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April 22, 2014

Melanie A. Bachman
Acting Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: **Notice of Exempt Modification – Facility Modification**
48 Cow Hill Road, Clinton, Connecticut

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains twelve (12) wireless telecommunications antennas at the 209-foot level of the existing 212-foot tower at 48 Cow Hill Road in Clinton, Connecticut (the "Property"). The tower is owned by Crown Castle. The Council approved Cellco's use of this tower in 1992 (Docket No. 148). Cellco now intends to modify its facility by replacing six (6) of its existing antennas with three (3) model BXA-171085-8BF, 1900 MHz antennas and three (3) model BXA-171063-8CF, 2100 MHz antennas, all at the same 209-foot level on the tower. Cellco also intends to install three (3) remote radio heads ("RRHs") behind its 2100 MHz antennas and one (1) HYBRIFLEX™ antenna cable attached to the leg of the lattice tower. Included in Attachment 1 are specifications for Cellco's replacement antennas, RRHs and HYBRIFLEX™ cable.

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 William W. Fritz, Clinton's First Selectman. A copy of this letter is also being sent to Raymond E. Heser, the owner of the Property.

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 an increase in the height of the existing tower. The replacement antennas and RRHs will be located at the 209-foot level on the 212-foot tower.

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

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the modified facility will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A cumulative General Power Density table for Cellco's modified facility is included in Attachment 2.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The tower and its foundation can support Cellco's proposed modifications. (*See* Structural Analysis Report included in Attachment 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:
William W. Fritz, Clinton First Selectman
Raymond E. Heser
Sandy M. Carter

ATTACHMENT 1

Amphenol ANTENNA SOLUTIONS

BXA-171085-8BF-EDIN-X

Replace "X" with desired electrical downtilt.

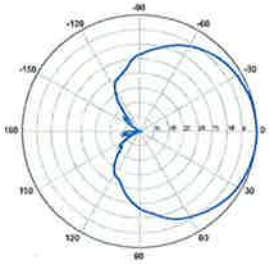
X-Pol | FET Panel | 85° | 16.4 dBi

Electrical Characteristics	1710-2170 MHz		
Frequency bands	1710-1880 MHz	1850-1990 MHz	1920-2170 MHz
Polarization	±45°	±45°	±45°
Horizontal beamwidth	88°	85°	80°
Vertical beamwidth	7°	7°	7°
Gain	13.5 dBd / 15.6 dBi	13.9 dBd / 16.0 dBi	14.3 dBd / 16.4 dBi
Electrical downtilt (X)	0, 2, 4		
Impedance	50Ω		
VSWR	≤1.5:1		
First upper sidelobe	< -17 dB		
Front-to-back ratio	> 30 dB		
In-band isolation	> 25 dB		
IM3 (2x20W carrier)	< -150 dBc		
Input power	300 W		
Lightning protection	Direct Ground		
Connector(s)	2 Ports / EDIN / Female / Bottom		
Operating temperature	-40° to +60° C / -40° to +140° F		

Mechanical Characteristics		
Dimensions Length x Width x Depth	1225 x 154 x 105 mm	48.2 x 6.1 x 4.1 in
Depth with t-brackets	133 mm	5.2 in
Weight without mounting brackets	4.2 kg	9.2 lbs
Survival wind speed	>201 km/hr	>125 mph
Wind area	Front: 0.19 m² Side: 0.14 m²	Front: 2.0 ft² Side: 1.5 ft²
Wind load @ 161 km/hr (100 mph)	Front: 281 N Side: 223 N	Front: 63 lbf Side: 50 lbf

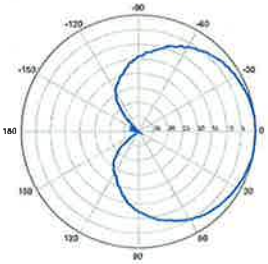
Mounting Options	Part Number	Fits Pipe Diameter	Weight
2-Point Mounting Bracket Kit	26799997	50-102 mm 2.0-4.0 in	2.3 kg 5 lbs
2-Point Mounting & Downtilt Bracket Kit	26799999	50-102 mm 2.0-4.0 in	3.6 kg 8 lbs
Concealment Configurations	For concealment configurations, order BXA-171085-8BF-EDIN-X-FP		

BXA-171085-8BF-EDIN-X



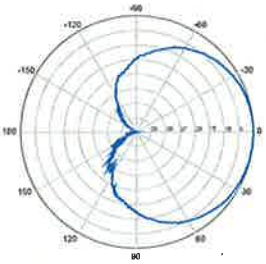
Horizontal | 1710-1880 MHz

BXA-171085-8BF-EDIN-X



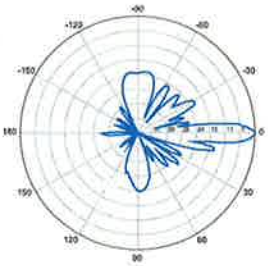
Horizontal | 1850-1990 MHz

BXA-171085-8BF-EDIN-X



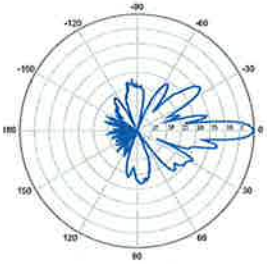
Horizontal | 1920-2170 MHz

BXA-171085-8BF-EDIN-0



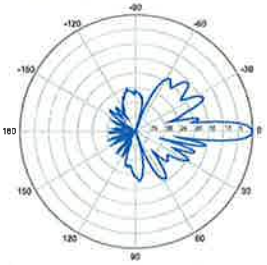
0° | Vertical | 1710-1880 MHz

BXA-171085-8BF-EDIN-0



0° | Vertical | 1850-1990 MHz

BXA-171085-8BF-EDIN-0

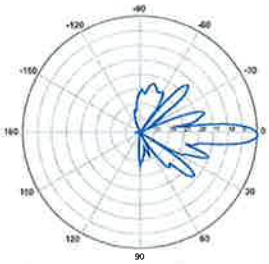


0° | Vertical | 1920-2170 MHz

BXA-171085-8BF-EDIN-X

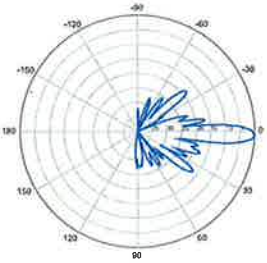
X-Pol | FET Panel | 85° | 16.4 dBi

BXA-171085-8BF-EDIN-2



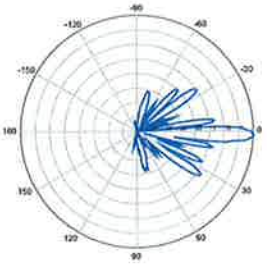
2° | Vertical | 1710-1880 MHz

BXA-171085-8BF-EDIN-2



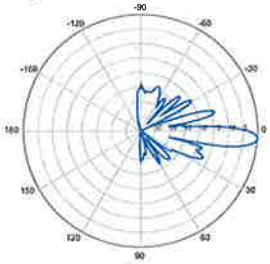
2° | Vertical | 1850-1990 MHz

BXA-171085-8BF-EDIN-2



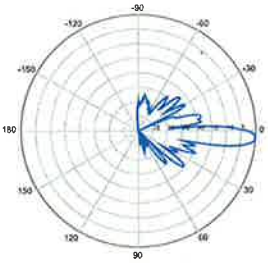
2° | Vertical | 1920-2170 MHz

BXA-171085-8BF-EDIN-4



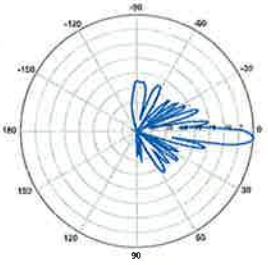
4° | Vertical | 1710-1880 MHz

BXA-171085-8BF-EDIN-4



4° | Vertical | 1850-1990 MHz

BXA-171085-8BF-EDIN-4



4° | Vertical | 1920-2170 MHz

BXA-171063-8CF-EDIN-X

X-Pol | FET Panel | 63° | 17.4 dBi

Replace "X" with desired electrical downtilt.

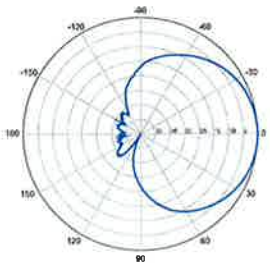
Antenna is also available with NE connector(s). Replace "EDIN" with "NE" in the model number when ordering.

Electrical Characteristics	1710-2170 MHz		
Frequency bands	1710-1880 MHz	1850-1990 MHz	1920-2170 MHz
Polarization	±45°	±45°	±45°
Horizontal beamwidth	68°	65°	60°
Vertical beamwidth	7°	7°	7°
Gain	14.5 dBd / 16.6 dBi	14.9 dBd / 17.0 dBi	15.3 dBd / 17.4 dBi
Electrical downtilt (X)	0, 2, 4, 6, 8		
Impedance	50Ω		
VSWR	≤1.5:1		
First upper sidelobe	< -17 dB		
Front-to-back ratio	> 30 dB		
In-band isolation	> 25 dB		
IM3 (20W carrier)	< -150 dBc		
Input power	300 W		
Lightning protection	Direct Ground		
Connector(s)	2 Ports / EDIN or NE / Female / Center (Back)		
Operating temperature	-40° to +60° C / -40° to +140° F		

Mechanical Characteristics		
Dimensions Length x Width x Depth	1225 x 154 x 105 mm	48.2 x 6.1 x 4.1 in
Depth with t-brackets	133 mm	5.2 in
Weight without mounting brackets	4.2 kg	9.2 lbs
Survival wind speed	296 km/hr	184 mph
Wind area	Front: 0.19 m² Side: 0.14 m²	Front: 2.0 ft² Side: 1.5 ft²
Wind load @ 161 km/hr (100 mph)	Front: 281 N Side: 223 N	Front: 63 lbf Side: 50 lbf

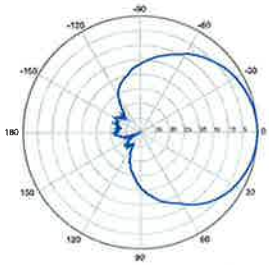
Mounting Options	Part Number	Fits Pipe Diameter	Weight
2-Point Mounting Bracket Kit	26799997	50-102 mm 2.0-4.0 in	2.3 kg 5 lbs
2-Point Mounting & Downtilt Bracket Kit	26799999	50-102 mm 2.0-4.0 in	3.6 kg 8 lbs
Concealment Configurations	For concealment configurations, order BXA-171063-8CF-EDIN-X-FP		

BXA-171063-8CF-EDIN-X



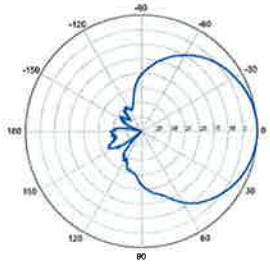
Horizontal | 1710-1880 MHz

BXA-171063-8CF-EDIN-X



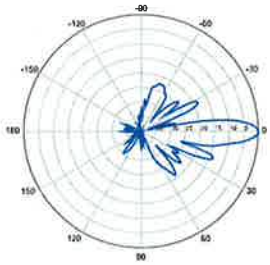
Horizontal | 1850-1990 MHz

BXA-171063-8CF-EDIN-X



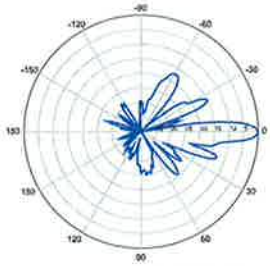
Horizontal | 1920-2170 MHz

BXA-171063-8CF-EDIN-0



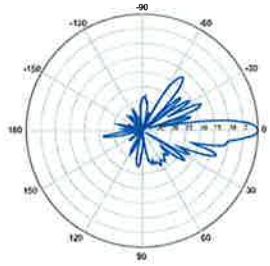
0° | Vertical | 1710-1880 MHz

BXA-171063-8CF-EDIN-0



0° | Vertical | 1850-1990 MHz

BXA-171063-8CF-EDIN-0

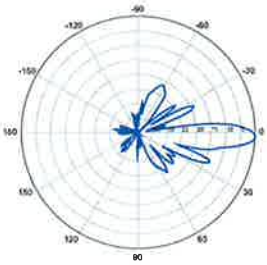


0° | Vertical | 1920-2170 MHz

BXA-171063-8CF-EDIN-X

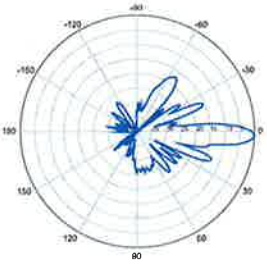
X-Pol | FET Panel | 63° | 17.4 dBi

BXA-171063-8CF-EDIN-2



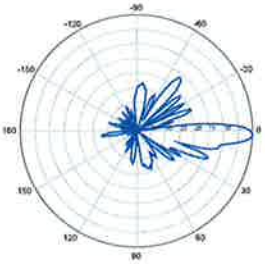
2° | Vertical | 1710-1880 MHz

BXA-171063-8CF-EDIN-2



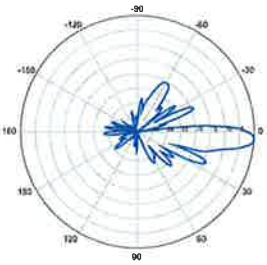
2° | Vertical | 1850-1990 MHz

BXA-171063-8CF-EDIN-2



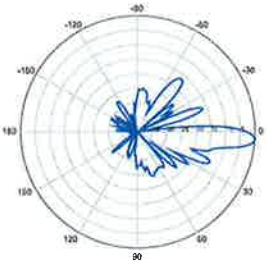
2° | Vertical | 1920-2170 MHz

BXA-171063-8CF-EDIN-4



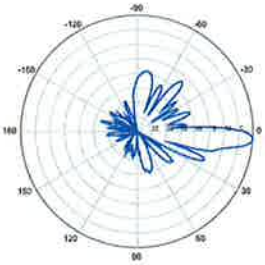
4° | Vertical | 1710-1880 MHz

BXA-171063-8CF-EDIN-4



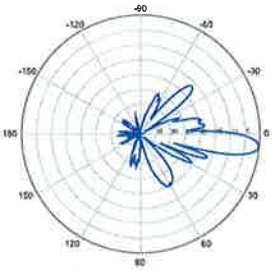
4° | Vertical | 1850-1990 MHz

BXA-171063-8CF-EDIN-4



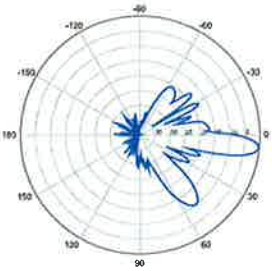
4° | Vertical | 1920-2170 MHz

BXA-171063-8CF-EDIN-6



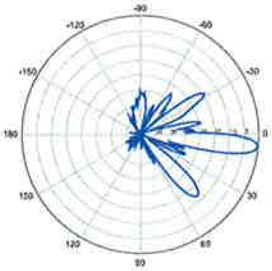
6° | Vertical | 1710-1880 MHz

BXA-171063-8CF-EDIN-6



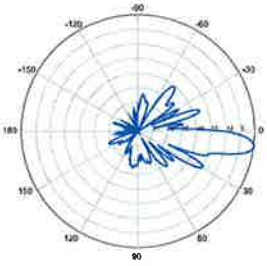
6° | Vertical | 1850-1990 MHz

BXA-171063-8CF-EDIN-6



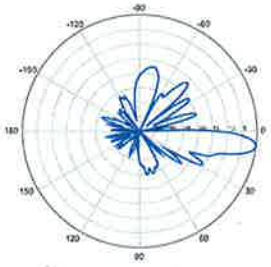
6° | Vertical | 1920-2170 MHz

BXA-171063-8CF-EDIN-8



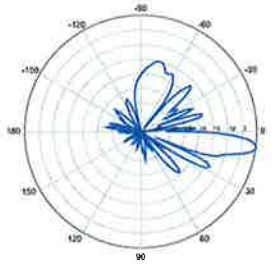
8° | Vertical | 1710-1880 MHz

BXA-171063-8CF-EDIN-8



8° | Vertical | 1850-1990 MHz

BXA-171063-8CF-EDIN-8



8° | Vertical | 1920-2170 MHz

Alcatel-Lucent RRH2x40-07-U

REMOTE RADIO HEAD

The Alcatel-Lucent RRH2x40-07-U is a high-power, small form-factor Remote Radio Head (RRH) operating in the North American Digital Dividend / 700MHz frequency band (3GPP Band 13). The Alcatel-Lucent RRH2x40-07-U is designed with an eco-efficient approach, providing operators with the means to achieve high quality and capacity coverage with minimum site requirements.

A distributed eNodeB expands deployment options by using two components, a Base Band Unit (BBU) containing the digital assets and a separate RRH containing the radio-frequency (RF) elements. This modular design optimizes available space and allows the main components of an eNodeB to be installed separately, within the same site or several kilometres apart.

The Alcatel-Lucent RRH2x40-07-U is linked to the BBU by an optical-fiber connection carrying downlink and uplink digital radio signals along with operations, administration and maintenance (OA&M) information. The Alcatel-Lucent RRH2x40-07-U has two transmit RF paths, 40 W RF output power per transmit path, and is designed to manage up to two-way receive diversity. The device is ideally suited to support macro coverage, with multiple-input multiple-output (MIMO) 2x2 operation in up to 10 MHz of bandwidth.

The Alcatel-Lucent RRH2x40-07-U is designed to make available all the benefits of a distributed eNodeB, with excellent RF characteristics, with low capital expenditures (CAPEX) and low operating expenditures (OPEX). The limited space available in some sites may prevent the installation of traditional single-cabinet BTS equipment or require costly cranes to be employed, leaving coverage holes. However, many of these sites can host an Alcatel-Lucent RRH2x40-07-U installation, providing more flexible site selection and improved network quality along with greatly reduced installation time and costs.

Fast, low-cost installation and deployment

The Alcatel-Lucent RRH2x40-07-U is a zero-footprint solution and operates noise-free, simplifying negotiations with site property owners and minimizing environmental impacts. Installation can easily be done by a single person because the Alcatel-Lucent RRH2x40-07-U is compact and weights less than 23 kg (50 lb), eliminating the need for a crane to hoist the BTS cabinet to the rooftop. A site can be in operation in less than one day — a fraction of the time required for a traditional BTS.

Excellent RF performance

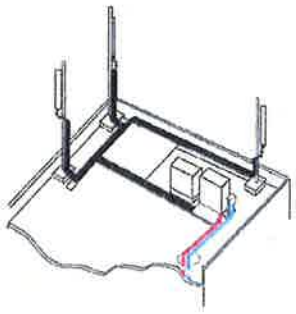
Because of its small size and weight, the Alcatel-Lucent RRH2x40-07-U can be installed close to the antenna. Operators can therefore locate the Alcatel-Lucent RRH2x40-07-U where RF engineering is deemed ideal, minimizing trade-offs between available sites and RF optimum sites. The RF feeder cost and installation costs are reduced or eliminated, and there is no need for a Tower Mounted Amplifier (TMA) because losses introduced by the RF feeder are greatly reduced. The Alcatel-Lucent RRH2x40-07-U provides more RF power while at the same time consuming less electricity.

Features

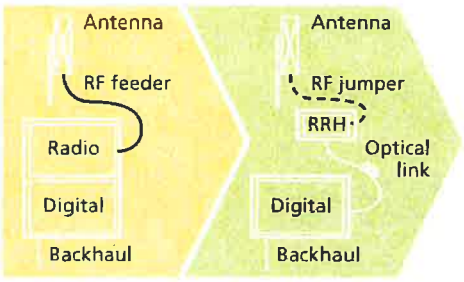
- Zero-footprint deployment
- Easy installation, with a lightweight unit can be carried and set up by one person
- Optimized RF power, with flexible site selection and elimination of a TMA
- Convection-cooled (fanless), noise-free, and heaterless unit
- Best-in-class power efficiency, with significantly reduced energy consumption

Benefits

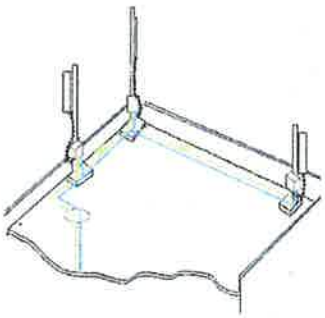
- Leverages existing real estate with lower site costs
- Reduces installation costs, with fewer installation materials and simplified logistics
- Decreases power costs and minimizes environmental impacts, with the potential for eco-sustainable power options
- Improves RF performance and adds flexibility to network planning



Macro



RRH for space-constrained cell sites



Distributed

Technical specifications

Physical dimensions

- Height: 390 mm (15.4 in.)
- Width: 380 mm (15 in.)
- Depth: 210 mm (8.2 in.)
- Weight (without mounting kit): less than 23 kg (50 lb)

Power

- Power supply: -48V

Operating environment

- Outdoor temperature range:
  - ¬ With solar load: -40°C to +50°C (-40°F to +122°F)
  - ¬ Without solar load: -40°C to +55°C (-40°F to +131°F)
- Passive convection cooling (no fans)
- Enclosure protection
  - ¬ IP65 (International Protection rating)

RF characteristics

- Frequency band: 700 MHz; 3GPP Band 13
- Bandwidth: up to 10 MHz
- RF output power at antenna port:
  - ¬ 40 W nominal RF power for each Tx port
- Rx diversity: 2-way or 4-way
- Noise figure: below 2.5 dB typical
- ALD features
  - ¬ TMA
  - ¬ Remote electrical tilt (RET) support (AISG v2.0)

Optical characteristics

Type/number of fibers

- Up to 3.12 Gb/s line bit rate
- Single-mode variant
  - ¬ One SM fiber (9/125 µm) per RRH2x, carrying UL and DL using CWDM (at 1550/1310 nm)
- Multi-mode variant
  - ¬ Two MM fibers (50/125 µm) per RRH2x: one carrying UL, the other carrying DL (at 850 nm)

Optical fiber length

- Up to 500 m (0.31 mi), using MM fiber
- Up to 20 km (12.43 mi), using SM fiber

Alarms and ports

- Six external alarms
- Two optical ports to support daisy-chaining

CPG2809100913 (09)

Alcatel·Lucent

Product Data Sheet **HB158-1-08U8-S8J18**

HYBRIFLEX™ RRH Hybrid Feeder Cabling Solution, 1-5/8", Single-Mode Fiber

Product Description

RFS' HYBRIFLEX Remote Radio Head (RRH) hybrid feeder cabling solution combines optical fiber and DC power for RRHs in a single lightweight aluminum corrugated cable, making it the world's most innovative solution for RRH deployments.

It was developed to reduce installation complexity and costs at Cellular sites. HYBRIFLEX allows mobile operators deploying an RRH architecture to standardize the RRH installation process and eliminate the need for and cost of cable grounding. HYBRIFLEX combines optical fiber (multi-mode or single-mode) and power in a single corrugated cable. It eliminates the need for junction boxes and can connect multiple RRHs with a single feeder. Standard RFS CELLFLEX® accessories can be used with HYBRIFLEX cable. Both pre-connectorized and on-site options are available.

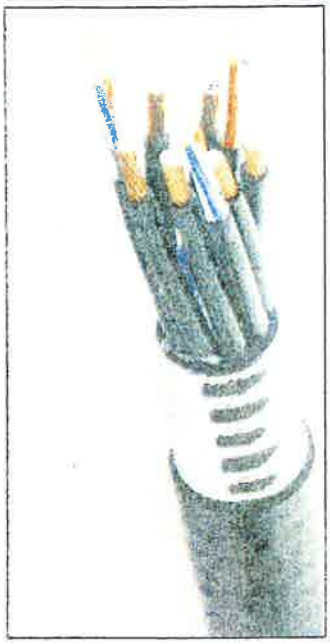


Figure 1: HYBRIFLEX Series

Features/Benefits

- Aluminum corrugated armor with outstanding bending characteristics – minimizes installation time and enables mechanical protection and shielding
- Same accessories as 1 5/8" coaxial cable
- Outer conductor grounding – Eliminates typical grounding requirements and saves on installation costs
- Lightweight solution and compact design – Decreases tower loading
- Robust cabling – Eliminates need for expensive cable trays and ducts
- Installation of tight bundled fiber optic cable pairs directly to the RRH – Reduces CAPEX and wind load by eliminating need for interconnection
- Optical fiber and power cables housed in single corrugated cable – Saves CAPEX by standardizing RRH cable installation and reducing installation requirements
- Outdoor polyethylene jacket – Ensures long-lasting cable protection

Technical Specifications

Outer Conductor Armor	Corrugated Aluminum	[mm (in)]	46.5 (1.83)
Jacket	Polyethylene, PE	[mm (in)]	50.3 (1.98)
UV-Protection	Individual and External Jacket		Yes
Mechanical Properties			
Weight, Approximate		[kg/m (lb/ft)]	1.9 (1.30)
Minimum Bending Radius, Single Bending		[mm (in)]	200 (8)
Minimum Bending Radius, Repeated Bending		[mm (in)]	500 (20)
Recommended/Maximum Clamp Spacing		[m (ft)]	1.0 / 1.2 (3.25 / 4.0)
Electrical Properties			
DC-Resistance Outer Conductor Armor		[Ω/km (Ω/1000ft)]	.068 (0.205)
DC-Resistance Power Cable, 8.4mm²(8AWG)		[Ω/km (Ω/1000ft)]	2.1 (0.307)
Fiber Optic Properties			
Version			Single-mode OM3
Quantity, Fiber Count			16 (8 pairs)
Core/Clad		[µm]	50/125
Primary Coating (Acrylate)		[µm]	245
Buffer Diameter, Nominal		[µm]	900
Secondary Protection, Jacket, Nominal		[mm (in)]	2.0 (0.08)
Minimum Bending Radius		[mm (in)]	102 (4.1)
Insertion Loss @ wavelength 850nm		dB/km	3.0
Insertion Loss @ wavelength 1310nm		dB/km	1.0
Standards (Meets or exceeds)			UL94-V0, UL1666 RoHS Compliant
DC Power Cable Properties			
Size (Power)		[mm² (AWG)]	8.4 (8)
Quantity, Wire Count (Power)			16 (8 pairs)
Size (Alarm)		[mm² (AWG)]	0.8 (18)
Quantity, Wire Count (Alarm)			4 (2 pairs)
Type			UV protected
Strands			19
Primary Jacket Diameter, Nominal		[mm (in)]	6.8 (0.27)
Standards (Meets or exceeds)			NFPA 130, ICEA S-95-658 UL Type XHHW-2, UL 44 UL-LS Limited Smoke, UL VW-1 IEEE-383 (1974), IEEE1202/FT4 RoHS Compliant
Temperature			
Installation Temperature		[°C (°F)]	-40 to +65 (-40 to149)
Operation Temperature		[°C (°F)]	-40 to +65 (-40 to149)

* This data is provisional and subject to change

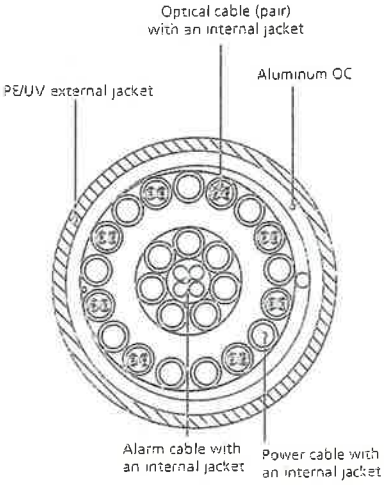


Figure 2: Construction Detail

ATTACHMENT 2

	General	Power	Density					
Site Name: Clinton								
Tower Height: 212Ft								
CARRIER	**# OF CHAN.**	**WATTS ERP**	**HEIGHT**	**CALC. POWER DENS**	**FREQ.**	**MAX. PERMISS. EXP.**	**FRACTION MPE**	**Total**
*AT&T UMTS	1	500	190	0.0050	880	0.5867	0.85%	
*AT&T GSM	6	296	190	0.0177	880	0.5867	3.02%	
*AT&T GSM	3	427	190	0.0128	1900	1.0000	1.28%	
*AT&T LTE	1	500	190	0.0050	740	0.4933	1.01%	
*T-Mobile GSM/UMTS	2	12	140	0.0004	1950	1.0000	0.04%	
*T-Mobile UMTS	2	12	140	0.0004	2100	1.0000	0.04%	
*T-Mobile LTE	2	24	140	0.0009	2100	1.0000	0.09%	
*Pocket (now MetroPCS)	3	631	182	0.0205	2130	1.0000	2.05%	
*Sprint CDMA/LTE	3	693	198	0.0191	1900	1.0000	1.91%	
*Sprint CDMA/LTE	1	390	198	0.0036	850	0.5667	0.63%	
*Nextel	9	100	175	0.0106	851	0.5673	1.86%	
*Town	6	100	125	0.0138	46	0.2000	6.90%	
*MediaFLO			228				6.63%	
Verizon	**9**	**218**	**209**	**0.0162**	**1970**	**1.0000**	**1.62%**	
Verizon	**7**	**338**	**209**	**0.0195**	**869**	**0.5793**	**3.36%**	
Verizon	**1**	**1750**	**209**	**0.0144**	**2145**	**1.0000**	**1.44%**	
Verizon	**1**	**791**	**209**	**0.0065**	**698**	**0.4653**	**1.40%**	
								34.13%
* Source: Siting Council								

ATTACHMENT 3

Date: **March 20, 2014**

Sean Dempsey
Crown Castle
3530 Toringdon Way, Suite 300
Charlotte, NC 28277

Crown Castle
2000 Corporate Dr.
Canonsburg, PA 15317
(724) 416-2000

Subject: **Structural Analysis Report**

Carrier Designation:	***Verizon Wireless* Co-Locate**	
	Carrier Site Number:	119685
	Carrier Site Name:	Clinton CT
Crown Castle Designation:	**Crown Castle BU Number:**	806363
	Crown Castle Site Name:	HRT 105 943201
	Crown Castle JDE Job Number:	265112
	Crown Castle Work Order Number:	727340
	Crown Castle Application Number:	219457 Rev. 0
Engineering Firm Designation:	**Crown Castle Project Number:**	727340
Site Data:	**48 COW HILL ROAD, CLINTON, Middlesex County, CT**	
	Latitude *41° 17' 20.2"*, Longitude *-72° 32' 18.5"*	
	212.625 Foot - Self Support Tower	

Dear Sean Dempsey,

Crown Castle is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 727340, in accordance with application 219457, revision 0.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC7: Existing + Reserved + Proposed Equipment **Sufficient Capacity**
Note: See Table I and Table II for the proposed and existing/reserved loading, respectively.

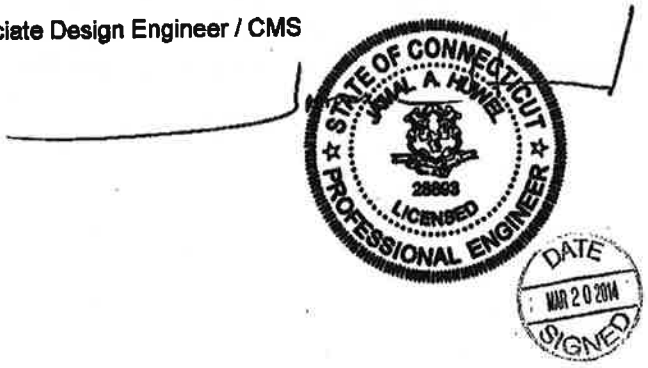
The analysis has been performed in accordance with the TIA/EIA-222-F standard and 2005 CT State Building Code with 2009 amendment based upon a wind speed of 85 mph fastest mile.

All modifications and equipment proposed in this report shall be installed in accordance with the attached drawings for the determined available structural capacity to be effective.

We at *Crown Castle* appreciate the opportunity of providing our continuing professional services to you and Crown Castle. If you have any questions or need further assistance on this or any other projects please give us a call.

Structural analysis prepared by: Randall Ashworth, Associate Design Engineer / CMS

Respectfully submitted by:



Jamal A. Huwel, P.E.
Manager Engineering

tnxTower Report - version 6.1.4.1

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 212.625 ft Self Support tower designed by Rohn in July of 1992. The tower was originally designed for a wind speed of 90 mph per TIA/EIA-222-E. The tower has been modified per reinforcement drawings prepared by Vertical Structures, in June of 2007. Reinforcement consists of the replacement of redundant diagonals from 10 to 20 and 30 to 40 ft.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a fastest mile wind speed of 85 mph with no ice, 37.6 mph with 0.75 inch ice thickness and 50 mph under service loads.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
208.0	209.0	3	alcatel lucent	RRH2X40-AWS	1	1-5/8	-
		3	antel	BXA-171063-8CF-EDIN-X w/ Mount Pipe			
		3	antel	BXA-171085-8BF-EDIN-2 w/ Mount Pipe			
		1	rfs celwave	DB-T1-6Z-8AB-0Z			

Table 2 - Existing Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
208.0	209.0	6	antel	LPA-171080/8CFx2 w/ Mount Pipe	-	-	3
		3	antel	BXA-70063/6CF-EDIN w/ Mount Pipe	18	1-5/8	1
		6	antel	LPA-80080/6CF w/ Mount Pipe			
	208.0	1	tower mounts	Sector Mount [SM 510-3]			
199.0	199.0	1	tower mounts	Sector Mount [SM 505-3]	3	1-1/4	1
	198.0	3	alcatel lucent	1900MHz RRH (65MHz)			
		3	alcatel lucent	800MHz 2X50W RRH W/FILTER			
		3	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe			
189.0	190.0	6	ericsson	RRUS-11	1 2 12	1/4 7/8 1-5/8	1
		3	kmw communications	AM-X-CD-14-65-00T-RET w/ Mount Pipe			
		6	powerwave technologies	7770.00 w/ Mount Pipe			
		6	powerwave technologies	LGP13519			
		1	raycap	DC6-48-60-18-8F			
	189.0	6	adc	ClearGain Dual Band			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
				800/1900 MHz			
		1	tower mounts	Sector Mount [SM 602-3]			
183.0	183.0	3	rfs celwave	APXV18-206517LS w/ Mount Pipe	6	1-5/8	1
175.0	179.0	2	radiowaves	HPD2-23	12 5	1-1/4 3/8	1
	176.0	12	decibel	DB844H90E-XY w/ Mount Pipe			
	175.0	1	tower mounts	Sector Mount [SM 510-3]			
167.0	173.0	1	rfs celwave	1151-3	1	7/8	1
	167.0	1	tower mounts	Side Arm Mount [SO 308-1]			
164.0	173.0	1	rfs celwave	1151-3	1	7/8	1
	164.0	1	tower mounts	Side Arm Mount [SO 308-1]			
162.0	162.0	1	tower mounts	Side Arm Mount [SO 308-1]	1	1/4	1
	160.0	1	sinclair	SD310-HL			
147.0	153.0	1	rfs celwave	1151-3	1	7/8	1
	147.0	1	tower mounts	Side Arm Mount [SO 308-1]			
145.0	148.0	1	sinclair	SD310-HL	1	7/8	1
	145.0	1	tower mounts	Side Arm Mount [SO 308-1]			
139.0	140.0	3	ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	3	7/8	2
		3	ericsson	ERICSSON AIR 21 B4A B2P w/ Mount Pipe			
		3	ericsson	KRY 112 144/1			
	139.0	1	tower mounts	Side Arm Mount [SO 201-3]	6 6	1-1/4 1-5/8	1
128.0	132.0	1	rfs celwave	1142-2C	1	7/8	1
	128.0	1	tower mounts	Side Arm Mount [SO 308-1]			
51.0	51.0	1	gps	GPS_A	1	1/2	1
		1	tower mounts	Side Arm Mount [SO 701-1]			

Notes:
1) Existing Equipment
2) Reserved Equipment
3) Equipment to be Removed, Not Considered in this Analysis.

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
212	212	12	sinclair	SRL410C4	-	-
200	200	2	generic	6' Grid Dish	-	-
190	190	9	swedcom	ALP9212N	-	-
100	100	1	decibel	DB222	-	-
90	90	1	decibel	DB225	-	-
80	80	2	decibel	DB225-2	-	-
60	60	1	decibel	DB212-2	-	-
		1	decibel	DB225		
		1	decibel	DB225-2		
50	50	1	decibel	DB212-2	-	-
40	40	1	decibel	DB212	-	-

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Clarence Welti Associates, Inc.	262276	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	ROHN	262273	CCISITES
4-TOWER MANUFACTURER DRAWINGS	ROHN	262274	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	Vertical Structures, Inc.	2169576	CCISITES

3.1) Analysis Method

tnxTower (version 6.1.4.1), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

1) Tower and structures were built in accordance with the manufacturer's specifications.
2) The tower and structures have been maintained in accordance with the manufacturer's specification.
3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
4) When applicable, transmission cables are considered as structural components for calculating wind loads as allowed by TIA/EIA-222-F.

This analysis may be affected if any assumptions are not valid or have been made in error. Crown Castle should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T1	212.625 - 202.458	Leg	ROHN 2.5 STD	1	-2.31	37.41	9.1	Pass
T2	202.458 - 182.292	Leg	ROHN 3 EH	28	-24.63	83.44	29.5	Pass
T3	182.292 - 162.104	Leg	ROHN 4 EH	67	-64.48	138.58	46.5	Pass
T4	162.104 - 141.896	Leg	ROHN 5 EH	108	-111.83	205.75	54.4	Pass
T5	141.896 - 121.688	Leg	ROHN 6 EHS	146	-140.68	211.35	66.6	Pass
T6	121.688 - 101.479	Leg	ROHN 6 EH	173	-173.29	263.18	65.8	Pass
T7	101.479 - 81.2708	Leg	ROHN 6 EH	200	-202.75	263.18	77.0	Pass
T8	81.2708 - 61	Leg	ROHN 8 EHS	227	-230.56	331.42	69.6	Pass
T9	61 - 40.6667	Leg	ROHN 8 EHS	254	-257.76	331.21	77.8	Pass
T10	40.6667 - 20.3333	Leg	ROHN 8 EH	281	-269.80	433.40	62.3	Pass
T11	20.3333 - 0	Leg	ROHN 8 EH	314	-325.75	433.92	75.1	Pass
T1	212.625 - 202.458	Diagonal	ROHN 2 STD	9	-3.01	21.60	13.9	Pass
T2	202.458 - 182.292	Diagonal	ROHN 2 STD	33	-9.32	15.46	60.3	Pass
T3	182.292 - 162.104	Diagonal	ROHN 2 STD	72	-10.04	13.36	75.2	Pass
T4	162.104 - 141.896	Diagonal	ROHN 2 STD	110	-9.91	11.48	86.3	Pass
T5	141.896 - 121.688	Diagonal	ROHN 2.5 STD	149	-13.07	14.35	91.1	Pass
T6	121.688 - 101.479	Diagonal	ROHN 2.5 STD	176	-11.86	12.58	94.3	Pass
T7	101.479 - 81.2708	Diagonal	ROHN 3 STD	203	-11.93	21.76	54.8	Pass
T8	81.2708 - 61	Diagonal	ROHN 3 STD	230	-11.79	19.22	61.4	Pass
T9	61 - 40.6667	Diagonal	ROHN 3 STD	257	-12.76	16.87	75.7	Pass
T10	40.6667 - 20.3333	Diagonal	ROHN 3 STD	284	-18.01	27.45	65.6	Pass
T11	20.3333 - 0	Diagonal	ROHN 3 STD	317	-20.89	26.23	79.6	Pass
T1	212.625 - 202.458	Horizontal	ROHN 1.5 STD	7	-2.18	20.30	10.7 12.7 (b)	Pass
T2	202.458 - 182.292	Horizontal	ROHN 1.5 STD	31	-5.07	20.25	25.1 29.5 (b)	Pass
T3	182.292 - 162.104	Horizontal	ROHN 1.5 STD	70	-6.31	17.38	36.3 36.7 (b)	Pass
T4	162.104 - 141.896	Horizontal	ROHN 2 STD	109	-6.96	24.67	28.2 40.5 (b)	Pass
T5	141.896 - 121.688	Horizontal	ROHN 2 STD	148	-7.85	20.44	38.4 45.7 (b)	Pass
T6	121.688 - 101.479	Horizontal	ROHN 2 STD	175	-7.83	14.86	52.7	Pass
T7	101.479 - 81.2708	Horizontal	ROHN 2.5 STD	202	-8.46	25.42	33.3 49.3 (b)	Pass
T8	81.2708 - 61	Horizontal	ROHN 2.5 STD	229	-8.86	19.85	44.6 51.6 (b)	Pass
T9	61 - 40.6667	Horizontal	ROHN 2.5 STD	256	-10.02	15.70	63.8	Pass
T10	40.6667 -	Horizontal	ROHN 3 STD	283	-9.92	27.89	35.6	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
	20.3333						40.1 (b)	
T11	20.3333 - 0	Horizontal	ROHN 3 STD	316	-12.19	22.69	53.7	Pass
T1	212.625 - 202.458	Top Girt	ROHN 1.5 STD	4	-0.19	20.34	0.9	Pass
T10	40.6667 - 20.3333	Redund Horz 1 Bracing	ROHN 1.5 STD	288	-4.69	11.80	39.7	Pass
T11	20.3333 - 0	Redund Horz 1 Bracing	ROHN 1.5 STD	321	-5.65	9.84	57.4	Pass
T10	40.6667 - 20.3333	Redund Diag 1 Bracing	ROHN 2 STD	289	-4.33	7.76	55.8	Pass
T11	20.3333 - 0	Redund Diag 1 Bracing	ROHN 2 STD	322	-4.87	7.19	67.7	Pass
T10	40.6667 - 20.3333	Redund Hip 1 Bracing	ROHN 1.5 STD	308	-0.03	10.76	0.2	Pass
T11	20.3333 - 0	Redund Hip 1 Bracing	ROHN 1.5 STD	341	-0.02	8.85	0.3	Pass
T10	40.6667 - 20.3333	Redund Hip Diagonal Bracing	ROHN 2.5 STD	307	-0.05	6.86	0.8	Pass
T11	20.3333 - 0	Redund Hip Diagonal Bracing	ROHN 2.5 STD	340	-0.05	6.20	0.8	Pass
T1	212.625 - 202.458	Inner Bracing	L2x2x1/8	16	-0.00	5.83	0.3	Pass
T2	202.458 - 182.292	Inner Bracing	L2x2x1/8	41	-0.01	5.73	0.3	Pass
T3	182.292 - 162.104	Inner Bracing	L2x2x1/8	79	-0.01	4.22	0.3	Pass
T4	162.104 - 141.896	Inner Bracing	L2x2x1/8	118	-0.01	2.89	0.4	Pass
T5	141.896 - 121.688	Inner Bracing	L2x2x1/8	157	-0.01	2.19	0.4	Pass
T6	121.688 - 101.479	Inner Bracing	L2 1/2x2 1/2x3/16	184	-0.01	3.45	0.5	Pass
T7	101.479 - 81.2708	Inner Bracing	L3x3x3/16	211	-0.01	4.55	0.5	Pass
T8	81.2708 - 61	Inner Bracing	L3 1/2x3 1/2x1/4	238	-0.01	7.40	0.4	Pass
T9	61 - 40.6667	Inner Bracing	L3 1/2x3 1/2x1/4	265	-0.01	5.90	0.4	Pass
T10	40.6667 - 20.3333	Inner Bracing	ROHN 3 STD	311	-0.01	19.74	0.4	Pass
T11	20.3333 - 0	Inner Bracing	ROHN 3 STD	345	-0.01	16.16	0.4	Pass
							Summary	
						Leg (T9)	77.8	Pass
						Diagonal (T6)	94.3	Pass
						Horizontal (T9)	63.8	Pass
						Top Girt (T1)	0.9	Pass
						Redund Horz 1 Bracing (T11)	57.4	Pass
						Redund Diag 1 Bracing (T11)	67.7	Pass
						Redund Hip 1 Bracing (T11)	0.3	Pass
						Redund Hip Diagonal	0.8	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
						Bracing (T11)		
						Inner Bracing (T7)	0.5	Pass
						Bolt Checks	61.8	Pass
						Rating =	94.3	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
-	Anchor Rods	0	61.7	Pass
1	Base Foundation	0	60.2	Pass

Structure Rating (max from all components) =	94.3%

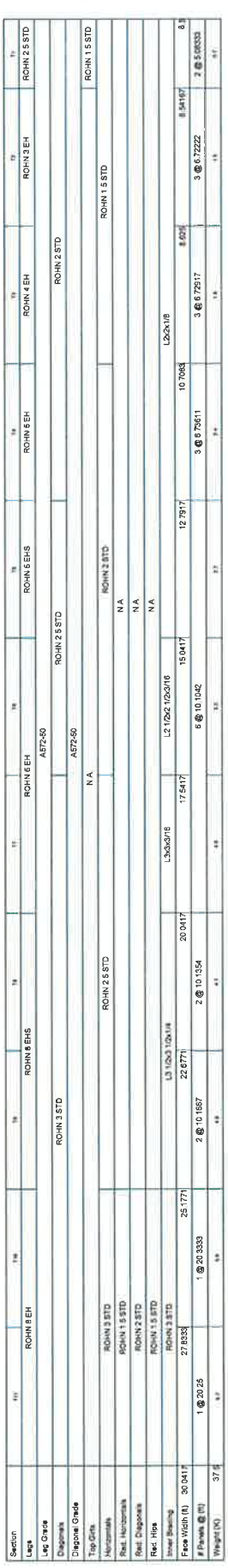
Notes:
1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

4.1) Recommendations

The tower and its foundation have sufficient capacity to support the existing, reserved, and proposed loads. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Flash Beacon Lighting	212	(2) RRUS-11	189
(2) LPA-80080/6CF w/ Mount Pipe	208	(2) RRUS-11	189
(2) LPA-80080/6CF w/ Mount Pipe	208	(2) RRUS-11	189
(2) LPA-80080/6CF w/ Mount Pipe	208	DC6-48-60-18-8F	189
BXA-70063/6CF-EDIN w/ Mount Pipe	208	Sector Mount [SM 602-3]	189
BXA-70063/6CF-EDIN w/ Mount Pipe	208	APXV18-206517LS w/ Mount Pipe	183
BXA-70063/6CF-EDIN w/ Mount Pipe	208	APXV18-206517LS w/ Mount Pipe	183
BXA-171063-8CF-EDIN-X w/ Mount Pipe	208	APXV18-206517LS w/ Mount Pipe	183
BXA-171063-8CF-EDIN-X w/ Mount Pipe	208	(4) DB844H90E-XY w/ Mount Pipe	175
BXA-171063-8CF-EDIN-X w/ Mount Pipe	208	(4) DB844H90E-XY w/ Mount Pipe	175
BXA-171085-8BF-EDIN-2 w/ Mount Pipe	208	(4) DB844H90E-XY w/ Mount Pipe	175
BXA-171085-8BF-EDIN-2 w/ Mount Pipe	208	Sector Mount [SM 510-3]	175
BXA-171085-8BF-EDIN-2 w/ Mount Pipe	208	8' x 2" Mount Pipe	175
RRH2X40-AWS	208	8' x 2" Mount Pipe	175
RRH2X40-AWS	208	HPD2-23	175
RRH2X40-AWS	208	HPD2-23	175
DB-T1-6Z-8AB-0Z	208	1151-3	167
Sector Mount [SM 510-3]	208	Side Arm Mount [SO 306-1]	167
APXVSPP18-C-A20 w/ Mount Pipe	199	1151-3	164
APXVSPP18-C-A20 w/ Mount Pipe	199	Side Arm Mount [SO 306-1]	164
APXVSPP18-C-A20 w/ Mount Pipe	199	SO310-HL	162
800MHz 2X50W RRH W/FILTER	199	Side Arm Mount [SO 306-1]	162
800MHz 2X50W RRH W/FILTER	199	1151-3	147
800MHz 2X50W RRH W/FILTER	199	Side Arm Mount [SO 306-1]	147
1900MHz RRH (65MHz)	199	SO310-HL	145
1900MHz RRH (65MHz)	199	Side Arm Mount [SO 306-1]	145
1900MHz RRH (65MHz)	199	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	139
Sector Mount [SM 505-3]	199	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	139
(4) 4' x 2" Pipe Mount	199	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	139
(4) 4' x 2" Pipe Mount	199	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	139
(4) 4' x 2" Pipe Mount	199	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	139
(2) 7770.00 w/ Mount Pipe	189	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	139
(2) 7770.00 w/ Mount Pipe	189	KRY 112 144/1	139
(2) 7770.00 w/ Mount Pipe	189	KRY 112 144/1	139
AM-X-CD-14-65-00T-RET w/ Mount Pipe	189	KRY 112 144/1	139
AM-X-CD-14-65-00T-RET w/ Mount Pipe	189	Side Arm Mount [SO 201-3]	139
AM-X-CD-14-65-00T-RET w/ Mount Pipe	189	1142-2C	128
(2) ClearGain Dual Band 800/1900 MHz	189	Side Arm Mount [SO 306-1]	128
(2) ClearGain Dual Band 800/1900 MHz	189	Side Lighting	110
(2) ClearGain Dual Band 800/1900 MHz	189	Side Lighting	110
(2) LGP13519	189	Side Lighting	110
(2) LGP13519	189	GPS_A	51
(2) LGP13519	189	Side Arm Mount [SO 701-1]	51

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi			

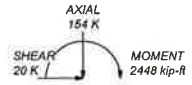
TOWER DESIGN NOTES

1. Tower is located in Middlesex County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 36 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 94.3%

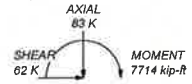
△

MAX. CORNER REACTIONS AT BASE:
DOWN: 324 K
SHEAR: 38 K

UPLIFT: -265 K
SHEAR: 33 K



TORQUE 13 kip-ft
38 mph WIND - 0.7500 in ICE



TORQUE 44 kip-ft
REACTIONS - 85 mph WIND

Crown Castle
2000 Corporate Drive
Canonsburg, PA 15317
We Are Solutions
Phone: (724) 416-2000
FAX:

Job:	BU# 806363
Project:	
Client: Crown Castle	Drawn by: cschanck
Code: TIA/EIA-222-F	Date: 03/20/14
Path:	Scale: NTS
	Dwg No: E-1

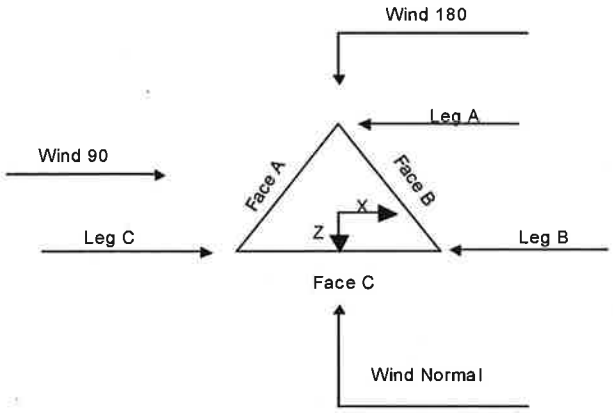
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 212'7-1/2" above the ground line.
The base of the tower is set at an elevation of 0' above the ground line.
The face width of the tower is 8'6" at the top and 30'1/2" at the base.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

1) Tower is located in Middlesex County, Connecticut.
2) Basic wind speed of 85 mph.
3) Nominal ice thickness of 0.7500 in.
4) Ice thickness is considered to increase with height.
5) Ice density of 56 pcf.
6) A wind speed of 38 mph is used in combination with ice.
7) Temperature drop of 50 °F.
8) Deflections calculated using a wind speed of 50 mph.
9) Pressures are calculated at each section.
10) Stress ratio used in tower member design is 1.333.
11) Local bending stresses due to climbing loads, feed line 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	Use TIA-222-G Tension Splice	
	Capacity Exemption	



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	212'7-9/16"-202'5-17/32"			8'6"	1	10'2-1/32"
T2	202'5-17/32"-182'3-15/32"			8'6-15/32"	1	20'2-1/32"
T3	182'3-15/32"-162'1-3/16"			8'7-9/16"	1	20'2-9/32"
T4	162'1-3/16"-141'10-13/16"			10'8-17/32"	1	20'2-17/32"
T5	141'10-13/16"-121'8-9/32"			12'9-15/32"	1	20'2-17/32"
T6	121'8-9/32"-101'5-3/4"			15'15/32"	1	20'2-17/32"
T7	101'5-3/4"-81'3-1/4"			17'6-15/32"	1	20'2-17/32"
T8	81'3-1/4"-61'			20'15/32"	1	20'3-1/4"
T9	61'-40'8-1/32"			22'8-5/32"	1	20'3-31/32"
T10	40'8-1/32"-20'3-31/32"			25'2-5/32"	1	20'3-31/32"
T11	20'3-31/32"-0'			27'9-31/32"	1	20'3-31/32"

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
T1	212'7-9/16"-202'5-17/32"	5'31/32"	K Brace Down	No	Yes	0.0000	0.0000
T2	202'5-17/32"-182'3-15/32"	6'8-5/8"	K Brace Down	No	Yes	0.0000	0.0000

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
T3	182'3-15/32"-162'1-3/16"	6'8-3/4"	K Brace Down	No	Yes	0.0000	0.0000
T4	162'1-3/16"-141'10-13/16"	6'8-7/8"	K Brace Down	No	Yes	0.0000	0.0000
T5	141'10-13/16"-121'8-9/32"	10'1-3/16"	K Brace Down	No	Yes	0.0000	0.0000
T6	121'8-9/32"-101'5-3/4"	10'1-3/16"	K Brace Down	No	Yes	0.0000	0.0000
T7	101'5-3/4"-81'3-1/4"	10'1-3/16"	K Brace Down	No	Yes	0.0000	0.0000
T8	81'3-1/4"-61'	10'1-11/16"	K Brace Down	No	Yes	0.0000	0.0000
T9	61'-40'8-1/32"	10'2-1/32"	K Brace Down	No	Yes	0.0000	0.0000
T10	40'8-1/32"-20'3-31/32"	20'3-31/32"	K1 Down	No	Yes	0.0000	0.0000
T11	20'3-31/32"-0'	20'3"	K1 Down	No	Yes	0.0000	1.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 212'7-9/16"-202'5-17/32"	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	ROHN 2 STD	A572-50 (50 ksi)
T2 202'5-17/32"-182'3-15/32"	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Pipe	ROHN 2 STD	A572-50 (50 ksi)
T3 182'3-15/32"-162'1-3/16"	Pipe	ROHN 4 EH	A572-50 (50 ksi)	Pipe	ROHN 2 STD	A572-50 (50 ksi)
T4 162'1-3/16"-141'10-13/16"	Pipe	ROHN 5 EH	A572-50 (50 ksi)	Pipe	ROHN 2 STD	A572-50 (50 ksi)
T5 141'10-13/16"-121'8-9/32"	Pipe	ROHN 6 EHS	A572-50 (50 ksi)	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)
T6 121'8-9/32"-101'5-3/4"	Pipe	ROHN 6 EH	A572-50 (50 ksi)	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)
T7 101'5-3/4"-81'3-1/4"	Pipe	ROHN 6 EH	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T8 81'3-1/4"-61'	Pipe	ROHN 8 EHS	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T9 61'-40'8-1/32"	Pipe	ROHN 8 EHS	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T10 40'8-1/32"-20'3-31/32"	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T11 20'3-31/32"-0'	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 212'7-9/16"-202'5-17/32"	None	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 1.5 STD	A572-50 (50 ksi)
T2 202'5-17/32"-182'3-15/32"	None	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 1.5 STD	A572-50 (50 ksi)
T3 182'3-15/32"-162'1-	None	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 1.5 STD	A572-50 (50 ksi)

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
3/16"							
T4 162'1-3/16"-141'10-13/16"	None	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 2 STD	A572-50 (50 ksi)
T5 141'10-13/16"-121'8-9/32"	None	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 2 STD	A572-50 (50 ksi)
T6 121'8-9/32"-101'5-3/4"	None	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 2 STD	A572-50 (50 ksi)
T7 101'5-3/4"-81'3-1/4"	None	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)
T8 81'3-1/4"-61'	None	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)
T9 61'-40'8-1/32"	None	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)
T10 40'8-1/32"-20'3-31/32"	None	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T11 20'3-31/32"-0'	None	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 3 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
T1 212'7-9/16"-202'5-17/32"	Single Angle		A572-50 (50 ksi)	Single Angle	L2x2x1/8	A36 (36 ksi)
T2 202'5-17/32"-182'3-15/32"	Single Angle		A572-50 (50 ksi)	Single Angle	L2x2x1/8	A36 (36 ksi)
T3 182'3-15/32"-162'1-3/16"	Single Angle		A572-50 (50 ksi)	Single Angle	L2x2x1/8	A36 (36 ksi)
T4 162'1-3/16"-141'10-13/16"	Single Angle		A572-50 (50 ksi)	Single Angle	L2x2x1/8	A36 (36 ksi)
T5 141'10-13/16"-121'8-9/32"	Single Angle		A572-50 (50 ksi)	Single Angle	L2x2x1/8	A36 (36 ksi)
T6 121'8-9/32"-101'5-3/4"	Single Angle		A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T7 101'5-3/4"-81'3-1/4"	Single Angle		A572-50 (50 ksi)	Single Angle	L3x3x3/16	A36 (36 ksi)
T8 81'3-1/4"-61'	Single Angle		A572-50 (50 ksi)	Single Angle	L3 1/2x3 1/2x1/4	A572-50 (50 ksi)
T9 61'-40'8-1/32"	Single Angle		A572-50 (50 ksi)	Single Angle	L3 1/2x3 1/2x1/4	A572-50 (50 ksi)
T10 40'8-1/32"-20'3-31/32"	Single Angle		A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T11 20'3-31/32"-0'	Single Angle		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
T10 40'8-1/32"-20'3-	A36 (36 ksi)	Horizontal (1)	Pipe	ROHN 1.5 STD	1
		Diagonal (1)	Pipe	ROHN 2 STD	1

Tower Elevation ft	Redundant Bracing Grade		Redundant Type	Redundant Size	K Factor
31/32"		Hip (1)	Pipe	ROHN 1.5 STD	1
		Hip Diagonal		ROHN 2.5 STD	1
T11 20'3-31/32"-0'	A36 (36 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

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 212'7-9/16"-202'5-17/32"	0.00	0.0000	A36 (36 ksi)	1	1.03	1.05	30.0000	30.0000
T2 202'5-17/32"-182'3-15/32"	0.00	0.0000	A36 (36 ksi)	1	1.03	1.05	30.0000	30.0000
T3 182'3-15/32"-162'1-3/16"	0.00	0.0000	A36 (36 ksi)	1	1.03	1.05	30.0000	30.0000
T4 162'1-3/16"-141'10-13/16"	0.00	0.0000	A36 (36 ksi)	1	1.03	1.05	30.0000	30.0000
T5 141'10-13/16"-121'8-9/32"	0.00	0.0000	A36 (36 ksi)	1	1.03	1.05	30.0000	30.0000
T6 121'8-9/32"-101'5-3/4"	0.00	0.0000	A36 (36 ksi)	1	1.03	1.05	30.0000	30.0000
T7 101'5-3/4"-81'3-1/4"	0.00	0.0000	A36 (36 ksi)	1	1.03	1.05	30.0000	30.0000
T8 81'3-1/4"-61'	0.00	0.0000	A36 (36 ksi)	1	1.03	1.05	30.0000	30.0000
T9 61'-40'8-1/32"	0.00	0.0000	A36 (36 ksi)	1	1.03	1.05	30.0000	30.0000
T10 40'8-1/32"-20'3-31/32"	0.00	0.0000	A36 (36 ksi)	1	1.03	1.05	30.0000	30.0000
T11 20'3-31/32"-0'	0.00	0.0000	A36 (36 ksi)	1	1.03	1.05	30.0000	30.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1 212'7-9/16"-202'5-17/32"	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T2 202'5-17/32"-182'3-15/32"	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T3 182'3-15/32"-162'1-3/16"	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T4 162'1-3/16"-141'10-13/16"	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T5 141'10-13/16"-121'8-9/32"	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T6 121'8-9/32"-101'5-3/4"	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T7 101'5-3/4"-81'3-1/4"	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T8 81'3-1/4"-61'	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T9 61'-40'8-1/32"	Yes	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T10 40'8-1/32"-20'3-31/32"	No	No	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T11 20'3-31/32"-0'	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 212'7-9/16"-202'5-17/32"	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T2 202'5-17/32"-182'3-15/32"	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T3 182'3-15/32"-162'1-3/16"	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T4 162'1-3/16"-141'10-13/16"	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T5 141'10-13/16"-121'8-9/32"	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T6 121'8-9/32"-101'5-3/4"	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T7 101'5-3/4"-81'3-1/4"	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T8 81'3-1/4"-61'	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T9 61'-40'8-1/32"	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T10 40'8-1/32"-20'3-31/32"	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75

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
T11 20'3-31/32"-0'	0.0000	1	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 212'7-9/16"-202'5-17/32"	Flange	0.7500 A325N	4	0.6250 A325N	3	0.6250 A325N	0	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325N	2	0.6250 A325X	0
T2 202'5-17/32"-182'3-15/32"	Flange	0.8750 A325N	4	0.6250 A325N	3	0.6250 A325N	0	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325N	2	0.6250 A325X	0
T3 182'3-15/32"-162'1-3/16"	Flange	1.0000 A325N	4	0.6250 A325N	3	0.6250 A325N	0	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325N	2	0.6250 A325X	0
T4 162'1-3/16"-141'10-13/16"	Flange	1.0000 A325N	6	0.6250 A325N	3	0.6250 A325N	0	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325N	2	0.6250 A325X	0
T5 141'10-13/16"-121'8-9/32"	Flange	1.0000 A325N	6	0.6250 A325N	3	0.6250 A325N	0	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325N	2	0.6250 A325X	0
T6 121'8-9/32"-101'5-3/4"	Flange	1.0000 A325N	6	0.6250 A325N	3	0.6250 A325N	0	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325N	2	0.6250 A325X	0
T7 101'5-3/4"-81'3-1/4"	Flange	1.0000 A325N	8	0.6250 A325N	3	0.6250 A325N	0	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325N	2	0.6250 A325X	0
T8 81'3-1/4"-61'	Flange	1.0000 A325N	8	0.6250 A325N	3	0.6250 A325N	0	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325N	2	0.6250 A325X	0
T9 61'-40'8-1/32"	Flange	1.0000 A325N	8	0.6250 A325N	3	0.6250 A325N	0	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325N	2	0.6250 A325X	0
T10 40'8-1/32"-20'3-31/32"	Flange	1.0000 A325N	8	0.7500 A325N	3	0.6250 A325N	0	0.6250 A325X	0	0.6250 A325X	0	0.7500 A325N	2	0.6250 A325X	0
T11 20'3-31/32"-0'	Flange	1.0000 A354-BC	10	0.7500 A325N	3	0.6250 A325N	0	0.6250 A325X	0	0.6250 A325X	0	0.7500 A325N	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
LDF4-50A(1/2")	A	Yes	Ar (CfAe)	51' - 0'	0.0000	0.48	1	1	0.6300	0.6300		0.15
HB114-1-08U4-M5J(1 1/4")	A	Yes	Ar (CfAe)	199' - 0'	0.0000	0.45	3	3	1.0000 1.5400	1.5400		1.08
Feedline Ladder (Af)	A	Yes	Af (CfAe)	199' - 0'	0.0000	0.46	1	1	3.0000	3.0000	12.0000	8.40
LDF5-50A(7/8")	A	Yes	Ar (CfAe)	128' - 0'	0.0000	-0.36	5	5	1.0900	1.0900		0.33
LDF5-50A(7/8")	A	Yes	Ar (CfAe)	145' - 128'	0.0000	-0.36	4	4	1.0900	1.0900		0.33

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
LDF5-50A(7/8")	A	Yes	Ar (CfAe)	147' - 145'	0.0000	-0.36	3	3	1.0900	1.0900		0.33
LDF5-50A(7/8")	A	Yes	Ar (CfAe)	164' - 147'	0.0000	-0.36	2	2	1.0900	1.0900		0.33
LDF5-50A(7/8")	A	Yes	Ar (CfAe)	167' - 164'	0.0000	-0.36	1	1	1.0900	1.0900		0.33
LDF1-50A(1/4")	A	Yes	Ar (CfAe)	162' - 0'	0.0000	-0.38	1	1	0.3450	0.3450		0.06
CR 50 1873(1-5/8")	A	Yes	Ar (CfAe)	189' - 0'	0.0000	-0.44	12	6	1.0000	1.9800		0.83
6-8AWG 3 PAIR(7/8")	A	Yes	Ar (CfAe)	189' - 0'	0.0000	-0.4	2	2	0.9000	0.0000		0.68
A-DQZNB2Yn1 750 N(1/4")	A	Yes	Ar (CfAe)	189' - 0'	0.0000	-0.4	1	1	0.2756	0.0000		0.03
3" Conduit	A	Yes	Ar (CfAe)	189' - 0'	0.0000	-0.4	1	1	3.0000	3.0000		2.80
FSJ2-50(3/8")	A	Yes	Ar (CfAe)	175' - 0'	0.0000	-0.48	5	2	0.4250	0.4250		0.08
Feedline Ladder (Af) ***	A	Yes	Af (CfAe)	189' - 0'	0.0000	-0.4	1	1	3.0000	3.0000	12.0000	8.40
LDF7-50A(1-5/8")	B	Yes	Ar (CfAe)	139' - 0'	0.0000	-0.45	12	6	1.0000	1.9800		0.82
Feedline Ladder (Af)	B	Yes	Af (CfAe)	139' - 0'	0.0000	-0.45	1	1	3.0000	3.0000	12.0000	8.40
LDF6-50A(1-1/4")	B	Yes	Ar (CfAe)	175' - 0'	0.0000	0.45	12	12	1.0000 1.5500	1.5500		0.66
Feedline Ladder (Af) ***	B	Yes	Af (CfAe)	175' - 0'	0.0000	0.45	1	1	3.0000	3.0000	12.0000	8.40
AVA7-50(1-5/8)	C	Yes	Ar (CfAe)	208' - 0'	0.0000	0.43	19	12	1.0000	2.0100		0.70
Feedline Ladder (Af)	C	Yes	Af (CfAe)	208' - 0'	0.0000	0.43	1	1	3.0000	3.0000	12.0000	8.40
AVA7-50(1-5/8)	C	Yes	Ar (CfAe)	183' - 0'	0.0000	-0.45	6	6	1.0000 2.0100	2.0100		0.70
Feedline Ladder (Af) ***	C	Yes	Af (CfAe)	183' - 0'	0.0000	-0.45	1	1	3.0000	3.0000	12.0000	8.40
Hybrid cable (7/8") ***	B	Yes	Ar (CfAe)	139' - 0'	0.0000	-0.41	3	3	1.0000	1.2600		0.68

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	C_AA_A ft^2/ft	Weight plf
***							

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	212'7-9/16"-	A	0.000	0.000	0.000	0.000	0.00
	202'5-17/32"	B	0.000	0.000	0.000	0.000	0.00
		C	11.139	1.385	0.000	0.000	0.12
T2	202'5-17/32"-	A	14.751	5.854	0.000	0.000	0.35
	182'3-15/32"	B	0.000	0.000	0.000	0.000	0.00
		C	41.247	5.219	0.000	0.000	0.45

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
T3	182'3-15/32"-162'1-3/16"	A	34.335	10.094	0.000	0.000	0.70
		B	19.989	3.224	0.000	0.000	0.21
		C	60.865	10.094	0.000	0.000	0.69
T4	162'1-3/16"-141'10-13/16"	A	39.265	10.104	0.000	0.000	0.72
		B	31.323	5.052	0.000	0.000	0.33
		C	60.928	10.104	0.000	0.000	0.69
T5	141'10-13/16"-121'8-9/32"	A	42.767	10.104	0.000	0.000	0.73
		B	53.916	9.380	0.000	0.000	0.68
		C	60.928	10.104	0.000	0.000	0.69
T6	121'8-9/32"-101'5-3/4"	A	44.029	10.104	0.000	0.000	0.73
		B	57.695	10.104	0.000	0.000	0.74
		C	60.928	10.104	0.000	0.000	0.69
T7	101'5-3/4"-81'3-1/4"	A	44.029	10.104	0.000	0.000	0.73
		B	57.695	10.104	0.000	0.000	0.74
		C	60.928	10.104	0.000	0.000	0.69
T8	81'3-1/4"-61'	A	44.165	10.135	0.000	0.000	0.74
		B	57.873	10.135	0.000	0.000	0.74
		C	61.117	10.135	0.000	0.000	0.70
T9	61'-40'8-1/32"	A	44.844	10.167	0.000	0.000	0.74
		B	58.052	10.167	0.000	0.000	0.74
		C	61.305	10.167	0.000	0.000	0.70
T10	40'8-1/32"-20'3-31/32"	A	45.369	10.167	0.000	0.000	0.74
		B	58.052	10.167	0.000	0.000	0.74
		C	61.305	10.167	0.000	0.000	0.70
T11	20'3-31/32"-0'	A	45.369	10.167	0.000	0.000	0.74
		B	58.052	10.167	0.000	0.000	0.74
		C	61.305	10.167	0.000	0.000	0.70

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	212'7-9/16"-202'5-17/32"	A	0.935	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		1.792	17.252	0.000	0.000	0.46
T2	202'5-17/32"-182'3-15/32"	A	0.927	11.653	24.171	0.000	0.000	0.89
		B		0.000	0.000	0.000	0.000	0.00
		C		6.721	63.900	0.000	0.000	1.71
T3	182'3-15/32"-162'1-3/16"	A	0.914	29.965	50.580	0.000	0.000	1.97
		B		3.631	34.678	0.000	0.000	0.69
		C		12.916	95.215	0.000	0.000	2.44
T4	162'1-3/16"-141'10-13/16"	A	0.901	38.367	55.906	0.000	0.000	2.11
		B		5.644	54.312	0.000	0.000	1.07
		C		12.838	95.253	0.000	0.000	2.42
T5	141'10-13/16"-121'8-9/32"	A	0.886	37.974	62.835	0.000	0.000	2.19
		B		15.378	88.327	0.000	0.000	2.19
		C		12.735	95.184	0.000	0.000	2.40
T6	121'8-9/32"-101'5-3/4"	A	0.868	37.502	65.281	0.000	0.000	2.20
		B		16.838	93.943	0.000	0.000	2.36
		C		12.617	95.105	0.000	0.000	2.38
T7	101'5-3/4"-81'3-1/4"	A	0.847	36.948	65.189	0.000	0.000	2.17
		B		16.630	93.851	0.000	0.000	2.33
		C		12.479	95.013	0.000	0.000	2.35
T8	81'3-1/4"-61'	A	0.822	36.384	65.277	0.000	0.000	2.14
		B		16.427	94.028	0.000	0.000	2.31
		C		12.348	95.194	0.000	0.000	2.33
T9	61'-40'8-1/32"	A	0.790	37.518	65.332	0.000	0.000	2.12
		B		16.147	94.171	0.000	0.000	2.27
		C		12.165	95.340	0.000	0.000	2.29
T10	40'8-1/32"-20'3-31/32"	A	0.750	38.142	65.151	0.000	0.000	2.08
		B		15.741	93.991	0.000	0.000	2.22
		C		11.895	95.160	0.000	0.000	2.24
T11	20'3-31/32"-0'	A	0.750	38.142	65.151	0.000	0.000	2.08
		B		15.741	93.991	0.000	0.000	2.22
		C		11.895	95.160	0.000	0.000	2.24

Feed Line Shielding

Section	Elevation	Face	A_R	A_R Ice	A_F	A_F Ice
	ft		ft^2	ft^2	ft^2	ft^2
T1	212'7-9/16"-202'5-17/32"	A	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000
		C	1.149	3.288	0.000	0.000
T2	202'5-17/32"-182'3-15/32"	A	1.611	5.326	0.000	0.000
		B	0.000	0.000	0.000	0.000
		C	3.634	10.312	0.000	0.000
T3	182'3-15/32"-162'1-3/16"	A	3.239	11.031	0.000	0.000
		B	1.692	5.204	0.000	0.000
		C	5.172	14.716	0.000	0.000
T4	162'1-3/16"-141'10-13/16"	A	3.624	12.432	0.000	0.000
		B	2.670	7.871	0.000	0.000
		C	5.214	14.216	0.000	0.000
T5	141'10-13/16"-121'8-9/32"	A	3.189	10.282	0.000	0.000
		B	3.818	10.557	0.000	0.000
		C	4.285	10.993	0.000	0.000
T6	121'8-9/32"-101'5-3/4"	A	3.061	9.759	0.000	0.000
		B	3.834	10.504	0.000	0.000
		C	4.016	10.219	0.000	0.000
T7	101'5-3/4"-81'3-1/4"	A	3.540	10.357	0.000	0.000
		B	4.433	11.188	0.000	0.000
		C	4.645	10.890	0.000	0.000
T8	81'3-1/4"-61'	A	3.408	9.800	0.000	0.000
		B	4.268	10.633	0.000	0.000
		C	4.472	10.357	0.000	0.000
T9	61'-40'8-1/32"	A	3.346	9.478	0.000	0.000
		B	4.149	10.155	0.000	0.000
		C	4.347	9.900	0.000	0.000
T10	40'8-1/32"-20'3-31/32"	A	3.752	10.855	0.000	0.000
		B	4.609	11.521	0.000	0.000
		C	4.828	11.244	0.000	0.000
T11	20'3-31/32"-0'	A	3.576	10.339	0.000	0.000
		B	4.392	10.973	0.000	0.000
		C	4.602	10.709	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	212'7-9/16"-202'5-17/32"	-9.9547	7.2253	-7.2426	5.2565
T2	202'5-17/32"-182'3-15/32"	-16.6839	7.4489	-13.2610	6.3981
T3	182'3-15/32"-162'1-3/16"	-6.0079	13.5090	-5.0789	11.3880
T4	162'1-3/16"-141'10-13/16"	-4.2879	15.9250	-3.6312	13.6606
T5	141'10-13/16"-121'8-9/32"	-4.6507	9.0638	-4.4953	9.1531
T6	121'8-9/32"-101'5-3/4"	-5.4883	9.0177	-5.4207	9.4786
T7	101'5-3/4"-81'3-1/4"	-5.9416	9.7360	-5.9305	10.4173
T8	81'3-1/4"-61'	-6.2394	10.2021	-6.3642	11.1924
T9	61'-40'8-1/32"	-6.8576	10.9548	-6.9923	11.7846
T10	40'8-1/32"-20'3-31/32"	-7.3703	11.5219	-7.3875	12.0969
T11	20'3-31/32"-0'	-7.9452	12.4071	-7.9804	13.0289

Discrete Tower Loads

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
Flash Beacon Lighting	B	From Leg	0.00 0' 1'	0.0000	212'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.70 3.10 3.50 4.30 5.90	2.70 3.10 3.50 4.30 5.90	0.05 0.07 0.09 0.13 0.21
Side Lighting	A	From Leg	1.00 0' 0'	0.0000	110'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.13 0.19 0.27 0.44 0.93	0.13 0.19 0.27 0.44 0.93	0.01 0.01 0.01 0.02 0.05
Side Lighting	B	From Leg	1.00 0' 0'	0.0000	110'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.13 0.19 0.27 0.44 0.93	0.13 0.19 0.27 0.44 0.93	0.01 0.01 0.01 0.02 0.05
Side Lighting	C	From Leg	1.00 0' 0'	0.0000	110'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.13 0.19 0.27 0.44 0.93	0.13 0.19 0.27 0.44 0.93	0.01 0.01 0.01 0.02 0.05
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(2) LPA-80080/6CF w/ Mount Pipe	A	From Face	4.00 0' 1'	0.0000	208'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.56 5.11 5.61 6.65 8.83	10.73 11.99 12.97 14.98 19.22	0.05 0.11 0.19 0.36 0.86
(2) LPA-80080/6CF w/ Mount Pipe	B	From Face	4.00 0' 1'	0.0000	208'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.56 5.11 5.61 6.65 8.83	10.73 11.99 12.97 14.98 19.22	0.05 0.11 0.19 0.36 0.86
(2) LPA-80080/6CF w/ Mount Pipe	C	From Face	4.00 0' 1'	0.0000	208'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.56 5.11 5.61 6.65 8.83	10.73 11.99 12.97 14.98 19.22	0.05 0.11 0.19 0.36 0.86
BXA-70063/6CF-EDIN w/ Mount Pipe	A	From Face	4.00 0' 1'	0.0000	208'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.97 8.61 9.22 10.46 13.07	5.40 6.55 7.41 9.18 12.93	0.04 0.10 0.17 0.33 0.79
BXA-70063/6CF-EDIN w/ Mount Pipe	B	From Face	4.00 0' 1'	0.0000	208'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.97 8.61 9.22 10.46 13.07	5.40 6.55 7.41 9.18 12.93	0.04 0.10 0.17 0.33 0.79
BXA-70063/6CF-EDIN w/ Mount Pipe	C	From Face	4.00 0' 1'	0.0000	208'	No Ice 1/2" Ice	7.97 8.61 9.22	5.40 6.55 7.41	0.04 0.10 0.17

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice	10.46	9.18	0.33
						2" Ice	13.07	12.93	0.79
						4" Ice			
BXA-171063-8CF-EDIN-X w/ Mount Pipe	A	From Face	4.00 0' 1'	0.0000	208'	No Ice	3.16	3.33	0.03
						1/2" Ice	3.53	3.94	0.06
						1" Ice	3.94	4.56	0.10
						2" Ice	4.83	5.86	0.19
						4" Ice	6.73	8.84	0.48
BXA-171063-8CF-EDIN-X w/ Mount Pipe	B	From Face	4.00 0' 1'	0.0000	208'	No Ice	3.16	3.33	0.03
						1/2" Ice	3.53	3.94	0.06
						1" Ice	3.94	4.56	0.10
						2" Ice	4.83	5.86	0.19
						4" Ice	6.73	8.84	0.48
BXA-171063-8CF-EDIN-X w/ Mount Pipe	C	From Face	4.00 0' 1'	0.0000	208'	No Ice	3.16	3.33	0.03
						1/2" Ice	3.53	3.94	0.06
						1" Ice	3.94	4.56	0.10
						2" Ice	4.83	5.86	0.19
						4" Ice	6.73	8.84	0.48
BXA-171085-8BF-EDIN-2 w/ Mount Pipe	A	From Face	4.00 0' 1'	0.0000	208'	No Ice	3.18	3.35	0.03
						1/2" Ice	3.56	3.97	0.06
						1" Ice	3.96	4.60	0.10
						2" Ice	4.85	5.89	0.19
						4" Ice	6.77	8.89	0.49
BXA-171085-8BF-EDIN-2 w/ Mount Pipe	B	From Face	4.00 0' 1'	0.0000	208'	No Ice	3.18	3.35	0.03
						1/2" Ice	3.56	3.97	0.06
						1" Ice	3.96	4.60	0.10
						2" Ice	4.85	5.89	0.19
						4" Ice	6.77	8.89	0.49
BXA-171085-8BF-EDIN-2 w/ Mount Pipe	C	From Face	4.00 0' 1'	0.0000	208'	No Ice	3.18	3.35	0.03
						1/2" Ice	3.56	3.97	0.06
						1" Ice	3.96	4.60	0.10
						2" Ice	4.85	5.89	0.19
						4" Ice	6.77	8.89	0.49
RRH2X40-AWS	A	From Face	4.00 0' 1'	0.0000	208'	No Ice	2.52	1.59	0.04
						1/2" Ice	2.75	1.80	0.06
						1" Ice	2.99	2.01	0.08
						2" Ice	3.50	2.46	0.13
						4" Ice	4.61	3.48	0.28
RRH2X40-AWS	B	From Face	4.00 0' 1'	0.0000	208'	No Ice	2.52	1.59	0.04
						1/2" Ice	2.75	1.80	0.06
						1" Ice	2.99	2.01	0.08
						2" Ice	3.50	2.46	0.13
						4" Ice	4.61	3.48	0.28
RRH2X40-AWS	C	From Face	4.00 0' 1'	0.0000	208'	No Ice	2.52	1.59	0.04
						1/2" Ice	2.75	1.80	0.06
						1" Ice	2.99	2.01	0.08
						2" Ice	3.50	2.46	0.13
						4" Ice	4.61	3.48	0.28
DB-T1-6Z-8AB-0Z	C	From Face	4.00 0' 1'	0.0000	208'	No Ice	5.60	2.33	0.04
						1/2" Ice	5.92	2.56	0.08
						1" Ice	6.24	2.79	0.12
						2" Ice	6.91	3.28	0.21
						4" Ice	8.37	4.37	0.45
Sector Mount [SM 510-3]	C	None		0.0000	208'	No Ice	40.10	40.10	2.40
						1/2" Ice	57.33	57.33	3.09

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
						Ice	74.56	74.56	3.78
						1" Ice	109.02	109.02	5.17
						2" Ice	177.94	177.94	7.94
						4" Ice			
***									
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	4.00 0' -1'	0.0000	199'	No Ice	8.50	6.95	0.08
						1/2" Ice	9.15	8.13	0.15
						1" Ice	9.77	9.02	0.23
						2" Ice	11.03	10.84	0.41
						4" Ice	13.68	14.85	0.91
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	4.00 0' -1'	0.0000	199'	No Ice	8.50	6.95	0.08
						1/2" Ice	9.15	8.13	0.15
						1" Ice	9.77	9.02	0.23
						2" Ice	11.03	10.84	0.41
						4" Ice	13.68	14.85	0.91
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	4.00 0' -1'	0.0000	199'	No Ice	8.50	6.95	0.08
						1/2" Ice	9.15	8.13	0.15
						1" Ice	9.77	9.02	0.23
						2" Ice	11.03	10.84	0.41
						4" Ice	13.68	14.85	0.91
800MHz 2X50W RRH W/FILTER	A	From Leg	4.00 0' -1'	0.0000	199'	No Ice	2.40	2.25	0.06
						1/2" Ice	2.61	2.46	0.09
						1" Ice	2.83	2.68	0.11
						2" Ice	3.30	3.13	0.17
						4" Ice	4.34	4.15	0.34
800MHz 2X50W RRH W/FILTER	B	From Leg	4.00 0' -1'	0.0000	199'	No Ice	2.40	2.25	0.06
						1/2" Ice	2.61	2.46	0.09
						1" Ice	2.83	2.68	0.11
						2" Ice	3.30	3.13	0.17
						4" Ice	4.34	4.15	0.34
800MHz 2X50W RRH W/FILTER	C	From Leg	4.00 0' -1'	0.0000	199'	No Ice	2.40	2.25	0.06
						1/2" Ice	2.61	2.46	0.09
						1" Ice	2.83	2.68	0.11
						2" Ice	3.30	3.13	0.17
						4" Ice	4.34	4.15	0.34
1900MHz RRH (65MHz)	A	From Leg	4.00 0' -1'	0.0000	199'	No Ice	2.70	2.77	0.06
						1/2" Ice	2.94	3.01	0.08
						1" Ice	3.18	3.26	0.11
						2" Ice	3.70	3.78	0.18
						4" Ice	4.85	4.93	0.35
1900MHz RRH (65MHz)	B	From Leg	4.00 0' -1'	0.0000	199'	No Ice	2.70	2.77	0.06
						1/2" Ice	2.94	3.01	0.08
						1" Ice	3.18	3.26	0.11
						2" Ice	3.70	3.78	0.18
						4" Ice	4.85	4.93	0.35
1900MHz RRH (65MHz)	C	From Leg	4.00 0' -1'	0.0000	199'	No Ice	2.70	2.77	0.06
						1/2" Ice	2.94	3.01	0.08
						1" Ice	3.18	3.26	0.11
						2" Ice	3.70	3.78	0.18
						4" Ice	4.85	4.93	0.35
Sector Mount [SM 505-3]	C	None		0.0000	199'	No Ice	34.86	34.86	1.73
						1/2" Ice	49.79	49.79	2.32
						1" Ice	64.72	64.72	2.91
						2" Ice	94.58	94.58	4.09
						4" Ice	154.30	154.30	6.46

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(4) 4' x 2" Pipe Mount	A	From Leg	4.00 0' -1'	0.0000	199'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.79 1.03 1.28 1.81 3.11	0.79 1.03 1.28 1.81 3.11	0.03 0.04 0.04 0.07 0.17
(4) 4' x 2" Pipe Mount	B	From Leg	4.00 0' -1'	0.0000	199'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.79 1.03 1.28 1.81 3.11	0.79 1.03 1.28 1.81 3.11	0.03 0.04 0.04 0.07 0.17
(4) 4' x 2" Pipe Mount	C	From Leg	4.00 0' -1'	0.0000	199'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.79 1.03 1.28 1.81 3.11	0.79 1.03 1.28 1.81 3.11	0.03 0.04 0.04 0.07 0.17
***									
(2) 7770.00 w/ Mount Pipe	A	From Face	4.00 0' 1'	0.0000	189'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.12 6.63 7.13 8.16 10.36	4.25 5.01 5.71 7.16 10.41	0.06 0.10 0.16 0.29 0.66
(2) 7770.00 w/ Mount Pipe	B	From Face	4.00 0' 1'	0.0000	189'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.12 6.63 7.13 8.16 10.36	4.25 5.01 5.71 7.16 10.41	0.06 0.10 0.16 0.29 0.66
(2) 7770.00 w/ Mount Pipe	C	From Face	4.00 0' 1'	0.0000	189'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.12 6.63 7.13 8.16 10.36	4.25 5.01 5.71 7.16 10.41	0.06 0.10 0.16 0.29 0.66
AM-X-CD-14-65-00T-RET w/ Mount Pipe	A	From Face	4.00 0' 1'	0.0000	189'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.74 6.20 6.66 7.62 9.67	4.02 4.63 5.28 6.68 9.74	0.03 0.08 0.13 0.25 0.61
AM-X-CD-14-65-00T-RET w/ Mount Pipe	B	From Face	4.00 0' 1'	0.0000	189'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.74 6.20 6.66 7.62 9.67	4.02 4.63 5.28 6.68 9.74	0.03 0.08 0.13 0.25 0.61
AM-X-CD-14-65-00T-RET w/ Mount Pipe	C	From Face	4.00 0' 1'	0.0000	189'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.74 6.20 6.66 7.62 9.67	4.02 4.63 5.28 6.68 9.74	0.03 0.08 0.13 0.25 0.61
(2) ClearGain Dual Band 800/1900 MHz	A	From Face	4.00 0' 0'	0.0000	189'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.54 1.71 1.89 2.27 3.14	0.80 0.94 1.08 1.39 2.11	0.02 0.03 0.05 0.08 0.18
(2) ClearGain Dual Band 800/1900 MHz	B	From Face	4.00 0' 0'	0.0000	189'	No Ice 1/2" Ice 1" Ice	1.54 1.71 1.89 2.27	0.80 0.94 1.08 1.39	0.02 0.03 0.05 0.08

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
						2" Ice	3.14	2.11	0.18
						4" Ice			
(2) ClearGain Dual Band 800/1900 MHz	C	From Face	4.00 0' 0'	0.0000	189'	No Ice	1.54	0.80	0.02
						1/2" Ice	1.71	0.94	0.03
						1" Ice	1.89	1.08	0.05
						2" Ice	2.27	1.39	0.08
						4" Ice	3.14	2.11	0.18
(2) LGP13519	A	From Face	4.00 0' 1'	0.0000	189'	No Ice	0.34	0.21	0.01
						1/2" Ice	0.42	0.28	0.01
						1" Ice	0.51	0.36	0.01
						2" Ice	0.73	0.55	0.02
						4" Ice	1.25	1.03	0.07
(2) LGP13519	B	From Face	4.00 0' 1'	0.0000	189'	No Ice	0.34	0.21	0.01
						1/2" Ice	0.42	0.28	0.01
						1" Ice	0.51	0.36	0.01
						2" Ice	0.73	0.55	0.02
						4" Ice	1.25	1.03	0.07
(2) LGP13519	C	From Face	4.00 0' 1'	0.0000	189'	No Ice	0.34	0.21	0.01
						1/2" Ice	0.42	0.28	0.01
						1" Ice	0.51	0.36	0.01
						2" Ice	0.73	0.55	0.02
						4" Ice	1.25	1.03	0.07
(2) RRUS-11	A	From Face	4.00 0' 1'	0.0000	189'	No Ice	3.25	1.37	0.05
						1/2" Ice	3.49	1.55	0.07
						1" Ice	3.74	1.74	0.09
						2" Ice	4.27	2.14	0.15
						4" Ice	5.43	3.04	0.31
(2) RRUS-11	B	From Face	4.00 0' 1'	0.0000	189'	No Ice	3.25	1.37	0.05
						1/2" Ice	3.49	1.55	0.07
						1" Ice	3.74	1.74	0.09
						2" Ice	4.27	2.14	0.15
						4" Ice	5.43	3.04	0.31
(2) RRUS-11	C	From Face	4.00 0' 1'	0.0000	189'	No Ice	3.25	1.37	0.05
						1/2" Ice	3.49	1.55	0.07
						1" Ice	3.74	1.74	0.09
						2" Ice	4.27	2.14	0.15
						4" Ice	5.43	3.04	0.31
DC6-48-60-18-8F	C	From Face	4.00 0' 1'	0.0000	189'	No Ice	1.27	1.27	0.02
						1/2" Ice	1.46	1.46	0.04
						1" Ice	1.66	1.66	0.05
						2" Ice	2.09	2.09	0.10
						4" Ice	3.10	3.10	0.21
Sector Mount [SM 602-3]	C	None		0.0000	189'	No Ice	33.11	33.11	1.54
						1/2" Ice	44.90	44.90	2.16
						1" Ice	56.69	56.69	2.78
						2" Ice	80.27	80.27	4.01
						4" Ice	127.43	127.43	6.49
***									
APXV18-206517LS w/ Mount Pipe	A	From Leg	2.00 0' 0'	0.0000	183'	No Ice	5.29	4.67	0.05
						1/2" Ice	5.84	5.82	0.10
						1" Ice	6.36	6.69	0.15
						2" Ice	7.42	8.46	0.28
						4" Ice	9.77	12.21	0.67
APXV18-206517LS w/ Mount Pipe	B	From Leg	2.00 0'	0.0000	183'	No Ice	5.29	4.67	0.05
						1/2" Ice	5.84	5.82	0.10

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0'			Ice	6.36	6.69	0.15
						1" Ice	7.42	8.46	0.28
						2" Ice	9.77	12.21	0.67
						4" Ice			
APXV18-206517LS w/ Mount Pipe	C	From Leg	2.00 0' 0'	0.0000	183'	No Ice	5.29	4.67	0.05
						1/2"	5.84	5.82	0.10
						Ice	6.36	6.69	0.15
						1" Ice	7.42	8.46	0.28
						2" Ice	9.77	12.21	0.67
						4" Ice			
***									
(4) DB844H90E-XY w/ Mount Pipe	A	From Face	4.00 0' 1'	0.0000	175'	No Ice	3.30	4.92	0.03
						1/2"	3.69	5.60	0.07
						Ice	4.12	6.28	0.12
						1" Ice	5.01	7.71	0.23
						2" Ice	6.92	10.83	0.56
						4" Ice			
(4) DB844H90E-XY w/ Mount Pipe	B	From Face	4.00 0' 1'	0.0000	175'	No Ice	3.30	4.92	0.03
						1/2"	3.69	5.60	0.07
						Ice	4.12	6.28	0.12
						1" Ice	5.01	7.71	0.23
						2" Ice	6.92	10.83	0.56
						4" Ice			
(4) DB844H90E-XY w/ Mount Pipe	C	From Face	4.00 0' 1'	0.0000	175'	No Ice	3.30	4.92	0.03
						1/2"	3.69	5.60	0.07
						Ice	4.12	6.28	0.12
						1" Ice	5.01	7.71	0.23
						2" Ice	6.92	10.83	0.56
						4" Ice			
Sector Mount [SM 510-3]	C	None		0.0000	175'	No Ice	40.10	40.10	2.40
						1/2"	57.33	57.33	3.09
						Ice	74.56	74.56	3.78
						1" Ice	109.02	109.02	5.17
						2" Ice	177.94	177.94	7.94
						4" Ice			
6' x 2" Mount Pipe	A	From Face	0.50 -3' 4'	0.0000	175'	No Ice	1.43	1.43	0.02
						1/2"	1.92	1.92	0.03
						Ice	2.29	2.29	0.05
						1" Ice	3.06	3.06	0.09
						2" Ice	4.70	4.70	0.23
						4" Ice			
6' x 2" Mount Pipe	C	From Face	0.50 3' 4'	0.0000	175'	No Ice	1.43	1.43	0.02
						1/2"	1.92	1.92	0.03
						Ice	2.29	2.29	0.05
						1" Ice	3.06	3.06	0.09
						2" Ice	4.70	4.70	0.23
						4" Ice			
***									
1151-3	A	From Leg	6.00 0' 6'	0.0000	167'	No Ice	4.18	4.18	0.02
						1/2"	5.73	5.73	0.05
						Ice	7.30	7.30	0.09
						1" Ice	10.48	10.48	0.20
						2" Ice	14.75	14.75	0.54
						4" Ice			
Side Arm Mount [SO 308-1]	A	From Leg	3.00 0' 0'	0.0000	167'	No Ice	0.98	3.03	0.05
						1/2"	1.70	5.22	0.08
						Ice	2.42	7.41	0.10
						1" Ice	3.86	11.79	0.16
						2" Ice	6.74	20.55	0.26
						4" Ice			
***									
1151-3	B	From Leg	6.00 0' 9'	0.0000	164'	No Ice	4.18	4.18	0.02
						1/2"	5.73	5.73	0.05
						Ice	7.30	7.30	0.09
						1" Ice	10.48	10.48	0.20

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
						2" Ice	14.75	14.75	0.54
						4" Ice			
Side Arm Mount [SO 308-1]	B	From Leg	3.00 0' 0'	0.0000	164'	No Ice	0.98	3.03	0.05
						1/2" Ice	1.70	5.22	0.08
						1" Ice	2.42	7.41	0.10
						2" Ice	3.86	11.79	0.16
						4" Ice	6.74	20.55	0.26
***									
SD310-HL	A	From Leg	6.00 0' -2'	0.0000	162'	No Ice	1.11	1.11	6.50
						1/2" Ice	1.36	1.36	6.51
						1" Ice	1.62	1.62	6.52
						2" Ice	2.17	2.17	6.56
						4" Ice	3.58	3.58	6.67
Side Arm Mount [SO 308-1]	A	From Leg	3.00 0' 0'	0.0000	162'	No Ice	0.98	3.03	0.05
						1/2" Ice	1.70	5.22	0.08
						1" Ice	2.42	7.41	0.10
						2" Ice	3.86	11.79	0.16
						4" Ice	6.74	20.55	0.26
***									
1151-3	A	From Leg	6.00 0' 6'	0.0000	147'	No Ice	4.18	4.18	0.02
						1/2" Ice	5.73	5.73	0.05
						1" Ice	7.30	7.30	0.09
						2" Ice	10.48	10.48	0.20
						4" Ice	14.75	14.75	0.54
Side Arm Mount [SO 308-1]	A	From Leg	3.00 0' 0'	0.0000	147'	No Ice	0.98	3.03	0.05
						1/2" Ice	1.70	5.22	0.08
						1" Ice	2.42	7.41	0.10
						2" Ice	3.86	11.79	0.16
						4" Ice	6.74	20.55	0.26
***									
SD310-HL	B	From Leg	6.00 0' 3'	0.0000	145'	No Ice	1.11	1.11	6.50
						1/2" Ice	1.36	1.36	6.51
						1" Ice	1.62	1.62	6.52
						2" Ice	2.17	2.17	6.56
						4" Ice	3.58	3.58	6.67
Side Arm Mount [SO 308-1]	B	From Leg	3.00 0' 0'	0.0000	145'	No Ice	0.98	3.03	0.05
						1/2" Ice	1.70	5.22	0.08
						1" Ice	2.42	7.41	0.10
						2" Ice	3.86	11.79	0.16
						4" Ice	6.74	20.55	0.26
***									
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Leg	2.00 0' 1'	0.0000	139'	No Ice	6.83	5.64	0.11
						1/2" Ice	7.35	6.48	0.17
						1" Ice	7.86	7.26	0.23
						2" Ice	8.93	8.86	0.38
						4" Ice	11.18	12.29	0.81
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Leg	2.00 0' 1'	0.0000	139'	No Ice	6.83	5.64	0.11
						1/2" Ice	7.35	6.48	0.17
						1" Ice	7.86	7.26	0.23
						2" Ice	8.93	8.86	0.38
						4" Ice	11.18	12.29	0.81
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Leg	2.00 0' 1'	0.0000	139'	No Ice	6.83	5.64	0.11
						1/2" Ice	7.35	6.48	0.17
						1" Ice	7.86	7.26	0.23
						2" Ice	8.93	8.86	0.38
						4" Ice	11.18	12.29	0.81

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						4" Ice			
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	A	From Leg	2.00 0' 1'	0.0000	139'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.83 7.35 7.86 8.93 11.18	5.64 6.48 7.26 8.86 12.29	0.11 0.17 0.23 0.38 0.81
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	B	From Leg	2.00 0' 1'	0.0000	139'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.83 7.35 7.86 8.93 11.18	5.64 6.48 7.26 8.86 12.29	0.11 0.17 0.23 0.38 0.81
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	C	From Leg	2.00 0' 1'	0.0000	139'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.83 7.35 7.86 8.93 11.18	5.64 6.48 7.26 8.86 12.29	0.11 0.17 0.23 0.38 0.81
KRY 112 144/1	A	From Leg	2.00 0' 1'	0.0000	139'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.41 0.50 0.59 0.81 1.36	0.20 0.27 0.35 0.53 1.00	0.01 0.01 0.02 0.03 0.08
KRY 112 144/1	B	From Leg	2.00 0' 1'	0.0000	139'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.41 0.50 0.59 0.81 1.36	0.20 0.27 0.35 0.53 1.00	0.01 0.01 0.02 0.03 0.08
KRY 112 144/1	C	From Leg	2.00 0' 1'	0.0000	139'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.41 0.50 0.59 0.81 1.36	0.20 0.27 0.35 0.53 1.00	0.01 0.01 0.02 0.03 0.08
Side Arm Mount [SO 201-3]	C	None		0.0000	139'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.71 7.91 10.11 14.51 23.31	5.71 7.91 10.11 14.51 23.31	0.29 0.35 0.41 0.54 0.79
***									
1142-2C	A	From Leg	6.00 0' 4'	0.0000	128'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.09 3.37 4.67 7.32 10.79	2.09 3.37 4.67 7.32 10.79	0.02 0.04 0.07 0.14 0.39
Side Arm Mount [SO 308-1]	A	From Leg	3.00 0' 0'	0.0000	128'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.98 1.70 2.42 3.86 6.74	3.03 5.22 7.41 11.79 20.55	0.05 0.08 0.10 0.16 0.26
***									
GPS_A	C	From Leg	2.00 0' 0'	0.0000	51'	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.30 0.37 0.46 0.65 1.15	0.30 0.37 0.46 0.65 1.15	0.00 0.00 0.01 0.02 0.08
Side Arm Mount [SO 701-1]	C	From Leg	1.00 0'	0.0000	51'	No Ice 1/2"	0.85 1.14	1.67 2.34	0.07 0.08

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0'			Ice	1.43	3.01	0.09
						1" Ice	2.01	4.35	0.12
						2" Ice	3.17	7.03	0.18
						4" Ice			
***									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
HPD2-23	A	Paraboloid w/Shroud (HP)	From Face	2.00 -3' 4'	14.0000		175'	2.00	No Ice	3.14	0.03
									1/2" Ice	3.41	0.03
									1" Ice	3.68	0.04
									2" Ice	4.21	0.62
									4" Ice	5.28	0.18
HPD2-23	C	Paraboloid w/Shroud (HP)	From Face	2.00 3' 4'	-36.0000		175'	2.00	No Ice	3.14	0.03
									1/2" Ice	3.41	0.03
									1" Ice	3.68	0.04
									2" Ice	4.21	0.62
									4" Ice	5.28	0.18
***											

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

Comb. No.	Description
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 K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	212.625 - 202.458	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	23	-2.95	0.07	-0.00
			Max. Mx	8	-0.56	0.43	-0.01
			Max. My	3	-1.14	-0.00	0.44
			Max. Vy	8	1.53	-0.27	-0.01
			Max. Vx	7	1.55	0.00	-0.28
		Diagonal	Max Tension	5	2.94	0.00	0.00
			Max. Compression	5	-3.01	0.00	0.00
			Max. Mx	14	-0.05	0.03	0.00
			Max. Vy	14	0.02	0.00	0.00
		Horizontal	Max Tension	12	2.18	-0.01	0.00
			Max. Compression	6	-2.18	0.00	0.00
			Max. Mx	21	0.05	-0.02	-0.00
			Max. My	8	0.03	-0.01	-0.01
			Max. Vy	21	-0.02	-0.02	-0.00
			Max. Vx	8	-0.00	-0.01	-0.01
		Top Girt	Max Tension	4	0.19	0.00	0.00
			Max. Compression	10	-0.19	-0.01	-0.00
			Max. Mx	21	-0.03	-0.01	-0.00
			Max. My	2	0.07	-0.00	0.00
			Max. Vy	21	0.02	-0.01	-0.00
			Max. Vx	2	-0.00	-0.00	0.00
		Inner Bracing	Max Tension	10	0.00	0.00	0.00
			Max. Compression	10	-0.00	0.00	0.00
			Max. Mx	14	-0.00	-0.01	0.00
			Max. Vy	14	0.01	0.00	0.00
T2	202.458 - 182.292	Leg	Max Tension	8	17.83	0.11	-0.05
			Max. Compression	10	-24.63	0.25	0.02
			Max. Mx	4	1.80	1.21	0.00
			Max. My	13	-2.44	-0.00	-1.24
			Max. Vy	4	-1.15	0.11	0.02
			Max. Vx	7	-1.20	0.00	0.07
		Diagonal	Max Tension	5	9.25	0.00	0.00
			Max. Compression	5	-9.32	0.00	0.00
			Max. Mx	14	-0.05	0.03	0.00
			Max. Vy	14	-0.02	0.00	0.00
		Horizontal	Max Tension	11	5.07	-0.01	-0.00
			Max. Compression	5	-5.07	0.00	0.00
			Max. Mx	21	0.20	-0.02	-0.00
			Max. My	2	0.44	-0.00	0.01
			Max. Vy	21	0.02	-0.02	-0.00
			Max. Vx	2	-0.00	0.00	0.00
		Inner Bracing	Max Tension	2	0.01	0.00	0.00
			Max. Compression	8	-0.01	0.00	0.00
			Max. Mx	14	-0.00	-0.01	0.00
			Max. Vy	14	-0.01	0.00	0.00
T3	182.292 - 162.104	Leg	Max Tension	8	52.92	-0.19	0.04

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	10	-64.48	0.22	0.09
			Max. Mx	12	29.71	-0.35	0.08
			Max. My	13	-4.35	-0.02	0.40
			Max. Vy	4	-1.01	-0.33	-0.05
			Max. Vx	13	1.05	-0.02	0.40
		Diagonal	Max Tension	5	10.01	0.00	0.00
			Max. Compression	5	-10.08	0.00	0.00
			Max. Mx	14	-0.05	0.04	0.00
			Max. Vy	14	-0.02	0.00	0.00
		Horizontal	Max Tension	11	6.30	-0.01	0.00
			Max. Compression	5	-6.31	0.00	0.00
			Max. Mx	25	-0.49	-0.03	-0.00
			Max. My	2	1.47	0.00	0.01
			Max. Vy	25	0.02	-0.03	-0.00
			Max. Vx	2	0.00	0.00	0.01
		Inner Bracing	Max Tension	2	0.00	0.00	0.00
			Max. Compression	12	-0.01	0.00	0.00
			Max. Mx	14	-0.00	-0.02	0.00
			Max. Vy	14	0.01	0.00	0.00
T4	162.104 - 141.896	Leg	Max Tension	4	90.00	-1.10	-0.06
			Max. Compression	2	-111.82	0.27	0.00
			Max. Mx	12	79.15	-1.42	0.04
			Max. My	7	-4.61	0.00	-1.09
			Max. Vy	8	-0.67	-0.19	0.04
			Max. Vx	3	0.24	-0.33	-1.09
		Diagonal	Max Tension	5	9.97	0.00	0.00
			Max. Compression	5	-10.07	0.00	0.00
			Max. Mx	14	-0.19	0.06	0.00
			Max. Vy	14	-0.02	0.00	0.00
		Horizontal	Max Tension	5	6.96	0.00	0.00
			Max. Compression	11	-6.96	-0.02	-0.00
			Max. Mx	17	-0.63	-0.05	-0.00
			Max. My	6	0.76	0.00	0.02
			Max. Vy	17	0.03	-0.05	-0.00
			Max. Vx	6	-0.00	0.00	0.02
		Inner Bracing	Max Tension	6	0.01	0.00	0.00
			Max. Compression	8	-0.01	0.00	0.00
			Max. Mx	14	-0.00	-0.03	0.00
			Max. Vy	14	0.02	0.00	0.00
T5	141.896 - 121.688	Leg	Max Tension	4	115.75	-0.92	0.01
			Max. Compression	6	-140.68	0.60	-0.04
			Max. Mx	12	90.08	-1.42	0.04
			Max. My	7	-5.19	0.00	-1.09
			Max. Vy	12	-0.48	-1.42	0.04
			Max. Vx	7	-0.46	0.00	-1.09
		Diagonal	Max Tension	11	13.02	0.00	0.00
			Max. Compression	11	-13.17	0.00	0.00
			Max. Mx	14	-0.03	0.12	0.00
			Max. Vy	14	0.04	0.00	0.00
		Horizontal	Max Tension	5	7.85	0.00	0.00
			Max. Compression	11	-7.85	-0.03	-0.00
			Max. Mx	17	0.75	-0.06	-0.00
			Max. My	10	0.14	0.00	0.02
			Max. Vy	17	-0.03	-0.06	-0.00
			Max. Vx	10	-0.00	0.00	0.00
		Inner Bracing	Max Tension	10	0.00	0.00	0.00
			Max. Compression	8	-0.01	0.00	0.00
			Max. Mx	14	-0.00	-0.03	0.00
			Max. Vy	14	0.02	0.00	0.00
T6	121.688 - 101.479	Leg	Max Tension	4	143.95	-0.63	-0.03
			Max. Compression	6	-173.28	0.89	-0.10
			Max. Mx	4	143.57	-0.92	-0.04
			Max. My	7	-10.06	-0.03	-0.97
			Max. Vy	4	0.12	-0.92	-0.04
			Max. Vx	13	-0.14	-0.03	0.97
		Diagonal	Max Tension	11	11.85	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. Compression	11	-12.03	0.00	0.00
			Max. Mx	14	-0.07	0.15	0.00
			Max. Vy	14	-0.04	0.00	0.00
		Horizontal	Max Tension	5	7.84	0.00	0.00
			Max. Compression	11	-7.83	-0.04	-0.00
			Max. Mx	17	0.89	-0.07	-0.00
			Max. My	10	0.17	-0.01	0.01
			Max. Vy	17	-0.04	-0.07	-0.00
			Max. Vx	10	0.00	0.00	0.00
		Inner Bracing	Max Tension	10	0.00	0.00	0.00
			Max. Compression	12	-0.01	0.00	0.00
			Max. Mx	14	-0.01	-0.06	0.00
			Max. Vy	14	0.03	0.00	0.00
T7	101.479 - 81.2708	Leg	Max Tension	4	168.64	-0.60	-0.02
			Max. Compression	6	-202.75	0.77	-0.06
			Max. Mx	4	156.48	-0.92	-0.04
			Max. My	7	-11.03	-0.03	-0.97
			Max. Vy	4	-0.12	-0.92	-0.04
			Max. Vx	13	0.14	-0.03	0.97
		Diagonal	Max Tension	11	11.68	0.00	0.00
			Max. Compression	11	-11.97	0.00	0.00
			Max. Mx	14	-0.16	0.22	0.00
			Max. Vy	14	-0.06	0.00	0.00
		Horizontal	Max Tension	5	8.46	0.00	0.00
			Max. Compression	11	-8.46	-0.07	-0.00
			Max. Mx	17	1.02	-0.13	-0.00
			Max. My	10	1.10	-0.02	0.02
			Max. Vy	17	0.06	-0.13	-0.00
			Max. Vx	10	-0.00	-0.02	0.02
		Inner Bracing	Max Tension	1	0.00	0.00	0.00
			Max. Compression	25	-0.01	0.00	0.00
			Max. Mx	14	-0.01	-0.10	0.00
			Max. Vy	14	0.04	0.00	0.00
T8	81.2708 - 61	Leg	Max Tension	4	191.24	-1.25	-0.02
			Max. Compression	6	-230.56	0.73	-0.05
			Max. Mx	4	180.01	-1.25	-0.02
			Max. My	7	-14.24	-0.04	-1.16
			Max. Vy	4	0.15	-1.25	-0.02
			Max. Vx	7	0.16	-0.04	-1.16
		Diagonal	Max Tension	11	11.39	0.00	0.00
			Max. Compression	11	-11.79	0.00	0.00
			Max. Mx	14	-0.23	0.27	0.00
			Max. Vy	14	0.07	0.00	0.00
		Horizontal	Max Tension	5	8.86	0.00	0.00
			Max. Compression	11	-8.86	-0.09	-0.00
			Max. Mx	21	1.13	-0.16	-0.00
			Max. My	10	-0.03	-0.05	0.02
			Max. Vy	21	-0.07	-0.16	-0.00
			Max. Vx	10	0.00	0.00	0.00
		Inner Bracing	Max Tension	1	0.00	0.00	0.00
			Max. Compression	25	-0.01	0.00	0.00
			Max. Mx	14	-0.01	-0.16	0.00
			Max. Vy	14	0.06	0.00	0.00
T9	61 - 40.6667	Leg	Max Tension	4	212.96	-1.74	-0.00
			Max. Compression	6	-257.76	-2.46	-0.21
			Max. Mx	6	-257.76	-2.46	-0.21
			Max. My	13	-18.68	-0.49	3.24
			Max. Vy	6	0.51	1.96	-0.01
			Max. Vx	13	-0.37	-0.49	3.24
		Diagonal	Max Tension	11	12.30	0.00	0.00
			Max. Compression	11	-12.76	0.00	0.00
			Max. Mx	14	-0.29	0.31	0.00
			Max. Vy	14	-0.08	0.00	0.00
		Horizontal	Max Tension	5	10.03	0.00	0.00
			Max. Compression	11	-10.02	-0.11	-0.00
			Max. Mx	21	1.29	-0.19	-0.00
			Max. My	10	1.01	-0.07	0.01
			Max. Vy	21	-0.07	-0.19	-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. Vx	10	-0.00	-0.07	0.01
		Inner Bracing	Max Tension	1	0.00	0.00	0.00
			Max. Compression	25	-0.01	0.00	0.00
			Max. Mx	14	-0.01	-0.20	0.00
			Max. Vy	14	-0.07	0.00	0.00
T10	40.6667 - 20.3333	Leg	Max Tension	4	221.94	1.39	-0.09
			Max. Compression	6	-269.80	-7.35	-0.45
			Max. Mx	6	-269.58	8.46	0.34
			Max. My	13	-20.80	-1.04	5.18
			Max. Vy	6	1.61	8.46	0.34
			Max. Vx	13	-0.88	-1.04	5.18
		Diagonal	Max Tension	11	17.08	-0.15	-0.03
			Max. Compression	11	-18.01	0.00	0.00
			Max. Mx	12	11.74	-0.18	0.06
			Max. My	11	-17.22	0.01	-0.10
			Max. Vy	25	-0.05	-0.13	0.01
			Max. Vx	11	0.01	0.01	-0.10
		Horizontal	Max Tension	5	9.93	0.00	0.00
			Max. Compression	11	-9.92	-0.17	-0.00
			Max. Mx	21	-1.37	-0.28	-0.01
			Max. My	10	1.76	-0.10	0.02
			Max. Vy	21	0.10	-0.28	-0.01
			Max. Vx	10	0.00	-0.10	0.02
		Redund Horz 1 Bracing	Max Tension	6	4.69	0.00	0.00
			Max. Compression	6	-4.69	0.00	0.00
			Max. Mx	14	0.73	0.03	0.00
			Max. Vy	14	0.02	0.00	0.00
		Redund Diag 1 Bracing	Max Tension	6	4.33	0.00	0.00
			Max. Compression	6	-4.33	0.00	0.00
			Max. Mx	14	0.74	0.05	0.00
			Max. Vy	14	-0.02	0.00	0.00
		Redund Hip 1 Bracing	Max Tension	11	0.01	0.00	0.00
			Max. Compression	5	-0.03	0.00	0.00
			Max. Mx	14	-0.01	0.03	0.00
			Max. Vy	14	-0.02	0.00	0.00
		Redund Hip Diagonal Bracing	Max Tension	6	0.06	0.00	0.00
			Max. Compression	12	-0.06	0.00	0.00
			Max. Mx	14	0.04	0.20	0.00
			Max. Vy	14	0.05	0.00	0.00
		Inner Bracing	Max Tension	1	0.00	0.00	0.00
			Max. Compression	19	-0.01	0.00	0.00
			Max. Mx	14	-0.01	0.23	0.00
			Max. Vy	14	-0.07	0.00	0.00
T11	20.3333 - 0	Leg	Max Tension	4	266.73	1.35	0.03
			Max. Compression	6	-325.75	0.00	0.00
			Max. Mx	6	-294.82	7.96	0.30
			Max. My	13	-22.81	-1.04	5.18
			Max. Vy	10	-17.32	0.00	0.00
			Max. Vx	13	-6.77	0.00	0.00
		Diagonal	Max Tension	11	19.97	-0.14	-0.03
			Max. Compression	11	-20.89	0.00	0.00
			Max. Mx	12	14.10	-0.18	0.06
			Max. My	11	-20.81	-0.02	-0.10
			Max. Vy	24	0.06	-0.14	-0.00
			Max. Vx	11	-0.01	0.00	0.00
		Horizontal	Max Tension	5	12.19	0.00	0.00
			Max. Compression	11	-12.19	-0.21	-0.00
			Max. Mx	21	1.71	-0.30	-0.01
			Max. My	10	1.11	-0.14	0.02
			Max. Vy	21	-0.10	-0.30	-0.01
			Max. Vx	10	0.00	0.00	0.00
		Redund Horz 1 Bracing	Max Tension	6	5.65	0.00	0.00
			Max. Compression	6	-5.65	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	14	0.88	0.03	0.00
			Max. Vy	14	0.02	0.00	0.00
		Redund Diag 1 Bracing	Max Tension	6	4.87	0.00	0.00
			Max. Compression	6	-4.87	0.00	0.00
			Max. Mx	14	0.81	0.06	0.00
			Max. Vy	14	-0.02	0.00	0.00
		Redund Hip 1 Bracing	Max Tension	11	0.01	0.00	0.00
			Max. Compression	5	-0.02	0.00	0.00
			Max. Mx	14	-0.01	0.03	0.00
			Max. Vy	14	0.02	0.00	0.00
		Redund Hip Diagonal Bracing	Max Tension	6	0.06	0.00	0.00
			Max. Compression	12	-0.06	0.00	0.00
			Max. Mx	14	0.04	0.23	0.00
			Max. Vy	14	0.06	0.00	0.00
		Inner Bracing	Max Tension	1	0.00	0.00	0.00
			Max. Compression	6	-0.01	0.00	0.00
			Max. Mx	14	-0.01	0.29	0.00
			Max. Vy	14	0.08	0.00	0.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	10	320.79	32.64	-18.40
	Max. H_x	10	320.79	32.64	-18.40
	Max. H_z	3	-227.04	-22.95	16.80
	Min. Vert	4	-265.19	-28.61	16.08
	Min. H_x	4	-265.19	-28.61	16.08
	Min. H_z	9	278.11	26.42	-18.79
Leg B	Max. Vert	6	324.04	-32.91	-18.05
	Max. H_x	12	-262.16	28.81	15.65
	Max. H_z	13	-224.17	23.34	16.07
	Min. Vert	12	-262.16	28.81	15.65
	Min. H_x	6	324.04	-32.91	-18.05
	Min. H_z	7	281.51	-26.86	-18.17
Leg A	Max. Vert	2	323.80	-0.43	37.51
	Max. H_x	11	28.94	5.37	2.08
	Max. H_z	2	323.80	-0.43	37.51
	Min. Vert	8	-262.23	0.48	-32.75
	Min. H_x	5	28.09	-5.31	2.01
	Min. H_z	8	-262.23	0.48	-32.75

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	82.67	0.00	-0.00	-24.26	-47.15	0.00
Dead+Wind 0 deg - No Ice	82.67	-0.05	-62.39	-7707.40	-38.18	-24.29
Dead+Wind 30 deg - No Ice	82.67	30.72	-53.27	-6603.80	-3835.69	-2.69
Dead+Wind 60 deg - No Ice	82.67	53.05	-30.56	-3799.01	-6601.18	19.47
Dead+Wind 90 deg - No Ice	82.67	61.55	0.06	-13.73	-7643.56	36.33
Dead+Wind 120 deg - No Ice	82.67	54.07	31.21	3819.55	-6701.51	44.05
Dead+Wind 150 deg - No Ice	82.67	30.78	53.25	6551.25	-3846.67	38.47
Dead+Wind 180 deg - No Ice	82.67	0.05	61.19	7539.32	-57.17	23.55
Dead+Wind 210 deg - No Ice	82.67	-30.74	53.26	6553.02	3743.64	2.54
Dead+Wind 240 deg - No Ice	82.67	-54.08	31.17	3812.83	6607.79	-19.96

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 270 deg - No Ice	82.67	-61.54	-0.06	-36.08	7547.92	-36.31
Dead+Wind 300 deg - No Ice	82.67	-53.04	-30.61	-3809.04	6504.32	-42.77
Dead+Wind 330 deg - No Ice	82.67	-30.78	-53.25	-6599.90	3751.75	-38.51
Dead+Ice+Temp	153.99	0.00	0.00	38.76	41.17	0.00
Dead+Wind 0 deg+Ice+Temp	153.99	0.00	-19.73	-2347.80	41.30	-7.18
Dead+Wind 30 deg+Ice+Temp	153.99	9.15	-15.81	-1899.14	-1079.93	-0.51
Dead+Wind 60 deg+Ice+Temp	153.99	15.43	-8.88	-1054.00	-1859.26	5.36
Dead+Wind 90 deg+Ice+Temp	153.99	18.30	0.00	39.24	-2202.12	10.15
Dead+Wind 120 deg+Ice+Temp	153.99	17.13	9.86	1230.90	-2030.82	13.47
Dead+Wind 150 deg+Ice+Temp	153.99	9.14	15.79	1973.85	-1079.13	10.54
Dead+Wind 180 deg+Ice+Temp	153.99	0.00	17.75	2224.18	40.80	6.10
Dead+Wind 210 deg+Ice+Temp	153.99	-9.15	15.81	1976.15	1162.78	0.48
Dead+Wind 240 deg+Ice+Temp	153.99	-17.14	9.87	1232.67	2115.19	-6.34
Dead+Wind 270 deg+Ice+Temp	153.99	-18.30	-0.00	37.98	2284.15	-10.15
Dead+Wind 300 deg+Ice+Temp	153.99	-15.41	-8.87	-1052.98	1939.11	-11.41
Dead+Wind 330 deg+Ice+Temp	153.99	-9.14	-15.79	-1896.36	1161.32	-10.55
Dead+Wind 0 deg - Service	82.67	-0.02	-21.59	-2682.78	-44.04	-8.41
Dead+Wind 30 deg - Service	82.67	10.63	-18.43	-2300.91	-1358.06	-0.93
Dead+Wind 60 deg - Service	82.67	18.36	-10.57	-1330.40	-2314.98	6.74
Dead+Wind 90 deg - Service	82.67	21.30	0.02	-20.61	-2675.66	12.57
Dead+Wind 120 deg - Service	82.67	18.71	10.80	1305.78	-2349.69	15.24
Dead+Wind 150 deg - Service	82.67	10.65	18.42	2251.01	-1361.86	13.31
Dead+Wind 180 deg - Service	82.67	0.02	21.17	2592.90	-50.62	8.15
Dead+Wind 210 deg - Service	82.67	-10.63	18.43	2251.62	1264.54	0.88
Dead+Wind 240 deg - Service	82.67	-18.71	10.79	1303.45	2255.60	-6.91
Dead+Wind 270 deg - Service	82.67	-21.29	-0.02	-28.35	2580.91	-12.56
Dead+Wind 300 deg - Service	82.67	-18.35	-10.59	-1333.87	2219.80	-14.80
Dead+Wind 330 deg - Service	82.67	-10.65	-18.43	-2299.57	1267.35	-13.33

Solution Summary

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
1	0.00	-82.67	0.00	-0.00	82.67	0.00	0.000%
2	-0.05	-82.67	-62.39	0.05	82.67	62.39	0.000%
3	30.72	-82.67	-53.27	-30.72	82.67	53.27	0.000%
4	53.05	-82.67	-30.56	-53.05	82.67	30.56	0.000%
5	61.55	-82.67	0.06	-61.55	82.67	-0.06	0.000%
6	54.07	-82.67	31.21	-54.07	82.67	-31.21	0.000%
7	30.78	-82.67	53.25	-30.78	82.67	-53.25	0.000%
8	0.05	-82.67	61.19	-0.05	82.67	-61.19	0.000%
9	-30.74	-82.67	53.26	30.74	82.67	-53.26	0.000%
10	-54.08	-82.67	31.17	54.08	82.67	-31.17	0.000%
11	-61.54	-82.67	-0.06	61.54	82.67	0.06	0.000%
12	-53.04	-82.67	-30.61	53.04	82.67	30.61	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
13	-30.78	-82.67	-53.25	30.78	82.67	53.25	0.000%
14	0.00	-153.99	0.00	0.00	153.99	0.00	0.000%
15	0.00	-153.99	-19.73	-0.00	153.99	19.73	0.000%
16	9.15	-153.99	-15.81	-9.15	153.99	15.81	0.000%
17	15.43	-153.99	-8.88	-15.43	153.99	8.88	0.000%
18	18.30	-153.99	0.00	-18.30	153.99	-0.00	0.000%
19	17.13	-153.99	9.86	-17.13	153.99	-9.86	0.000%
20	9.14	-153.99	15.79	-9.14	153.99	-15.79	0.000%
21	0.00	-153.99	17.75	-0.00	153.99	-17.75	0.000%
22	-9.15	-153.99	15.81	9.15	153.99	-15.81	0.000%
23	-17.14	-153.99	9.87	17.14	153.99	-9.87	0.000%
24	-18.30	-153.99	-0.00	18.30	153.99	0.00	0.000%
25	-15.41	-153.99	-8.87	15.41	153.99	8.87	0.000%
26	-9.14	-153.99	-15.79	9.14	153.99	15.79	0.000%
27	-0.02	-82.67	-21.59	0.02	82.67	21.59	0.000%
28	10.63	-82.67	-18.43	-10.63	82.67	18.43	0.000%
29	18.36	-82.67	-10.57	-18.36	82.67	10.57	0.000%
30	21.30	-82.67	0.02	-21.30	82.67	-0.02	0.000%
31	18.71	-82.67	10.80	-18.71	82.67	-10.80	0.000%
32	10.65	-82.67	18.42	-10.65	82.67	-18.42	0.000%
33	0.02	-82.67	21.17	-0.02	82.67	-21.17	0.000%
34	-10.63	-82.67	18.43	10.63	82.67	-18.43	0.000%
35	-18.71	-82.67	10.79	18.71	82.67	-10.79	0.000%
36	-21.29	-82.67	-0.02	21.29	82.67	0.02	0.000%
37	-18.35	-82.67	-10.59	18.35	82.67	10.59	0.000%
38	-10.65	-82.67	-18.43	10.65	82.67	18.43	0.000%

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	212.625 - 202.458	5.662	29	0.2358	0.0542
T2	202.458 - 182.292	5.157	29	0.2356	0.0536
T3	182.292 - 162.104	4.142	29	0.2252	0.0472
T4	162.104 - 141.896	3.189	29	0.2030	0.0353
T5	141.896 - 121.688	2.355	30	0.1726	0.0264
T6	121.688 - 101.479	1.685	31	0.1389	0.0202
T7	101.479 - 81.2708	1.139	31	0.1112	0.0152
T8	81.2708 - 61	0.723	31	0.0829	0.0119
T9	61 - 40.6667	0.408	31	0.0587	0.0088
T10	40.6667 - 20.3333	0.189	35	0.0349	0.0058
T11	20.3333 - 0	0.063	35	0.0173	0.0028

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
212'	Flash Beacon Lighting	29	5.631	0.2359	0.0542	180391
208'	(2) LPA-80080/6CF w/ Mount Pipe	29	5.433	0.2360	0.0540	180391
199'	APXVSPP18-C-A20 w/ Mount	29	4.983	0.2349	0.0530	165373

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
	Pipe					
189'	(2) 7770.00 w/ Mount Pipe	29	4.477	0.2301	0.0502	95260
183'	APXV18-206517LS w/ Mount Pipe	29	4.177	0.2258	0.0476	52465
179'	HPD2-23	29	3.980	0.2223	0.0455	50388
175'	(4) DB844H90E-XY w/ Mount Pipe	29	3.787	0.2185	0.0431	48607
167'	1151-3	29	3.411	0.2094	0.0382	38618
164'	1151-3	29	3.274	0.2056	0.0364	35865
162'	SD310-HL	29	3.184	0.2028	0.0353	34561
147'	1151-3	30	2.551	0.1807	0.0283	29191
145'	SD310-HL	30	2.473	0.1776	0.0275	28046
139'	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	30	2.249	0.1677	0.0254	27809
128'	1142-2C	31	1.878	0.1491	0.0220	37187
110'	Side Lighting	31	1.354	0.1226	0.0171	38214
51'	GPS_A	31	0.288	0.0466	0.0073	51077

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	212.625 - 202.458	15.837	2	0.6521	0.1568
T2	202.458 - 182.292	14.433	2	0.6513	0.1550
T3	182.292 - 162.104	11.613	2	0.6197	0.1367
T4	162.104 - 141.896	9.000	6	0.5531	0.1022
T5	141.896 - 121.688	6.702	6	0.4729	0.0765
T6	121.688 - 101.479	4.816	6	0.3866	0.0586
T7	101.479 - 81.2708	3.265	6	0.3125	0.0441
T8	81.2708 - 61	2.076	6	0.2347	0.0345
T9	61 - 40.6667	1.177	6	0.1671	0.0255
T10	40.6667 - 20.3333	0.544	10	0.0996	0.0170
T11	20.3333 - 0	0.181	10	0.0496	0.0082

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
212'	Flash Beacon Lighting	2	15.751	0.6522	0.1567	64520
208'	(2) LPA-80080/6CF w/ Mount Pipe	2	15.201	0.6525	0.1563	64520
199'	APXVSPP18-C-A20 w/ Mount Pipe	2	13.949	0.6490	0.1535	59245
189'	(2) 7770.00 w/ Mount Pipe	2	12.544	0.6349	0.1453	37289
183'	APXV18-206517LS w/ Mount Pipe	2	11.711	0.6215	0.1377	19850
179'	HPD2-23	2	11.166	0.6108	0.1316	18201
175'	(4) DB844H90E-XY w/ Mount Pipe	2	10.631	0.5987	0.1248	17737
167'	1151-3	6	9.604	0.5714	0.1105	15754
164'	1151-3	6	9.232	0.5603	0.1054	15101

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
162'	SD310-HL	6	8.987	0.5527	0.1021	14644
147'	1151-3	6	7.246	0.4936	0.0820	11251
145'	SD310-HL	6	7.029	0.4855	0.0798	10823
139'	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	6	6.407	0.4609	0.0737	10768
128'	1142-2C	6	5.365	0.4132	0.0638	14086
110'	Side Lighting	6	3.877	0.3432	0.0496	13885
51'	GPS_A	6	0.831	0.1328	0.0213	18022

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	212.625	Leg	A325N	0.7500	4	0.00	19.44	0.000 ✔	1.333	Bolt Tension
		Diagonal	A325N	0.6250	3	1.00	6.44	0.156 ✔	1.333	Bolt Shear
		Horizontal	A325N	0.6250	2	1.09	6.44	0.169 ✔	1.333	Bolt Shear
T2	202.458	Leg	A325N	0.8750	4	4.46	26.45	0.168 ✔	1.333	Bolt Tension
		Diagonal	A325N	0.6250	3	3.11	6.44	0.482 ✔	1.333	Bolt Shear
		Horizontal	A325N	0.6250	2	2.54	6.44	0.394 ✔	1.333	Bolt Shear
T3	182.292	Leg	A325N	1.0000	4	13.23	34.56	0.383 ✔	1.333	Bolt Tension
		Diagonal	A325N	0.6250	3	3.36	6.44	0.521 ✔	1.333	Bolt Shear
		Horizontal	A325N	0.6250	2	3.15	6.44	0.489 ✔	1.333	Bolt Shear
T4	162.104	Leg	A325N	1.0000	6	15.00	34.56	0.434 ✔	1.333	Bolt Tension
		Diagonal	A325N	0.6250	3	3.36	6.44	0.521 ✔	1.333	Bolt Shear
		Horizontal	A325N	0.6250	2	3.48	6.44	0.541 ✔	1.333	Bolt Shear
T5	141.896	Leg	A325N	1.0000	6	19.29	34.56	0.558 ✔	1.333	Bolt Tension
		Diagonal	A325N	0.6250	3	4.39	6.44	0.681 ✔	1.333	Bolt Shear
		Horizontal	A325N	0.6250	2	3.93	6.44	0.609 ✔	1.333	Bolt Shear
T6	121.688	Leg	A325N	1.0000	6	23.99	34.56	0.694 ✔	1.333	Bolt Tension
		Diagonal	A325N	0.6250	3	4.01	6.44	0.622 ✔	1.333	Bolt Shear
		Horizontal	A325N	0.6250	2	3.92	6.44	0.608 ✔	1.333	Bolt Shear
T7	101.479	Leg	A325N	1.0000	8	21.08	34.56	0.610 ✔	1.333	Bolt Tension
		Diagonal	A325N	0.6250	3	3.99	6.44	0.620 ✔	1.333	Bolt Shear
		Horizontal	A325N	0.6250	2	4.23	6.44	0.657 ✔	1.333	Bolt Shear
T8	81.2708	Leg	A325N	1.0000	8	23.90	34.56	0.692 ✔	1.333	Bolt Tension
		Diagonal	A325N	0.6250	3	3.93	6.44	0.610 ✔	1.333	Bolt Shear
		Horizontal	A325N	0.6250	2	4.43	6.44	0.687 ✔	1.333	Bolt Shear
T9	61	Leg	A325N	1.0000	8	26.62	34.56	0.770 ✔	1.333	Bolt Tension
		Diagonal	A325N	0.6250	3	4.25	6.44	0.660 ✔	1.333	Bolt Shear
		Horizontal	A325N	0.6250	2	5.01	6.44	0.778 ✔	1.333	Bolt Shear
T10	40.6667	Leg	A325N	1.0000	8	27.65	34.56	0.800 ✔	1.333	Bolt Tension
		Diagonal	A325N	0.7500	3	6.00	9.28	0.647 ✔	1.333	Bolt Shear
		Horizontal	A325N	0.7500	2	4.96	9.28	0.535 ✔	1.333	Bolt Shear
T11	20.3333	Leg	A354-BC	1.0000	10	26.67	32.40	0.823 ✔	1.333	Bolt Tension
		Diagonal	A325N	0.7500	3	6.96	9.28	0.751 ✔	1.333	Bolt Shear
		Horizontal	A325N	0.7500	2	6.10	9.28	0.657 ✔	1.333	Bolt Shear

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load / Allowable	Allowable Ratio	Criteria

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 K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	212.625 - 202.458	ROHN 2.5 STD	10'2-1/32"	5'31/32"	64.4 K=1.00	21.955	1.7040	-2.76	37.41	0.074* ✔
T2	202.458 - 182.292	ROHN 3 EH	20'2-1/32"	6'8-5/8"	71.0 K=1.00	20.754	3.0159	-24.63	62.59	0.394 ✔
T3	182.292 - 162.104	ROHN 4 EH	20'2-5/8"	6'8-7/8"	54.8 K=1.00	23.588	4.4074	-64.48	103.96	0.620 ✔
T4	162.104 - 141.896	ROHN 5 EH	20'2-7/8"	6'9"	44.0 K=1.00	25.253	6.1120	-111.83	154.35	0.724 ✔
T5	141.896 - 121.688	ROHN 6 EHS	20'3"	10'1-9/16"	54.6 K=1.00	23.618	6.7133	-140.68	158.55	0.887 ✔
T6	121.688 - 101.479	ROHN 6 EH	20'3-1/8"	10'1-9/16"	55.4 K=1.00	23.490	8.4049	-173.29	197.43	0.878 ✔
T7	101.479 - 81.2708	ROHN 6 EH	20'3-1/8"	10'1-9/16"	55.4 K=1.00	23.490	8.4049	-202.75	197.43	1.027 ✔
T8	81.2708 - 61	ROHN 8 EHS	20'3-31/32"	10'1-29/32"	41.8 K=1.00	25.581	9.7193	-230.56	248.63	0.927 ✔
T9	61 - 40.6667	ROHN 8 EHS	20'4-9/16"	10'2-9/32"	41.9 K=1.00	25.564	9.7193	-257.76	248.47	1.037 ✔
T10	40.6667 - 20.3333	ROHN 8 EH	20'4-11/16"	10'2-13/32"	42.5 K=1.00	25.475	12.7627	-269.80	325.13	0.830 ✔
T11	20.3333 - 0	ROHN 8 EH	20'4-7/16"	10'1-11/16"	42.3 K=1.00	25.505	12.7627	-325.75	325.52	1.001 ✔

* DL controls

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 $\frac{P}{P_a}$
T1	212.625 - 202.458	ROHN 2 STD	6'7-11/16"	6'5-13/32"	98.4 K=1.00	15.079	1.0745	-3.01	16.20	0.186 ✔
T2	202.458 - 182.292	ROHN 2 STD	7'11-7/8"	7'8-5/8"	117.6 K=1.00	10.790	1.0745	-9.32	11.59	0.804 ✔
T3	182.292 - 162.104	ROHN 2 STD	8'7-3/16"	8'3-19/32"	126.5 K=1.00	9.325	1.0745	-10.04	10.02	1.002 ✔
T4	162.104 - 141.896	ROHN 2 STD	9'3-15/32"	8'11-13/32"	136.5 K=1.00	8.013	1.0745	-9.91	8.61	1.150 ✔
T5	141.896 - 121.688	ROHN 2.5 STD	12'7-3/16"	12'1-11/16"	153.7 K=1.00	6.318	1.7040	-13.07	10.77	1.214 ✔
T6	121.688 - 101.479	ROHN 2.5 STD	13'4-9/16"	12'11-17/32"	164.2 K=1.00	5.539	1.7040	-11.86	9.44	1.257 ✔
T7	101.479 -	ROHN 3 STD	14'2-7/8"	13'10-	142.8	7.327	2.2285	-11.93	16.33	0.731

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 $\frac{P}{P_a}$
	81.2708			3/32"	K=1.00					✔
T8	81.2708 - 61	ROHN 3 STD	15'2-17/32"	14'8-3/4"	151.9 K=1.00	6.470	2.2285	-11.79	14.42	0.818 ✔
T9	61 - 40.6667	ROHN 3 STD	16'2-9/32"	15'8-5/8"	162.2 K=1.00	5.679	2.2285	-12.76	12.66	1.008 ✔
T10	40.6667 - 20.3333	ROHN 3 STD	24'7-13/16"	12'3-31/32"	127.1 K=1.00	9.242	2.2285	-18.01	20.59	0.875 ✔
T11	20.3333 - 0	ROHN 3 STD	25'2-5/8"	12'7-5/16"	130.0 K=1.00	8.831	2.2285	-20.89	19.68	1.062 ✔

Horizontal 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 $\frac{P}{P_a}$
T1	212.625 - 202.458	ROHN 1.5 STD	8'6-1/4"	4'1-11/16"	79.8 K=1.00	19.051	0.7995	-2.18	15.23	0.143 ✔
T2	202.458 - 182.292	ROHN 1.5 STD	8'7-3/16"	4'1-13/16"	80.0 K=1.00	19.004	0.7995	-5.07	15.19	0.334 ✔
T3	182.292 - 162.104	ROHN 1.5 STD	10'1/8"	4'9-27/32"	92.9 K=1.00	16.310	0.7995	-6.31	13.04	0.484 ✔
T4	162.104 - 141.896	ROHN 2 STD	12'1-3/16"	5'9-27/32"	88.7 K=1.00	17.221	1.0745	-6.96	18.50	0.376 ✔
T5	141.896 - 121.688	ROHN 2 STD	13'11-1/32"	6'8-5/32"	101.9 K=1.00	14.269	1.0745	-7.85	15.33	0.512 ✔
T6	121.688 - 101.479	ROHN 2 STD	16'3-15/32"	7'10-7/16"	120.0 K=1.00	10.374	1.0745	-7.83	11.15	0.703 ✔
T7	101.479 - 81.2708	ROHN 2.5 STD	18'9-15/32"	9'1-7/16"	115.5 K=1.00	11.192	1.7040	-8.46	19.07	0.444 ✔
T8	81.2708 - 61	ROHN 2.5 STD	21'4-5/16"	10'3-27/32"	130.7 K=1.00	8.739	1.7040	-8.86	14.89	0.595 ✔
T9	61 - 40.6667	ROHN 2.5 STD	23'11-5/32"	11'7-3/16"	147.0 K=1.00	6.913	1.7040	-10.02	11.78	0.851 ✔
T10	40.6667 - 20.3333	ROHN 3 STD	25'2-5/32"	12'2-3/4"	126.1 K=1.00	9.388	2.2285	-9.92	20.92	0.474 ✔
T11	20.3333 - 0	ROHN 3 STD	27'9-31/32"	13'6-23/32"	139.8 K=1.00	7.639	2.2285	-12.19	17.02	0.716 ✔

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 K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	212.625 - 202.458	ROHN 1.5 STD	8'6"	4'1-9/16"	79.6 K=1.00	19.091	0.7995	-0.19	15.26	0.012 ✔

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 K	Allow. P_a K	Ratio $\frac{P}{P_a}$

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 $\frac{P}{P_a}$
T10	40.6667 - 20.3333	ROHN 1.5 STD	6'3-15/32"	5'11-5/32"	114.4 K=1.00	11.073	0.7995	-4.69	8.85	0.529 ✔
T11	20.3333 - 0	ROHN 1.5 STD	6'11-17/32"	6'7-3/16"	127.2 K=1.00	9.231	0.7995	-5.65	7.38	0.766 ✔

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 K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T10	40.6667 - 20.3333	ROHN 2 STD	11'7-9/16"	10'10-11/16"	166.0 K=1.00	5.420	1.0745	-4.33	5.82	0.743 ✔
T11	20.3333 - 0	ROHN 2 STD	11'11-7/8"	11'3-27/32"	172.5 K=1.00	5.018	1.0745	-4.87	5.39	0.903 ✔

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 $\frac{P}{P_a}$
T10	40.6667 - 20.3333	ROHN 1.5 STD	6'3-15/32"	6'3-15/32"	121.3 K=1.00	10.093	0.7995	-0.03	8.07	0.003 ✔
T11	20.3333 - 0	ROHN 1.5 STD	6'11-17/32"	6'11-17/32"	134.1 K=1.00	8.302	0.7995	-0.02	6.64	0.003 ✔

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 $\frac{P}{P_a}$
T10	40.6667 - 20.3333	ROHN 2.5 STD	15'2-13/32"	15'2-13/32"	192.6 K=1.00	4.027	1.7040	-0.05	6.86	0.008* ✔
T11	20.3333 - 0	ROHN 2.5 STD	15'11-7/8"	15'11-7/8"	202.6 K=1.00	3.639	1.7040	-0.05	6.20	0.008* ✔

* DL controls

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 $\frac{P}{P_a}$
T1	212.625 - 202.458	L2x2x1/8	4'3"	4'3"	128.3 K=1.00	9.074	0.4844	-0.00	4.39	0.001 ✔
T2	202.458 - 182.292	L2x2x1/8	4'3-19/32"	4'3-19/32"	129.8 K=1.00	8.870	0.4844	-0.01	4.30	0.001 ✔
T3	182.292 - 162.104	L2x2x1/8	4'7-29/32"	4'7-29/32"	140.7 K=1.00	7.548	0.4844	-0.01	3.66	0.002 ✔
T4	162.104 -	L2x2x1/8	6'19/32"	6'19/32"	182.6	4.480	0.4844	-0.01	2.17	0.003

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 $\frac{P}{P_a}$
	141.896				K=1.00					✔
T5	141.896 - 121.688	L2x2x1/8	6'11-17/32"	6'11-17/32"	210.0 K=1.00	3.385	0.4844	-0.01	1.64	0.004 ✔
T6	121.688 - 101.479	L2 1/2x2 1/2x3/16	8'1-13/16"	8'1-13/16"	197.5 K=1.00	3.829	0.9020	-0.01	3.45	0.002* ✔
T7	101.479 - 81.2708	L3x3x3/16	9'4-13/16"	9'4-13/16"	189.2 K=1.00	4.173	1.0900	-0.01	4.55	0.002* ✔
T8	81.2708 - 61	L3 1/2x3 1/2x1/4	10'8-5/32"	10'8-5/32"	184.7 K=1.00	4.379	1.6900	-0.01	7.40	0.001* ✔
T9	61 - 40.6667	L3 1/2x3 1/2x1/4	11'11-17/32"	11'11-17/32"	206.9 K=1.00	3.490	1.6900	-0.01	5.90	0.002* ✔
T10	40.6667 - 20.3333	ROHN 3 STD	12'7-3/32"	12'7-3/32"	129.8 K=1.00	8.860	2.2285	-0.01	19.74	0.001* ✔
T11	20.3333 - 0	ROHN 3 STD	13'11-1/32"	13'11-1/32"	143.5 K=1.00	7.250	2.2285	-0.01	16.16	0.001* ✔

* DL controls

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 $\frac{P}{P_a}$
T2	202.458 - 182.292	ROHN 3 EH	20'2-1/32"	6'8-5/8"	71.0	30.000	3.0159	17.83	90.48	0.197 ✔
T3	182.292 - 162.104	ROHN 4 EH	20'2-5/8"	6'8-7/8"	54.8	30.000	4.4074	52.92	132.22	0.400 ✔
T4	162.104 - 141.896	ROHN 5 EH	20'2-7/8"	6'9"	44.0	30.000	6.1120	90.00	183.36	0.491 ✔
T5	141.896 - 121.688	ROHN 6 EHS	20'3"	10'1-9/16"	54.6	30.000	6.7133	115.75	201.40	0.575 ✔
T6	121.688 - 101.479	ROHN 6 EH	20'3-1/8"	10'1-9/16"	55.4	30.000	8.4049	143.95	252.15	0.571 ✔
T7	101.479 - 81.2708	ROHN 6 EH	20'3-1/8"	10'1-9/16"	55.4	30.000	8.4049	168.64	252.15	0.669 ✔
T8	81.2708 - 61	ROHN 8 EHS	20'3-31/32"	10'1-29/32"	41.8	30.000	9.7193	191.24	291.58	0.656 ✔
T9	61 - 40.6667	ROHN 8 EHS	20'4-9/16"	10'2-9/32"	41.9	30.000	9.7193	212.96	291.58	0.730 ✔
T10	40.6667 - 20.3333	ROHN 8 EH	20'4-11/16"	10'2-13/32"	42.5	30.000	12.7627	221.94	382.88	0.580 ✔
T11	20.3333 - 0	ROHN 8 EH	20'4-7/16"	10'1-11/16"	42.3	30.000	12.7627	266.73	382.88	0.697 ✔

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 $\frac{P}{P_a}$
T1	212.625 - 202.458	ROHN 2 STD	6'7-11/16"	6'5-13/32"	98.4	30.000	1.0745	2.94	32.24	0.091

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 $\frac{P}{P_a}$
T2	202.458 - 182.292	ROHN 2 STD	7'11-7/8"	7'8-5/8"	117.6	30.000	1.0745	9.25	32.24	0.287 ✔
T3	182.292 - 162.104	ROHN 2 STD	8'4-11/16"	8'1-3/32"	123.3	30.000	1.0745	10.01	32.24	0.310 ✔
T4	162.104 - 141.896	ROHN 2 STD	9'23/32"	8'8-5/8"	132.9	30.000	1.0745	9.97	32.24	0.309 ✔
T5	141.896 - 121.688	ROHN 2.5 STD	12'3-1/4"	11'9-23/32"	149.6	30.000	1.7040	13.02	51.12	0.255 ✔
T6	121.688 - 101.479	ROHN 2.5 STD	12'11-3/4"	12'6-23/32"	159.1	30.000	1.7040	11.85	51.12	0.232 ✔
T7	101.479 - 81.2708	ROHN 3 STD	13'9-19/32"	13'4-29/32"	138.3	30.000	2.2285	11.68	66.85	0.175 ✔
T8	81.2708 - 61	ROHN 3 STD	15'2-17/32"	14'8-3/4"	151.9	30.000	2.2285	11.39	66.85	0.170 ✔
T9	61 - 40.6667	ROHN 3 STD	16'2-9/32"	15'8-5/8"	162.2	30.000	2.2285	12.30	66.85	0.184 ✔
T10	40.6667 - 20.3333	ROHN 3 STD	24'7-13/16"	12'3-31/32"	127.1	30.000	2.2285	17.08	66.85	0.255 ✔
T11	20.3333 - 0	ROHN 3 STD	25'2-5/8"	12'7-5/16"	130.0	30.000	2.2285	19.97	66.85	0.299 ✔

Horizontal 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 $\frac{P}{P_a}$
T1	212.625 - 202.458	ROHN 1.5 STD	8'6-1/4"	4'1-11/16"	79.8	30.000	0.7995	2.18	23.98	0.091 ✔
T2	202.458 - 182.292	ROHN 1.5 STD	8'7-3/16"	4'1-13/16"	80.0	30.000	0.7995	5.07	23.98	0.212 ✔
T3	182.292 - 162.104	ROHN 1.5 STD	10'1/8"	4'9-27/32"	92.9	30.000	0.7995	6.30	23.98	0.263 ✔
T4	162.104 - 141.896	ROHN 2 STD	12'1-3/16"	5'9-27/32"	88.7	30.000	1.0745	6.96	32.24	0.216 ✔
T5	141.896 - 121.688	ROHN 2 STD	13'11-1/32"	6'8-5/32"	101.9	30.000	1.0745	7.85	32.24	0.244 ✔
T6	121.688 - 101.479	ROHN 2 STD	16'3-15/32"	7'10-7/16"	120.0	30.000	1.0745	7.84	32.24	0.243 ✔
T7	101.479 - 81.2708	ROHN 2.5 STD	18'9-15/32"	9'1-7/16"	115.5	30.000	1.7040	8.46	51.12	0.166 ✔
T8	81.2708 - 61	ROHN 2.5 STD	21'4-5/16"	10'3-27/32"	130.7	30.000	1.7040	8.86	51.12	0.173 ✔
T9	61 - 40.6667	ROHN 2.5 STD	23'11-5/32"	11'7-3/16"	147.0	30.000	1.7040	10.03	51.12	0.196 ✔
T10	40.6667 - 20.3333	ROHN 3 STD	25'2-5/32"	12'2-3/4"	126.1	30.000	2.2285	9.93	66.85	0.148 ✔
T11	20.3333 - 0	ROHN 3 STD	27'9-31/32"	13'6-23/32"	139.8	30.000	2.2285	12.19	66.85	0.182 ✔

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 K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	212.625 - 202.458	ROHN 1.5 STD	8'6"	4'1-9/16"	79.6	30.000	0.7995	0.19	23.98	0.008 ✔

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 K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T10	40.6667 - 20.3333	ROHN 1.5 STD	6'3-15/32"	5'11-5/32"	114.4	21.600	0.7995	4.69	17.27	0.271 ✔
T11	20.3333 - 0	ROHN 1.5 STD	6'11-17/32"	6'7-3/16"	127.2	21.600	0.7995	5.65	17.27	0.327 ✔

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 K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T10	40.6667 - 20.3333	ROHN 2 STD	11'7-9/16"	10'10-11/16"	166.0	21.600	1.0745	4.33	23.21	0.186 ✔
T11	20.3333 - 0	ROHN 2 STD	11'11-7/8"	11'3-27/32"	172.5	21.600	1.0745	4.87	23.21	0.210 ✔

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 K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T10	40.6667 - 20.3333	ROHN 1.5 STD	6'3-15/32"	6'3-15/32"	121.3	21.600	0.7995	0.01	17.27	0.001 ✔
T11	20.3333 - 0	ROHN 1.5 STD	6'11-17/32"	6'11-17/32"	134.1	21.600	0.7995	0.01	17.27	0.001 ✔

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 $\frac{P}{P_a}$
T10	40.6667 - 20.3333	ROHN 2.5 STD	15'2-13/32"	15'2-13/32"	192.6	21.600	1.7040	0.04	36.81	0.001 * ✔
T11	20.3333 - 0	ROHN 2.5 STD	15'11-7/8"	15'11-7/8"	202.6	21.600	1.7040	0.04	36.81	0.001 * ✔

* DL controls

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 $\frac{P}{P_a}$
T1	212.625 - 202.458	L2x2x1/8	4'3"	4'3"	81.4	21.600	0.4844	0.00	10.46	0.000 ✔
T2	202.458 - 182.292	L2x2x1/8	4'3-19/32"	4'3-19/32"	82.4	21.600	0.4844	0.01	10.46	0.001 ✔
T3	182.292 - 162.104	L2x2x1/8	4'7-29/32"	4'7-29/32"	89.3	21.600	0.4844	0.00	10.46	0.000 ✔
T4	162.104 - 141.896	L2x2x1/8	5'4-3/16"	5'4-3/16"	102.6	21.600	0.4844	0.01	10.46	0.000 ✔
T5	141.896 - 121.688	L2x2x1/8	6'4-13/16"	6'4-13/16"	122.6	21.600	0.4844	0.00	10.46	0.000 ✔
T6	121.688 - 101.479	L2 1/2x2 1/2x3/16	7'6-1/4"	7'6-1/4"	116.0	21.600	0.9020	0.00	19.48	0.000 ✔

Section Capacity Table

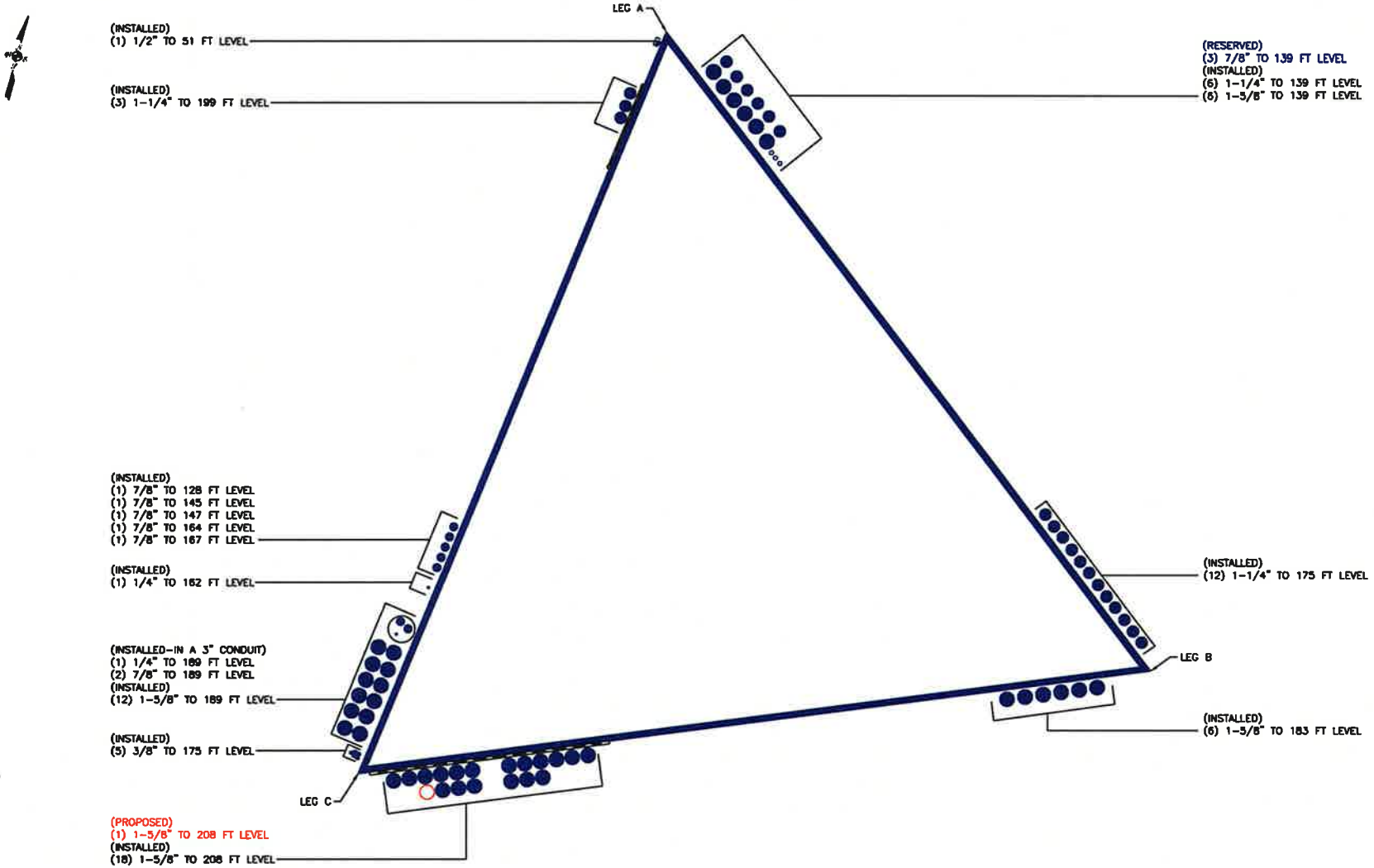
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
T1	212.625 - 202.458	Leg	ROHN 2.5 STD	1	-2.31	37.41	9.1	Pass
T2	202.458 - 182.292	Leg	ROHN 3 EH	28	-24.63	83.44	29.5	Pass
T3	182.292 - 162.104	Leg	ROHN 4 EH	67	-64.48	138.58	46.5	Pass
T4	162.104 - 141.896	Leg	ROHN 5 EH	108	-111.83	205.75	54.4	Pass
T5	141.896 - 121.688	Leg	ROHN 6 EHS	146	-140.68	211.35	66.6	Pass
T6	121.688 - 101.479	Leg	ROHN 6 EH	173	-173.29	263.18	65.8	Pass
T7	101.479 - 81.2708	Leg	ROHN 6 EH	200	-202.75	263.18	77.0	Pass
T8	81.2708 - 61	Leg	ROHN 8 EHS	227	-230.56	331.42	69.6	Pass
T9	61 - 40.6667	Leg	ROHN 8 EHS	254	-257.76	331.21	77.8	Pass
T10	40.6667 - 20.3333	Leg	ROHN 8 EH	281	-269.80	433.40	62.3	Pass
T11	20.3333 - 0	Leg	ROHN 8 EH	314	-325.75	433.92	75.1	Pass
T1	212.625 - 202.458	Diagonal	ROHN 2 STD	9	-3.01	21.60	13.9	Pass
T2	202.458 - 182.292	Diagonal	ROHN 2 STD	33	-9.32	15.46	60.3	Pass
T3	182.292 - 162.104	Diagonal	ROHN 2 STD	72	-10.04	13.36	75.2	Pass
T4	162.104 - 141.896	Diagonal	ROHN 2 STD	110	-9.91	11.48	86.3	Pass
T5	141.896 - 121.688	Diagonal	ROHN 2.5 STD	149	-13.07	14.35	91.1	Pass
T6	121.688 - 101.479	Diagonal	ROHN 2.5 STD	176	-11.86	12.58	94.3	Pass
T7	101.479 - 81.2708	Diagonal	ROHN 3 STD	203	-11.93	21.76	54.8	Pass
T8	81.2708 - 61	Diagonal	ROHN 3 STD	230	-11.79	19.22	61.4	Pass
T9	61 - 40.6667	Diagonal	ROHN 3 STD	257	-12.76	16.87	75.7	Pass
T10	40.6667 - 20.3333	Diagonal	ROHN 3 STD	284	-18.01	27.45	65.6	Pass
T11	20.3333 - 0	Diagonal	ROHN 3 STD	317	-20.89	26.23	79.6	Pass
T1	212.625 - 202.458	Horizontal	ROHN 1.5 STD	7	-2.18	20.30	10.7 12.7 (b)	Pass
T2	202.458 - 182.292	Horizontal	ROHN 1.5 STD	31	-5.07	20.25	25.1 29.5 (b)	Pass
T3	182.292 - 162.104	Horizontal	ROHN 1.5 STD	70	-6.31	17.38	36.3 36.7 (b)	Pass
T4	162.104 -	Horizontal	ROHN 2 STD	109	-6.96	24.67	28.2	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
	141.896						40.5 (b)	
T5	141.896 - 121.688	Horizontal	ROHN 2 STD	148	-7.85	20.44	38.4	Pass
							45.7 (b)	
T6	121.688 - 101.479	Horizontal	ROHN 2 STD	175	-7.83	14.86	52.7	Pass
T7	101.479 - 81.2708	Horizontal	ROHN 2.5 STD	202	-8.46	25.42	33.3	Pass
							49.3 (b)	
T8	81.2708 - 61	Horizontal	ROHN 2.5 STD	229	-8.86	19.85	44.6	Pass
							51.6 (b)	
T9	61 - 40.6667	Horizontal	ROHN 2.5 STD	256	-10.02	15.70	63.8	Pass
T10	40.6667 - 20.3333	Horizontal	ROHN 3 STD	283	-9.92	27.89	35.6	Pass
							40.1 (b)	
T11	20.3333 - 0	Horizontal	ROHN 3 STD	316	-12.19	22.69	53.7	Pass
T1	212.625 - 202.458	Top Girt	ROHN 1.5 STD	4	-0.19	20.34	0.9	Pass
T10	40.6667 - 20.3333	Redund Horz 1 Bracing	ROHN 1.5 STD	288	-4.69	11.80	39.7	Pass
T11	20.3333 - 0	Redund Horz 1 Bracing	ROHN 1.5 STD	321	-5.65	9.84	57.4	Pass
T10	40.6667 - 20.3333	Redund Diag 1 Bracing	ROHN 2 STD	289	-4.33	7.76	55.8	Pass
T11	20.3333 - 0	Redund Diag 1 Bracing	ROHN 2 STD	322	-4.87	7.19	67.7	Pass
T10	40.6667 - 20.3333	Redund Hip 1 Bracing	ROHN 1.5 STD	308	-0.03	10.76	0.2	Pass
T11	20.3333 - 0	Redund Hip 1 Bracing	ROHN 1.5 STD	341	-0.02	8.85	0.3	Pass
T10	40.6667 - 20.3333	Redund Hip Diagonal Bracing	ROHN 2.5 STD	307	-0.05	6.86	0.8	Pass
T11	20.3333 - 0	Redund Hip Diagonal Bracing	ROHN 2.5 STD	340	-0.05	6.20	0.8	Pass
T1	212.625 - 202.458	Inner Bracing	L2x2x1/8	16	-0.00	5.83	0.3	Pass
T2	202.458 - 182.292	Inner Bracing	L2x2x1/8	41	-0.01	5.73	0.3	Pass
T3	182.292 - 162.104	Inner Bracing	L2x2x1/8	79	-0.01	4.22	0.3	Pass
T4	162.104 - 141.896	Inner Bracing	L2x2x1/8	118	-0.01	2.89	0.4	Pass
T5	141.896 - 121.688	Inner Bracing	L2x2x1/8	157	-0.01	2.19	0.4	Pass
T6	121.688 - 101.479	Inner Bracing	L2 1/2x2 1/2x3/16	184	-0.01	3.45	0.5	Pass
T7	101.479 - 81.2708	Inner Bracing	L3x3x3/16	211	-0.01	4.55	0.5	Pass
T8	81.2708 - 61	Inner Bracing	L3 1/2x3 1/2x1/4	238	-0.01	7.40	0.4	Pass
T9	61 - 40.6667	Inner Bracing	L3 1/2x3 1/2x1/4	265	-0.01	5.90	0.4	Pass
T10	40.6667 - 20.3333	Inner Bracing	ROHN 3 STD	311	-0.01	19.74	0.4	Pass
T11	20.3333 - 0	Inner Bracing	ROHN 3 STD	345	-0.01	16.16	0.4	Pass
							Summary	
						Leg (T9)	77.8	Pass
						Diagonal (T6)	94.3	Pass
						Horizontal (T9)	63.8	Pass
						Top Girt (T1)	0.9	Pass
						Redund Horz 1 Bracing (T11)	57.4	Pass
						Redund Diag 1 Bracing (T11)	67.7	Pass
						Redund Hip 1 Bracing (T11)	0.3	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
						Redund Hip Diagonal Bracing (T11)	0.8	Pass
						Inner Bracing (T7)	0.5	Pass
						Bolt Checks	61.8	Pass
						RATING =	**94.3**	**Pass**

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 806363 TOWER ID: C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

Unit Base Foundation

Checks capacity of square mat foundation with raised piers for a self-supporting tower

CROWN CASTLE

BU#: 806363
Site Name: HRT 105 943201
App Number: 219457 Rev. 0
TIA-222 Revision: F

Design Reactions		
Shear, **S**:	62.00	kips
Moment, **M**:	7714.00	ft-kips
Compression/leg, **Ca**:	324.00	kips
Uplift/leg, **Ua**:	265.00	kips
Tower Weight, **Wt**:	83.00	kips
Tower Height, **H**:	213	ft
Base Face Width, **w'**:	30	ft

Block Properties		
Depth, **D**:	4.0	ft
Pad Width, **W**:	40.25	ft
Ext. Above Grade, **E**:	0.5	ft
Neglected Depth, **N**:	4.0	ft
Pad Rebar Size, **Sp**:	7	
Pad Rebar Quantity, **mp**:	55	

Base Plate Dimensions		
Base Plate Width, di:	12.0	in

Material Properties		
Rebar Tensile, **Fy**:	60000	psi
Concrete Strength, **F'c**:	3000	psi
Concrete Density, **δc**:	136	pcf
Clear Cover, **cc**:	3	in

Soil Properties		
Soil Unit Weight, **γ**:	105	pcf
Ultimate Bearing: **Bc**:	8.000	ksf
Cohesion, **Co**:	0.000	ksf
Friction Angle, **φ**:	35	degrees
Base Sliding, **μ**:	0.2	

Design Checks	***Capacity/ Availability***	***Demand/ Limits***	***Check***
Base Sliding (kips):	225.59	62.00	**27.5%**
Overturning (k-ft):	12806.20	7714.00	**60.2%**
Bearing (ksf):	6.00	1.58	**26.4%**
1-way Shear (kips):	1971.72	71.41	**3.6%**
2-way Shear (kips):	1582.25	421.20	**26.6%**
Pad moment capacity(k-ft):	7259.23	2252.50	**31.0%**

☐ Tower centroid is offset from foundation centroid