	Max Tension	19	6920.15	0.00	0.00
			Max. Compression	19	-6920.15	0.00	0.00
			Max. Mx	18	5795.11	57.68	0.00
			Max. My	23	4350.56	0.00	0.30
			Max. Vy	18	-18.94	0.00	0.00
			Max. Vx	23	0.10	0.00	0.00
		Redund Hip 1 Bracing	Max Tension	1	0.00	0.00	0.00
			Max. Compression	18	-78.72	0.00	0.00
			Max. Mx	14	-11.13	30.37	0.00
			Max. My	23	-39.12	0.00	-0.00
			Max. Vy	14	-15.95	0.00	0.00
			Max. Vx	23	0.00	0.00	0.00
		Redund Hip Diagonal Bracing	Max Tension	18	134.64	0.00	0.00
			Max. Compression	23	-98.59	0.00	0.00
			Max. Mx	19	109.20	288.13	0.00
			Max. My	23	78.15	0.00	0.62
			Max. Vy	19	-68.29	0.00	0.00
			Max. Vx	23	-0.15	0.00	0.00
		Inner Bracing	Max Tension	23	355.70	0.00	0.00
			Max. Compression	23	-355.70	0.00	0.00
			Max. Mx	14	3.34	290.90	0.00
			Max. My	23	355.70	0.00	0.98
			Max. Vy	14	-76.38	0.00	0.00
			Max. Vx	23	-0.26	0.00	0.00
T14	60 - 30	Leg	Max Tension	25	427811.03	7380.62	995.49
			Max. Compression	19	-543047.79	4030.35	625.73
			Max. Mx	19	-536431.12	31387.96	826.05
			Max. My	22	-41395.90	-1701.90	24711.50
			Max. Vy	19	5847.77	31387.96	826.05
			Max. Vx	22	-3460.27	-1701.90	24711.50
		Diagonal	Max Tension	24	45889.55	-324.70	-85.23
			Max. Compression	23	-48491.25	0.00	0.00
			Max. Mx	21	34088.76	-383.57	229.26
			Max. My	24	-45313.37	214.19	-426.42
			Max. Vy	23	-85.65	-188.69	198.65
			Max. Vx	23	52.24	268.21	-412.80
		Horizontal	Max Tension	24	23018.07	-551.88	-0.39
			Max. Compression	24	-23778.43	-553.80	-0.43
			Max. Mx	25	-1938.72	-710.10	-45.78
			Max. My	15	3505.81	-379.31	49.24
			Max. Vy	25	169.33	-710.10	-45.78

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. Vx	15	-3.30	-379.31	49.24
		Redund Horz 1 Bracing	Max Tension	19	9423.33	0.00	0.00
			Max. Compression	19	-9423.33	0.00	0.00
			Max. Mx	14	779.46	15.96	0.00
			Max. My	23	-497.68	0.00	-0.00
			Max. Vy	14	-11.56	0.00	0.00
			Max. Vx	23	0.00	0.00	0.00
		Redund Horz 2 Bracing	Max Tension	19	9423.33	0.00	0.00
			Max. Compression	19	-9423.33	0.00	0.00
			Max. Mx	14	779.46	103.69	0.00
			Max. My	23	9315.01	0.00	0.00
			Max. Vy	14	-37.55	0.00	0.00
			Max. Vx	23	-0.00	0.00	0.00
		Redund Diag 1 Bracing	Max Tension	19	9509.27	0.00	0.00
			Max. Compression	19	-9509.27	0.00	0.00
			Max. Mx	18	7963.51	37.34	0.00
			Max. My	18	7963.51	0.00	-0.17
			Max. Vy	18	-13.40	0.00	0.00
			Max. Vx	18	-0.06	0.00	0.00
		Redund Diag 2 Bracing	Max Tension	19	6166.89	0.00	0.00
			Max. Compression	19	-6166.89	0.00	0.00
			Max. Mx	23	6096.00	148.76	0.00
			Max. My	23	6096.00	0.00	0.32
			Max. Vy	23	41.16	0.00	0.00
			Max. Vx	23	-0.09	0.00	0.00
		Redund Hip 1 Bracing	Max Tension	18	19.86	0.00	0.00
			Max. Compression	18	-206.65	0.00	0.00
			Max. Mx	14	-5.99	15.96	0.00
			Max. My	23	-100.63	0.00	-0.00
			Max. Vy	14	-11.56	0.00	0.00
			Max. Vx	23	-0.00	0.00	0.00
		Redund Hip 2 Bracing	Max Tension	21	20.62	0.00	0.00
			Max. Compression	21	-78.55	0.00	0.00
			Max. Mx	14	-14.20	82.56	0.00
			Max. My	16	-49.97	0.00	0.00
			Max. Vy	14	-29.90	0.00	0.00
			Max. Vx	16	-0.00	0.00	0.00
		Redund Hip Diagonal Bracing	Max Tension	18	345.58	0.00	0.00
			Max. Compression	23	-144.32	0.00	0.00
			Max. Mx	23	107.82	180.22	0.00
			Max. My	16	-6.58	0.00	-0.26
			Max. Vy	23	-40.25	0.00	0.00
			Max. Vx	22	-0.06	0.00	0.00
		Inner Bracing	Max Tension	24	411.85	0.00	0.00
			Max. Compression	24	-411.85	0.00	0.00
			Max. Mx	14	1.43	344.11	0.00
			Max. My	23	398.21	0.00	0.85
			Max. Vy	14	-83.07	0.00	0.00
			Max. Vx	23	-0.20	0.00	0.00
T15	30 - 0	Leg	Max Tension	25	477846.27	18301.70	1510.01
			Max. Compression	19	-610280.95	5417.21	698.32
			Max. Mx	19	-608111.00	27574.97	1115.67
			Max. My	22	-45140.74	-1703.88	24708.01
			Max. Vy	19	-3242.55	5417.21	698.32

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. Vx	16	-3346.37	-1768.81	-24661.50
		Diagonal	Max Tension	24	43370.80	-301.12	-80.70
			Max. Compression	24	-45101.08	0.00	0.00
			Max. Mx	21	29816.17	-377.28	196.48
			Max. My	24	-43364.63	140.80	-371.36
			Max. Vy	23	-87.94	-234.62	185.00
			Max. Vx	23	45.16	202.68	-359.92
		Horizontal	Max Tension	24	23141.92	-556.84	0.29
			Max. Compression	23	-25382.72	-630.32	-33.20
			Max. Mx	21	-829.91	-693.18	-61.63
			Max. My	15	6558.27	-414.36	68.47
			Max. Vy	21	-165.14	-693.18	-61.63
			Max. Vx	15	-3.91	-414.36	68.47
		Redund Horz 1 Bracing	Max Tension	19	10592.54	0.00	0.00
			Max. Compression	19	-10592.54	0.00	0.00
			Max. Mx	25	5301.36	19.69	0.00
			Max. My	23	-866.79	0.00	-0.00
			Max. Vy	25	-12.84	0.00	0.00
			Max. Vx	23	0.00	0.00	0.00
		Redund Horz 2 Bracing	Max Tension	19	10592.54	0.00	0.00
			Max. Compression	19	-10592.54	0.00	0.00
			Max. Mx	20	775.24	183.01	0.00
			Max. My	17	-1538.17	0.00	0.00
			Max. Vy	20	-59.68	0.00	0.00
			Max. Vx	17	-0.00	0.00	0.00
		Redund Diag 1 Bracing	Max Tension	19	9854.20	0.00	0.00
			Max. Compression	19	-9854.20	0.00	0.00
			Max. Mx	23	9742.52	61.78	0.00
			Max. My	24	2830.19	0.00	0.15
			Max. Vy	23	-21.66	0.00	0.00
			Max. Vx	24	0.05	0.00	0.00
		Redund Diag 2 Bracing	Max Tension	19	6620.54	0.00	0.00
			Max. Compression	19	-6620.54	0.00	0.00
			Max. Mx	23	6545.51	175.36	0.00
			Max. My	18	3150.20	0.00	-0.19
			Max. Vy	23	45.74	0.00	0.00
			Max. Vx	18	-0.05	0.00	0.00
		Redund Hip 1 Bracing	Max Tension	18	17.63	0.00	0.00
			Max. Compression	18	-180.42	0.00	0.00
			Max. Mx	14	-8.40	19.69	0.00
			Max. My	25	-14.57	0.00	0.00
			Max. Vy	14	-12.84	0.00	0.00
			Max. Vx	25	-0.00	0.00	0.00
		Redund Hip 2 Bracing	Max Tension	21	12.13	0.00	0.00
			Max. Compression	21	-60.31	0.00	0.00
			Max. Mx	14	-16.41	101.81	0.00
			Max. My	16	-46.68	0.00	0.00
			Max. Vy	14	-33.20	0.00	0.00
			Max. Vx	16	-0.00	0.00	0.00
		Redund Hip Diagonal Bracing	Max Tension	18	296.07	0.00	0.00
			Max. Compression	23	-140.88	0.00	0.00
			Max. Mx	24	129.00	312.44	0.00
			Max. My	17	259.70	0.00	-0.18
			Max. Vy	24	64.81	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
		Inner Bracing	Max. Vx	17	-0.05	0.00	0.00
			Max Tension	23	439.64	0.00	0.00
			Max. Compression	23	-439.64	0.00	0.00
			Max. Mx	14	7.71	424.32	0.00
			Max. My	17	348.38	0.00	-0.51
			Max. Vy	14	-92.24	0.00	0.00
			Max. Vx	17	0.11	0.00	0.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Leg C	Max. Vert	23	662046.64	73168.51	-37616.86
	Max. H_x	23	662046.64	73168.51	-37616.86
	Max. H_z	16	-450955.25	-51222.41	31992.16
	Min. Vert	17	-518282.87	-61972.57	31206.70
	Min. H_x	17	-518282.87	-61972.57	31206.70
	Min. H_z	23	662046.64	73168.51	-37616.86
Leg B	Max. Vert	19	669022.76	-71983.28	-40065.70
	Max. H_x	25	-523590.31	61340.67	33863.41
	Max. H_z	26	-456160.06	49632.55	36468.55
	Min. Vert	25	-523590.31	61340.67	33863.41
	Min. H_x	19	669022.76	-71983.28	-40065.70
	Min. H_z	20	563110.27	-56935.38	-40102.66
Leg A	Max. Vert	15	659948.30	2712.74	82274.02
	Max. H_x	24	44805.66	8086.96	4309.77
	Max. H_z	15	659948.30	2712.74	82274.02
	Min. Vert	21	-524331.80	-2616.87	-69953.35
	Min. H_x	19	-262869.55	-8791.41	-35321.63
	Min. H_z	21	-524331.80	-2616.87	-69953.35

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	109618.03	-0.00	-0.00	50330.27	-39470.49	0.70
Dead+Wind 0 deg - No Ice	109618.03	-301.34	-108458.53	-17540778.20	49846.77	130860.98
Dead+Wind 30 deg - No Ice	109618.03	50614.70	-89461.86	-14322197.82	-8114201.50	175348.16
Dead+Wind 60 deg - No Ice	109618.03	86725.77	-50530.81	-8019390.24	-13905959.52	185099.57
Dead+Wind 90 deg - No Ice	109618.03	102776.21	354.82	133250.05	-16620448.91	148952.45
Dead+Wind 120 deg - No Ice	109618.03	93458.89	54775.18	8916590.15	-15251382.35	65486.70
Dead+Wind 150 deg - No Ice	109618.03	51827.89	89987.69	14486794.93	-8415669.47	-42452.14
Dead+Wind 180 deg - No Ice	109618.03	-85.45	101457.27	16205163.60	-14329.37	-121142.32
Dead+Wind 210 deg - No Ice	109618.03	-51841.16	89419.40	14317750.75	8340162.45	-171745.01
Dead+Wind 240 deg - No Ice	109618.03	-93494.39	54447.72	8819351.86	15182693.10	-196355.50
Dead+Wind 270 deg - No Ice	109618.03	-103524.70	223.98	94377.64	16764262.88	-150688.21
Dead+Wind 300 deg - No Ice	109618.03	-87887.71	-51102.99	-8189985.37	14172778.21	-63956.29
Dead+Wind 330 deg - No Ice	109618.03	-51601.06	-90317.30	-14577216.89	8328390.87	40603.75
Dead+Ice+Temp	149762.36	-0.00	0.00	134219.11	-118464.19	2.81
Dead+Wind 0 deg+Ice+Temp	149762.35	-306.42	-135243.40	-21496499.80	-27799.48	194952.80
Dead+Wind 30 deg+Ice+Temp	149762.35	63693.79	-112166.36	-17678406.85	-10174012.92	265155.42

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
Dead+Wind 60 deg+Ice+Temp	149762.36	109225.85	-63537.03	-9908423.18	-17399576.20	278106.16
Dead+Wind 90 deg+Ice+Temp	149762.35	128969.55	363.99	219671.40	-20670486.81	221983.77
Dead+Wind 120 deg+Ice+Temp	149762.34	116635.80	68181.19	11022285.01	-18827540.35	98516.69
Dead+Wind 150 deg+Ice+Temp	149762.35	64935.11	112700.22	18011994.16	-10482450.52	-59775.58
Dead+Wind 180 deg+Ice+Temp	149762.36	-86.92	127476.09	20235842.05	-93040.75	-182175.13
Dead+Wind 210 deg+Ice+Temp	149762.35	-64948.58	112122.27	17839715.39	10248589.47	-261475.44
Dead+Wind 240 deg+Ice+Temp	149762.35	-116671.86	67848.21	10923438.02	18600751.45	-293487.80
Dead+Wind 270 deg+Ice+Temp	149762.35	-129730.83	230.91	180249.83	20660595.10	-223763.77
Dead+Wind 300 deg+Ice+Temp	149762.36	-110407.66	-64118.98	-10082489.90	17515038.17	-95928.84
Dead+Wind 330 deg+Ice+Temp	149762.35	-64696.95	-113036.40	-17938769.42	10235476.19	57864.17
Dead+Wind 0 deg - Service	109618.03	-301.34	-108458.53	-17540778.20	49846.77	130860.98
Dead+Wind 30 deg - Service	109618.03	50614.70	-89461.86	-14322197.82	-8114201.50	175348.16
Dead+Wind 60 deg - Service	109618.03	86725.77	-50530.81	-8019390.24	-13905959.52	185099.57
Dead+Wind 90 deg - Service	109618.03	102776.21	354.82	133250.05	-16620448.91	148952.45
Dead+Wind 120 deg - Service	109618.03	93458.89	54775.18	8916590.15	-15251382.35	65486.70
Dead+Wind 150 deg - Service	109618.03	51827.89	89987.69	14486794.93	-8415669.47	-42452.14
Dead+Wind 180 deg - Service	109618.03	-85.45	101457.27	16205163.60	-14329.37	-121142.32
Dead+Wind 210 deg - Service	109618.03	-51841.16	89419.40	14317750.75	8340162.45	-171745.01
Dead+Wind 240 deg - Service	109618.03	-93494.39	54447.72	8819351.86	15182693.10	-196355.50
Dead+Wind 270 deg - Service	109618.03	-103524.70	223.98	94377.64	16764262.88	-150688.21
Dead+Wind 300 deg - Service	109618.03	-87887.71	-51102.99	-8189985.37	14172778.21	-63956.29
Dead+Wind 330 deg - Service	109618.03	-51601.06	-90317.30	-14577216.89	8328390.87	40603.75

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	-109618.03	0.00	0.00	109618.03	0.00	0.000%
2	-301.37	-109618.03	-108458.50	301.34	109618.03	108458.53	0.000%
3	50614.70	-109618.03	-89461.85	-50614.70	109618.03	89461.86	0.000%
4	86725.78	-109618.03	-50530.81	-86725.77	109618.03	50530.81	0.000%
5	102776.22	-109618.03	354.79	-102776.21	109618.03	-354.82	0.000%
6	93458.87	-109618.03	54775.15	-93458.89	109618.03	-54775.18	0.000%
7	51827.87	-109618.03	89987.70	-51827.89	109618.03	-89987.69	0.000%
8	-85.44	-109618.03	101457.27	85.45	109618.03	-101457.27	0.000%
9	-51841.15	-109618.03	89419.39	51841.16	109618.03	-89419.40	0.000%
10	-93494.39	-109618.03	54447.67	93494.39	109618.03	-54447.72	0.000%
11	-103524.71	-109618.03	223.95	103524.70	109618.03	-223.98	0.000%
12	-87887.71	-109618.03	-51102.99	87887.71	109618.03	51102.99	0.000%
13	-51601.07	-109618.03	-90317.29	51601.06	109618.03	90317.30	0.000%
14	-0.00	-149762.36	0.00	0.00	149762.36	-0.00	0.000%
15	-306.52	-149762.36	-135243.31	306.42	149762.35	135243.40	0.000%
16	63693.77	-149762.36	-112166.32	-63693.79	149762.35	112166.36	0.000%
17	109225.87	-149762.36	-63537.01	-109225.85	149762.36	63537.03	0.000%
18	128969.58	-149762.36	363.90	-128969.55	149762.35	-363.99	0.000%
19	116635.74	-149762.36	68181.10	-116635.80	149762.34	-68181.19	0.000%
20	64935.06	-149762.36	112700.25	-64935.11	149762.35	-112700.22	0.000%
21	-86.90	-149762.36	127476.09	86.92	149762.36	-127476.09	0.000%
22	-64948.57	-149762.36	112122.23	64948.58	149762.35	-112122.27	0.000%
23	-116671.86	-149762.36	67848.02	116671.86	149762.35	-67848.21	0.000%
24	-129730.87	-149762.36	230.82	129730.83	149762.35	-230.91	0.000%
25	-110407.66	-149762.36	-64118.97	110407.66	149762.36	64118.98	0.000%
26	-64697.00	-149762.36	-113036.38	64696.95	149762.35	113036.40	0.000%
27	-301.37	-109618.03	-108458.50	301.34	109618.03	108458.53	0.000%
28	50614.70	-109618.03	-89461.85	-50614.70	109618.03	89461.86	0.000%
29	86725.78	-109618.03	-50530.81	-86725.77	109618.03	50530.81	0.000%
30	102776.22	-109618.03	354.79	-102776.21	109618.03	-354.82	0.000%

Load Comb.	Sum of Applied Forces PX lb	PY lb	PZ lb	Sum of Reactions PX lb	PY lb	PZ lb	% Error
31	93458.87	-109618.03	54775.15	-93458.89	109618.03	-54775.18	0.000%
32	51827.87	-109618.03	89987.70	-51827.89	109618.03	-89987.69	0.000%
33	-85.44	-109618.03	101457.27	85.45	109618.03	-101457.27	0.000%
34	-51841.15	-109618.03	89419.39	51841.16	109618.03	-89419.40	0.000%
35	-93494.39	-109618.03	54447.67	93494.39	109618.03	-54447.72	0.000%
36	-103524.71	-109618.03	223.95	103524.70	109618.03	-223.98	0.000%
37	-87887.71	-109618.03	-51102.99	87887.71	109618.03	51102.99	0.000%
38	-51601.07	-109618.03	-90317.29	51601.06	109618.03	90317.30	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00000227
3	Yes	4	0.00000001	0.00000111
4	Yes	4	0.00000001	0.00000089
5	Yes	4	0.00000001	0.00000195
6	Yes	4	0.00000001	0.00000223
7	Yes	4	0.00000001	0.00000164
8	Yes	4	0.00000001	0.00000074
9	Yes	4	0.00000001	0.00000113
10	Yes	4	0.00000001	0.00000244
11	Yes	4	0.00000001	0.00000200
12	Yes	4	0.00000001	0.00000068
13	Yes	4	0.00000001	0.00000162
14	Yes	4	0.00000001	0.00000001
15	Yes	4	0.00000001	0.00000461
16	Yes	4	0.00000001	0.00000224
17	Yes	4	0.00000001	0.00000190
18	Yes	4	0.00000001	0.00000411
19	Yes	4	0.00000001	0.00000457
20	Yes	4	0.00000001	0.00000334
21	Yes	4	0.00000001	0.00000150
22	Yes	4	0.00000001	0.00000229
23	Yes	4	0.00000001	0.00000508
24	Yes	4	0.00000001	0.00000417
25	Yes	4	0.00000001	0.00000122
26	Yes	4	0.00000001	0.00000323
27	Yes	4	0.00000001	0.00000227
28	Yes	4	0.00000001	0.00000111
29	Yes	4	0.00000001	0.00000089
30	Yes	4	0.00000001	0.00000195
31	Yes	4	0.00000001	0.00000223
32	Yes	4	0.00000001	0.00000164
33	Yes	4	0.00000001	0.00000074
34	Yes	4	0.00000001	0.00000113
35	Yes	4	0.00000001	0.00000244
36	Yes	4	0.00000001	0.00000200
37	Yes	4	0.00000001	0.00000068
38	Yes	4	0.00000001	0.00000162

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	320 - 300	23.124	31	0.6015	0.2282
T2	300 - 280	20.557	31	0.5912	0.2132
T3	280 - 260	18.070	31	0.5658	0.1918
T4	260 - 240	15.685	31	0.5411	0.1717
T5	240 - 220	13.411	31	0.5094	0.1538
T6	220 - 200	11.294	31	0.4709	0.1429
T7	200 - 180	9.352	31	0.4260	0.1341
T8	180 - 160	7.573	31	0.3868	0.1240
T9	160 - 140	5.951	31	0.3439	0.1122
T10	140 - 120	4.521	31	0.2971	0.1019
T11	120 - 100	3.289	31	0.2475	0.0909
T12	100 - 80	2.288	31	0.1993	0.0721
T13	80 - 60	1.478	31	0.1507	0.0555
T14	60 - 30	0.859	27	0.1099	0.0413
T15	30 - 0	0.270	27	0.0494	0.0201

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
320.00	Flash Beacon	31	23.124	0.6015	0.2282	205729
318.00	6' Side Mount Standoff	31	22.866	0.6009	0.2269	205729
317.00	6 FT DISH	31	22.736	0.6006	0.2262	205729
312.00	6' Side Mount Standoff	31	22.092	0.5988	0.2228	128581
310.00	8 FT DISH	31	21.835	0.5980	0.2214	102864
292.00	6' Side Mount Standoff	31	19.550	0.5821	0.2050	49060
285.00	6' Side Mount Standoff	31	18.682	0.5726	0.1973	47156
280.00	6' Side Mount Standoff	31	18.070	0.5658	0.1918	46192
255.00	6' Side Mount Standoff	31	15.105	0.5340	0.1668	41458
240.00	6' Side Mount Standoff	31	13.411	0.5094	0.1538	29369
230.00	6' Side Mount Standoff	31	12.331	0.4912	0.1477	27745
225.00	15' T-Frame Sector Mount	31	11.807	0.4814	0.1452	27163
196.00	15' T-Frame Sector Mount	31	8.984	0.4178	0.1322	30129
175.00	6 FT DISH	31	7.152	0.3766	0.1211	30312
174.00	6' Side Mount Standoff	31	7.069	0.3745	0.1206	29675
160.00	Flash Beacon	31	5.951	0.3439	0.1122	23391
150.00	1.5' Side Mount Standoff	31	5.212	0.3210	0.1068	24737
136.00	DB212-1	31	4.258	0.2872	0.1001	24635
130.00	1.5' Side Mount Standoff	31	3.878	0.2723	0.0972	21931
125.00	4'x4" Pipe Mount	31	3.576	0.2598	0.0944	20090
116.00	6 FT DISH	31	3.071	0.2378	0.0876	19852
110.00	2 FT DISH	31	2.761	0.2234	0.0820	22206
105.00	6 FT DISH	31	2.518	0.2115	0.0770	24647
90.00	6 FT DISH	31	1.860	0.1745	0.0633	26138

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	320 - 300	28.438	19	0.7363	0.3009
T2	300 - 280	25.302	19	0.7244	0.2878
T3	280 - 260	22.254	19	0.6949	0.2660
T4	260 - 240	19.323	19	0.6657	0.2419
T5	240 - 220	16.524	19	0.6273	0.2190
T6	220 - 200	13.916	19	0.5805	0.2046
T7	200 - 180	11.522	19	0.5254	0.1926
T8	180 - 160	9.329	19	0.4770	0.1788
T9	160 - 140	7.329	19	0.4242	0.1627
T10	140 - 120	5.567	19	0.3664	0.1487
T11	120 - 100	4.049	19	0.3053	0.1337
T12	100 - 80	2.819	19	0.2457	0.1070
T13	80 - 60	1.824	19	0.1859	0.0827
T14	60 - 30	1.063	15	0.1355	0.0616
T15	30 - 0	0.338	15	0.0609	0.0302

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
320.00	Flash Beacon	19	28.438	0.7363	0.3009	184118
318.00	6' Side Mount Standoff	19	28.123	0.7356	0.2998	184118
317.00	6 FT DISH	19	27.965	0.7353	0.2993	184118
312.00	6' Side Mount Standoff	19	27.178	0.7332	0.2964	115074
310.00	8 FT DISH	19	26.863	0.7322	0.2951	92059
292.00	6' Side Mount Standoff	19	24.069	0.7139	0.2799	43678
285.00	6' Side Mount Standoff	19	23.005	0.7028	0.2719	41809
280.00	6' Side Mount Standoff	19	22.254	0.6949	0.2660	40766
255.00	6' Side Mount Standoff	19	18.609	0.6571	0.2358	34453
240.00	6' Side Mount Standoff	19	16.524	0.6273	0.2190	24145
230.00	6' Side Mount Standoff	19	15.193	0.6052	0.2109	22715
225.00	15' T-Frame Sector Mount	19	14.548	0.5932	0.2077	22195
196.00	15' T-Frame Sector Mount	19	11.068	0.5152	0.1901	24520
175.00	6 FT DISH	19	8.809	0.4645	0.1748	24483
174.00	6' Side Mount Standoff	19	8.706	0.4619	0.1740	23971
160.00	Flash Beacon	19	7.329	0.4242	0.1627	18923
150.00	1.5' Side Mount Standoff	19	6.418	0.3959	0.1554	20082
136.00	DB212-1	19	5.242	0.3543	0.1462	19946
130.00	1.5' Side Mount Standoff	19	4.774	0.3359	0.1423	17606
125.00	4'x4" Pipe Mount	19	4.402	0.3205	0.1384	16036
116.00	6 FT DISH	19	3.780	0.2933	0.1291	15855
110.00	2 FT DISH	19	3.400	0.2756	0.1211	17908
105.00	6 FT DISH	19	3.102	0.2607	0.1141	20081
90.00	6 FT DISH	19	2.294	0.2151	0.0942	21497

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	320	Leg	A325N	1.0000	6	2234.80	34557.40	0.065 ✔	1.333	Bolt Tension
		Diagonal	A325X	0.6250	1	3748.78	6796.88	0.552 ✔	1.333	Member Bearing
		Top Girt	A325N	0.6250	1	66.34	6442.72	0.010 ✔	1.333	Bolt Shear
T2	300	Leg	A325N	1.0000	8	4639.25	34557.50	0.134 ✔	1.333	Bolt Tension
		Diagonal	A325X	0.6250	1	4483.38	9062.50	0.495 ✔	1.333	Member Bearing
		Top Girt	A325N	0.6250	1	152.71	6442.72	0.024 ✔	1.333	Bolt Shear
T3	280	Leg	A325N	1.0000	8	7849.18	34557.50	0.227 ✔	1.333	Bolt Tension
		Diagonal	A325X	0.7500	1	6429.89	10875.00	0.591 ✔	1.333	Member Bearing
T4	260	Leg	A325N	1.0000	8	11466.50	34557.40	0.332 ✔	1.333	Bolt Tension
		Diagonal	A325X	0.7500	1	7780.20	12187.50	0.638 ✔	1.333	Member Bearing
T5	240	Leg	A325N	1.0000	8	15482.20	34556.30	0.448 ✔	1.333	Bolt Tension
		Diagonal	A325X	0.7500	1	10619.90	13253.60	0.801 ✔	1.333	Bolt Shear
T6	220	Leg	A325N	1.0000	12	13204.70	34557.50	0.382 ✔	1.333	Bolt Tension
		Diagonal	A325X	0.7500	1	13288.40	13253.60	1.003 ✔	1.333	Bolt Shear
T7	200	Leg	A325N	1.0000	12	16411.60	34557.50	0.475 ✔	1.333	Bolt Tension
		Diagonal	A325X	0.8750	1	15632.60	18039.60	0.867 ✔	1.333	Bolt Shear
T8	180	Leg	A325N	1.0000	12	19840.70	34557.50	0.574 ✔	1.333	Bolt Tension
		Diagonal	A325X	0.8750	1	17941.00	18039.60	0.995 ✔	1.333	Bolt Shear
T9	160	Leg	A325N	1.0000	12	23416.90	34557.50	0.678 ✔	1.333	Bolt Tension
		Diagonal	A325X	0.8750	1	20501.70	18039.60	1.136 ✔	1.333	Bolt Shear
T10	140	Leg	A325N	1.0000	12	26849.70	34557.30	0.777 ✔	1.333	Bolt Tension
		Diagonal	A325X	0.8750	1	21220.50	18039.60	1.176 ✔	1.333	Bolt Shear
T11	120	Leg	A325N	1.0000	12	27226.90	34554.80	0.788 ✔	1.333	Bolt Tension
		Diagonal	A325X	0.7500	3	10986.00	13253.60	0.829 ✔	1.333	Bolt Shear
		Horizontal	A325X	0.7500	2	8964.77	13253.60	0.676 ✔	1.333	Bolt Shear
T12	100	Leg	A325N	1.0000	16	22458.30	34556.10	0.650 ✔	1.333	Bolt Tension
		Diagonal	A325X	0.7500	3	11588.00	13253.60	0.874 ✔	1.333	Bolt Shear
		Horizontal	A325X	0.7500	2	10089.30	13253.60	0.761 ✔	1.333	Bolt Shear
T13	80	Leg	A325N	1.0000	16	24610.00	34555.90	0.712 ✔	1.333	Bolt Tension
		Diagonal	A325X	0.7500	3	11243.90	13253.60	0.848 ✔	1.333	Bolt Shear
		Horizontal	A325X	0.7500	2	10268.10	13253.60	0.775 ✔	1.333	Bolt Shear
T14	60	Leg	A325N	1.0000	16	26079.60	34553.30	0.755 ✔	1.333	Bolt Tension
		Diagonal	A325X	0.8750	3	16163.80	18039.60	0.896 ✔	1.333	Bolt Shear
		Horizontal	A325X	0.7500	2	11889.20	13253.60	0.897 ✔	1.333	Bolt Shear
T15	30	Leg	A325N	1.0000	24	19613.60	34557.10	0.568 ✔	1.333	Bolt Tension
		Diagonal	A325X	0.8750	3	15033.70	18039.60	0.833 ✔	1.333	Bolt Shear
		Horizontal	A325X	0.7500	2	12691.40	13253.60	0.958 ✔	1.333	Bolt Shear

Compression Checks

Leg 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	320 - 300	ROHN 5 EH	20.00	4.00	26.1 K=1.00	27.622	6.1120	-18189.10	168822.00	0.108 ✓
T2	300 - 280	ROHN 6 EH	20.03	5.01	27.4 K=1.00	27.470	8.4049	-45473.60	230886.00	0.197 ✓
T3	280 - 260	ROHN 8 EH	20.04	6.68	27.9 K=1.00	27.414	12.7627	-76690.90	349881.00	0.219 ✓
T4	260 - 240	ROHN 8 EH	20.03	6.68	27.8 K=1.00	27.415	12.7627	-111762.00	349892.00	0.319 ✓
T5	240 - 220	ROHN 8 EH	20.03	6.68	27.8 K=1.00	27.415	12.7627	-151730.00	349894.00	0.434 ✓
T6	220 - 200	ROHN 8 EH	20.03	10.02	41.8 K=1.00	25.582	12.7627	-194451.00	326497.00	0.596 ✓
T7	200 - 180	ROHN 10 EH	20.04	10.02	33.1 K=1.00	26.757	16.1007	-243490.00	430799.00	0.565 ✓
T8	180 - 160	ROHN 10 EH	20.04	10.02	33.1 K=1.00	26.757	16.1007	-294508.00	430805.00	0.684 ✓
T9	160 - 140	ROHN 10 EH	20.03	10.02	33.1 K=1.00	26.758	16.1007	-347710.00	430824.00	0.807 ✓
T10	140 - 120	ROHN 10 EH	20.04	10.02	33.1 K=1.00	26.756	16.1007	-399932.00	430793.00	0.928 ✓
T11	120 - 100	ROHN 10 EH	20.06	10.03	33.2 K=1.00	26.753	16.1007	-411250.00	430738.00	0.955 ✓
T12	100 - 80	ROHN 10 EH	20.05	10.03	33.2 K=1.00	26.753	16.1007	-453620.00	430750.00	1.053 ✓
T13	80 - 60	ROHN 12 EH	20.06	10.03	27.8 K=1.00	27.425	19.2423	-498474.00	527711.00	0.945 ✓
T14	60 - 30	ROHN 12 EH	30.07	10.02	27.8 K=1.00	27.426	19.2423	-543048.00	527742.00	1.029 ✓
T15	30 - 0	ROHN 12 EHS	30.08	10.03	28.0 K=1.00	27.392	23.8074	-610281.00	652143.00	0.936 ✓

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	320 - 300	L1 3/4x1 3/4x3/16	7.90	3.51	122.8 K=1.00	9.884	0.6211	-3790.34	6138.68	0.617 ✓
T2	300 - 280	L2x2x1/4	9.94	4.63	142.2 K=1.00	7.383	0.9380	-4512.85	6925.72	0.652 ✓
T3	280 - 260	L2 1/2x2 1/2x1/4	12.59	5.92	144.6 K=1.00	7.137	1.1900	-6471.61	8493.02	0.762 ✓

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 $\frac{P}{P_a}$
T4	260 - 240	L3x3x1/4	14.38	6.81	138.0 K=1.00	7.837	1.4400	-7872.08	11285.90	0.698 ✓
T5	240 - 220	L4x4x5/16	16.19	7.72	117.8 K=1.01	10.756	2.4000	-10619.90	25815.30	0.411 ✓
T6	220 - 200	L4x4x3/8	19.37	9.39	143.0 K=1.00	7.300	2.8600	-13288.40	20877.40	0.636 ✓
T7	200 - 180	L4x4x3/8	21.20	10.23	155.7 K=1.00	6.158	2.8600	-15632.60	17611.80	0.888 ✓
T8	180 - 160	L4x4x3/8	23.06	11.16	169.9 K=1.00	5.174	2.8600	-17941.00	14796.80	1.212 ✓
T9	160 - 140	L5x5x3/8	24.84	12.02	145.7 K=1.00	7.031	3.6100	-20501.70	25382.80	0.808 ✓
T10	140 - 120	L5x5x3/8	26.78	13.04	158.0 K=1.00	5.981	3.6100	-21220.50	21590.70	0.983 ✓
T11	120 - 100	ROHN 3 EH	24.42	12.21	116.0 K=0.90	11.092	3.0159	-32957.90	33454.20	0.985 ✓
T12	100 - 80	ROHN 3 EH	25.15	12.58	119.5 K=0.90	10.453	3.0159	-34763.90	31524.50	1.103 ✓
T13	80 - 60	ROHN 3 EH	25.98	12.99	123.5 K=0.90	9.794	3.0159	-33731.70	29538.50	1.142 ✓
T14	60 - 30	ROHN 3.5 EH	35.21	11.74	97.0 K=0.90	15.391	3.6784	-48491.30	56615.20	0.857 ✓
T15	30 - 0	ROHN 3.5 EH	36.27	12.09	99.9 K=0.90	14.725	3.6784	-45101.10	54165.00	0.833 ✓

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 $\frac{P}{P_a}$
T11	120 - 100	ROHN 3 STD	25.39	12.25	113.7 K=0.90	11.557	2.2285	-17929.50	25753.50	0.696 ✓
T12	100 - 80	ROHN 3 STD	27.97	13.54	125.6 K=0.90	9.459	2.2285	-20178.70	21079.10	0.957 ✓
T13	80 - 60	ROHN 3 EH	30.47	14.79	140.5 K=0.90	7.560	3.0159	-20536.20	22801.80	0.901 ✓
T14	60 - 30	ROHN 3.5 EH	33.14	16.04	132.6 K=0.90	8.497	3.6784	-23778.40	31255.60	0.761 ✓
T15	30 - 0	ROHN 4 STD	36.80	17.87	127.8 K=0.90	9.137	3.1741	-25382.70	29000.80	0.875 ✓

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	320 - 300	L1 3/4x1 3/4x3/16	6.81	6.01	210.1	3.383	0.6211	-66.34	2101.24	0.032

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 $\frac{P}{P_a}$
					K=1.00					✔
T2	300 - 280	KL/R > 200 (C) - 6 L2x2x1/4	6.81	6.01	184.5 K=1.00	4.385	0.9380	-152.71	4112.92	0.037 ✔

Redundant Horizontal (1) 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 $\frac{P}{P_a}$
T11	120 - 100	ROHN 1.5 STD	6.35	5.90	85.3 K=0.75	17.936	0.7995	-7137.85	14338.90	0.498 ✔
T12	100 - 80	ROHN 1.5 STD	6.99	6.54	94.6 K=0.75	15.930	0.7995	-7872.23	12735.60	0.618 ✔
T13	80 - 60	ROHN 2 STD	7.62	7.09	81.0 K=0.75	18.807	1.0745	-8653.00	20208.60	0.428 ✔
T14	60 - 30	ROHN 1.5 STD	5.52	4.99	72.2 K=0.75	20.534	0.7995	-9423.33	16415.80	0.574 ✔
T15	30 - 0	ROHN 1.5 STD	6.13	5.60	81.0 K=0.75	18.816	0.7995	-10592.50	15042.30	0.704 ✔

Redundant Horizontal (2) 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 $\frac{P}{P_a}$
T14	60 - 30	ROHN 2 EH	11.05	10.52	123.2 K=0.75	9.841	1.4807	-9423.33	14571.00	0.647 ✔
T15	30 - 0	ROHN 2.5 EH	12.27	11.74	114.3 K=0.75	11.430	2.2535	-10592.50	25758.90	0.411 ✔

Redundant Diagonal (1) 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 $\frac{P}{P_a}$
T11	120 - 100	ROHN 2 STD	11.52	10.61	121.4 K=0.75	10.137	1.0745	-6475.90	10892.80	0.595 ✔
T12	100 - 80	ROHN 2 STD	11.86	11.03	126.1 K=0.75	9.393	1.0745	-6676.43	10092.70	0.662 ✔
T13	80 - 60	ROHN 2 STD	12.18	11.40	130.3 K=0.75	8.789	1.0745	-6920.15	9444.20	0.733 ✔
T14	60 - 30	ROHN 2 STD	11.15	9.95	113.7 K=0.75	11.549	1.0745	-9509.27	12409.30	0.766 ✔

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 $\frac{P}{P_a}$
T15	30 - 0	ROHN 2.5 STD	11.41	10.31	97.9 K=0.75	15.182	1.7040	-9854.20	25870.20	0.381 ✔

Redundant Diagonal (2) 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 $\frac{P}{P_a}$
T14	60 - 30	ROHN 2.5 STD	14.46	13.72	130.4 K=0.75	8.787	1.7040	-6166.89	14974.00	0.412 ✔
T15	30 - 0	ROHN 2.5 STD	15.33	14.63	139.0 K=0.75	7.728	1.7040	-6620.54	13169.30	0.503 ✔

Redundant Hip (1) 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 $\frac{P}{P_a}$
T11	120 - 100	ROHN 1.5 STD	6.35	6.35	122.3 K=1.00	9.977	0.7995	-95.36	7976.22	0.012 ✔
T12	100 - 80	ROHN 1.5 STD	6.99	6.99	134.8 K=1.00	8.221	0.7995	-91.37	6572.60	0.014 ✔
T13	80 - 60	ROHN 1.5 STD	7.62	7.62	146.8 K=1.00	6.928	0.7995	-78.72	5538.31	0.014 ✔
T14	60 - 30	ROHN 1.5 STD	5.52	5.52	106.5 K=1.00	13.175	0.7995	-206.65	10533.10	0.020 ✔
T15	30 - 0	ROHN 1.5 STD	6.13	6.13	118.2 K=1.00	10.686	0.7995	-180.42	8542.98	0.021 ✔

Redundant Hip (2) 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 $\frac{P}{P_a}$
T14	60 - 30	ROHN 2 STD	11.05	11.05	168.4 K=1.00	5.265	1.0745	-78.55	5657.64	0.014 ✔
T15	30 - 0	ROHN 2 STD	12.27	12.27	187.0 K=1.00	4.270	1.0745	-60.31	4588.23	0.013 ✔

Redundant Hip 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 $\frac{P}{P_a}$
T11	120 - 100	ROHN 2.5 STD	15.15	15.15	191.9 K=1.00	4.054	1.7040	-104.23	6908.01	0.015 ✓
T12	100 - 80	ROHN 2.5 STD	16.00	16.00	202.6 K=1.00	3.637	1.7040	-96.61	6197.32	0.016 ✓
T13	80 - 60	ROHN 3 STD	16.88	16.88	174.1 K=1.00	4.929	2.2285	-98.59	10984.50	0.009 ✓
T14	60 - 30	ROHN 2 STD	17.91	17.91	273.1 K=1.00	2.003	1.0745	-122.58	2152.21	0.057 ✓
T15	30 - 0	KL/R > 250 (C) - 351 ROHN 2.5 STD	19.28	19.28	244.2 K=1.00	2.503	1.7040	-118.03	4265.79	0.028 ✓

Inner Bracing 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 $\frac{P}{P_a}$
T11	120 - 100	ROHN 3 STD	12.69	12.69	130.9 K=1.00	8.712	2.2285	-310.55	19414.30	0.016 ✓
T12	100 - 80	ROHN 3 STD	13.99	13.99	144.2 K=1.00	7.179	2.2285	-349.51	15997.80	0.022 ✓
T13	80 - 60	ROHN 3 STD	15.24	15.24	157.1 K=1.00	6.049	2.2285	-355.70	13480.40	0.026 ✓
T14	60 - 30	ROHN 3 STD	16.57	16.57	170.9 K=1.00	5.114	2.2285	-411.85	11395.70	0.036 ✓
T15	30 - 0	ROHN 3 STD	18.40	18.40	189.8 K=1.00	4.147	2.2285	-439.64	9241.68	0.048 ✓

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	320 - 300	ROHN 5 EH	20.00	4.00	26.1	30.000	6.1120	13408.80	183359.00	0.073 ✓
T2	300 - 280	ROHN 6 EH	20.03	5.01	27.4	30.000	8.4049	37114.00	252148.00	0.147 ✓
T3	280 - 260	ROHN 8 EH	20.04	6.68	27.9	30.000	12.7627	62793.40	382882.00	0.164 ✓
T4	260 - 240	ROHN 8 EH	20.03	6.68	27.8	30.000	12.7627	91732.20	382882.00	0.240 ✓
T5	240 - 220	ROHN 8 EH	20.03	6.68	27.8	30.000	12.7627	123858.00	382882.00	0.323 ✓
T6	220 - 200	ROHN 8 EH	20.03	10.02	41.8	30.000	12.7627	158457.00	382882.00	0.414

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	200 - 180	ROHN 10 EH	20.04	10.02	33.1	30.000	16.1007	196939.00	483020.00	0.408 ✔
T8	180 - 160	ROHN 10 EH	20.04	10.02	33.1	30.000	16.1007	238089.00	483020.00	0.493 ✔
T9	160 - 140	ROHN 10 EH	20.03	10.02	33.1	30.000	16.1007	281002.00	483020.00	0.582 ✔
T10	140 - 120	ROHN 10 EH	20.04	10.02	33.1	30.000	16.1007	322196.00	483020.00	0.667 ✔
T11	120 - 100	ROHN 10 EH	20.06	10.03	33.2	30.000	16.1007	327988.00	483020.00	0.679 ✔
T12	100 - 80	ROHN 10 EH	20.05	10.03	33.2	30.000	16.1007	360672.00	483020.00	0.747 ✔
T13	80 - 60	ROHN 12 EH	20.06	10.03	27.8	30.000	19.2423	395297.00	577268.00	0.685 ✔
T14	60 - 30	ROHN 12 EH	30.07	10.02	27.8	30.000	19.2423	427811.00	577268.00	0.741 ✔
T15	30 - 0	ROHN 12 EHS	30.08	10.03	28.0	30.000	23.8074	477846.00	714221.00	0.669 ✔

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	320 - 300	L1 3/4x1 3/4x3/16	7.90	3.51	82.2	21.600	0.6211	3748.78	13415.60	0.279 ✔
T2	300 - 280	L2x2x1/4	9.94	4.63	94.6	21.600	0.9380	4483.38	20260.80	0.221 ✔
T3	280 - 260	L2 1/2x2 1/2x1/4	12.59	5.92	95.0	21.600	1.1900	6429.89	25704.00	0.250 ✔
T4	260 - 240	L3x3x1/4	14.38	6.81	90.0	32.500	1.2213	7780.20	39690.60	0.196 ✔
T5	240 - 220	L4x4x5/16	16.19	7.72	76.3	32.500	2.1266	10573.00	69113.30	0.153 ✔
T6	220 - 200	L4x4x3/8	19.37	9.39	93.3	32.500	2.5319	13123.70	82285.90	0.159 ✔
T7	200 - 180	L4x4x3/8	21.20	10.23	101.4	32.500	2.4850	15475.60	80762.50	0.192 ✔
T8	180 - 160	L4x4x3/8	23.06	11.16	110.5	32.500	2.4850	17669.30	80762.50	0.219 ✔
T9	160 - 140	L5x5x3/8	24.84	12.02	93.8	32.500	3.2350	20029.90	105138.00	0.191 ✔
T10	140 - 120	L5x5x3/8	26.78	13.04	101.6	32.500	3.2350	20806.90	105138.00	0.198 ✔
T11	120 - 100	ROHN 3 EH	24.42	12.21	128.9	30.000	3.0159	31743.40	90477.90	0.351 ✔
T12	100 - 80	ROHN 3 EH	25.15	12.58	132.8	30.000	3.0159	33187.40	90477.90	0.367 ✔
T13	80 - 60	ROHN 3 EH	25.98	12.99	137.2	30.000	3.0159	31259.90	90477.90	0.345 ✔

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 $\frac{P}{P_a}$
T14	60 - 30	ROHN 3.5 EH	35.21	11.74	107.8	30.000	3.6784	45889.50	110352.00	0.416 ✔
T15	30 - 0	ROHN 3.5 EH	36.27	12.09	111.0	30.000	3.6784	43370.80	110352.00	0.393 ✔

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 $\frac{P}{P_a}$
T11	120 - 100	ROHN 3 STD	25.39	12.25	126.3	30.000	2.2285	17720.10	66854.10	0.265 ✔
T12	100 - 80	ROHN 3 STD	27.97	13.54	139.6	30.000	2.2285	19453.00	66854.10	0.291 ✔
T13	80 - 60	ROHN 3 EH	30.47	14.79	156.2	30.000	3.0159	19530.10	90477.90	0.216 ✔
T14	60 - 30	ROHN 3.5 EH	33.14	16.04	147.3	30.000	3.6784	23018.10	110352.00	0.209 ✔
T15	30 - 0	ROHN 4 STD	36.80	17.87	142.0	30.000	3.1741	23141.90	95221.50	0.243 ✔

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 $\frac{P}{P_a}$
T1	320 - 300	L1 3/4x1 3/4x3/16	6.81	6.01	141.8	21.600	0.6211	37.25	13415.60	0.003 ✔
T2	300 - 280	L2x2x1/4	6.81	6.01	125.1	21.600	0.9380	133.48	20260.80	0.007 ✔

Redundant Horizontal (1) 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 $\frac{P}{P_a}$
T11	120 - 100	ROHN 1.5 STD	6.35	5.90	113.7	30.000	0.7995	7137.85	23983.70	0.298 ✔
T12	100 - 80	ROHN 1.5 STD	6.99	6.54	126.1	30.000	0.7995	7872.23	23983.70	0.328 ✔
T13	80 - 60	ROHN 2 STD	7.62	7.09	108.0	30.000	1.0745	8653.00	32235.90	0.268 ✔
T14	60 - 30	ROHN 1.5 STD	5.52	4.99	96.2	30.000	0.7995	9423.33	23983.70	0.393

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 $\frac{P}{P_a}$
T15	30 - 0	ROHN 1.5 STD	6.13	5.60	108.0	30.000	0.7995	10592.50	23983.70	0.442 ✔

Redundant Horizontal (2) 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 $\frac{P}{P_a}$
T14	60 - 30	ROHN 2 EH	11.05	10.52	164.2	30.000	1.4807	9423.33	44420.50	0.212 ✔
T15	30 - 0	ROHN 2.5 EH	12.27	11.74	152.4	30.000	2.2535	10592.50	67606.20	0.157 ✔

Redundant Diagonal (1) 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 $\frac{P}{P_a}$
T11	120 - 100	ROHN 2 STD	11.52	10.61	161.8	30.000	1.0745	6475.90	32235.90	0.201 ✔
T12	100 - 80	ROHN 2 STD	11.86	11.03	168.1	30.000	1.0745	6676.43	32235.90	0.207 ✔
T13	80 - 60	ROHN 2 STD	12.18	11.40	173.8	30.000	1.0745	6920.15	32235.90	0.215 ✔
T14	60 - 30	ROHN 2 STD	11.15	9.95	151.6	30.000	1.0745	9509.27	32235.90	0.295 ✔
T15	30 - 0	ROHN 2.5 STD	11.41	10.31	130.6	30.000	1.7040	9854.20	51121.50	0.193 ✔

Redundant Diagonal (2) 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 $\frac{P}{P_a}$
T14	60 - 30	ROHN 2.5 STD	14.46	13.72	173.8	30.000	1.7040	6166.89	51121.50	0.121 ✔
T15	30 - 0	ROHN 2.5 STD	15.33	14.63	185.3	30.000	1.7040	6620.54	51121.50	0.130 ✔

Redundant Hip (1) 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 $\frac{P}{P_a}$
T14	60 - 30	ROHN 1.5 STD	5.52	5.52	106.5	30.000	0.7995	19.86	23983.70	0.001 ✔
T15	30 - 0	ROHN 1.5 STD	6.13	6.13	118.2	30.000	0.7995	17.63	23983.70	0.001 ✔

Redundant Hip (2) 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 $\frac{P}{P_a}$
T14	60 - 30	ROHN 2 STD	11.05	11.05	168.4	30.000	1.0745	20.63	32235.90	0.001 ✔
T15	30 - 0	ROHN 2 STD	12.27	12.27	187.0	30.000	1.0745	12.13	32235.90	0.000 ✔

Redundant Hip 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 $\frac{P}{P_a}$
T11	120 - 100	ROHN 2.5 STD	15.15	15.15	191.9	30.000	1.7040	153.83	51121.50	0.003 ✔
T12	100 - 80	ROHN 2.5 STD	16.00	16.00	202.6	30.000	1.7040	144.47	51121.50	0.003 ✔
T13	80 - 60	ROHN 3 STD	16.88	16.88	174.1	30.000	2.2285	134.64	66854.10	0.002 ✔
T14	60 - 30	ROHN 2 STD	14.10	14.10	214.9	30.000	1.0745	345.58	32235.90	0.011 ✔
T15	30 - 0	ROHN 2.5 STD	14.88	14.88	188.4	30.000	1.7040	296.07	51121.50	0.006 ✔

Inner Bracing 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 $\frac{P}{P_a}$
T11	120 - 100	ROHN 3 STD	12.69	12.69	130.9	30.000	2.2285	310.55	66854.10	0.005 ✔
T12	100 - 80	ROHN 3 STD	13.99	13.99	144.2	30.000	2.2285	349.51	66854.10	0.005 ✔
T13	80 - 60	ROHN 3 STD	15.24	15.24	157.1	30.000	2.2285	355.70	66854.10	0.005 ✔
T14	60 - 30	ROHN 3 STD	16.57	16.57	170.9	30.000	2.2285	411.85	66854.10	0.006

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
T15	30 - 0	ROHN 3 STD	18.40	18.40	189.8	30.000	2.2285	439.64	66854.10	0.007 ✓

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
T1	320 - 300	Leg	ROHN 5 EH	2	-18189.10	225039.72	8.1	Pass
T2	300 - 280	Leg	ROHN 6 EH	38	-45473.60	307771.03	14.8	Pass
T3	280 - 260	Leg	ROHN 8 EH	68	-76690.90	466391.35	16.4	Pass
T4	260 - 240	Leg	ROHN 8 EH	89	-111762.00	466406.02	17.0 (b) 24.0	Pass
T5	240 - 220	Leg	ROHN 8 EH	110	-151730.00	466408.68	24.9 (b) 32.5	Pass
T6	220 - 200	Leg	ROHN 8 EH	131	-194451.00	435220.48	33.6 (b) 44.7	Pass
T7	200 - 180	Leg	ROHN 10 EH	146	-243490.00	574255.04	42.4	Pass
T8	180 - 160	Leg	ROHN 10 EH	161	-294508.00	574263.04	51.3	Pass
T9	160 - 140	Leg	ROHN 10 EH	176	-347710.00	574288.37	60.5	Pass
T10	140 - 120	Leg	ROHN 10 EH	191	-399932.00	574247.05	69.6	Pass
T11	120 - 100	Leg	ROHN 10 EH	206	-411250.00	574173.73	71.6	Pass
T12	100 - 80	Leg	ROHN 10 EH	239	-453620.00	574189.73	79.0	Pass
T13	80 - 60	Leg	ROHN 12 EH	272	-498474.00	703438.73	70.9	Pass
T14	60 - 30	Leg	ROHN 12 EH	305	-543048.00	703480.06	77.2	Pass
T15	30 - 0	Leg	ROHN 12 EHS	356	-610281.00	869306.58	70.2	Pass
T1	320 - 300	Diagonal	L1 3/4x1 3/4x3/16	10	-3790.34	8182.86	46.3	Pass
T2	300 - 280	Diagonal	L2x2x1/4	43	-4512.85	9231.98	48.9	Pass
T3	280 - 260	Diagonal	L2 1/2x2 1/2x1/4	70	-6471.61	11321.19	57.2	Pass
T4	260 - 240	Diagonal	L3x3x1/4	91	-7872.08	15044.10	52.3	Pass
T5	240 - 220	Diagonal	L4x4x5/16	112	-10619.90	34411.79	30.9	Pass
T6	220 - 200	Diagonal	L4x4x3/8	133	-13288.40	27829.57	60.1 (b) 47.7	Pass
T7	200 - 180	Diagonal	L4x4x3/8	148	-15632.60	23476.53	75.2 (b) 66.6	Pass
T8	180 - 160	Diagonal	L4x4x3/8	163	-17941.00	19724.13	91.0	Pass
T9	160 - 140	Diagonal	L5x5x3/8	178	-20501.70	33835.27	60.6	Pass
T10	140 - 120	Diagonal	L5x5x3/8	193	-21220.50	28780.40	85.3 (b) 73.7	Pass
T11	120 - 100	Diagonal	ROHN 3 EH	209	-32957.90	44594.45	88.2 (b) 73.9	Pass
T12	100 - 80	Diagonal	ROHN 3 EH	242	-34763.90	42022.16	82.7	Pass
T13	80 - 60	Diagonal	ROHN 3 EH	275	-33731.70	39374.82	85.7	Pass
T14	60 - 30	Diagonal	ROHN 3.5 EH	308	-48491.30	75468.06	64.3	Pass
T15	30 - 0	Diagonal	ROHN 3.5 EH	359	-45101.10	72201.94	67.2 (b) 62.5	Pass
T11	120 - 100	Horizontal	ROHN 3 STD	208	-17929.50	34329.41	62.5 (b) 52.2	Pass
T12	100 - 80	Horizontal	ROHN 3 STD	241	-20178.70	28098.44	71.8	Pass
T13	80 - 60	Horizontal	ROHN 3 EH	274	-20536.20	30394.80	67.6	Pass
T14	60 - 30	Horizontal	ROHN 3.5 EH	307	-23778.40	41663.71	57.1	Pass
T15	30 - 0	Horizontal	ROHN 4 STD	358	-25382.70	38658.07	67.3 (b) 65.7	Pass
T1	320 - 300	Top Girt	L1 3/4x1 3/4x3/16	6	-66.34	2800.95	71.8 (b) 2.4	Pass
T2	300 - 280	Top Girt	L2x2x1/4	42	-152.71	5482.52	2.8	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	SF*P_{allow} lb	% Capacity	Pass Fail
T11	120 - 100	Redund Horz 1 Bracing	ROHN 1.5 STD	213	-7137.85	19113.75	37.3	Pass
T12	100 - 80	Redund Horz 1 Bracing	ROHN 1.5 STD	246	-7872.23	16976.55	46.4	Pass
T13	80 - 60	Redund Horz 1 Bracing	ROHN 2 STD	279	-8653.00	26938.06	32.1	Pass
T14	60 - 30	Redund Horz 1 Bracing	ROHN 1.5 STD	314	-9423.33	21882.26	43.1	Pass
T15	30 - 0	Redund Horz 1 Bracing	ROHN 1.5 STD	371	-10592.50	20051.38	52.8	Pass
T14	60 - 30	Redund Horz 2 Bracing	ROHN 2 EH	315	-9423.33	19423.14	48.5	Pass
T15	30 - 0	Redund Horz 2 Bracing	ROHN 2.5 EH	366	-10592.50	34336.61	30.8	Pass
T11	120 - 100	Redund Diag 1 Bracing	ROHN 2 STD	218	-6475.90	14520.10	44.6	Pass
T12	100 - 80	Redund Diag 1 Bracing	ROHN 2 STD	247	-6676.43	13453.57	49.6	Pass
T13	80 - 60	Redund Diag 1 Bracing	ROHN 2 STD	280	-6920.15	12589.12	55.0	Pass
T14	60 - 30	Redund Diag 1 Bracing	ROHN 2 STD	322	-9509.27	16541.60	57.5	Pass
T15	30 - 0	Redund Diag 1 Bracing	ROHN 2.5 STD	367	-9854.20	34484.97	28.6	Pass
T14	60 - 30	Redund Diag 2 Bracing	ROHN 2.5 STD	317	-6166.89	19960.34	30.9	Pass
T15	30 - 0	Redund Diag 2 Bracing	ROHN 2.5 STD	368	-6620.54	17554.68	37.7	Pass
T11	120 - 100	Redund Hip 1 Bracing	ROHN 1.5 STD	233	-95.36	10632.30	0.9	Pass
T12	100 - 80	Redund Hip 1 Bracing	ROHN 1.5 STD	266	-91.37	8761.28	1.0	Pass
T13	80 - 60	Redund Hip 1 Bracing	ROHN 1.5 STD	299	-78.72	7382.57	1.1	Pass
T14	60 - 30	Redund Hip 1 Bracing	ROHN 1.5 STD	348	-206.65	14040.62	1.5	Pass
T15	30 - 0	Redund Hip 1 Bracing	ROHN 1.5 STD	399	-180.42	11387.79	1.6	Pass
T14	60 - 30	Redund Hip 2 Bracing	ROHN 2 STD	345	-78.55	7541.63	1.0	Pass
T15	30 - 0	Redund Hip 2 Bracing	ROHN 2 STD	396	-60.31	6116.11	1.0	Pass
T11	120 - 100	Redund Hip Diagonal Bracing	ROHN 2.5 STD	223	-104.23	9208.38	1.1	Pass
T12	100 - 80	Redund Hip Diagonal Bracing	ROHN 2.5 STD	256	-96.61	8261.03	1.2	Pass
T13	80 - 60	Redund Hip Diagonal Bracing	ROHN 3 STD	289	-98.59	14642.34	0.7	Pass
T14	60 - 30	Redund Hip Diagonal Bracing	ROHN 2 STD	351	-122.58	2868.90	4.3	Pass
T15	30 - 0	Redund Hip Diagonal Bracing	ROHN 2.5 STD	402	-118.03	5686.30	2.1	Pass
T11	120 - 100	Inner Bracing	ROHN 3 STD	235	-310.55	25879.26	1.2	Pass
T12	100 - 80	Inner Bracing	ROHN 3 STD	270	-349.51	21325.07	1.6	Pass
T13	80 - 60	Inner Bracing	ROHN 3 STD	301	-355.70	17969.37	2.0	Pass
T14	60 - 30	Inner Bracing	ROHN 3 STD	352	-411.85	15190.47	2.7	Pass
T15	30 - 0	Inner Bracing	ROHN 3 STD	403	-439.64	12319.16	3.6	Pass
							Summary	
						Leg (T12)	79.0	Pass
						Diagonal (T8)	91.0	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
						Horizontal (T15)	71.8	Pass
						Top Girt (T2)	2.8	Pass
						Redund Horz 1 Bracing (T15)	52.8	Pass
						Redund Horz 2 Bracing (T14)	48.5	Pass
						Redund Diag 1 Bracing (T14)	57.5	Pass
						Redund Diag 2 Bracing (T15)	37.7	Pass
						Redund Hip 1 Bracing (T15)	1.6	Pass
						Redund Hip 2 Bracing (T14)	1.0	Pass
						Redund Hip Diagonal Bracing (T14)	4.3	Pass
						Inner Bracing (T15)	3.6	Pass
						Bolt Checks	88.2	Pass
						RATING =	**91.0**	**Pass**

ANCHOR BOLT ANALYSIS

Input Data

Max Pier Reactions:

Uplift:	Uplift := 525·kips	*user input*	
Shear:	Shear := 83·kips	*user input*	
Compression:	Compression := 670·kips	*user input*	

Anchor Bolt Data:

Use ASTM A354 Grade BC

Number of Anchor Bolts = N	N := 24	*user input*	
Bolt Ultimate Strength:	F_u := 125·ksi	*user input*	
Bolt Yield Strength:	Fy := 60·ksi	*user input*	
Bolt Modulus:	E := 29000·ksi	*user input*	
Thickness of Anchor Bolts	D := 1.0in	*user input*	
Threads per Inch:	n := 8	*user input*	
Coefficient of Friction:	μ := 0.55	*user input*	(for baseplate with grout ASCE 10-97)

Anchor Bolt Area:

Gross Area of Bolt:

$$A_g := \frac{\pi}{4}\cdot D^2 \qquad A_g = 0.785\cdot in^2$$

Net Area of Bolt:

$$A_n := \frac{\pi}{4}\cdot\left(D - \frac{0.9743\cdot in}{n}\right)^2 \qquad A_n = 0.606\cdot in^2$$

Check Tensile Forces:

Maximum Tensile Force (Gross Area):

$$AllowableTension := 1.33\cdot\left(0.33\cdot A_g\cdot F_u\right) \qquad AllowableTension = 43.1\cdot kips$$

Note: 1.33 increase allowed per TIA/EIA

Maximum Tensile Force (Net Area):

$$F_{net.area} := 1.33\cdot\left(0.60\cdot A_n\cdot Fy\right) \qquad F_{net.area} = 29.0\cdot kips$$

Note: 1.33 increase allowed per TIA/EIA

Applied Tension:

$$MaxTension := \frac{Uplift}{N} \qquad MaxTension = 21.9\cdot kips$$

Check Stresses:

$$\frac{MaxTension}{F_{net.area}} = 0.75$$

$$Condition1 := if\left(\frac{MaxTension}{F_{net.area}} \le 1.00, "OK", "Overstressed"\right)$$

Condition1 = "OK"

Check Anchor Bolt Area:

Based on the ASCE 10-97 Design of Latticed Steel Transmission Structures

Required Area:

$$A_{s1} := \frac{Uplift}{Fy} + \frac{Shear}{\mu \cdot 0.85 \cdot Fy} \qquad A_{s1} = 11.7 \cdot in^2$$

$$A_{s2} := \left| \frac{Shear - (0.3 \cdot Compression)}{\mu \cdot 0.85 \cdot Fy} \right| \qquad A_{s2} = 4.2 \cdot in^2$$

Provided Area:

$$A_{sprovided} := A_n \cdot N \qquad A_{sprovided} = 14.5 \cdot in^2$$

$$Condition2 := if\left(\frac{A_{s1}}{A_{sprovided}} \le 1.00, "OK", "Overstressed" \right) \qquad \frac{A_{s1}}{A_{sprovided}} = 0.8$$

Condition2 = "OK"

$$Condition3 := if\left(\frac{A_{s2}}{A_{sprovided}} \le 1.00, "OK", "Overstressed" \right) \qquad \frac{A_{s2}}{A_{sprovided}} = 0.3$$

Condition3 = "OK"

NATCOMM

Job	320' Rohn SSVMW - Colchester, CT	Project No.	08007.CO13	Page ___ of ___	
Description	Evaluation of Drilled Pier Caisson	Computed by	JEK	Sheet 1 of 2	
		Checked by		Date 04/01/08	Date

3 SIDED SELF SUPPORTING TOWER FOUNDATION DRILLED PIER

Compression:	$DownLoad := 670 \cdot kips$	$\gamma c := 150 pcf$	Concrete unit weight
Uplift:	$uplift := 525 \cdot kips$	$\gamma w := 62.4 pcf$	Water unit weight
Depth Neglected for Skin Friction at the top	$Depthunbond := 4 \cdot ft$	$\gamma s := 120 pcf$	Soil unit weight
Drill Caisson length	$CasissonLength := 35.5 \cdot ft$	$Pier\phi := 7.5 \cdot ft$	Pier diameter
Water Table Below grade:	$Wd := 10 \cdot ft$	$hg := 0.5 \cdot ft$	Height of Pier Above grade
Ave Ultimate Shear at Depth of 4' to 10'	$f1 := 760 psf$ Per BL Companies	$SoilBearingCapaciy := 6.7 ksf$	
Ave allowable Shear at Depth of 10' to 35'	$f2 := 1400 psf$ Report 9.13.2000	Allowable Bearing Pressure at Depth 35'	

Loading:

$$TotalDownLoad := DownLoad + \pi \cdot \frac{Pier\phi^2}{4} \cdot [hg \cdot \gamma c + [(\gamma c - \gamma s) \cdot (CasissonLength - hg)]]$$

$TotalDownLoad = 719.7\,kips$

$$Pierweight := \pi \cdot \frac{Pier\phi^2}{4} \cdot [(Wd + hg) \cdot \gamma c + (CasissonLength - Wd - hg) \cdot (\gamma c - \gamma w)]$$

$Pierweight = 166.33\,kips$

$$Soilshear := \pi \cdot Pier\phi \cdot [f1 \cdot (Wd - Depthunbond) + f2 \cdot (CasissonLength - Wd - hg)]$$

$Soilshear = 932.11\,kips$

Compression Capacity:

$$TotalDownLoadCapacity := Soilshear + SoilBearingCapaciy \cdot \left(\pi \cdot \frac{Picr\phi^2}{4}\right)$$

$TotalDownLoadCapacity = 1228.11\,kips$

$CheckDownLoadCapacity := if(TotalDownLoad < TotalDownLoadCapacity, "Okay", "No Good")$

$CheckDownLoadCapacity = "Okay"$

Tension Capacity:

TotalUpLiftCapacity := Soilshear + Pierweight

TotalUpLiftCapacity = 1098.44 kips

CkeckUpLiftCapacity := if(2uplift < TotalUpLiftCapacity, "Okay", "No Good")

CkeckUpLiftCapacity = "Okay"

Check Cone Failure

$$\text{ConeFailureCapacity} := \frac{[(\text{CasissonLength} - \text{hg})\cdot\tan(30\cdot\text{deg})\cdot 2 + \text{Pier}\phi]^2\cdot\pi}{4}\cdot\frac{\text{CasissonLength} - \text{hg}}{3}\cdot\gamma s$$

ConeFailureCapacity = 2524.37 kips

CheckConeFailureCapacity := if(uplift < ConeFailureCapacity, "Okay", "No Good")

CkeckUpLiftCapacity = "Okay"

File # 06048, C02

DETAILED STRUCTURAL ANALYSIS AND EVALUATION WITH PROPOSED REINFORCEMENT OF 320' SELF SUPPORTING LATTICE TOWER FOR NEW ANTENNA ARRANGEMENT

Connecticut State Police
112 Munn Road
Colchester, Connecticut

prepared for

cingular WIRELESS

Cingular Wireless
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Rocky Hill, CT 06067

prepared by

URS

URS CORPORATION
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CW1-079

Revision 1 April 3, 2006

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY

This report summarizes the structural analysis of the existing 320' self-supporting lattice tower structure located at 112 Munn Road in Colchester, Connecticut. The analysis was conducted in accordance with the TIA/EIA-222-F standard for wind velocity of 90 mph concurrent with ½" ice and 90 mph concurrent with ½" ice at 90' AGL. 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 Cingular Wireless modification is as follows:

Proposed Antenna and Mount	Carrier	Antenna Center Elevation
Install (12) Powerwave 7770.00 antennas , (12) Powerwave LPG21401 TMA's and (12) Powerwave LPG13519 Diplexers on (3) new T-Arms with (24) 1 5/8" coax cables stacked (12) on (12).	**Cingular Wireless (Proposed)**	**@ 200'**

The results of the analysis indicate that the existing tower structure is not in compliance with the proposed loading conditions. **The tower is not considered structurally adequate under the TIA/EIA-222-F wind load specified above and the existing and proposed antenna loadings. Reinforcement of the tower is considered feasible to meet the TIA/EIA-222-F wind load specified above with all existing and proposed antenna loads.** Recommended modifications are outlined in greater detail in section 4 and 6 of this report. With reinforcement, the tower sway is 0.61 degrees, and the tower twist is 0.26 degrees. These are within the Connecticut State Police specification of 0.75 degrees for twist and sway.

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 (Rohn File #: 43233AE) prepared by Rohn Industries, Inc., approved May 10, 2001.
3) Antenna and mount configuration as specified on the following page of this report.
4) Coax cable orientation as specified in section 6 of this report.

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. Notify the engineer in writing immediately if any of the information in this report is found to be other than specified.

verify physical condition of members and connections

If you should have any questions, please call.

Sincerely,

URS Corporation

Richard A. Sambor, P.E.
Manager Facilities Design

RAS/jek

cc: AA, DR, IA – URS
CF/Book

2. INTRODUCTION

The subject tower is located at 112 Munn Road in Colchester, Connecticut. The structure is a 320' self-supporting lattice tower structure designed by Rohn Industries, Inc.

The tower geometry and structure member sizes were taken from the original construction drawings (Rohn File #: 43233AE) prepared by Rohn Industries, Inc., approved May 10, 2001.

The inventory provided by the Connecticut State Police is summarized in the table below:

Antenna Type	Carrier	Mount	Antenna Centerline Elevation	Cable
(3) 6 FT dishes	CSP (wind load)	(3) Dish Mount	320'	(3) EW63 coax cables
(1) PD128 antenna	CSP/FBI (existing)	Side Arm Mount	320'	(1) 7/8" coax cable
(1) PD128 antenna	CSP (existing)	Side Arm Mount	318'	(1) 7/8" coax cable
(1) 8 FT dish	CSP (existing)	Dish Mount	315'	(1) 7/8" coax cable
(1) DB224 antenna	SHF (existing)	Side Arm Mount	294'	(1) 7/8" coax cable
(1) PD320 antenna	DEP (existing)	Side Arm Mount	292'	(1) 7/8" coax cable
(2) DB809 antenna	CSP (existing)	Side Arm Mount	285'	(2) 1 5/8" coax cables
(2) OGT9 antenna	CSP (existing)	Side Arm Mount	275'	(2) 1 5/8" coax cables
(1) PD440 antenna	OEM (existing)	Side Arm Mount	257'	(1) 7/8" coax cable
(1) PD128 antenna	OEM (existing)	Side Arm Mount	243'	(1) 7/8" coax cable
(1) PD320 antenna	CSP (existing)	Side Arm Mount	227'	(1) 7/8" coax cable
(6) DB844 antennas and (6) DB948F85T2E-M antennas	Verizon (existing)	(3) T-Arms	220'	(12) 1 5/8" coax cables
(12) Powerwave 7770.00 antennas , (12) LPG21401 TMA's and (12) LPG13519 Diplexers	**Cingular (proposed)**	**(3) T-Arms**	**200'**	**(24) 1 5/8" coax cables**
(1) 6 FT dish	(reserved)	Dish Mount	175'	(1) EW63 coax cable
(1) BA1012 antenna	OEM (existing)	Side Arm Mount	140'	(1) 7/8" coax cable
(1) PD688S antenna	NEU (existing)	Side Arm Mount	140'	(1) 7/8" coax cable
(1) DB212 antenna	NEU (existing)	Side Arm Mount	140'	(1) 7/8" coax cable
(1) PD156S antenna	DEP (existing)	Flush Mount	138'	(1) 7/8" coax cable
(1) 6 FT dish	(reserved)	Dish Mount	115'	(1) EW63 coax cable
(1) 4 FT dish	CSP (existing)	Dish Mount	112'	(1) EW108 coax cable
(1) 6 FT dish	CSP (existing)	Dish Mount	105'	(1) EW65 coax cable

Antenna Type	Carrier	Mount	Antenna Centerline Elevation	Cable
(1) PD458 antenna	CTT (existing)	Side Arm Mount	100'	(1) 7/8" coax cable
(1) DB437 antenna	FBI (existing)	Side Arm Mount (listed above)	100'	(1) 7/8" coax cable
(1) 6 FT dish	CSP (existing)	Dish Mount	97'	(1) 7/8" coax cable
(1) 4 FT dish	CSP (existing)	Dish Mount	90'	(1) 7/8" coax cable

This structural analysis of the communications tower was performed by URS Corporation (URS) for Cingular 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 TIA/EIA-222-F, Structural Standard for Steel Antenna Towers and Antenna Supporting Structures; 2003 IBC with the 2005 Connecticut State Building Code Supplement; and the American Institute of Steel Construction (AISC) Manual of Steel Construction, Allowable Stress Design (ASD).

The analysis was conducted using ERI Tower 3.0. 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 (with ice) + Ice Load + Tower Dead Load
Load Condition 2 = 78 mph (fastest mile) Wind Load (with ice) + Ice Load + Tower Dead Load (equivalent to 90 mph at the lowest dish level— 90' AGL)

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

The calculated stresses on the tower structure were evaluated to compare with the allowable stress in accordance with AISC. The results of the analysis indicate that the existing tower structure is not in compliance with the proposed loading conditions. **The tower is not considered structurally adequate under the TIA/EIA-222-F wind load specified above and the existing and proposed antenna loadings. Reinforcement of the tower is considered feasible to meet the TIA/EIA-222-F wind load specified above with all existing and proposed antenna loads.** Several Redundant Diagonals and Redundant Horizontals are overstressed. We recommend replacing the overstressed members.

Section	Overstressed Members		
	Redundant Diagonal 1	Redundant Diagonal 2	Redundant Horizontal 2
0'—30'	Rohn 2 STD	—	Rohn 2 EH
30'—60'	Rohn 1.5 STD	Rohn 2 STD	—
100'—120'	Rohn 1.5 STD	—	—

For recommended member sizes see drawing SK-1 in section 6 of this report.

With reinforcement, the tower sway is 0.61 degrees, and the tower twist is 0.26 degrees. These are within the Connecticut State Police specification of 0.75 degrees for twist and sway. The anchor bolts and foundation were also found to be within allowable limits.

5. CONCLUSIONS

The results of the analysis indicate that the existing tower structure is not in compliance with the proposed loading conditions. **The tower is not considered structurally adequate under the TIA/EIA-222-F wind load specified above and the existing and proposed antenna loadings. Reinforcement of the tower is considered feasible to meet the TIA/EIA-222-F wind load specified above with all existing and proposed antenna loads.** Recommended modifications are outlined in greater detail in section 4 and 6 of this report. With reinforcement, the tower sway is 0.75 degrees, and the tower twist is 0.42 degrees. These are within the Connecticut State Police specification of 0.75 degrees for twist and sway.

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.

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.

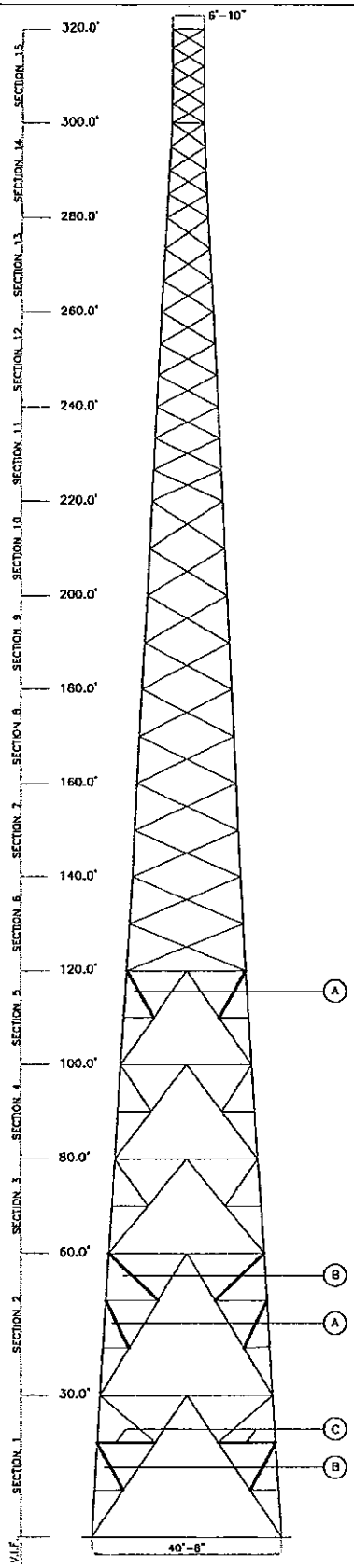
Ongoing and Periodic Inspection and Maintenance:

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

SK-1 EXISTING TOWER WITH REINFORCEMENT



REINFORCED TOWER

LEGEND

(A)	ROHN 2 STD GRADE 50 TYP. AT ALL THREE FACES
(B)	ROHN 2.5 STD GRADE 50 TYP. AT ALL THREE FACES
(C)	ROHN 2.5 EH GRADE 50 TYP. AT ALL THREE FACES

1 / SK-1 EXISTING TOWER & PROPOSED REINFORCEMENT

SCALE: N.T.S.

Site I.D. No.:

Designed by:

Drawn by: JEK

Checked by:

URS

URS CORPORATION AES
500 ENTERPRISE DRIVE
ROCKY HILL, CT. 06067
(860)-529-8882

CINGULAR WIRELESS

SITE ADDRESS:
CSP
COLCHESTER, CONNECTICUT

REV.	DATE:	DESCRIPTION

Scale: AS SHOWN | Date: 4/3/06

Job No. 35921843 | File No. SK-1

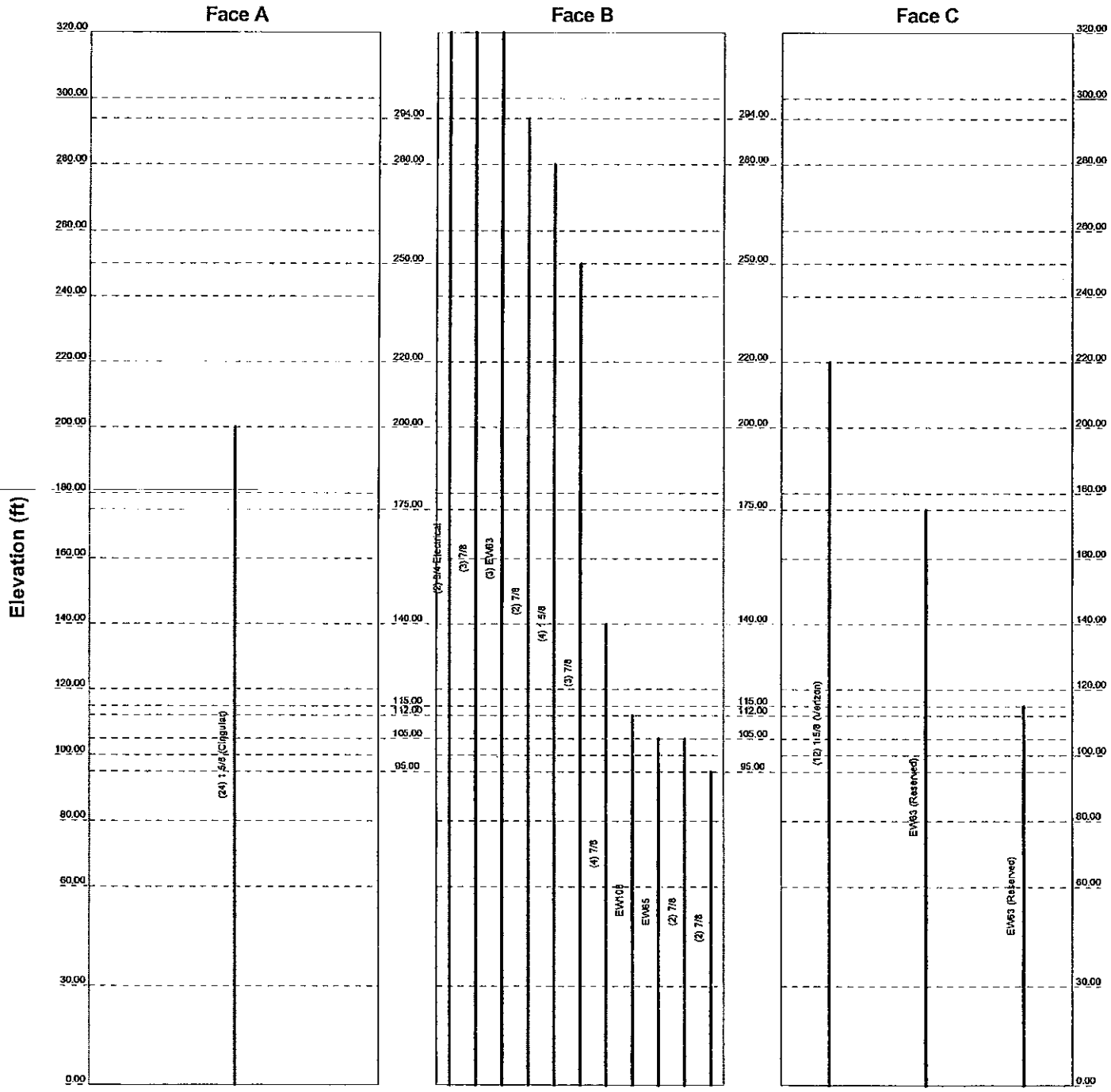
Dwg. No. SK-1

Dwg. 1 of 1

ERI TOWER FEEDLINE DISTRIBUTION CHART

Feedline Distribution Chart
0' - 320'

Round Flat App In Face App Out Face Truss Leg

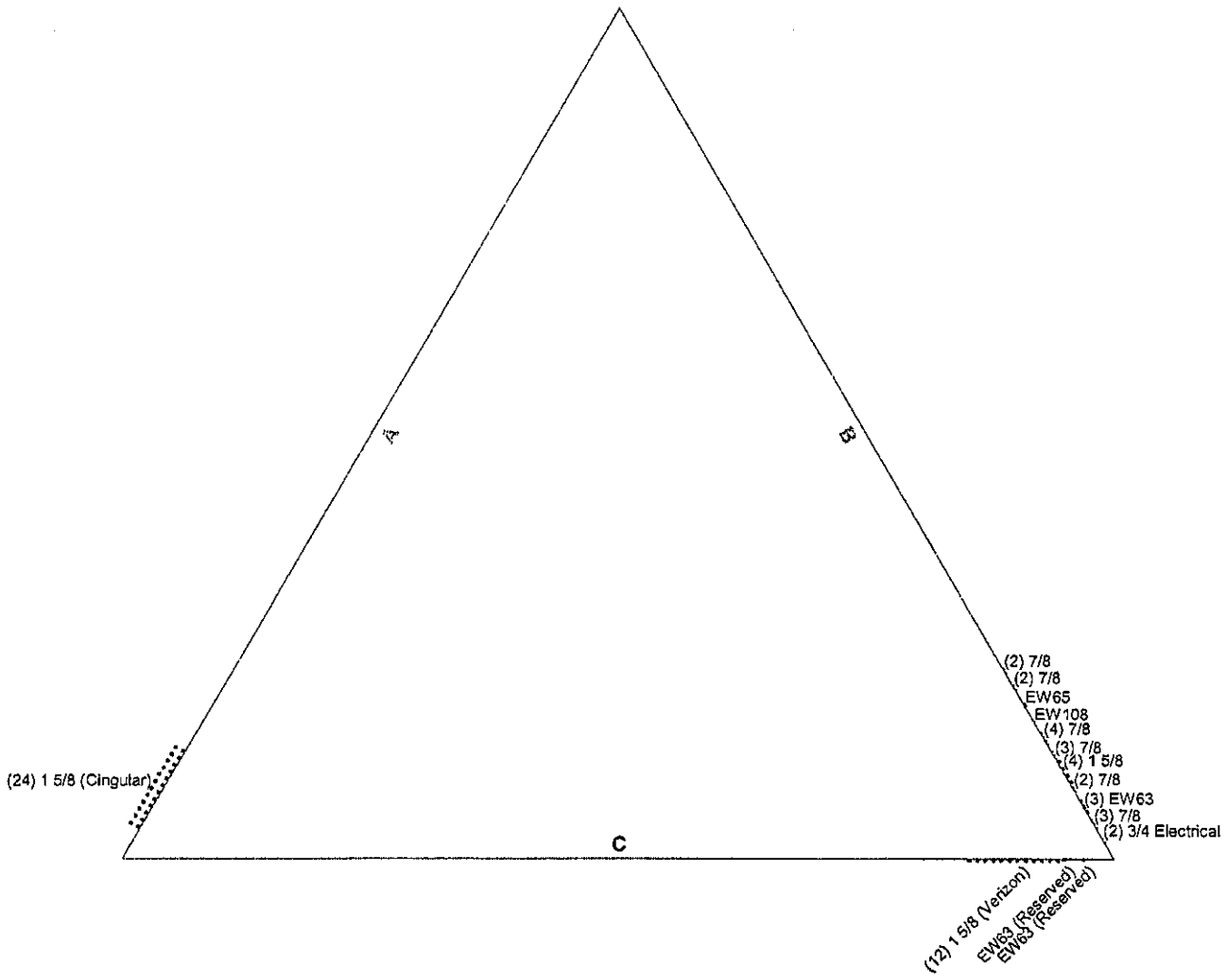


URS Corporation	Job: *320' Rohn SSVMW*		
500 Enterprise Drive, Suite 3B	Project: *CSP Tower - Colchester, CT*		
Rocky Hill, CT 06067	Client: Cingular Wireless	Drawn by: Jed Kieman	App'd:
Phone: (860) 529-8882	Code: TIA/EIA-222-F	Date: 04/03/06	Scale: NTS
FAX: (860) 529-3991	Path: P:\08\4.3.2008 Rev 1\ERI Files\Reinforced 320' Rohn SSVMW.ed		Dwg No. E-7

ERI TOWER FEEDLINE PLAN

Feedline Plan

Round _____ Flat _____ App In Face App Out Face

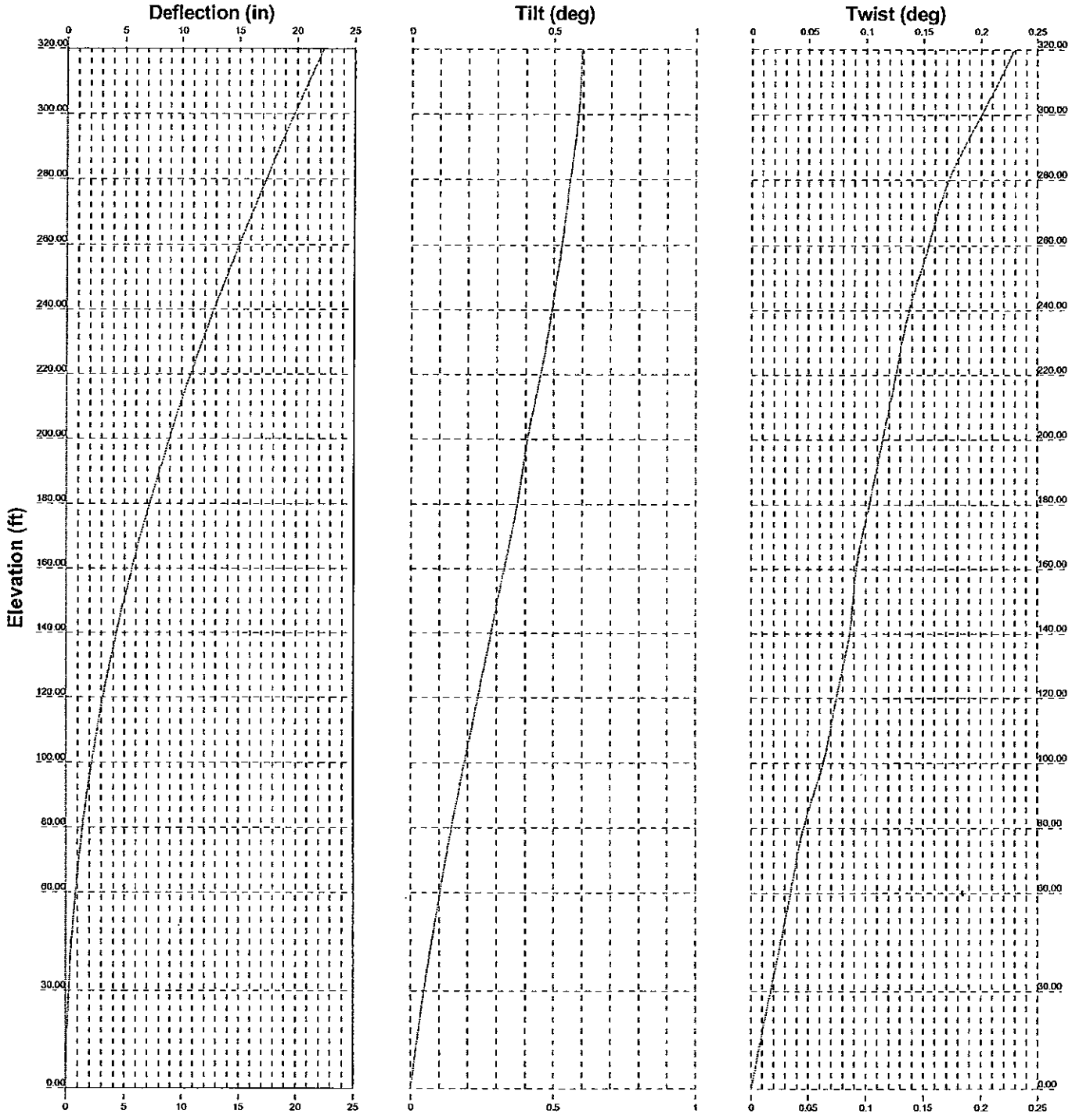


URS Corporation
500 Enterprise Drive, Suite 3B
Rocky Hill, CT 06067
Phone: (860) 529-8882
FAX: (860) 529-3991

Job: *320' Rohn SSVMW*			
Project: *CSP Tower - Colchester, CT*			
Client: Cingular Wireless	Drawn by: Jed Kiernan		App'd:
Code: TIA/EIA-222-F	Date: 04/03/06		Scale: NTS
Path: P:\08\4.3.2006 Rev 1\ERI Files\Reinforced 320' Rohn SSVMW.ari			Dwg No. E-7

ERI TOWER DEFLECTION, TILT, TWIST

TIA/EIA-222-F - 78 mph/78 mph 0.5000 in Ice Dead+Wind 0 deg+Ice+Temp

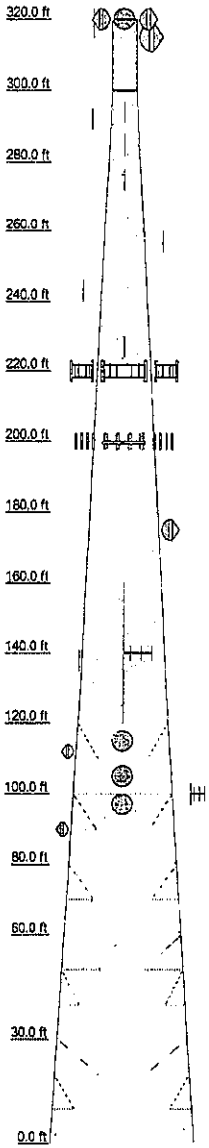


URS Corporation
500 Enterprise Drive, Suite 3B
Rocky Hill, CT 06067
Phone: (860) 529-8882
FAX: (860) 529-3991

Job: *320' Rohn SSVMW*			
Project: *CSP Tower - Colchester, CT*			
Client: Cingular Wireless	Drawn by: Jed Kiernan	App'd:	
Code: TIA/EIA-222-F	Date: 04/03/06	Scale: NTS	
Path: P:\2004\3.2005 Rev D\ERI Files\78mph Reinforced 320' Rohn SSVMW.eri		Dwg No. E-5	

ERI TOWER INPUT/OUTPUT SUMMARY

Section	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Legs	ROHN 12 EHS	ROHN 12 EH					ROHN 10 EH				ROHN 8 EH																				A
Leg Grade	A572-50																														
Diagonals	ROHN 3.5 EH					ROHN 3 EH			L5x5x3/8		L4x4x3/8			L4x4x5/16	L3x3x1/4	D	L2x2x1/4	C
Diagonal Grade	A572-50																								A36						
Top Girts	N.A.																												L2x2x1/4	C
Horizontals	ROHN 4 STD	ROHN 3.5 EH		E	ROHN 3 STD	N.A.																									
Red. Horizontals	ROHN 1.5 STD			F	ROHN 1.5 STD	N.A.																									
Red. Diagonals	ROHN 2.5 STD			ROHN 2 STD		N.A.																									
Red. Hips	ROHN 1.5 STD					N.A.																									
Inner Bracing	ROHN 3 STD					N.A.																									
Face Width (ft)	40.69	36.5	33.14	30.44	27.97	25.39	23.21	21.3	19.22	17.05	15.09	13.05	11.04	8.85	6.81
# Panels @ (ft)	2 @ 30			3 @ 20			10 @ 10						9 @ 5.66667		4 @ 5	5 @ 4
Weight (K)	93.6	14.0	11.9	9.7	8.5	7.3	5.9	5.9	5.7	4.8	4.9	3.8	3.5	2.5	1.8



MAX PIER FORCES:
DOWN: 692 K
UPLIFT: -555 K
SHEAR: 85 K

AXIAL
157 K
SHEAR 138 K
MOMENT 22530 kip-ft
TORQUE 286 kip-ft
90 mph WIND - 0.5000 in ICE
AXIAL
112 K
SHEAR 112 K
MOMENT 18495 kip-ft
TORQUE 182 kip-ft
REACTIONS - 90 mph WIND

APPURTENANCES

TYPE	ELEVATION	TYPE	ELEVATION
Dual Lights	320	DB844 (Verizon)	220
5'3"x4" Pipe Mount (CSP future)	320	DB948F85T2E-M (Verizon)	220
5'3"x4" Pipe Mount (CSP future)	320	DB948F85T2E-M (Verizon)	220
5'3"x4" Pipe Mount (CSP future)	320	DB844 (Verizon)	220
PD128 (CSP)	320	(4) 7770.00 (Cingular)	200
6' Side Mount Standoff	320	(4) 7770.00 (Cingular)	200
6 FT DISH	320	(4) LPG21401 TMA (Cingular)	200
6 FT DISH	320	(4) LPG21401 TMA (Cingular)	200
6 FT DISH	320	(4) LPG21401 TMA (Cingular)	200
PD128 (CSP)	318	(4) LPG13519 Diplexer (Cingular)	200
6' Side Mount Standoff	318	(4) LPG13519 Diplexer (Cingular)	200
8 FT DISH	315	(4) LPG13519 Diplexer (Cingular)	200
6'8"x4" Pipe Mount (CSP)	315	PIROD 12' Lightweight T-Frame (Cingular)	200
DB224 (SHF)	294	PIROD 12' Lightweight T-Frame (Cingular)	200
6' Side Mount Standoff	294	PIROD 12' Lightweight T-Frame (Cingular)	200
PD320 (DEP)	292	(4) 7770.00 (Cingular)	200
6' Side Mount Standoff	292	5'3"x4" Pipe Mount (Reserved)	175
(2) DB809 (CSP)	285	6 FT DISH (Reserved)	175
6' Side Mount Standoff	285	BA1012-0 (OEM)	140
(2) OGT9 (CSP)	275	PD568S-4 (NEU)	140
6' Side Mount Standoff	275	DB212-1 (NEU)	140
PD440 (OEM)	257	6' Side Mount Standoff	140
6' Side Mount Standoff	257	6' Side Mount Standoff	140
PD128 (OEM)	243	PD156S (DEP)	138
6' Side Mount Standoff	243	3'4"x4" Pipe Mount (DEP)	138
PD320 (CSP)	227	5'3"x4" Pipe Mount (Reserved)	115
6' Side Mount Standoff	227	6 FT DISH (Reserved)	115
DB844 (Verizon)	220	3'4"x4" Pipe Mount (CSP)	112
DB844 (Verizon)	220	4 FT DISH	112
DB948F85T2E-M (Verizon)	220	6 FT DISH	105
DB948F85T2E-M (Verizon)	220	5'3"x4" Pipe Mount (CSP)	105
DB844 (Verizon)	220	PD458 (CTT)	100
DB844 (Verizon)	220	DB437 (FBI)	100
DB948F85T2E-M (Verizon)	220	6' Side Mount Standoff	100
DB948F85T2E-M (Verizon)	220	6 FT DISH	97
Mounting Frame (Verizon)	220	5'3"x4" Pipe Mount (CSP)	97
Mounting Frame (Verizon)	220	3'4"x4" Pipe Mount (CSP)	90
Mounting Frame (Verizon)	220	4 FT DISH	90

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	ROHN 5 EH	D	L2 1/2x2 1/2x1/4
B	ROHN 6 EH	E	ROHN 3 EH
C	L1 3/4x1 3/4x3/16	F	ROHN 2 STD

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. TOWER RATING: 95.6%

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

Job: *320' Rohn SSVMW*			
Project: *CSP Tower - Colchester, CT*			
Client: Cingular Wireless	Drawn by: Jed Kiernan	App'd:	
Code: TIA/EIA-222-F	Date: 04/03/06	Scale: NTS	
Path: P:\06\d 3.2006 Rev 1\ERI Files\Reinforced 320' Rohn SSVMW.eri		Dwg No. E-1	

ERI TOWER DETAILED OUTPUT

ERITower	Job	Page
	320' Rohn SSVMW	1 of 55
URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-3991	Project CSP Tower - Colchester, CT	Date 16:13:44 04/03/06
	Client Cingular Wireless	Designed by Jed Kiernan

Tower Input Data

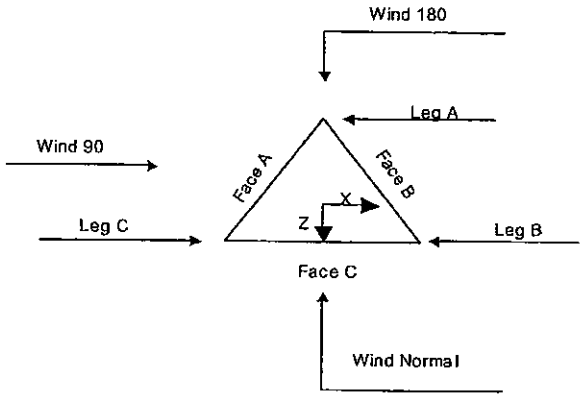
The main tower is a 3x free standing tower with an overall height of 320.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 6.81 ft at the top and 40.69 ft at the base.
This tower is designed using the TIA/EIA-222-F 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.
Pressures are calculated at each section.
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 ← option not used
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		

ERITower	Job	Page
URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-3991	320' Rohn SSVMW	2 of 55
	Project CSP Tower - Colchester, CT	Date 16:13:44 04/03/06
	Client Cingular Wireless	Designed by Jed Kiernan



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	320.00-300.00			6.81	1	20.00
T2	300.00-280.00			6.81	1	20.00
T3	280.00-260.00			8.85	1	20.00
T4	260.00-240.00			11.04	1	20.00
T5	240.00-220.00			13.08	1	20.00
T6	220.00-200.00			15.09	1	20.00
T7	200.00-180.00			17.09	1	20.00
T8	180.00-160.00			19.22	1	20.00
T9	160.00-140.00			21.30	1	20.00
T10	140.00-120.00			23.21	1	20.00
T11	120.00-100.00			25.39	1	20.00
T12	100.00-80.00			27.97	1	20.00
T13	80.00-60.00			30.47	1	20.00
T14	60.00-30.00			33.14	1	30.00
T15	30.00-0.00			36.80	1	30.00

2 at top of section
40.69' at bottom

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in

ERITower	Job: 320' Rohn SSVMW	Page: 3 of 55
URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-3991	Project: CSP Tower - Colchester, CT	Date: 16:13:44 04/03/06
	Client: Cingular Wireless	Designed by: Jed Kiernan

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	320.00-300.00	4.00	X Brace	No	No	0.0000	0.0000
T2	300.00-280.00	5.00	X Brace	No	No	0.0000	0.0000
T3	280.00-260.00	6.67	X Brace	No	No	0.0000	0.0000
T4	260.00-240.00	6.67	X Brace	No	No	0.0000	0.0000
T5	240.00-220.00	6.67	X Brace	No	No	0.0000	0.0000
T6	220.00-200.00	10.00	X Brace	No	No	0.0000	0.0000
T7	200.00-180.00	10.00	X Brace	No	No	0.0000	0.0000
T8	180.00-160.00	10.00	X Brace	No	No	0.0000	0.0000
T9	160.00-140.00	10.00	X Brace	No	No	0.0000	0.0000
T10	140.00-120.00	10.00	X Brace	No	No	0.0000	0.0000
T11	120.00-100.00	20.00	K1 Down	No	Yes	0.0000	0.0000
T12	100.00-80.00	20.00	K1 Down	No	Yes	0.0000	0.0000
T13	80.00-60.00	20.00	K1 Down	No	Yes	0.0000	0.0000
T14	60.00-30.00	30.00	K2 Down	No	Yes	0.0000	0.0000
T15	30.00-0.00	30.00	K2 Down	No	Yes	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 320.00-300.00	Pipe	ROHN 5 EH	A572-50 (50 ksi)	Equal Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T2 300.00-280.00	Pipe	ROHN 6 EH	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T3 280.00-260.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)
T4 260.00-240.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A572-50 (50 ksi)
T5 240.00-220.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Equal Angle	L4x4x5/16	A572-50 (50 ksi)
T6 220.00-200.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Equal Angle	L4x4x3/8	A572-50 (50 ksi)
T7 200.00-180.00	Pipe	ROHN 10 EH	A572-50 (50 ksi)	Equal Angle	L4x4x3/8	A572-50 (50 ksi)
T8 180.00-160.00	Pipe	ROHN 10 EH	A572-50 (50 ksi)	Equal Angle	L4x4x3/8	A572-50 (50 ksi)
T9 160.00-140.00	Pipe	ROHN 10 EH	A572-50 (50 ksi)	Equal Angle	L5x5x3/8	A572-50 (50 ksi)
T10 140.00-120.00	Pipe	ROHN 10 EH	A572-50 (50 ksi)	Equal Angle	L5x5x3/8	A572-50 (50 ksi)
T11 120.00-100.00	Pipe	ROHN 10 EH	A572-50 (50 ksi)	Pipe	ROHN 3 EH	A572-50 (50 ksi)
T12 100.00-80.00	Pipe	ROHN 10 EH	A572-50 (50 ksi)	Pipe	ROHN 3 EH	A572-50 (50 ksi)
T13 80.00-60.00	Pipe	ROHN 12 EH	A572-50 (50 ksi)	Pipe	ROHN 3 EH	A572-50 (50 ksi)
T14 60.00-30.00	Pipe	ROHN 12 EH	A572-50 (50 ksi)	Pipe	ROHN 3.5 EH	A572-50 (50 ksi)
T15 30.00-0.00	Pipe	ROHN 12 EHS	A572-50 (50 ksi)	Pipe	ROHN 3.5 EH	A572-50 (50 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 320.00-300.00	Equal Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T2 300.00-280.00	Equal Angle	L2x2x1/4	A36 (36 ksi)	Solid Round		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
T11 120.00-100.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T12 100.00-80.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T13 80.00-60.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 3 EH	A572-50 (50 ksi)
T14 60.00-30.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 3.5 EH	A572-50 (50 ksi)
T15 30.00-0.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 4 STD	A572-50 (50 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
T11 120.00-100.00	Pipe		A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T12 100.00-80.00	Pipe		A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T13 80.00-60.00	Pipe		A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T14 60.00-30.00	Pipe		A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T15 30.00-0.00	Pipe		A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Redundant Bracing Grade		Redundant Type	Redundant Size	K Factor
T11 120.00-100.00	A572-50 (50 ksi)	Horizontal (1)	Pipe	ROHN 1.5 STD	1
		Diagonal (1)	Pipe	ROHN 2 STD	1
		Hip (1)	Pipe	ROHN 1.5 STD	1
		Hip Diagonal		ROHN 2.5 STD	1
T12 100.00-80.00	A572-50 (50 ksi)	Horizontal (1)	Pipe	ROHN 1.5 STD	1
		Diagonal (1)	Pipe	ROHN 2 STD	1
		Hip (1)	Pipe	ROHN 1.5 STD	1
		Hip Diagonal		ROHN 2.5 STD	1
T13 80.00-60.00	A572-50 (50 ksi)	Horizontal (1)	Pipe	ROHN 2 STD	1
		Diagonal (1)	Pipe	ROHN 2 STD	1
		Hip (1)	Pipe	ROHN 1.5 STD	1
		Hip Diagonal		ROHN 3 STD	1
T14 60.00-30.00	A572-50 (50 ksi)	Horizontal (1)	Pipe	ROHN 1.5 STD	1
		Horizontal (2)		ROHN 2 EH	
		Diagonal (1)	Pipe	ROHN 2 STD	1
		Diagonal (2)		ROHN 2.5 STD	
		Hip (1)	Pipe	ROHN 1.5 STD	1
		Hip (2)		ROHN 2 STD	
		Hip Diagonal		ROHN 2 STD	1
T15 30.00-0.00	A572-50 (50 ksi)	Horizontal (1)	Pipe	ROHN 1.5 STD	1
		Horizontal (2)		ROHN 2.5 EH	
		Diagonal (1)	Pipe	ROHN 2.5 STD	1
		Diagonal (2)		ROHN 2.5 STD	
		Hip (1)	Pipe	ROHN 1.5 STD	1
		Hip (2)		ROHN 2 STD	
		Hip Diagonal		ROHN 2.5 STD	1

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 320.00-300.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T2 300.00-280.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T3 280.00-260.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T4 260.00-240.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T5 240.00-220.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T6 220.00-200.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T7 200.00-180.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T8 180.00-160.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T9 160.00-140.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T10 140.00-120.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T11 120.00-100.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T12 100.00-	0.00	0.0000	A36	1	1	1	36.0000	36.0000

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals
ft	ft^2	in					in	in
80.00			(36 ksi)					
T13 80.00-60.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T14 60.00-30.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T15 30.00-0.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000

Tower Section Geometry *(cont'd)*

Tower Elevation	Calc K Single Angles	Calc K Solid Rounds	K Factors[1]							
			Legs	X Brace Diags	K Brace Diags	Single Diags	Girts	Horiz.	Sec. Horiz.	Inner Brace
ft				X Y	X Y	X Y	X Y	X Y	X Y	X Y
T1 320.00-300.00	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T2 300.00-280.00	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T3 280.00-260.00	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T4 260.00-240.00	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T5 240.00-220.00	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T6 220.00-200.00	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T7 200.00-180.00	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T8 180.00-160.00	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T9 160.00-140.00	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T10 140.00-120.00	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T11 120.00-100.00	No	No	1	1 1	0.95 0.95	1 1	1 1	1 1	1 1	1 1
T12 100.00-80.00	No	No	1	1 1	0.95 0.95	1 1	1 1	1 1	1 1	1 1
T13 80.00-60.00	No	No	1	1 1	0.95 0.95	1 1	1 1	1 1	1 1	1 1
T14 60.00-30.00	No	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T15 30.00-0.00	No	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1

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

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 320.00-300.00	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
T2 300.00-280.00	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
T3 280.00-260.00	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
T4 260.00-240.00	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
T5 240.00-220.00	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
T6 220.00-200.00	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
T7 200.00-180.00	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
T8 180.00-160.00	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
T9 160.00-140.00	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
T10 140.00-120.00	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
T11 120.00-100.00	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
T12 100.00-80.00	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
T13 80.00-60.00	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
T14 60.00-30.00	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
T15 30.00-0.00	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		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 320.00-300.00	Flange	1.0000 A325N	6	0.6250 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T2 300.00-280.00	Flange	1.0000 A325N	8	0.6250 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 280.00-260.00	Flange	1.0000 A325N	8	0.7500 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T4 260.00-240.00	Flange	1.0000 A325N	8	0.7500 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T5 240.00-220.00	Flange	1.0000 A325N	8	0.7500 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T6 220.00-200.00	Flange	1.0000 A325N	12	0.7500 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T7 200.00-180.00	Flange	1.0000 A325N	12	0.8750 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

ERITower	Job	Page
	320' Rohn SSVMW	8 of 55
URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-3991	Project CSP Tower - Colchester, CT	Date 16:13:44 04/03/06
	Client Cingular Wireless	Designed by Jed Kiernan

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T8 180.00-160.00	Flange	1.0000 A325N	12	0.8750 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T9 160.00-140.00	Flange	1.0000 A325N	12	0.8750 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T10 140.00-120.00	Flange	1.0000 A325N	12	0.8750 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T11 120.00-100.00	Flange	1.0000 A325N	12	0.7500 A325X	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.7500 A325X	2	0.6250 A325N	0
T12 100.00-80.00	Flange	1.0000 A325N	16	0.7500 A325X	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.7500 A325X	2	0.6250 A325N	0
T13 80.00-60.00	Flange	1.0000 A325N	16	0.7500 A325X	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.7500 A325X	2	0.6250 A325N	0
T14 60.00-30.00	Flange	1.0000 A325N	16	0.8750 A325X	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.7500 A325X	2	0.6250 A325N	0
T15 30.00-0.00	Flange	1.0000 A325N	24	0.8750 A325X	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.7500 A325X	2	0.6250 A325N	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
1 5/8 (Verizon)	C	Yes	Ar (CfAe)	220.00 - 0.00	0.0000	-0.4	12	12	1.9800	1.9800		1.04
3/4 Electrical	B	Yes	Ar (CfAe)	320.00 - 0.00	0.0000	0.48	2	2	1.1100	1.1100		0.54
7/8	B	Yes	Ar (CfAe)	320.00 - 0.00	0.0000	0.46	3	3	1.1100	1.1100		0.54
EW63	B	Yes	Af (CfAe)	320.00 - 0.00	0.0000	0.44	3	3	1.5742	1.5742	5.0668	0.51
7/8	B	Yes	Ar (CfAe)	294.00 - 0.00	0.0000	0.42	2	2	1.1100	1.1100		0.54
1 5/8	B	Yes	Ar (CfAe)	280.00 - 0.00	0.0000	0.4	4	4	1.9800	1.9800		1.04
7/8	B	Yes	Ar (CfAe)	250.00 - 0.00	0.0000	0.38	3	3	1.1100	1.1100		0.54
7/8	B	Yes	Ar (CfAe)	140.00 - 0.00	0.0000	0.36	4	4	1.1100	1.1100		0.54
EW108	B	Yes	Af (CfAe)	112.00 - 0.00	0.0000	0.34	1	1	0.5899	0.5899	2.0063	0.15
EW65	B	Yes	Af (CfAe)	105.00 - 0.00	0.0000	0.32	1	1	1.5742	1.5742	5.0668	0.51
7/8	B	Yes	Ar (CfAe)	105.00 - 0.00	0.0000	0.3	2	2	1.1100	1.1100		0.54
7/8	B	Yes	Ar (CfAe)	95.00 - 0.00	0.0000	0.28	2	2	1.1100	1.1100		0.54
EW63 (Reserved)	C	Yes	Af (CfAe)	175.00 - 0.00	0.0000	-0.45	1	1	1.5742	1.5742	5.0668	0.51
EW63 (Reserved)	C	Yes	Af (CfAe)	115.00 - 0.00	0.0000	-0.47	1	1	1.5742	1.5742	5.0668	0.51
1 5/8 (Cingular)	A	Yes	Ar (CfAe)	200.00 - 0.00	0.0000	-0.42	24	12	1.9800	1.9800		1.04

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	320.00-300.00	A	0.000	0.000	0.000	0.000	0.00
		B	9.250	7.871	0.000	0.000	0.08
		C	0.000	0.000	0.000	0.000	0.00

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T2	300.00-280.00	A	0.000	0.000	0.000	0.000	0.00
		B	11.840	7.871	0.000	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.00
T3	280.00-260.00	A	0.000	0.000	0.000	0.000	0.00
		B	26.150	7.871	0.000	0.000	0.19
		C	0.000	0.000	0.000	0.000	0.00
T4	260.00-240.00	A	0.000	0.000	0.000	0.000	0.00
		B	28.925	7.871	0.000	0.000	0.21
		C	0.000	0.000	0.000	0.000	0.00
T5	240.00-220.00	A	0.000	0.000	0.000	0.000	0.00
		B	31.700	7.871	0.000	0.000	0.22
		C	0.000	0.000	0.000	0.000	0.00
T6	220.00-200.00	A	0.000	0.000	0.000	0.000	0.00
		B	31.700	7.871	0.000	0.000	0.22
		C	39.600	0.000	0.000	0.000	0.25
T7	200.00-180.00	A	39.600	0.000	0.000	0.000	0.50
		B	31.700	7.871	0.000	0.000	0.22
		C	39.600	0.000	0.000	0.000	0.25
T8	180.00-160.00	A	39.600	0.000	0.000	0.000	0.50
		B	31.700	7.871	0.000	0.000	0.22
		C	39.600	1.968	0.000	0.000	0.26
T9	160.00-140.00	A	39.600	0.000	0.000	0.000	0.50
		B	31.700	7.871	0.000	0.000	0.22
		C	39.600	2.624	0.000	0.000	0.26
T10	140.00-120.00	A	39.600	0.000	0.000	0.000	0.50
		B	39.100	7.871	0.000	0.000	0.27
		C	39.600	2.624	0.000	0.000	0.26
T11	120.00-100.00	A	39.600	0.000	0.000	0.000	0.50
		B	40.025	9.117	0.000	0.000	0.27
		C	39.600	4.591	0.000	0.000	0.27
T12	100.00-80.00	A	39.600	0.000	0.000	0.000	0.50
		B	45.575	11.478	0.000	0.000	0.32
		C	39.600	5.247	0.000	0.000	0.27
T13	80.00-60.00	A	39.600	0.000	0.000	0.000	0.50
		B	46.500	11.478	0.000	0.000	0.32
		C	39.600	5.247	0.000	0.000	0.27
T14	60.00-30.00	A	59.400	0.000	0.000	0.000	0.75
		B	69.750	17.217	0.000	0.000	0.48
		C	59.400	7.871	0.000	0.000	0.41
T15	30.00-0.00	A	59.400	0.000	0.000	0.000	0.75
		B	69.750	17.217	0.000	0.000	0.48
		C	59.400	7.871	0.000	0.000	0.41

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	320.00-300.00	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		17.583	11.204	0.000	0.000	0.26
		C		0.000	0.000	0.000	0.000	0.00
T2	300.00-280.00	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		22.507	11.204	0.000	0.000	0.31
		C		0.000	0.000	0.000	0.000	0.00
T3	280.00-260.00	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		44.483	11.204	0.000	0.000	0.53
		C		0.000	0.000	0.000	0.000	0.00
T4	260.00-240.00	A	0.500	0.000	0.000	0.000	0.000	0.00

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B		49.758	11.204	0.000	0.000	0.58
		C		0.000	0.000	0.000	0.000	0.00
T5	240.00-220.00	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		55.033	11.204	0.000	0.000	0.62
		C		0.000	0.000	0.000	0.000	0.00
T6	220.00-200.00	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		55.033	11.204	0.000	0.000	0.62
		C		59.600	0.000	0.000	0.000	0.61
T7	200.00-180.00	A	0.500	59.600	0.000	0.000	0.000	1.23
		B		55.033	11.204	0.000	0.000	0.62
		C		59.600	0.000	0.000	0.000	0.61
T8	180.00-160.00	A	0.500	59.600	0.000	0.000	0.000	1.23
		B		55.033	11.204	0.000	0.000	0.62
		C		59.600	2.801	0.000	0.000	0.64
T9	160.00-140.00	A	0.500	59.600	0.000	0.000	0.000	1.23
		B		55.033	11.204	0.000	0.000	0.62
		C		59.600	3.735	0.000	0.000	0.65
T10	140.00-120.00	A	0.500	59.600	0.000	0.000	0.000	1.23
		B		69.100	11.204	0.000	0.000	0.74
		C		59.600	3.735	0.000	0.000	0.65
T11	120.00-100.00	A	0.500	59.600	0.000	0.000	0.000	1.23
		B		70.858	13.395	0.000	0.000	0.78
		C		59.600	6.536	0.000	0.000	0.68
T12	100.00-80.00	A	0.500	59.600	0.000	0.000	0.000	1.23
		B		81.408	17.033	0.000	0.000	0.90
		C		59.600	7.470	0.000	0.000	0.69
T13	80.00-60.00	A	0.500	59.600	0.000	0.000	0.000	1.23
		B		83.167	17.033	0.000	0.000	0.92
		C		59.600	7.470	0.000	0.000	0.69
T14	60.00-30.00	A	0.500	89.400	0.000	0.000	0.000	1.84
		B		124.750	25.550	0.000	0.000	1.38
		C		89.400	11.204	0.000	0.000	1.03
T15	30.00-0.00	A	0.500	89.400	0.000	0.000	0.000	1.84
		B		124.750	25.550	0.000	0.000	1.38
		C		89.400	11.204	0.000	0.000	1.03

Feed Line Shielding

Section	Elevation ft	Face	A_R ft^2	A_R Ice ft^2	A_F ft^2	A_F Ice ft^2
T1	320.00-300.00	A	0.000	0.000	0.000	0.000
		B	0.000	0.000	1.573	3.863
		C	0.000	0.000	0.000	0.000
T2	300.00-280.00	A	0.000	0.000	0.000	0.000
		B	0.000	0.000	1.727	4.132
		C	0.000	0.000	0.000	0.000
T3	280.00-260.00	A	0.000	0.000	0.000	0.000
		B	0.000	0.000	2.564	5.474
		C	0.000	0.000	0.000	0.000
T4	260.00-240.00	A	0.000	0.000	0.000	0.000
		B	0.000	0.000	3.155	6.564
		C	0.000	0.000	0.000	0.000
T5	240.00-220.00	A	0.000	0.000	0.000	0.000
		B	0.000	0.000	4.380	8.768
		C	0.000	0.000	0.000	0.000
T6	220.00-200.00	A	0.000	0.000	0.000	0.000

Section	Elevation	Face	A_R	A_R Ice	A_F	A_F Ice
	ft		ft^2	ft^2	ft^2	ft^2
		B	0.000	0.000	3.107	6.220
		C	0.000	0.000	3.109	5.460
T7	200.00-180.00	A	0.000	0.000	3.015	5.294
		B	0.000	0.000	3.013	6.031
		C	0.000	0.000	3.015	5.294
T8	180.00-160.00	A	0.000	0.000	2.945	5.170
		B	0.000	0.000	2.942	5.891
		C	0.000	0.000	3.091	5.449
T9	160.00-140.00	A	0.000	0.000	3.618	6.172
		B	0.000	0.000	3.616	7.032
		C	0.000	0.000	3.858	6.616
T10	140.00-120.00	A	0.000	0.000	3.569	6.087
		B	0.000	0.000	4.233	8.372
		C	0.000	0.000	3.805	6.526
T11	120.00-100.00	A	2.688	5.475	0.000	0.000
		B	3.335	7.936	0.000	0.000
		C	2.999	6.165	0.000	0.000
T12	100.00-80.00	A	2.572	5.239	0.000	0.000
		B	3.706	8.898	0.000	0.000
		C	2.913	5.993	0.000	0.000
T13	80.00-60.00	A	2.560	5.173	0.000	0.000
		B	3.748	8.938	0.000	0.000
		C	2.899	5.918	0.000	0.000
T14	60.00-30.00	A	4.171	8.402	0.000	0.000
		B	6.106	14.518	0.000	0.000
		C	4.723	9.612	0.000	0.000
T15	30.00-0.00	A	4.315	8.525	0.000	0.000
		B	6.318	14.730	0.000	0.000
		C	4.887	9.752	0.000	0.000

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
T1	320.00-300.00	5.7821	2.9520	7.1025	3.6441
T2	300.00-280.00	6.6750	3.3779	8.5933	4.3612
T3	280.00-260.00	11.0518	5.2903	14.1421	6.8116
T4	260.00-240.00	12.7911	6.0842	16.6398	7.9470
T5	240.00-220.00	13.1492	6.2185	17.5579	8.3243
T6	220.00-200.00	26.2723	15.6197	32.4306	19.0842
T7	200.00-180.00	10.5398	19.5179	13.8444	23.4557
T8	180.00-160.00	12.1105	21.5914	15.7775	25.9400
T9	160.00-140.00	12.1464	21.3930	16.0555	26.1545
T10	140.00-120.00	15.0912	23.2372	20.2284	28.4681
T11	120.00-100.00	19.9795	28.9268	24.9235	33.1525
T12	100.00-80.00	24.3917	31.5250	30.3482	36.0111
T13	80.00-60.00	24.7156	31.5797	31.3068	36.6933
T14	60.00-30.00	26.5159	33.8668	33.5485	39.3179
T15	30.00-0.00	28.0485	35.8107	35.7092	41.8405

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Dual Lights	C	None		0.0000	320.00	No Ice	4.00	4.00	0.25
						1/2" Ice	4.80	4.80	0.40
5'3"x4" Pipe Mount	A	From Leg	0.50	0.0000	320.00	No Ice	1.88	1.88	0.06
(CSP future)			0.00			1/2" Ice	2.21	2.21	0.07
			0.00						
5'3"x4" Pipe Mount	B	From Leg	0.50	0.0000	320.00	No Ice	1.88	1.88	0.06
(CSP future)			0.00			1/2" Ice	2.21	2.21	0.07
			0.00						
5'3"x4" Pipe Mount	C	From Leg	0.50	0.0000	320.00	No Ice	1.88	1.88	0.06
(CSP future)			0.00			1/2" Ice	2.21	2.21	0.07
			0.00						
PD128	C	From Leg	6.00	0.0000	320.00	No Ice	1.00	1.00	0.01
(CSP)			0.00			1/2" Ice	1.80	1.80	0.02
			0.00						
6' Side Mount Standoff	C	None		0.0000	320.00	No Ice	6.50	6.50	0.10
						1/2" Ice	8.50	8.50	0.17
PD128	C	From Leg	6.00	0.0000	318.00	No Ice	1.00	1.00	0.01
(CSP)			0.00			1/2" Ice	1.80	1.80	0.02
			0.00						
6' Side Mount Standoff	C	None		0.0000	318.00	No Ice	6.50	6.50	0.10
						1/2" Ice	8.50	8.50	0.17
6'8"x4" Pipe Mount	C	From Leg	0.50	0.0000	315.00	No Ice	2.60	2.60	0.07
(CSP)			0.00			1/2" Ice	3.01	3.01	0.09
			0.00						
DB224	A	From Leg	6.00	0.0000	294.00	No Ice	3.15	3.15	0.03
(SHF)			0.00			1/2" Ice	5.67	5.67	0.04
			0.00						
6' Side Mount Standoff	A	None		0.0000	294.00	No Ice	6.50	6.50	0.10
						1/2" Ice	8.50	8.50	0.17
PD320	C	From Leg	6.00	0.0000	292.00	No Ice	2.25	2.25	0.03
(DEP)			0.00			1/2" Ice	4.05	4.05	0.04
			0.00						
6' Side Mount Standoff	C	None		0.0000	292.00	No Ice	6.50	6.50	0.10
						1/2" Ice	8.50	8.50	0.17
(2) DB809	A	From Leg	6.00	0.0000	285.00	No Ice	3.39	3.39	0.03
(CSP)			0.00			1/2" Ice	4.55	4.55	0.06
			0.00						
6' Side Mount Standoff	A	None		0.0000	285.00	No Ice	6.50	6.50	0.10
						1/2" Ice	8.50	8.50	0.17
(2) OGT9	A	From Leg	6.00	0.0000	275.00	No Ice	3.15	3.15	0.03
(CSP)			0.00			1/2" Ice	5.67	5.67	0.04
			0.00						
6' Side Mount Standoff	A	None		0.0000	275.00	No Ice	6.50	6.50	0.10
						1/2" Ice	8.50	8.50	0.17
PD440	B	From Leg	6.00	0.0000	257.00	No Ice	1.38	1.38	0.02
(OEM)			0.00			1/2" Ice	2.48	2.48	0.02
			0.00						
6' Side Mount Standoff	B	None		0.0000	257.00	No Ice	6.50	6.50	0.10
						1/2" Ice	8.50	8.50	0.17
PD128	C	From Leg	6.00	0.0000	243.00	No Ice	1.00	1.00	0.01
(OEM)			0.00			1/2" Ice	1.80	1.80	0.02
			0.00						
6' Side Mount Standoff	C	None		0.0000	243.00	No Ice	6.50	6.50	0.10
						1/2" Ice	8.50	8.50	0.17
PD320	A	From Leg	6.00	0.0000	227.00	No Ice	2.25	2.25	0.03
(CSP)			0.00			1/2" Ice	4.05	4.05	0.04

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00						
6' Side Mount Standoff	A	None		0.0000	227.00	No Ice	6.50	6.50	0.10
						1/2" Ice	8.50	8.50	0.17
DB844 (Verizon)	A	From Leg	5.00 6.00 0.00	0.0000	220.00	No Ice 1/2" Ice	3.06 3.39	3.73 4.10	0.01 0.04
DB844 (Verizon)	A	From Leg	5.00 -6.00 0.00	0.0000	220.00	No Ice 1/2" Ice	3.06 3.39	3.73 4.10	0.01 0.04
DB948F85T2E-M (Verizon)	A	From Leg	5.00 4.00 0.00	0.0000	220.00	No Ice 1/2" Ice	1.92 2.22	3.26 3.62	0.01 0.03
DB948F85T2E-M (Verizon)	A	From Leg	5.00 -4.00 0.00	0.0000	220.00	No Ice 1/2" Ice	1.92 2.22	3.26 3.62	0.01 0.03
DB844 (Verizon)	B	From Leg	5.00 6.00 0.00	0.0000	220.00	No Ice 1/2" Ice	3.06 3.39	3.73 4.10	0.01 0.04
DB844 (Verizon)	B	From Leg	5.00 -6.00 0.00	0.0000	220.00	No Ice 1/2" Ice	3.06 3.39	3.73 4.10	0.01 0.04
DB948F85T2E-M (Verizon)	B	From Leg	5.00 4.00 0.00	0.0000	220.00	No Ice 1/2" Ice	1.92 2.22	3.26 3.62	0.01 0.03
DB948F85T2E-M (Verizon)	B	From Leg	5.00 -4.00 0.00	0.0000	220.00	No Ice 1/2" Ice	1.92 2.22	3.26 3.62	0.01 0.03
DB844 (Verizon)	C	From Leg	5.00 6.00 0.00	0.0000	220.00	No Ice 1/2" Ice	3.06 3.39	3.73 4.10	0.01 0.04
DB844 (Verizon)	C	From Leg	5.00 -6.00 0.00	0.0000	220.00	No Ice 1/2" Ice	3.06 3.39	3.73 4.10	0.01 0.04
DB948F85T2E-M (Verizon)	C	From Leg	5.00 4.00 0.00	0.0000	220.00	No Ice 1/2" Ice	1.92 2.22	3.26 3.62	0.01 0.03
DB948F85T2E-M (Verizon)	C	From Leg	5.00 -4.00 0.00	0.0000	220.00	No Ice 1/2" Ice	1.92 2.22	3.26 3.62	0.01 0.03
Mounting Frame (Verizon)	A	From Leg	5.00 0.00 0.00	0.0000	220.00	No Ice 1/2" Ice	17.00 20.00	17.00 20.00	0.56 0.70
Mounting Frame (Verizon)	B	From Leg	5.00 0.00 0.00	0.0000	220.00	No Ice 1/2" Ice	17.00 20.00	17.00 20.00	0.56 0.70
Mounting Frame (Verizon)	C	From Leg	5.00 0.00 0.00	0.0000	220.00	No Ice 1/2" Ice	17.00 20.00	17.00 20.00	0.56 0.70
PiROD 12' Lightweight T-Frame (Cingular)	A	None		0.0000	200.00	No Ice 1/2" Ice	10.20 16.20	10.20 16.20	0.25 0.35
PiROD 12' Lightweight T-Frame (Cingular)	B	None		0.0000	200.00	No Ice 1/2" Ice	10.20 16.20	10.20 16.20	0.25 0.35
PiROD 12' Lightweight T-Frame (Cingular)	C	None		0.0000	200.00	No Ice 1/2" Ice	10.20 16.20	10.20 16.20	0.25 0.35

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(4) 7770.00 (Cingular)	A	From Leg	3.00 0.00 0.00	0.0000	200.00	No Ice 1/2" Ice	5.88 6.31	2.93 3.27	0.04 0.07
(4) 7770.00 (Cingular)	B	From Leg	3.00 0.00 0.00	0.0000	200.00	No Ice 1/2" Ice	5.88 6.31	2.93 3.27	0.04 0.07
(4) 7770.00 (Cingular)	C	From Leg	3.00 0.00 0.00	0.0000	200.00	No Ice 1/2" Ice	5.88 6.31	2.93 3.27	0.04 0.07
(4) LPG21401 TMA (Cingular)	A	From Leg	3.00 0.00 0.00	0.0000	200.00	No Ice 1/2" Ice	0.95 1.09	0.37 0.48	0.02 0.02
(4) LPG21401 TMA (Cingular)	B	From Leg	3.00 0.00 0.00	0.0000	200.00	No Ice 1/2" Ice	0.95 1.09	0.37 0.48	0.02 0.02
(4) LPG21401 TMA (Cingular)	C	From Leg	3.00 0.00 0.00	0.0000	200.00	No Ice 1/2" Ice	0.95 1.09	0.37 0.48	0.02 0.02
(4) LPG13519 Diplexer (Cingular)	A	From Leg	3.00 0.00 0.00	0.0000	200.00	No Ice 1/2" Ice	0.27 0.34	0.18 0.25	0.01 0.01
(4) LPG13519 Diplexer (Cingular)	B	From Leg	3.00 0.00 0.00	0.0000	200.00	No Ice 1/2" Ice	0.27 0.34	0.18 0.25	0.01 0.01
(4) LPG13519 Diplexer (Cingular)	C	From Leg	3.00 0.00 0.00	0.0000	200.00	No Ice 1/2" Ice	0.27 0.34	0.18 0.25	0.01 0.01
5'3"x4" Pipe Mount (Reserved)	B	From Leg	0.50 0.00 0.00	0.0000	175.00	No Ice 1/2" Ice	1.88 2.21	1.88 2.21	0.06 0.07
PD688S-4 (NEU)	A	From Leg	6.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice	0.35 0.63	0.35 0.63	0.00 0.00
DB212-1 (NEU)	B	None		0.0000	140.00	No Ice 1/2" Ice	4.40 8.42	4.40 8.42	0.03 0.07
6' Side Mount Standoff	B	None		0.0000	140.00	No Ice 1/2" Ice	6.50 8.50	6.50 8.50	0.10 0.17
BA1012-0 (OEM)	A	From Leg	6.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice	0.47 0.96	0.47 0.96	0.00 0.01
6' Side Mount Standoff	A	None		0.0000	140.00	No Ice 1/2" Ice	6.50 8.50	6.50 8.50	0.10 0.17
PD156S (DEP)	C	From Leg	1.00 0.00 0.00	0.0000	138.00	No Ice 1/2" Ice	0.44 0.79	0.44 0.79	0.01 0.01
3'4"x4" Pipe Mount (DEP)	C	From Leg	0.50 0.00 0.00	0.0000	138.00	No Ice 1/2" Ice	1.05 1.27	1.05 1.27	0.04 0.05
5'3"x4" Pipe Mount (Reserved)	A	From Leg	0.50 0.00 0.00	0.0000	115.00	No Ice 1/2" Ice	1.88 2.21	1.88 2.21	0.06 0.07
3'4"x4" Pipe Mount (CSP)	C	From Leg	0.50 0.00 0.00	0.0000	112.00	No Ice 1/2" Ice	1.05 1.27	1.05 1.27	0.04 0.05
5'3"x4" Pipe Mount (CSP)	A	From Leg	0.50 0.00 0.00	0.0000	105.00	No Ice 1/2" Ice	1.88 2.21	1.88 2.21	0.06 0.07

ERITower	Job	Page
	320' Rohn SSVMW	15 of 55
URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-3991	Project CSP Tower - Colchester, CT	Date 16:13:44 04/03/06
	Client Cingular Wireless	Designed by Jed Kiernan

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
PD458	B	From Leg	6.00		0.0000	100.00	No Ice	2.88	2.88	0.02
(CTT)			0.00				1/2" Ice	4.34	4.34	0.05
			0.00							
DB437	B	From Leg	6.00		0.0000	100.00	No Ice	0.45	0.45	0.01
(FBI)			0.00				1/2" Ice	0.81	0.81	0.01
			0.00							
6' Side Mount Standoff	B	None			0.0000	100.00	No Ice	6.50	6.50	0.10
							1/2" Ice	8.50	8.50	0.17
5'3"x4" Pipe Mount	A	From Leg	0.50		0.0000	97.00	No Ice	1.88	1.88	0.06
(CSP)			0.00				1/2" Ice	2.21	2.21	0.07
			0.00							
3'4"x4" Pipe Mount	C	From Leg	0.50		0.0000	90.00	No Ice	1.05	1.05	0.04
(CSP)			0.00				1/2" Ice	1.27	1.27	0.05
			0.00							

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
8 FT DISH	B	Paraboloid	From	1.00		Worst		315.00	8.00	No Ice	50.30	0.25
		w/Radome	Leg	0.00						1/2" Ice	51.29	0.51
				0.00								
6 FT DISH	A	Paraboloid	From	1.00		Worst		320.00	6.00	No Ice	28.27	0.14
		w/Radome	Leg	0.00						1/2" Ice	29.05	0.29
				0.00								
6 FT DISH	B	Paraboloid	From	1.00		Worst		320.00	6.00	No Ice	28.27	0.14
		w/Radome	Leg	0.00						1/2" Ice	29.05	0.29
				0.00								
6 FT DISH	C	Paraboloid	From	1.00		Worst		320.00	6.00	No Ice	28.27	0.14
		w/Radome	Leg	0.00						1/2" Ice	29.05	0.29
				0.00								
4 FT DISH	C	Paraboloid	From	1.00		Worst		112.00	4.00	No Ice	12.56	0.17
		w/Radome	Leg	0.00						1/2" Ice	13.09	0.24
				0.00								
6 FT DISH	A	Paraboloid	From	1.00		Worst		105.00	6.00	No Ice	28.27	0.14
		w/Radome	Leg	0.00						1/2" Ice	29.05	0.29
				0.00								
6 FT DISH	A	Paraboloid	From	1.00		Worst		97.00	6.00	No Ice	28.27	0.14
		w/Radome	Leg	0.00						1/2" Ice	29.05	0.29
				0.00								
4 FT DISH	C	Paraboloid	From	1.00		Worst		90.00	4.00	No Ice	12.56	0.17
		w/Radome	Leg	0.00						1/2" Ice	13.09	0.24
				0.00								
6 FT DISH	B	Paraboloid	From	1.00		Worst		175.00	6.00	No Ice	28.27	0.14
(Reserved)		w/Radome	Leg	0.00						1/2" Ice	29.05	0.29
				0.00								
6 FT DISH	A	Paraboloid	From	1.00		Worst		115.00	6.00	No Ice	28.27	0.14
(Reserved)		w/Radome	Leg	0.00						1/2" Ice	29.05	0.29

ERITower	Job: 320' Rohn SSVMW	Page: 16 of 55
URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-3991	Project: CSP Tower - Colchester, CT	Date: 16:13:44 04/03/06
	Client: Cingular Wireless	Designed by: Jed Kiernan

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	ft²	K
		2/7		0.00						

$K_z = (z/33)^{2/7} = 1.897$ ✓ $q_z = 0.00256 \times K_z \times V^2 = 0.00256 \times 1.897 \times 90^2 = 39.33$ psf ✓

Tower Pressures - No Ice

For z = 310.0' $G_H = 1.084$ $G_H = 0.65 + 0.60/(z/33)^{1/7} = 1.086$ ✓

Section Elevation ft	z ft	K_z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{Leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1 320.00-300.00	310.00	1.897	39	145.472	A	11.659	18.543	18.543	61.40	0.000	0.000
					B	17.958	27.793		40.53		
					C	11.659	18.543		61.40		
T2 300.00-280.00	290.00	1.861	39	167.656	A	12.596	22.122	22.122	63.72	0.000	0.000
					B	18.740	33.962		41.97		
					C	12.596	22.122		63.72		
T3 280.00-260.00	270.00	1.823	38	213.297	A	13.934	28.807	28.807	67.40	0.000	0.000
					B	19.241	54.957		38.82		
					C	13.934	28.807		67.40		
T4 260.00-240.00	250.00	1.783	37	255.594	A	19.443	28.800	28.800	59.70	0.000	0.000
					B	24.159	57.725		35.17		
					C	19.443	28.800		59.70		
T5 240.00-220.00	230.00	1.741	36	296.093	A	29.581	28.798	28.798	49.33	0.000	0.000
					B	33.073	60.498		30.78		
					C	29.581	28.798		49.33		
T6 220.00-200.00	210.00	1.697	35	336.193	A	24.136	28.798	28.798	54.40	0.000	0.000
					B	28.900	60.498		32.21		
					C	21.026	68.398		32.20		
T7 200.00-180.00	190.00	1.649	34	381.042	A	23.330	75.501	35.901	36.33	0.000	0.000
					B	31.203	67.601		36.34		
					C	23.330	75.501		36.33		
T8 180.00-160.00	170.00	1.597	33	423.141	A	25.852	75.498	35.898	35.42	0.000	0.000
					B	33.725	67.598		35.43		
					C	27.674	75.498		34.79		
T9 160.00-140.00	150.00	1.541	32	463.037	A	35.413	75.488	35.888	32.36	0.000	0.000
					B	43.287	67.588		32.37		
					C	37.797	75.488		31.68		
T10 140.00-120.00	130.00	1.48	31	503.943	A	38.616	75.504	35.904	31.46	0.000	0.000
					B	45.823	75.004		29.72		
					C	41.004	75.504		30.82		
T11 120.00-100.00	110.00	1.411	29	551.554	A	0.000	108.112	35.933	33.24	0.000	0.000
					B	9.117	104.259		31.69		
					C	4.591	100.540		34.18		
T12 100.00-80.00	90.00	1.332	28	602.352	A	0.000	110.303	35.927	32.57	0.000	0.000
					B	11.478	111.311		29.26		
					C	5.247	102.296		33.41		
T13 80.00-60.00	70.00	1.24	26	657.397	A	0.000	121.332	42.626	35.13	0.000	0.000
					B	11.478	122.122		31.91		
					C	5.247	111.148		36.62		
T14 60.00-30.00	45.00	1.093	23	1081.034	A	0.000	181.831	63.908	35.15	0.000	0.000
					B	17.217	186.700		31.34		
					C	7.871	174.188		35.10		
T15 30.00-0.00	15.00	1	21	1194.292	A	0.000	191.513	63.928	33.38	0.000	0.000
					B	17.217	195.240		30.09		
					C	7.871	181.701		33.72		

ERITower	Job: 320' Rohn SSVMW	Page: 17 of 55
URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-3991	Project: CSP Tower - Colchester, CT	Date: 16:13:44 04/03/06
	Client: Cingular Wireless	Designed by: Jed Kiernan

Tower Pressure - With Ice

$G_H = 1.084$

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1 320.00-300.00	310.00	1.897	39	0.5000	147.138	A	16.101	21.877	21.877	57.60	0.000	0.000
						B	23.442	39.460		34.78		
						C	16.101	21.877		57.60		
T2 300.00-280.00	290.00	1.861	39	0.5000	169.325	A	16.795	25.461	25.461	60.25	0.000	0.000
						B	23.867	47.967		35.44		
						C	16.795	25.461		60.25		
T3 280.00-260.00	270.00	1.823	38	0.5000	214.966	A	17.649	32.147	32.147	64.56	0.000	0.000
						B	23.380	76.631		32.14		
						C	17.649	32.147		64.56		
T4 260.00-240.00	250.00	1.783	37	0.5000	257.263	A	23.764	32.139	32.139	57.49	0.000	0.000
						B	28.404	81.897		29.14		
						C	23.764	32.139		57.49		
T5 240.00-220.00	230.00	1.741	36	0.5000	297.762	A	34.511	32.137	32.137	48.22	0.000	0.000
						B	36.948	87.171		25.89		
						C	34.511	32.137		48.22		
T6 220.00-200.00	210.00	1.697	35	0.5000	337.862	A	28.158	32.137	32.137	53.30	0.000	0.000
						B	33.142	87.170		26.71		
						C	22.699	91.737		28.08		
T7 200.00-180.00	190.00	1.649	34	0.5000	382.711	A	25.442	98.841	39.241	31.57	0.000	0.000
						B	35.909	94.274		30.14		
						C	25.442	98.841		31.57		
T8 180.00-160.00	170.00	1.597	33	0.5000	424.810	A	28.426	98.837	39.237	30.83	0.000	0.000
						B	38.910	94.271		29.46		
						C	30.948	98.837		30.23		
T9 160.00-140.00	150.00	1.541	32	0.5000	464.706	A	38.064	98.826	39.226	28.66	0.000	0.000
						B	48.408	94.259		27.49		
						C	41.354	98.826		27.98		
T10 140.00-120.00	130.00	1.48	31	0.5000	505.612	A	41.722	98.844	39.244	27.92	0.000	0.000
						B	50.642	108.344		24.68		
						C	45.019	98.844		27.28		
T11 120.00-100.00	110.00	1.411	29	0.5000	553.224	A	0.000	140.454	39.275	27.96	0.000	0.000
						B	13.395	144.358		24.90		
						C	6.536	129.978		28.77		
T12 100.00-80.00	90.00	1.332	28	0.5000	604.022	A	0.000	143.481	39.269	27.37	0.000	0.000
						B	17.033	156.464		22.63		
						C	7.470	132.394		28.08		
T13 80.00-60.00	70.00	1.24	26	0.5000	659.068	A	0.000	155.248	45.969	29.61	0.000	0.000
						B	17.033	168.720		24.75		
						C	7.470	141.845		30.79		
T14 60.00-30.00	45.00	1.093	23	0.5000	1083.539	A	0.000	233.054	68.920	29.57	0.000	0.000
						B	25.550	257.251		24.37		
						C	11.204	221.769		29.58		
T15 30.00-0.00	15.00	1	21	0.5000	1196.797	A	0.000	244.216	68.942	28.23	0.000	0.000
						B	25.550	267.134		23.56		
						C	11.204	230.535		28.52		

Tower Pressure - Service

$G_H = 1.084$

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1 320.00-300.00	310.00	1.897	39	145.472	A	11.659	18.543	18.543	61.40	0.000	0.000
					B	17.958	27.793		40.53		
					C	11.659	18.543		61.40		
T2 300.00-280.00	290.00	1.861	39	167.656	A	12.596	22.122	22.122	63.72	0.000	0.000
					B	18.740	33.962		41.97		
					C	12.596	22.122		63.72		
T3 280.00-260.00	270.00	1.823	38	213.297	A	13.934	28.807	28.807	67.40	0.000	0.000
					B	19.241	54.957		38.82		
					C	13.934	28.807		67.40		
T4 260.00-240.00	250.00	1.783	37	255.594	A	19.443	28.800	28.800	59.70	0.000	0.000
					B	24.159	57.725		35.17		
					C	19.443	28.800		59.70		
T5 240.00-220.00	230.00	1.741	36	296.093	A	29.581	28.798	28.798	49.33	0.000	0.000
					B	33.073	60.498		30.78		
					C	29.581	28.798		49.33		
T6 220.00-200.00	210.00	1.697	35	336.193	A	24.136	28.798	28.798	54.40	0.000	0.000
					B	28.900	60.498		32.21		
					C	21.026	68.398		32.20		
T7 200.00-180.00	190.00	1.649	34	381.042	A	23.330	75.501	35.901	36.33	0.000	0.000
					B	31.203	67.601		36.34		
					C	23.330	75.501		36.33		
T8 180.00-160.00	170.00	1.597	33	423.141	A	25.852	75.498	35.898	35.42	0.000	0.000
					B	33.725	67.598		35.43		
					C	27.674	75.498		34.79		
T9 160.00-140.00	150.00	1.541	32	463.037	A	35.413	75.488	35.888	32.36	0.000	0.000
					B	43.287	67.588		32.37		
					C	37.797	75.488		31.68		
T10 140.00-120.00	130.00	1.48	31	503.943	A	38.616	75.504	35.904	31.46	0.000	0.000
					B	45.823	75.004		29.72		
					C	41.004	75.504		30.82		
T11 120.00-100.00	110.00	1.411	29	551.554	A	0.000	108.112	35.933	33.24	0.000	0.000
					B	9.117	104.259		31.69		
					C	4.591	100.540		34.18		
T12 100.00-80.00	90.00	1.332	28	602.352	A	0.000	110.303	35.927	32.57	0.000	0.000
					B	11.478	111.311		29.26		
					C	5.247	102.296		33.41		
T13 80.00-60.00	70.00	1.24	26	657.397	A	0.000	121.332	42.626	35.13	0.000	0.000
					B	11.478	122.122		31.91		
					C	5.247	111.148		36.62		
T14 60.00-30.00	45.00	1.093	23	1081.034	A	0.000	181.831	63.908	35.15	0.000	0.000
					B	17.217	186.700		31.34		
					C	7.871	174.188		35.10		
T15 30.00-0.00	15.00	1	21	1194.292	A	0.000	191.513	63.928	33.38	0.000	0.000
					B	17.217	195.240		30.09		
					C	7.871	181.701		33.72		

Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1 320.00-300.00	0.08	1.79	A	0.208	2.571	0.592	1	1	22.637	3.39	169.39	B
			B	0.315	2.258	0.62	1	1	35.202			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
			C	0.208	2.571	0.592	1	1	22.637			
T2 300.00-280.00	0.10	2.50	A	0.207	2.573	0.592	1	1	25.689	3.76	187.98	B
			B	0.314	2.259	0.62	1	1	39.810			
			C	0.207	2.573	0.592	1	1	25.689			
T3 280.00-260.00	0.19	3.48	A	0.2	2.595	0.59	1	1	30.944	4.81	240.57	B
			B	0.348	2.176	0.632	1	1	53.959			
			C	0.2	2.595	0.59	1	1	30.944			
T4 260.00-240.00	0.21	3.83	A	0.189	2.634	0.588	1	1	36.382	5.40	270.09	B
			B	0.32	2.243	0.622	1	1	60.084			
			C	0.189	2.634	0.588	1	1	36.382			
T5 240.00-220.00	0.22	4.90	A	0.197	2.605	0.59	1	1	46.567	6.23	311.58	B
			B	0.316	2.254	0.621	1	1	70.638			
			C	0.197	2.605	0.59	1	1	46.567			
T6 220.00-200.00	0.47	4.82	A	0.157	2.744	0.583	1	1	40.915	5.98	298.83	B
			B	0.266	2.391	0.606	1	1	65.565			
			C	0.266	2.39	0.606	1	1	62.481			
T7 200.00-180.00	0.97	5.71	A	0.259	2.41	0.604	1	1	68.956	6.43	321.72	B
			B	0.259	2.41	0.604	1	1	72.054			
			C	0.259	2.41	0.604	1	1	68.956			
T8 180.00-160.00	0.98	5.93	A	0.24	2.469	0.599	1	1	71.095	6.58	329.02	B
			B	0.239	2.47	0.599	1	1	74.233			
			C	0.244	2.456	0.6	1	1	72.996			
T9 160.00-140.00	0.98	6.89	A	0.24	2.469	0.599	1	1	80.649	7.17	358.33	B
			B	0.239	2.47	0.599	1	1	83.788			
			C	0.245	2.454	0.601	1	1	83.129			
T10 140.00-120.00	1.02	7.17	A	0.226	2.51	0.596	1	1	83.628	7.45	372.51	B
			B	0.24	2.469	0.599	1	1	90.774			
			C	0.231	2.495	0.597	1	1	86.099			
T11 120.00-100.00	1.04	6.34	A	0.196	2.609	0.59	1	1	63.742	5.78	289.19	B
			B	0.206	2.578	0.592	1	1	70.791			
			C	0.191	2.628	0.589	1	1	63.762			
T12 100.00-80.00	1.09	6.51	A	0.183	2.653	0.587	1	1	64.759	5.98	298.78	B
			B	0.204	2.583	0.591	1	1	77.284			
			C	0.179	2.669	0.586	1	1	65.219			
T13 80.00-60.00	1.09	7.71	A	0.185	2.648	0.587	1	1	71.267	6.03	301.26	B
			B	0.203	2.585	0.591	1	1	83.660			
			C	0.177	2.674	0.586	1	1	70.379			
T14 60.00-30.00	1.64	11.86	A	0.168	2.706	0.584	1	1	106.267	8.22	273.89	B
			B	0.189	2.634	0.588	1	1	127.024			
			C	0.168	2.705	0.584	1	1	109.678			
T15 30.00-0.00	1.64	14.02	A	0.16	2.734	0.583	1	1	111.674	7.90	263.46	B
			B	0.178	2.671	0.586	1	1	131.655			
			C	0.159	2.74	0.583	1	1	113.776			
Sum Weight:	11.72	93.46						OTM	13947.19 kip-ft	91.11		

Tower Forces - No Ice - Wind 45 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1 320.00-300.00	0.08	1.79	A	0.208	2.571	0.592	0.825	1	20.596	3.09	154.27	B
			B	0.315	2.258	0.62	0.825	1	32.059			
			C	0.208	2.571	0.592	0.825	1	20.596			
T2 300.00-	0.10	2.50	A	0.207	2.573	0.592	0.825	1	23.485	3.45	172.49	B

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
280.00			B	0.314	2.259	0.62	0.825	1	36.530			
			C	0.207	2.573	0.592	0.825	1	23.485			
T3 280.00-260.00	0.19	3.48	A	0.2	2.595	0.59	0.825	1	28.505	4.51	225.56	B
			B	0.348	2.176	0.632	0.825	1	50.591			
			C	0.2	2.595	0.59	0.825	1	28.505			
T4 260.00-240.00	0.21	3.83	A	0.189	2.634	0.588	0.825	1	32.980	5.02	251.08	B
			B	0.32	2.243	0.622	0.825	1	55.856			
			C	0.189	2.634	0.588	0.825	1	32.980			
T5 240.00-220.00	0.22	4.90	A	0.197	2.605	0.59	0.825	1	41.390	5.72	286.05	B
			B	0.316	2.254	0.621	0.825	1	64.850			
			C	0.197	2.605	0.59	0.825	1	41.390			
T6 220.00-200.00	0.47	4.82	A	0.157	2.744	0.583	0.825	1	36.691	5.52	275.78	B
			B	0.266	2.391	0.606	0.825	1	60.508			
			C	0.266	2.39	0.606	0.825	1	58.802			
T7 200.00-180.00	0.97	5.71	A	0.259	2.41	0.604	0.825	1	64.873	5.95	297.34	B
			B	0.259	2.41	0.604	0.825	1	66.594			
			C	0.259	2.41	0.604	0.825	1	64.873			
T8 180.00-160.00	0.98	5.93	A	0.24	2.469	0.599	0.825	1	66.571	6.06	302.86	B
			B	0.239	2.47	0.599	0.825	1	68.331			
			C	0.244	2.456	0.6	0.825	1	68.154			
T9 160.00-140.00	0.98	6.89	A	0.24	2.469	0.599	0.825	1	74.452	6.52	325.93	B
			B	0.239	2.47	0.599	0.825	1	76.213			
			C	0.245	2.454	0.601	0.825	1	76.515			
T10 140.00-120.00	1.02	7.17	A	0.226	2.51	0.596	0.825	1	76.871	6.79	339.60	B
			B	0.24	2.469	0.599	0.825	1	82.755			
			C	0.231	2.495	0.597	0.825	1	78.924			
T11 120.00-100.00	1.04	6.34	A	0.196	2.609	0.59	0.825	1	63.742	5.65	282.68	B
			B	0.206	2.578	0.592	0.825	1	69.196			
			C	0.191	2.628	0.589	0.825	1	62.958			
T12 100.00-80.00	1.09	6.51	A	0.183	2.653	0.587	0.825	1	64.759	5.82	291.01	B
			B	0.204	2.583	0.591	0.825	1	75.276			
			C	0.179	2.669	0.586	0.825	1	64.301			
T13 80.00-60.00	1.09	7.71	A	0.185	2.648	0.587	0.825	1	71.267	5.88	294.03	B
			B	0.203	2.585	0.591	0.825	1	81.651			
			C	0.177	2.674	0.586	0.825	1	69.460			
T14 60.00-30.00	1.64	11.86	A	0.168	2.706	0.584	0.825	1	106.267	8.02	267.39	B
			B	0.189	2.634	0.588	0.825	1	124.011			
			C	0.168	2.705	0.584	0.825	1	108.301			
T15 30.00-0.00	1.64	14.02	A	0.16	2.734	0.583	0.825	1	111.674	7.72	257.43	B
			B	0.178	2.671	0.586	0.825	1	128.642			
			C	0.159	2.74	0.583	0.825	1	112.398			
Sum Weight:	11.72	93.46						OTM	12959.01 kip-ft	85.72		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1 320.00-300.00	0.08	1.79	A	0.208	2.571	0.592	0.8	1	20.305	3.04	152.11	B
			B	0.315	2.258	0.62	0.8	1	31.610			
			C	0.208	2.571	0.592	0.8	1	20.305			
T2 300.00-280.00	0.10	2.50	A	0.207	2.573	0.592	0.8	1	23.170	3.41	170.28	B
			B	0.314	2.259	0.62	0.8	1	36.062			
			C	0.207	2.573	0.592	0.8	1	23.170			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T3 280.00-260.00	0.19	3.48	A	0.2	2.595	0.59	0.8	1	28.157	4.47	223.41	B
			B	0.348	2.176	0.632	0.8	1	50.110			
			C	0.2	2.595	0.59	0.8	1	28.157			
T4 260.00-240.00	0.21	3.83	A	0.189	2.634	0.588	0.8	1	32.494	4.97	248.37	B
			B	0.32	2.243	0.622	0.8	1	55.252			
			C	0.189	2.634	0.588	0.8	1	32.494			
T5 240.00-220.00	0.22	4.90	A	0.197	2.605	0.59	0.8	1	40.651	5.65	282.40	B
			B	0.316	2.254	0.621	0.8	1	64.023			
			C	0.197	2.605	0.59	0.8	1	40.651			
T6 220.00-200.00	0.47	4.82	A	0.157	2.744	0.583	0.8	1	36.088	5.45	272.49	B
			B	0.266	2.391	0.606	0.8	1	59.785			
			C	0.266	2.39	0.606	0.8	1	58.276			
T7 200.00-180.00	0.97	5.71	A	0.259	2.41	0.604	0.8	1	64.290	5.88	293.85	B
			B	0.259	2.41	0.604	0.8	1	65.813			
			C	0.259	2.41	0.604	0.8	1	64.290			
T8 180.00-160.00	0.98	5.93	A	0.24	2.469	0.599	0.8	1	65.924	5.98	299.13	B
			B	0.239	2.47	0.599	0.8	1	67.488			
			C	0.244	2.456	0.6	0.8	1	67.462			
T9 160.00-140.00	0.98	6.89	A	0.24	2.469	0.599	0.8	1	73.567	6.43	321.31	B
			B	0.239	2.47	0.599	0.8	1	75.131			
			C	0.245	2.454	0.601	0.8	1	75.570			
T10 140.00-120.00	1.02	7.17	A	0.226	2.51	0.596	0.8	1	75.905	6.70	334.90	B
			B	0.24	2.469	0.599	0.8	1	81.610			
			C	0.231	2.495	0.597	0.8	1	77.898			
T11 120.00-100.00	1.04	6.34	A	0.196	2.609	0.59	0.8	1	63.742	5.63	281.74	B
			B	0.206	2.578	0.592	0.8	1	68.968			
			C	0.191	2.628	0.589	0.8	1	62.844			
T12 100.00-80.00	1.09	6.51	A	0.183	2.653	0.587	0.8	1	64.759	5.80	289.91	B
			B	0.204	2.583	0.591	0.8	1	74.989			
			C	0.179	2.669	0.586	0.8	1	64.170			
T13 80.00-60.00	1.09	7.71	A	0.185	2.648	0.587	0.8	1	71.267	5.86	292.99	B
			B	0.203	2.585	0.591	0.8	1	81.364			
			C	0.177	2.674	0.586	0.8	1	69.329			
T14 60.00-30.00	1.64	11.86	A	0.168	2.706	0.584	0.8	1	106.267	7.99	266.46	B
			B	0.189	2.634	0.588	0.8	1	123.581			
			C	0.168	2.705	0.584	0.8	1	108.104			
T15 30.00-0.00	1.64	14.02	A	0.16	2.734	0.583	0.8	1	111.674	7.70	256.57	B
			B	0.178	2.671	0.586	0.8	1	128.212			
			C	0.159	2.74	0.583	0.8	1	112.201			
Sum Weight:	11.72	93.46						OTM	12817.84 kip-ft	84.95		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1 320.00-300.00	0.08	1.79	A	0.208	2.571	0.592	0.85	1	20.888	3.13	156.43	B
			B	0.315	2.258	0.62	0.85	1	32.508			
			C	0.208	2.571	0.592	0.85	1	20.888			
T2 300.00-280.00	0.10	2.50	A	0.207	2.573	0.592	0.85	1	23.800	3.49	174.71	B
			B	0.314	2.259	0.62	0.85	1	36.999			
			C	0.207	2.573	0.592	0.85	1	23.800			
T3 280.00-260.00	0.19	3.48	A	0.2	2.595	0.59	0.85	1	28.854	4.55	227.70	B
			B	0.348	2.176	0.632	0.85	1	51.072			

ERITower	Job: 320' Rohn SSVMW	Page: 22 of 55
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	Client: Cingular Wireless	Designed by: Jed Kiernan

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
			C	0.2	2.595	0.59	0.85	1	28.854			
T4 260.00-240.00	0.21	3.83	A	0.189	2.634	0.588	0.85	1	33.466	5.08	253.80	B
			B	0.32	2.243	0.622	0.85	1	56.460			
			C	0.189	2.634	0.588	0.85	1	33.466			
T5 240.00-220.00	0.22	4.90	A	0.197	2.605	0.59	0.85	1	42.130	5.79	289.70	B
			B	0.316	2.254	0.621	0.85	1	65.677			
			C	0.197	2.605	0.59	0.85	1	42.130			
T6 220.00-200.00	0.47	4.82	A	0.157	2.744	0.583	0.85	1	37.294	5.58	279.07	B
			B	0.266	2.391	0.606	0.85	1	61.230			
			C	0.266	2.39	0.606	0.85	1	59.327			
T7 200.00-180.00	0.97	5.71	A	0.259	2.41	0.604	0.85	1	65.457	6.02	300.82	B
			B	0.259	2.41	0.604	0.85	1	67.374			
			C	0.259	2.41	0.604	0.85	1	65.457			
T8 180.00-160.00	0.98	5.93	A	0.24	2.469	0.599	0.85	1	67.217	6.13	306.60	B
			B	0.239	2.47	0.599	0.85	1	69.174			
			C	0.244	2.456	0.6	0.85	1	68.845			
T9 160.00-140.00	0.98	6.89	A	0.24	2.469	0.599	0.85	1	75.337	6.61	330.56	B
			B	0.239	2.47	0.599	0.85	1	77.295			
			C	0.245	2.454	0.601	0.85	1	77.460			
T10 140.00-120.00	1.02	7.17	A	0.226	2.51	0.596	0.85	1	77.836	6.89	344.31	B
			B	0.24	2.469	0.599	0.85	1	83.901			
			C	0.231	2.495	0.597	0.85	1	79.949			
T11 120.00-100.00	1.04	6.34	A	0.196	2.609	0.59	0.85	1	63.742	5.67	283.61	B
			B	0.206	2.578	0.592	0.85	1	69.424			
			C	0.191	2.628	0.589	0.85	1	63.073			
T12 100.00-80.00	1.09	6.51	A	0.183	2.653	0.587	0.85	1	64.759	5.84	292.12	B
			B	0.204	2.583	0.591	0.85	1	75.563			
			C	0.179	2.669	0.586	0.85	1	64.432			
T13 80.00-60.00	1.09	7.71	A	0.185	2.648	0.587	0.85	1	71.267	5.90	295.06	B
			B	0.203	2.585	0.591	0.85	1	81.938			
			C	0.177	2.674	0.586	0.85	1	69.592			
T14 60.00-30.00	1.64	11.86	A	0.168	2.706	0.584	0.85	1	106.267	8.05	268.32	B
			B	0.189	2.634	0.588	0.85	1	124.441			
			C	0.168	2.705	0.584	0.85	1	108.497			
T15 30.00-0.00	1.64	14.02	A	0.16	2.734	0.583	0.85	1	111.674	7.75	258.29	B
			B	0.178	2.671	0.586	0.85	1	129.072			
			C	0.159	2.74	0.583	0.85	1	112.595			
Sum Weight:	11.72	93.46						OTM	13100.18 kip-ft	86.49		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1 320.00-300.00	0.26	2.46	A	0.258	2.413	0.604	1	1	29.314	4.25	212.72	B
			B	0.428	2.012	0.663	1	1	49.612			
			C	0.258	2.413	0.604	1	1	29.314			
T2 300.00-280.00	0.31	3.23	A	0.25	2.439	0.602	1	1	32.116	4.69	234.63	B
			B	0.424	2.018	0.662	1	1	55.611			
			C	0.25	2.439	0.602	1	1	32.116			
T3 280.00-260.00	0.53	4.32	A	0.232	2.494	0.597	1	1	36.853	6.03	301.55	B
			B	0.465	1.949	0.68	1	1	75.518			
			C	0.232	2.494	0.597	1	1	36.853			
T4 260.00-	0.58	4.83	A	0.217	2.539	0.594	1	1	42.857	6.67	333.34	B

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	Client: Cingular Wireless	Designed by: Jed Kiernan

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
240.00			B	0.429	2.01	0.664	1	1	82.764			
			C	0.217	2.539	0.594	1	1	42.857			
T5 240.00-220.00	0.62	6.22	A	0.224	2.518	0.596	1	1	53.651	7.50	375.11	B
			B	0.417	2.032	0.659	1	1	94.359			
			C	0.224	2.518	0.596	1	1	53.651			
T6 220.00-200.00	1.23	5.95	A	0.178	2.67	0.586	1	1	46.998	7.28	363.89	B
			B	0.356	2.157	0.635	1	1	88.467			
			C	0.339	2.198	0.629	1	1	80.356			
T7 200.00-180.00	2.46	7.00	A	0.325	2.232	0.624	1	1	87.097	7.74	387.14	B
			B	0.34	2.195	0.629	1	1	95.208			
			C	0.325	2.232	0.624	1	1	87.097			
T8 180.00-160.00	2.49	7.29	A	0.3	2.297	0.616	1	1	89.287	7.90	395.08	B
			B	0.314	2.261	0.62	1	1	97.369			
			C	0.306	2.281	0.618	1	1	91.990			
T9 160.00-140.00	2.50	8.55	A	0.295	2.311	0.614	1	1	98.768	8.41	420.71	B
			B	0.307	2.278	0.618	1	1	106.667			
			C	0.302	2.292	0.616	1	1	102.271			
T10 140.00-120.00	2.62	8.93	A	0.278	2.356	0.609	1	1	101.960	8.85	442.47	B
			B	0.314	2.258	0.62	1	1	117.861			
			C	0.285	2.338	0.611	1	1	105.441			
T11 120.00-100.00	2.68	7.69	A	0.254	2.426	0.603	1	1	84.676	7.53	376.44	B
			B	0.285	2.336	0.611	1	1	101.665			
			C	0.247	2.447	0.601	1	1	84.660			
T12 100.00-80.00	2.82	7.91	A	0.238	2.475	0.599	1	1	85.913	7.87	393.43	B
			B	0.287	2.331	0.612	1	1	112.802			
			C	0.232	2.494	0.597	1	1	86.554			
T13 80.00-60.00	2.83	9.27	A	0.236	2.482	0.598	1	1	92.884	7.84	392.16	B
			B	0.282	2.345	0.611	1	1	120.039			
			C	0.227	2.51	0.596	1	1	92.034			
T14 60.00-30.00	4.25	14.28	A	0.215	2.546	0.594	1	1	138.339	10.70	356.51	B
			B	0.261	2.405	0.605	1	1	181.120			
			C	0.215	2.547	0.594	1	1	142.842			
T15 30.00-0.00	4.25	16.66	A	0.204	2.583	0.591	1	1	144.389	10.25	341.83	B
			B	0.245	2.454	0.601	1	1	185.965			
			C	0.202	2.589	0.591	1	1	147.406			
Sum Weight:	30.44	114.60						OTM	17175.97 kip-ft	113.52		

Tower Forces - With Ice - Wind 45 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1 320.00-300.00	0.26	2.46	A	0.258	2.413	0.604	0.825	1	26.496	3.90	195.13	B
			B	0.428	2.012	0.663	0.825	1	45.510			
			C	0.258	2.413	0.604	0.825	1	26.496			
T2 300.00-280.00	0.31	3.23	A	0.25	2.439	0.602	0.825	1	29.177	4.34	217.00	B
			B	0.424	2.018	0.662	0.825	1	51.435			
			C	0.25	2.439	0.602	0.825	1	29.177			
T3 280.00-260.00	0.53	4.32	A	0.232	2.494	0.597	0.825	1	33.765	5.70	285.21	B
			B	0.465	1.949	0.68	0.825	1	71.427			
			C	0.232	2.494	0.597	0.825	1	33.765			
T4 260.00-240.00	0.58	4.83	A	0.217	2.539	0.594	0.825	1	38.698	6.27	313.32	B
			B	0.429	2.01	0.664	0.825	1	77.793			
			C	0.217	2.539	0.594	0.825	1	38.698			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T5 240.00-220.00	0.62	6.22	A	0.224	2.518	0.596	0.825	1	47.611	6.99	349.40	B
			B	0.417	2.032	0.659	0.825	1	87.894			
			C	0.224	2.518	0.596	0.825	1	47.611			
T6 220.00-200.00	1.23	5.95	A	0.178	2.67	0.586	0.825	1	42.071	6.80	340.03	B
			B	0.356	2.157	0.635	0.825	1	82.667			
			C	0.339	2.198	0.629	0.825	1	76.384			
T7 200.00-180.00	2.46	7.00	A	0.325	2.232	0.624	0.825	1	82.645	7.23	361.58	B
			B	0.34	2.195	0.629	0.825	1	88.924			
			C	0.325	2.232	0.624	0.825	1	82.645			
T8 180.00-160.00	2.49	7.29	A	0.3	2.297	0.616	0.825	1	84.312	7.35	367.45	B
			B	0.314	2.261	0.62	0.825	1	90.560			
			C	0.306	2.281	0.618	0.825	1	86.574			
T9 160.00-140.00	2.50	8.55	A	0.295	2.311	0.614	0.825	1	92.107	7.75	387.30	B
			B	0.307	2.278	0.618	0.825	1	98.195			
			C	0.302	2.292	0.616	0.825	1	95.034			
T10 140.00-120.00	2.62	8.93	A	0.278	2.356	0.609	0.825	1	94.658	8.18	409.20	B
			B	0.314	2.258	0.62	0.825	1	108.999			
			C	0.285	2.338	0.611	0.825	1	97.563			
T11 120.00-100.00	2.68	7.69	A	0.254	2.426	0.603	0.825	1	84.676	7.36	367.76	B
			B	0.285	2.336	0.611	0.825	1	99.321			
			C	0.247	2.447	0.601	0.825	1	83.516			
T12 100.00-80.00	2.82	7.91	A	0.238	2.475	0.599	0.825	1	85.913	7.66	383.03	B
			B	0.287	2.331	0.612	0.825	1	109.821			
			C	0.232	2.494	0.597	0.825	1	85.247			
T13 80.00-60.00	2.83	9.27	A	0.236	2.482	0.598	0.825	1	92.884	7.65	382.42	B
			B	0.282	2.345	0.611	0.825	1	117.058			
			C	0.227	2.51	0.596	0.825	1	90.727			
T14 60.00-30.00	4.25	14.28	A	0.215	2.546	0.594	0.825	1	138.339	10.43	347.71	B
			B	0.261	2.405	0.605	0.825	1	176.649			
			C	0.215	2.547	0.594	0.825	1	140.881			
T15 30.00-0.00	4.25	16.66	A	0.204	2.583	0.591	0.825	1	144.389	10.01	333.61	B
			B	0.245	2.454	0.601	0.825	1	181.494			
			C	0.202	2.589	0.591	0.825	1	145.445			
Sum Weight:	30.44	114.60						OTM	16113.15 kip-ft	107.62		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1 320.00-300.00	0.26	2.46	A	0.258	2.413	0.604	0.8	1	26.094	3.85	192.62	B
			B	0.428	2.012	0.663	0.8	1	44.924			
			C	0.258	2.413	0.604	0.8	1	26.094			
T2 300.00-280.00	0.31	3.23	A	0.25	2.439	0.602	0.8	1	28.757	4.29	214.49	B
			B	0.424	2.018	0.662	0.8	1	50.838			
			C	0.25	2.439	0.602	0.8	1	28.757			
T3 280.00-260.00	0.53	4.32	A	0.232	2.494	0.597	0.8	1	33.323	5.66	282.87	B
			B	0.465	1.949	0.68	0.8	1	70.842			
			C	0.232	2.494	0.597	0.8	1	33.323			
T4 260.00-240.00	0.58	4.83	A	0.217	2.539	0.594	0.8	1	38.104	6.21	310.46	B
			B	0.429	2.01	0.664	0.8	1	77.083			
			C	0.217	2.539	0.594	0.8	1	38.104			
T5 240.00-220.00	0.62	6.22	A	0.224	2.518	0.596	0.8	1	46.748	6.91	345.73	B
			B	0.417	2.032	0.659	0.8	1	86.970			

ERITower	Job: 320' Rohn SSVMW	Page: 25 of 55
URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-3991	Project: CSP Tower - Colchester, CT	Date: 16:13:44 04/03/06
	Client: Cingular Wireless	Designed by: Jed Kiernan

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
			C	0.224	2.518	0.596	0.8	1	46.748			
T6 220.00-200.00	1.23	5.95	A	0.178	2.67	0.586	0.8	1	41.367	6.73	336.62	B
			B	0.356	2.157	0.635	0.8	1	81.838			
			C	0.339	2.198	0.629	0.8	1	75.816			
T7 200.00-180.00	2.46	7.00	A	0.325	2.232	0.624	0.8	1	82.009	7.16	357.93	B
			B	0.34	2.195	0.629	0.8	1	88.027			
			C	0.325	2.232	0.624	0.8	1	82.009			
T8 180.00-160.00	2.49	7.29	A	0.3	2.297	0.616	0.8	1	83.602	7.27	363.50	B
			B	0.314	2.261	0.62	0.8	1	89.587			
			C	0.306	2.281	0.618	0.8	1	85.800			
T9 160.00-140.00	2.50	8.55	A	0.295	2.311	0.614	0.8	1	91.155	7.65	382.52	B
			B	0.307	2.278	0.618	0.8	1	96.985			
			C	0.302	2.292	0.616	0.8	1	94.000			
T10 140.00-120.00	2.62	8.93	A	0.278	2.356	0.609	0.8	1	93.615	8.09	404.45	B
			B	0.314	2.258	0.62	0.8	1	107.733			
			C	0.285	2.338	0.611	0.8	1	96.437			
T11 120.00-100.00	2.68	7.69	A	0.254	2.426	0.603	0.8	1	84.676	7.33	366.52	B
			B	0.285	2.336	0.611	0.8	1	98.986			
			C	0.247	2.447	0.601	0.8	1	83.353			
T12 100.00-80.00	2.82	7.91	A	0.238	2.475	0.599	0.8	1	85.913	7.63	381.55	B
			B	0.287	2.331	0.612	0.8	1	109.395			
			C	0.232	2.494	0.597	0.8	1	85.061			
T13 80.00-60.00	2.83	9.27	A	0.236	2.482	0.598	0.8	1	92.884	7.62	381.03	B
			B	0.282	2.345	0.611	0.8	1	116.632			
			C	0.227	2.51	0.596	0.8	1	90.540			
T14 60.00-30.00	4.25	14.28	A	0.215	2.546	0.594	0.8	1	138.339	10.39	346.45	B
			B	0.261	2.405	0.605	0.8	1	176.010			
			C	0.215	2.547	0.594	0.8	1	140.601			
T15 30.00-0.00	4.25	16.66	A	0.204	2.583	0.591	0.8	1	144.389	9.97	332.44	B
			B	0.245	2.454	0.601	0.8	1	180.855			
			C	0.202	2.589	0.591	0.8	1	145.165			
Sum Weight:	30.44	114.60						OTM	15961.32 kip-ft	106.77		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1 320.00-300.00	0.26	2.46	A	0.258	2.413	0.604	0.85	1	26.899	3.95	197.64	B
			B	0.428	2.012	0.663	0.85	1	46.096			
			C	0.258	2.413	0.604	0.85	1	26.899			
T2 300.00-280.00	0.31	3.23	A	0.25	2.439	0.602	0.85	1	29.597	4.39	219.52	B
			B	0.424	2.018	0.662	0.85	1	52.031			
			C	0.25	2.439	0.602	0.85	1	29.597			
T3 280.00-260.00	0.53	4.32	A	0.232	2.494	0.597	0.85	1	34.206	5.75	287.54	B
			B	0.465	1.949	0.68	0.85	1	72.011			
			C	0.232	2.494	0.597	0.85	1	34.206			
T4 260.00-240.00	0.58	4.83	A	0.217	2.539	0.594	0.85	1	39.293	6.32	316.18	B
			B	0.429	2.01	0.664	0.85	1	78.503			
			C	0.217	2.539	0.594	0.85	1	39.293			
T5 240.00-220.00	0.62	6.22	A	0.224	2.518	0.596	0.85	1	48.474	7.06	353.08	B
			B	0.417	2.032	0.659	0.85	1	88.817			
			C	0.224	2.518	0.596	0.85	1	48.474			
T6 220.00-	1.23	5.95	A	0.178	2.67	0.586	0.85	1	42.775	6.87	343.44	B

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
200.00			B	0.356	2.157	0.635	0.85	1	83.495			
			C	0.339	2.198	0.629	0.85	1	76.951			
T7 200.00-180.00	2.46	7.00	A	0.325	2.232	0.624	0.85	1	83.281	7.30	365.23	B
			B	0.34	2.195	0.629	0.85	1	89.822			
			C	0.325	2.232	0.624	0.85	1	83.281			
T8 180.00-160.00	2.49	7.29	A	0.3	2.297	0.616	0.85	1	85.023	7.43	371.40	B
			B	0.314	2.261	0.62	0.85	1	91.533			
			C	0.306	2.281	0.618	0.85	1	87.348			
T9 160.00-140.00	2.50	8.55	A	0.295	2.311	0.614	0.85	1	93.058	7.84	392.07	B
			B	0.307	2.278	0.618	0.85	1	99.406			
			C	0.302	2.292	0.616	0.85	1	96.068			
T10 140.00-120.00	2.62	8.93	A	0.278	2.356	0.609	0.85	1	95.701	8.28	413.95	B
			B	0.314	2.258	0.62	0.85	1	110.265			
			C	0.285	2.338	0.611	0.85	1	98.688			
T11 120.00-100.00	2.68	7.69	A	0.254	2.426	0.603	0.85	1	84.676	7.38	369.00	B
			B	0.285	2.336	0.611	0.85	1	99.656			
			C	0.247	2.447	0.601	0.85	1	83.679			
T12 100.00-80.00	2.82	7.91	A	0.238	2.475	0.599	0.85	1	85.913	7.69	384.52	B
			B	0.287	2.331	0.612	0.85	1	110.247			
			C	0.232	2.494	0.597	0.85	1	85.434			
T13 80.00-60.00	2.83	9.27	A	0.236	2.482	0.598	0.85	1	92.884	7.68	383.81	B
			B	0.282	2.345	0.611	0.85	1	117.484			
			C	0.227	2.51	0.596	0.85	1	90.914			
T14 60.00-30.00	4.25	14.28	A	0.215	2.546	0.594	0.85	1	138.339	10.47	348.97	B
			B	0.261	2.405	0.605	0.85	1	177.288			
			C	0.215	2.547	0.594	0.85	1	141.161			
T15 30.00-0.00	4.25	16.66	A	0.204	2.583	0.591	0.85	1	144.389	10.04	334.79	B
			B	0.245	2.454	0.601	0.85	1	182.132			
			C	0.202	2.589	0.591	0.85	1	145.725			
Sum Weight:	30.44	114.60						OTM	16264.98 kip-ft	108.46		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1 320.00-300.00	0.08	1.79	A	0.208	2.571	0.592	1	1	22.637	3.39	169.39	B
			B	0.315	2.258	0.62	1	1	35.202			
			C	0.208	2.571	0.592	1	1	22.637			
T2 300.00-280.00	0.10	2.50	A	0.207	2.573	0.592	1	1	25.689	3.76	187.98	B
			B	0.314	2.259	0.62	1	1	39.810			
			C	0.207	2.573	0.592	1	1	25.689			
T3 280.00-260.00	0.19	3.48	A	0.2	2.595	0.59	1	1	30.944	4.81	240.57	B
			B	0.348	2.176	0.632	1	1	53.959			
			C	0.2	2.595	0.59	1	1	30.944			
T4 260.00-240.00	0.21	3.83	A	0.189	2.634	0.588	1	1	36.382	5.40	270.09	B
			B	0.32	2.243	0.622	1	1	60.084			
			C	0.189	2.634	0.588	1	1	36.382			
T5 240.00-220.00	0.22	4.90	A	0.197	2.605	0.59	1	1	46.567	6.23	311.58	B
			B	0.316	2.254	0.621	1	1	70.638			
			C	0.197	2.605	0.59	1	1	46.567			
T6 220.00-200.00	0.47	4.82	A	0.157	2.744	0.583	1	1	40.915	5.98	298.83	B
			B	0.266	2.391	0.606	1	1	65.565			
			C	0.266	2.39	0.606	1	1	62.481			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
			C	0.259	2.41	0.604	0.825	1	64.873			
T8 180.00-160.00	0.98	5.93	A	0.24	2.469	0.599	0.825	1	66.571	6.06	302.86	B
			B	0.239	2.47	0.599	0.825	1	68.331			
			C	0.244	2.456	0.6	0.825	1	68.154			
T9 160.00-140.00	0.98	6.89	A	0.24	2.469	0.599	0.825	1	74.452	6.52	325.93	B
			B	0.239	2.47	0.599	0.825	1	76.213			
			C	0.245	2.454	0.601	0.825	1	76.515			
T10 140.00-120.00	1.02	7.17	A	0.226	2.51	0.596	0.825	1	76.871	6.79	339.60	B
			B	0.24	2.469	0.599	0.825	1	82.755			
			C	0.231	2.495	0.597	0.825	1	78.924			
T11 120.00-100.00	1.04	6.34	A	0.196	2.609	0.59	0.825	1	63.742	5.65	282.68	B
			B	0.206	2.578	0.592	0.825	1	69.196			
			C	0.191	2.628	0.589	0.825	1	62.958			
T12 100.00-80.00	1.09	6.51	A	0.183	2.653	0.587	0.825	1	64.759	5.82	291.01	B
			B	0.204	2.583	0.591	0.825	1	75.276			
			C	0.179	2.669	0.586	0.825	1	64.301			
T13 80.00-60.00	1.09	7.71	A	0.185	2.648	0.587	0.825	1	71.267	5.88	294.03	B
			B	0.203	2.585	0.591	0.825	1	81.651			
			C	0.177	2.674	0.586	0.825	1	69.460			
T14 60.00-30.00	1.64	11.86	A	0.168	2.706	0.584	0.825	1	106.267	8.02	267.39	B
			B	0.189	2.634	0.588	0.825	1	124.011			
			C	0.168	2.705	0.584	0.825	1	108.301			
T15 30.00-0.00	1.64	14.02	A	0.16	2.734	0.583	0.825	1	111.674	7.72	257.43	B
			B	0.178	2.671	0.586	0.825	1	128.642			
			C	0.159	2.74	0.583	0.825	1	112.398			
Sum Weight:	11.72	93.46						OTM	12959.01 kip-ft	85.72		

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1 320.00-300.00	0.08	1.79	A	0.208	2.571	0.592	0.8	1	20.305	3.04	152.11	B
			B	0.315	2.258	0.62	0.8	1	31.610			
			C	0.208	2.571	0.592	0.8	1	20.305			
T2 300.00-280.00	0.10	2.50	A	0.207	2.573	0.592	0.8	1	23.170	3.41	170.28	B
			B	0.314	2.259	0.62	0.8	1	36.062			
			C	0.207	2.573	0.592	0.8	1	23.170			
T3 280.00-260.00	0.19	3.48	A	0.2	2.595	0.59	0.8	1	28.157	4.47	223.41	B
			B	0.348	2.176	0.632	0.8	1	50.110			
			C	0.2	2.595	0.59	0.8	1	28.157			
T4 260.00-240.00	0.21	3.83	A	0.189	2.634	0.588	0.8	1	32.494	4.97	248.37	B
			B	0.32	2.243	0.622	0.8	1	55.252			
			C	0.189	2.634	0.588	0.8	1	32.494			
T5 240.00-220.00	0.22	4.90	A	0.197	2.605	0.59	0.8	1	40.651	5.65	282.40	B
			B	0.316	2.254	0.621	0.8	1	64.023			
			C	0.197	2.605	0.59	0.8	1	40.651			
T6 220.00-200.00	0.47	4.82	A	0.157	2.744	0.583	0.8	1	36.088	5.45	272.49	B
			B	0.266	2.391	0.606	0.8	1	59.785			
			C	0.266	2.39	0.606	0.8	1	58.276			
T7 200.00-180.00	0.97	5.71	A	0.259	2.41	0.604	0.8	1	64.290	5.88	293.85	B
			B	0.259	2.41	0.604	0.8	1	65.813			
			C	0.259	2.41	0.604	0.8	1	64.290			
T8 180.00-	0.98	5.93	A	0.24	2.469	0.599	0.8	1	65.924	5.98	299.13	B

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
160.00			B	0.239	2.47	0.599	0.8	1	67.488			
			C	0.244	2.456	0.6	0.8	1	67.462			
T9 160.00-140.00	0.98	6.89	A	0.24	2.469	0.599	0.8	1	73.567	6.43	321.31	B
			B	0.239	2.47	0.599	0.8	1	75.131			
			C	0.245	2.454	0.601	0.8	1	75.570			
T10 140.00-120.00	1.02	7.17	A	0.226	2.51	0.596	0.8	1	75.905	6.70	334.90	B
			B	0.24	2.469	0.599	0.8	1	81.610			
			C	0.231	2.495	0.597	0.8	1	77.898			
T11 120.00-100.00	1.04	6.34	A	0.196	2.609	0.59	0.8	1	63.742	5.63	281.74	B
			B	0.206	2.578	0.592	0.8	1	68.968			
			C	0.191	2.628	0.589	0.8	1	62.844			
T12 100.00-80.00	1.09	6.51	A	0.183	2.653	0.587	0.8	1	64.759	5.80	289.91	B
			B	0.204	2.583	0.591	0.8	1	74.989			
			C	0.179	2.669	0.586	0.8	1	64.170			
T13 80.00-60.00	1.09	7.71	A	0.185	2.648	0.587	0.8	1	71.267	5.86	292.99	B
			B	0.203	2.585	0.591	0.8	1	81.364			
			C	0.177	2.674	0.586	0.8	1	69.329			
T14 60.00-30.00	1.64	11.86	A	0.168	2.706	0.584	0.8	1	106.267	7.99	266.46	B
			B	0.189	2.634	0.588	0.8	1	123.581			
			C	0.168	2.705	0.584	0.8	1	108.104			
T15 30.00-0.00	1.64	14.02	A	0.16	2.734	0.583	0.8	1	111.674	7.70	256.57	B
			B	0.178	2.671	0.586	0.8	1	128.212			
			C	0.159	2.74	0.583	0.8	1	112.201			
Sum Weight:	11.72	93.46						OTM	12817.84 kip-ft	84.95		

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1 320.00-300.00	0.08	1.79	A	0.208	2.571	0.592	0.85	1	20.888	3.13	156.43	B
			B	0.315	2.258	0.62	0.85	1	32.508			
			C	0.208	2.571	0.592	0.85	1	20.888			
T2 300.00-280.00	0.10	2.50	A	0.207	2.573	0.592	0.85	1	23.800	3.49	174.71	B
			B	0.314	2.259	0.62	0.85	1	36.999			
			C	0.207	2.573	0.592	0.85	1	23.800			
T3 280.00-260.00	0.19	3.48	A	0.2	2.595	0.59	0.85	1	28.854	4.55	227.70	B
			B	0.348	2.176	0.632	0.85	1	51.072			
			C	0.2	2.595	0.59	0.85	1	28.854			
T4 260.00-240.00	0.21	3.83	A	0.189	2.634	0.588	0.85	1	33.466	5.08	253.80	B
			B	0.32	2.243	0.622	0.85	1	56.460			
			C	0.189	2.634	0.588	0.85	1	33.466			
T5 240.00-220.00	0.22	4.90	A	0.197	2.605	0.59	0.85	1	42.130	5.79	289.70	B
			B	0.316	2.254	0.621	0.85	1	65.677			
			C	0.197	2.605	0.59	0.85	1	42.130			
T6 220.00-200.00	0.47	4.82	A	0.157	2.744	0.583	0.85	1	37.294	5.58	279.07	B
			B	0.266	2.391	0.606	0.85	1	61.230			
			C	0.266	2.39	0.606	0.85	1	59.327			
T7 200.00-180.00	0.97	5.71	A	0.259	2.41	0.604	0.85	1	65.457	6.02	300.82	B
			B	0.259	2.41	0.604	0.85	1	67.374			
			C	0.259	2.41	0.604	0.85	1	65.457			
T8 180.00-160.00	0.98	5.93	A	0.24	2.469	0.599	0.85	1	67.217	6.13	306.60	B
			B	0.239	2.47	0.599	0.85	1	69.174			
			C	0.244	2.456	0.6	0.85	1	68.845			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T9 160.00-140.00	0.98	6.89	A	0.24	2.469	0.599	0.85	1	75.337	6.61	330.56	B
			B	0.239	2.47	0.599	0.85	1	77.295			
			C	0.245	2.454	0.601	0.85	1	77.460			
T10 140.00-120.00	1.02	7.17	A	0.226	2.51	0.596	0.85	1	77.836	6.89	344.31	B
			B	0.24	2.469	0.599	0.85	1	83.901			
			C	0.231	2.495	0.597	0.85	1	79.949			
T11 120.00-100.00	1.04	6.34	A	0.196	2.609	0.59	0.85	1	63.742	5.67	283.61	B
			B	0.206	2.578	0.592	0.85	1	69.424			
			C	0.191	2.628	0.589	0.85	1	63.073			
T12 100.00-80.00	1.09	6.51	A	0.183	2.653	0.587	0.85	1	64.759	5.84	292.12	B
			B	0.204	2.583	0.591	0.85	1	75.563			
			C	0.179	2.669	0.586	0.85	1	64.432			
T13 80.00-60.00	1.09	7.71	A	0.185	2.648	0.587	0.85	1	71.267	5.90	295.06	B
			B	0.203	2.585	0.591	0.85	1	81.938			
			C	0.177	2.674	0.586	0.85	1	69.592			
T14 60.00-30.00	1.64	11.86	A	0.168	2.706	0.584	0.85	1	106.267	8.05	268.32	B
			B	0.189	2.634	0.588	0.85	1	124.441			
			C	0.168	2.705	0.584	0.85	1	108.497			
T15 30.00-0.00	1.64	14.02	A	0.16	2.734	0.583	0.85	1	111.674	7.75	258.29	B
			B	0.178	2.671	0.586	0.85	1	129.072			
			C	0.159	2.74	0.583	0.85	1	112.595			
Sum Weight:	11.72	93.46						OTM	13100.18 kip-ft	86.49		

Force Totals

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Leg Weight	50.33					
Bracing Weight	43.13					
Total Member Self-Weight	93.46			67.25	-5.07	
Total Weight	112.48			67.25	-5.07	
Wind 0 deg - No Ice		0.00	-112.12	-18679.55	-5.07	140.35
Wind 30 deg - No Ice		53.75	-93.10	-15434.43	-8954.97	177.85
Wind 45 deg - No Ice		75.47	-75.47	-12490.00	-12562.32	180.39
Wind 60 deg - No Ice		91.77	-52.98	-8741.48	-15262.24	170.58
Wind 90 deg - No Ice		107.50	0.00	67.25	-17904.86	122.56
Wind 120 deg - No Ice		97.10	56.06	9440.65	-16240.28	41.69
Wind 135 deg - No Ice		75.47	75.47	12624.49	-12562.32	-8.63
Wind 150 deg - No Ice		53.75	93.10	15568.92	-8954.97	-55.30
Wind 180 deg - No Ice		0.00	105.96	17684.70	-5.07	-132.70
Wind 210 deg - No Ice		-53.75	93.10	15568.92	8944.82	-177.85
Wind 225 deg - No Ice		-75.47	75.47	12624.49	12552.17	-180.39
Wind 240 deg - No Ice		-97.10	56.06	9440.65	16230.13	-182.03
Wind 270 deg - No Ice		-107.50	0.00	67.25	17894.72	-122.56
Wind 300 deg - No Ice		-91.77	-52.98	-8741.48	15252.09	-37.88
Wind 315 deg - No Ice		-75.47	-75.47	-12490.00	12552.17	8.63
Wind 330 deg - No Ice		-53.75	-93.10	-15434.43	8944.82	55.30
Member Ice	21.14					
Total Weight Ice	156.52			176.65	-37.88	
Wind 0 deg - Ice		0.00	-138.25	-22647.11	-37.88	221.13
Wind 30 deg - Ice		66.59	-115.34	-18800.37	-10994.27	281.42
Wind 45 deg - Ice		93.58	-93.58	-15210.66	-15425.19	285.76
Wind 60 deg - Ice		113.88	-65.75	-10627.91	-18751.92	270.60

Comb. No.	Description
23	Dead+Wind 90 deg+Ice+Temp
24	Dead+Wind 120 deg+Ice+Temp
25	Dead+Wind 135 deg+Ice+Temp
26	Dead+Wind 150 deg+Ice+Temp
27	Dead+Wind 180 deg+Ice+Temp
28	Dead+Wind 210 deg+Ice+Temp
29	Dead+Wind 225 deg+Ice+Temp
30	Dead+Wind 240 deg+Ice+Temp
31	Dead+Wind 270 deg+Ice+Temp
32	Dead+Wind 300 deg+Ice+Temp
33	Dead+Wind 315 deg+Ice+Temp
34	Dead+Wind 330 deg+Ice+Temp
35	Dead+Wind 0 deg - Service
36	Dead+Wind 30 deg - Service
37	Dead+Wind 45 deg - Service
38	Dead+Wind 60 deg - Service
39	Dead+Wind 90 deg - Service
40	Dead+Wind 120 deg - Service
41	Dead+Wind 135 deg - Service
42	Dead+Wind 150 deg - Service
43	Dead+Wind 180 deg - Service
44	Dead+Wind 210 deg - Service
45	Dead+Wind 225 deg - Service
46	Dead+Wind 240 deg - Service
47	Dead+Wind 270 deg - Service
48	Dead+Wind 300 deg - Service
49	Dead+Wind 315 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	320 - 300	Leg	Max Tension	27	22.23	0.05	0.02
			Max. Compression	24	-26.22	-0.71	-0.39
			Max. Mx	30	-25.52	0.97	0.07
			Max. My	19	9.81	-0.16	0.99
			Max. Vy	31	1.51	0.00	0.00
			Max. Vx	19	1.53	0.00	0.00
		Diagonal	Max Tension	31	4.35	0.00	0.00
			Max. Compression	31	-4.39	0.00	0.00
			Max. Mx	24	3.41	0.01	-0.00
			Max. My	21	-3.58	0.01	-0.00
			Max. Vy	24	-0.01	0.01	-0.00
			Max. Vx	21	-0.00	0.00	0.00
		Top Girt	Max Tension	24	0.58	0.00	0.00
			Max. Compression	22	-0.60	0.00	0.00
			Max. Mx	18	-0.01	-0.02	0.00
			Max. Vy	18	-0.01	0.00	0.00
T2	300 - 280	Leg	Max Tension	27	49.70	-0.14	-0.01
			Max. Compression	24	-57.65	0.87	0.07
			Max. Mx	24	-57.65	0.87	0.07
			Max. My	28	-2.29	0.03	1.06
			Max. Vy	24	-0.27	0.49	0.02
			Max. Vx	31	-0.45	-0.01	-0.11
		Diagonal	Max Tension	34	4.89	0.00	0.00
			Max. Compression	34	-4.91	0.00	0.00
			Max. Mx	27	3.06	0.02	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	29	-4.05	0.01	0.01
			Max. Vy	27	0.02	0.02	0.00
			Max. Vx	21	0.00	0.00	0.00
		Top Girt	Max Tension	24	0.14	0.00	0.00
			Max. Compression	27	-0.16	0.00	0.00
			Max. Mx	18	-0.01	-0.03	0.00
			Max. My	18	-0.01	0.00	0.00
			Max. Vy	18	0.02	0.00	0.00
			Max. Vx	18	-0.00	0.00	0.00
T3	280 - 260	Leg	Max Tension	22	77.68	-0.63	-0.01
			Max. Compression	24	-90.51	1.08	0.05
			Max. Mx	19	-89.74	1.08	-0.06
			Max. My	20	-5.34	-0.02	-1.08
			Max. Vy	27	0.31	-0.72	0.00
			Max. Vx	23	-0.51	-0.02	0.69
		Diagonal	Max Tension	34	6.58	0.00	0.00
			Max. Compression	34	-6.61	0.00	0.00
			Max. Mx	27	3.93	0.04	0.01
			Max. My	19	-6.24	0.02	-0.01
			Max. Vy	27	0.02	0.04	0.01
			Max. Vx	19	0.00	0.00	0.00
T4	260 - 240	Leg	Max Tension	22	108.92	-0.69	0.01
			Max. Compression	24	-127.44	1.98	0.07
			Max. Mx	19	-126.29	1.99	-0.28
			Max. My	20	-7.47	0.03	-1.81
			Max. Vy	19	-0.37	1.99	-0.28
			Max. Vx	28	-0.39	0.03	1.81
		Diagonal	Max Tension	34	8.02	0.00	0.00
			Max. Compression	34	-8.08	0.00	0.00
			Max. Mx	27	4.83	0.06	0.01
			Max. My	19	-7.59	0.02	-0.01
			Max. Vy	27	0.03	0.06	0.01
			Max. Vx	19	0.00	0.00	0.00
T5	240 - 220	Leg	Max Tension	22	142.01	-0.91	-0.02
			Max. Compression	24	-167.42	1.74	0.03
			Max. Mx	19	-138.79	1.99	-0.28
			Max. My	20	-7.78	0.03	-1.81
			Max. Vy	30	-0.30	1.02	0.02
			Max. Vx	28	0.29	0.03	1.81
		Diagonal	Max Tension	34	9.92	0.00	0.00
			Max. Compression	34	-9.92	0.00	0.00
			Max. Mx	22	6.49	0.14	-0.02
			Max. My	19	-9.71	0.03	-0.02
			Max. Vy	22	0.06	0.14	-0.02
			Max. Vx	19	0.00	0.00	0.00
T6	220 - 200	Leg	Max Tension	22	177.02	-0.88	-0.24
			Max. Compression	24	-211.01	1.95	-0.03
			Max. Mx	19	-208.70	1.96	-0.22
			Max. My	20	-12.11	-0.11	-2.73
			Max. Vy	32	-1.58	-1.64	-0.04
			Max. Vx	28	1.45	0.01	0.85
		Diagonal	Max Tension	34	13.61	0.00	0.00
			Max. Compression	34	-13.69	0.00	0.00
			Max. Mx	24	10.17	0.23	0.03
			Max. My	19	-12.81	0.03	-0.04
			Max. Vy	21	0.08	0.21	-0.04
			Max. Vx	19	0.01	0.00	0.00
T7	200 - 180	Leg	Max Tension	27	218.42	-1.98	0.02
			Max. Compression	24	-262.38	2.48	-0.06
			Max. Mx	19	-259.40	2.49	-0.23
			Max. My	26	-14.47	-0.11	-2.85

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	32	-1.72	-1.75	0.03
			Max. Vx	20	-1.56	0.05	-0.50
		Diagonal	Max Tension	34	15.59	0.00	0.00
			Max. Compression	34	-15.64	0.00	0.00
			Max. Mx	27	9.83	0.23	0.03
			Max. My	19	-15.19	0.08	-0.04
			Max. Vy	27	0.08	0.23	0.03
			Max. Vx	19	0.01	0.00	0.00
T8	180 - 160	Leg	Max Tension	27	261.36	-2.40	0.22
			Max. Compression	24	-314.36	3.14	-0.08
			Max. Mx	24	-314.36	3.14	-0.08
			Max. My	28	-21.20	0.10	2.78
			Max. Vy	32	0.38	-2.41	0.07
			Max. Vx	20	0.65	-0.10	-2.52
		Diagonal	Max Tension	31	17.24	0.00	0.00
			Max. Compression	31	-17.40	0.00	0.00
			Max. Mx	27	10.62	0.27	0.04
			Max. My	28	-10.51	0.20	0.04
			Max. Vy	27	0.09	0.27	0.04
			Max. Vx	28	-0.01	0.00	0.00
T9	160 - 140	Leg	Max Tension	27	305.23	-1.99	0.04
			Max. Compression	24	-367.82	3.80	-0.11
			Max. Mx	24	-367.82	3.80	-0.11
			Max. My	28	-23.07	-0.23	3.57
			Max. Vy	19	-0.40	3.78	-0.17
			Max. Vx	28	0.61	-0.23	3.57
		Diagonal	Max Tension	31	19.56	0.00	0.00
			Max. Compression	30	-20.23	0.00	0.00
			Max. Mx	24	14.71	0.44	-0.04
			Max. My	28	13.87	0.41	0.06
			Max. Vy	21	0.13	0.41	-0.06
			Max. Vx	28	-0.01	0.00	0.00
T10	140 - 120	Leg	Max Tension	27	347.16	-2.63	0.06
			Max. Compression	24	-420.61	-3.76	0.10
			Max. Mx	24	-394.54	3.80	-0.11
			Max. My	28	-29.04	-0.89	6.17
			Max. Vy	19	0.79	2.50	-0.04
			Max. Vx	28	-0.76	-0.13	4.96
		Diagonal	Max Tension	31	20.23	0.00	0.00
			Max. Compression	30	-20.76	0.00	0.00
			Max. Mx	25	11.36	0.51	0.06
			Max. My	28	13.91	0.46	0.09
			Max. Vy	25	-0.14	0.51	0.06
			Max. Vx	28	-0.01	0.00	0.00
T11	120 - 100	Leg	Max Tension	27	353.38	1.89	0.14
			Max. Compression	24	-430.44	-14.84	-0.08
			Max. Mx	24	-429.58	18.61	0.37
			Max. My	28	-31.29	-2.18	11.68
			Max. Vy	24	3.60	18.61	0.37
			Max. Vx	28	-2.10	-2.18	11.68
		Diagonal	Max Tension	31	30.71	-0.22	-0.05
			Max. Compression	30	-33.08	0.00	0.00
			Max. Mx	27	20.76	-0.28	0.08
			Max. My	31	-32.06	-0.01	-0.16
			Max. Vy	27	-0.07	-0.28	0.08
			Max. Vx	31	0.01	-0.01	-0.16
		Horizontal	Max Tension	31	17.23	-0.21	0.00
			Max. Compression	30	-17.33	-0.26	-0.02
			Max. Mx	27	-3.17	-0.31	-0.03
			Max. My	19	3.37	-0.12	0.04
			Max. Vy	27	0.09	-0.31	-0.03

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	19	-0.00	0.00	0.00
		Redund Horz 1 Bracing	Max Tension	24	6.48	0.00	0.00
			Max. Compression	24	-6.48	0.00	0.00
			Max. Mx	18	0.47	0.02	0.00
			Max. Vy	18	0.01	0.00	0.00
		Redund Diag 1 Bracing	Max Tension	24	5.88	0.00	0.00
			Max. Compression	24	-5.88	0.00	0.00
			Max. Mx	18	0.35	0.04	0.00
			Max. Vy	18	-0.02	0.00	0.00
		Redund Hip 1 Bracing	Max Tension	31	0.02	0.00	0.00
			Max. Compression	23	-0.04	0.00	0.00
			Max. Mx	18	-0.01	0.02	0.00
			Max. Vy	18	-0.01	0.00	0.00
		Redund Hip Diagonal Bracing	Max Tension	19	0.09	0.00	0.00
			Max. Compression	27	-0.09	0.00	0.00
			Max. Mx	18	0.04	0.17	0.00
			Max. Vy	18	0.04	0.00	0.00
		Inner Bracing	Max Tension	30	0.30	0.00	0.00
			Max. Compression	30	-0.31	0.00	0.00
			Max. Mx	18	-0.01	0.20	0.00
			Max. Vy	18	-0.06	0.00	0.00
T12	100 - 80	Leg	Max Tension	27	386.21	10.16	1.39
			Max. Compression	24	-473.15	-15.81	-0.39
			Max. Mx	24	-472.26	20.23	0.38
			Max. My	28	-35.03	-2.41	12.26
			Max. Vy	24	3.84	20.23	0.38
			Max. Vx	28	2.39	-2.18	11.68
		Diagonal	Max Tension	31	32.43	-0.22	-0.04
			Max. Compression	30	-35.00	0.00	0.00
			Max. Mx	27	19.62	-0.28	0.08
			Max. My	31	-34.04	-0.04	-0.15
			Max. Vy	27	0.07	-0.28	0.08
			Max. Vx	31	-0.01	0.00	0.00
		Horizontal	Max Tension	31	19.21	-0.25	0.00
			Max. Compression	30	-19.74	-0.30	-0.02
			Max. Mx	27	0.76	-0.33	-0.04
			Max. My	19	4.57	-0.17	0.04
			Max. Vy	27	-0.09	-0.33	-0.04
			Max. Vx	19	-0.00	0.00	0.00
		Redund Horz 1 Bracing	Max Tension	24	7.12	0.00	0.00
			Max. Compression	24	-7.12	0.00	0.00
			Max. Mx	18	0.53	0.03	0.00
			Max. Vy	18	-0.01	0.00	0.00
		Redund Diag 1 Bracing	Max Tension	24	6.04	0.00	0.00
			Max. Compression	24	-6.04	0.00	0.00
			Max. Mx	18	0.37	0.05	0.00
			Max. Vy	18	-0.02	0.00	0.00
		Redund Hip 1 Bracing	Max Tension	31	0.02	0.00	0.00
			Max. Compression	23	-0.04	0.00	0.00
			Max. Mx	18	-0.01	0.03	0.00
			Max. Vy	18	-0.01	0.00	0.00
		Redund Hip Diagonal Bracing	Max Tension	19	0.08	0.00	0.00
			Max. Compression	27	-0.09	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	18	0.04	0.20	0.00
			Max. Vy	18	-0.05	0.00	0.00
		Inner Bracing	Max Tension	30	0.34	0.00	0.00
			Max. Compression	30	-0.35	0.00	0.00
			Max. Mx	18	0.00	0.25	0.00
			Max. Vy	18	-0.07	0.00	0.00
T13	80 - 60	Leg	Max Tension	27	421.92	10.69	1.64
			Max. Compression	24	-518.76	-15.83	-0.52
			Max. Mx	24	-517.76	24.10	0.39
			Max. My	28	-39.15	-3.22	20.24
			Max. Vy	24	4.10	24.10	0.39
			Max. Vx	28	-3.01	-3.22	20.24
		Diagonal	Max Tension	31	30.56	-0.22	-0.03
			Max. Compression	30	-33.80	0.00	0.00
			Max. Mx	27	21.66	-0.27	0.06
			Max. My	31	-30.87	-0.09	-0.13
			Max. Vy	27	-0.07	-0.27	0.06
			Max. Vx	31	-0.01	0.00	0.00
		Horizontal	Max Tension	31	19.32	-0.38	0.00
			Max. Compression	30	-20.03	-0.42	-0.02
			Max. Mx	27	-4.69	-0.45	-0.03
			Max. My	19	4.65	-0.30	0.04
			Max. Vy	27	0.13	-0.45	-0.03
			Max. Vx	19	-0.00	0.00	0.00
		Redund Horz 1 Bracing	Max Tension	24	7.82	0.00	0.00
			Max. Compression	24	-7.80	0.00	0.00
			Max. Mx	18	0.52	0.04	0.00
			Max. Vy	18	-0.02	0.00	0.00
		Redund Diag 1 Bracing	Max Tension	24	6.24	0.00	0.00
			Max. Compression	24	-6.25	0.00	0.00
			Max. Mx	18	0.39	0.06	0.00
			Max. Vy	18	-0.02	0.00	0.00
		Redund Hip 1 Bracing	Max Tension	31	0.01	0.00	0.00
			Max. Compression	23	-0.03	0.00	0.00
			Max. Mx	18	-0.01	0.03	0.00
			Max. Vy	18	-0.02	0.00	0.00
		Redund Hip Diagonal Bracing	Max Tension	19	0.08	0.00	0.00
			Max. Compression	27	-0.09	0.00	0.00
			Max. Mx	18	0.05	0.29	0.00
			Max. Vy	18	-0.07	0.00	0.00
		Inner Bracing	Max Tension	30	0.35	0.00	0.00
			Max. Compression	30	-0.36	0.00	0.00
			Max. Mx	18	0.00	0.29	0.00
			Max. Vy	18	0.08	0.00	0.00
T14	60 - 30	Leg	Max Tension	27	456.04	9.18	2.23
			Max. Compression	24	-563.60	4.37	0.37
			Max. Mx	24	-555.29	31.19	0.50
			Max. My	28	-44.80	-1.94	25.35
			Max. Vy	24	5.81	31.19	0.50
			Max. Vx	20	3.53	-1.93	-25.34
		Diagonal	Max Tension	31	45.16	-0.34	-0.08
			Max. Compression	30	-49.28	0.00	0.00
			Max. Mx	27	33.43	-0.42	0.24
			Max. My	31	-44.58	0.22	-0.41
			Max. Vy	30	-0.09	-0.18	0.19
			Max. Vx	30	0.05	-0.18	0.19
		Horizontal	Max Tension	31	22.99	-0.55	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	31	-22.87	-0.55	0.00
			Max. Mx	27	-3.45	-0.72	-0.04
			Max. My	19	-2.25	-0.37	0.05
			Max. Vy	27	0.17	-0.72	-0.04
			Max. Vx	19	-0.00	0.00	0.00
		Redund Horz 1 Bracing	Max Tension	24	8.50	0.00	0.00
			Max. Compression	24	-8.68	0.00	0.00
			Max. Mx	18	0.67	0.02	0.00
			Max. Vy	18	-0.01	0.00	0.00
		Redund Horz 2 Bracing	Max Tension	24	8.50	0.00	0.00
			Max. Compression	24	-8.56	0.00	0.00
			Max. Mx	18	0.67	0.10	0.00
			Max. Vy	18	0.04	0.00	0.00
		Redund Diag 1 Bracing	Max Tension	24	8.76	0.00	0.00
			Max. Compression	24	-8.57	0.00	0.00
			Max. Mx	18	0.76	0.04	0.00
			Max. Vy	18	-0.01	0.00	0.00
		Redund Diag 2 Bracing	Max Tension	24	5.62	0.00	0.00
			Max. Compression	24	-5.56	0.00	0.00
			Max. Mx	18	0.43	0.15	0.00
			Max. Vy	18	-0.04	0.00	0.00
		Redund Hip 1 Bracing	Max Tension	30	0.09	0.00	0.00
			Max. Compression	23	-0.10	0.00	0.00
			Max. Mx	18	-0.01	0.02	0.00
			Max. Vy	18	-0.01	0.00	0.00
		Redund Hip 2 Bracing	Max Tension	31	0.03	0.00	0.00
			Max. Compression	23	-0.05	0.00	0.00
			Max. Mx	18	-0.01	0.08	0.00
			Max. Vy	18	-0.03	0.00	0.00
		Redund Hip Diagonal Bracing	Max Tension	23	0.20	0.00	0.00
			Max. Compression	31	-0.21	0.00	0.00
			Max. Mx	18	0.02	0.18	0.00
			Max. Vy	18	-0.04	0.00	0.00
		Inner Bracing	Max Tension	31	0.39	0.00	0.00
			Max. Compression	31	-0.41	0.00	0.00
			Max. Mx	18	-0.01	0.34	0.00
			Max. Vy	18	-0.08	0.00	0.00
T15	30 - 0	Leg	Max Tension	27	507.99	21.53	3.50
			Max. Compression	24	-631.44	5.69	0.48
			Max. Mx	24	-628.12	27.35	0.73
			Max. My	28	-49.05	-1.94	25.35
			Max. Vy	24	-3.24	5.69	0.48
			Max. Vx	20	-3.45	-1.92	-25.34
		Diagonal	Max Tension	31	42.76	-0.32	-0.08
			Max. Compression	30	-45.25	0.00	0.00
			Max. Mx	27	28.55	-0.41	0.20
			Max. My	31	-44.77	0.15	-0.36
			Max. Vy	30	-0.09	-0.23	0.18
			Max. Vx	30	0.04	-0.23	0.18
		Horizontal	Max Tension	22	23.14	0.00	0.00
			Max. Compression	30	-24.88	-0.63	-0.03
			Max. Mx	27	-0.75	-0.70	-0.06
			Max. My	19	6.90	-0.41	0.07
			Max. Vy	27	-0.17	-0.70	-0.06

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	19	0.00	-0.41	0.07
		Redund Horz 1 Bracing	Max Tension	24	9.57	0.00	0.00
			Max. Compression	24	-9.53	0.00	0.00
			Max. Mx	18	0.83	0.02	0.00
			Max. Vy	18	-0.01	0.00	0.00
		Redund Horz 2 Bracing	Max Tension	24	9.53	0.00	0.00
			Max. Compression	24	-9.73	0.00	0.00
			Max. Mx	18	0.80	0.18	0.00
			Max. Vy	18	-0.06	0.00	0.00
		Redund Diag 1 Bracing	Max Tension	24	8.86	0.00	0.00
			Max. Compression	24	-8.90	0.00	0.00
			Max. Mx	18	0.61	0.06	0.00
			Max. Vy	18	-0.02	0.00	0.00
		Redund Diag 2 Bracing	Max Tension	24	6.12	0.00	0.00
			Max. Compression	24	-5.96	0.00	0.00
			Max. Mx	18	0.58	0.18	0.00
			Max. Vy	18	0.05	0.00	0.00
		Redund Hip 1 Bracing	Max Tension	30	0.08	0.00	0.00
			Max. Compression	23	-0.09	0.00	0.00
			Max. Mx	18	-0.01	0.02	0.00
			Max. Vy	18	-0.01	0.00	0.00
		Redund Hip 2 Bracing	Max Tension	31	0.01	0.00	0.00
			Max. Compression	23	-0.05	0.00	0.00
			Max. Mx	18	-0.02	0.10	0.00
			Max. Vy	18	-0.03	0.00	0.00
		Redund Hip Diagonal Bracing	Max Tension	23	0.17	0.00	0.00
			Max. Compression	31	-0.19	0.00	0.00
			Max. Mx	18	0.03	0.31	0.00
			Max. Vy	18	-0.06	0.00	0.00
		Inner Bracing	Max Tension	30	0.44	0.00	0.00
			Max. Compression	30	-0.44	0.00	0.00
			Max. Mx	18	0.01	0.42	0.00
			Max. Vy	18	0.09	0.00	0.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	30	689.65	75.48	-38.79
	Max. H_x	30	689.65	75.48	-38.79
	Max. H_z	21	-531.64	-60.80	33.95
	Min. Vert	22	-548.02	-64.01	32.62
	Min. H_x	22	-548.02	-64.01	32.62
	Min. H_z	30	689.65	75.48	-38.79
Leg B	Max. Vert	24	691.52	-73.93	-41.54
	Max. H_x	32	-546.16	62.50	35.17
	Max. H_z	33	-529.77	58.66	37.59
	Min. Vert	32	-546.16	62.50	35.17
	Min. H_x	24	691.52	-73.93	-41.54

Location	Condition	Gov. Load Comb.	Vertical, K	Horizontal, X K	Horizontal, Z K
Leg A	Min. H_z	25	640.99	-66.58	-42.01
	Max. Vert	19	683.06	3.15	84.65
	Max. H_x	32	348.04	9.05	42.51
	Max. H_z	19	683.06	3.15	84.65
	Min. Vert	27	-554.61	-2.96	-71.86
	Min. H_x	24	-270.79	-9.37	-35.74
	Min. H_z	27	-554.61	-2.96	-71.86

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear$_x$ K	Shear$_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	112.48	0.00	0.00	67.25	-5.07	0.00
Dead+Wind 0 deg - No Ice	112.48	-0.00	-112.12	-18389.25	-5.07	140.35
Dead+Wind 30 deg - No Ice	112.48	53.75	-93.10	-15188.12	-8812.76	177.86
Dead+Wind 45 deg - No Ice	112.48	75.47	-75.47	-12289.58	-12361.90	180.39
Dead+Wind 60 deg - No Ice	112.48	91.77	-52.98	-8600.26	-15017.63	170.58
Dead+Wind 90 deg - No Ice	112.48	107.50	-0.00	67.25	-17620.45	122.56
Dead+Wind 120 deg - No Ice	112.48	97.10	56.06	9295.50	-15988.87	41.69
Dead+Wind 135 deg - No Ice	112.48	75.47	75.47	12424.08	-12361.90	-8.62
Dead+Wind 150 deg - No Ice	112.48	53.75	93.10	15322.62	-8812.76	-55.29
Dead+Wind 180 deg - No Ice	112.48	0.00	105.96	17402.26	-5.07	-132.70
Dead+Wind 210 deg - No Ice	112.48	-53.75	93.10	15322.62	8802.62	-177.86
Dead+Wind 225 deg - No Ice	112.48	-75.47	75.47	12424.08	12351.76	-180.39
Dead+Wind 240 deg - No Ice	112.48	-97.10	56.06	9295.50	15978.72	-182.04
Dead+Wind 270 deg - No Ice	112.48	-107.50	0.00	67.25	17610.31	-122.56
Dead+Wind 300 deg - No Ice	112.48	-91.77	-52.98	-8600.26	15007.49	-37.89
Dead+Wind 315 deg - No Ice	112.48	-75.47	-75.47	-12289.58	12351.76	8.62
Dead+Wind 330 deg - No Ice	112.48	-53.75	-93.10	-15188.12	8802.62	55.29
Dead+Ice+Temp	156.52	0.00	0.00	176.65	-37.88	0.00
Dead+Wind 0 deg+Ice+Temp	156.52	-0.00	-138.25	-22231.76	-37.88	221.13
Dead+Wind 30 deg+Ice+Temp	156.52	66.59	-115.34	-18448.23	-10790.96	281.42
Dead+Wind 45 deg+Ice+Temp	156.52	93.58	-93.58	-14924.17	-15138.70	285.77
Dead+Wind 60 deg+Ice+Temp	156.52	113.88	-65.75	-10426.06	-18402.31	270.60
Dead+Wind 90 deg+Ice+Temp	156.52	133.19	0.00	176.65	-21544.04	194.14
Dead+Wind 120 deg+Ice+Temp	156.52	119.73	69.13	11380.86	-19444.13	65.33
Dead+Wind 135 deg+Ice+Temp	156.52	93.58	93.58	15277.48	-15138.70	-13.32
Dead+Wind 150 deg+Ice+Temp	156.52	66.59	115.34	18801.54	-10790.96	-87.27
Dead+Wind 180 deg+Ice+Temp	156.52	0.00	131.50	21382.07	-37.88	-210.11
Dead+Wind 210 deg+Ice+Temp	156.52	-66.59	115.34	18801.54	10715.21	-281.42
Dead+Wind 225 deg+Ice+Temp	156.52	-93.58	93.58	15277.48	15062.95	-285.77
Dead+Wind 240 deg+Ice+Temp	156.52	-119.73	69.13	11380.86	19368.37	-286.46
Dead+Wind 270 deg+Ice+Temp	156.52	-133.19	0.00	176.65	21468.29	-194.14
Dead+Wind 300 deg+Ice+Temp	156.52	-113.88	-65.75	-10426.06	18326.55	-60.49
Dead+Wind 315 deg+Ice+Temp	156.52	-93.58	-93.58	-14924.17	15062.95	13.32
Dead+Wind 330 deg+Ice+Temp	156.52	-66.59	-115.34	-18448.23	10715.21	87.27
Dead+Wind 0 deg - Service	112.48	-0.00	-112.12	-18389.25	-5.07	140.35
Dead+Wind 30 deg - Service	112.48	53.75	-93.10	-15188.12	-8812.76	177.86
Dead+Wind 45 deg - Service	112.48	75.47	-75.47	-12289.58	-12361.90	180.39
Dead+Wind 60 deg - Service	112.48	91.77	-52.98	-8600.26	-15017.63	170.58
Dead+Wind 90 deg - Service	112.48	107.50	-0.00	67.25	-17620.45	122.56
Dead+Wind 120 deg - Service	112.48	97.10	56.06	9295.50	-15988.87	41.69
Dead+Wind 135 deg - Service	112.48	75.47	75.47	12424.08	-12361.90	-8.62
Dead+Wind 150 deg - Service	112.48	53.75	93.10	15322.62	-8812.76	-55.29
Dead+Wind 180 deg - Service	112.48	0.00	105.96	17402.26	-5.07	-132.70
Dead+Wind 210 deg - Service	112.48	-53.75	93.10	15322.62	8802.62	-177.86

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead+Wind 225 deg - Service	112.48	-75.47	75.47	12424.08	12351.76	-180.39
Dead+Wind 240 deg - Service	112.48	-97.10	56.06	9295.50	15978.72	-182.04
Dead+Wind 270 deg - Service	112.48	-107.50	0.00	67.25	17610.31	-122.56
Dead+Wind 300 deg - Service	112.48	-91.77	-52.98	-8600.26	15007.49	-37.89
Dead+Wind 315 deg - Service	112.48	-75.47	-75.47	-12289.58	12351.76	8.62
Dead+Wind 330 deg - Service	112.48	-53.75	-93.10	-15188.12	8802.62	55.29

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.00	-112.48	0.00	-0.00	112.48	-0.00	0.000%
2	0.00	-112.48	-112.12	0.00	112.48	112.12	0.000%
3	53.75	-112.48	-93.10	-53.75	112.48	93.10	0.000%
4	75.47	-112.48	-75.47	-75.47	112.48	75.47	0.000%
5	91.77	-112.48	-52.98	-91.77	112.48	52.98	0.000%
6	107.50	-112.48	0.00	-107.50	112.48	0.00	0.000%
7	97.10	-112.48	56.06	-97.10	112.48	-56.06	0.000%
8	75.47	-112.48	75.47	-75.47	112.48	-75.47	0.000%
9	53.75	-112.48	93.10	-53.75	112.48	-93.10	0.000%
10	-0.00	-112.48	105.96	-0.00	112.48	-105.96	0.000%
11	-53.75	-112.48	93.10	53.75	112.48	-93.10	0.000%
12	-75.47	-112.48	75.47	75.47	112.48	-75.47	0.000%
13	-97.10	-112.48	56.06	97.10	112.48	-56.06	0.000%
14	-107.50	-112.48	0.00	107.50	112.48	-0.00	0.000%
15	-91.77	-112.48	-52.98	91.77	112.48	52.98	0.000%
16	-75.47	-112.48	-75.47	75.47	112.48	75.47	0.000%
17	-53.75	-112.48	-93.10	53.75	112.48	93.10	0.000%
18	0.00	-156.52	0.00	-0.00	156.52	-0.00	0.000%
19	0.00	-156.52	-138.25	0.00	156.52	138.25	0.000%
20	66.59	-156.52	-115.34	-66.59	156.52	115.34	0.000%
21	93.58	-156.52	-93.58	-93.58	156.52	93.58	0.000%
22	113.88	-156.52	-65.75	-113.88	156.52	65.75	0.000%
23	133.19	-156.52	0.00	-133.19	156.52	-0.00	0.000%
24	119.73	-156.52	69.13	-119.73	156.52	-69.13	0.000%
25	93.58	-156.52	93.58	-93.58	156.52	-93.58	0.000%
26	66.59	-156.52	115.34	-66.59	156.52	-115.34	0.000%
27	-0.00	-156.52	131.50	-0.00	156.52	-131.50	0.000%
28	-66.59	-156.52	115.34	66.59	156.52	-115.34	0.000%
29	-93.58	-156.52	93.58	93.58	156.52	-93.58	0.000%
30	-119.73	-156.52	69.13	119.73	156.52	-69.13	0.000%
31	-133.19	-156.52	0.00	133.19	156.52	-0.00	0.000%
32	-113.88	-156.52	-65.75	113.88	156.52	65.75	0.000%
33	-93.58	-156.52	-93.58	93.58	156.52	93.58	0.000%
34	-66.59	-156.52	-115.34	66.59	156.52	115.34	0.000%
35	0.00	-112.48	-112.12	0.00	112.48	112.12	0.000%
36	53.75	-112.48	-93.10	-53.75	112.48	93.10	0.000%
37	75.47	-112.48	-75.47	-75.47	112.48	75.47	0.000%
38	91.77	-112.48	-52.98	-91.77	112.48	52.98	0.000%
39	107.50	-112.48	0.00	-107.50	112.48	0.00	0.000%
40	97.10	-112.48	56.06	-97.10	112.48	-56.06	0.000%
41	75.47	-112.48	75.47	-75.47	112.48	-75.47	0.000%
42	53.75	-112.48	93.10	-53.75	112.48	-93.10	0.000%
43	-0.00	-112.48	105.96	-0.00	112.48	-105.96	0.000%
44	-53.75	-112.48	93.10	53.75	112.48	-93.10	0.000%
45	-75.47	-112.48	75.47	75.47	112.48	-75.47	0.000%
46	-97.10	-112.48	56.06	97.10	112.48	-56.06	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
47	-107.50	-112.48	0.00	107.50	112.48	-0.00	0.000%
48	-91.77	-112.48	-52.98	91.77	112.48	52.98	0.000%
49	-75.47	-112.48	-75.47	75.47	112.48	75.47	0.000%
50	-53.75	-112.48	-93.10	53.75	112.48	93.10	0.000%

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	320 - 300	24.889	40	0.6707	0.2638
T2	300 - 280	22.017	40	0.6528	0.2140
T3	280 - 260	19.282	40	0.6180	0.1761
T4	260 - 240	16.686	40	0.5872	0.1572
T5	240 - 220	14.227	40	0.5495	0.1409
T6	220 - 200	11.954	40	0.5054	0.1303
T7	200 - 180	9.876	40	0.4555	0.1213
T8	180 - 160	7.976	40	0.4124	0.1112
T9	160 - 140	6.252	40	0.3656	0.0993
T10	140 - 120	4.737	40	0.3151	0.0893
T11	120 - 100	3.435	40	0.2620	0.0789
T12	100 - 80	2.384	40	0.2105	0.0621
T13	80 - 60	1.534	40	0.1590	0.0485
T14	60 - 30	0.885	35	0.1157	0.0365
T15	30 - 0	0.274	35	0.0519	0.0182

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
320.00	6 FT DISH	40	24.889	0.6707	0.2638	111605
318.00	PD128	40	24.599	0.6694	0.2587	111605
315.00	8 FT DISH	40	24.164	0.6674	0.2509	111605
294.00	DB224	40	21.180	0.6434	0.2007	29726
292.00	PD320	40	20.904	0.6398	0.1966	30388
285.00	(2) DB809	40	19.951	0.6270	0.1837	32959
275.00	(2) OGT9	40	18.621	0.6099	0.1701	36205
257.00	PD440	40	16.308	0.5821	0.1548	36341
243.00	PD128	40	14.585	0.5557	0.1431	25582
227.00	PD320	40	12.727	0.5218	0.1336	24216
220.00	DB844	40	11.954	0.5054	0.1303	24408
200.00	PiROD 12' Lightweight T-Frame	40	9.876	0.4555	0.1213	26860
175.00	6 FT DISH	40	7.528	0.4012	0.1083	27069
140.00	PD688S-4	40	4.737	0.3151	0.0893	24466
138.00	PD156S	40	4.597	0.3099	0.0884	23848
115.00	6 FT DISH	40	3.150	0.2491	0.0751	18636
112.00	4 FT DISH	40	2.987	0.2414	0.0726	19866
105.00	6 FT DISH	40	2.626	0.2235	0.0664	23482
100.00	PD458	40	2.384	0.2105	0.0621	26144
97.00	6 FT DISH	40	2.244	0.2026	0.0597	26239
90.00	4 FT DISH	40	1.935	0.1841	0.0547	24812

Redundant Diagonal (2) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T14	60 - 30	ROHN 2.5 STD	14.46	13.72	173.8 K=1.00	4.943	1.7040	-5.56	8.42	0.660 ✓
T15	30 - 0	ROHN 2.5 STD	15.33	14.63	185.3 K=1.00	4.347	1.7040	-5.96	7.41	0.804 ✓

Redundant Hip (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T11	120 - 100	ROHN 1.5 STD	6.35	6.35	122.3 K=1.00	9.977	0.7995	-0.04	7.98	0.005 ✓
T12	100 - 80	ROHN 1.5 STD	6.99	6.99	134.8 K=1.00	8.221	0.7995	-0.04	6.57	0.006 ✓
T13	80 - 60	ROHN 1.5 STD	7.62	7.62	146.8 K=1.00	6.928	0.7995	-0.03	5.54	0.006 ✓
T14	60 - 30	ROHN 1.5 STD	5.52	5.52	106.5 K=1.00	13.175	0.7995	-0.10	10.53	0.010 ✓
T15	30 - 0	ROHN 1.5 STD	6.13	6.13	118.2 K=1.00	10.686	0.7995	-0.09	8.54	0.011 ✓

Redundant Hip (2) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T14	60 - 30	ROHN 2 STD	11.05	11.05	168.4 K=1.00	5.265	1.0745	-0.05	5.66	0.009 ✓
T15	30 - 0	ROHN 2 STD	12.27	12.27	187.0 K=1.00	4.270	1.0745	-0.05	4.59	0.010 ✓

Redundant Hip Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T11	120 - 100	ROHN 2.5 STD	15.15	15.15	191.9 K=1.00	4.054	1.7040	-0.09	6.91	0.013 ✓
T12	100 - 80	ROHN 2.5 STD	16.00	16.00	202.6 K=1.00	3.637	1.7040	-0.09	6.20	0.014 ✓
T13	80 - 60	ROHN 3 STD	16.88	16.88	174.1	4.929	2.2285	-0.09	10.98	0.008

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio P / P_a
T14	60 - 30	ROHN 2 STD	14.10	14.10	214.9 K=1.00	3.233	1.0745	-0.21	3.47	0.059 ✓
T15	30 - 0	ROHN 2.5 STD	14.88	14.88	188.4 K=1.00	4.205	1.7040	-0.19	7.17	0.026 ✓

Inner Bracing Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio P / P_a
T11	120 - 100	ROHN 3 STD	12.69	12.69	130.9 K=1.00	8.712	2.2285	-0.31	19.41	0.016 ✓
T12	100 - 80	ROHN 3 STD	13.99	13.99	144.2 K=1.00	7.179	2.2285	-0.35	16.00	0.022 ✓
T13	80 - 60	ROHN 3 STD	15.24	15.24	157.1 K=1.00	6.049	2.2285	-0.36	13.48	0.027 ✓
T14	60 - 30	ROHN 3 STD	16.57	16.57	170.9 K=1.00	5.114	2.2285	-0.41	11.40	0.036 ✓
T15	30 - 0	ROHN 3 STD	18.40	18.40	189.8 K=1.00	4.147	2.2285	-0.44	9.24	0.048 ✓

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 K	Allow. P_a K	Ratio P / P_a
T1	320 - 300	ROHN 5 EH	20.00	4.00	26.1	30.000	6.1120	22.23	183.36	0.121 ✓
T2	300 - 280	ROHN 6 EH	20.03	5.01	27.4	30.000	8.4049	49.57	252.15	0.197 ✓
T3	280 - 260	ROHN 8 EH	20.04	6.68	27.9	30.000	12.7627	77.68	382.88	0.203 ✓
T4	260 - 240	ROHN 8 EH	20.03	6.68	27.8	30.000	12.7627	108.92	382.88	0.284 ✓
T5	240 - 220	ROHN 8 EH	20.03	6.68	27.8	30.000	12.7627	142.01	382.88	0.371 ✓
T6	220 - 200	ROHN 8 EH	20.03	10.02	41.8	30.000	12.7627	177.02	382.88	0.462 ✓
T7	200 - 180	ROHN 10 EH	20.04	10.02	33.1	30.000	16.1007	218.42	483.02	0.452 ✓
T8	180 - 160	ROHN 10 EH	20.04	10.02	33.1	30.000	16.1007	261.36	483.02	0.541 ✓

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio P / P_a
T9	160 - 140	ROHN 10 EH	20.03	10.02	33.1	30.000	16.1007	305.23	483.02	0.632
T10	140 - 120	ROHN 10 EH	20.04	10.02	33.1	30.000	16.1007	347.16	483.02	0.719
T11	120 - 100	ROHN 10 EH	20.06	10.03	33.2	30.000	16.1007	353.38	483.02	0.732
T12	100 - 80	ROHN 10 EH	20.05	10.03	33.2	30.000	16.1007	386.21	483.02	0.800
T13	80 - 60	ROHN 12 EH	20.06	10.03	27.8	30.000	19.2423	421.92	577.27	0.731
T14	60 - 30	ROHN 12 EH	30.07	10.02	27.8	30.000	19.2423	456.04	577.27	0.790
T15	30 - 0	ROHN 12 EHS	30.08	10.03	28.0	30.000	23.8074	507.99	714.22	0.711

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio P / P_a
T1	320 - 300	L1 3/4x1 3/4x3/16	7.90	3.51	82.2	29.000	0.3604	4.35	10.45	0.416
T2	300 - 280	L2x2x1/4	9.94	4.63	94.6	29.000	0.5629	4.89	16.32	0.299
T3	280 - 260	L2 1/2x2 1/2x1/4	12.59	5.92	95.0	29.000	0.7284	6.58	21.12	0.312
T4	260 - 240	L3x3x1/4	14.38	6.81	90.0	32.500	0.9159	8.02	29.77	0.269
T5	240 - 220	L4x4x5/16	16.19	7.72	76.3	32.500	1.5949	9.92	51.84	0.191
T6	220 - 200	L4x4x3/8	19.37	9.39	93.3	32.500	1.8989	13.61	61.71	0.221
T7	200 - 180	L4x4x3/8	21.20	10.23	101.4	32.500	1.8637	15.59	60.57	0.257
T8	180 - 160	L4x4x3/8	23.06	11.16	110.5	32.500	1.8637	17.24	60.57	0.285
T9	160 - 140	L5x5x3/8	24.84	12.02	93.8	32.500	2.4262	19.56	78.85	0.248
T10	140 - 120	L5x5x3/8	26.78	13.04	101.6	32.500	2.4262	20.23	78.85	0.257
T11	120 - 100	ROHN 3 EH	24.42	12.21	128.9	30.000	3.0159	30.71	90.48	0.339
T12	100 - 80	ROHN 3 EH	25.15	12.58	132.8	30.000	3.0159	32.43	90.48	0.358
T13	80 - 60	ROHN 3 EH	25.98	12.99	137.2	30.000	3.0159	30.56	90.48	0.338
T14	60 - 30	ROHN 3.5 EH	35.21	11.74	107.8	30.000	3.6784	45.16	110.35	0.409
T15	30 - 0	ROHN 3.5 EH	36.27	12.09	111.0	30.000	3.6784	42.76	110.35	0.387

ERITower	Job: 320' Rohn SSVMW	Page: 50 of 55
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	Client: Cingular Wireless	Designed by: Jed Kiernan

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

Horizontal Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	F_a	A	Actual P	Allow. P_a	Ratio $\frac{P}{P_a}$
	ft		ft	ft		ksi	in^2	K	K	
T11	120 - 100	ROHN 3 STD	25.39	12.25	126.3	30.000	2.2285	17.23	66.85	0.258 ✓
T12	100 - 80	ROHN 3 STD	27.97	13.54	139.6	30.000	2.2285	19.21	66.85	0.287 ✓
T13	80 - 60	ROHN 3 EH	30.47	14.79	156.2	30.000	3.0159	19.32	90.48	0.214 ✓
T14	60 - 30	ROHN 3.5 EH	33.14	16.04	147.3	30.000	3.6784	22.99	110.35	0.208 ✓
T15	30 - 0	ROHN 4 STD	36.80	17.87	142.0	30.000	3.1741	23.14	95.22	0.243 ✓

Top Girt Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	F_a	A	Actual P	Allow. P_a	Ratio $\frac{P}{P_a}$
	ft		ft	ft		ksi	in^2	K	K	
T1	320 - 300	L1 3/4x1 3/4x3/16	6.81	6.35	141.8	21.600	0.6211	0.58	13.42	0.044 ✓
T2	300 - 280	L2x2x1/4	6.81	6.35	125.1	21.600	0.9380	0.14	20.26	0.007 ✓

Redundant Horizontal (1) Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	F_a	A	Actual P	Allow. P_a	Ratio $\frac{P}{P_a}$
	ft		ft	ft		ksi	in^2	K	K	
T11	120 - 100	ROHN 1.5 STD	6.35	5.90	113.7	30.000	0.7995	6.48	23.98	0.270 ✓
T12	100 - 80	ROHN 1.5 STD	6.99	6.54	126.1	30.000	0.7995	7.12	23.98	0.297 ✓
T13	80 - 60	ROHN 2 STD	7.62	7.09	108.0	30.000	1.0745	7.82	32.24	0.243 ✓
T14	60 - 30	ROHN 1.5 STD	5.52	4.99	96.2	30.000	0.7995	8.50	23.98	0.354 ✓
T15	30 - 0	ROHN 1.5 STD	6.13	5.60	108.0	30.000	0.7995	9.57	23.98	0.399 ✓

ERITower	Job	Page
URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-3991	320' Rohn SSVMW	51 of 55
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	Client Cingular Wireless	Designed by Jed Kiernan

Redundant Horizontal (2) Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	F_a	A	Actual P	Allow. P_a	Ratio P / P_a
	ft		ft	ft		ksi	in^2	K	K	
T14	60 - 30	ROHN 2 EH	11.05	10.52	164.2	30.000	1.4807	8.50	44.42	0.191 ✓
T15	30 - 0	ROHN 2.5 EH	12.27	11.74	152.4	30.000	2.2535	9.53	67.61	0.141 ✓

Redundant Diagonal (1) Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	F_a	A	Actual P	Allow. P_a	Ratio P / P_a
	ft		ft	ft		ksi	in^2	K	K	
T11	120 - 100	ROHN 2 STD	11.52	10.61	161.8	30.000	1.0745	5.88	32.24	0.182 ✓
T12	100 - 80	ROHN 2 STD	11.86	11.03	168.1	30.000	1.0745	6.04	32.24	0.187 ✓
T13	80 - 60	ROHN 2 STD	12.18	11.40	173.8	30.000	1.0745	6.24	32.24	0.194 ✓
T14	60 - 30	ROHN 2 STD	11.15	9.95	151.6	30.000	1.0745	8.76	32.24	0.272 ✓
T15	30 - 0	ROHN 2.5 STD	11.41	10.31	130.6	30.000	1.7040	8.86	51.12	0.173 ✓

Redundant Diagonal (2) Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	F_a	A	Actual P	Allow. P_a	Ratio P / P_a
	ft		ft	ft		ksi	in^2	K	K	
T14	60 - 30	ROHN 2.5 STD	14.46	13.72	173.8	30.000	1.7040	5.62	51.12	0.110 ✓
T15	30 - 0	ROHN 2.5 STD	15.33	14.63	185.3	30.000	1.7040	6.12	51.12	0.120 ✓

Redundant Hip (1) Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	F_a	A	Actual P	Allow. P_a	Ratio P / P_a
	ft		ft	ft		ksi	in^2	K	K	
T11	120 - 100	ROHN 1.5 STD	6.35	6.35	122.3	30.000	0.7995	0.02	23.98	0.001 ✓
T12	100 - 80	ROHN 1.5 STD	6.99	6.99	134.8	30.000	0.7995	0.02	23.98	0.001 ✓
T13	80 - 60	ROHN 1.5 STD	7.62	7.62	146.8	30.000	0.7995	0.01	23.98	0.000 ✓

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T14	60 - 30	ROHN 1.5 STD	5.52	5.52	106.5	30.000	0.7995	0.09	23.98	0.004 ✓
T15	30 - 0	ROHN 1.5 STD	6.13	6.13	118.2	30.000	0.7995	0.08	23.98	0.003 ✓

Redundant Hip (2) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T14	60 - 30	ROHN 2 STD	11.05	11.05	168.4	30.000	1.0745	0.03	32.24	0.001 ✓
T15	30 - 0	ROHN 2 STD	12.27	12.27	187.0	30.000	1.0745	0.01	32.24	0.000 ✓

Redundant Hip Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T11	120 - 100	ROHN 2.5 STD	15.15	15.15	191.9	30.000	1.7040	0.09	51.12	0.002 ✓
T12	100 - 80	ROHN 2.5 STD	16.00	16.00	202.6	30.000	1.7040	0.08	51.12	0.002 ✓
T13	80 - 60	ROHN 3 STD	16.88	16.88	174.1	30.000	2.2285	0.08	66.85	0.001 ✓
T14	60 - 30	ROHN 2 STD	14.10	14.10	214.9	30.000	1.0745	0.20	32.24	0.006 ✓
T15	30 - 0	ROHN 2.5 STD	14.88	14.88	188.4	30.000	1.7040	0.17	51.12	0.003 ✓

Inner Bracing Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T11	120 - 100	ROHN 3 STD	12.69	12.69	130.9	30.000	2.2285	0.30	66.85	0.004 ✓
T12	100 - 80	ROHN 3 STD	13.99	13.99	144.2	30.000	2.2285	0.34	66.85	0.005 ✓
T13	80 - 60	ROHN 3 STD	15.24	15.24	157.1	30.000	2.2285	0.35	66.85	0.005 ✓
T14	60 - 30	ROHN 3 STD	16.57	16.57	170.9	30.000	2.2285	0.39	66.85	0.006

ERITower	Job: 320' Rohn SSVMW	Page: 53 of 55
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Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio P / P_a
T15	30 - 0	ROHN 3 STD	18.40	18.40	189.8	30.000	2.2285	0.44	66.85	0.007

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF*P_{allow} K	% Capacity	Pass Fail
T1	320 - 300	Leg	ROHN 5 EH	2	-26.22	225.04	11.7	Pass
T2	300 - 280	Leg	ROHN 6 EH	38	-57.65	307.77	18.7	Pass
T3	280 - 260	Leg	ROHN 8 EH	68	-90.51	466.39	19.4	Pass
T4	260 - 240	Leg	ROHN 8 EH	89	-127.44	466.41	21.1 (b) 27.3	Pass
T5	240 - 220	Leg	ROHN 8 EH	110	-167.42	466.41	29.6 (b) 35.9	Pass
T6	220 - 200	Leg	ROHN 8 EH	131	-211.01	435.22	38.5 (b) 48.5	Pass
T7	200 - 180	Leg	ROHN 10 EH	146	-262.38	574.26	45.7	Pass
T8	180 - 160	Leg	ROHN 10 EH	161	-314.36	574.26	54.7	Pass
T9	160 - 140	Leg	ROHN 10 EH	176	-367.82	574.29	64.0	Pass
T10	140 - 120	Leg	ROHN 10 EH	191	-420.61	574.25	73.2	Pass
T11	120 - 100	Leg	ROHN 10 EH	206	-430.44	574.17	75.0	Pass
T12	100 - 80	Leg	ROHN 10 EH	239	-473.15	574.19	82.4	Pass
T13	80 - 60	Leg	ROHN 12 EH	272	-518.76	703.44	73.7	Pass
T14	60 - 30	Leg	ROHN 12 EH	305	-563.60	703.48	80.1	Pass
T15	30 - 0	Leg	ROHN 12 EHS	356	-631.44	869.31	72.6	Pass
T1	320 - 300	Diagonal	L1 3/4x1 3/4x3/16	7	-4.39	8.18	53.7	Pass
T2	300 - 280	Diagonal	L2x2x1/4	46	-4.91	9.23	53.2	Pass
T3	280 - 260	Diagonal	L2 1/2x2 1/2x1/4	73	-6.61	11.32	58.4	Pass
T4	260 - 240	Diagonal	L3x3x1/4	94	-8.08	15.04	53.7	Pass
T5	240 - 220	Diagonal	L4x4x5/16	115	-9.92	34.41	28.8	Pass
T6	220 - 200	Diagonal	L4x4x3/8	136	-13.69	27.83	56.2 (b) 49.2	Pass
T7	200 - 180	Diagonal	L4x4x3/8	151	-15.64	23.48	77.5 (b) 66.6	Pass
T8	180 - 160	Diagonal	L4x4x3/8	163	-17.40	19.72	88.2	Pass
T9	160 - 140	Diagonal	L5x5x3/8	178	-20.23	33.84	59.8	Pass
T10	140 - 120	Diagonal	L5x5x3/8	193	-20.76	28.78	84.1 (b) 72.1	Pass
T11	120 - 100	Diagonal	ROHN 3 EH	209	-33.08	40.02	86.3 (b) 82.6	Pass
T12	100 - 80	Diagonal	ROHN 3 EH	242	-35.00	37.72	92.8	Pass
T13	80 - 60	Diagonal	ROHN 3 EH	275	-33.80	35.34	95.6	Pass
T14	60 - 30	Diagonal	ROHN 3.5 EH	308	-49.28	63.03	78.2	Pass
T15	30 - 0	Diagonal	ROHN 3.5 EH	359	-45.25	59.41	76.2	Pass
T11	120 - 100	Horizontal	ROHN 3 STD	208	-17.33	27.81	62.3	Pass
T12	100 - 80	Horizontal	ROHN 3 STD	241	-19.74	22.76	86.7	Pass
T13	80 - 60	Horizontal	ROHN 3 EH	274	-20.03	24.62	81.4	Pass
T14	60 - 30	Horizontal	ROHN 3.5 EH	307	-22.87	33.75	67.8	Pass
T15	30 - 0	Horizontal	ROHN 4 STD	358	-24.88	31.31	79.5	Pass
T1	320 - 300	Top Girt	L1 3/4x1 3/4x3/16	5	-0.60	3.71	16.3	Pass
T2	300 - 280	Top Girt	L2x2x1/4	40	-0.16	6.78	2.3	Pass
T11	120 - 100	Redund Horz 1 Bracing	ROHN 1.5 STD	213	-6.48	12.31	52.6	Pass
T12	100 - 80	Redund Horz 1 Bracing	ROHN 1.5 STD	250	-7.12	10.00	71.2	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF*P_{allow} K	% Capacity	Pass Fail
T13	80 - 60	Redund Horz 1 Bracing	ROHN 2 STD	279	-7.80	18.33	42.6	Pass
T14	60 - 30	Redund Horz 1 Bracing	ROHN 1.5 STD	314	-8.68	16.59	52.3	Pass
T15	30 - 0	Redund Horz 1 Bracing	ROHN 1.5 STD	371	-9.53	13.65	69.8	Pass
T14	60 - 30	Redund Horz 2 Bracing	ROHN 2 EH	321	-8.56	10.93	78.4	Pass
T15	30 - 0	Redund Horz 2 Bracing	ROHN 2.5 EH	372	-9.73	19.31	50.4	Pass
T11	120 - 100	Redund Diag 1 Bracing	ROHN 2 STD	214	-5.88	8.17	71.9	Pass
T12	100 - 80	Redund Diag 1 Bracing	ROHN 2 STD	247	-6.04	7.57	79.8	Pass
T13	80 - 60	Redund Diag 1 Bracing	ROHN 2 STD	284	-6.25	7.08	88.2	Pass
T14	60 - 30	Redund Diag 1 Bracing	ROHN 2 STD	316	-8.57	9.30	92.1	Pass
T15	30 - 0	Redund Diag 1 Bracing	ROHN 2.5 STD	367	-8.90	19.90	44.7	Pass
T14	60 - 30	Redund Diag 2 Bracing	ROHN 2.5 STD	323	-5.56	11.23	49.5	Pass
T15	30 - 0	Redund Diag 2 Bracing	ROHN 2.5 STD	374	-5.96	9.87	60.3	Pass
T11	120 - 100	Redund Hip 1 Bracing	ROHN 1.5 STD	233	-0.04	10.63	0.4	Pass
T12	100 - 80	Redund Hip 1 Bracing	ROHN 1.5 STD	266	-0.04	8.76	0.4	Pass
T13	80 - 60	Redund Hip 1 Bracing	ROHN 1.5 STD	299	-0.03	7.38	0.4	Pass
T14	60 - 30	Redund Hip 1 Bracing	ROHN 1.5 STD	348	-0.10	14.04	0.7	Pass
T15	30 - 0	Redund Hip 1 Bracing	ROHN 1.5 STD	399	-0.09	11.39	0.8	Pass
T14	60 - 30	Redund Hip 2 Bracing	ROHN 2 STD	349	-0.05	7.54	0.7	Pass
T15	30 - 0	Redund Hip 2 Bracing	ROHN 2 STD	400	-0.05	6.12	0.7	Pass
T11	120 - 100	Redund Hip Diagonal Bracing	ROHN 2.5 STD	223	-0.09	9.21	1.0	Pass
T12	100 - 80	Redund Hip Diagonal Bracing	ROHN 2.5 STD	256	-0.09	8.26	1.0	Pass
T13	80 - 60	Redund Hip Diagonal Bracing	ROHN 3 STD	289	-0.09	14.64	0.6	Pass
T14	60 - 30	Redund Hip Diagonal Bracing	ROHN 2 STD	350	-0.21	4.63	4.5	Pass
T15	30 - 0	Redund Hip Diagonal Bracing	ROHN 2.5 STD	401	-0.19	9.55	1.9	Pass
T11	120 - 100	Inner Bracing	ROHN 3 STD	235	-0.31	25.88	1.2	Pass
T12	100 - 80	Inner Bracing	ROHN 3 STD	268	-0.35	21.33	1.6	Pass
T13	80 - 60	Inner Bracing	ROHN 3 STD	301	-0.36	17.97	2.0	Pass
T14	60 - 30	Inner Bracing	ROHN 3 STD	352	-0.41	15.19	2.7	Pass
T15	30 - 0	Inner Bracing	ROHN 3 STD	403	-0.44	12.32	3.6	Pass
							Summary	
						Leg (T12)	82.4	Pass
						Diagonal (T13)	95.6	Pass
						Horizontal (T12)	86.7	Pass
						Top Girt (T1)	16.3	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF*P_{allow} K	% Capacity	Pass Fail
						Redund Horz 1 Bracing (T12)	71.2	Pass
						Redund Horz 2 Bracing (T14)	78.4	Pass
						Redund Diag 1 Bracing (T14)	92.1	Pass
						Redund Diag 2 Bracing (T15)	60.3	Pass
						Redund Hip 1 Bracing (T15)	0.8	Pass
						Redund Hip 2 Bracing (T15)	0.7	Pass
						Redund Hip Diagonal Bracing (T14)	4.5	Pass
						Inner Bracing (T15)	3.6	Pass
						Bolt Checks	86.3	Pass
						RATING =	**95.6**	**Pass**

ERI TOWER DETAILED OUTPUT FOR DEFLECTION

ERITower	Job	Page
	320' Rohn SSVMW	1 of 18
URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-3991	Project CSP Tower - Colchester, CT	Date 16:37:34 04/03/06
	Client Cingular Wireless	Designed by Jed Kiernan

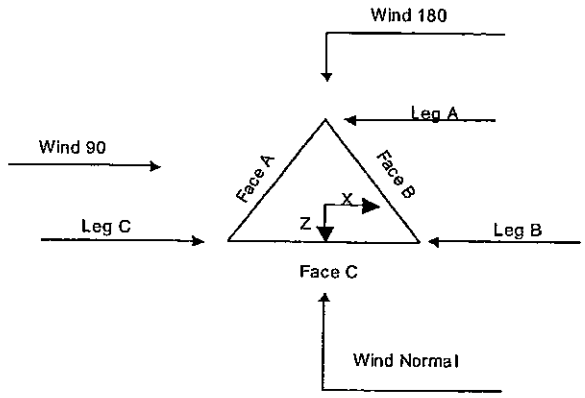
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 320.00 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 6.81 ft at the top and 40.69 ft at the base.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

Basic wind speed of 78 mph.
Nominal ice thickness of 0.5000 in.
Ice density of 56 pcf.
A wind speed of 78 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 78 mph.
Pressures are calculated at each section.
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		



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	320.00-300.00			6.81	1	20.00
T2	300.00-280.00			6.81	1	20.00
T3	280.00-260.00			8.85	1	20.00
T4	260.00-240.00			11.04	1	20.00
T5	240.00-220.00			13.08	1	20.00
T6	220.00-200.00			15.09	1	20.00
T7	200.00-180.00			17.09	1	20.00
T8	180.00-160.00			19.22	1	20.00
T9	160.00-140.00			21.30	1	20.00
T10	140.00-120.00			23.21	1	20.00
T11	120.00-100.00			25.39	1	20.00
T12	100.00-80.00			27.97	1	20.00
T13	80.00-60.00			30.47	1	20.00
T14	60.00-30.00			33.14	1	30.00
T15	30.00-0.00			36.80	1	30.00

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in

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	320.00-300.00	4.00	X Brace	No	No	0.0000	0.0000
T2	300.00-280.00	5.00	X Brace	No	No	0.0000	0.0000
T3	280.00-260.00	6.67	X Brace	No	No	0.0000	0.0000
T4	260.00-240.00	6.67	X Brace	No	No	0.0000	0.0000
T5	240.00-220.00	6.67	X Brace	No	No	0.0000	0.0000
T6	220.00-200.00	10.00	X Brace	No	No	0.0000	0.0000
T7	200.00-180.00	10.00	X Brace	No	No	0.0000	0.0000
T8	180.00-160.00	10.00	X Brace	No	No	0.0000	0.0000
T9	160.00-140.00	10.00	X Brace	No	No	0.0000	0.0000
T10	140.00-120.00	10.00	X Brace	No	No	0.0000	0.0000
T11	120.00-100.00	20.00	K1 Down	No	Yes	0.0000	0.0000
T12	100.00-80.00	20.00	K1 Down	No	Yes	0.0000	0.0000
T13	80.00-60.00	20.00	K1 Down	No	Yes	0.0000	0.0000
T14	60.00-30.00	30.00	K2 Down	No	Yes	0.0000	0.0000
T15	30.00-0.00	30.00	K2 Down	No	Yes	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 320.00-300.00	Pipe	ROHN 5 EH	A572-50 (50 ksi)	Equal Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T2 300.00-280.00	Pipe	ROHN 6 EH	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T3 280.00-260.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)
T4 260.00-240.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A572-50 (50 ksi)
T5 240.00-220.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Equal Angle	L4x4x5/16	A572-50 (50 ksi)
T6 220.00-200.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Equal Angle	L4x4x3/8	A572-50 (50 ksi)
T7 200.00-180.00	Pipe	ROHN 10 EH	A572-50 (50 ksi)	Equal Angle	L4x4x3/8	A572-50 (50 ksi)
T8 180.00-160.00	Pipe	ROHN 10 EH	A572-50 (50 ksi)	Equal Angle	L4x4x3/8	A572-50 (50 ksi)
T9 160.00-140.00	Pipe	ROHN 10 EH	A572-50 (50 ksi)	Equal Angle	L5x5x3/8	A572-50 (50 ksi)
T10 140.00-120.00	Pipe	ROHN 10 EH	A572-50 (50 ksi)	Equal Angle	L5x5x3/8	A572-50 (50 ksi)
T11 120.00-100.00	Pipe	ROHN 10 EH	A572-50 (50 ksi)	Pipe	ROHN 3 EH	A572-50 (50 ksi)
T12 100.00-80.00	Pipe	ROHN 10 EH	A572-50 (50 ksi)	Pipe	ROHN 3 EH	A572-50 (50 ksi)
T13 80.00-60.00	Pipe	ROHN 12 EH	A572-50 (50 ksi)	Pipe	ROHN 3 EH	A572-50 (50 ksi)
T14 60.00-30.00	Pipe	ROHN 12 EH	A572-50 (50 ksi)	Pipe	ROHN 3.5 EH	A572-50 (50 ksi)
T15 30.00-0.00	Pipe	ROHN 12 EHS	A572-50 (50 ksi)	Pipe	ROHN 3.5 EH	A572-50 (50 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 320.00-300.00	Equal Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T2 300.00-280.00	Equal Angle	L2x2x1/4	A36 (36 ksi)	Solid Round		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
T11 120.00-100.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T12 100.00-80.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T13 80.00-60.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 3 EH	A572-50 (50 ksi)
T14 60.00-30.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 3.5 EH	A572-50 (50 ksi)
T15 30.00-0.00	None	Flat Bar		A36 (36 ksi)	Pipe	ROHN 4 STD	A572-50 (50 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
T11 120.00-100.00	Pipe		A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T12 100.00-80.00	Pipe		A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T13 80.00-60.00	Pipe		A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T14 60.00-30.00	Pipe		A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T15 30.00-0.00	Pipe		A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Redundant Bracing Grade		Redundant Type	Redundant Size	K Factor
T11 120.00-100.00	A572-50 (50 ksi)	Horizontal (1)	Pipe	ROHN 1.5 STD	1
		Diagonal (1)	Pipe	ROHN 2 STD	1
		Hip (1)	Pipe	ROHN 1.5 STD	1
		Hip Diagonal		ROHN 2.5 STD	1
T12 100.00-80.00	A572-50 (50 ksi)	Horizontal (1)	Pipe	ROHN 1.5 STD	1
		Diagonal (1)	Pipe	ROHN 2 STD	1
		Hip (1)	Pipe	ROHN 1.5 STD	1
		Hip Diagonal		ROHN 2.5 STD	1
T13 80.00-60.00	A572-50 (50 ksi)	Horizontal (1)	Pipe	ROHN 2 STD	1
		Diagonal (1)	Pipe	ROHN 2 STD	1
		Hip (1)	Pipe	ROHN 1.5 STD	1
		Hip Diagonal		ROHN 3 STD	1
T14 60.00-30.00	A572-50 (50 ksi)	Horizontal (1)	Pipe	ROHN 1.5 STD	1
		Horizontal (2)		ROHN 2 EH	
		Diagonal (1)	Pipe	ROHN 2 STD	1
		Diagonal (2)		ROHN 2.5 STD	
		Hip (1)	Pipe	ROHN 1.5 STD	1
		Hip (2)		ROHN 2 STD	
		Hip Diagonal		ROHN 2 STD	1
T15 30.00-0.00	A572-50 (50 ksi)	Horizontal (1)	Pipe	ROHN 1.5 STD	1
		Horizontal (2)		ROHN 2.5 EH	
		Diagonal (1)	Pipe	ROHN 2.5 STD	1
		Diagonal (2)		ROHN 2.5 STD	
		Hip (1)	Pipe	ROHN 1.5 STD	1
		Hip (2)		ROHN 2 STD	
		Hip Diagonal		ROHN 2.5 STD	1

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
T1 320.00-300.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T2 300.00-280.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T3 280.00-260.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T4 260.00-240.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T5 240.00-220.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T6 220.00-200.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T7 200.00-180.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T8 180.00-160.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T9 160.00-140.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T10 140.00-120.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T11 120.00-100.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T12 100.00-	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
80.00			(36 ksi)					
T13 80.00-60.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T14 60.00-30.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T15 30.00-0.00	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	K Factors[1] Legs	X Brace Diags X	X Brace Diags Y	Single Diags X	Single Diags Y	Girts X	Girts Y	Horiz. X	Horiz. Y	Sec. Horiz. X	Sec. Horiz. Y	Inner Brace X	Inner Brace Y
T1 320.00-300.00	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1
T2 300.00-280.00	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1
T3 280.00-260.00	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1
T4 260.00-240.00	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1
T5 240.00-220.00	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1
T6 220.00-200.00	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1
T7 200.00-180.00	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1
T8 180.00-160.00	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1
T9 160.00-140.00	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1
T10 140.00-120.00	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1
T11 120.00-100.00	No	No	1	1	0.95	1	1	1	1	1	1	1	1	1	1
T12 100.00-80.00	No	No	1	1	0.95	1	1	1	1	1	1	1	1	1	1
T13 80.00-60.00	No	No	1	1	0.95	1	1	1	1	1	1	1	1	1	1
T14 60.00-30.00	No	No	1	1	1	1	1	1	1	1	1	1	1	1	1
T15 30.00-0.00	No	No	1	1	1	1	1	1	1	1	1	1	1	1	1

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

Tower Section Geometry *(cont'd)*

ERITower	Job	Page
	320' Rohn SSVMW	7 of 18
URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-3991	Project CSP Tower - Colchester, CT	Date 16:37:34 04/03/06
	Client Cingular Wireless	Designed by Jed Kiernan

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 320.00-300.00	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
T2 300.00-280.00	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
T3 280.00-260.00	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
T4 260.00-240.00	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
T5 240.00-220.00	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
T6 220.00-200.00	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
T7 200.00-180.00	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
T8 180.00-160.00	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
T9 160.00-140.00	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
T10 140.00-120.00	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
T11 120.00-100.00	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
T12 100.00-80.00	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
T13 80.00-60.00	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
T14 60.00-30.00	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
T15 30.00-0.00	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		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 320.00-300.00	Flange	1.0000 A325N	6	0.6250 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T2 300.00-280.00	Flange	1.0000 A325N	8	0.6250 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 280.00-260.00	Flange	1.0000 A325N	8	0.7500 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T4 260.00-240.00	Flange	1.0000 A325N	8	0.7500 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T5 240.00-220.00	Flange	1.0000 A325N	8	0.7500 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T6 220.00-200.00	Flange	1.0000 A325N	12	0.7500 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T7 200.00-180.00	Flange	1.0000 A325N	12	0.8750 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

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.
T8 180.00-160.00	Flange	1.0000 A325N	12	0.8750 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T9 160.00-140.00	Flange	1.0000 A325N	12	0.8750 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T10 140.00-120.00	Flange	1.0000 A325N	12	0.8750 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T11 120.00-100.00	Flange	1.0000 A325N	12	0.7500 A325X	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.7500 A325X	2	0.6250 A325N	0
T12 100.00-80.00	Flange	1.0000 A325N	16	0.7500 A325X	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.7500 A325X	2	0.6250 A325N	0
T13 80.00-60.00	Flange	1.0000 A325N	16	0.7500 A325X	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.7500 A325X	2	0.6250 A325N	0
T14 60.00-30.00	Flange	1.0000 A325N	16	0.8750 A325X	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.7500 A325X	2	0.6250 A325N	0
T15 30.00-0.00	Flange	1.0000 A325N	24	0.8750 A325X	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.7500 A325X	2	0.6250 A325N	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
1 5/8 (Verizon)	C	Yes	Ar (CfAe)	220.00 - 0.00	0.0000	-0.4	12	12	1.9800	1.9800		1.04
3/4 Electrical	B	Yes	Ar (CfAe)	320.00 - 0.00	0.0000	0.48	2	2	1.1100	1.1100		0.54
7/8	B	Yes	Ar (CfAe)	320.00 - 0.00	0.0000	0.46	3	3	1.1100	1.1100		0.54
EW63	B	Yes	Af (CfAe)	320.00 - 0.00	0.0000	0.44	3	3	1.5742	1.5742	5.0668	0.51
7/8	B	Yes	Ar (CfAe)	294.00 - 0.00	0.0000	0.42	2	2	1.1100	1.1100		0.54
1 5/8	B	Yes	Ar (CfAe)	280.00 - 0.00	0.0000	0.4	4	4	1.9800	1.9800		1.04
7/8	B	Yes	Ar (CfAe)	250.00 - 0.00	0.0000	0.38	3	3	1.1100	1.1100		0.54
7/8	B	Yes	Ar (CfAe)	140.00 - 0.00	0.0000	0.36	4	4	1.1100	1.1100		0.54
EW108	B	Yes	Af (CfAe)	112.00 - 0.00	0.0000	0.34	1	1	0.5899	0.5899	2.0063	0.15
EW65	B	Yes	Af (CfAe)	105.00 - 0.00	0.0000	0.32	1	1	1.5742	1.5742	5.0668	0.51
7/8	B	Yes	Ar (CfAe)	105.00 - 0.00	0.0000	0.3	2	2	1.1100	1.1100		0.54
7/8	B	Yes	Ar (CfAe)	95.00 - 0.00	0.0000	0.28	2	2	1.1100	1.1100		0.54
EW63 (Reserved)	C	Yes	Af (CfAe)	175.00 - 0.00	0.0000	-0.45	1	1	1.5742	1.5742	5.0668	0.51
EW63 (Reserved)	C	Yes	Af (CfAe)	115.00 - 0.00	0.0000	-0.47	1	1	1.5742	1.5742	5.0668	0.51
1 5/8 (Cingular)	A	Yes	Ar (CfAe)	200.00 - 0.00	0.0000	-0.42	24	12	1.9800	1.9800		1.04

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	320.00-300.00	A	0.000	0.000	0.000	0.000	0.00
		B	9.250	7.871	0.000	0.000	0.08
		C	0.000	0.000	0.000	0.000	0.00

ERITower	Job	Page
	320' Rohn SSVMW	9 of 18
URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-3991	Project CSP Tower - Colchester, CT	Date 16:37:34 04/03/06
	Client Cingular Wireless	Designed by Jed Kiernan

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T2	300.00-280.00	A	0.000	0.000	0.000	0.000	0.00
		B	11.840	7.871	0.000	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.00
T3	280.00-260.00	A	0.000	0.000	0.000	0.000	0.00
		B	26.150	7.871	0.000	0.000	0.19
		C	0.000	0.000	0.000	0.000	0.00
T4	260.00-240.00	A	0.000	0.000	0.000	0.000	0.00
		B	28.925	7.871	0.000	0.000	0.21
		C	0.000	0.000	0.000	0.000	0.00
T5	240.00-220.00	A	0.000	0.000	0.000	0.000	0.00
		B	31.700	7.871	0.000	0.000	0.22
		C	0.000	0.000	0.000	0.000	0.00
T6	220.00-200.00	A	0.000	0.000	0.000	0.000	0.00
		B	31.700	7.871	0.000	0.000	0.22
		C	39.600	0.000	0.000	0.000	0.25
T7	200.00-180.00	A	39.600	0.000	0.000	0.000	0.50
		B	31.700	7.871	0.000	0.000	0.22
		C	39.600	0.000	0.000	0.000	0.25
T8	180.00-160.00	A	39.600	0.000	0.000	0.000	0.50
		B	31.700	7.871	0.000	0.000	0.22
		C	39.600	1.968	0.000	0.000	0.26
T9	160.00-140.00	A	39.600	0.000	0.000	0.000	0.50
		B	31.700	7.871	0.000	0.000	0.22
		C	39.600	2.624	0.000	0.000	0.26
T10	140.00-120.00	A	39.600	0.000	0.000	0.000	0.50
		B	39.100	7.871	0.000	0.000	0.27
		C	39.600	2.624	0.000	0.000	0.26
T11	120.00-100.00	A	39.600	0.000	0.000	0.000	0.50
		B	40.025	9.117	0.000	0.000	0.27
		C	39.600	4.591	0.000	0.000	0.27
T12	100.00-80.00	A	39.600	0.000	0.000	0.000	0.50
		B	45.575	11.478	0.000	0.000	0.32
		C	39.600	5.247	0.000	0.000	0.27
T13	80.00-60.00	A	39.600	0.000	0.000	0.000	0.50
		B	46.500	11.478	0.000	0.000	0.32
		C	39.600	5.247	0.000	0.000	0.27
T14	60.00-30.00	A	59.400	0.000	0.000	0.000	0.75
		B	69.750	17.217	0.000	0.000	0.48
		C	59.400	7.871	0.000	0.000	0.41
T15	30.00-0.00	A	59.400	0.000	0.000	0.000	0.75
		B	69.750	17.217	0.000	0.000	0.48
		C	59.400	7.871	0.000	0.000	0.41

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	320.00-300.00	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		17.583	11.204	0.000	0.000	0.26
		C		0.000	0.000	0.000	0.000	0.00
T2	300.00-280.00	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		22.507	11.204	0.000	0.000	0.31
		C		0.000	0.000	0.000	0.000	0.00
T3	280.00-260.00	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		44.483	11.204	0.000	0.000	0.53
		C		0.000	0.000	0.000	0.000	0.00
T4	260.00-240.00	A	0.500	0.000	0.000	0.000	0.000	0.00

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B		49.758	11.204	0.000	0.000	0.58
		C		0.000	0.000	0.000	0.000	0.00
T5	240.00-220.00	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		55.033	11.204	0.000	0.000	0.62
		C		0.000	0.000	0.000	0.000	0.00
T6	220.00-200.00	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		55.033	11.204	0.000	0.000	0.62
		C		59.600	0.000	0.000	0.000	0.61
T7	200.00-180.00	A	0.500	59.600	0.000	0.000	0.000	1.23
		B		55.033	11.204	0.000	0.000	0.62
		C		59.600	0.000	0.000	0.000	0.61
T8	180.00-160.00	A	0.500	59.600	0.000	0.000	0.000	1.23
		B		55.033	11.204	0.000	0.000	0.62
		C		59.600	2.801	0.000	0.000	0.64
T9	160.00-140.00	A	0.500	59.600	0.000	0.000	0.000	1.23
		B		55.033	11.204	0.000	0.000	0.62
		C		59.600	3.735	0.000	0.000	0.65
T10	140.00-120.00	A	0.500	59.600	0.000	0.000	0.000	1.23
		B		69.100	11.204	0.000	0.000	0.74
		C		59.600	3.735	0.000	0.000	0.65
T11	120.00-100.00	A	0.500	59.600	0.000	0.000	0.000	1.23
		B		70.858	13.395	0.000	0.000	0.78
		C		59.600	6.536	0.000	0.000	0.68
T12	100.00-80.00	A	0.500	59.600	0.000	0.000	0.000	1.23
		B		81.408	17.033	0.000	0.000	0.90
		C		59.600	7.470	0.000	0.000	0.69
T13	80.00-60.00	A	0.500	59.600	0.000	0.000	0.000	1.23
		B		83.167	17.033	0.000	0.000	0.92
		C		59.600	7.470	0.000	0.000	0.69
T14	60.00-30.00	A	0.500	89.400	0.000	0.000	0.000	1.84
		B		124.750	25.550	0.000	0.000	1.38
		C		89.400	11.204	0.000	0.000	1.03
T15	30.00-0.00	A	0.500	89.400	0.000	0.000	0.000	1.84
		B		124.750	25.550	0.000	0.000	1.38
		C		89.400	11.204	0.000	0.000	1.03

Feed Line Shielding

Section	Elevation ft	Face	A_R ft^2	A_R Ice ft^2	A_F ft^2	A_F Ice ft^2
T1	320.00-300.00	A	0.000	0.000	0.000	0.000
		B	0.000	0.000	1.573	3.863
		C	0.000	0.000	0.000	0.000
T2	300.00-280.00	A	0.000	0.000	0.000	0.000
		B	0.000	0.000	1.727	4.132
		C	0.000	0.000	0.000	0.000
T3	280.00-260.00	A	0.000	0.000	0.000	0.000
		B	0.000	0.000	2.564	5.474
		C	0.000	0.000	0.000	0.000
T4	260.00-240.00	A	0.000	0.000	0.000	0.000
		B	0.000	0.000	3.155	6.564
		C	0.000	0.000	0.000	0.000
T5	240.00-220.00	A	0.000	0.000	0.000	0.000
		B	0.000	0.000	4.380	8.768
		C	0.000	0.000	0.000	0.000
T6	220.00-200.00	A	0.000	0.000	0.000	0.000

Section	Elevation	Face	A_R	A_R Ice	A_F	A_F Ice
	ft		ft^2	ft^2	ft^2	ft^2
		B	0.000	0.000	3.107	6.220
		C	0.000	0.000	3.109	5.460
T7	200.00-180.00	A	0.000	0.000	3.015	5.294
		B	0.000	0.000	3.013	6.031
		C	0.000	0.000	3.015	5.294
T8	180.00-160.00	A	0.000	0.000	2.945	5.170
		B	0.000	0.000	2.942	5.891
		C	0.000	0.000	3.091	5.449
T9	160.00-140.00	A	0.000	0.000	3.618	6.172
		B	0.000	0.000	3.616	7.032
		C	0.000	0.000	3.858	6.616
T10	140.00-120.00	A	0.000	0.000	3.569	6.087
		B	0.000	0.000	4.233	8.372
		C	0.000	0.000	3.805	6.526
T11	120.00-100.00	A	2.688	5.475	0.000	0.000
		B	3.335	7.936	0.000	0.000
		C	2.999	6.165	0.000	0.000
T12	100.00-80.00	A	2.572	5.239	0.000	0.000
		B	3.706	8.898	0.000	0.000
		C	2.913	5.993	0.000	0.000
T13	80.00-60.00	A	2.560	5.173	0.000	0.000
		B	3.748	8.938	0.000	0.000
		C	2.899	5.918	0.000	0.000
T14	60.00-30.00	A	4.171	8.402	0.000	0.000
		B	6.106	14.518	0.000	0.000
		C	4.723	9.612	0.000	0.000
T15	30.00-0.00	A	4.315	8.525	0.000	0.000
		B	6.318	14.730	0.000	0.000
		C	4.887	9.752	0.000	0.000

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
T1	320.00-300.00	5.7821	2.9520	7.1025	3.6441
T2	300.00-280.00	6.6750	3.3779	8.5933	4.3612
T3	280.00-260.00	11.0518	5.2903	14.1421	6.8116
T4	260.00-240.00	12.7911	6.0842	16.6398	7.9470
T5	240.00-220.00	13.1492	6.2185	17.5579	8.3243
T6	220.00-200.00	26.2723	15.6197	32.4306	19.0842
T7	200.00-180.00	10.5398	19.5179	13.8444	23.4557
T8	180.00-160.00	12.1105	21.5914	15.7775	25.9400
T9	160.00-140.00	12.1464	21.3930	16.0555	26.1545
T10	140.00-120.00	15.0912	23.2372	20.2284	28.4681
T11	120.00-100.00	19.9795	28.9268	24.9235	33.1525
T12	100.00-80.00	24.3917	31.5250	30.3482	36.0111
T13	80.00-60.00	24.7156	31.5797	31.3068	36.6933
T14	60.00-30.00	26.5159	33.8668	33.5485	39.3179
T15	30.00-0.00	28.0485	35.8107	35.7092	41.8405

Discrete Tower Loads

ERITower	Job: 320' Rohn SSVMW	Page: 12 of 18
URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-3991	Project: CSP Tower - Colchester, CT	Date: 16:37:34 04/03/06
	Client: Cingular Wireless	Designed by: Jed Kiernan

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Dual Lights	C	None		0.0000	320.00	No Ice	4.00	4.00	0.25
						1/2" Ice	4.80	4.80	0.40
5'3"x4" Pipe Mount (CSP future)	A	From Leg	0.50 0.00 0.00	0.0000	320.00	No Ice 1/2" Ice	1.88 2.21	1.88 2.21	0.06 0.07
5'3"x4" Pipe Mount (CSP future)	B	From Leg	0.50 0.00 0.00	0.0000	320.00	No Ice 1/2" Ice	1.88 2.21	1.88 2.21	0.06 0.07
5'3"x4" Pipe Mount (CSP future)	C	From Leg	0.50 0.00 0.00	0.0000	320.00	No Ice 1/2" Ice	1.88 2.21	1.88 2.21	0.06 0.07
PD128 (CSP)	C	From Leg	6.00 0.00 0.00	0.0000	320.00	No Ice 1/2" Ice	1.00 1.80	1.00 1.80	0.01 0.02
6' Side Mount Standoff	C	None		0.0000	320.00	No Ice	6.50	6.50	0.10
						1/2" Ice	8.50	8.50	0.17
PD128 (CSP)	C	From Leg	6.00 0.00 0.00	0.0000	318.00	No Ice 1/2" Ice	1.00 1.80	1.00 1.80	0.01 0.02
6' Side Mount Standoff	C	None		0.0000	318.00	No Ice	6.50	6.50	0.10
						1/2" Ice	8.50	8.50	0.17
6'8"x4" Pipe Mount (CSP)	C	From Leg	0.50 0.00 0.00	0.0000	315.00	No Ice 1/2" Ice	2.60 3.01	2.60 3.01	0.07 0.09
DB224 (SHF)	A	From Leg	6.00 0.00 0.00	0.0000	294.00	No Ice 1/2" Ice	3.15 5.67	3.15 5.67	0.03 0.04
6' Side Mount Standoff	A	None		0.0000	294.00	No Ice	6.50	6.50	0.10
						1/2" Ice	8.50	8.50	0.17
PD320 (DEP)	C	From Leg	6.00 0.00 0.00	0.0000	292.00	No Ice 1/2" Ice	2.25 4.05	2.25 4.05	0.03 0.04
6' Side Mount Standoff	C	None		0.0000	292.00	No Ice	6.50	6.50	0.10
						1/2" Ice	8.50	8.50	0.17
(2) DB809 (CSP)	A	From Leg	6.00 0.00 0.00	0.0000	285.00	No Ice 1/2" Ice	3.39 4.55	3.39 4.55	0.03 0.06
6' Side Mount Standoff	A	None		0.0000	285.00	No Ice	6.50	6.50	0.10
						1/2" Ice	8.50	8.50	0.17
(2) OGT9 (CSP)	A	From Leg	6.00 0.00 0.00	0.0000	275.00	No Ice 1/2" Ice	3.15 5.67	3.15 5.67	0.03 0.04
6' Side Mount Standoff	A	None		0.0000	275.00	No Ice	6.50	6.50	0.10
						1/2" Ice	8.50	8.50	0.17
PD440 (OEM)	B	From Leg	6.00 0.00 0.00	0.0000	257.00	No Ice 1/2" Ice	1.38 2.48	1.38 2.48	0.02 0.02
6' Side Mount Standoff	B	None		0.0000	257.00	No Ice	6.50	6.50	0.10
						1/2" Ice	8.50	8.50	0.17
PD128 (OEM)	C	From Leg	6.00 0.00 0.00	0.0000	243.00	No Ice 1/2" Ice	1.00 1.80	1.00 1.80	0.01 0.02
6' Side Mount Standoff	C	None		0.0000	243.00	No Ice	6.50	6.50	0.10
						1/2" Ice	8.50	8.50	0.17
PD320 (CSP)	A	From Leg	6.00 0.00	0.0000	227.00	No Ice 1/2" Ice	2.25 4.05	2.25 4.05	0.03 0.04

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
				0.00						
6' Side Mount Standoff	A	None			0.0000	227.00	No Ice	6.50	6.50	0.10
							1/2" Ice	8.50	8.50	0.17
DB844	A	From Leg	5.00		0.0000	220.00	No Ice	3.06	3.73	0.01
(Verizon)			6.00				1/2" Ice	3.39	4.10	0.04
				0.00						
DB844	A	From Leg	5.00		0.0000	220.00	No Ice	3.06	3.73	0.01
(Verizon)			-6.00				1/2" Ice	3.39	4.10	0.04
				0.00						
DB948F85T2E-M	A	From Leg	5.00		0.0000	220.00	No Ice	1.92	3.26	0.01
(Verizon)			4.00				1/2" Ice	2.22	3.62	0.03
				0.00						
DB948F85T2E-M	A	From Leg	5.00		0.0000	220.00	No Ice	1.92	3.26	0.01
(Verizon)			-4.00				1/2" Ice	2.22	3.62	0.03
				0.00						
DB844	B	From Leg	5.00		0.0000	220.00	No Ice	3.06	3.73	0.01
(Verizon)			6.00				1/2" Ice	3.39	4.10	0.04
				0.00						
DB844	B	From Leg	5.00		0.0000	220.00	No Ice	3.06	3.73	0.01
(Verizon)			-6.00				1/2" Ice	3.39	4.10	0.04
				0.00						
DB948F85T2E-M	B	From Leg	5.00		0.0000	220.00	No Ice	1.92	3.26	0.01
(Verizon)			4.00				1/2" Ice	2.22	3.62	0.03
				0.00						
DB948F85T2E-M	B	From Leg	5.00		0.0000	220.00	No Ice	1.92	3.26	0.01
(Verizon)			-4.00				1/2" Ice	2.22	3.62	0.03
				0.00						
DB844	C	From Leg	5.00		0.0000	220.00	No Ice	3.06	3.73	0.01
(Verizon)			6.00				1/2" Ice	3.39	4.10	0.04
				0.00						
DB844	C	From Leg	5.00		0.0000	220.00	No Ice	3.06	3.73	0.01
(Verizon)			-6.00				1/2" Ice	3.39	4.10	0.04
				0.00						
DB948F85T2E-M	C	From Leg	5.00		0.0000	220.00	No Ice	1.92	3.26	0.01
(Verizon)			4.00				1/2" Ice	2.22	3.62	0.03
				0.00						
DB948F85T2E-M	C	From Leg	5.00		0.0000	220.00	No Ice	1.92	3.26	0.01
(Verizon)			-4.00				1/2" Ice	2.22	3.62	0.03
				0.00						
Mounting Frame	A	From Leg	5.00		0.0000	220.00	No Ice	17.00	17.00	0.56
(Verizon)			0.00				1/2" Ice	20.00	20.00	0.70
				0.00						
Mounting Frame	B	From Leg	5.00		0.0000	220.00	No Ice	17.00	17.00	0.56
(Verizon)			0.00				1/2" Ice	20.00	20.00	0.70
				0.00						
Mounting Frame	C	From Leg	5.00		0.0000	220.00	No Ice	17.00	17.00	0.56
(Verizon)			0.00				1/2" Ice	20.00	20.00	0.70
				0.00						
PiROD 12' Lightweight T-Frame	A	None			0.0000	200.00	No Ice	10.20	10.20	0.25
(Cingular)							1/2" Ice	16.20	16.20	0.35
PiROD 12' Lightweight T-Frame	B	None			0.0000	200.00	No Ice	10.20	10.20	0.25
(Cingular)							1/2" Ice	16.20	16.20	0.35
PiROD 12' Lightweight T-Frame	C	None			0.0000	200.00	No Ice	10.20	10.20	0.25
(Cingular)							1/2" Ice	16.20	16.20	0.35

Description	Face or Leg	Offset Type	Offsets: Horz Lateral / Vert	Azimuth Adjustment	Placement		C_AA_A Front	C_AA_A Side	Weight
			ft / ft / ft	°	ft		ft^2	ft^2	K
(4) 7770.00 (Cingular)	A	From Leg	3.00 0.00 0.00	0.0000	200.00	No Ice 1/2" Ice	5.88 6.31	2.93 3.27	0.04 0.07
(4) 7770.00 (Cingular)	B	From Leg	3.00 0.00 0.00	0.0000	200.00	No Ice 1/2" Ice	5.88 6.31	2.93 3.27	0.04 0.07
(4) 7770.00 (Cingular)	C	From Leg	3.00 0.00 0.00	0.0000	200.00	No Ice 1/2" Ice	5.88 6.31	2.93 3.27	0.04 0.07
(4) LPG21401 TMA (Cingular)	A	From Leg	3.00 0.00 0.00	0.0000	200.00	No Ice 1/2" Ice	0.95 1.09	0.37 0.48	0.02 0.02
(4) LPG21401 TMA (Cingular)	B	From Leg	3.00 0.00 0.00	0.0000	200.00	No Ice 1/2" Ice	0.95 1.09	0.37 0.48	0.02 0.02
(4) LPG21401 TMA (Cingular)	C	From Leg	3.00 0.00 0.00	0.0000	200.00	No Ice 1/2" Ice	0.95 1.09	0.37 0.48	0.02 0.02
(4) LPG13519 Diplexer (Cingular)	A	From Leg	3.00 0.00 0.00	0.0000	200.00	No Ice 1/2" Ice	0.27 0.34	0.18 0.25	0.01 0.01
(4) LPG13519 Diplexer (Cingular)	B	From Leg	3.00 0.00 0.00	0.0000	200.00	No Ice 1/2" Ice	0.27 0.34	0.18 0.25	0.01 0.01
(4) LPG13519 Diplexer (Cingular)	C	From Leg	3.00 0.00 0.00	0.0000	200.00	No Ice 1/2" Ice	0.27 0.34	0.18 0.25	0.01 0.01
5'3"x4" Pipe Mount (Reserved)	B	From Leg	0.50 0.00 0.00	0.0000	175.00	No Ice 1/2" Ice	1.88 2.21	1.88 2.21	0.06 0.07
PD688S-4 (NEU)	A	From Leg	6.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice	0.35 0.63	0.35 0.63	0.00 0.00
DB212-I (NEU)	B	None		0.0000	140.00	No Ice 1/2" Ice	4.40 8.42	4.40 8.42	0.03 0.07
6' Side Mount Standoff	B	None		0.0000	140.00	No Ice 1/2" Ice	6.50 8.50	6.50 8.50	0.10 0.17
BA1012-0 (OEM)	A	From Leg	6.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice	0.47 0.96	0.47 0.96	0.00 0.01
6' Side Mount Standoff	A	None		0.0000	140.00	No Ice 1/2" Ice	6.50 8.50	6.50 8.50	0.10 0.17
PD156S (DEP)	C	From Leg	1.00 0.00 0.00	0.0000	138.00	No Ice 1/2" Ice	0.44 0.79	0.44 0.79	0.01 0.01
3'4"x4" Pipe Mount (DEP)	C	From Leg	0.50 0.00 0.00	0.0000	138.00	No Ice 1/2" Ice	1.05 1.27	1.05 1.27	0.04 0.05
5'3"x4" Pipe Mount (Reserved)	A	From Leg	0.50 0.00 0.00	0.0000	115.00	No Ice 1/2" Ice	1.88 2.21	1.88 2.21	0.06 0.07
3'4"x4" Pipe Mount (CSP)	C	From Leg	0.50 0.00 0.00	0.0000	112.00	No Ice 1/2" Ice	1.05 1.27	1.05 1.27	0.04 0.05
5'3"x4" Pipe Mount (CSP)	A	From Leg	0.50 0.00 0.00	0.0000	105.00	No Ice 1/2" Ice	1.88 2.21	1.88 2.21	0.06 0.07

ERITower	Job	Page
URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-3991	320' Rohn SSVMW	15 of 18
	Project CSP Tower - Colchester, CT	Date 16:37:34 04/03/06
	Client Cingular Wireless	Designed by Jed Kiernan

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
PD458	B	From Leg	6.00	0.0000	100.00	No Ice	2.88	2.88	0.02
(CTT)			0.00			1/2" Ice	4.34	4.34	0.05
			0.00						
DB437	B	From Leg	6.00	0.0000	100.00	No Ice	0.45	0.45	0.01
(FBI)			0.00			1/2" Ice	0.81	0.81	0.01
			0.00						
6' Side Mount Standoff	B	None		0.0000	100.00	No Ice	6.50	6.50	0.10
						1/2" Ice	8.50	8.50	0.17
5'3"x4" Pipe Mount	A	From Leg	0.50	0.0000	97.00	No Ice	1.88	1.88	0.06
(CSP)			0.00			1/2" Ice	2.21	2.21	0.07
			0.00						
3'4"x4" Pipe Mount	C	From Leg	0.50	0.0000	90.00	No Ice	1.05	1.05	0.04
(CSP)			0.00			1/2" Ice	1.27	1.27	0.05
			0.00						

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
8 FT DISH	B	Paraboloid	From	1.00	Worst		315.00	8.00	No Ice	50.30	0.25
		w/Radome	Leg	0.00					1/2" Ice	51.29	0.51
				0.00							
6 FT DISH	A	Paraboloid	From	1.00	Worst		320.00	6.00	No Ice	28.27	0.14
		w/Radome	Leg	0.00					1/2" Ice	29.05	0.29
				0.00							
6 FT DISH	B	Paraboloid	From	1.00	Worst		320.00	6.00	No Ice	28.27	0.14
		w/Radome	Leg	0.00					1/2" Ice	29.05	0.29
				0.00							
6 FT DISH	C	Paraboloid	From	1.00	Worst		320.00	6.00	No Ice	28.27	0.14
		w/Radome	Leg	0.00					1/2" Ice	29.05	0.29
				0.00							
4 FT DISH	C	Paraboloid	From	1.00	Worst		112.00	4.00	No Ice	12.56	0.17
		w/Radome	Leg	0.00					1/2" Ice	13.09	0.24
				0.00							
6 FT DISH	A	Paraboloid	From	1.00	Worst		105.00	6.00	No Ice	28.27	0.14
		w/Radome	Leg	0.00					1/2" Ice	29.05	0.29
				0.00							
6 FT DISH	A	Paraboloid	From	1.00	Worst		97.00	6.00	No Ice	28.27	0.14
		w/Radome	Leg	0.00					1/2" Ice	29.05	0.29
				0.00							
4 FT DISH	C	Paraboloid	From	1.00	Worst		90.00	4.00	No Ice	12.56	0.17
		w/Radome	Leg	0.00					1/2" Ice	13.09	0.24
				0.00							
6 FT DISH	B	Paraboloid	From	1.00	Worst		175.00	6.00	No Ice	28.27	0.14
(Reserved)		w/Radome	Leg	0.00					1/2" Ice	29.05	0.29
				0.00							
6 FT DISH	A	Paraboloid	From	1.00	Worst		115.00	6.00	No Ice	28.27	0.14
(Reserved)		w/Radome	Leg	0.00					1/2" Ice	29.05	0.29

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	K
				0.00						

Load Combinations

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

Comb. No.	Description
50	Dead+Wind 330 deg - Service

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	320 - 300	18.709	40	0.5043	0.1982
T2	300 - 280	16.549	40	0.4908	0.1607
T3	280 - 260	14.493	40	0.4646	0.1323
T4	260 - 240	12.542	40	0.4414	0.1181
T5	240 - 220	10.694	40	0.4132	0.1059
T6	220 - 200	8.985	40	0.3800	0.0979
T7	200 - 180	7.423	40	0.3425	0.0911
T8	180 - 160	5.995	40	0.3100	0.0836
T9	160 - 140	4.698	40	0.2749	0.0746
T10	140 - 120	3.560	40	0.2369	0.0671
T11	120 - 100	2.581	40	0.1969	0.0593
T12	100 - 80	1.791	40	0.1582	0.0467
T13	80 - 60	1.152	40	0.1195	0.0364
T14	60 - 30	0.665	35	0.0870	0.0274
T15	30 - 0	0.206	35	0.0390	0.0137

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
320.00	6 FT DISH	40	18.709	0.5043	0.1982	148070
318.00	PD128	40	18.491	0.5033	0.1943	148070
315.00	8 FT DISH	40	18.164	0.5018	0.1885	148070
294.00	DB224	40	15.920	0.4837	0.1508	39468
292.00	PD320	40	15.713	0.4810	0.1477	40359
285.00	(2) DB809	40	14.997	0.4714	0.1380	43821
275.00	(2) OGT9	40	13.996	0.4585	0.1278	48169
257.00	PD440	40	12.258	0.4377	0.1162	48324
243.00	PD128	40	10.963	0.4177	0.1075	34030
227.00	PD320	40	9.566	0.3923	0.1003	32211
220.00	DB844	40	8.985	0.3800	0.0979	32463
200.00	PiROD 12' Lightweight T-Frame	40	7.423	0.3425	0.0911	35712
175.00	6 FT DISH	40	5.657	0.3016	0.0814	35996
140.00	PD688S-4	40	3.560	0.2369	0.0671	32543
138.00	PD156S	40	3.454	0.2329	0.0664	31719
115.00	6 FT DISH	40	2.367	0.1872	0.0564	24776
112.00	4 FT DISH	40	2.244	0.1814	0.0545	26416
105.00	6 FT DISH	40	1.973	0.1680	0.0499	31238
100.00	PD458	40	1.791	0.1582	0.0467	34789
97.00	6 FT DISH	40	1.686	0.1523	0.0449	34916
90.00	4 FT DISH	40	1.454	0.1384	0.0411	33017

Maximum Tower Deflections - Design Wind

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	320' Rohn SSVMW	18 of 18
URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-3991	Project CSP Tower - Colchester, CT	Date 16:37:34 04/03/06
	Client Cingular Wireless	Designed by Jed Kiernan

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	320 - 300	22.696	24	0.6080	0.2581
T2	300 - 280	20.098	24	0.5927	0.2197
T3	280 - 260	17.614	24	0.5628	0.1893
T4	260 - 240	15.248	24	0.5357	0.1737
T5	240 - 220	13.003	24	0.5021	0.1581
T6	220 - 200	10.925	24	0.4621	0.1472
T7	200 - 180	9.025	24	0.4167	0.1375
T8	180 - 160	7.288	24	0.3772	0.1265
T9	160 - 140	5.711	24	0.3345	0.1139
T10	140 - 120	4.327	24	0.2882	0.1033
T11	120 - 100	3.138	24	0.2396	0.0923
T12	100 - 80	2.180	24	0.1925	0.0736
T13	80 - 60	1.405	24	0.1453	0.0576
T14	60 - 30	0.814	19	0.1058	0.0434
T15	30 - 0	0.257	19	0.0475	0.0216

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
320.00	6 FT DISH	24	22.696	0.6080	0.2581	134951
318.00	PD128	24	22.434	0.6069	0.2542	134951
315.00	8 FT DISH	24	22.041	0.6051	0.2483	134951
294.00	DB224	24	19.339	0.5846	0.2092	35699
292.00	PD320	24	19.088	0.5816	0.2059	36404
285.00	(2) DB809	24	18.223	0.5705	0.1954	39109
275.00	(2) OGT9	24	17.012	0.5558	0.1845	42272
257.00	PD440	24	14.903	0.5313	0.1715	41022
243.00	PD128	24	13.330	0.5076	0.1603	28392
227.00	PD320	24	11.632	0.4770	0.1506	26575
220.00	DB844	24	10.925	0.4621	0.1472	26682
200.00	PiROD 12' Lightweight T-Frame	24	9.025	0.4167	0.1375	29592
175.00	6 FT DISH	24	6.878	0.3670	0.1234	29430
140.00	PD688S-4	24	4.327	0.2882	0.1033	26881
138.00	PD156S	24	4.199	0.2834	0.1024	26149
115.00	6 FT DISH	24	2.878	0.2278	0.0881	20111
112.00	4 FT DISH	24	2.729	0.2207	0.0853	21523
105.00	6 FT DISH	24	2.400	0.2043	0.0785	25740
100.00	PD458	24	2.180	0.1925	0.0736	28930
97.00	6 FT DISH	24	2.053	0.1852	0.0709	29090
90.00	4 FT DISH	24	1.771	0.1683	0.0651	27490

ANCHOR BOLT ANALYSIS

URS

				Page ___	of ___
Job	320' Rohn SSVMW - Colchester, CT	Project No.	CW1-079	Sheet 1	of 3
Description	Anchor Bolt Analysis	Computed by	JEK	Date	04/03/06
		Checked by		Date	

ANCHOR BOLT ANALYSIS

Input Data

Max Pier Reactions:

Uplift:	Uplift := 555·kips	*user input*	leg A pg. 39
Shear:	Shear := 85·kips	*user input*	leg A pg. 39
Compression:	Compression := 692·kips	*user input*	leg B pg. 38

Anchor Bolt Data:

Use ASTM A354 Grade BC

Number of Anchor Bolts = N	$N := 24$	*user input*	
Bolt Ultimate Strength:	$F_u := 125 \cdot ksi$	*user input*	
Bolt Yield Strength:	$Fy := 60 \cdot ksi$	*user input*	
Bolt Modulus:	$E := 29000 \cdot ksi$	*user input*	
Thickness of Anchor Bolts	$D := 1in$	*user input*	
Threads per Inch:	$n := 8$	*user input*	
Coefficient of Friction:	$\mu := 0.55$	*user input*	(for baseplate with grout ASCE 10-97)

Anchor Bolt Area:

Gross Area of Bolt:

$A_g := \frac{\pi}{4} \cdot D^2$ $\quad A_g = 0.785\,in^2$ ✓

Net Area of Bolt:

$A_n := \frac{\pi}{4} \cdot \left(D - \frac{0.9743 \cdot in}{n} \right)^2$ $\quad A_n = 0.606\,in^2$ ✓ ASCE 10-97 Eq. 3.10-2

Check Tensile Forces:

Maximum Tensile Force (Gross Area):

$AllowableTension := 1.33 \cdot (0.33 \cdot A_g \cdot F_u)$ $\quad AllowableTension = 43.1\,kips$

Note: 1.33 increase allowed per TIA/EIA

Maximum Tensile Force (Net Area):

$F_{net.area} := 1.33 \cdot (0.60 \cdot A_n \cdot Fy)$ $\quad F_{net.area} = 29.0\,kips$ ✓ ASCE 10-97 Eq. 4.3-1

Note: 1.33 increase allowed per TIA/EIA

Applied Tension:

$MaxTension := \frac{Uplift}{N} = \frac{555}{24} \simeq$ $\quad MaxTension = 23.1\,kips$

Check Stresses:

$\frac{MaxTension}{F_{net.area}} = 0.80$ ✓

$Condition1 := if\left(\frac{MaxTension}{F_{net.area}} \le 1.00, "OK", "Overstressed" \right)$

Condition1 = "OK"

URS

Job	320' Rohn SSVMW - Colchester, CT	Project No.	CW1-079	Page	of
Description	Anchor Bolt Analysis	Computed by	JEK	Sheet	3 of 3
		Checked by		Date	04/03/06

Check Anchor Bolt Area:

Based on the ASCE 10-97 Design of Latticed Steel Transmission Structures

Required Area:

7.4-2 $A_{s1} := \frac{\text{Uplift}}{Fy} + \frac{\text{Shear}}{\mu \cdot 0.85 \cdot Fy}$ $A_{s1} = 12.3\,in^2$ ✓

$= \frac{555}{60} + \frac{85}{0.55 \times .85 \times 60} = 9.25^k + 3.03^k = 12.28^k$ ✓

7.4-4 $A_{s2} := \left| \frac{\text{Shear} - (0.3 \cdot \text{Compression})}{\mu \cdot 0.85 \cdot Fy} \right|$ $A_{s2} = 4.4\,in^2$ ✓

Where base assembly is in contact with concrete or grout

$= \frac{85 - 0.3 \times 692}{0.55 \times .85 \times 60} = 4.37$ ✓

Provided Area:

$A_{sprovided} := A_n \cdot N$ $= 0.606 \times 24 =$ $A_{sprovided} = 14.5\,in^2$

$Condition2 := if\left(\frac{A_{s1}}{A_{sprovided}} \le 1.00, \text{"OK"}, \text{"Overstressed"}\right)$

$\frac{A_{s1}}{A_{sprovided}} = 0.8$ $\frac{12.3}{14.5} = 0.85$

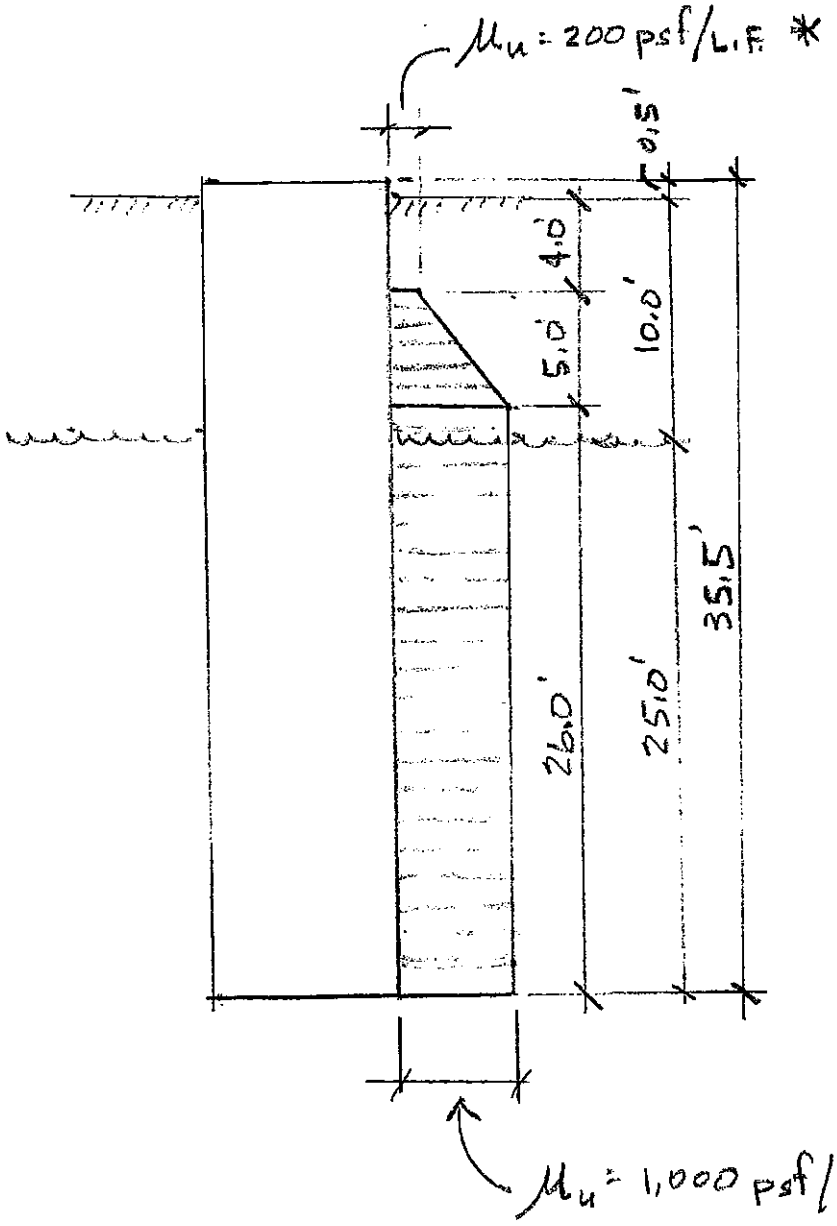
Condition2 = "OK"

$Condition3 := if\left(\frac{A_{s2}}{A_{sprovided}} \le 1.00, \text{"OK"}, \text{"Overstressed"}\right)$

$\frac{A_{s2}}{A_{sprovided}} = 0.3$ ✓ $\frac{4.4}{14.5} = 0.30$ ✓

Condition3 = "OK"

FOUNDATION ANALYSIS



Ultimate skin friction by TIA. Section 7.2.4.2

URS

Job	320' Rohn SSVMW - Colchester, CT	Project No.	CW1-079	Page	of
Description	Evaluation of Drilled Pier Caisson	Computed by	JEK	Sheet	1 of 2
		Checked by		Date	04/03/06

3 SIDED SELF SUPPORTING TOWER FOUNDATION DRILLED PIER

Compression:	DownLoad := 692·kips	γc := 150pcf	Concrete unit weight
Uplift:	uplift := 555·kips	γw := 62.4pcf	Water unit weight
Depth Neglected for Skin Friction at the top	Depthunbond := 4·ft	γs := 120pcf	Soil unit weight
Drill Caisson length	CasissonLength := 35.5·ft	Pierϕ := 7.5·ft	Pier diameter A = 44.2 ft², P = 23.6 ft
Water Table Below grade:	Wd := 10·ft	hg := 0.5·ft	Height of Pier Above grade
Ave allowable Shear at Depth of 4' to 10'	f1 := 380psf Per BL Companies Report 9.13.2000	SoilBearingCapaciy := 6.7ksi	
Ave allowable Shear at Depth of 10' to 35'	f2 := 700psf	Allowable Bearing Pressure at Depth 35'	

TIA 7.2.4.2: Ultimate skin friction = 200psf/ft up to 1,000psf max.

Loading: for first 5' depth W_R =

$$\text{TotalDownLoad} := \text{DownLoad} + \pi\cdot\frac{\text{Pier}\phi^2}{4}\cdot\left[\text{hg}\cdot\gamma c + \left[(\gamma c - \gamma s)\cdot(\text{CasissonLength} - \text{hg})\right]\right]$$

(150-120) 35'

TotalDownLoad = 741.7 kips

$$\text{Pierweight} := \pi\cdot\frac{\text{Pier}\phi^2}{4}\cdot\left[(\text{Wd} + \text{hg})\cdot\gamma c + (\text{CasissonLength} - \text{Wd} - \text{hg})\cdot(\gamma c - \gamma w)\right]$$

25' buoyant wt. of conc.

Pierweight = 166.33 kips ✓ $= \frac{\pi\times 7.5^2}{4}\left[(10.5'\times .150) + (25.0'\times 0.0876)\right] = 166.33^{k}$ ✓

$$\text{Soilshear} := \pi\cdot\text{Pier}\phi\cdot[f1\cdot(\text{Wd} - \text{Depthunbond}) + f2\cdot(\text{CasissonLength} - \text{Wd} - \text{hg})]$$

Soilshear = 466.06 kips ✓ $= \pi\times 7.5\left[(380\times 6.0') + (700\times 25.0)\right] = 466.06^{k}$ ✓

4' to 10' below grade: $S_s = 380_{psf}\times 23.6'\times 6' = 53,808^{\#}$

10' to 35' " " " $S_s = 700\times 23.6\times 25' = 413,000$

Total soil shear cap. = 466,808 #

Compression Capacity:

$$\text{TotalDownLoadCapacity} := \text{Soilshear} + \text{SoilBearingCapaciy}\cdot\left(\pi\cdot\frac{\text{Pier}\phi^2}{4}\right)$$

TotalDownLoadCapacity = 43089.61 kips > 741.7 k okay

CheckDownLoadCapacity := if(TotalDownLoad < TotalDownLoadCapacity, "Okay", "No Good")

CheckDownLoadCapacity = "Okay"

Tension Capacity:

TotalUpLiftCapacity := Soilshear + Pierweight 466.8 + 166.3 = 633.1 K ✓

TotalUpLiftCapacity = 632.39 kips ✓

CkeckUpLiftCapacity := if(uplift < TotalUpLiftCapacity, "Okay", "No Good")

CkeckUpLiftCapacity = "Okay" $F.S = \frac{633}{555} = 1.14$ (low)

Check Cone Failure

$$ConeFailureCapacity := \frac{\left[(CasissonLength - hg)\cdot\tan(30\cdot deg)\cdot 2 + Pier\phi\right]^2\cdot\pi}{4}\cdot\frac{CasissonLength - hg}{3}\cdot\gamma s$$

ConeFailureCapacity = 2524.37 kips

CheckConeFailureCapacity := if(uplift < ConeFailureCapacity, "Okay", "No Good")

CheckConeFailureCapacity = "Okay"

TIA 7.2.4.2 : Ultimate skin friction for straight shaft drilled piers for "standard foundations".

M_s = 200 psf / LF_H to maximum of 1,000 psf.

7.2.4.4 Safety Factors for Uplift

(1) $(W_R/2.0) + (W_c/1.25) > Uplift$ $W_R = 660^K$, $W_c = 166^K$

$\left(\frac{660}{2.0} + \frac{166}{1.25}\right) = 463^K < 555^K$ N.G.

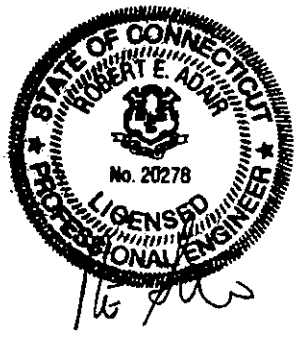
(2) $(W_R + W_c)/1.5$

ALL-POINTS TECHNOLOGY CORPORATION, P.C.

CONDITION ASSESSMENT REPORT
320' SELF-SUPPORTING TOWER
WINDHAM AVENUE
COLCHESTER, CONNECTICUT

Prepared for
Verizon Wireless

March 26, 2008



APT Project #CT1411250

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CONDITION ASSESSMENT REPORT
320' SELF-SUPPORTING TOWER
COLCHESTER, CONNECTICUT
prepared for
Verizon Wireless

EXECUTIVE SUMMARY:

All-Points Technology Corporation, P.C. (APT) performed a condition assessment of the 320' self-supporting communications tower located on Windham Avenue in Colchester, Connecticut.

The tower was observed to be in good condition. Our assessment revealed the following maintenance issues:

- Loose bolts were observed on internal braces at the 100' and 120' elevations. APT recommends all loose bracing bolts be properly tightened.
- Safety cable standoffs were observed to be unattached at the 120' and 300' elevations. APT recommends these be reinstalled.

INTRODUCTION:

A condition assessment was performed on the above-mentioned communications tower by APT for Verizon Wireless The tower is located on Windham Avenue in Colchester, Connecticut.

The tower is a three-legged, self-supporting, galvanized steel structure, apparently a Model SSVMW tower manufactured by ROHN. The 320' tower is comprised of two 30' sections and thirteen 20' sections with pipe legs and both pipe and angle steel bracing. The lower 120' is configured in a K-brace arrangement, with the upper 200' exhibiting angle steel X-braces.

Robert O. Parrott visited the tower site on March 11, 2008 to conduct the condition assessment. Mr. Parrott climbed the structure in its entirety. Condition assessment, antenna inventory, and recommendations follow.

CONDITION ASSESSMENT:

- **General Condition:** The tower, a galvanized steel structure, appeared to be in good condition. No signs of movement or overstress of the tower were observed. Lights were observed to be functioning properly.

- **Climbing Facilities:** A 3/8" diameter safety cable is in place on the southeastern tower leg. The cable was in good condition, however safety cable standoffs were observed to be unattached from the 120' and 300' elevations and had slid down 20' to the standoff below.

- **Lattice Bracing:** All braces appeared to be in good condition. Bracing connections were visually observed to the maximum extent practicable. Internal bracing bolts were noted to be loose at the 100' and 120' elevations. These bolts should be replaced or properly tightened.

- **Splice Connections:** Connections were checked by hand for tightness at all climbing leg splice connections. No loose splice bolts were observed.

- **Antenna and Ground Connections:** Antenna mounting hardware appeared to be in good condition. Visible grounding system components were observed to be securely fastened and in good condition.

- **Base Foundations:** Visible concrete was observed to be in good condition. Grout under tower base plates also appeared to be in good condition.

- **Waveguide Installation:** Waveguide ladders were standard angle steel vertical members with horizontal bar stock drilled/punched to accommodate snap-in hangers. Waveguide cables and ladders were observed to be securely fastened.

CURRENT LOADING:

The following antenna inventory was recorded:

Antenna	Elev.	Leg	Mount	Coax.
Beacon	320'	N	Top plate	1" conduit
Lightning rod	320'	SW	Top plate	
3' ground plane omni	318'	SW	6' sidearm	7/8"
8' ground plane omni	312'	N	6' sidearm	7/8"
8' dish with radome	310'	SE	6' x 4 ½" pipe on leg	7/8"
PD-1142 omnidirectional whip	292'	SW	6' sidearm	7/8"
20' 4-bay dipole	285'	N	6' sidearm	7/8"
(2) 10' omnidirectional whips (one inv.)	280'	SW	6' sidearm	(2) 1-5/8"
9', 14' omnidirectional whips (one inv.), TMA	280'	SE	6' sidearm	(2) 1-5/8"
12' 2-bay dipole	255'	SE	6' sidearm	7/8"
PD-1142 omnidirectional whip	240'	SW	6' sidearm	7/8"
8' ground plane omni	230'	N	6' sidearm	7/8"
(6) DB844H80, (6) 948F85 panels	225'	All	(3) 14' sector mounts	(12) 1-5/8"
(6) 7770.00 panels, (6) TMAs	196'	All	(3) 14' sector mounts	(12) 1-5/8"
20' omnidirectional whip	174'	SW	5' sidearm	7/8"
(3) obstruction lights	160'	All	Legs	1" conduit
4' omnidirectional whip	150'	SE	1.5' sidearm	7/8"
6' yagi	136'	SW	6' sidearm	7/8"
10' single dipole	136'	SW	On above sidearm	7/8"
4' omnidirectional whip	130'	SE	1.5' sidearm	7/8"
8' ice shield	125'	N	4' x 4 ½" pipe on leg	N.A.
6' ice shield	125'	SW	6' x 4 ½" pipe on leg	N.A.
6' dish with radome	116'	N	4' x 4 ½" pipe on leg	EW-63
2' dish with radome	110'	SW	4' x 4 ½" pipe on leg	EW-90
6' high performance dish	105'	N	4' x 4 ½" pipe on leg	EW-63
16' omnidirectional whip	105'	SE	6' sidearm	7/8"
5' yagi	105'	SW	On above sidearm	7/8"
6' dish with radome	90'	N	4' x 4 ½" pipe on leg	7/8"
4' dish with radome	90'	SW	4' x 4 ½" pipe on leg	7/8"

RECOMMENDATIONS:

Our condition assessment found the 320' self-supporting communications tower located on Windham Avenue in Colchester, Connecticut to be in good condition.

Our assessment revealed the following maintenance issues:

- Loose bolts were observed on internal braces at the 100' and 120' elevations. APT recommends all loose bracing bolts be properly tightened.
- Safety cable standoffs were observed to be unattached at the 120' and 300' elevations. APT recommends these be reinstalled.

Appendix A

Photographs

VERIZON WIRELESS
320' SELF-SUPPORTING TOWER
COLCHESTER, CONNECTICUT

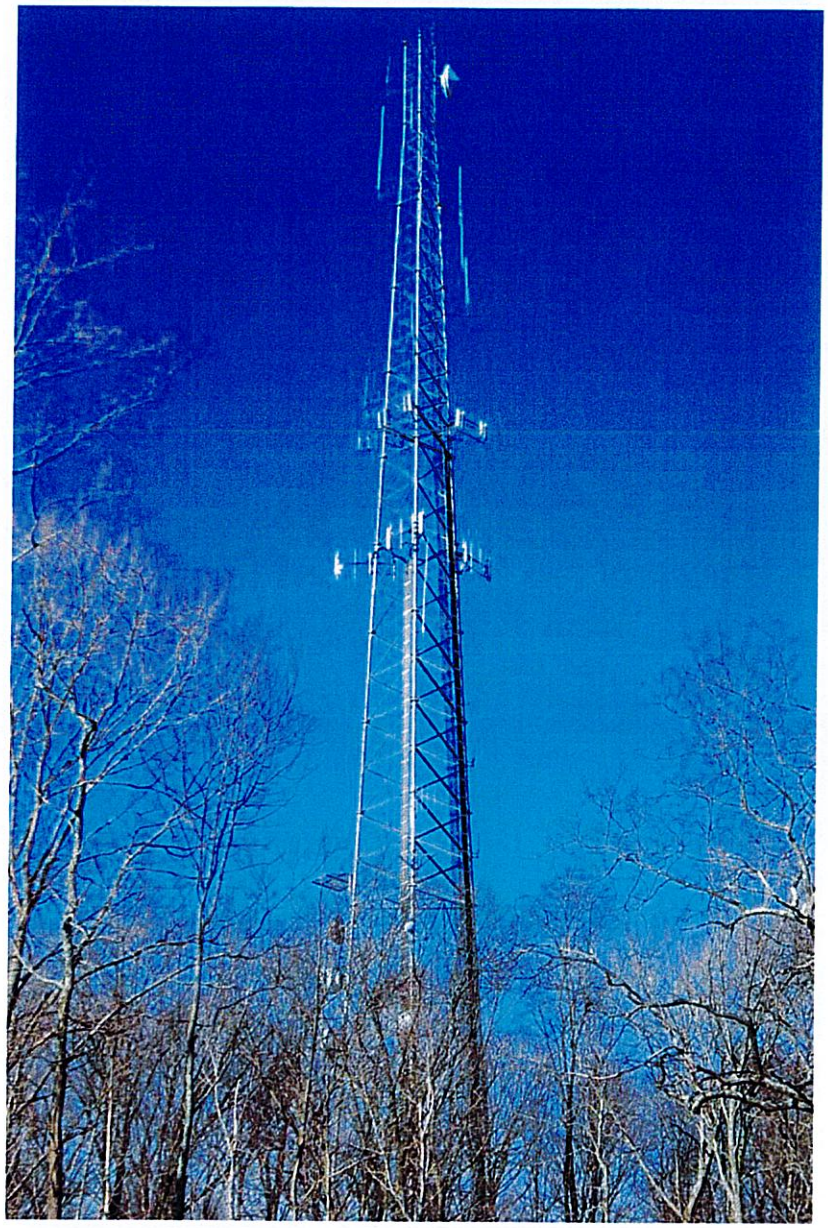

Photo showing overview of 320' self-supporting tower.

Photos taken by All-Points Technology Corporation, P.C. on March 11, 2008

VERIZON WIRELESS
320' SELF-SUPPORTING TOWER
COLCHESTER, CONNECTICUT

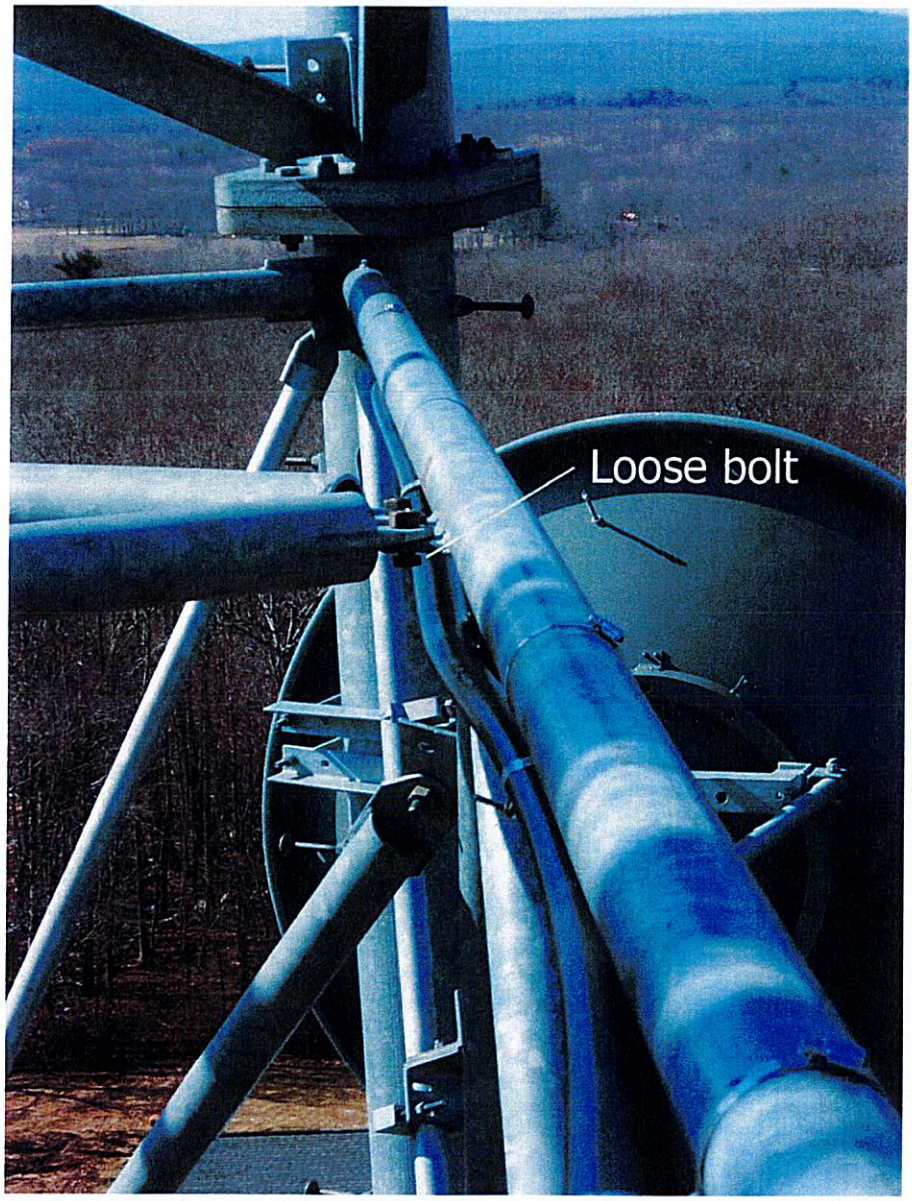

Photo of loose internal bracing bolt at 120' elevation.

Photos taken by All-Points Technology Corporation, P.C. on March 11, 2008

VERIZON WIRELESS
320' SELF-SUPPORTING TOWER
COLCHESTER, CONNECTICUT

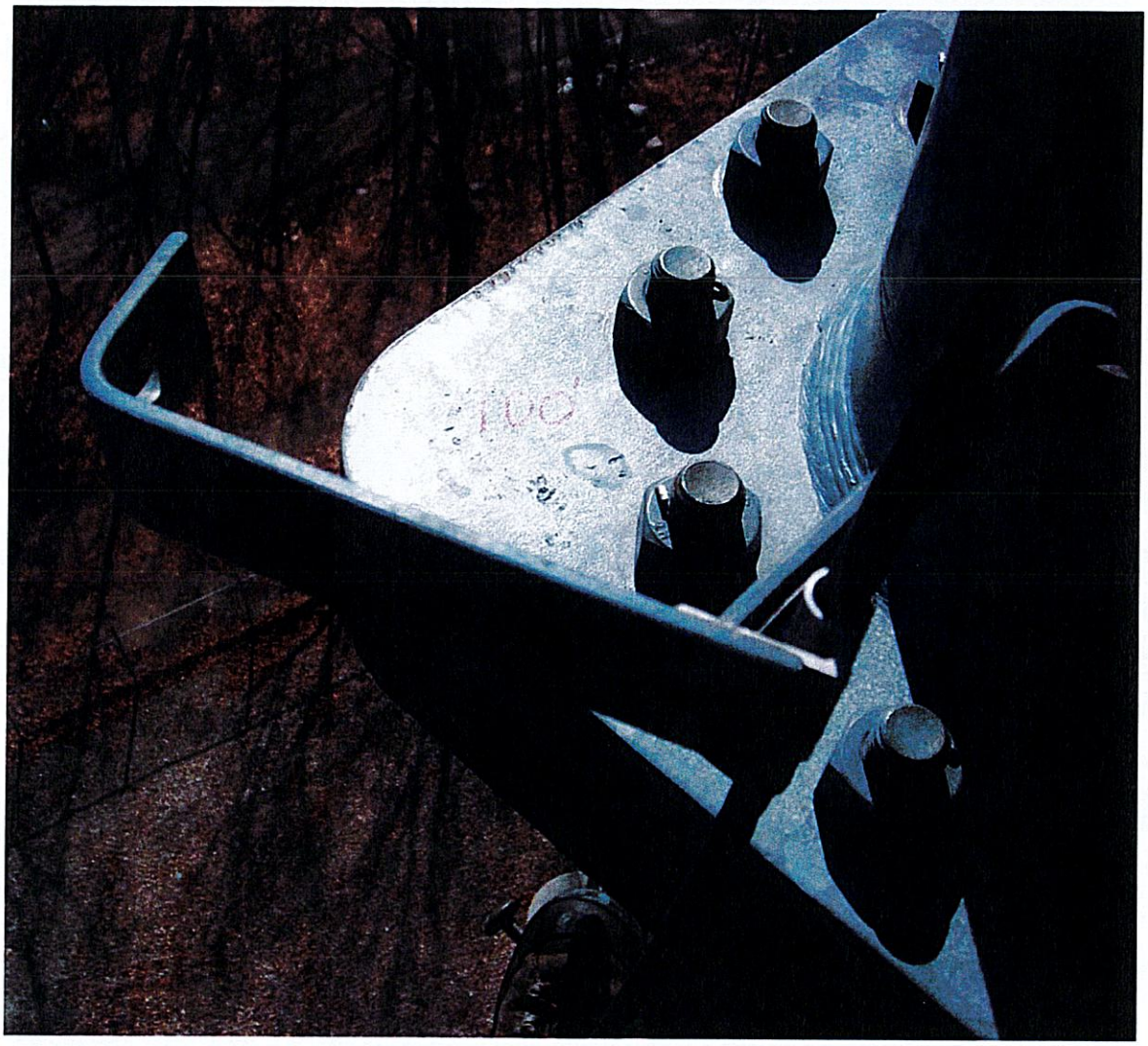

Photo of detached safety cable standoff.

Photos taken by All-Points Technology Corporation, P.C. on March 11, 2008