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October 3, 2013

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

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

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains twelve (12) wireless telecommunications antennas at the 84-foot level of the existing 327-foot tower at the above-referenced address. The tower and underlying property are owned by UCONN. The Council approved Cellco's shared use of this tower in 1997 (Docket No. 179). Cellco now intends to replace nine (9) of its antennas with three (3) model BXA-80063-4CF cellular antennas; three (3) model BXA-171063-12CF PCS antennas; and three (3) model BXA-171063-12BF AWS antennas, all at the same level on the tower. Cellco also intends to install six (6) remote radio heads ("RRHs") behind its antennas and one (1) HYBRIFLEX™ antenna cable. Included in Attachment 1 are specifications for the 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 Matthew Hart, Town Manager of the Town of Mansfield. UCONN is also the owner of the property on which the tower is located.

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

1. The proposed modifications will not result in an increase in the height of the existing tower. Cellco's replacement antennas and RRHs will be located at the 84-foot level of the 327-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 worst-case 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* Detailed 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:
Matthew Hart, Mansfield Town Manager
Sandy Carter

ATTACHMENT 1

BXA-80063-4CF-EDIN-X

X-Pol | FET Panel | 63° | 13.0 dBd

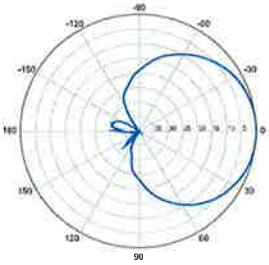
Replace "X" with desired electrical downtilt.

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

Electrical Characteristics				
Frequency bands	806-900 MHz*			
*Optional frequency band for iDEN	806-941 MHz (specify when ordering)			
Polarization	±45°			
Horizontal beamwidth	63°			
Vertical beamwidth	15°			
Gain	13.0 dBd (15.1 dBi)			
Electrical downtilt (X)	0, 2, 3, 4, 5, 6, 8, 9, 10, 12, 14			
Impedance	50Ω			
VSWR	≤1.4:1			
Upper sidelobe suppression (0°)	-22.1 dB			
Front-to-back ratio (+/-30°)	-34.9 dB			
Null fill	5% (-26.02 dB)			
Isolation between ports	< -30 dB			
Input power with EDIN connectors	500 W			
Input power with NE connectors	300 W			
Lightning protection	Direct Ground			
Connector(s)	2 Ports / EDIN or NE / Female / Center (Back)			
Mechanical Characteristics				
Dimensions Length x Width x Depth	1205 x 285 x 133 mm		47.4 x 11.2 x 5.2 in	
Depth with z-brackets	173 mm		6.8 in	
Weight without mounting brackets	4.5 kg		9.9 lbs	
Survival wind speed	> 201 km/hr		> 125 mph	
Wind area	Front: 0.34 m^2	Side: 0.16 m^2	Front: 3.7 ft^2	Side: 1.7 ft^2
Wind load @ 161 km/hr (100 mph)	Front: 498 N	Side: 260 N	Front: 111 lbf	Side: 55 lbf

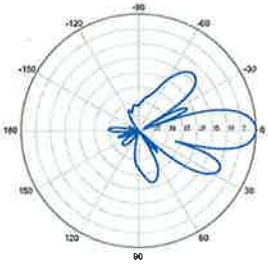
Mounting Options	Part Number	Fits Pipe Diameter	Weight
2-Point Mounting & Downtilt Bracket Kit	36210006	40-115 mm 1.57-4.5 in	4.1 kg 9 lbs
Concealment Configurations	For concealment configurations, order BXA-80063-4CF-EDIN-X-FP		

BXA-80063-4CF-EDIN-X



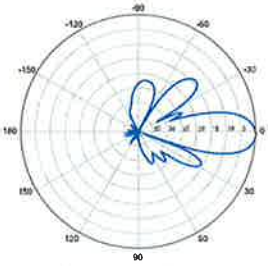
Horizontal

BXA-80063-4CF-EDIN-0



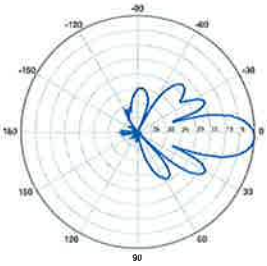
0° | Vertical

BXA-80063-4CF-EDIN-2



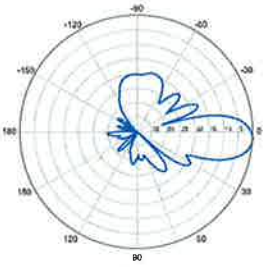
2° | Vertical

BXA-80063-4CF-EDIN-3



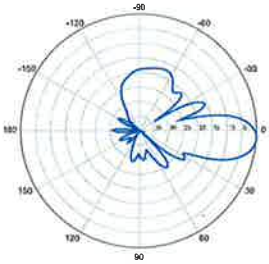
3° | Vertical

BXA-80063-4CF-EDIN-4



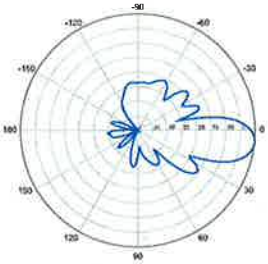
4° | Vertical

BXA-80063-4CF-EDIN-5



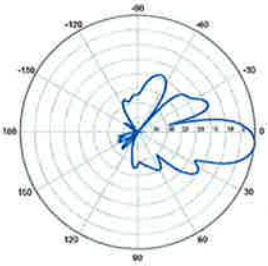
5° | Vertical

BXA-80063-4CF-EDIN-6



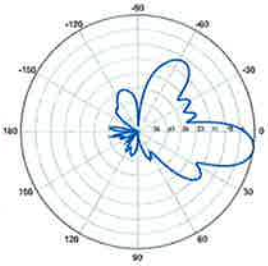
6° | Vertical

BXA-80063-4CF-EDIN-8



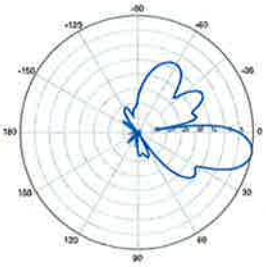
8° | Vertical

BXA-80063-4CF-EDIN-9



9° | Vertical

BXA-80063-4CF-EDIN-10



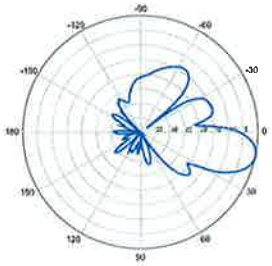
10° | Vertical

Quoted performance parameters are provided to offer typical or range values only and may vary as a result of normal manufacturing and operational conditions. Extreme operational conditions and/or stress on structural supports is beyond our control. Such conditions may result in damage to this product. Improvements to product may be made without notice.

BXA-80063-4CF-EDIN-X

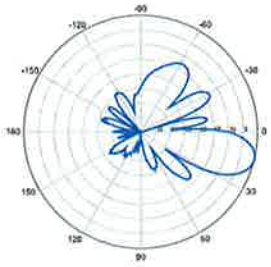
X-Pol | FET Panel | 63° | 13.0 dBd

BXA-80063-4CF-EDIN-12



12° | Vertical

BXA-80063-4CF-EDIN-14



14° | Vertical

BXA-171063-12CF-EDIN-X

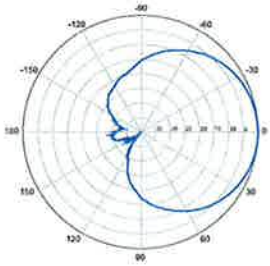
X-Pol | FET Panel | 63° | 19.0 dBi

Replace "X" with desired electrical downtilt.

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

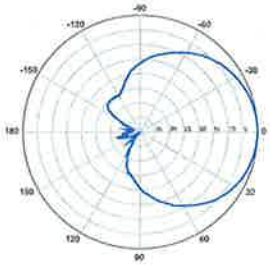
Electrical Characteristics	1710-2170 MHz		
Frequency bands	1710-1880 MHz	1850-1990 MHz	1920-2170 MHz
Polarization	±45°	±45°	±45°
Horizontal beamwidth	68°	65°	60°
Vertical beamwidth	4.5°	4.5°	4.5°
Gain	16.1 dBd / 18.2 dBi	16.5 dBd / 18.6 dBi	16.9 dBd / 19.0 dBi
Electrical downtilt (X)	0, 2, 5		
Impedance	50Ω		
VSWR	≤1.5:1		
First upper sidelobe	< -17 dB		
Front-to-back ratio	> 30 dB		
In-band isolation	> 28 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	1842 x 154 x 105 mm		72.5 x 6.1 x 4.1 in
Depth with z-brackets	133 mm		5.2 in
Weight without mounting brackets	5.8 kg		12.8 lbs
Survival wind speed	> 201 km/hr		> 125 mph
Wind area	Front: 0.28 m² Side: 0.19 m²		Front: 3.1 ft² Side: 2.1 ft²
Wind load @ 161 km/hr (100 mph)	Front: 460 N Side: 304 N		Front: 103 lbf Side: 68 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-171063-12CF-EDIN-X-FP		

BXA-171063-12CF-EDIN-X



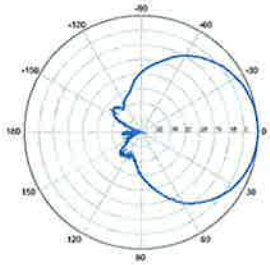
Horizontal | 1710-1880 MHz

BXA-171063-12CF-EDIN-X



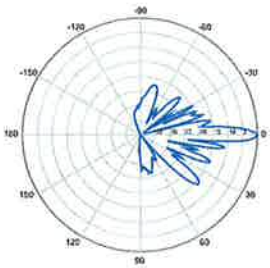
Horizontal | 1850-1990 MHz

BXA-171063-12CF-EDIN-X



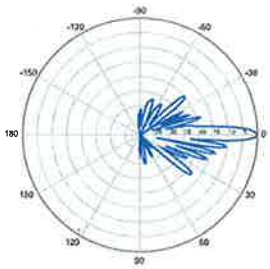
Horizontal | 1920-2170 MHz

BXA-171063-12CF-EDIN-0



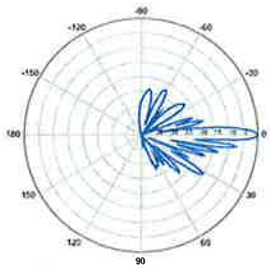
0° | Vertical | 1710-1880 MHz

BXA-171063-12CF-EDIN-0



0° | Vertical | 1850-1990 MHz

BXA-171063-12CF-EDIN-0

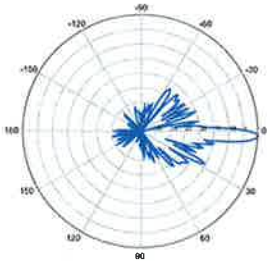


0° | Vertical | 1920-2170 MHz

BXA-171063-12CF-EDIN-X

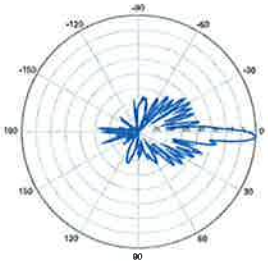
X-Pol | FET Panel | 63° | 19.0 dBi

BXA-171063-12CF-EDIN-2



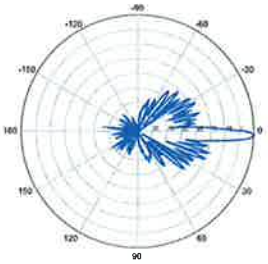
2° | Vertical | 1710-1880 MHz

BXA-171063-12CF-EDIN-2



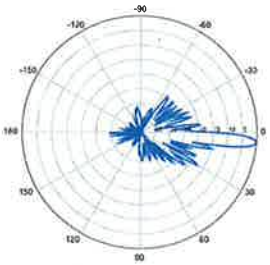
2° | Vertical | 1850-1990 MHz

BXA-171063-12CF-EDIN-2



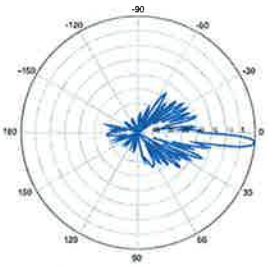
2° | Vertical | 1920-2170 MHz

BXA-171063-12CF-EDIN-5



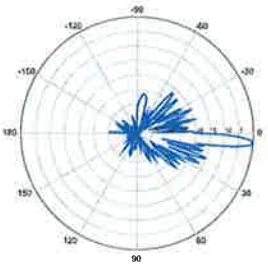
5° | Vertical | 1710-1880 MHz

BXA-171063-12CF-EDIN-5



5° | Vertical | 1850-1990 MHz

BXA-171063-12CF-EDIN-5



5° | Vertical | 1920-2170 MHz

BXA-171063-12BF-EDIN-X

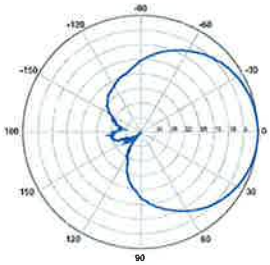
Replace "X" with desired electrical downtilt

X-Pol | FET Panel | 63° | 19.0 dBi

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	4.5°	4.5°	4.5°
Gain	16.1 dBd / 18.2 dBi	16.5 dBd / 18.6 dBi	16.9 dBd / 19.0 dBi
Electrical downtilt (X)	0, 2, 5		
Impedance	50Ω		
VSWR	≤1.5:1		
First upper sidelobe	< -17 dB		
Front-to-back ratio	> 30 dB		
In-band isolation	> 28 dB		
IM3 (20W 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	1842 x 154 x 105 mm		72.5 x 6.1 x 4.1 in
Depth with z-brackets	133 mm		5.2 in
Weight without mounting brackets	5.8 kg		12.8 lbs
Survival wind speed	> 201 km/hr		> 125 mph
Wind area	Front: 0.28 m² Side: 0.19 m²		Front: 3.1 ft² Side: 2.1 ft²
Wind load @ 161 km/hr (100 mph)	Front: 460 N Side: 304 N		Front: 103 lbf Side: 68 lbf

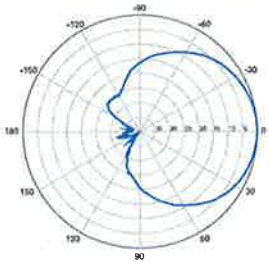
Mounting Options	Part Number	Fits Pipe Diameter	Weight
2-Point Mounting Bracket Kit	26799997	50-102 mm 2.0-4.0 in	2.3 kg 5 lbs
2-Point Mounting & Downtilt Bracket Kit	26799999	50-102 mm 2.0-4.0 in	3.6 kg 8 lbs
Concealment Configurations	For concealment configurations, order BXA-171063-12BF-EDIN-X-FP		

BXA-171063-12BF-EDIN-X



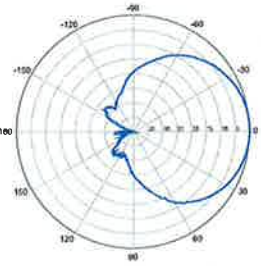
Horizontal | 1710-1880 MHz

BXA-171063-12BF-EDIN-X



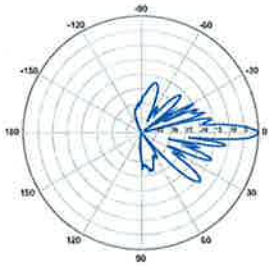
Horizontal | 1850-1990 MHz

BXA-171063-12BF-EDIN-X



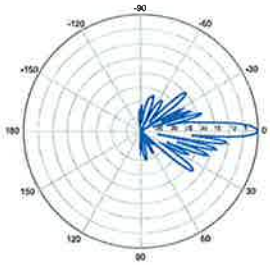
Horizontal | 1920-2170 MHz

BXA-171063-12BF-EDIN-0



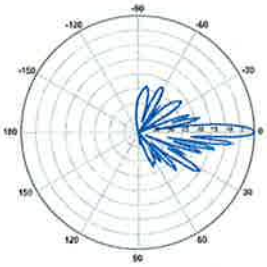
0° | Vertical | 1710-1880 MHz

BXA-171063-12BF-EDIN-0



0° | Vertical | 1850-1990 MHz

BXA-171063-12BF-EDIN-0

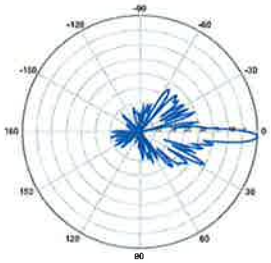


0° | Vertical | 1920-2170 MHz

BXA-171063-12BF-EDIN-X

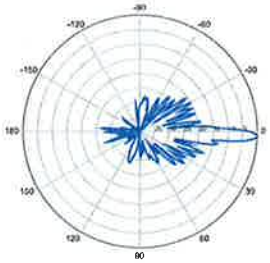
X-Pol | FET Panel | 63° | 19.0 dBi

BXA-171063-12BF-EDIN-2



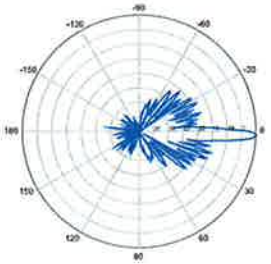
2° | Vertical | 1710-1880 MHz

BXA-171063-12BF-EDIN-2



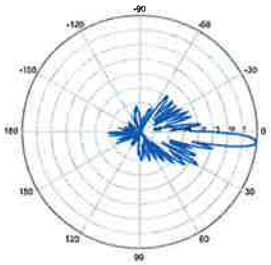
2° | Vertical | 1850-1990 MHz

BXA-171063-12BF-EDIN-2



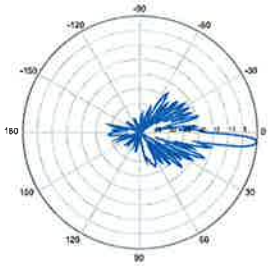
2° | Vertical | 1920-2170 MHz

BXA-171063-12BF-EDIN-5



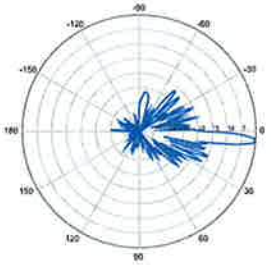
5° | Vertical | 1710-1880 MHz

BXA-171063-12BF-EDIN-5



5° | Vertical | 1850-1990 MHz

BXA-171063-12BF-EDIN-5



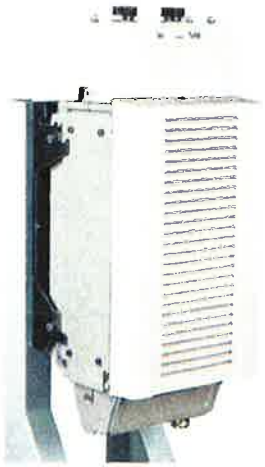
5° | Vertical | 1920-2170 MHz

Alcatel·Lucent

Alcatel-Lucent RRH2x40-AWS

REMOTE RADIO HEAD

The Alcatel-Lucent RRH2x40-AWS is a high-power, small form-factor Remote Radio Head (RRH) operating in the AWS frequency band (1700/2100MHz - 3GPP Band 4). The Alcatel-Lucent RRH2x40-AWS 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-AWS 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-AWS has two transmit RF paths, 40 W RF output power per transmit path, and is designed to manage up to four-way receive diversity. The device is ideally suited to support macro coverage, with multiple-input multiple-output (MIMO) 2x2 operation in up to 20 MHz of bandwidth.

The Alcatel-Lucent RRH2x40-AWS 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-AWS 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-AWS 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-AWS is compact and weighs less than 20 kg (44 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

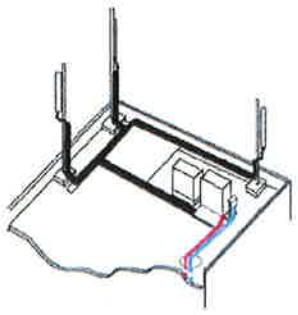
Because of its small size and weight, the Alcatel-Lucent RRH2x40-AWS can be installed close to the antenna. Operators can therefore locate the Alcatel-Lucent RRH2x40-AWS where RF engineering is deemed ideal, minimizing trade-offs between available sites and RF optimum sites. The RF feeder cost and installation 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-AWS provides more RF power while at the same time consuming less electricity.

Features

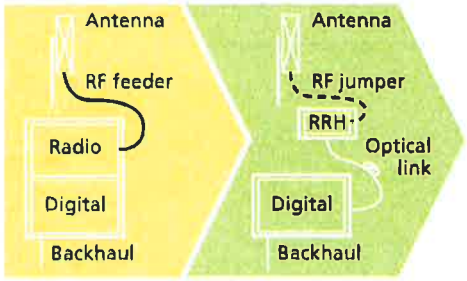
- Zero-footprint deployment
- Easy installation, with a lightweight unit can be carried and set up by one person
- Optimized RF power, with flexible site selection and elimination of a TMA
- Convection-cooled (fanless)
- Noise-free
- Best-in-class power efficiency, with significantly reduced energy consumption

Benefits

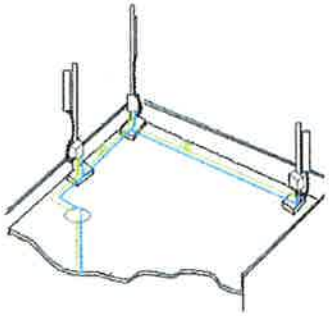
- Leverages existing real estate with lower site costs
- Reduces installation costs, with fewer installation materials and simplified logistics
- Decreases power costs and minimizes environmental impacts, with the potential for eco-sustainable power options
- Improves RF performance and adds flexibility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



Macro



RRH for space-constrained cell sites



Distributed

Technical specifications

Physical dimensions

- Height: 620 mm (24.4 in.)
- Width: 270 mm (10.63 in.)
- Depth: 170m (6.7 in.)
- Weight (without mounting kit): less than 20 kg (44 lb)

Power

- Power supply: -48VDC

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: 1700/2100 MHz (AWS); 3GPP Band 4
- Bandwidth: up to 20 MHz
- RF output power at antenna port: 40 W nominal RF power for each Tx port
- Rx diversity: 2-way or 4-way with optional Rx Diversity module
- Noise figure: below 2.0 dB typical
- Antenna Line Device features
  - ¬ TMA and Remote electrical tilt (RET) support via AISG v2.0

Optical characteristics

Type/number of fibers

- Single-mode variant
  - ¬ One Single Mode Single Fiber per RRH2x, carrying UL and DL using CWDM
  - ¬ Single mode dual fiber (SM/DF)
- Multi-mode variant
  - ¬ Two Multi-mode fibers per RRH2x: one carrying UL, the other carrying DL

Optical fiber length

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

Digital Ports and Alarms

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

Alcatel·Lucent

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

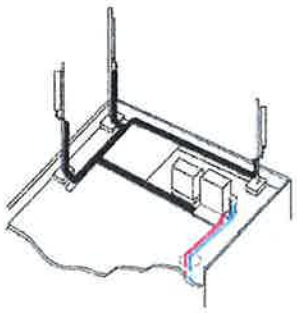
Because of its small size and weight, the Alcatel-Lucent RRH2x40-07-U can be installed close to the antenna. Operators can therefore locate the Alcatel-Lucent RRH2x40-07-U where RF engineering is deemed ideal, minimizing trade-offs between available sites and RF optimum sites. The RF feeder cost and 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

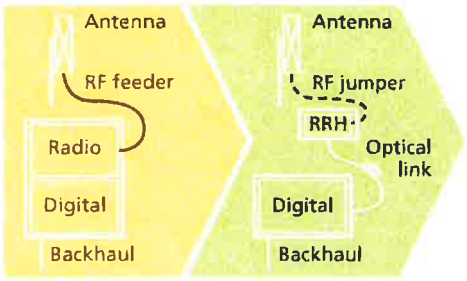
- Zero-footprint deployment
- Easy installation, with a lightweight unit can be carried and set up by one person
- Optimized RF power, with flexible site selection and elimination of a TMA
- Convection-cooled (fanless), noise-free, and heaterless unit
- Best-in-class power efficiency, with significantly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

Benefits

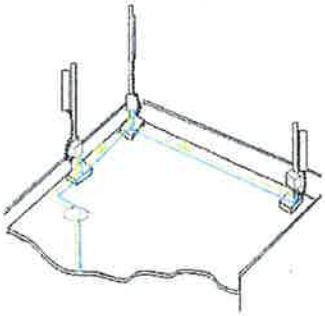
- Leverages existing real estate with lower site costs
- Reduces installation costs, with fewer installation materials and simplified logistics
- Decreases power costs and minimizes environmental impacts, with the potential for eco-sustainable power options
- Improves RF performance and adds flexibility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

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.

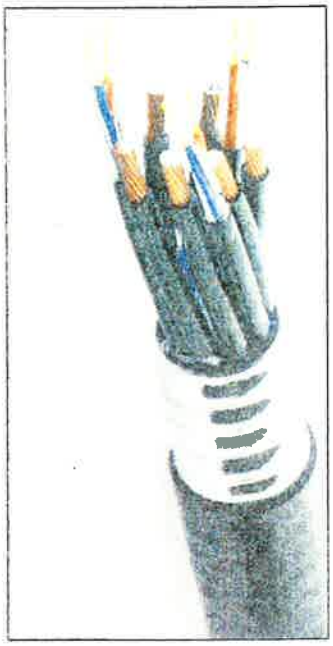


Figure 1: HYBRIFLEX Series

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

Structure			
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)]	104 (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
Environment			
Installation Temperature		[°C (°F)]	-40 to +65 (-40 to149)
Operation Temperature		[°C (°F)]	-40 to +65 (-40 to149)

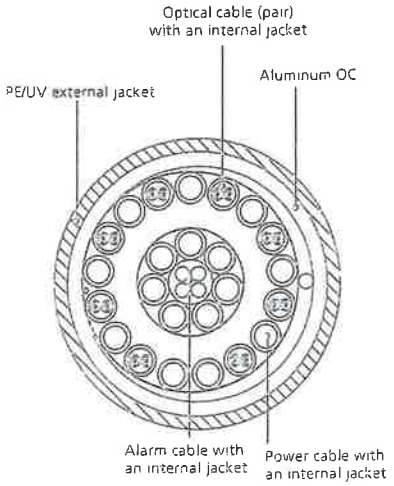


Figure 2: Construction Detail

* This data is provisional and subject to change

ATTACHMENT 2

	General	Power	Density					
Site Name: Storrs (Mansfield)								
Tower Height: Verizon @ 80ft								
CARRIER	**# OF CHAN.**	**WATTS ERP**	**HEIGHT**	**CALC. POWER DENS**	**FREQ.**	**MAX. PERMISS. EXP.**	**FRACTION MPE**	**Total**
*UCONN Police	3	197	180	0.0066	866	0.5773	1.14%	
*Existing				0.1530			14.12%	
*AT&T UMTS	2	565	186	0.0117	880	0.5867	2.00%	
*AT&T UMTS	2	875	186	0.0182	1900	1.0000	1.82%	
*AT&T GSM	1	283	186	0.0029	880	0.5867	0.50%	
*AT&T GSM	4	525	186	0.0218	1900	1.0000	2.18%	
*AT&T LTE	1	1375	186	0.0143	734	0.4893	2.92%	
*Nextel	9	100	240	0.0056	851	0.5673	0.99%	
*Pocket (now MetroPCS)	3	631	230	0.0129	2130	1.0000	1.29%	
Verizon PCS	**11**	**626**	**84**	**0.3509**	**1970**	**1.0000**	**35.09%**	
Verizon Cellular	**9**	**275**	**84**	**0.1261**	**869**	**0.5793**	**21.77%**	
Verizon AWS	**1**	**1750**	**84**	**0.0892**	**2145**	**1.0000**	**8.92%**	
Verizon 700	**1**	**652**	**84**	**0.0332**	**698**	**0.4653**	**7.14%**	
								99.88%
* Source: Siting Council								

ATTACHMENT 3

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

Site I.D: WHUS Tower, State Police Tower #66
Address: North Eagleville Road
Storrs, CT

prepared for

verizonwireless

Verizon Wireless
99 East River Drive
East Hartford, Connecticut 06108

prepared by

URS

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

36917391.00000
VZ5-143 (Rev 2)

July 17, 2013

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY

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

Proposed Antenna and Mount	Carrier	Antenna Center Elevation
Remove: **(3) BXA-185063/12CF Antennas** **(6) RFS APL866513-42T0 Antennas**	**Verizon (existing)**	
Install: **(3) BXA-171063/12BF Antennas** **(3) BXA-171063/12CF Antennas** **(3) BXA-80063-4CF Antennas** **(6) ALU RRH** **(1) RFS DB-T1 Series Distribution Box**	**Verizon (proposed)**	**@ 84'**

The results of the analysis indicate that the tower structure NOT is in compliance with the proposed loading conditions. **The tower and its foundation are considered structurally adequate with the wind load classification specified above and all the existing and proposed antenna loading.** The tower deflection (sway) is 0.3206 degrees and the tower rotation (twist) is 0.5288 degrees. These figures are ABOVE the Connecticut State Police specification of 0.75 degrees for deflection (sway) and (rotation) twist.

This analysis is based on:

1) The tower structure's theoretical capacity, not including any assessment of the condition of the tower.
2) Tower geometry and structural member sizes taken from original construction drawings (Sabre Job #: 98-0659) prepared by Sabre Communications Corporation, signed and sealed November 6, 1998.
3) Structural analysis performed by URS, job number F300001804.47/F12 for SNET Mobility, Inc signed and sealed April 27, 2000.
4) Structural analysis performed by Tectonic, W.O. 2993.0931C for Nextel Communications signed and sealed January 20, 2003.
5) Structural analysis performed by URS, job number VZ1-064 for Verizon Wireless signed and sealed June 10, 2004.
6) Structural analysis performed by URS, job number VZ1-064 Rev 1 for Verizon Wireless signed and sealed July 10, 2006.
7) Structural analysis performed by URS, job number PCI-079 Rev 1 for Pocket Wireless signed and sealed September 28, 2009.
8) Structural analysis performed by URS, job number VZ5-050 Rev 1 for Verizon Wireless signed and sealed January 6, 2010.
9) Structural analysis performed by B+T Group, project number 84514.001.0001 for AT&T, signed and sealed September 5, 2012.
10) Inventory tower mapping and inventory by Northeast Towers, INC., dated June 12, 2013.
11) Antenna and mount configuration as specified on the following page of this report.

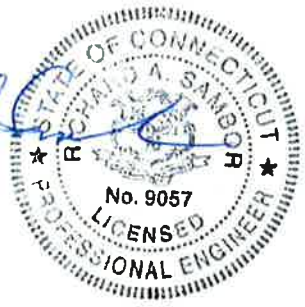
1. **EXECUTIVE SUMMARY** *(continued)*

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

If you should have any questions, please call.

Sincerely,

URS Corporation



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

RAS/mcd

cc: IA, CF/Book – URS

2. INTRODUCTION

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

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

The inventory is summarized in the table below:

Antenna Type	*Carrier*	*Mount*	*Antenna Centerline Elevation*	*Cable*
Lightning Rod	Tower (existing)	Direct Mount	325'	---
Flash Beacon	Tower (existing)	Direct Mount	323'	Rigid Conduit
(1) 2-Bay 6813 w/Radome	Unknown (existing)	Flush Mount	305'	(1) 7/8" coax cable
(3) 6' Dish with Radome	CSP (Future)	Direct Mount	290'	(3) WE65
(1) 15'x4" Dia. Omni	Unknown (existing)	Top Plate	288'	---
(1) 8' Omni and (1) 6' Omni	Unknown (existing)	(1) 5' Standoff	277'	(2) 1/2" coax cables
(1) Kathrein AP14-850 Panel (1) Decibel DB810K Whip	CSP-4,5 (existing)	Direct Mount	260'	(2) 1 5/8" coax cable
(1) OGC9-825 Omni, (1) DB810K Omni and (1) TMA	Unknown (existing)	(2) Angle Standoff	255'	----
(1) Kathrein AP14-850 Panel (1) Decibel DB-809T3 Inverted Whip	CSP-6,7 (existing)	Direct Mount	255'	(2) 1 5/8" coax cable
(1) Kathrein OGT9-806 Inverted Whip	CSP-11 (existing)	Direct Mount	250'	(1) 1 5/8" coax cable
(1) Sinclair SC479-HF1LDF Whip (2) Sinclair SC479-HF1LDF Inverted Whips (1) Sinclair SE419-SF3P4LDF Panel (2) TTA's	CSP-45,46,47, 48, 49, 50 (Future)	Direct Mount	250'	(4) 1 5/8" coax cables (2) 1/2" coax cables
(1) Sinclair SC479-HF1LDF Whip (2) Sinclair SC479-HF1LDF Inverted Whips (1) Sinclair SE419-SF3P4LDF Panel (2) TTA's	CSP-51,52,53,54 ,55,56,57 (existing)	Direct Mount	240'	(4) 1 5/8" coax cables (2) 1/2" coax cables
(12) DB844H90 antennas	Nextel (existing)	(3) T-Frames	236'	(12) 1 5/8" coax cables
(1) 8'x1'x3" Panel (OGT980GNU)	Unknown (existing)	(1) Angle Standoff	236'	(1) 1 5/8" coax cable

Antenna Type	Carrier	Mount	Antenna Centerline Elevation	Cable
(1) 1-Bay 6813 w/o Radome	Unknown (existing)	(1) Sidearm	211'	(1) 7/8" coax cable
(1) 1-Bay 6813 w/Radome	Unknown (existing)	Direct Mount	198'	(1) 7/8" coax cable
(9) 4'x1'x4" Panels (6) Diplexers (6) TMA units (3) RRU units (1) Surge Suppressor	AT&T (existing)	(3) T-Frames	187'-5"	(12) 1 5/8" coax cables
(1) 2'x1'x5" Panel	Unknown (existing)	Direct Mount	172'-2"	(1) 7/8" coax cable
(1) 8'x3" Dia. Omni	Unknown (existing)	Direct Mount	172'	(1) 7/8" coax cable
(1) 5' Grid Dish	Unknown (existing)	Direct Mount	171'-6"	(1) 1/2" coax cable
(1) TMA	Unknown (existing)	Direct Mount	166'	(2) 1/2" coax cables
(1) DB872 Panel	Unknown (existing)	Direct Mount	158'-10"	(1) 1/2" coax cable
(3) L-810 LED Beacons	Unknown (existing)	Direct Mount	157'	(3) DC Power Cables
(1) 6'x4' Ice Shield (1) 9'x10' Ice Shield	Unknown (existing)	Direct Mount	124'	---
(2) 6FT Dish	Unknown (existing)	(2) Dish Mount	116'	(2) EW63 coax cables
(1) PD1108	Unknown (existing)	(1) Sidearm	112'	(1) 7/8" coax cable
(1) 6FT Dish	Unknown (existing)	(1) Dish Mount	104'	(1) EW63 coax cable
(1) ASP-962 and (1) PR-850	Unknown (existing)	Direct Mount	94'	(2) 1/2" coax cables
(3) P65-16-XL-2 Panel Antennas	Verizon (existing)	(1) Platform (existing)	84'	(18) 1 1/4" coax cables
(3) BXA-171063/12BF (3) BXA-171063/12CF (3) BXA-80063/4CF (6) ALU RRH (1) RFS DB-T1 Series Distribution Box	**Verizon (proposed)**			**(1) HB158-1-08U8-S8J18 Fiber**
(1) CL-24 6' Yagi	Unknown (existing)	(1) 2' Standoff	18'	(1) 1/2" coax cable
(1) 1.2M Lightweight Satellite Dish	Unknown (existing)	(1) 2' Standoff	13'	(2) 1/2" coax cable

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

3. ANALYSIS METHODOLOGY AND LOADING CONDITIONS

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

The analysis was conducted using TNX Tower 6.0. Two load conditions were evaluated as shown below which were compared to allowable stresses according to AISC and TIA/EIA.

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

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

4. FINDINGS AND EVALUATION

Stresses on the tower structure were evaluated to compare with allowable stresses in accordance with AISC. The calculated stresses under the proposed loading were below the allowable stresses. Detailed analysis and calculations for the proposed load condition are provided in section 6 of this report. The foundation and guy anchors were found to be structurally adequate. The tower deflection (sway) is 0.4225 degrees and the tower rotation (twist) is 0.5030 degrees. These figures are ABOVE the Connecticut State Police specification of 0.75 degrees for deflection (sway) and (rotation) twist.

Tower Reactions

Component	Value (kips)
Base Shear	5.056
Base Compression	354.9
Anchor Uplift	150.3
Anchor Shear	177.5

Tower Deflection (Sway) and Rotation (Twist) at the top of the tower (degrees):

Height	Dish Model	Twist	Sway
290'	6 ft. Dish	0.3026	0.5288
115'	6 ft. Dish	0.2652	0.2452
112'	6 ft. Dish	0.2628	0.2489
104'	8 ft. Dish	0.2589	0.2529

Guy and torque arm usage:

Elevation (A.G.L.)	Guy Force (kips)	Guy Usage (%)	Torque Arm Usage (%)
286'	21.0	72.1	78.5
257'	22.3	76.6	80.9
217'	22.7	77.8	78.4
167'	24.4	77.8	76.1
107'	19.2	90.9	48.6
57'	8.7	84.1	19.6

For detailed reactions, see Section 6 of this report

4. FINDINGS AND EVALUATION (continued)

Tower Component Stress vs. Capacity Summary:

Component/ (Section No.)	Existing Component Size	Controlling Component/Elevation	Stress (% capacity)	Pass/Fail
Pole (L1)	P10.75x0.843	Compression / 292' – 327'	16.2 %	**Pass**
Tower Leg (T4)	SR 2 1/4"	Compression / 220' – 240'	76.4 %	**Pass**
Diagonal (T6)	SR 1 1/4"	Compression / 180' – 200'	58.8 %	**Pass**
Horizontal (T14)	SR 1	Compression / 20' – 40'	25.6 %	**Pass**
Top Grit (T16)	PL 12x3/8"	Compression / 0'-6.5'	19.3 %	**Pass**
Top Guy Pull-off (T7)	MC12x35	Compression / 160' – 180'	42.4 %	**Pass**
Tower Bolt Check	(5) 5/8" A325N Torque Arm Bolts	Bolt Shear (167')	46.2%	**Pass**

Foundation:

Component / Controlling Element	Usage (%)
Base Foundation / Compression (%)	84.1
Guy Anchor / Uplift (%)	84.8
Guy Anchor / Shear (%)	83.5

5. CONCLUSIONS

The results of the analysis indicate that the tower structure is NOT in compliance with the proposed loading conditions. **The tower and its foundation are structurally adequate under the wind load classification specified above and the proposed antenna loadings.** The tower deflection (sway) is 0.4225 degrees and the tower rotation (twist) is 0.5030 degrees. These figures are ABOVE the Connecticut State Police specification of 0.75 degrees for deflection (sway) and (rotation) twist.

Limitations/Assumptions:

This report is based on the following:

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

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

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

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

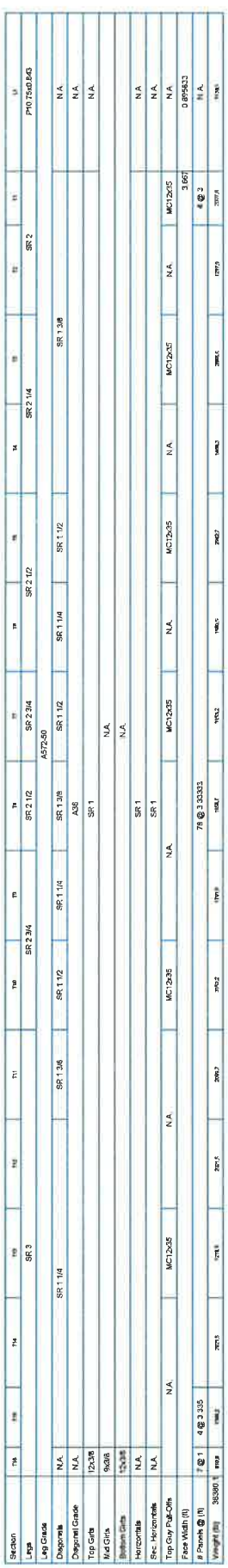
Ongoing and Periodic Inspection and Maintenance:

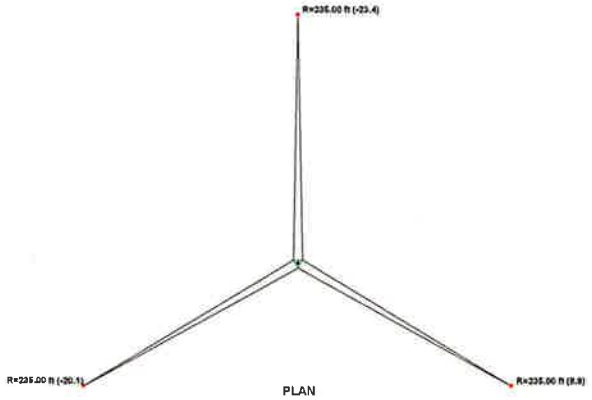
After the Contractor has successfully completed the installation and the work has been accepted, the owner will be responsible for the ongoing and periodic inspection and maintenance of the tower.

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

6. DRAWINGS AND DATA

TNX TOWER INPUT/OUTPUT SUMMARY





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod 5/8x4	325	Pivot 12' T-Frame Sector Mount (1)	187.417
Flash Beacon Lighting	323	Pivot 12' T-Frame Sector Mount (1)	187.417
5'x5'x1" Panel	295	Pivot 12' T-Frame Sector Mount (1)	187.417
6 FT DBSH (CSP - Future)	290	4'x1'x4" Panel	187.417
6 FT DBSH (CSP - Future)	290	(2) Diplexer	187.417
6 FT DBSH (CSP - Future)	290	4'x1'x4" Panel	187.417
4'x15' Omni	288	4'x1'x4" Panel	187.417
2" Dia 8' Omni	277	4'x1'x4" Panel	187.417
2" Dia 6' Omni	277	4'x1'x4" Panel	187.417
6' Side-Arm	277	4'x1'x4" Panel	187.417
6' Side-Arm	277	4'x1'x4" Panel	187.417
AP14-650/105 (CSP-4)	260	4'x1'x4" Panel	187.417
DB810K (CSP-5)	260	4'x1'x4" Panel	187.417
OOG9-925	255	24'x12'x5" Panel	172.167
DB810K	255	3' x 8' Omni	172
2' Sidearm	255	5' Grid Dish	171.5
DB809T3-Y (CSP-7)	255	16'x12'x3" TTA	168
AP14-650/105 (CSP-8)	255	2'x1'x5" Panel	158.833
OOT8-840 (CSP-11)	250	L-810 Flashing Beacon	157
SC479-HF1LDF (CSP-45)	250	L-810 Flashing Beacon	157
SC479-HF1LDF (CSP-46)	250	L-810 Flashing Beacon	157
TTA 432-83H-01T (CSP-47)	250	2' Sidearm	135
BE419-SF3P-ALDF (CSP-48)	250	6'x4' Ice Shield	124
SC479-HF1LDF (CSP-49)	250	9'x10' Ice Shield	124
TTA 432-83H-01T (CSP-50)	250	2.5'x4" Pipe Mount	124
SC479-HF1LDF (CSP-51)	240	2.5'x4" Pipe Mount	124
SC479-HF1LDF (CSP-52)	240	6 FT DBSH	116
TTA 432-83H-01T (CSP-53)	240	6 FT DBSH	116
SC479-HF1LDF (CSP-54)	240	PD1110	112
SC479-HF1LDF (CSP-55)	240	2' Sidearm	112
SC479-HF1LDF (CSP-56)	240	6'x4" Pipe Mount	104
TTA 432-83H-01T (CSP-57)	240	6 FT DBSH	104
(4) DB844H90 (Nextel)	236	PR-850	94
(4) DB844H90 (Nextel)	236	ASP-902	94
(4) DB844H90 (Nextel)	236	BXA-171063-12CF-EDIN-X (Verizon)	84
8'x1'x3" Panel	236	BXA-171063-12CF-EDIN-X (Verizon)	84
12' T-Frame (Nextel)	236	12' Platform (Verizon)	84
12' T-Frame (Nextel)	236	BXA-171063-12CF-EDIN-X (Verizon)	84
12' T-Frame (Nextel)	236	BXA-171063-12CF-EDIN-X (Verizon)	84
6813 1-Bay w/radome	211	BXA-171063-12CF-EDIN-X (Verizon)	84
2' Sidearm	211	BXA-171063-12CF-EDIN-X (Verizon)	84
6813 1-Bay w/radome	199	BXA-171063-12CF-EDIN-X (Verizon)	84
2' Sidearm	199	BXA-171063-12CF-EDIN-X (Verizon)	84
(2) Diplexer	187.417	BXA-171063-12CF-EDIN-X (Verizon)	84
(2) Diplexer	187.417	BXA-171063-12CF-EDIN-X (Verizon)	84
RRU	187.417	BXA-171063-12CF-EDIN-X (Verizon)	84
RRU	187.417	BXA-171063-12CF-EDIN-X (Verizon)	84
RRU	187.417	BXA-171063-12CF-EDIN-X (Verizon)	84
RRU	187.417	2' Side-arm	16
Surge Suppressor	187.417	6' Yagi	16
(2) TMA	187.417	1.2M	13
(2) TMA	187.417	2' Side-arm	13
(2) TMA	187.417		

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower designed for a 90 mph basic wind in accordance with the TIA/EIA-222-F Standard.
2. Tower is also designed for a 90 mph basic wind with 0.50 in ice.
3. Deflections are based upon a 90 mph wind.
4. Weld together tower sections have flange connections.
5. Connections use galvanized A325 bolts, nuts and locking devices. Installation per TIA/EIA-222 and AISC Specifications.
6. Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
7. Welds are fabricated with ER-70S-6 electrodes.
8. TOWER RATING: 90.9%

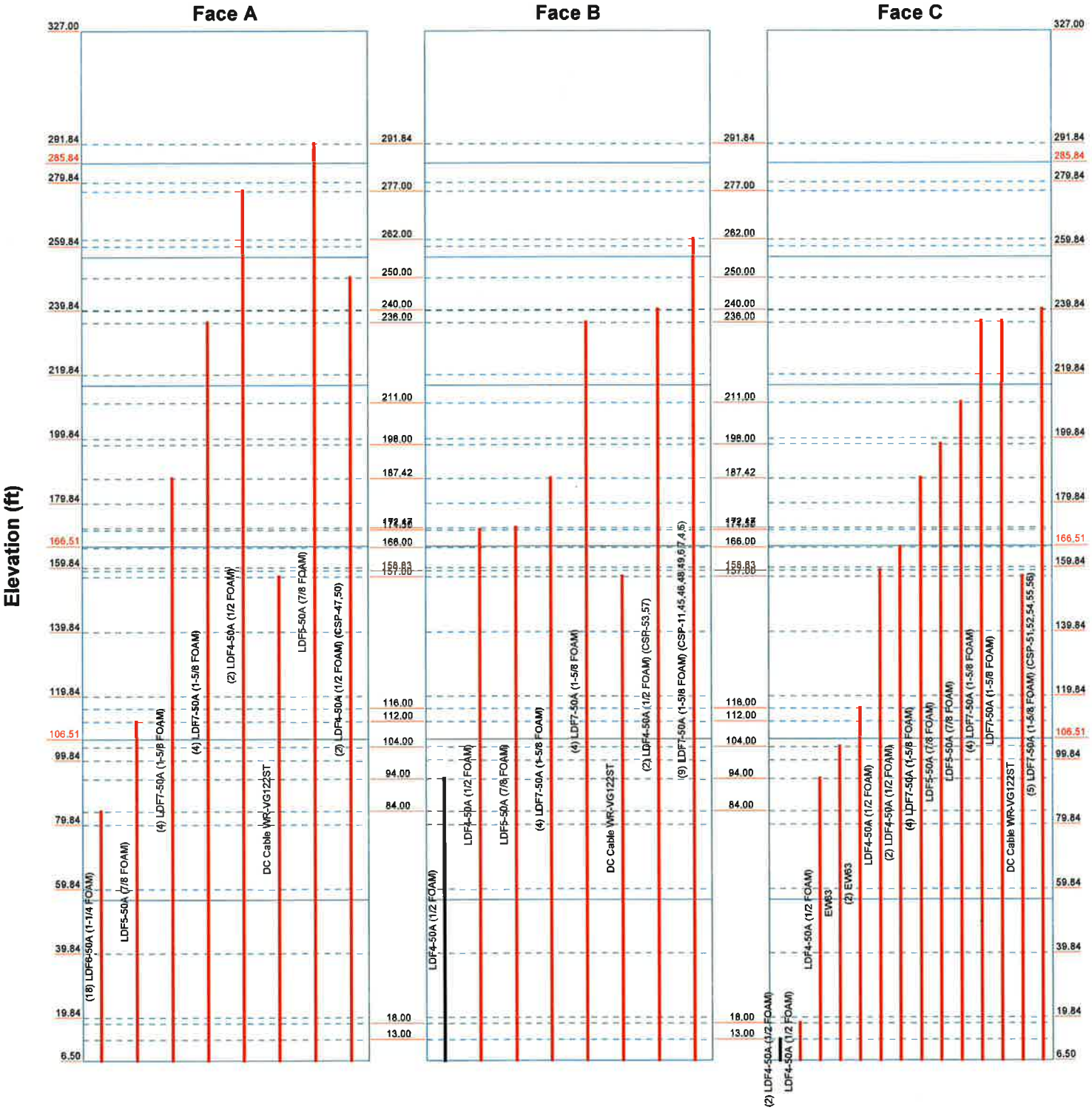
URS Corporation
500 Enterprise Drive, Suite 3B
Rocky Hill, CT 06067
Phone: 860-529-8882
FAX: 860-529-3991

Job:	**327' Guyed Lattice Tower**
Project:	**North Eagleville Road Storrs, CT**
Client: Verizon Wireless	Drawn by: Michael_Dalickas Appd:
Code: TIA/EIA-222-F	Date: 07/17/13 Scale: NTS
Path:	Dwg No. E-1

TNX TOWER FEEDLINE DISTRIBUTION

Feedline Distribution Chart
6'6" - 327'

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



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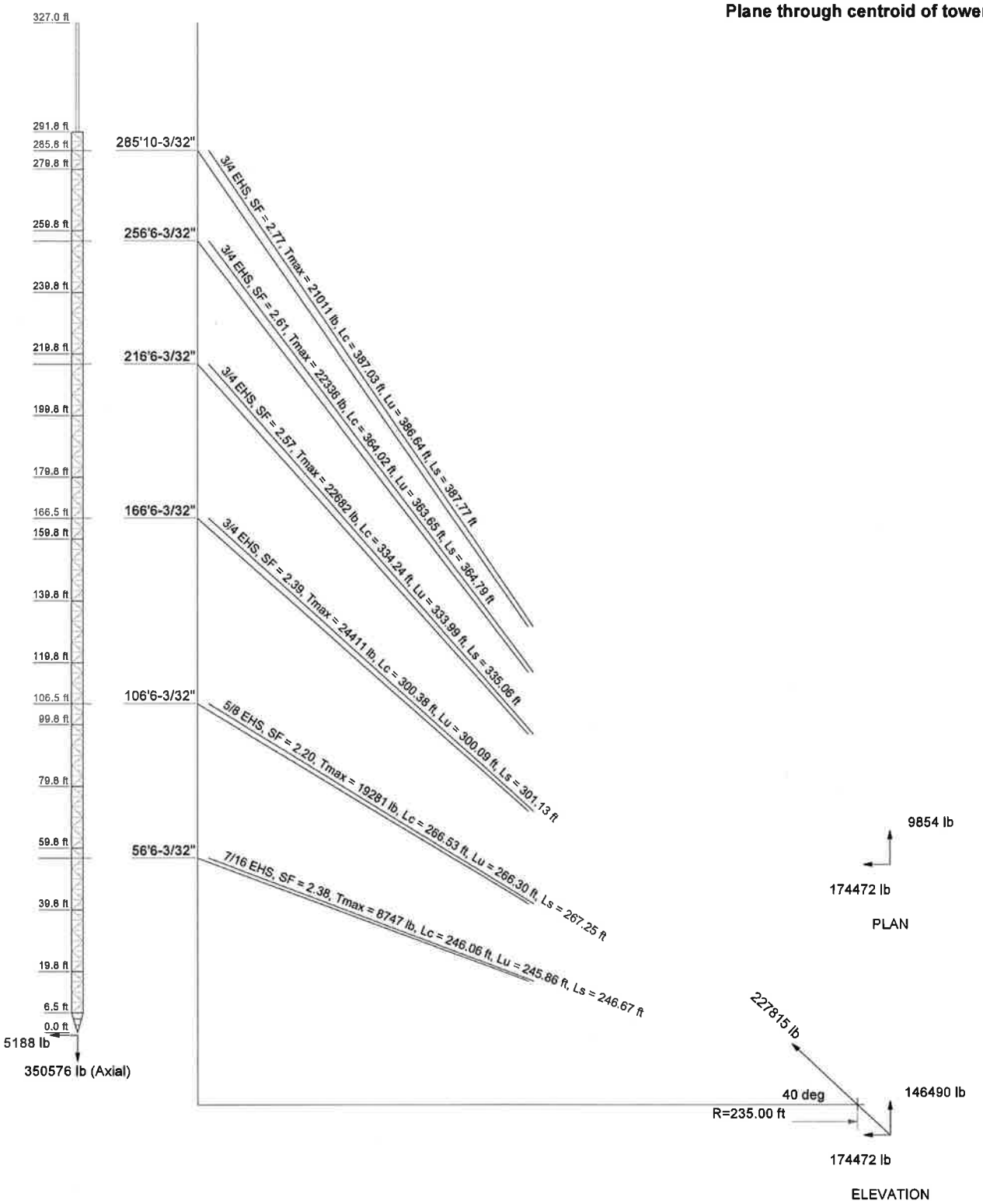
Job:	327' Guyed Lattice Tower		
Project:	North Eagleville Road Storrs, CT		
Client:	Verizon Wireless	Drawn by: Michael_Dalickas	App'd:
Code:	TIA/EIA-222-F	Date: 07/17/13	Scale: NTS
Path:			Dwg No. E-7

GUY TENSIONS AND TOWER REACTIONS

Guy Tensions and Tower Reactions

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

Maximum Values
Anchor 'A'@235 ft Azimuth 0 deg Elev -23.4 ft
Plane through centroid of tower



URS Corporation	Job: ***327' Guyed Lattice Tower***		
500 Enterprise Drive, Suite 3B	Project: ***North Eagleville Road Storrs, CT***		
Rocky Hill, CT 06067	Client: Verizon Wireless	Drawn by: Michael_Dalickas	App'd:
Phone: 860-529-8882	Code: TIA/EIA-222-F	Date: 07/17/13	Scale: NTS
FAX: 860-529-3991	Path:		Dwg No. E-6

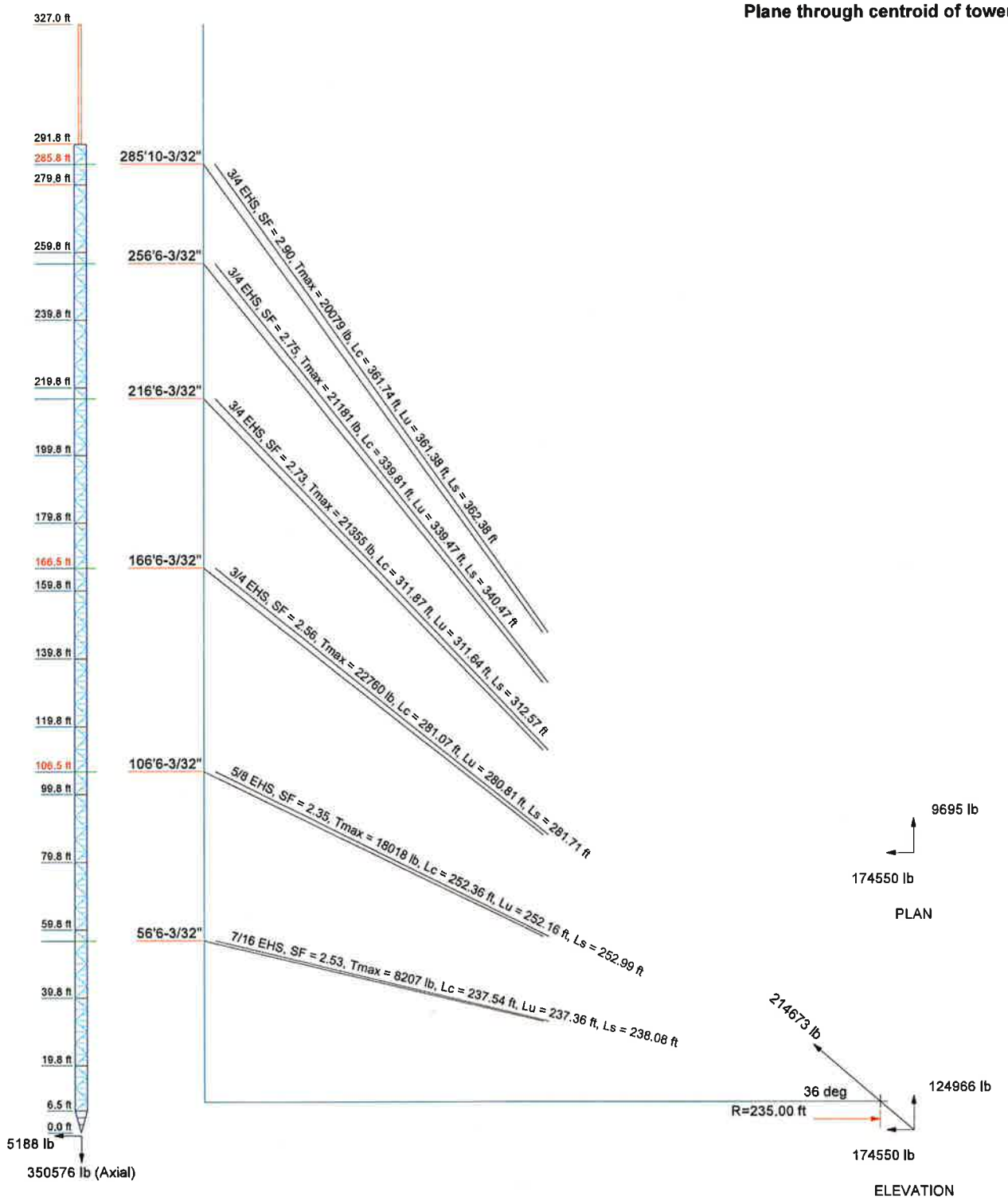
Guy Tensions and Tower Reactions

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

Maximum Values

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

Plane through centroid of tower



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Job: *327' Guyed Lattice Tower*			
Project: *North Eagleville Road Storrs, CT*			
Client: Verizon Wireless	Drawn by: Michael_Dalickas	App'd:	
Code: TIA/EIA-222-F	Date: 07/17/13	Scale: NTS	
Path:		Dwg No. E-6	

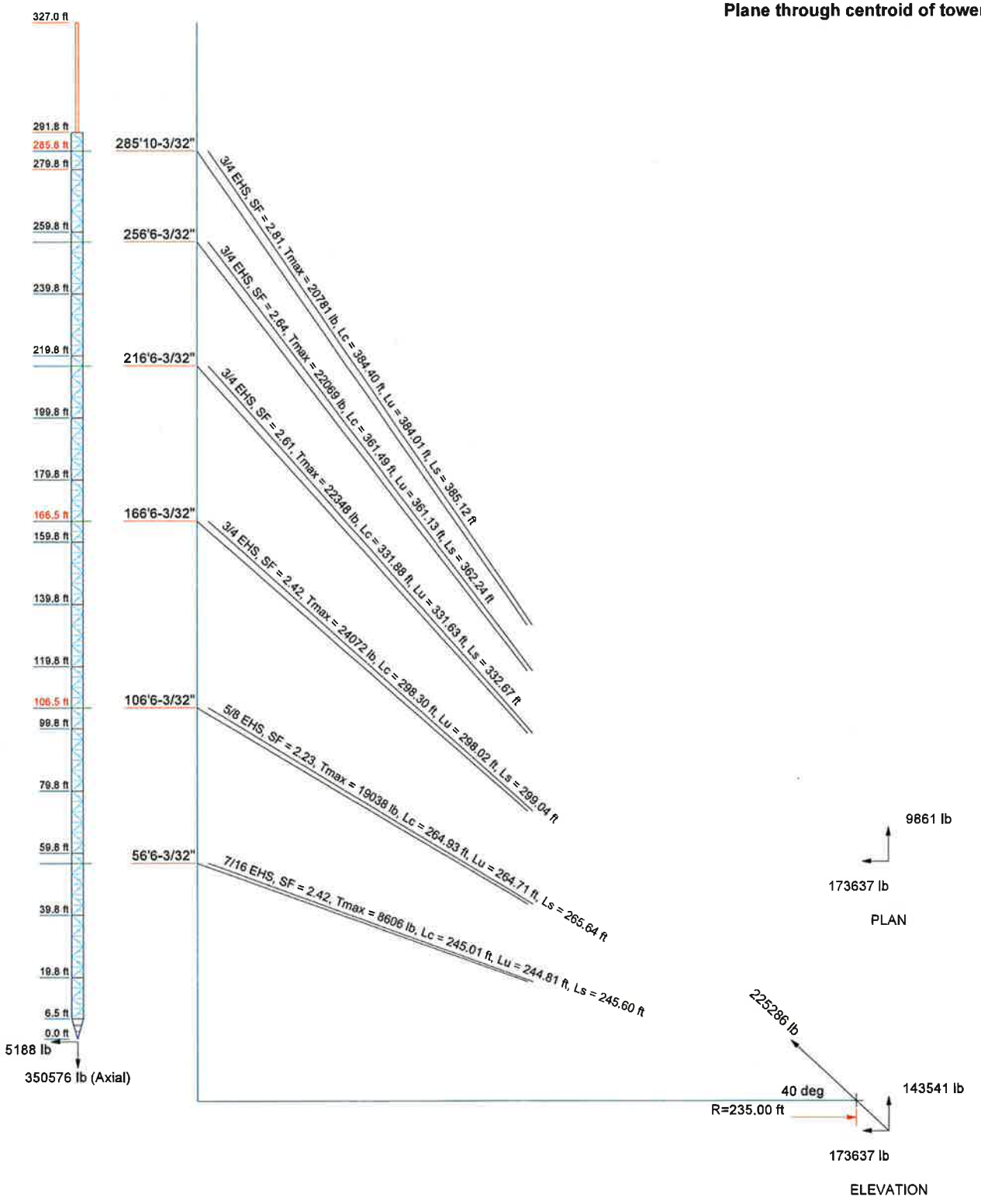
Guy Tensions and Tower Reactions

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

Maximum Values

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

Plane through centroid of tower



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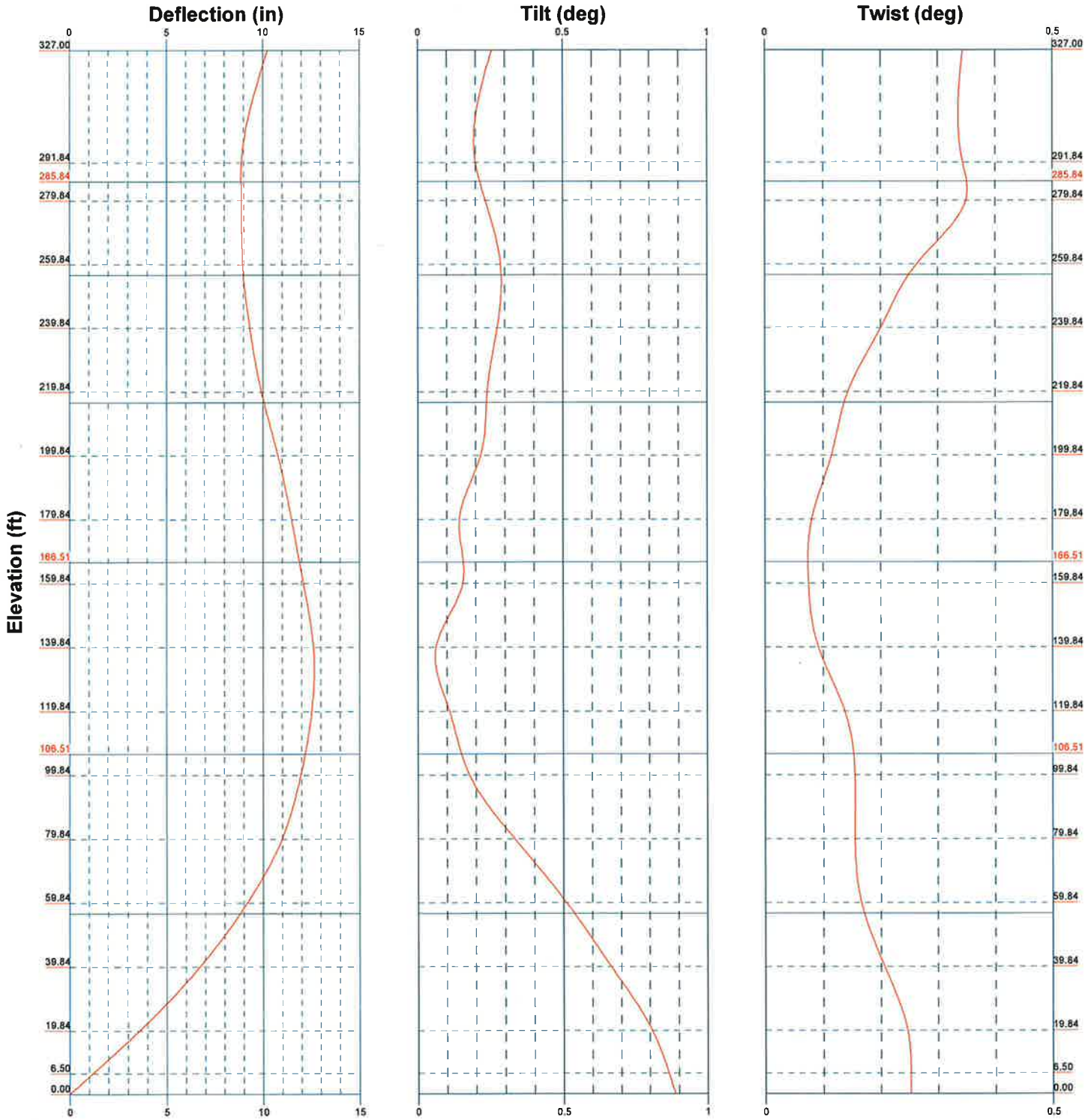
Job: *327' Guyed Lattice Tower*			
Project: *North Eagleville Road Storrs, CT*			
Client: Verizon Wireless	Drawn by: Michael_Dalickas	App'd:	
Code: TIA/EIA-222-F	Date: 07/17/13	Scale: NTS	
Path:		Dwg No. E-6	

TOWER DEFLECTION

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

Maximum Values



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Job: *327' Guyed Lattice Tower*			
Project: *North Eagleville Road Storrs, CT*			
Client: Verizon Wireless	Drawn by: Michael_Dalickas	App'd:	
Code: TIA/EIA-222-F	Date: 07/17/13	Scale: NTS	
Path:		Dwg No. E-5	

TNX TOWER DETAILED OUTPUT

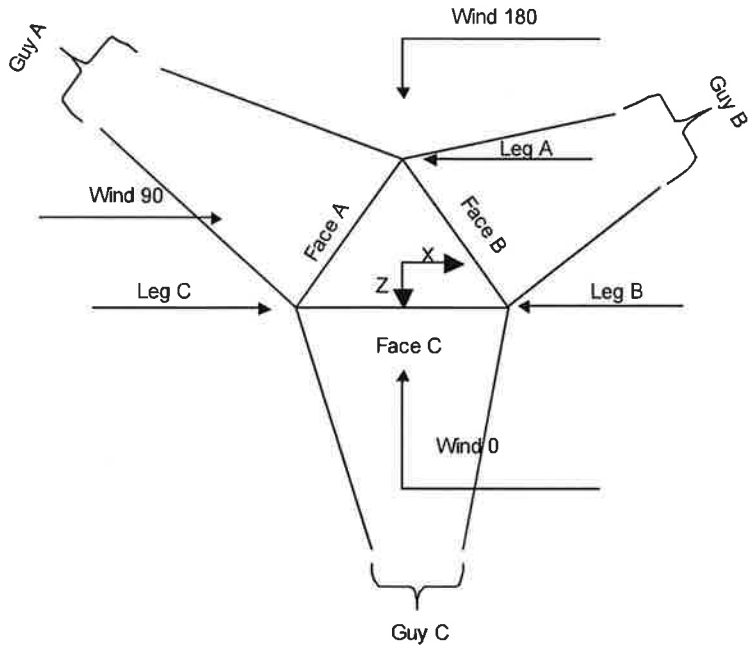
Tower Input Data

The main tower is a 3x guyed tower with an overall height of 327.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 3.67 ft at the top and tapered at the base.
An index plate is provided at the 3x guyed -tower connection.
There is a pole section.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

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

Options

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



Face Guyed

Pole Section Geometry

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

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

Tower Section Geometry

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

Tower Section Geometry *(cont'd)*

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

Tower Section Geometry *(cont'd)*

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

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

Tower Section Geometry *(cont'd)*

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

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

Tower Section Geometry *(cont'd)*

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

Tower Section Geometry *(cont'd)*

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

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) 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 291.84-279.84	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T2 279.84-259.84	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T3 259.84-239.84	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T4 239.84-219.84	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T5 219.84-199.84	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T6 199.84-179.84	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T7 179.84-159.84	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T8 159.84-139.84	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T9	0.00	0.0000	A36	1	1	1	36.0000	36.0000

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
139.84-119.84			(36 ksi)					
T10	0.00	0.0000	A36	1	1	1	36.0000	36.0000
119.84-99.84			(36 ksi)					
T11	0.00	0.0000	A36	1	1	1	36.0000	36.0000
99.84-79.84			(36 ksi)					
T12	0.00	0.0000	A36	1	1	1	36.0000	36.0000
79.84-59.84			(36 ksi)					
T13	0.00	0.0000	A36	1	1	1	36.0000	36.0000
59.84-39.84			(36 ksi)					
T14	0.00	0.0000	A36	1	1	1	36.0000	36.0000
39.84-19.84			(36 ksi)					
T15 19.84-6.50	0.00	0.0000	A36	1	1	1	36.0000	36.0000
			(36 ksi)					
T16 6.50-0.00	0.00	0.0000	A36	1	1	1	36.0000	36.0000
			(36 ksi)					

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1	No	Yes	1	1	1	1	1	1	1	1
291.84-279.84				1	1	1	1	1	1	1
T2	No	Yes	1	1	1	1	1	1	1	1
279.84-259.84				1	1	1	1	1	1	1
T3	No	Yes	1	1	1	1	1	1	1	1
259.84-239.84				1	1	1	1	1	1	1
T4	No	Yes	1	1	1	1	1	1	1	1
239.84-219.84				1	1	1	1	1	1	1
T5	No	Yes	1	1	1	1	1	1	1	1
219.84-199.84				1	1	1	1	1	1	1
T6	No	Yes	1	1	1	1	1	1	1	1
199.84-179.84				1	1	1	1	1	1	1
T7	No	Yes	1	1	1	1	1	1	1	1
179.84-159.84				1	1	1	1	1	1	1
T8	No	Yes	1	1	1	1	1	1	1	1
159.84-139.84				1	1	1	1	1	1	1
T9	No	Yes	1	1	1	1	1	1	1	1
139.84-119.84				1	1	1	1	1	1	1
T10	No	Yes	1	1	1	1	1	1	1	1
119.84-99.84				1	1	1	1	1	1	1
T11	No	Yes	1	1	1	1	1	1	1	1
99.84-79.84				1	1	1	1	1	1	1
T12	No	Yes	1	1	1	1	1	1	1	1
79.84-59.84				1	1	1	1	1	1	1
T13	No	Yes	1	1	1	1	1	1	1	1
59.84-39.84				1	1	1	1	1	1	1
T14	No	Yes	1	1	1	1	1	1	1	1
39.84-19.84				1	1	1	1	1	1	1
T15	No	Yes	1	1	1	1	1	1	1	1
19.84-6.50				1	1	1	1	1	1	1
T16 6.50-0.00	No	Yes	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
				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 Net Width Deduct in	U	Diagonal Net Width Deduct in	U	Top Girt Net Width Deduct in	U	Bottom Girt Net Width Deduct in	U	Mid Girt Net Width Deduct in	U	Long Horizontal Net Width Deduct in	U	Short Horizontal Net Width Deduct in	U
T1 291.84-279.84	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 279.84-259.84	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 259.84-239.84	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 239.84-219.84	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 219.84-199.84	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 199.84-179.84	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 179.84-159.84	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 159.84-139.84	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 139.84-119.84	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T10 119.84-99.84	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T11 99.84-79.84	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T12 79.84-59.84	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T13 59.84-39.84	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T14 39.84-19.84	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T15 19.84-6.50	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T16 6.50-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry *(cont'd)*

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

Guy Data

Guy Elevation ft	Guy Grade		Guy Size	Initial Tension lb	%	Guy Modulus ksi	Guy Weight plf	L_u ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %
285.84	EHS	A	3/4	5830	10%	19000	1.155	386.70	235.00	0.0000	-23.40	100%
		B	3/4	5830	10%	19000	1.155	361.43	235.00	0.0000	8.90	100%
		C	3/4	5830	10%	19000	1.155	384.07	235.00	0.0000	-20.10	100%
256.507	EHS	A	3/4	5830	10%	19000	1.155	363.71	235.00	0.0000	-23.40	100%
		B	3/4	5830	10%	19000	1.155	339.52	235.00	0.0000	8.90	100%
		C	3/4	5830	10%	19000	1.155	361.18	235.00	0.0000	-20.10	100%
216.507	EHS	A	3/4	4664	8%	19000	1.155	334.03	235.00	0.0000	-23.40	100%
		B	3/4	4664	8%	19000	1.155	311.67	235.00	0.0000	8.90	100%
		C	3/4	4664	8%	19000	1.155	331.67	235.00	0.0000	-20.10	100%
166.507	EHS	A	3/4	5830	10%	19000	1.155	300.12	235.00	0.0000	-23.40	100%
		B	3/4	5830	10%	19000	1.155	280.83	235.00	0.0000	8.90	100%
		C	3/4	5830	10%	19000	1.155	298.05	235.00	0.0000	-20.10	100%
106.507	EHS	A	5/8	4240	10%	21000	0.813	266.32	235.00	0.0000	-23.40	100%
		B	5/8	4240	10%	21000	0.813	252.17	235.00	0.0000	8.90	100%
		C	5/8	4240	10%	21000	0.813	264.73	235.00	0.0000	-20.10	100%

56.5067	EHS	A	7/16	2080	10%	21000	0.399	245.87	235.00	0.0000	-23.40	100%
		B	7/16	2080	10%	21000	0.399	237.36	235.00	0.0000	8.90	100%
		C	7/16	2080	10%	21000	0.399	244.82	235.00	0.0000	-20.10	100%

Guy Data(cont'd)

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

Guy Data (cont'd)

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

Guy Data (cont'd)

Guy Elevation *ft*	*Cable Weight A* *lb*	*Cable Weight B* *lb*	*Cable Weight C* *lb*	*Cable Weight D* *lb*	*Tower Intercept A* *ft*	*Tower Intercept B* *ft*	*Tower Intercept C* *ft*	*Tower Intercept D* *ft*
285.84	447	417	444		14.39 6.5 sec/pulse	12.61 6.1 sec/pulse	14.20 6.5 sec/pulse	
256.507	420	392	417		12.76	11.16	12.59	

Guy Elevation ft	Cable Weight A lb	Cable Weight B lb	Cable Weight C lb	Cable Weight D lb	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft
					6.2 sec/pulse	5.8 sec/pulse	6.1 sec/pulse	
216.507	386	360	383		13.43	11.74	13.25	
					6.3 sec/pulse	5.9 sec/pulse	6.3 sec/pulse	
166.507	347	324	344		8.77	7.70	8.65	
					5.1 sec/pulse	4.8 sec/pulse	5.1 sec/pulse	
106.507	217	205	215		6.72	6.05	6.65	
					4.5 sec/pulse	4.2 sec/pulse	4.5 sec/pulse	
56.5067	98	95	98		5.76	5.38	5.71	
					4.1 sec/pulse	4.0 sec/pulse	4.1 sec/pulse	

Guy Data *(cont'd)*

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

Guy Data *(cont'd)*

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

Guy Pressures

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

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

Guy-Tensioning Information

Guy Elevation ft		H ft	V ft	Temperature At Time Of Tensioning: 0 F Initial Tension lb	0 F Intercept ft	20 F Initial Tension lb	20 F Intercept ft	40 F Initial Tension lb	40 F Intercept ft	60 F Initial Tension lb	60 F Intercept ft	80 F Initial Tension lb	80 F Intercept ft	100 F Initial Tension lb	100 F Intercept ft	120 F Initial Tension lb	120 F Intercept ft
285.84	A	232.72	309.24	6615	12.72	6349	13.24	6087	13.80	5830	14.39	5578	15.02	5331	15.70	5090	16.42
	B	232.72	276.94	6731	10.96	6425	11.47	6125	12.02	5830	12.61	5542	13.25	5261	13.94	4989	14.68
	C	232.72	305.94	6626	12.53	6357	13.05	6091	13.60	5830	14.20	5574	14.83	5324	15.51	5080	16.23
256.507	A	232.72	279.91	6719	11.11	6418	11.62	6121	12.17	5830	12.76	5545	13.40	5268	14.09	4999	14.83
	B	232.72	247.61	6853	9.52	6506	10.02	6164	10.57	5830	11.16	5504	11.80	5188	12.50	4884	13.27
	C	232.72	276.61	6732	10.94	6426	11.45	6125	12.00	5830	12.59	5541	13.23	5260	13.92	4988	14.66
216.507	A	232.72	239.91	5619	11.20	5289	11.88	4970	12.62	4664	13.43	4373	14.30	4097	15.23	3839	16.22
	B	232.72	207.61	5767	9.53	5384	10.20	5016	10.93	4664	11.74	4332	12.62	4021	13.57	3734	14.58
	C	232.72	236.61	5633	11.02	5298	11.70	4974	12.44	4664	13.25	4369	14.12	4090	15.05	3829	16.05
166.507	A	232.72	189.91	7149	7.17	6699	7.65	6259	8.18	5830	8.77	5415	9.43	5018	10.16	4640	10.97
	B	232.72	157.61	7338	6.13	6823	6.59	6319	7.11	5830	7.70	5360	8.37	4912	9.12	4491	9.96
	C	232.72	186.61	7165	7.06	6709	7.53	6264	8.06	5830	8.65	5403	9.32	5000	10.06	4619	10.87
106.507	A	232.72	129.91	5548	5.15	5099	5.60	4662	6.12	4240	6.72	3837	7.42	3457	8.23	3107	9.14
	B	232.72	97.61	5704	4.50	5201	4.94	4712	5.45	4240	6.05	3792	6.75	3375	7.58	2996	8.53
	C	232.72	126.61	5564	5.08	5110	5.52	4667	6.04	4240	6.65	3832	7.34	3449	8.15	3095	9.07
56.5067	A	232.72	79.91	2837	4.23	2577	4.66	2323	5.16	2080	5.76	1850	6.47	1636	7.31	1444	8.28
	B	232.72	47.61	2894	3.87	2614	4.29	2341	4.79	2080	5.38	1834	6.11	1608	6.96	1406	7.95
	C	232.72	76.61	2843	4.19	2581	4.61	2326	5.11	2080	5.71	1848	6.43	1633	7.27	1439	8.24

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	Number Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
LDF4-50A (1/2 FOAM)	C	No	Af (Leg)	13.00 - 5.00	2	2	0.6300	0.6300	1.9782	0.15
LDF4-50A (1/2 FOAM)	C	No	Ar (CfAe)	18.00 - 5.00	1	1	0.6300	0.6300		0.15
LDF6-50A (1-1/4 FOAM)	A	No	Ar (CfAe)	84.00 - 5.00	18	18	1.0000	1.5500		0.66
LDF4-50A (1/2 FOAM)	B	No	Af (Leg)	94.00 - 5.00	1	1	0.6300	0.6300	1.9782	0.15
LDF4-50A (1/2 FOAM)	C	No	Ar (CfAe)	94.00 - 5.00	1	1	0.6300	0.6300		0.15
EW63	C	No	Ar (CfAe)	104.00 - 5.00	1	1	1.0000	1.5742		0.51
LDF5-50A (7/8 FOAM)	A	No	Ar (CfAe)	112.00 - 5.00	1	1	1.0000	1.0900		0.33
EW63	C	No	Ar (CfAe)	116.00 - 5.00	2	2	1.0000	1.5742		0.51

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	Number Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
LDF4-50A (1/2 FOAM)	C	No	Ar (CfAe)	158.83 - 5.00	1	1	0.6300	0.6300		0.15
LDF4-50A (1/2 FOAM)	C	No	Ar (CfAe)	166.00 - 5.00	2	2	0.6300	0.6300		0.15
LDF4-50A (1/2 FOAM)	B	No	Ar (CfAe)	171.50 - 5.00	1	1	0.6300	0.6300		0.15
LDF5-50A (7/8 FOAM)	B	No	Ar (CfAe)	172.17 - 5.00	1	1	1.0000	1.0900		0.33
LDF7-50A (1-5/8 FOAM)	A	No	Ar (CfAe)	187.42 - 5.00	4	4	1.0000	1.9800		0.82
LDF7-50A (1-5/8 FOAM)	B	No	Ar (CfAe)	187.42 - 5.00	4	4	1.0000	1.9800		0.82
LDF7-50A (1-5/8 FOAM)	C	No	Ar (CfAe)	187.42 - 5.00	4	4	1.0000	1.9800		0.82
LDF5-50A (7/8 FOAM)	C	No	Ar (CfAe)	198.00 - 5.00	1	1	1.0000	1.0900		0.33
LDF5-50A (7/8 FOAM)	C	No	Ar (CfAe)	211.00 - 5.00	1	1	1.0000	1.0900		0.33
LDF7-50A (1-5/8 FOAM)	A	No	Ar (CfAe)	236.00 - 5.00	4	4	1.0000	1.9800		0.82
LDF7-50A (1-5/8 FOAM)	B	No	Ar (CfAe)	236.00 - 5.00	4	4	1.0000	1.9800		0.82
LDF7-50A (1-5/8 FOAM)	C	No	Ar (CfAe)	236.00 - 5.00	4	4	1.0000	1.9800		0.82
LDF4-50A (1/2 FOAM)	A	No	Ar (CfAe)	277.00 - 5.00	2	2	0.6300	0.6300		0.15
LDF7-50A (1-5/8 FOAM)	C	No	Ar (CfAe)	236.00 - 5.00	1	1	1.0000	1.9800		0.82
DC Cable WR-VG122ST	A	No	Ar (CfAe)	157.00 - 5.00	1	1	0.4000	0.4000		0.25
DC Cable WR-VG122ST	B	No	Ar (CfAe)	157.00 - 5.00	1	1	0.4000	0.4000		0.25
DC Cable WR-VG122ST	C	No	Ar (CfAe)	157.00 - 5.00	1	1	0.4000	0.4000		0.25
LDF5-50A (7/8 FOAM)	A	No	Ar (CfAe)	291.84 - 5.00	1	1	1.0000 1.0900	1.0900		0.33
LDF4-50A (1/2 FOAM) (CSP-53,57)	B	No	Ar (CfAe)	240.00 - 5.00	2	2	0.6300	0.6300		0.15
LDF7-50A (1-5/8 FOAM) (CSP-51,52,54,55,56)	C	No	Ar (CfAe)	240.00 - 5.00	5	5	1.0000	1.9800		0.82
LDF4-50A (1/2 FOAM) (CSP-47,50)	A	No	Ar (CfAe)	250.00 - 5.00	2	2	0.6300	0.6300		0.15
LDF7-50A (1-5/8 FOAM) (CSP-11,45,46,48,49,6,7,4,5)	B	No	Ar (CfAe)	262.00 - 5.00	9	9	1.0000	1.9800		0.82

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
L1	327.00-291.84	A	0.000	0.000	0.000	0.000	0
		B	0.000	0.000	0.000	0.000	0
		C	0.000	0.000	0.000	0.000	0
T1	291.84-279.84	A	1.090	0.000	0.000	0.000	4
		B	0.000	0.000	0.000	0.000	0
		C	0.000	0.000	0.000	0.000	0
T2	279.84-259.84	A	3.618	0.000	0.000	0.000	12
		B	3.208	0.000	0.000	0.000	16
		C	0.000	0.000	0.000	0.000	0
T3	259.84-239.84	A	4.983	0.000	0.000	0.000	16
		B	29.717	0.000	0.000	0.000	148
		C	0.132	0.000	0.000	0.000	1
T4	239.84-219.84	A	16.682	0.000	0.000	0.000	72
		B	42.466	0.000	0.000	0.000	207
		C	29.832	0.000	0.000	0.000	148

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T5	219.84-199.84	A	19.217	0.000	0.000	0.000	84
		B	45.000	0.000	0.000	0.000	219
		C	34.014	0.000	0.000	0.000	168
T6	199.84-179.84	A	24.217	0.000	0.000	0.000	109
		B	50.001	0.000	0.000	0.000	244
		C	41.467	0.000	0.000	0.000	201
T7	179.84-159.84	A	32.417	0.000	0.000	0.000	150
		B	59.932	0.000	0.000	0.000	291
		C	50.480	0.000	0.000	0.000	245
T8	159.84-139.84	A	32.989	0.000	0.000	0.000	154
		B	61.639	0.000	0.000	0.000	299
		C	53.502	0.000	0.000	0.000	256
T9	139.84-119.84	A	33.083	0.000	0.000	0.000	155
		B	61.733	0.000	0.000	0.000	299
		C	53.650	0.000	0.000	0.000	257
T10	119.84-99.84	A	34.188	0.000	0.000	0.000	159
		B	61.733	0.000	0.000	0.000	299
		C	58.436	0.000	0.000	0.000	275
T11	99.84-79.84	A	44.572	0.000	0.000	0.000	211
		B	61.733	0.743	0.000	0.000	302
		C	62.264	0.743	0.000	0.000	290
T12	79.84-59.84	A	81.400	0.000	0.000	0.000	399
		B	61.733	1.050	0.000	0.000	302
		C	62.571	1.050	0.000	0.000	290
T13	59.84-39.84	A	81.400	0.000	0.000	0.000	399
		B	61.733	1.050	0.000	0.000	302
		C	62.571	1.050	0.000	0.000	290
T14	39.84-19.84	A	81.400	0.000	0.000	0.000	399
		B	61.733	1.050	0.000	0.000	302
		C	62.571	1.050	0.000	0.000	290
T15	19.84-6.50	A	54.294	0.683	0.000	0.000	266
		B	41.176	0.700	0.000	0.000	202
		C	42.339	1.383	0.000	0.000	197
T16	6.50-0.00	A	6.105	0.158	0.000	0.000	30
		B	4.630	0.079	0.000	0.000	23
		C	4.772	0.236	0.000	0.000	22

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
L1	327.00-291.84	A	0.500	0.000	0.000	0.000	0.000	0
		B		0.000	0.000	0.000	0.000	0
		C		0.000	0.000	0.000	0.000	0
T1	291.84-279.84	A	0.500	2.090	0.000	0.000	0.000	16
		B		0.000	0.000	0.000	0.000	0
		C		0.000	0.000	0.000	0.000	0
T2	279.84-259.84	A	0.500	5.814	1.802	0.000	0.000	55
		B		0.536	4.291	0.000	0.000	58
		C		0.000	0.000	0.000	0.000	0
T3	259.84-239.84	A	0.500	7.580	3.167	0.000	0.000	76
		B		4.988	39.750	0.000	0.000	539
		C		0.040	0.159	0.000	0.000	2
T4	239.84-219.84	A	0.500	12.930	16.239	0.000	0.000	280
		B		11.696	53.873	0.000	0.000	759
		C		12.993	31.906	0.000	0.000	517
T5	219.84-199.84	A	0.500	13.883	19.100	0.000	0.000	324

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
		B		12.650	56.733	0.000	0.000	803
		C		16.844	34.767	0.000	0.000	585
T6	199.84-179.84	A	0.500	15.765	24.745	0.000	0.000	412
		B		14.532	62.378	0.000	0.000	891
		C		23.428	40.411	0.000	0.000	708
T7	179.84-159.84	A	0.500	18.850	34.000	0.000	0.000	555
		B		21.347	71.633	0.000	0.000	1061
		C		27.670	50.313	0.000	0.000	864
T8	159.84-139.84	A	0.500	20.852	34.000	0.000	0.000	569
		B		25.819	71.633	0.000	0.000	1091
		C		34.132	51.767	0.000	0.000	917
T9	139.84-119.84	A	0.500	21.183	34.000	0.000	0.000	571
		B		26.150	71.633	0.000	0.000	1094
		C		34.600	51.767	0.000	0.000	920
T10	119.84-99.84	A	0.500	23.301	34.000	0.000	0.000	587
		B		26.150	71.633	0.000	0.000	1094
		C		38.959	55.233	0.000	0.000	994
T11	99.84-79.84	A	0.500	25.551	49.028	0.000	0.000	779
		B		26.150	73.163	0.000	0.000	1106
		C		45.104	57.587	0.000	0.000	1050
T12	79.84-59.84	A	0.500	28.917	106.250	0.000	0.000	1470
		B		26.150	73.794	0.000	0.000	1112
		C		45.897	58.218	0.000	0.000	1055
T13	59.84-39.84	A	0.500	28.917	106.250	0.000	0.000	1470
		B		26.150	73.794	0.000	0.000	1112
		C		45.897	58.218	0.000	0.000	1055
T14	39.84-19.84	A	0.500	28.917	106.250	0.000	0.000	1470
		B		26.150	73.794	0.000	0.000	1112
		C		45.897	58.218	0.000	0.000	1055
T15	19.84-6.50	A	0.500	19.287	72.254	0.000	0.000	981
		B		17.442	49.221	0.000	0.000	741
		C		32.176	40.216	0.000	0.000	724
T16	6.50-0.00	A	0.500	2.169	8.288	0.000	0.000	110
		B		1.961	5.535	0.000	0.000	83
		C		3.646	4.686	0.000	0.000	83

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	327.00-291.84	0.0000	0.0000	0.0000	0.0000
T1	291.84-279.84	-0.3787	-0.2187	-0.4931	-0.2847
T2	279.84-259.84	-0.0730	-1.0706	-0.1313	-0.8970
T3	259.84-239.84	3.5773	-2.8330	3.1231	-2.4755
T4	239.84-219.84	2.4176	0.0476	2.0269	-0.0454
T5	219.84-199.84	2.0605	0.1886	1.7863	0.1301
T6	199.84-179.84	1.9786	0.3901	1.6693	0.3767
T7	179.84-159.84	1.6683	0.3052	1.4989	0.2668
T8	159.84-139.84	1.8026	0.4466	1.5835	0.3855
T9	139.84-119.84	1.7847	0.4458	1.5699	0.3880
T10	119.84-99.84	1.5771	0.6846	1.3934	0.5003
T11	99.84-79.84	1.0344	0.6174	0.8591	0.4465
T12	79.84-59.84	-0.7928	-0.4246	-0.8791	-0.5242
T13	59.84-39.84	-0.7644	-0.4094	-0.8593	-0.5123
T14	39.84-19.84	-0.7928	-0.4246	-0.8791	-0.5242
T15	19.84-6.50	-0.8718	-0.3227	-0.9759	-0.3784

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
T16	6.50-0.00	-0.3699	-0.1012	-0.5032	-0.1393

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
2' Side-arm	C	From Leg	1.00 0.00 0.00	0.0000	13.00	No Ice 1/2" Ice	3.89 4.15	3.89 4.15	0 41
6' Yagi	C	From Leg	1.00 0.00 0.00	0.0000	18.00	No Ice 1/2" Ice	2.33 2.62	0.52 0.85	3 13
2' Side-arm	C	From Leg	1.00 0.00 0.00	0.0000	18.00	No Ice 1/2" Ice	3.89 4.15	3.89 4.15	0 41
BXA-171063-12CF-EDIN-X (Verizon)	A	From Leg	3.00 6.00 0.00	0.0000	84.00	No Ice 1/2" Ice	4.80 5.25	3.63 4.06	13 40
BXA-171063-12CF-EDIN-X (Verizon)	A	From Leg	3.00 3.00 0.00	0.0000	84.00	No Ice 1/2" Ice	4.80 5.25	3.63 4.06	13 40
BXA-171063-12CF-EDIN-X (Verizon)	A	From Leg	3.00 -3.00 0.00	0.0000	84.00	No Ice 1/2" Ice	4.80 5.25	3.63 4.06	13 40
BXA-171063-12CF-EDIN-X (Verizon)	A	From Leg	3.00 -6.00 0.00	0.0000	84.00	No Ice 1/2" Ice	4.80 5.25	3.63 4.06	13 40
BXA-171063-12CF-EDIN-X (Verizon)	B	From Leg	3.00 6.00 0.00	0.0000	84.00	No Ice 1/2" Ice	4.80 5.25	3.63 4.06	13 40
BXA-171063-12CF-EDIN-X (Verizon)	B	From Leg	3.00 3.00 0.00	0.0000	84.00	No Ice 1/2" Ice	4.80 5.25	3.63 4.06	13 40
BXA-171063-12CF-EDIN-X (Verizon)	B	From Leg	3.00 -3.00 0.00	0.0000	84.00	No Ice 1/2" Ice	4.80 5.25	3.63 4.06	13 40
BXA-171063-12CF-EDIN-X (Verizon)	B	From Leg	3.00 -6.00 0.00	0.0000	84.00	No Ice 1/2" Ice	4.80 5.25	3.63 4.06	13 40
BXA-171063-12CF-EDIN-X (Verizon)	C	From Leg	3.00 6.00 0.00	0.0000	84.00	No Ice 1/2" Ice	4.80 5.25	3.63 4.06	13 40
BXA-171063-12CF-EDIN-X (Verizon)	C	From Leg	3.00 3.00 0.00	0.0000	84.00	No Ice 1/2" Ice	4.80 5.25	3.63 4.06	13 40
BXA-171063-12CF-EDIN-X (Verizon)	C	From Leg	3.00 -3.00 0.00	0.0000	84.00	No Ice 1/2" Ice	4.80 5.25	3.63 4.06	13 40
BXA-171063-12CF-EDIN-X (Verizon)	C	From Leg	3.00 -6.00 0.00	0.0000	84.00	No Ice 1/2" Ice	4.80 5.25	3.63 4.06	13 40

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
12' Platform	A	None		0.0000	84.00	No Ice	40.00	40.00	2000
(Verizon)						1/2" Ice	50.00	50.00	2800
PR-850	C	From Leg	0.50 0.00 0.00	0.0000	94.00	No Ice 1/2" Ice	6.35 11.43	6.35 11.43	38 49
ASP-962	B	From Leg	0.50 0.00 0.00	0.0000	94.00	No Ice 1/2" Ice	0.16 0.29	0.16 0.29	1 1
6'x4" Pipe Mount	C	From Leg	0.50 0.00 0.00	0.0000	104.00	No Ice 1/2" Ice	2.09 2.46	2.09 2.46	55 72
PD1110	B	From Leg	2.00 0.00 0.00	0.0000	112.00	No Ice 1/2" Ice	3.06 5.10	3.06 5.10	25 60
2' Sidearm	B	From Leg	1.00 0.00 0.00	0.0000	112.00	No Ice 1/2" Ice	3.90 4.40	3.90 4.40	87 97
6'x4' Ice Shield	C	From Leg	1.00 0.00 0.00	0.0000	124.00	No Ice 1/2" Ice	0.23 0.30	0.02 0.06	285 286
9'x10' Ice Shield	A	From Leg	1.00 0.00 0.00	0.0000	124.00	No Ice 1/2" Ice	0.88 1.00	0.03 0.09	1069 1073
2'6"x4" Pipe Mount	C	From Leg	0.50 0.00 0.00	0.0000	124.00	No Ice 1/2" Ice	0.75 0.95	0.75 0.95	27 35
2'6"x4" Pipe Mount	A	From Leg	0.50 0.00 0.00	0.0000	124.00	No Ice 1/2" Ice	0.75 0.95	0.75 0.95	27 35
2' Sidearm	B	From Leg	1.00 0.00 0.00	0.0000	125.00	No Ice 1/2" Ice	3.50 4.20	3.50 4.20	91 120
L-810 Flashing Beacon	A	From Leg	0.50 0.00 0.00	0.0000	157.00	No Ice 1/2" Ice	0.20 0.28	0.20 0.28	3 6
L-810 Flashing Beacon	B	From Leg	0.50 0.00 0.00	0.0000	157.00	No Ice 1/2" Ice	0.20 0.28	0.20 0.28	3 6
L-810 Flashing Beacon	C	From Leg	0.50 0.00 0.00	0.0000	157.00	No Ice 1/2" Ice	0.20 0.28	0.20 0.28	3 6
2'x1'x5" Panel	C	From Leg	1.00 0.00 0.00	0.0000	158.83	No Ice 1/2" Ice	2.80 3.04	1.17 1.36	10 27
16"x12"x3" TTA	A	From Leg	1.00 0.00 0.00	0.0000	166.00	No Ice 1/2" Ice	1.87 2.05	0.47 0.59	12 22
24"x12"x5" Panel	B	From Leg	1.00 0.00 0.00	0.0000	172.17	No Ice 1/2" Ice	2.80 3.04	1.17 1.36	31 48
3" x 8' Omni	C	From Leg	1.00 0.00 0.00	0.0000	172.00	No Ice 1/2" Ice	2.40 3.19	2.40 3.19	8 25
4'x1'x4" Panel	A	From Leg	3.00 -6.00 0.00	0.0000	187.42	No Ice 1/2" Ice	5.60 5.99	2.09 2.39	49 78
4'x1'x4" Panel	A	From Leg	3.00	0.0000	187.42	No Ice	5.60	2.09	49

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			0.00			1/2" Ice	5.99	2.39	78
			0.00						
4'x1'x4" Panel	A	From Leg	3.00	0.0000	187.42	No Ice	5.60	2.09	49
			6.00			1/2" Ice	5.99	2.39	78
			0.00						
4'x1'x4" Panel	B	From Leg	3.00	0.0000	187.42	No Ice	5.60	2.09	49
			-6.00			1/2" Ice	5.99	2.39	78
			0.00						
4'x1'x4" Panel	B	From Leg	3.00	0.0000	187.42	No Ice	5.60	2.09	49
			0.00			1/2" Ice	5.99	2.39	78
			0.00						
4'x1'x4" Panel	B	From Leg	3.00	0.0000	187.42	No Ice	5.60	2.09	49
			6.00			1/2" Ice	5.99	2.39	78
			0.00						
4'x1'x4" Panel	C	From Leg	3.00	0.0000	187.42	No Ice	5.60	2.09	49
			-6.00			1/2" Ice	5.99	2.39	78
			0.00						
4'x1'x4" Panel	C	From Leg	3.00	0.0000	187.42	No Ice	5.60	2.09	49
			0.00			1/2" Ice	5.99	2.39	78
			0.00						
4'x1'x4" Panel	C	From Leg	3.00	0.0000	187.42	No Ice	5.60	2.09	49
			6.00			1/2" Ice	5.99	2.39	78
			0.00						
(2) Diplexer	A	From Leg	3.00	0.0000	187.42	No Ice	0.23	0.17	10
			0.00			1/2" Ice	0.30	0.24	12
			0.00						
(2) Diplexer	B	From Leg	3.00	0.0000	187.42	No Ice	0.23	0.17	10
			0.00			1/2" Ice	0.30	0.24	12
			0.00						
(2) Diplexer	C	From Leg	3.00	0.0000	187.42	No Ice	0.23	0.17	10
			0.00			1/2" Ice	0.30	0.24	12
			0.00						
RRU	A	From Leg	3.00	0.0000	187.42	No Ice	1.40	0.70	10
			0.00			1/2" Ice	1.56	0.82	20
			0.00						
RRU	B	From Leg	3.00	0.0000	187.42	No Ice	1.40	0.70	10
			0.00			1/2" Ice	1.56	0.82	20
			0.00						
RRU	C	From Leg	3.00	0.0000	187.42	No Ice	1.40	0.70	10
			0.00			1/2" Ice	1.56	0.82	20
			0.00						
Surge Suppressor	A	None		0.0000	187.42	No Ice	0.53	0.53	50
						1/2" Ice	0.65	0.65	57
(2) TMA	A	None		0.0000	187.42	No Ice	1.06	0.45	0
						1/2" Ice	1.21	0.57	7
(2) TMA	B	None		0.0000	187.42	No Ice	1.06	0.45	0
						1/2" Ice	1.21	0.57	7
(2) TMA	C	None		0.0000	187.42	No Ice	1.06	0.45	0
						1/2" Ice	1.21	0.57	7
Pirod 12' T-Frame Sector Mount (1)	A	None		0.0000	187.42	No Ice	13.60	13.60	465
						1/2" Ice	18.40	18.40	600
Pirod 12' T-Frame Sector Mount (1)	B	None		0.0000	187.42	No Ice	13.60	13.60	465
						1/2" Ice	18.40	18.40	600
Pirod 12' T-Frame Sector Mount (1)	C	None		0.0000	187.42	No Ice	13.60	13.60	465
						1/2" Ice	18.40	18.40	600
6813 1-Bay w/radome	B	From Leg	3.00	0.0000	198.00	No Ice	4.90	4.90	97
			0.00			1/2" Ice	6.00	6.00	195

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			0.00						
3' Sidearm	B	From Leg	1.50	0.0000	198.00	No Ice	5.90	5.90	130
			0.00			1/2" Ice	6.60	6.60	146
			0.00						
6813 1-Bay w/radome	C	From Leg	2.00	0.0000	211.00	No Ice	4.90	4.90	97
			0.00			1/2" Ice	6.00	6.00	195
			0.00						
2' Sidearm	C	From Leg	1.00	0.0000	211.00	No Ice	3.90	3.90	87
			0.00			1/2" Ice	4.40	4.40	97
			0.00						
(4) DB844H90 (Nextel)	A	From Leg	3.00	0.0000	236.00	No Ice	2.87	3.97	10
			0.00			1/2" Ice	3.18	4.34	36
			0.00						
(4) DB844H90 (Nextel)	B	From Leg	3.00	0.0000	236.00	No Ice	2.87	3.97	10
			0.00			1/2" Ice	3.18	4.34	36
			0.00						
(4) DB844H90 (Nextel)	C	From Leg	3.00	0.0000	236.00	No Ice	2.87	3.97	10
			0.00			1/2" Ice	3.18	4.34	36
			0.00						
8'x1'x3" Panel	B	From Leg	3.00	0.0000	236.00	No Ice	11.47	4.00	73
			0.00			1/2" Ice	12.08	4.92	125
			0.00						
12' T-Frame (Nextel)	A	From Leg	1.50	0.0000	236.00	No Ice	13.60	13.60	465
			0.00			1/2" Ice	18.40	18.40	600
			0.00						
12' T-Frame (Nextel)	B	From Leg	1.50	0.0000	236.00	No Ice	13.60	13.60	465
			0.00			1/2" Ice	18.40	18.40	600
			0.00						
12' T-Frame (Nextel)	C	From Leg	1.50	0.0000	236.00	No Ice	13.60	13.60	465
			0.00			1/2" Ice	18.40	18.40	600
			0.00						
OGC9-825	A	From Leg	3.00	0.0000	255.00	No Ice	2.10	2.10	16
			0.00			1/2" Ice	3.18	3.18	32
			0.00						
DB810K	A	From Leg	3.00	0.0000	255.00	No Ice	4.08	4.08	35
			0.00			1/2" Ice	5.73	5.73	65
			0.00						
3' Sidearm	A	From Leg	1.50	0.0000	255.00	No Ice	5.90	5.90	130
			0.00			1/2" Ice	6.60	6.60	146
			0.00						
2" Dia 8' Omni	C	From Leg	1.50	0.0000	277.00	No Ice	2.00	2.00	5
			0.00			1/2" Ice	3.03	3.03	18
			0.00						
2" Dia 6' Omni	C	From Leg	3.00	0.0000	277.00	No Ice	1.20	1.20	5
			0.00			1/2" Ice	1.80	1.80	14
			0.00						
6' Side-Arm	C	From Leg	3.00	0.0000	277.00	No Ice	10.60	10.60	140
			0.00			1/2" Ice	15.40	15.40	212
			0.00						
6' Side-Arm	C	From Leg	3.00	0.0000	277.00	No Ice	10.60	10.60	140
			0.00			1/2" Ice	15.40	15.40	212
			0.00						
4"x15' Omni	A	None		0.0000	288.00	No Ice	1.63	1.63	28
						1/2" Ice	1.94	1.94	42
5'x6'x1" Panel	A	None		0.0000	295.00	No Ice	42.00	0.83	92
						1/2" Ice	42.86	1.40	240
Flash Beacon Lighting	B	None		0.0000	323.00	No Ice	2.70	2.70	50

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
						1/2" Ice	3.10	3.10	70
Lightning Rod 5/8x4'	A	From Face	0.00 0.00 0.00	0.0000	325.00	No Ice 1/2" Ice	0.25 0.66	0.25 0.66	31 34
SC479-HF1LDF (CSP-51)	C	From Leg	2.00 0.00 0.00	0.0000	240.00	No Ice 1/2" Ice	5.06 6.54	5.06 6.54	34 70
SC479-HF1LDF (CSP-52)	A	From Leg	2.00 0.00 0.00	0.0000	240.00	No Ice 1/2" Ice	5.06 6.54	5.06 6.54	34 70
TTA 432-83H-01T (CSP-53)	C	From Leg	2.00 0.00 0.00	0.0000	240.00	No Ice 1/2" Ice	1.63 1.81	0.95 1.09	25 37
SC479-HF1LDF (CSP-54)	A	From Leg	2.00 0.00 0.00	0.0000	240.00	No Ice 1/2" Ice	5.06 6.54	5.06 6.54	34 70
SC479-HF1LDF (CSP-55)	C	From Leg	2.00 0.00 0.00	0.0000	240.00	No Ice 1/2" Ice	5.06 6.54	5.06 6.54	34 70
SC479-HF1LDF (CSP-56)	A	From Leg	2.00 0.00 0.00	0.0000	240.00	No Ice 1/2" Ice	5.06 6.54	5.06 6.54	34 70
TTA 432-83H-01T (CSP-57)	A	From Leg	2.00 0.00 0.00	0.0000	240.00	No Ice 1/2" Ice	1.63 1.81	0.95 1.09	25 37
OGT9-840 (CSP-11)	B	From Leg	2.00 0.00 0.00	0.0000	250.00	No Ice 1/2" Ice	2.27 3.44	2.27 3.44	19 36
SC479-HF1LDF (CSP-45)	C	From Leg	2.00 0.00 0.00	0.0000	250.00	No Ice 1/2" Ice	5.06 6.54	5.06 6.54	34 70
SC479-HF1LDF (CSP-46)	A	From Leg	2.00 0.00 0.00	0.0000	250.00	No Ice 1/2" Ice	5.06 6.54	5.06 6.54	34 70
TTA 432-83H-01T (CSP-47)	B	From Leg	2.00 0.00 0.00	0.0000	250.00	No Ice 1/2" Ice	1.63 1.81	0.95 1.09	25 37
SE419-SF3P4LDF (CSP-48)	C	From Leg	2.00 0.00 0.00	0.0000	250.00	No Ice 1/2" Ice	4.12 5.11	9.55 10.19	24 67
SC479-HF1LDF (CSP-49)	A	From Leg	2.00 0.00 0.00	0.0000	250.00	No Ice 1/2" Ice	5.06 6.54	5.06 6.54	34 70
TTA 432-83H-01T (CSP-50)	B	From Leg	2.00 0.00 0.00	0.0000	250.00	No Ice 1/2" Ice	1.63 1.81	0.95 1.09	25 37
DB809T3-Y (CSP-7)	C	From Leg	2.00 0.00 0.00	0.0000	255.00	No Ice 1/2" Ice	2.53 3.83	2.53 3.83	25 45
AP14-850/105 (CSP-6)	A	From Leg	2.00 0.00 0.00	0.0000	255.00	No Ice 1/2" Ice	10.61 11.25	5.64 6.28	27 78
AP14-850/105 (CSP-4)	B	From Leg	2.00 0.00 0.00	0.0000	260.00	No Ice 1/2" Ice	10.61 11.25	5.64 6.28	27 78
DB810K (CSP-5)	C	From Leg	2.00 0.00	0.0000	260.00	No Ice 1/2" Ice	4.08 5.73	4.08 5.73	35 65

Description	Face or Leg	Offset Type	Offsets: Horz Lateral / Vert (ft / ft / ft)	Azimuth Adjustment (°)	Placement (ft)	C_AA_A Front (ft^2)	C_AA_A Side (ft^2)	Weight (lb)
			0.00					

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral / Vert (ft)	Azimuth Adjustment (°)	3 dB Beam Width (°)	Elevation (ft)	Outside Diameter (ft)		Aperture Area (ft^2)	Weight (lb)
1.2M	C	Paraboloid w/o Radome	From Leg	2.00 0.00 0.00	0.0000		13.00	4.00	No Ice 1/2" Ice	12.17 13.09	165 232
6 FT DISH	C	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	-30.0000		104.00	6.00	No Ice 1/2" Ice	28.27 29.05	143 292
6 FT DISH	C	Paraboloid w/Shroud (HP)	From Leg	1.00 0.00 0.00	0.0000		116.00	6.00	No Ice 1/2" Ice	28.27 29.05	143 292
6 FT DISH	A	Paraboloid w/o Radome	From Leg	1.00 0.00 0.00	0.0000		116.00	6.00	No Ice 1/2" Ice	28.27 29.05	143 292
5' Grid Dish	A	Grid	From Leg	1.00 0.00 0.00	0.0000		171.50	5.00	No Ice 1/2" Ice	19.63 20.29	95 199
**********											
6 FT DISH (CSP - Future)	A	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	0.0000		290.00	6.00	No Ice 1/2" Ice	28.27 29.05	143 292
6 FT DISH (CSP - Future)	B	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	0.0000		290.00	6.00	No Ice 1/2" Ice	28.27 29.05	143 292
6 FT DISH (CSP - Future)	C	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	0.0000		290.00	6.00	No Ice 1/2" Ice	28.27 29.05	143 292

Tower Pressures - No Ice

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

Section Elevation (ft)	z (ft)	K_Z	q_z (psf)	A_G (ft^2)	Face	A_F (ft^2)	A_R (ft^2)	A_{leg} (ft^2)	Leg %	C_AA_A In Face (ft^2)	C_AA_A Out Face (ft^2)
L1	309.49	1.896	39	31.497	A	0.000	31.497	31.497	100.00	0.000	0.000
327.00-291.84					B	0.000	31.497		100.00	0.000	0.000
					C	0.000	31.497		100.00	0.000	0.000
T1	285.84	1.853	38	46.004	A	3.500	8.038	4.000	34.67	0.000	0.000

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
291.84-279.84					B	3.500	6.948		38.28	0.000	0.000
					C	3.500	7.531		36.26	0.000	0.000
T2	269.84	1.823	38	76.673	A	0.000	15.287	6.667	43.61	0.000	0.000
279.84-259.84					B	0.000	14.877		44.81	0.000	0.000
					C	0.000	12.544		53.15	0.000	0.000
T3	249.84	1.783	37	77.090	A	3.479	17.169	7.500	36.32	0.000	0.000
259.84-239.84					B	3.479	41.903		16.53	0.000	0.000
					C	3.479	13.188		45.00	0.000	0.000
T4	229.84	1.741	36	77.090	A	0.000	29.155	7.500	25.72	0.000	0.000
239.84-219.84					B	0.000	54.938		13.65	0.000	0.000
					C	0.000	43.174		17.37	0.000	0.000
T5	209.84	1.696	35	77.507	A	3.459	32.500	8.333	23.17	0.000	0.000
219.84-199.84					B	3.459	58.283		13.50	0.000	0.000
					C	3.459	48.162		16.14	0.000	0.000
T6	189.84	1.649	34	77.507	A	0.000	37.201	8.333	22.40	0.000	0.000
199.84-179.84					B	0.000	62.985		13.23	0.000	0.000
					C	0.000	55.316		15.07	0.000	0.000
T7	169.84	1.597	33	77.923	A	3.438	46.504	9.167	18.35	0.000	0.000
179.84-159.84					B	3.438	74.019		11.83	0.000	0.000
					C	3.438	65.427		13.31	0.000	0.000
T8	149.84	1.541	32	77.507	A	0.000	46.261	8.333	18.01	0.000	0.000
159.84-139.84					B	0.000	74.911		11.12	0.000	0.000
					C	0.000	67.640		12.32	0.000	0.000
T9	129.84	1.479	31	77.923	A	0.000	46.876	9.167	19.56	0.000	0.000
139.84-119.84					B	0.000	75.526		12.14	0.000	0.000
					C	0.000	68.302		13.42	0.000	0.000
T10	109.84	1.41	29	77.923	A	3.438	48.271	9.167	17.73	0.000	0.000
119.84-99.84					B	3.438	75.817		11.57	0.000	0.000
					C	3.438	73.379		11.93	0.000	0.000
T11	89.84	1.331	28	78.340	A	0.000	59.459	10.000	16.82	0.000	0.000
99.84-79.84					B	0.743	76.620		12.93	0.000	0.000
					C	0.743	78.005		12.70	0.000	0.000
T12	69.84	1.239	26	78.340	A	0.000	95.995	10.000	10.42	0.000	0.000
79.84-59.84					B	1.050	76.328		12.92	0.000	0.000
					C	1.050	78.020		12.65	0.000	0.000
T13	49.84	1.125	23	78.340	A	3.417	95.710	10.000	10.09	0.000	0.000
59.84-39.84					B	4.467	76.043		12.42	0.000	0.000
					C	4.467	77.735		12.17	0.000	0.000
T14	29.84	1	21	78.340	A	0.000	95.995	10.000	10.42	0.000	0.000
39.84-19.84					B	1.050	76.328		12.92	0.000	0.000
					C	1.050	78.020		12.65	0.000	0.000
T15 19.84-6.50	13.17	1	21	52.253	A	0.683	64.027	6.670	10.31	0.000	0.000
					B	0.700	50.910		12.92	0.000	0.000
					C	1.383	52.642		12.35	0.000	0.000
T16 6.50-0.00	3.25	1	21	13.606	A	6.193	9.523	3.418	21.75	0.000	0.000
					B	6.115	8.048		24.13	0.000	0.000
					C	6.272	8.190		23.64	0.000	0.000

Tower Pressure - With Ice

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

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1	309.49	1.896	39	0.5000	34.428	A	0.000	34.428	34.428	100.00	0.000	0.000
327.00-291.84						B	0.000	34.428		100.00	0.000	0.000
						C	0.000	34.428		100.00	0.000	0.000
T1	285.84	1.853	38	0.5000	47.004	A	3.500	13.712	6.000	34.86	0.000	0.000
291.84-279.84						B	3.500	11.622		39.68	0.000	0.000
						C	3.500	12.789		36.83	0.000	0.000
T2	269.84	1.823	38	0.5000	78.340	A	1.802	24.932	10.000	37.41	0.000	0.000
279.84-259.84						B	4.291	19.654		41.76	0.000	0.000
						C	0.000	20.868		47.92	0.000	0.000
T3	249.84	1.783	37	0.5000	78.757	A	6.646	27.193	10.833	32.01	0.000	0.000
259.84-239.84						B	43.230	24.601		15.97	0.000	0.000
						C	3.638	21.393		43.28	0.000	0.000
T4	229.84	1.741	36	0.5000	78.757	A	16.239	32.826	10.833	22.08	0.000	0.000
239.84-219.84						B	53.873	31.593		12.68	0.000	0.000
						C	31.906	34.629		16.28	0.000	0.000
T5	209.84	1.696	35	0.5000	79.173	A	22.559	34.569	11.667	20.42	0.000	0.000
219.84-199.84						B	60.192	33.336		12.47	0.000	0.000
						C	38.225	39.259		15.06	0.000	0.000
T6	189.84	1.649	34	0.5000	79.173	A	24.745	36.149	11.667	19.16	0.000	0.000
199.84-179.84						B	62.378	34.915		11.99	0.000	0.000
						C	40.411	45.541		13.57	0.000	0.000
T7	169.84	1.597	33	0.5000	79.590	A	37.438	40.315	12.500	16.08	0.000	0.000
179.84-159.84						B	75.071	42.813		10.60	0.000	0.000
						C	53.751	50.854		11.95	0.000	0.000
T8	149.84	1.541	32	0.5000	79.173	A	34.000	41.522	11.667	15.45	0.000	0.000
159.84-139.84						B	71.633	46.488		9.88	0.000	0.000
						C	51.767	56.531		10.77	0.000	0.000
T9	129.84	1.479	31	0.5000	79.590	A	34.000	42.354	12.500	16.37	0.000	0.000
139.84-119.84						B	71.633	47.321		10.51	0.000	0.000
						C	51.767	57.490		11.44	0.000	0.000
T10	109.84	1.41	29	0.5000	79.590	A	37.438	44.760	12.500	15.21	0.000	0.000
119.84-99.84						B	75.071	47.609		10.19	0.000	0.000
						C	58.671	62.137		10.35	0.000	0.000
T11 99.84-79.84	89.84	1.331	28	0.5000	80.007	A	49.028	47.791	13.333	13.77	0.000	0.000
						B	73.163	48.390		10.97	0.000	0.000
						C	57.587	69.053		10.53	0.000	0.000
T12 79.84-59.84	69.84	1.239	26	0.5000	80.007	A	106.250	50.862	13.333	8.49	0.000	0.000
						B	73.794	48.095		10.94	0.000	0.000
						C	58.218	69.551		10.44	0.000	0.000
T13 59.84-39.84	49.84	1.125	23	0.5000	80.007	A	109.667	50.577	13.333	8.32	0.000	0.000
						B	77.211	47.811		10.66	0.000	0.000
						C	61.635	69.267		10.19	0.000	0.000
T14 39.84-19.84	29.84	1	21	0.5000	80.007	A	106.250	50.862	13.333	8.49	0.000	0.000
						B	73.794	48.095		10.94	0.000	0.000
						C	58.218	69.551		10.44	0.000	0.000
T15 19.84-6.50	13.17	1	21	0.5000	53.364	A	72.254	33.923	8.893	8.38	0.000	0.000
						B	49.221	32.077		10.94	0.000	0.000
						C	40.216	47.950		10.09	0.000	0.000
T16 6.50-0.00	3.25	1	21	0.5000	14.169	A	14.324	7.301	4.557	21.07	0.000	0.000
						B	11.570	7.093		24.42	0.000	0.000
						C	10.722	8.778		23.37	0.000	0.000

Tower Pressure - Service

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

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1	309.49	1.896	39	31.497	A	0.000	31.497	31.497	100.00	0.000	0.000
327.00-291.84					B	0.000	31.497		100.00	0.000	0.000
					C	0.000	31.497		100.00	0.000	0.000
T1	285.84	1.853	38	46.004	A	3.500	8.038	4.000	34.67	0.000	0.000
291.84-279.84					B	3.500	6.948		38.28	0.000	0.000
					C	3.500	7.531		36.26	0.000	0.000
T2	269.84	1.823	38	76.673	A	0.000	15.287	6.667	43.61	0.000	0.000
279.84-259.84					B	0.000	14.877		44.81	0.000	0.000
					C	0.000	12.544		53.15	0.000	0.000
T3	249.84	1.783	37	77.090	A	3.479	17.169	7.500	36.32	0.000	0.000
259.84-239.84					B	3.479	41.903		16.53	0.000	0.000
					C	3.479	13.188		45.00	0.000	0.000
T4	229.84	1.741	36	77.090	A	0.000	29.155	7.500	25.72	0.000	0.000
239.84-219.84					B	0.000	54.938		13.65	0.000	0.000
					C	0.000	43.174		17.37	0.000	0.000
T5	209.84	1.696	35	77.507	A	3.459	32.500	8.333	23.17	0.000	0.000
219.84-199.84					B	3.459	58.283		13.50	0.000	0.000
					C	3.459	48.162		16.14	0.000	0.000
T6	189.84	1.649	34	77.507	A	0.000	37.201	8.333	22.40	0.000	0.000
199.84-179.84					B	0.000	62.985		13.23	0.000	0.000
					C	0.000	55.316		15.07	0.000	0.000
T7	169.84	1.597	33	77.923	A	3.438	46.504	9.167	18.35	0.000	0.000
179.84-159.84					B	3.438	74.019		11.83	0.000	0.000
					C	3.438	65.427		13.31	0.000	0.000
T8	149.84	1.541	32	77.507	A	0.000	46.261	8.333	18.01	0.000	0.000
159.84-139.84					B	0.000	74.911		11.12	0.000	0.000
					C	0.000	67.640		12.32	0.000	0.000
T9	129.84	1.479	31	77.923	A	0.000	46.876	9.167	19.56	0.000	0.000
139.84-119.84					B	0.000	75.526		12.14	0.000	0.000
					C	0.000	68.302		13.42	0.000	0.000
T10	109.84	1.41	29	77.923	A	3.438	48.271	9.167	17.73	0.000	0.000
119.84-99.84					B	3.438	75.817		11.57	0.000	0.000
					C	3.438	73.379		11.93	0.000	0.000
T11	89.84	1.331	28	78.340	A	0.000	59.459	10.000	16.82	0.000	0.000
99.84-79.84					B	0.743	76.620		12.93	0.000	0.000
					C	0.743	78.005		12.70	0.000	0.000
T12	69.84	1.239	26	78.340	A	0.000	95.995	10.000	10.42	0.000	0.000
79.84-59.84					B	1.050	76.328		12.92	0.000	0.000
					C	1.050	78.020		12.65	0.000	0.000
T13	49.84	1.125	23	78.340	A	3.417	95.710	10.000	10.09	0.000	0.000
59.84-39.84					B	4.467	76.043		12.42	0.000	0.000
					C	4.467	77.735		12.17	0.000	0.000
T14	29.84	1	21	78.340	A	0.000	95.995	10.000	10.42	0.000	0.000
39.84-19.84					B	1.050	76.328		12.92	0.000	0.000
					C	1.050	78.020		12.65	0.000	0.000
T15 19.84-6.50	13.17	1	21	52.253	A	0.683	64.027	6.670	10.31	0.000	0.000
					B	0.700	50.910		12.92	0.000	0.000
					C	1.383	52.642		12.35	0.000	0.000
T16 6.50-0.00	3.25	1	21	13.606	A	6.193	9.523	3.418	21.75	0.000	0.000
					B	6.115	8.048		24.13	0.000	0.000
					C	6.272	8.190		23.64	0.000	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
L1	0	3139	A	1	0.59	1	1	1	31.497	796	22.63	C
327.00-291.84			B	1	0.59	1	1	1	31.497			
			C	1	0.59	1	1	1	31.497			
T1	4	1165	A	0.251	2.435	0.602	1	1	8.340	850	70.85	A
291.84-279.84		TA 842	B	0.227	2.508	0.596	1	1	7.643			
			C	0.24	2.468	0.599	1	1	8.014			
T2	28	1298	A	0.199	2.598	0.59	1	1	9.024	965	48.27	A
279.84-259.84			B	0.194	2.616	0.589	1	1	8.765			
			C	0.164	2.722	0.584	1	1	7.321			
T3	164	1824	A	0.268	2.385	0.607	1	1	13.894	2537	126.86	B
259.84-239.84		TA 842	B	0.589	1.811	0.747	1	1	34.770			
			C	0.216	2.543	0.594	1	1	11.311			
T4	426	1468	A	0.378	2.109	0.643	1	1	18.745	3184	159.20	B
239.84-219.84			B	0.713	1.777	0.829	1	1	45.544			
			C	0.56	1.834	0.73	1	1	31.516			
T5	471	2101	A	0.464	1.951	0.68	1	1	25.551	3860	193.02	B
219.84-199.84		TA 842	B	0.797	1.814	0.894	1	1	55.543			
			C	0.666	1.778	0.796	1	1	41.806			
T6	555	1580	A	0.48	1.927	0.687	1	1	25.576	3884	194.19	B
199.84-179.84			B	0.813	1.826	0.907	1	1	57.114			
			C	0.714	1.777	0.83	1	1	45.899			
T7	685	2311	A	0.641	1.784	0.779	1	1	39.687	5622*	281.12	B
179.84-159.84		TA 842	B	0.994	2.088	1	1	1	77.457			
			C	0.884	1.902	0.968	1	1	66.791			
T8	709	1659	A	0.597	1.806	0.752	1	1	34.774	5302	265.12	B
159.84-139.84			B	0.967	2.033	1	1	1	74.911			
			C	0.873	1.888	0.958	1	1	64.827			
T9	711	1791	A	0.602	1.803	0.755	1	1	35.371	5144	257.22	B
139.84-119.84			B	0.969	2.039	1	1	1	75.526			
			C	0.877	1.893	0.962	1	1	65.695			
T10	734	2311	A	0.664	1.778	0.795	1	1	41.793	4964*	248.21	C
119.84-99.84		TA 842	B	1	2.1	1	1	1	79.255			
			C	0.986	2.071	1	1	1	76.817			
T11	802	2100	A	0.759	1.791	0.864	1	1	51.359	4712*	235.61	C
99.84-79.84			B	0.988	2.074	1	1	1	77.363			
			C	1	2.1	1	1	1	78.749			
T12	992	2021	A	1	2.1	1	1	1	95.995	4385*	219.25	C
79.84-59.84			B	0.988	2.075	1	1	1	77.378			
			C	1	2.1	1	1	1	79.070			
T13	992	2378	A	1	2.1	1	1	1	99.127	3982*	199.10	C
59.84-39.84		TA 842	B	1	2.1	1	1	1	80.510			
			C	1	2.1	1	1	1	82.202			
T14	992	2021	A	1	2.1	1	1	1	95.995	3540*	176.98	C
39.84-19.84			B	0.988	2.075	1	1	1	77.378			
			C	1	2.1	1	1	1	79.070			
T15	665	1348	A	1	2.1	1	1	1	64.710	2361*	176.98	C
19.84-6.50			B	0.988	2.075	1	1	1	51.610			
			C	1	2.1	1	1	1	54.025			
T16 6.50-0.00	75	811	A	1	2.1	1	1	1	15.716	615*	94.58	C
			B	1	2.1	1	1	1	14.163			
			C	1	2.1	1	1	1	14.462			
Sum Weight:	9004	36380			*$2A_g$ limit					56704		

Tower Forces - No Ice - Wind 45 To Face

tnxTower	Job: 327' Guyed Lattice Tower	Page: 26 of 82
URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT 06067 Phone: 860-529-8882 FAX: 860-529-3991	Project: North Eagleville Road Storrs, CT	Date: 15:16:12 07/17/13
	Client: Verizon Wireless	Designed by: Michael_Dalickas

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
L1	0	3139	A	1	0.59	1	1	1	31.497	796	22.63	C
327.00-291.84			B	1	0.59	1	1	1	31.497			
			C	1	0.59	1	1	1	31.497			
T1	4	1165	A	0.251	2.435	0.602	0.825	1	7.727	788	65.64	A
291.84-279.84		TA 842	B	0.227	2.508	0.596	0.825	1	7.031			
			C	0.24	2.468	0.599	0.825	1	7.402			
T2	28	1298	A	0.199	2.598	0.59	0.825	1	9.024	965	48.27	A
279.84-259.84			B	0.194	2.616	0.589	0.825	1	8.765			
			C	0.164	2.722	0.584	0.825	1	7.321			
T3	164	1824	A	0.268	2.385	0.607	0.825	1	13.285	2493	124.64	B
259.84-239.84		TA 842	B	0.589	1.811	0.747	0.825	1	34.161			
			C	0.216	2.543	0.594	0.825	1	10.702			
T4	426	1468	A	0.378	2.109	0.643	0.825	1	18.745	3184	159.20	B
239.84-219.84			B	0.713	1.777	0.829	0.825	1	45.544			
			C	0.56	1.834	0.73	0.825	1	31.516			
T5	471	2101	A	0.464	1.951	0.68	0.825	1	24.946	3818	190.91	B
219.84-199.84		TA 842	B	0.797	1.814	0.894	0.825	1	54.938			
			C	0.666	1.778	0.796	0.825	1	41.201			
T6	555	1580	A	0.48	1.927	0.687	0.825	1	25.576	3884	194.19	B
199.84-179.84			B	0.813	1.826	0.907	0.825	1	57.114			
			C	0.714	1.777	0.83	0.825	1	45.899			
T7	685	2311	A	0.641	1.784	0.779	0.825	1	39.085	5622*	281.12	B
179.84-159.84		TA 842	B	0.994	2.088	1	0.825	1	76.855			
			C	0.884	1.902	0.968	0.825	1	66.190			
T8	709	1659	A	0.597	1.806	0.752	0.825	1	34.774	5302	265.12	B
159.84-139.84			B	0.967	2.033	1	0.825	1	74.911			
			C	0.873	1.888	0.958	0.825	1	64.827			
T9	711	1791	A	0.602	1.803	0.755	0.825	1	35.371	5144	257.22	B
139.84-119.84			B	0.969	2.039	1	0.825	1	75.526			
			C	0.877	1.893	0.962	0.825	1	65.695			
T10	734	2311	A	0.664	1.778	0.795	0.825	1	41.192	4964*	248.21	C
119.84-99.84		TA 842	B	1	2.1	1	0.825	1	78.653			
			C	0.986	2.071	1	0.825	1	76.215			
T11	802	2100	A	0.759	1.791	0.864	0.825	1	51.359	4712*	235.61	C
99.84-79.84			B	0.988	2.074	1	0.825	1	77.233			
			C	1	2.1	1	0.825	1	78.619			
T12	992	2021	A	1	2.1	1	0.825	1	95.995	4385*	219.25	C
79.84-59.84			B	0.988	2.075	1	0.825	1	77.194			
			C	1	2.1	1	0.825	1	78.886			
T13	992	2378	A	1	2.1	1	0.825	1	98.529	3982*	199.10	C
59.84-39.84		TA 842	B	1	2.1	1	0.825	1	79.728			
			C	1	2.1	1	0.825	1	81.421			
T14	992	2021	A	1	2.1	1	0.825	1	95.995	3540*	176.98	C
39.84-19.84			B	0.988	2.075	1	0.825	1	77.194			
			C	1	2.1	1	0.825	1	78.886			
T15	665	1348	A	1	2.1	1	0.825	1	64.590	2361*	176.98	C
19.84-6.50			B	0.988	2.075	1	0.825	1	51.487			
			C	1	2.1	1	0.825	1	53.783			
T16 6.50-0.00	75	811	A	1	2.1	1	0.825	1	14.633	615*	94.58	C
			B	1	2.1	1	0.825	1	13.093			
			C	1	2.1	1	0.825	1	13.364			
Sum Weight:	9004	36380			*$2A_g$ limit					56556		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
L1	0	3139	A	1	0.59	1	1	1	31.497	796	22.63	C
327.00-291.84			B	1	0.59	1	1	1	31.497			
			C	1	0.59	1	1	1	31.497			
T1	4	1165	A	0.251	2.435	0.602	0.8	1	7.640	779	64.90	A
291.84-279.84		TA 842	B	0.227	2.508	0.596	0.8	1	6.943			
			C	0.24	2.468	0.599	0.8	1	7.314			
T2	28	1298	A	0.199	2.598	0.59	0.8	1	9.024	965	48.27	A
279.84-259.84			B	0.194	2.616	0.589	0.8	1	8.765			
			C	0.164	2.722	0.584	0.8	1	7.321			
T3	164	1824	A	0.268	2.385	0.607	0.8	1	13.198	2486	124.32	B
259.84-239.84		TA 842	B	0.589	1.811	0.747	0.8	1	34.074			
			C	0.216	2.543	0.594	0.8	1	10.615			
T4	426	1468	A	0.378	2.109	0.643	0.8	1	18.745	3184	159.20	B
239.84-219.84			B	0.713	1.777	0.829	0.8	1	45.544			
			C	0.56	1.834	0.73	0.8	1	31.516			
T5	471	2101	A	0.464	1.951	0.68	0.8	1	24.860	3812	190.61	B
219.84-199.84		TA 842	B	0.797	1.814	0.894	0.8	1	54.851			
			C	0.666	1.778	0.796	0.8	1	41.115			
T6	555	1580	A	0.48	1.927	0.687	0.8	1	25.576	3884	194.19	B
199.84-179.84			B	0.813	1.826	0.907	0.8	1	57.114			
			C	0.714	1.777	0.83	0.8	1	45.899			
T7	685	2311	A	0.641	1.784	0.779	0.8	1	38.999	5622*	281.12	B
179.84-159.84		TA 842	B	0.994	2.088	1	0.8	1	76.769			
			C	0.884	1.902	0.968	0.8	1	66.104			
T8	709	1659	A	0.597	1.806	0.752	0.8	1	34.774	5302	265.12	B
159.84-139.84			B	0.967	2.033	1	0.8	1	74.911			
			C	0.873	1.888	0.958	0.8	1	64.827			
T9	711	1791	A	0.602	1.803	0.755	0.8	1	35.371	5144	257.22	B
139.84-119.84			B	0.969	2.039	1	0.8	1	75.526			
			C	0.877	1.893	0.962	0.8	1	65.695			
T10	734	2311	A	0.664	1.778	0.795	0.8	1	41.106	4964*	248.21	C
119.84-99.84		TA 842	B	1	2.1	1	0.8	1	78.567			
			C	0.986	2.071	1	0.8	1	76.129			
T11	802	2100	A	0.759	1.791	0.864	0.8	1	51.359	4712*	235.61	C
99.84-79.84			B	0.988	2.074	1	0.8	1	77.215			
			C	1	2.1	1	0.8	1	78.600			
T12	992	2021	A	1	2.1	1	0.8	1	95.995	4385*	219.25	C
79.84-59.84			B	0.988	2.075	1	0.8	1	77.168			
			C	1	2.1	1	0.8	1	78.860			
T13	992	2378	A	1	2.1	1	0.8	1	98.443	3982*	199.10	C
59.84-39.84		TA 842	B	1	2.1	1	0.8	1	79.617			
			C	1	2.1	1	0.8	1	81.309			
T14	992	2021	A	1	2.1	1	0.8	1	95.995	3540*	176.98	C
39.84-19.84			B	0.988	2.075	1	0.8	1	77.168			
			C	1	2.1	1	0.8	1	78.860			
T15	665	1348	A	1	2.1	1	0.8	1	64.573	2361*	176.98	C
19.84-6.50			B	0.988	2.075	1	0.8	1	51.470			
			C	1	2.1	1	0.8	1	53.748			
T16 6.50-0.00	75	811	A	1	2.1	1	0.8	1	14.478	615*	94.58	C
			B	1	2.1	1	0.8	1	12.940			
			C	1	2.1	1	0.8	1	13.207			
Sum Weight:	9004	36380			*2A_g limit					56534		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
L1	0	3139	A	1	0.59	1	1	1	31.497	796	22.63	C
327.00-291.84			B	1	0.59	1	1	1	31.497			
			C	1	0.59	1	1	1	31.497			
T1	4	1165	A	0.251	2.435	0.602	0.85	1	7.815	797	66.39	A
291.84-279.84		TA 842	B	0.227	2.508	0.596	0.85	1	7.118			
			C	0.24	2.468	0.599	0.85	1	7.489			
T2	28	1298	A	0.199	2.598	0.59	0.85	1	9.024	965	48.27	A
279.84-259.84			B	0.194	2.616	0.589	0.85	1	8.765			
			C	0.164	2.722	0.584	0.85	1	7.321			
T3	164	1824	A	0.268	2.385	0.607	0.85	1	13.372	2499	124.96	B
259.84-239.84		TA 842	B	0.589	1.811	0.747	0.85	1	34.248			
			C	0.216	2.543	0.594	0.85	1	10.789			
T4	426	1468	A	0.378	2.109	0.643	0.85	1	18.745	3184	159.20	B
239.84-219.84			B	0.713	1.777	0.829	0.85	1	45.544			
			C	0.56	1.834	0.73	0.85	1	31.516			
T5	471	2101	A	0.464	1.951	0.68	0.85	1	25.033	3824	191.21	B
219.84-199.84		TA 842	B	0.797	1.814	0.894	0.85	1	55.024			
			C	0.666	1.778	0.796	0.85	1	41.288			
T6	555	1580	A	0.48	1.927	0.687	0.85	1	25.576	3884	194.19	B
199.84-179.84			B	0.813	1.826	0.907	0.85	1	57.114			
			C	0.714	1.777	0.83	0.85	1	45.899			
T7	685	2311	A	0.641	1.784	0.779	0.85	1	39.171	5622*	281.12	B
179.84-159.84		TA 842	B	0.994	2.088	1	0.85	1	76.941			
			C	0.884	1.902	0.968	0.85	1	66.276			
T8	709	1659	A	0.597	1.806	0.752	0.85	1	34.774	5302	265.12	B
159.84-139.84			B	0.967	2.033	1	0.85	1	74.911			
			C	0.873	1.888	0.958	0.85	1	64.827			
T9	711	1791	A	0.602	1.803	0.755	0.85	1	35.371	5144	257.22	B
139.84-119.84			B	0.969	2.039	1	0.85	1	75.526			
			C	0.877	1.893	0.962	0.85	1	65.695			
T10	734	2311	A	0.664	1.778	0.795	0.85	1	41.278	4964*	248.21	C
119.84-99.84		TA 842	B	1	2.1	1	0.85	1	78.739			
			C	0.986	2.071	1	0.85	1	76.301			
T11	802	2100	A	0.759	1.791	0.864	0.85	1	51.359	4712*	235.61	C
99.84-79.84			B	0.988	2.074	1	0.85	1	77.252			
			C	1	2.1	1	0.85	1	78.637			
T12	992	2021	A	1	2.1	1	0.85	1	95.995	4385*	219.25	C
79.84-59.84			B	0.988	2.075	1	0.85	1	77.220			
			C	1	2.1	1	0.85	1	78.912			
T13	992	2378	A	1	2.1	1	0.85	1	98.614	3982*	199.10	C
59.84-39.84		TA 842	B	1	2.1	1	0.85	1	79.840			
			C	1	2.1	1	0.85	1	81.532			
T14	992	2021	A	1	2.1	1	0.85	1	95.995	3540*	176.98	C
39.84-19.84			B	0.988	2.075	1	0.85	1	77.220			
			C	1	2.1	1	0.85	1	78.912			
T15	665	1348	A	1	2.1	1	0.85	1	64.607	2361*	176.98	C
19.84-6.50			B	0.988	2.075	1	0.85	1	51.505			
			C	1	2.1	1	0.85	1	53.817			
T16 6.50-0.00	75	811	A	1	2.1	1	0.85	1	14.787	615*	94.58	C
			B	1	2.1	1	0.85	1	13.245			
			C	1	2.1	1	0.85	1	13.521			
Sum Weight:	9004	36380			*$2A_g$ limit					56577		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
L1	0	3381	A	1	0.59	1	1	1	34.428	870	24.74	C
327.00-291.84			B	1	0.59	1	1	1	34.428			
			C	1	0.59	1	1	1	34.428			
T1	16	1411	A	0.366	2.135	0.638	1	1	12.254	1095	91.26	A
291.84-279.84		TA 1036	B	0.322	2.24	0.623	1	1	10.738			
			C	0.347	2.18	0.631	1	1	11.573			
T2	113	1562	A	0.341	2.192	0.629	1	1	17.494	1579	78.96	A
279.84-259.84			B	0.306	2.281	0.618	1	1	16.430			
			C	0.266	2.389	0.606	1	1	12.650			
T3	618	2177	A	0.43	2.008	0.664	1	1	24.707	5025	251.24	B
259.84-239.84		TA 1036	B	0.861	1.874	0.948	1	1	66.560			
			C	0.318	2.25	0.622	1	1	16.934			
T4	1556	1742	A	0.623	1.792	0.768	1	1	41.448	6196*	309.78	B
239.84-219.84			B	1	2.1	1	1	1	85.466			
			C	0.845	1.856	0.934	1	1	64.250			
T5	1713	2469	A	0.722	1.779	0.836	1	1	51.442	6068*	303.42	C
219.84-199.84		TA 1036	B	1	2.1	1	1	1	93.528			
			C	0.979	2.057	1	1	1	77.485			
T6	2011	1856	A	0.769	1.796	0.872	1	1	56.255	5897*	294.86	C
199.84-179.84			B	1	2.1	1	1	1	97.293			
			C	1	2.1	1	1	1	85.952			
T7	2480	2688	A	0.977	2.053	1	1	1	77.753	5743*	287.14	C
179.84-159.84		TA 1036	B	1	2.1	1	1	1	117.884			
			C	1	2.1	1	1	1	104.606			
T8	2577	1941	A	0.954	2.01	1	1	1	75.522	5512*	275.59	C
159.84-139.84			B	1	2.1	1	1	1	118.122			
			C	1	2.1	1	1	1	108.298			
T9	2585	2076	A	0.959	2.02	1	1	1	76.354	5319*	265.93	C
139.84-119.84			B	1	2.1	1	1	1	118.954			
			C	1	2.1	1	1	1	109.256			
T10	2675	2688	A	1	2.1	1	1	1	82.198	5070*	253.52	C
119.84-99.84		TA 1036	B	1	2.1	1	1	1	122.680			
			C	1	2.1	1	1	1	120.808			
T11	2935	2401	A	1	2.1	1	1	1	96.819	4812*	240.62	C
99.84-79.84			B	1	2.1	1	1	1	121.554			
			C	1	2.1	1	1	1	126.640			
T12	3637	2316	A	1	2.1	1	1	1	157.112	4478*	223.92	C
79.84-59.84			B	1	2.1	1	1	1	121.890			
			C	1	2.1	1	1	1	127.769			
T13	3637	2750	A	1	2.1	1	1	1	160.244	4067*	203.34	C
59.84-39.84		TA 1036	B	1	2.1	1	1	1	125.022			
			C	1	2.1	1	1	1	130.902			
T14	3637	2316	A	1	2.1	1	1	1	157.112	3615*	180.74	C
39.84-19.84			B	1	2.1	1	1	1	121.890			
			C	1	2.1	1	1	1	127.769			
T15	2446	1544	A	1	2.1	1	1	1	106.176	2411*	180.74	C
19.84-6.50			B	1	2.1	1	1	1	81.298			
			C	1	2.1	1	1	1	88.167			
T16 6.50-0.00	276	962	A	1	2.1	1	1	1	21.625	640*	98.49	C
			B	1	2.1	1	1	1	18.664			
			C	1	2.1	1	1	1	19.500			
Sum Weight:	32910	42494			*2A_g limit					68397		

Tower Forces - With Ice - Wind 45 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
L1	0	3381	A	1	0.59	1	1	1	34.428	870	24.74	C
327.00-291.84			B	1	0.59	1	1	1	34.428			
			C	1	0.59	1	1	1	34.428			
T1	16	1411	A	0.366	2.135	0.638	0.825	1	11.641	1040	86.70	A
291.84-279.84		TA 1036	B	0.322	2.24	0.623	0.825	1	10.126			
			C	0.347	2.18	0.631	0.825	1	10.961			
T2	113	1562	A	0.341	2.192	0.629	0.825	1	17.178	1551	77.53	A
279.84-259.84			B	0.306	2.281	0.618	0.825	1	15.680			
			C	0.266	2.389	0.606	0.825	1	12.650			
T3	618	2177	A	0.43	2.008	0.664	0.825	1	23.544	4454	222.69	B
259.84-239.84		TA 1036	B	0.861	1.874	0.948	0.825	1	58.994			
			C	0.318	2.25	0.622	0.825	1	16.298			
T4	1556	1742	A	0.623	1.792	0.768	0.825	1	38.606	6196*	309.78	B
239.84-219.84			B	1	2.1	1	0.825	1	76.038			
			C	0.845	1.856	0.934	0.825	1	58.666			
T5	1713	2469	A	0.722	1.779	0.836	0.825	1	47.495	6068*	303.42	B
219.84-199.84		TA 1036	B	1	2.1	1	0.825	1	82.994			
			C	0.979	2.057	1	0.825	1	70.795			
T6	2011	1856	A	0.769	1.796	0.872	0.825	1	51.924	5897*	294.86	C
199.84-179.84			B	1	2.1	1	0.825	1	86.377			
			C	1	2.1	1	0.825	1	78.880			
T7	2480	2688	A	0.977	2.053	1	0.825	1	71.201	5743*	287.14	C
179.84-159.84		TA 1036	B	1	2.1	1	0.825	1	104.746			
			C	1	2.1	1	0.825	1	95.199			
T8	2577	1941	A	0.954	2.01	1	0.825	1	69.572	5512*	275.59	C
159.84-139.84			B	1	2.1	1	0.825	1	105.586			
			C	1	2.1	1	0.825	1	99.238			
T9	2585	2076	A	0.959	2.02	1	0.825	1	70.404	5319*	265.93	C
139.84-119.84			B	1	2.1	1	0.825	1	106.418			
			C	1	2.1	1	0.825	1	100.197			
T10	2675	2688	A	1	2.1	1	0.825	1	75.646	5070*	253.52	C
119.84-99.84		TA 1036	B	1	2.1	1	0.825	1	109.542			
			C	1	2.1	1	0.825	1	110.540			
T11	2935	2401	A	1	2.1	1	0.825	1	88.239	4812*	240.62	C
99.84-79.84			B	1	2.1	1	0.825	1	108.750			
			C	1	2.1	1	0.825	1	116.562			
T12	3637	2316	A	1	2.1	1	0.825	1	138.518	4478*	223.92	C
79.84-59.84			B	1	2.1	1	0.825	1	108.976			
			C	1	2.1	1	0.825	1	117.581			
T13	3637	2750	A	1	2.1	1	0.825	1	141.052	4067*	203.34	C
59.84-39.84		TA 1036	B	1	2.1	1	0.825	1	111.510			
			C	1	2.1	1	0.825	1	120.116			
T14	3637	2316	A	1	2.1	1	0.825	1	138.518	3615*	180.74	C
39.84-19.84			B	1	2.1	1	0.825	1	108.976			
			C	1	2.1	1	0.825	1	117.581			
T15	2446	1544	A	1	2.1	1	0.825	1	93.532	2411*	180.74	C
19.84-6.50			B	1	2.1	1	0.825	1	72.685			
			C	1	2.1	1	0.825	1	81.129			
T16 6.50-0.00	276	962	A	1	2.1	1	0.825	1	19.118	640*	98.49	C
			B	1	2.1	1	0.825	1	16.639			
			C	1	2.1	1	0.825	1	17.624			
Sum Weight:	32910	42494			*2A_g limit					67743		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
L1	0	3381	A	1	0.59	1	1	1	34.428	870	24.74	C
327.00-291.84			B	1	0.59	1	1	1	34.428			
			C	1	0.59	1	1	1	34.428			
T1	16	1411	A	0.366	2.135	0.638	0.8	1	11.554	1033	86.05	A
291.84-279.84		TA 1036	B	0.322	2.24	0.623	0.8	1	10.038			
			C	0.347	2.18	0.631	0.8	1	10.873			
T2	113	1562	A	0.341	2.192	0.629	0.8	1	17.133	1547	77.33	A
279.84-259.84			B	0.306	2.281	0.618	0.8	1	15.572			
			C	0.266	2.389	0.606	0.8	1	12.650			
T3	618	2177	A	0.43	2.008	0.664	0.8	1	23.377	4372	218.61	B
259.84-239.84		TA 1036	B	0.861	1.874	0.948	0.8	1	57.914			
			C	0.318	2.25	0.622	0.8	1	16.207			
T4	1556	1742	A	0.623	1.792	0.768	0.8	1	38.200	6170	308.48	B
239.84-219.84			B	1	2.1	1	0.8	1	74.691			
			C	0.845	1.856	0.934	0.8	1	57.869			
T5	1713	2469	A	0.722	1.779	0.836	0.8	1	46.931	6068*	303.42	B
219.84-199.84		TA 1036	B	1	2.1	1	0.8	1	81.490			
			C	0.979	2.057	1	0.8	1	69.840			
T6	2011	1856	A	0.769	1.796	0.872	0.8	1	51.306	5897*	294.86	C
199.84-179.84			B	1	2.1	1	0.8	1	84.818			
			C	1	2.1	1	0.8	1	77.870			
T7	2480	2688	A	0.977	2.053	1	0.8	1	70.265	5743*	287.14	C
179.84-159.84		TA 1036	B	1	2.1	1	0.8	1	102.869			
			C	1	2.1	1	0.8	1	93.855			
T8	2577	1941	A	0.954	2.01	1	0.8	1	68.722	5512*	275.59	C
159.84-139.84			B	1	2.1	1	0.8	1	103.795			
			C	1	2.1	1	0.8	1	97.944			
T9	2585	2076	A	0.959	2.02	1	0.8	1	69.554	5319*	265.93	C
139.84-119.84			B	1	2.1	1	0.8	1	104.627			
			C	1	2.1	1	0.8	1	98.903			
T10	2675	2688	A	1	2.1	1	0.8	1	74.710	5070*	253.52	C
119.84-99.84		TA 1036	B	1	2.1	1	0.8	1	107.666			
			C	1	2.1	1	0.8	1	109.074			
T11	2935	2401	A	1	2.1	1	0.8	1	87.013	4812*	240.62	C
99.84-79.84			B	1	2.1	1	0.8	1	106.921			
			C	1	2.1	1	0.8	1	115.123			
T12	3637	2316	A	1	2.1	1	0.8	1	135.862	4478*	223.92	C
79.84-59.84			B	1	2.1	1	0.8	1	107.131			
			C	1	2.1	1	0.8	1	116.126			
T13	3637	2750	A	1	2.1	1	0.8	1	138.311	4067*	203.34	C
59.84-39.84		TA 1036	B	1	2.1	1	0.8	1	109.580			
			C	1	2.1	1	0.8	1	118.575			
T14	3637	2316	A	1	2.1	1	0.8	1	135.862	3615*	180.74	C
39.84-19.84			B	1	2.1	1	0.8	1	107.131			
			C	1	2.1	1	0.8	1	116.126			
T15	2446	1544	A	1	2.1	1	0.8	1	91.726	2411*	180.74	C
19.84-6.50			B	1	2.1	1	0.8	1	71.454			
			C	1	2.1	1	0.8	1	80.123			
T16 6.50-0.00	276	962	A	1	2.1	1	0.8	1	18.760	640*	98.49	C
			B	1	2.1	1	0.8	1	16.350			
			C	1	2.1	1	0.8	1	17.356			
Sum Weight:	32910	42494			*2A_g limit					67624		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
L1	0	3381	A	1	0.59	1	1	1	34.428	870	24.74	C
327.00-291.84			B	1	0.59	1	1	1	34.428			
			C	1	0.59	1	1	1	34.428			
T1	16	1411	A	0.366	2.135	0.638	0.85	1	11.729	1048	87.35	A
291.84-279.84		TA 1036	B	0.322	2.24	0.623	0.85	1	10.213			
			C	0.347	2.18	0.631	0.85	1	11.048			
T2	113	1562	A	0.341	2.192	0.629	0.85	1	17.223	1555	77.74	A
279.84-259.84			B	0.306	2.281	0.618	0.85	1	15.787			
			C	0.266	2.389	0.606	0.85	1	12.650			
T3	618	2177	A	0.43	2.008	0.664	0.85	1	23.710	4535	226.77	B
259.84-239.84		TA 1036	B	0.861	1.874	0.948	0.85	1	60.075			
			C	0.318	2.25	0.622	0.85	1	16.389			
T4	1556	1742	A	0.623	1.792	0.768	0.85	1	39.012	6196*	309.78	B
239.84-219.84			B	1	2.1	1	0.85	1	77.385			
			C	0.845	1.856	0.934	0.85	1	59.464			
T5	1713	2469	A	0.722	1.779	0.836	0.85	1	48.059	6068*	303.42	B
219.84-199.84		TA 1036	B	1	2.1	1	0.85	1	84.499			
			C	0.979	2.057	1	0.85	1	71.751			
T6	2011	1856	A	0.769	1.796	0.872	0.85	1	52.543	5897*	294.86	C
199.84-179.84			B	1	2.1	1	0.85	1	87.936			
			C	1	2.1	1	0.85	1	79.890			
T7	2480	2688	A	0.977	2.053	1	0.85	1	72.137	5743*	287.14	C
179.84-159.84		TA 1036	B	1	2.1	1	0.85	1	106.623			
			C	1	2.1	1	0.85	1	96.543			
T8	2577	1941	A	0.954	2.01	1	0.85	1	70.422	5512*	275.59	C
159.84-139.84			B	1	2.1	1	0.85	1	107.377			
			C	1	2.1	1	0.85	1	100.533			
T9	2585	2076	A	0.959	2.02	1	0.85	1	71.254	5319*	265.93	C
139.84-119.84			B	1	2.1	1	0.85	1	108.209			
			C	1	2.1	1	0.85	1	101.491			
T10	2675	2688	A	1	2.1	1	0.85	1	76.582	5070*	253.52	C
119.84-99.84		TA 1036	B	1	2.1	1	0.85	1	111.419			
			C	1	2.1	1	0.85	1	112.007			
T11	2935	2401	A	1	2.1	1	0.85	1	89.465	4812*	240.62	C
99.84-79.84			B	1	2.1	1	0.85	1	110.579			
			C	1	2.1	1	0.85	1	118.002			
T12	3637	2316	A	1	2.1	1	0.85	1	141.174	4478*	223.92	C
79.84-59.84			B	1	2.1	1	0.85	1	110.821			
			C	1	2.1	1	0.85	1	119.037			
T13	3637	2750	A	1	2.1	1	0.85	1	143.794	4067*	203.34	C
59.84-39.84		TA 1036	B	1	2.1	1	0.85	1	113.440			
			C	1	2.1	1	0.85	1	121.656			
T14	3637	2316	A	1	2.1	1	0.85	1	141.174	3615*	180.74	C
39.84-19.84			B	1	2.1	1	0.85	1	110.821			
			C	1	2.1	1	0.85	1	119.037			
T15	2446	1544	A	1	2.1	1	0.85	1	95.338	2411*	180.74	C
19.84-6.50			B	1	2.1	1	0.85	1	73.915			
			C	1	2.1	1	0.85	1	82.134			
T16 6.50-0.00	276	962	A	1	2.1	1	0.85	1	19.477	640*	98.49	C
			B	1	2.1	1	0.85	1	16.928			
			C	1	2.1	1	0.85	1	17.892			
Sum Weight:	32910	42494			*2A_g limit					67837		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
L1	0	3139	A	1	0.59	1	1	1	31.497	796	22.63	C
327.00-291.84			B	1	0.59	1	1	1	31.497			
			C	1	0.59	1	1	1	31.497			
T1	4	1165	A	0.251	2.435	0.602	1	1	8.340	850	70.85	A
291.84-279.84		TA 842	B	0.227	2.508	0.596	1	1	7.643			
			C	0.24	2.468	0.599	1	1	8.014			
T2	28	1298	A	0.199	2.598	0.59	1	1	9.024	965	48.27	A
279.84-259.84			B	0.194	2.616	0.589	1	1	8.765			
			C	0.164	2.722	0.584	1	1	7.321			
T3	164	1824	A	0.268	2.385	0.607	1	1	13.894	2537	126.86	B
259.84-239.84		TA 842	B	0.589	1.811	0.747	1	1	34.770			
			C	0.216	2.543	0.594	1	1	11.311			
T4	426	1468	A	0.378	2.109	0.643	1	1	18.745	3184	159.20	B
239.84-219.84			B	0.713	1.777	0.829	1	1	45.544			
			C	0.56	1.834	0.73	1	1	31.516			
T5	471	2101	A	0.464	1.951	0.68	1	1	25.551	3860	193.02	B
219.84-199.84		TA 842	B	0.797	1.814	0.894	1	1	55.543			
			C	0.666	1.778	0.796	1	1	41.806			
T6	555	1580	A	0.48	1.927	0.687	1	1	25.576	3884	194.19	B
199.84-179.84			B	0.813	1.826	0.907	1	1	57.114			
			C	0.714	1.777	0.83	1	1	45.899			
T7	685	2311	A	0.641	1.784	0.779	1	1	39.687	5622*	281.12	B
179.84-159.84		TA 842	B	0.994	2.088	1	1	1	77.457			
			C	0.884	1.902	0.968	1	1	66.791			
T8	709	1659	A	0.597	1.806	0.752	1	1	34.774	5302	265.12	B
159.84-139.84			B	0.967	2.033	1	1	1	74.911			
			C	0.873	1.888	0.958	1	1	64.827			
T9	711	1791	A	0.602	1.803	0.755	1	1	35.371	5144	257.22	B
139.84-119.84			B	0.969	2.039	1	1	1	75.526			
			C	0.877	1.893	0.962	1	1	65.695			
T10	734	2311	A	0.664	1.778	0.795	1	1	41.793	4964*	248.21	C
119.84-99.84		TA 842	B	1	2.1	1	1	1	79.255			
			C	0.986	2.071	1	1	1	76.817			
T11	802	2100	A	0.759	1.791	0.864	1	1	51.359	4712*	235.61	C
99.84-79.84			B	0.988	2.074	1	1	1	77.363			
			C	1	2.1	1	1	1	78.749			
T12	992	2021	A	1	2.1	1	1	1	95.995	4385*	219.25	C
79.84-59.84			B	0.988	2.075	1	1	1	77.378			
			C	1	2.1	1	1	1	79.070			
T13	992	2378	A	1	2.1	1	1	1	99.127	3982*	199.10	C
59.84-39.84		TA 842	B	1	2.1	1	1	1	80.510			
			C	1	2.1	1	1	1	82.202			
T14	992	2021	A	1	2.1	1	1	1	95.995	3540*	176.98	C
39.84-19.84			B	0.988	2.075	1	1	1	77.378			
			C	1	2.1	1	1	1	79.070			
T15	665	1348	A	1	2.1	1	1	1	64.710	2361*	176.98	C
19.84-6.50			B	0.988	2.075	1	1	1	51.610			
			C	1	2.1	1	1	1	54.025			
T16 6.50-0.00	75	811	A	1	2.1	1	1	1	15.716	615*	94.58	C
			B	1	2.1	1	1	1	14.163			
			C	1	2.1	1	1	1	14.462			
Sum Weight:	9004	36380			*$2A_g$ limit					56704		

Tower Forces - Service - Wind 45 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
L1	0	3139	A	1	0.59	1	1	1	31.497	796	22.63	C
327.00-291.84			B	1	0.59	1	1	1	31.497			
			C	1	0.59	1	1	1	31.497			
T1	4	1165	A	0.251	2.435	0.602	0.825	1	7.727	788	65.64	A
291.84-279.84		TA 842	B	0.227	2.508	0.596	0.825	1	7.031			
			C	0.24	2.468	0.599	0.825	1	7.402			
T2	28	1298	A	0.199	2.598	0.59	0.825	1	9.024	965	48.27	A
279.84-259.84			B	0.194	2.616	0.589	0.825	1	8.765			
			C	0.164	2.722	0.584	0.825	1	7.321			
T3	164	1824	A	0.268	2.385	0.607	0.825	1	13.285	2493	124.64	B
259.84-239.84		TA 842	B	0.589	1.811	0.747	0.825	1	34.161			
			C	0.216	2.543	0.594	0.825	1	10.702			
T4	426	1468	A	0.378	2.109	0.643	0.825	1	18.745	3184	159.20	B
239.84-219.84			B	0.713	1.777	0.829	0.825	1	45.544			
			C	0.56	1.834	0.73	0.825	1	31.516			
T5	471	2101	A	0.464	1.951	0.68	0.825	1	24.946	3818	190.91	B
219.84-199.84		TA 842	B	0.797	1.814	0.894	0.825	1	54.938			
			C	0.666	1.778	0.796	0.825	1	41.201			
T6	555	1580	A	0.48	1.927	0.687	0.825	1	25.576	3884	194.19	B
199.84-179.84			B	0.813	1.826	0.907	0.825	1	57.114			
			C	0.714	1.777	0.83	0.825	1	45.899			
T7	685	2311	A	0.641	1.784	0.779	0.825	1	39.085	5622*	281.12	B
179.84-159.84		TA 842	B	0.994	2.088	1	0.825	1	76.855			
			C	0.884	1.902	0.968	0.825	1	66.190			
T8	709	1659	A	0.597	1.806	0.752	0.825	1	34.774	5302	265.12	B
159.84-139.84			B	0.967	2.033	1	0.825	1	74.911			
			C	0.873	1.888	0.958	0.825	1	64.827			
T9	711	1791	A	0.602	1.803	0.755	0.825	1	35.371	5144	257.22	B
139.84-119.84			B	0.969	2.039	1	0.825	1	75.526			
			C	0.877	1.893	0.962	0.825	1	65.695			
T10	734	2311	A	0.664	1.778	0.795	0.825	1	41.192	4964*	248.21	C
119.84-99.84		TA 842	B	1	2.1	1	0.825	1	78.653			
			C	0.986	2.071	1	0.825	1	76.215			
T11	802	2100	A	0.759	1.791	0.864	0.825	1	51.359	4712*	235.61	C
99.84-79.84			B	0.988	2.074	1	0.825	1	77.233			
			C	1	2.1	1	0.825	1	78.619			
T12	992	2021	A	1	2.1	1	0.825	1	95.995	4385*	219.25	C
79.84-59.84			B	0.988	2.075	1	0.825	1	77.194			
			C	1	2.1	1	0.825	1	78.886			
T13	992	2378	A	1	2.1	1	0.825	1	98.529	3982*	199.10	C
59.84-39.84		TA 842	B	1	2.1	1	0.825	1	79.728			
			C	1	2.1	1	0.825	1	81.421			
T14	992	2021	A	1	2.1	1	0.825	1	95.995	3540*	176.98	C
39.84-19.84			B	0.988	2.075	1	0.825	1	77.194			
			C	1	2.1	1	0.825	1	78.886			
T15	665	1348	A	1	2.1	1	0.825	1	64.590	2361*	176.98	C
19.84-6.50			B	0.988	2.075	1	0.825	1	51.487			
			C	1	2.1	1	0.825	1	53.783			
T16 6.50-0.00	75	811	A	1	2.1	1	0.825	1	14.633	615*	94.58	C
			B	1	2.1	1	0.825	1	13.093			
			C	1	2.1	1	0.825	1	13.364			
Sum Weight:	9004	36380			*$2A_g$ limit					56556		

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
L1	0	3139	A	1	0.59	1	1	1	31.497	796	22.63	C
327.00-291.84			B	1	0.59	1	1	1	31.497			
			C	1	0.59	1	1	1	31.497			
T1	4	1165	A	0.251	2.435	0.602	0.8	1	7.640	779	64.90	A
291.84-279.84		TA 842	B	0.227	2.508	0.596	0.8	1	6.943			
			C	0.24	2.468	0.599	0.8	1	7.314			
T2	28	1298	A	0.199	2.598	0.59	0.8	1	9.024	965	48.27	A
279.84-259.84			B	0.194	2.616	0.589	0.8	1	8.765			
			C	0.164	2.722	0.584	0.8	1	7.321			
T3	164	1824	A	0.268	2.385	0.607	0.8	1	13.198	2486	124.32	B
259.84-239.84		TA 842	B	0.589	1.811	0.747	0.8	1	34.074			
			C	0.216	2.543	0.594	0.8	1	10.615			
T4	426	1468	A	0.378	2.109	0.643	0.8	1	18.745	3184	159.20	B
239.84-219.84			B	0.713	1.777	0.829	0.8	1	45.544			
			C	0.56	1.834	0.73	0.8	1	31.516			
T5	471	2101	A	0.464	1.951	0.68	0.8	1	24.860	3812	190.61	B
219.84-199.84		TA 842	B	0.797	1.814	0.894	0.8	1	54.851			
			C	0.666	1.778	0.796	0.8	1	41.115			
T6	555	1580	A	0.48	1.927	0.687	0.8	1	25.576	3884	194.19	B
199.84-179.84			B	0.813	1.826	0.907	0.8	1	57.114			
			C	0.714	1.777	0.83	0.8	1	45.899			
T7	685	2311	A	0.641	1.784	0.779	0.8	1	38.999	5622*	281.12	B
179.84-159.84		TA 842	B	0.994	2.088	1	0.8	1	76.769			
			C	0.884	1.902	0.968	0.8	1	66.104			
T8	709	1659	A	0.597	1.806	0.752	0.8	1	34.774	5302	265.12	B
159.84-139.84			B	0.967	2.033	1	0.8	1	74.911			
			C	0.873	1.888	0.958	0.8	1	64.827			
T9	711	1791	A	0.602	1.803	0.755	0.8	1	35.371	5144	257.22	B
139.84-119.84			B	0.969	2.039	1	0.8	1	75.526			
			C	0.877	1.893	0.962	0.8	1	65.695			
T10	734	2311	A	0.664	1.778	0.795	0.8	1	41.106	4964*	248.21	C
119.84-99.84		TA 842	B	1	2.1	1	0.8	1	78.567			
			C	0.986	2.071	1	0.8	1	76.129			
T11	802	2100	A	0.759	1.791	0.864	0.8	1	51.359	4712*	235.61	C
99.84-79.84			B	0.988	2.074	1	0.8	1	77.215			
			C	1	2.1	1	0.8	1	78.600			
T12	992	2021	A	1	2.1	1	0.8	1	95.995	4385*	219.25	C
79.84-59.84			B	0.988	2.075	1	0.8	1	77.168			
			C	1	2.1	1	0.8	1	78.860			
T13	992	2378	A	1	2.1	1	0.8	1	98.443	3982*	199.10	C
59.84-39.84		TA 842	B	1	2.1	1	0.8	1	79.617			
			C	1	2.1	1	0.8	1	81.309			
T14	992	2021	A	1	2.1	1	0.8	1	95.995	3540*	176.98	C
39.84-19.84			B	0.988	2.075	1	0.8	1	77.168			
			C	1	2.1	1	0.8	1	78.860			
T15	665	1348	A	1	2.1	1	0.8	1	64.573	2361*	176.98	C
19.84-6.50			B	0.988	2.075	1	0.8	1	51.470			
			C	1	2.1	1	0.8	1	53.748			
T16 6.50-0.00	75	811	A	1	2.1	1	0.8	1	14.478	615*	94.58	C
			B	1	2.1	1	0.8	1	12.940			
			C	1	2.1	1	0.8	1	13.207			
Sum Weight:	9004	36380			*$2A_g$ limit					56534		

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
L1	0	3139	A	1	0.59	1	1	1	31.497	796	22.63	C
327.00-291.84			B	1	0.59	1	1	1	31.497			
			C	1	0.59	1	1	1	31.497			
T1	4	1165	A	0.251	2.435	0.602	0.85	1	7.815	797	66.39	A
291.84-279.84		TA 842	B	0.227	2.508	0.596	0.85	1	7.118			
			C	0.24	2.468	0.599	0.85	1	7.489			
T2	28	1298	A	0.199	2.598	0.59	0.85	1	9.024	965	48.27	A
279.84-259.84			B	0.194	2.616	0.589	0.85	1	8.765			
			C	0.164	2.722	0.584	0.85	1	7.321			
T3	164	1824	A	0.268	2.385	0.607	0.85	1	13.372	2499	124.96	B
259.84-239.84		TA 842	B	0.589	1.811	0.747	0.85	1	34.248			
			C	0.216	2.543	0.594	0.85	1	10.789			
T4	426	1468	A	0.378	2.109	0.643	0.85	1	18.745	3184	159.20	B
239.84-219.84			B	0.713	1.777	0.829	0.85	1	45.544			
			C	0.56	1.834	0.73	0.85	1	31.516			
T5	471	2101	A	0.464	1.951	0.68	0.85	1	25.033	3824	191.21	B
219.84-199.84		TA 842	B	0.797	1.814	0.894	0.85	1	55.024			
			C	0.666	1.778	0.796	0.85	1	41.288			
T6	555	1580	A	0.48	1.927	0.687	0.85	1	25.576	3884	194.19	B
199.84-179.84			B	0.813	1.826	0.907	0.85	1	57.114			
			C	0.714	1.777	0.83	0.85	1	45.899			
T7	685	2311	A	0.641	1.784	0.779	0.85	1	39.171	5622*	281.12	B
179.84-159.84		TA 842	B	0.994	2.088	1	0.85	1	76.941			
			C	0.884	1.902	0.968	0.85	1	66.276			
T8	709	1659	A	0.597	1.806	0.752	0.85	1	34.774	5302	265.12	B
159.84-139.84			B	0.967	2.033	1	0.85	1	74.911			
			C	0.873	1.888	0.958	0.85	1	64.827			
T9	711	1791	A	0.602	1.803	0.755	0.85	1	35.371	5144	257.22	B
139.84-119.84			B	0.969	2.039	1	0.85	1	75.526			
			C	0.877	1.893	0.962	0.85	1	65.695			
T10	734	2311	A	0.664	1.778	0.795	0.85	1	41.278	4964*	248.21	C
119.84-99.84		TA 842	B	1	2.1	1	0.85	1	78.739			
			C	0.986	2.071	1	0.85	1	76.301			
T11	802	2100	A	0.759	1.791	0.864	0.85	1	51.359	4712*	235.61	C
99.84-79.84			B	0.988	2.074	1	0.85	1	77.252			
			C	1	2.1	1	0.85	1	78.637			
T12	992	2021	A	1	2.1	1	0.85	1	95.995	4385*	219.25	C
79.84-59.84			B	0.988	2.075	1	0.85	1	77.220			
			C	1	2.1	1	0.85	1	78.912			
T13	992	2378	A	1	2.1	1	0.85	1	98.614	3982*	199.10	C
59.84-39.84		TA 842	B	1	2.1	1	0.85	1	79.840			
			C	1	2.1	1	0.85	1	81.532			
T14	992	2021	A	1	2.1	1	0.85	1	95.995	3540*	176.98	C
39.84-19.84			B	0.988	2.075	1	0.85	1	77.220			
			C	1	2.1	1	0.85	1	78.912			
T15	665	1348	A	1	2.1	1	0.85	1	64.607	2361*	176.98	C
19.84-6.50			B	0.988	2.075	1	0.85	1	51.505			
			C	1	2.1	1	0.85	1	53.817			
T16 6.50-0.00	75	811	A	1	2.1	1	0.85	1	14.787	615*	94.58	C
			B	1	2.1	1	0.85	1	13.245			
			C	1	2.1	1	0.85	1	13.521			
Sum Weight:	9004	36380			*2A_g limit					56577		

Force Totals (Does not include forces on guys)

Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Z lb	Sum of Torques lb-ft
Leg Weight	19662			
Bracing Weight	16718			
Total Member Self-Weight	36380			
Guy Weight	11217			
Total Weight	66829			
Wind 0 deg - No Ice		660	-85048	-4354.92
Wind 30 deg - No Ice		42503	-73265	-3832.68
Wind 45 deg - No Ice		59685	-59621	-3359.57
Wind 60 deg - No Ice		72861	-42191	-2679.13
Wind 90 deg - No Ice		84064	-278	46.45
Wind 120 deg - No Ice		73165	42647	4323.46
Wind 135 deg - No Ice		59454	60035	6141.00
Wind 150 deg - No Ice		41757	73417	7382.28
Wind 180 deg - No Ice		-127	84468	5878.10
Wind 210 deg - No Ice		-41910	73513	2729.76
Wind 225 deg - No Ice		-59146	60393	1613.67
Wind 240 deg - No Ice		-72645	43243	-38.81
Wind 270 deg - No Ice		-83479	89	-1976.39
Wind 300 deg - No Ice		-72330	-41871	-4165.01
Wind 315 deg - No Ice		-59255	-59308	-5025.27
Wind 330 deg - No Ice		-42039	-73027	-5288.56
Member Ice	6114			
Guy Ice	8100			
Total Weight Ice	110135			
Wind 0 deg - Ice		715	-101391	-6396.50
Wind 30 deg - Ice		50455	-86969	-6325.38
Wind 45 deg - Ice		70810	-70693	-5621.74
Wind 60 deg - Ice		86327	-50045	-4414.72
Wind 90 deg - Ice		99690	-287	-405.47
Wind 120 deg - Ice		86982	51659	6018.98
Wind 135 deg - Ice		70228	71889	8761.31
Wind 150 deg - Ice		49310	87684	10307.69
Wind 180 deg - Ice		-152	100598	8135.15
Wind 210 deg - Ice		-49504	87807	3637.75
Wind 225 deg - Ice		-69933	72295	2132.80
Wind 240 deg - Ice		-86458	52320	305.32
Wind 270 deg - Ice		-99082	140	-1608.60
Wind 300 deg - Ice		-85753	-49675	-4713.12
Wind 315 deg - Ice		-70330	-70337	-5903.71
Wind 330 deg - Ice		-49929	-86698	-6571.04
Total Weight	66829			
Wind 0 deg - Service		660	-85048	-4354.92
Wind 30 deg - Service		42503	-73265	-3832.68
Wind 45 deg - Service		59685	-59621	-3359.57
Wind 60 deg - Service		72861	-42191	-2679.13
Wind 90 deg - Service		84064	-278	46.45
Wind 120 deg - Service		73165	42647	4323.46
Wind 135 deg - Service		59454	60035	6141.00
Wind 150 deg - Service		41757	73417	7382.28
Wind 180 deg - Service		-127	84468	5878.10
Wind 210 deg - Service		-41910	73513	2729.76
Wind 225 deg - Service		-59146	60393	1613.67
Wind 240 deg - Service		-72645	43243	-38.81
Wind 270 deg - Service		-83479	89	-1976.39
Wind 300 deg - Service		-72330	-41871	-4165.01
Wind 315 deg - Service		-59255	-59308	-5025.27
Wind 330 deg - Service		-42039	-73027	-5288.56

Load Combinations

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

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
L1	327 - 291.84	Pole	Max Tension	15	0	1.92	-4.82
			Max. Compression	24	-3739	-22502.67	-13059.85
			Max. Mx	31	-3729	26273.12	214.93
			Max. My	27	-3725	203.68	-26344.09
			Max. Vy	31	-2840	26273.12	214.93
			Max. Vx	27	2848	203.68	-26344.09
			Max. Torque	28			-12.91
T1	291.84 - 279.84	Leg	Max Tension	32	12477	-592.43	-412.23
			Max. Compression	28	-27219	-194.59	232.24
			Max. Mx	22	12376	-2825.32	1595.76
			Max. My	27	12307	-10.31	-3273.90
			Max. Vy	22	1198	-2825.32	1595.76
			Max. Vx	27	1378	-10.31	-3273.90
		Diagonal	Max Tension	12	4087	0.00	0.00
			Max. Compression	25	-4155	0.00	0.00
			Max. Mx	25	2513	13.52	0.00
			Max. My	26	1484	0.00	-0.11
			Max. Vy	25	-11	0.00	0.00
			Max. Vx	26	0	0.00	0.00
		Horizontal	Max Tension	34	1266	0.00	0.00
			Max. Compression	34	-903	0.00	0.00
			Max. Mx	32	798	6.03	0.00
			Max. My	26	427	0.00	-0.00
			Max. Vy	32	7	0.00	0.00
			Max. Vx	26	0	0.00	0.00
		Secondary Horizontal	Max Tension	29	0	-1.45	-0.00
			Max. Compression	25	0	-1.28	-0.00
			Max. Mx	23	0	-1.76	-0.00
			Max. My	25	0	-1.28	-0.00
			Max. Vy	23	4	-1.76	-0.00
			Max. Vx	25	0	0.00	0.00
		Top Girt	Max Tension	25	0	0.00	0.00
			Max. Compression	25	0	0.00	0.00
			Max. Mx	32	0	6.03	0.00
			Max. My	26	0	0.00	-0.00
			Max. Vy	32	7	0.00	0.00
			Max. Vx	26	0	0.00	0.00
		Guy A	Bottom Tension	27	20424		
			Top Tension	27	21011		
			Top Cable Vert	27	17306		
			Top Cable Norm	27	11915		
			Top Cable Tan	27	15		
			Bot Cable Vert	27	-15693		
			Bot Cable Norm	27	13071		
			Bot Cable Tan	27	16		
		Guy B	Bottom Tension	32	19553		
			Top Tension	32	20079		
			Top Cable Vert	32	15883		
			Top Cable Norm	32	12284		
			Top Cable Tan	32	13		
			Bot Cable Vert	32	-14364		
			Bot Cable Norm	32	13267		
			Bot Cable Tan	32	15		
		Guy C	Bottom Tension	22	20201		
			Top Tension	22	20781		
			Top Cable Vert	22	17058		
			Top Cable Norm	22	11870		
			Top Cable Tan	22	15		
			Bot Cable Vert	22	-15455		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Bot Cable Norm	22	13009		
			Bot Cable Tan	22	16		
		Top Guy Pull-Off	Max Tension	34	6865	0.00	0.00
			Max. Compression	26	-6043	0.00	0.00
			Max. Mx	18	254	72.45	0.00
			Max. My	26	3303	0.00	-0.00
			Max. Vy	18	-79	0.00	0.00
			Max. Vx	26	0	0.00	0.00
		Torque Arm Top	Max Tension	31	10611	-23037.49	0.00
			Max. Compression	23	-2037	-62045.26	0.00
			Max. Mx	27	-824	-67419.81	0.00
			Max. My	26	1254	-62932.57	0.01
			Max. Vy	27	16922	-67419.81	0.00
			Max. Vx	26	0	-62932.57	0.00
T2	279.84 - 259.84	Leg	Max Tension	1	0	0.00	0.00
			Max. Compression	13	-29478	34.70	-128.54
			Max. Mx	32	-18452	-640.53	-208.40
			Max. My	27	-22165	123.42	674.95
			Max. Vy	32	-955	286.17	-167.66
			Max. Vx	34	-1355	162.57	369.99
		Diagonal	Max Tension	26	3205	0.00	0.00
			Max. Compression	33	-3619	0.00	0.00
			Max. Mx	25	1313	14.15	0.00
			Max. My	26	536	0.00	-0.13
			Max. Vy	25	-11	0.00	0.00
			Max. Vx	26	0	0.00	0.00
		Horizontal	Max Tension	33	1767	0.00	0.00
			Max. Compression	25	-1575	0.00	0.00
			Max. Mx	18	271	6.03	0.00
			Max. My	26	507	0.00	-0.00
			Max. Vy	18	7	0.00	0.00
			Max. Vx	26	0	0.00	0.00
		Secondary Horizontal	Max Tension	29	0	-1.44	-0.00
			Max. Compression	25	0	-1.35	-0.00
			Max. Mx	23	0	-1.73	0.00
			Max. My	25	0	-1.35	-0.00
			Max. Vy	23	4	-1.73	0.00
			Max. Vx	25	0	0.00	0.00
		Top Girt	Max Tension	26	622	0.00	0.00
			Max. Compression	34	-17	0.00	0.00
			Max. Mx	18	181	6.03	0.00
			Max. My	26	432	0.00	-0.00
			Max. Vy	18	7	0.00	0.00
			Max. Vx	26	0	0.00	0.00
T3	259.84 - 239.84	Leg	Max Tension	24	1228	-23.18	192.03
			Max. Compression	27	-82203	388.91	57.79
			Max. Mx	22	-57788	3078.48	-966.17
			Max. My	27	-18272	-132.67	-3416.57
			Max. Vy	22	1238	-947.36	237.98
			Max. Vx	27	1451	369.96	-970.73
		Diagonal	Max Tension	26	9666	0.00	0.00
			Max. Compression	34	-10587	0.00	0.00
			Max. Mx	24	8590	14.15	0.00
			Max. My	26	-3504	0.00	-0.11
			Max. Vy	24	-11	0.00	0.00
			Max. Vx	26	0	0.00	0.00
		Horizontal	Max Tension	27	1424	0.00	0.00
			Max. Compression	27	-1424	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. Mx	32	740	6.03	0.00
			Max. My	26	882	0.00	-0.00
			Max. Vy	32	7	0.00	0.00
			Max. Vx	26	0	0.00	0.00
		Secondary Horizontal	Max Tension	29	0	-1.44	-0.00
			Max. Compression	25	0	-1.32	-0.00
			Max. Mx	23	0	-1.74	0.00
			Max. My	19	0	-0.79	0.00
			Max. Vy	23	4	-1.74	0.00
			Max. Vx	19	0	0.00	0.00
		Top Girt	Max Tension	23	970	0.00	0.00
			Max. Compression	1	0	0.00	0.00
			Max. Mx	18	391	6.03	0.00
			Max. My	26	450	0.00	-0.00
			Max. Vy	18	7	0.00	0.00
			Max. Vx	26	0	0.00	0.00
		Guy A	Bottom Tension	27	21805		
			Top Tension	27	22336		
			Top Cable Vert	27	17653		
			Top Cable Norm	27	13684		
			Top Cable Tan	27	13		
			Bot Cable Vert	27	-16176		
			Bot Cable Norm	27	14622		
			Bot Cable Tan	27	15		
		Guy B	Bottom Tension	32	20711		
			Top Tension	32	21181		
			Top Cable Vert	32	15903		
			Top Cable Norm	32	13990		
			Top Cable Tan	32	11		
			Bot Cable Vert	32	-14525		
			Bot Cable Norm	32	14763		
			Bot Cable Tan	32	14		
		Guy C	Bottom Tension	22	21544		
			Top Tension	22	22069		
			Top Cable Vert	22	17366		
			Top Cable Norm	22	13619		
			Top Cable Tan	22	13		
			Bot Cable Vert	22	-15898		
			Bot Cable Norm	22	14540		
			Bot Cable Tan	22	14		
		Top Guy Pull-Off	Max Tension	26	9635	0.00	0.00
			Max. Compression	34	-8486	0.00	0.00
			Max. Mx	18	337	72.45	0.00
			Max. My	26	9635	0.00	-0.00
			Max. Vy	18	-79	0.00	0.00
			Max. Vx	26	0	0.00	0.00
		Torque Arm Top	Max Tension	20	13013	-18512.22	-0.00
			Max. Compression	25	-4063	-57812.38	-0.00
			Max. Mx	27	-2094	-68687.86	0.00
			Max. My	26	630	-63405.24	0.01
			Max. Vy	27	17238	-68687.86	0.00
			Max. Vx	26	0	-63405.24	0.00
T4	239.84 - 219.84	Leg	Max Tension	24	4038	-23.18	192.02
			Max. Compression	22	-83906	-0.14	414.61
			Max. Mx	32	-52314	-695.81	-2.67
			Max. My	19	-65577	-210.78	-674.26
			Max. Vy	31	1490	397.11	-327.72
			Max. Vx	27	-1530	110.00	-466.78
		Diagonal	Max Tension	28	9025	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. Compression	20	-9860	0.00	0.00
			Max. Mx	25	86	14.12	0.00
			Max. My	26	-1795	0.00	-0.07
			Max. Vy	25	-11	0.00	0.00
			Max. Vx	26	0	0.00	0.00
		Horizontal	Max Tension	27	2389	0.00	0.00
			Max. Compression	19	-1854	0.00	0.00
			Max. Mx	32	812	6.03	0.00
			Max. My	26	1016	0.00	-0.00
			Max. Vy	32	7	0.00	0.00
			Max. Vx	26	0	0.00	0.00
		Secondary Horizontal	Max Tension	21	0	-1.52	-0.00
			Max. Compression	33	0	-1.56	-0.00
			Max. Mx	34	0	-1.81	0.00
			Max. My	2	0	-0.59	0.00
			Max. Vy	34	4	-1.81	0.00
			Max. Vx	2	0	0.00	0.00
		Top Girt	Max Tension	27	1361	0.00	0.00
			Max. Compression	20	-844	0.00	0.00
			Max. Mx	18	196	6.03	0.00
			Max. My	26	290	0.00	-0.00
			Max. Vy	18	7	0.00	0.00
			Max. Vx	26	0	0.00	0.00
T5	219.84 - 199.84	Leg	Max Tension	1	0	0.00	0.00
			Max. Compression	27	-92609	508.25	-6.56
			Max. Mx	22	-74872	2889.45	-1013.24
			Max. My	27	-43933	-348.34	-3195.23
			Max. Vy	22	1184	-983.95	-99.49
			Max. Vx	27	1184	619.00	-814.58
		Diagonal	Max Tension	20	8508	0.00	0.00
			Max. Compression	28	-9407	0.00	0.00
			Max. Mx	22	-2627	16.49	0.00
			Max. My	26	-4974	0.00	-0.07
			Max. Vy	22	-13	0.00	0.00
			Max. Vx	26	0	0.00	0.00
		Horizontal	Max Tension	27	1604	0.00	0.00
			Max. Compression	27	-1604	0.00	0.00
			Max. Mx	24	1437	6.03	0.00
			Max. My	26	1570	0.00	-0.00
			Max. Vy	24	7	0.00	0.00
			Max. Vx	26	0	0.00	0.00
		Secondary Horizontal	Max Tension	22	0	-1.57	-0.00
			Max. Compression	32	0	-1.63	-0.00
			Max. Mx	34	0	-2.00	0.00
			Max. My	27	0	-1.61	0.00
			Max. Vy	34	4	-2.00	0.00
			Max. Vx	27	0	-1.61	0.00
		Top Girt	Max Tension	22	969	0.00	0.00
			Max. Compression	1	0	0.00	0.00
			Max. Mx	18	449	6.03	0.00
			Max. My	26	731	0.00	0.00
			Max. Vy	18	7	0.00	0.00
			Max. Vx	26	0	0.00	0.00
		Guy A	Bottom Tension	27	22227		
			Top Tension	27	22682		
			Top Cable Vert	27	16704		
			Top Cable Norm	27	15345		
			Top Cable Tan	27	9		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Bot Cable Vert	27	-15419		
			Bot Cable Norm	27	16008		
			Bot Cable Tan	27	13		
		Guy B	Bottom Tension	32	20960		
			Top Tension	32	21355		
			Top Cable Vert	32	14626		
			Top Cable Norm	32	15560		
			Top Cable Tan	32	9		
			Bot Cable Vert	32	-13449		
			Bot Cable Norm	32	16076		
			Bot Cable Tan	32	11		
		Guy C	Bottom Tension	22	21899		
			Top Tension	22	22348		
			Top Cable Vert	22	16356		
			Top Cable Norm	22	15229		
			Top Cable Tan	22	10		
			Bot Cable Vert	22	-15081		
			Bot Cable Norm	22	15878		
			Bot Cable Tan	22	12		
		Top Guy Pull-Off	Max Tension	26	12956	0.00	0.00
			Max. Compression	34	-11226	0.00	0.00
			Max. Mx	33	9853	72.45	0.00
			Max. My	26	-5610	0.00	0.00
			Max. Vy	33	-79	0.00	0.00
			Max. Vx	26	0	0.00	0.00
		Torque Arm Top	Max Tension	33	15489	0.00	0.00
			Max. Compression	25	-6272	0.00	0.00
			Max. Mx	27	-4148	-65146.46	0.00
			Max. My	26	-243	-60228.30	0.00
			Max. Vy	27	16354	-65146.46	0.00
			Max. Vx	26	0	-60228.30	0.00
T6	199.84 - 179.84	Leg	Max Tension	1	0	0.00	0.00
			Max. Compression	27	-92097	508.25	-6.58
			Max. Mx	23	-73932	880.52	45.61
			Max. My	19	-78140	299.07	-846.85
			Max. Vy	31	-1318	796.64	18.46
			Max. Vx	19	-1354	-269.38	763.35
		Diagonal	Max Tension	28	7559	0.00	0.00
			Max. Compression	20	-9103	0.00	0.00
			Max. Mx	21	7032	11.97	0.00
			Max. My	26	-4911	0.00	-0.06
			Max. Vy	21	-10	0.00	0.00
			Max. Vx	26	0	0.00	0.00
		Horizontal	Max Tension	22	2205	0.00	0.00
			Max. Compression	27	-1595	0.00	0.00
			Max. Mx	18	744	6.03	0.00
			Max. My	26	1563	0.00	-0.00
			Max. Vy	18	7	0.00	0.00
			Max. Vx	26	0	0.00	0.00
		Secondary Horizontal	Max Tension	23	0	-1.57	-0.00
			Max. Compression	31	0	-1.51	-0.00
			Max. Mx	34	0	-2.28	0.00
			Max. My	27	0	-1.62	0.00
			Max. Vy	34	5	-2.28	0.00
			Max. Vx	27	0	-1.62	0.00
		Top Girt	Max Tension	21	1207	0.00	0.00
			Max. Compression	29	-209	0.00	0.00
			Max. Mx	18	336	6.03	0.00
			Max. My	23	987	0.00	-0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. Vy	18	7	0.00	0.00
			Max. Vx	23	0	0.00	0.00
T7	179.84 - 159.84	Leg	Max Tension	1	0	0.00	0.00
			Max. Compression	19	-109458	-800.68	-88.78
			Max. Mx	23	-30655	-3117.35	471.53
			Max. My	27	-23346	492.43	-3242.02
			Max. Vy	23	1228	-3117.35	471.53
			Max. Vx	27	1182	492.43	-3242.02
		Diagonal	Max Tension	26	11172	0.00	0.00
			Max. Compression	28	-12505	0.00	0.00
			Max. Mx	21	8328	16.51	0.00
			Max. My	26	-5766	0.00	-0.08
			Max. Vy	21	-13	0.00	0.00
			Max. Vx	26	0	0.00	0.00
		Horizontal	Max Tension	19	1896	0.00	0.00
			Max. Compression	19	-1896	0.00	0.00
			Max. Mx	22	1845	6.03	0.00
			Max. My	26	1764	0.00	-0.00
			Max. Vy	22	7	0.00	0.00
			Max. Vx	26	0	0.00	0.00
		Secondary Horizontal	Max Tension	23	0	-1.56	-0.00
			Max. Compression	31	0	-1.51	-0.00
			Max. Mx	34	0	-2.24	0.00
			Max. My	27	0	-1.60	0.00
			Max. Vy	34	5	-2.24	0.00
			Max. Vx	27	0	-1.60	0.00
		Top Girt	Max Tension	22	1013	0.00	0.00
			Max. Compression	1	0	0.00	0.00
			Max. Mx	18	375	6.03	0.00
			Max. My	26	165	0.00	-0.00
			Max. Vy	18	7	0.00	0.00
			Max. Vx	26	0	0.00	0.00
		Guy A	Bottom Tension	27	24050		
			Top Tension	27	24411		
			Top Cable Vert	27	15785		
			Top Cable Norm	27	18621		
			Top Cable Tan	27	6		
			Bot Cable Vert	27	-14751		
			Bot Cable Norm	27	18996		
			Bot Cable Tan	27	10		
		Guy B	Bottom Tension	32	22460		
			Top Tension	32	22760		
			Top Cable Vert	32	13098		
			Top Cable Norm	32	18614		
			Top Cable Tan	32	6		
			Bot Cable Vert	32	-12177		
			Bot Cable Norm	32	18873		
			Bot Cable Tan	32	9		
		Guy C	Bottom Tension	22	23717		
			Top Tension	22	24072		
			Top Cable Vert	22	15409		
			Top Cable Norm	22	18493		
			Top Cable Tan	22	7		
			Bot Cable Vert	22	-14386		
			Bot Cable Norm	22	18855		
			Bot Cable Tan	22	9		
		Top Guy Pull-Off	Max Tension	28	18214	0.00	0.00
			Max. Compression	26	-16076	0.00	0.00
			Max. Mx	24	-14825	72.45	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. My	26	7817	0.00	-0.00
			Max. Vy	24	-79	0.00	0.00
			Max. Vx	26	0	0.00	0.00
		Torque Arm Top	Max Tension	28	19836	0.00	0.00
			Max. Compression	25	-9371	0.00	0.00
			Max. Mx	27	-6538	-61588.02	-0.00
			Max. My	26	-3362	-30666.47	0.00
			Max. Vy	27	15466	-61588.02	-0.00
			Max. Vx	26	0	-30666.47	0.00
T8	159.84 - 139.84	Leg	Max Tension	1	0	0.00	0.00
			Max. Compression	21	-98135	310.86	-591.32
			Max. Mx	32	-97808	760.88	23.22
			Max. My	26	-95558	-316.89	-680.37
			Max. Vy	23	456	-713.29	-31.18
			Max. Vx	34	-415	326.17	631.16
		Diagonal	Max Tension	6	6025	0.00	0.00
			Max. Compression	31	-7515	0.00	0.00
			Max. Mx	28	-2959	14.13	0.00
			Max. My	26	-2582	0.00	-0.07
			Max. Vy	28	-11	0.00	0.00
			Max. Vx	26	0	0.00	0.00
		Horizontal	Max Tension	21	1700	0.00	0.00
			Max. Compression	21	-1700	0.00	0.00
			Max. Mx	18	975	6.03	0.00
			Max. My	26	1656	0.00	-0.00
			Max. Vy	18	7	0.00	0.00
			Max. Vx	26	0	0.00	0.00
		Secondary Horizontal	Max Tension	23	0	-1.53	-0.00
			Max. Compression	31	0	-1.49	-0.00
			Max. Mx	34	0	-2.11	0.00
			Max. My	19	0	-1.89	0.00
			Max. Vy	34	4	-2.11	0.00
			Max. Vx	19	0	-1.89	0.00
		Top Girt	Max Tension	21	1097	0.00	0.00
			Max. Compression	1	0	0.00	0.00
			Max. Mx	18	547	6.03	0.00
			Max. My	26	604	0.00	-0.00
			Max. Vy	18	7	0.00	0.00
			Max. Vx	26	0	0.00	0.00
T9	139.84 - 119.84	Leg	Max Tension	1	0	0.00	0.00
			Max. Compression	24	-100103	-767.98	26.79
			Max. Mx	28	-97492	-813.54	-19.21
			Max. My	20	-93297	-410.31	-704.47
			Max. Vy	25	523	-776.65	14.11
			Max. Vx	20	491	-401.27	674.88
		Diagonal	Max Tension	34	2917	0.00	0.00
			Max. Compression	26	-5479	0.00	0.00
			Max. Mx	28	1716	11.97	0.00
			Max. My	26	-421	0.00	-0.07
			Max. Vy	28	-10	0.00	0.00
			Max. Vx	26	0	0.00	0.00
		Horizontal	Max Tension	24	1734	0.00	0.00
			Max. Compression	24	-1734	0.00	0.00
			Max. Mx	22	1552	6.03	0.00
			Max. My	26	1715	0.00	-0.00
			Max. Vy	22	7	0.00	0.00
			Max. Vx	26	0	0.00	0.00
		Secondary	Max Tension	23	0	-1.50	-0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
		Horizontal					
			Max. Compression	31	0	-1.46	-0.00
			Max. Mx	34	0	-2.18	0.00
			Max. My	19	0	-1.97	0.00
			Max. Vy	34	4	-2.18	0.00
			Max. Vx	19	0	-1.97	0.00
		Top Girt	Max Tension	21	1071	0.00	0.00
			Max. Compression	1	0	0.00	0.00
			Max. Mx	18	479	6.03	0.00
			Max. My	26	372	0.00	-0.00
			Max. Vy	18	7	0.00	0.00
			Max. Vx	26	0	0.00	0.00
T10	119.84 - 99.84	Leg	Max Tension	1	0	0.00	0.00
			Max. Compression	33	-111471	-917.07	-82.96
			Max. Mx	23	-71466	-2194.88	-63.89
			Max. My	27	-67376	744.24	-2083.93
			Max. Vy	21	-1177	-880.00	33.49
			Max. Vx	19	-1103	182.60	1039.18
		Diagonal	Max Tension	28	10633	0.00	0.00
			Max. Compression	20	-13175	0.00	0.00
			Max. Mx	26	4152	16.51	0.00
			Max. My	26	2569	0.00	-0.10
			Max. Vy	26	-13	0.00	0.00
			Max. Vx	26	0	0.00	0.00
		Horizontal	Max Tension	21	2044	0.00	0.00
			Max. Compression	33	-1931	0.00	0.00
			Max. Mx	22	1883	6.03	0.00
			Max. My	26	1844	0.00	-0.00
			Max. Vy	22	7	0.00	0.00
			Max. Vx	26	0	0.00	0.00
		Secondary Horizontal	Max Tension	23	0	-1.50	-0.00
			Max. Compression	31	0	-1.45	-0.00
			Max. Mx	34	0	-2.19	0.00
			Max. My	19	0	-2.01	0.00
			Max. Vy	34	4	-2.19	0.00
			Max. Vx	19	0	-2.01	0.00
		Top Girt	Max Tension	22	1107	0.00	0.00
			Max. Compression	1	0	0.00	0.00
			Max. Mx	18	542	6.03	0.00
			Max. My	26	505	0.00	-0.00
			Max. Vy	18	7	0.00	0.00
			Max. Vx	26	0	0.00	0.00
		Guy A	Bottom Tension	27	19088		
			Top Tension	27	19281		
			Top Cable Vert	27	9626		
			Top Cable Norm	27	16706		
			Top Cable Tan	27	4		
			Bot Cable Vert	27	-9010		
			Bot Cable Norm	27	16827		
			Bot Cable Tan	27	5		
		Guy B	Bottom Tension	32	17873		
			Top Tension	32	18018		
			Top Cable Vert	32	7181		
			Top Cable Norm	32	16525		
			Top Cable Tan	32	3		
			Bot Cable Vert	32	-6653		
			Bot Cable Norm	32	16588		
			Bot Cable Tan	32	4		
		Guy C	Bottom Tension	22	18850		
			Top Tension	22	19038		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Top Cable Vert	22	9326		
			Top Cable Norm	22	16598		
			Top Cable Tan	22	3		
			Bot Cable Vert	22	-8718		
			Bot Cable Norm	22	16713		
			Bot Cable Tan	22	5		
		Top Guy Pull-Off	Max Tension	28	17065	0.00	0.00
			Max. Compression	26	-14642	0.00	0.00
			Max. Mx	18	794	72.45	0.00
			Max. My	26	6889	0.00	-0.00
			Max. Vy	18	-79	0.00	0.00
			Max. Vx	26	0	0.00	0.00
		Torque Arm Top	Max Tension	21	18071	0.00	0.00
			Max. Compression	20	-8729	0.00	0.00
			Max. Mx	27	-6572	-37755.95	0.00
			Max. My	26	-3189	-18186.28	0.00
			Max. Vy	27	9514	-37755.95	0.00
			Max. Vx	26	0	-18186.28	0.00
T11	99.84 - 79.84	Leg	Max Tension	7	2115	169.97	-393.13
			Max. Compression	22	-156557	-465.97	-1070.69
			Max. Mx	26	-146897	-1193.52	-76.20
			Max. My	21	-154109	518.71	1076.19
			Max. Vy	23	1385	-1059.21	80.89
			Max. Vx	27	1332	377.06	-929.81
		Diagonal	Max Tension	28	7893	0.00	0.00
			Max. Compression	31	-10564	0.00	0.00
			Max. Mx	29	-2764	14.16	0.00
			Max. My	26	-2812	0.00	-0.09
			Max. Vy	29	-11	0.00	0.00
			Max. Vx	26	0	0.00	0.00
		Horizontal	Max Tension	22	2712	0.00	0.00
			Max. Compression	22	-2712	0.00	0.00
			Max. Mx	32	1705	6.03	0.00
			Max. My	26	2546	0.00	-0.00
			Max. Vy	32	7	0.00	0.00
			Max. Vx	26	0	0.00	0.00
		Secondary Horizontal	Max Tension	23	0	-1.48	-0.00
			Max. Compression	30	0	-1.40	-0.00
			Max. Mx	34	0	-2.22	0.00
			Max. My	19	0	-2.08	0.00
			Max. Vy	34	5	-2.22	0.00
			Max. Vx	19	0	-2.08	0.00
		Top Girt	Max Tension	32	1330	0.00	0.00
			Max. Compression	1	0	0.00	0.00
			Max. Mx	18	709	6.03	0.00
			Max. My	26	817	0.00	-0.00
			Max. Vy	18	7	0.00	0.00
			Max. Vx	26	0	0.00	0.00
T12	79.84 - 59.84	Leg	Max Tension	7	2252	-66.73	458.35
			Max. Compression	22	-160444	-482.09	-1047.59
			Max. Mx	24	-124877	1224.02	51.84
			Max. My	21	-153377	-397.62	-1133.04
			Max. Vy	27	699	1164.39	143.04
			Max. Vx	21	636	633.73	940.52
		Diagonal	Max Tension	6	3034	0.00	0.00
			Max. Compression	25	-4753	0.00	0.00
			Max. Mx	28	1684	12.00	0.00
			Max. My	25	-808	0.00	-0.09
			Max. Vy	28	-10	0.00	0.00
			Max. Vx	25	0	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
		Horizontal	Max Tension	22	2779	0.00	0.00
			Max. Compression	22	-2779	0.00	0.00
			Max. Mx	22	1406	6.03	0.00
			Max. My	26	2606	0.00	-0.00
			Max. Vy	22	7	0.00	0.00
			Max. Vx	26	0	0.00	0.00
		Secondary Horizontal	Max Tension	23	0	-1.50	-0.01
			Max. Compression	30	0	-1.36	-0.00
			Max. Mx	34	0	-2.47	0.01
			Max. My	19	0	-2.32	0.01
			Max. Vy	34	5	-2.47	0.01
			Max. Vx	19	0	-2.32	0.01
		Top Girt	Max Tension	26	1314	0.00	0.00
			Max. Compression	1	0	0.00	0.00
			Max. Mx	18	710	6.03	0.00
			Max. My	26	874	0.00	-0.00
			Max. Vy	18	7	0.00	0.00
			Max. Vx	26	0	0.00	0.00
T13	59.84 - 39.84	Leg	Max Tension	1	0	0.00	0.00
			Max. Compression	22	-170303	-518.35	-1109.96
			Max. Mx	25	-135286	-1390.82	-472.24
			Max. My	20	-143452	204.42	1408.87
			Max. Vy	24	-853	-1009.92	557.90
			Max. Vx	27	-809	120.06	-907.82
		Diagonal	Max Tension	8	3057	0.00	0.00
			Max. Compression	28	-6016	0.00	0.00
			Max. Mx	28	-2952	12.02	0.00
			Max. My	25	-2189	0.00	-0.11
			Max. Vy	28	-10	0.00	0.00
			Max. Vx	25	0	0.00	0.00
		Horizontal	Max Tension	22	2950	0.00	0.00
			Max. Compression	22	-2950	0.00	0.00
			Max. Mx	22	1507	6.03	0.00
			Max. My	26	2750	0.00	-0.00
			Max. Vy	22	7	0.00	0.00
			Max. Vx	26	0	0.00	0.00
		Secondary Horizontal	Max Tension	23	0	-1.53	-0.01
			Max. Compression	31	0	-1.45	-0.01
			Max. Mx	34	0	-2.66	0.01
			Max. My	2	0	-2.07	0.01
			Max. Vy	34	5	-2.66	0.01
			Max. Vx	2	0	-2.07	0.01
		Top Girt	Max Tension	31	1313	0.00	0.00
			Max. Compression	1	0	0.00	0.00
			Max. Mx	22	960	6.03	0.00
			Max. My	26	1121	0.00	-0.00
			Max. Vy	22	7	0.00	0.00
			Max. Vx	26	0	0.00	0.00
		Guy A	Bottom Tension	27	8669		
			Top Tension	27	8747		
			Top Cable Vert	27	2979		
			Top Cable Norm	27	8224		
			Top Cable Tan	27	2		
			Bot Cable Vert	27	-2660		
			Bot Cable Norm	27	8251		
			Bot Cable Tan	27	2		
		Guy B	Bottom Tension	32	8161		
			Top Tension	32	8207		
			Top Cable Vert	32	1766		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Top Cable Norm	32	8015		
			Top Cable Tan	32	1		
			Bot Cable Vert	32	-1505		
			Bot Cable Norm	32	8021		
			Bot Cable Tan	32	1		
		Guy C	Bottom Tension	22	8532		
			Top Tension	22	8606		
			Top Cable Vert	22	2827		
			Top Cable Norm	22	8128		
			Top Cable Tan	22	2		
			Bot Cable Vert	22	-2515		
			Bot Cable Norm	22	8152		
			Bot Cable Tan	22	3		
		Top Guy Pull-Off	Max Tension	26	7834	0.00	0.00
			Max. Compression	29	-5354	0.00	0.00
			Max. Mx	22	6389	72.45	0.00
			Max. My	26	-598	0.00	-0.00
			Max. Vy	22	-79	0.00	0.00
			Max. Vx	26	0	0.00	0.00
		Torque Arm Top	Max Tension	28	8427	0.00	0.00
			Max. Compression	11	-3721	0.00	0.00
			Max. Mx	27	-1938	-11886.14	0.00
			Max. My	26	-1513	-7321.28	0.00
			Max. Vy	27	3054	-11886.14	0.00
			Max. Vx	26	0	-7321.28	0.00
T14	39.84 - 19.84	Leg	Max Tension	1	0	0.00	0.00
			Max. Compression	27	-170505	-1225.49	107.63
			Max. Mx	26	-158792	1227.22	47.75
			Max. My	22	-170210	-518.33	-1109.96
			Max. Vy	27	-739	1224.94	109.41
			Max. Vx	22	-642	714.59	1002.13
		Diagonal	Max Tension	17	2953	0.00	0.00
			Max. Compression	27	-5577	0.00	0.00
			Max. Mx	28	1254	12.05	0.00
			Max. My	25	-1061	0.00	-0.13
			Max. Vy	28	-10	0.00	0.00
			Max. Vx	25	0	0.00	0.00
		Horizontal	Max Tension	27	2953	0.00	0.00
			Max. Compression	27	-2953	0.00	0.00
			Max. Mx	22	1578	6.03	0.00
			Max. My	26	2768	0.00	-0.00
			Max. Vy	22	7	0.00	0.00
			Max. Vx	26	0	0.00	0.00
		Secondary Horizontal	Max Tension	23	0	-1.55	-0.02
			Max. Compression	31	0	-1.46	-0.01
			Max. Mx	34	0	-2.92	0.01
			Max. My	2	0	-2.27	0.02
			Max. Vy	34	5	-2.92	0.01
			Max. Vx	2	0	-2.27	0.02
		Top Girt	Max Tension	26	1420	0.00	0.00
			Max. Compression	1	0	0.00	0.00
			Max. Mx	22	795	6.03	0.00
			Max. My	26	866	0.00	-0.00
			Max. Vy	22	7	0.00	0.00
			Max. Vx	26	0	0.00	0.00
T15	19.84 - 6.5	Leg	Max Tension	1	0	0.00	0.00
			Max. Compression	27	-155263	-1169.92	75.37
			Max. Mx	27	-155174	1209.59	71.17
			Max. My	22	-155066	-542.11	-1069.45
			Max. Vy	28	796	1082.24	36.84

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. Vx	27	-728	-451.84	-811.60
		Diagonal	Max Tension	6	5591	0.00	0.00
			Max. Compression	23	-7315	0.00	0.00
			Max. Mx	28	5183	12.06	0.00
			Max. My	25	623	0.00	-0.14
			Max. Vy	28	10	0.00	0.00
			Max. Vx	25	0	0.00	0.00
		Horizontal	Max Tension	27	2689	0.00	0.00
			Max. Compression	27	-2689	0.00	0.00
			Max. Mx	22	1842	6.03	0.00
			Max. My	26	2572	0.00	-0.00
			Max. Vy	22	7	0.00	0.00
			Max. Vx	26	0	0.00	0.00
		Secondary Horizontal	Max Tension	23	0	-1.56	-0.02
			Max. Compression	31	0	-1.46	-0.02
			Max. Mx	34	0	-3.03	0.01
			Max. My	2	0	-2.33	0.02
			Max. Vy	34	5	-3.03	0.01
			Max. Vx	2	0	-2.33	0.02
		Top Girt	Max Tension	27	1449	0.00	0.00
			Max. Compression	1	0	0.00	0.00
			Max. Mx	22	843	6.03	0.00
			Max. My	26	903	0.00	-0.00
			Max. Vy	22	7	0.00	0.00
			Max. Vx	26	0	0.00	0.00
T16	6.5 - 0	Leg	Max Tension	1	0	0.00	0.00
			Max. Compression	22	-140604	23.89	168.94
			Max. Mx	24	-109379	2220.64	-48.04
			Max. My	22	-113911	1655.58	-786.99
			Max. Vy	24	7171	-1548.17	94.60
			Max. Vx	22	-1951	-1452.46	237.95
		Top Girt	Max Tension	22	24992	-673.63	-36.50
			Max. Compression	1	0	0.00	0.00
			Max. Mx	27	20800	-955.26	-43.58
			Max. My	22	20631	-954.25	-45.06
			Max. Vy	27	-441	-955.26	-43.58
			Max. Vx	22	-28	-954.25	-45.06
		Bottom Girt	Max Tension	1	0	0.00	0.00
			Max. Compression	33	-4241	-2084.71	-27.67
			Max. Mx	34	-4164	-2093.65	-23.41
			Max. My	21	-3978	-1924.51	-33.21
			Max. Vy	23	-6016	-2081.33	-23.79
			Max. Vx	27	-218	-2014.37	-32.02
		Mid Girt	Max Tension	27	387	0.00	0.00
			Max. Compression	26	-251	0.00	0.00
			Max. Mx	32	278	12.27	0.00
			Max. My	33	369	0.00	2.00
			Max. Vy	27	-19	0.00	0.00
			Max. Vx	33	3	0.00	0.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Mast	Max. Vert	27	350576	-6	-3808

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
	Max. H_x	47	222357	5137	64
	Max. H_z	2	223813	-205	5161
	Max. M_x	1	0.00	-12	3
	Max. M_z	1	0.00	-12	3
	Max. Torsion	1	0.00	-12	3
	Min. Vert	1	173376	-12	3
	Min. H_x	6	229691	-5060	214
	Min. H_z	10	225849	23	-4864
	Min. M_x	1	0.00	-12	3
	Min. M_z	1	0.00	-12	3
	Min. Torsion	1	0.00	-12	3
Guy C @ 235 ft Elev -20.1 ft Azimuth 240 deg	Max. Vert	13	-9424	-6685	3855
	Max. H_x	46	-9424	-6685	3855
	Max. H_z	21	-141975	-147798	87556
	Min. Vert	22	-143541	-150367	86832
	Min. H_x	22	-143541	-150367	86832
	Min. H_z	13	-9424	-6685	3855
Guy B @ 235 ft Elev 8.9 ft Azimuth 120 deg	Max. Vert	7	-6776	5904	3409
	Max. H_x	32	-124966	151170	87267
	Max. H_z	33	-123010	148012	87478
	Min. Vert	32	-124966	151170	87267
	Min. H_x	7	-6776	5904	3409
	Min. H_z	7	-6776	5904	3409
Guy A @ 235 ft Elev -23.4 ft Azimuth 0 deg	Max. Vert	2	-9617	-4	-7721
	Max. H_x	31	-83828	9810	-95409
	Max. H_z	2	-9617	-4	-7721
	Min. Vert	27	-146490	23	-174472
	Min. H_x	23	-80972	-9854	-92363
	Min. H_z	27	-146490	23	-174472

Tower Mast Reaction Summary

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x lb-ft	Overturning Moment, M_z lb-ft	Torque lb-ft
Dead Only	173376	12	-3	0.00	0.00	0.00
Dead+Wind 0 deg - No Ice+Guy	223813	205	-5161	0.00	0.00	0.00
Dead+Wind 30 deg - No Ice+Guy	227170	2672	-4247	0.00	0.00	0.00
Dead+Wind 45 deg - No Ice+Guy	225990	3704	-3491	0.00	0.00	0.00
Dead+Wind 60 deg - No Ice+Guy	224947	4473	-2554	0.00	0.00	0.00
Dead+Wind 90 deg - No Ice+Guy	229691	5060	-214	0.00	0.00	0.00
Dead+Wind 120 deg - No Ice+Guy	230558	4532	2207	0.00	0.00	0.00
Dead+Wind 135 deg - No Ice+Guy	231296	3629	3262	0.00	0.00	0.00
Dead+Wind 150 deg - No	230669	2378	4104	0.00	0.00	0.00

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x lb-ft	Overturning Moment, M_z lb-ft	Torque lb-ft
Ice+Guy						
Dead+Wind 180 deg - No Ice+Guy	225849	-23	4864	0.00	0.00	0.00
Dead+Wind 210 deg - No Ice+Guy	227796	-2475	4206	0.00	0.00	0.00
Dead+Wind 225 deg - No Ice+Guy	226390	-3624	3448	0.00	0.00	0.00
Dead+Wind 240 deg - No Ice+Guy	223910	-4563	2470	0.00	0.00	0.00
Dead+Wind 270 deg - No Ice+Guy	222357	-5137	-64	0.00	0.00	0.00
Dead+Wind 300 deg - No Ice+Guy	219320	-4455	-2521	0.00	0.00	0.00
Dead+Wind 315 deg - No Ice+Guy	220676	-3664	-3480	0.00	0.00	0.00
Dead+Wind 330 deg - No Ice+Guy	222828	-2548	-4256	0.00	0.00	0.00
Dead+Ice+Temp+Guy	240616	31	-1	0.00	0.00	0.00
Dead+Wind 0 deg+Ice+Temp+Guy	337985	132	-3398	0.00	0.00	0.00
Dead+Wind 30 deg+Ice+Temp+Guy	345434	2444	-2698	0.00	0.00	0.00
Dead+Wind 45 deg+Ice+Temp+Guy	348115	3220	-2417	0.00	0.00	0.00
Dead+Wind 60 deg+Ice+Temp+Guy	349120	3656	-2070	0.00	0.00	0.00
Dead+Wind 90 deg+Ice+Temp+Guy	347174	3670	-829	0.00	0.00	0.00
Dead+Wind 120 deg+Ice+Temp+Guy	344482	3070	1244	0.00	0.00	0.00
Dead+Wind 135 deg+Ice+Temp+Guy	345846	2194	2259	0.00	0.00	0.00
Dead+Wind 150 deg+Ice+Temp+Guy	348590	1180	3087	0.00	0.00	0.00
Dead+Wind 180 deg+Ice+Temp+Guy	350576	6	3808	0.00	0.00	0.00
Dead+Wind 210 deg+Ice+Temp+Guy	346276	-1262	3143	0.00	0.00	0.00
Dead+Wind 225 deg+Ice+Temp+Guy	341330	-2177	2386	0.00	0.00	0.00
Dead+Wind 240 deg+Ice+Temp+Guy	338292	-3086	1419	0.00	0.00	0.00
Dead+Wind 270 deg+Ice+Temp+Guy	338966	-3911	-736	0.00	0.00	0.00
Dead+Wind 300 deg+Ice+Temp+Guy	341471	-3832	-2164	0.00	0.00	0.00
Dead+Wind 315 deg+Ice+Temp+Guy	341040	-3365	-2556	0.00	0.00	0.00
Dead+Wind 330 deg+Ice+Temp+Guy	339651	-2494	-2842	0.00	0.00	0.00
Dead+Wind 0 deg - Service+Guy	223813	205	-5161	0.00	0.00	0.00
Dead+Wind 30 deg - Service+Guy	227170	2672	-4247	0.00	0.00	0.00
Dead+Wind 45 deg - Service+Guy	225990	3704	-3491	0.00	0.00	0.00
Dead+Wind 60 deg - Service+Guy	224947	4473	-2554	0.00	0.00	0.00
Dead+Wind 90 deg - Service+Guy	229691	5060	-214	0.00	0.00	0.00
Dead+Wind 120 deg -	230558	4532	2207	0.00	0.00	0.00

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft
Service+Guy						
Dead+Wind 135 deg - Service+Guy	231296	3629	3262	0.00	0.00	0.00
Dead+Wind 150 deg - Service+Guy	230669	2378	4104	0.00	0.00	0.00
Dead+Wind 180 deg - Service+Guy	225849	-23	4864	0.00	0.00	0.00
Dead+Wind 210 deg - Service+Guy	227796	-2475	4206	0.00	0.00	0.00
Dead+Wind 225 deg - Service+Guy	226390	-3624	3448	0.00	0.00	0.00
Dead+Wind 240 deg - Service+Guy	223910	-4563	2470	0.00	0.00	0.00
Dead+Wind 270 deg - Service+Guy	222357	-5137	-64	0.00	0.00	0.00
Dead+Wind 300 deg - Service+Guy	219320	-4455	-2521	0.00	0.00	0.00
Dead+Wind 315 deg - Service+Guy	220676	-3664	-3480	0.00	0.00	0.00
Dead+Wind 330 deg - Service+Guy	222828	-2548	-4256	0.00	0.00	0.00

Solution Summary

Load Comb.	Sum of Applied Forces PX lb	PY lb	PZ lb	Sum of Reactions PX lb	PY lb	PZ lb	% Error
1	0	-66828	0	1	66828	1	0.002%
2	809	-67591	-100235	-807	67591	100230	0.005%
3	50140	-66809	-86510	-50139	66809	86506	0.004%
4	70417	-66240	-70464	-70417	66239	70461	0.003%
5	85906	-66031	-49914	-85902	66031	49922	0.008%
6	98976	-67021	-350	-98974	67021	351	0.002%
7	86084	-67977	50126	-86081	67977	-50124	0.003%
8	70011	-67700	70587	-70008	67699	-70586	0.003%
9	49163	-67039	86405	-49160	67039	-86404	0.002%
10	-276	-66064	99655	283	66064	-99655	0.006%
11	-49546	-66846	86757	49543	66845	-86755	0.004%
12	-69878	-67416	71236	69873	67415	-71233	0.005%
13	-85690	-67625	50966	85685	67624	-50963	0.005%
14	-98390	-66634	160	98387	66634	-158	0.003%
15	-85249	-65678	-49350	85249	65678	49352	0.002%
16	-69812	-65956	-69860	69814	65956	69858	0.002%
17	-49445	-66616	-86015	49447	66616	86012	0.003%
18	0	-110133	0	1	110133	1	0.002%
19	1074	-111998	-137791	-1072	111998	137786	0.003%
20	68754	-110087	-118705	-68754	110086	118694	0.006%
21	96535	-108693	-96672	-96536	108693	96665	0.004%
22	117592	-108183	-68558	-117589	108183	68565	0.005%
23	135419	-110621	-452	-135414	110621	458	0.004%
24	117956	-112971	69590	-117947	112971	-69586	0.006%
25	95548	-112288	97167	-95539	112287	-97164	0.006%
26	67061	-110668	118801	-67053	110667	-118801	0.005%
27	-511	-108269	136997	518	108269	-136997	0.004%
28	-67803	-110180	119544	67799	110180	-119542	0.003%
29	-95659	-111574	98274	95654	111574	-98271	0.003%
30	-117723	-112084	70833	117718	112084	-70830	0.003%
31	-134811	-109646	304	134803	109646	-298	0.006%

Load Comb.	Sum of Applied Forces PX lb	PY lb	PZ lb	Sum of Reactions PX lb	PY lb	PZ lb	% Error
32	-116727	-107296	-67606	116729	107296	67609	0.002%
33	-95650	-107979	-95614	95654	107979	95610	0.003%
34	-67681	-109599	-117816	67687	109599	117808	0.006%
35	809	-67591	-100235	-807	67591	100230	0.005%
36	50140	-66809	-86510	-50139	66809	86506	0.004%
37	70417	-66240	-70464	-70417	66239	70461	0.003%
38	85906	-66031	-49914	-85902	66031	49922	0.008%
39	98976	-67021	-350	-98974	67021	351	0.002%
40	86084	-67977	50126	-86081	67977	-50124	0.003%
41	70011	-67700	70587	-70008	67699	-70586	0.003%
42	49163	-67039	86405	-49160	67039	-86404	0.002%
43	-276	-66064	99655	283	66064	-99655	0.006%
44	-49546	-66846	86757	49543	66845	-86755	0.004%
45	-69878	-67416	71236	69873	67415	-71233	0.005%
46	-85690	-67625	50966	85685	67624	-50963	0.005%
47	-98390	-66634	160	98387	66634	-158	0.003%
48	-85249	-65678	-49350	85249	65678	49352	0.002%
49	-69812	-65956	-69860	69814	65956	69858	0.002%
50	-49445	-66616	-86015	49447	66616	86012	0.003%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	9	0.00000001	0.00005371
2	Yes	14	0.00009568	0.00013793
3	Yes	14	0.00007751	0.00011384
4	Yes	14	0.00007200	0.00010074
5	Yes	11	0.00014881	0.00009796
6	Yes	15	0.00005163	0.00007805
7	Yes	15	0.00006147	0.00009457
8	Yes	15	0.00005808	0.00009306
9	Yes	15	0.00005250	0.00008495
10	Yes	11	0.00012545	0.00006640
11	Yes	14	0.00008493	0.00012510
12	Yes	14	0.00009487	0.00014060
13	Yes	14	0.00010347	0.00014732
14	Yes	14	0.00007829	0.00010360
15	Yes	10	0.00008329	0.00009376
16	Yes	14	0.00000001	0.00006538
17	Yes	14	0.00007362	0.00010306
18	Yes	9	0.00000001	0.00003781
19	Yes	15	0.00005781	0.00007803
20	Yes	14	0.00011833	0.00014448
21	Yes	14	0.00007485	0.00008192
22	Yes	12	0.00010241	0.00004156
23	Yes	15	0.00008689	0.00009339
24	Yes	15	0.00011769	0.00011481
25	Yes	15	0.00010830	0.00012057
26	Yes	15	0.00009090	0.00010036
27	Yes	12	0.00010529	0.00004962
28	Yes	15	0.00004856	0.00006783
29	Yes	15	0.00005722	0.00008055
30	Yes	15	0.00006233	0.00007905
31	Yes	14	0.00012700	0.00011195
32	Yes	10	0.00006763	0.00008675

33	Yes	14	0.00006724	0.00005211
34	Yes	14	0.00012017	0.00012032
35	Yes	14	0.00009568	0.00013793
36	Yes	14	0.00007751	0.00011384
37	Yes	14	0.00007200	0.00010074
38	Yes	11	0.00014881	0.00009796
39	Yes	15	0.00005163	0.00007805
40	Yes	15	0.00006147	0.00009457
41	Yes	15	0.00005808	0.00009306
42	Yes	15	0.00005250	0.00008495
43	Yes	11	0.00012545	0.00006640
44	Yes	14	0.00008493	0.00012510
45	Yes	14	0.00009487	0.00014060
46	Yes	14	0.00010347	0.00014732
47	Yes	14	0.00007829	0.00010360
48	Yes	10	0.00008329	0.00009376
49	Yes	14	0.00000001	0.00006538
50	Yes	14	0.00007362	0.00010306

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	327 - 291.84	10.230	43	0.2595	0.3435
T1	291.84 - 279.84	8.880	43	0.2025	0.3430
T2	279.84 - 259.84	8.845	43	0.2345	0.3489
T3	259.84 - 239.84	8.929	43	0.2871	0.2655
T4	239.84 - 219.84	9.323	42	0.2739	0.2004
T5	219.84 - 199.84	9.915	41	0.2384	0.1459
T6	199.84 - 179.84	10.770	41	0.2149	0.1137
T7	179.84 - 159.84	11.487	40	0.1446	0.0801
T8	159.84 - 139.84	12.091	40	0.1541	0.0751
T9	139.84 - 119.84	12.608	40	0.0623	0.0923
T10	119.84 - 99.84	12.516	40	0.1096	0.1392
T11	99.84 - 79.84	11.952	40	0.1751	0.1524
T12	79.84 - 59.84	10.971	40	0.3329	0.1545
T13	59.84 - 39.84	9.165	40	0.5096	0.1671
T14	39.84 - 19.84	6.721	40	0.6636	0.2059
T15	19.84 - 6.5	3.592	40	0.8074	0.2438
T16	6.5 - 0	1.196	40	0.8627	0.2497

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
325.00	Lightning Rod 5/8x4'	43	10.127	0.2455	0.3424	36317
323.00	Flash Beacon Lighting	43	10.024	0.2317	0.3413	36317
295.00	5'x6'x1" Panel	43	8.929	0.1911	0.3400	5703
290.00	6 FT DISH	43	8.862	0.2082	0.3451	6224
288.00	4"x15' Omni	43	8.849	0.2138	0.3475	7442
285.84	Guy	43	8.842	0.2193	0.3496	9824
277.00	2" Dia 8' Omni	43	8.849	0.2427	0.3434	41766
260.00	AP14-850/105	43	8.927	0.2869	0.2663	11557
256.51	Guy	43	8.967	0.2899	0.2495	15467

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
255.00	OGC9-825	43	8.987	0.2904	0.2427	19949
250.00	OGT9-840	43	9.055	0.2885	0.2218	55240
240.00	SC479-HF1LDF	42	9.318	0.2742	0.2008	9829
236.00	(4) DB844H90	42	9.435	0.2663	0.1911	11888
216.51	Guy	41	10.058	0.2359	0.1391	23540
211.00	6813 1-Bay w/radome	41	10.303	0.2327	0.1302	83695
198.00	6813 1-Bay w/radome	40	10.842	0.2087	0.1103	11208
187.42	4'x1'x4" Panel	40	11.243	0.1642	0.0879	20322
172.17	24"x12"x5" Panel	40	11.719	0.1502	0.0761	27758
172.00	3" x 8' Omni	40	11.724	0.1505	0.0760	27358
171.50	5' Grid Dish	40	11.739	0.1513	0.0759	26224
166.51	Guy	40	11.888	0.1585	0.0749	18546
166.00	16"x12"x3" TTA	40	11.903	0.1589	0.0749	18011
158.83	2'x1'x5" Panel	40	12.122	0.1510	0.0753	16354
157.00	L-810 Flashing Beacon	40	12.180	0.1448	0.0756	20251
125.00	2' Sidearm	40	12.598	0.0968	0.1287	8909
124.00	6'x4' Ice Shield	40	12.584	0.0996	0.1310	9245
116.00	6 FT DISH	40	12.436	0.1224	0.1445	11937
112.00	PD1110	40	12.337	0.1317	0.1482	13148
106.51	Guy	40	12.177	0.1466	0.1509	15270
104.00	6 FT DISH	40	12.096	0.1558	0.1516	16473
94.00	PR-850	40	11.727	0.2142	0.1536	9898
84.00	BXA-171063-12CF-EDIN-X	40	11.235	0.2959	0.1548	5441
56.51	Guy	40	8.800	0.5364	0.1723	8733
18.00	6' Yagi	40	3.272	0.8167	0.2454	9337
13.00	1.2M	40	2.382	0.8380	0.2479	14760

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	327 - 291.84	16.857	27	0.2595	0.5046
T1	291.84 - 279.84	15.691	27	0.2956	0.5313
T2	279.84 - 259.84	15.782	27	0.3281	0.5528
T3	259.84 - 239.84	15.974	27	0.3112	0.4318
T4	239.84 - 219.84	16.193	28	0.2739	0.3135
T5	219.84 - 199.84	16.014	26	0.2384	0.2460
T6	199.84 - 179.84	15.855	24	0.2237	0.1963
T7	179.84 - 159.84	15.152	24	0.2889	0.1721
T8	159.84 - 139.84	14.350	24	0.2070	0.1746
T9	139.84 - 119.84	13.750	24	0.2230	0.1964
T10	119.84 - 99.84	12.839	24	0.2646	0.2400
T11	99.84 - 79.84	11.952	7	0.2627	0.2541
T12	79.84 - 59.84	10.971	7	0.3661	0.2570
T13	59.84 - 39.84	9.165	7	0.5096	0.2624
T14	39.84 - 19.84	6.721	7	0.6636	0.3069
T15	19.84 - 6.5	3.592	7	0.8074	0.3495
T16	6.5 - 0	1.196	7	0.8627	0.3545

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
325.00	Lightning Rod 5/8x4'	27	16.760	0.2455	0.5332	30260
323.00	Flash Beacon Lighting	27	16.663	0.2317	0.5343	30260
295.00	5'x6'x1" Panel	27	15.710	0.2819	0.5347	4755
290.00	6 FT DISH	27	15.691	0.3026	0.5288	5407
288.00	4"x15' Omni	27	15.700	0.3094	0.5255	6857
285.84	Guy	27	15.717	0.3157	0.5346	9824
277.00	2" Dia 8' Omni	27	15.811	0.3316	0.5499	28715
260.00	AP14-850/105	27	15.972	0.3118	0.4330	11557
256.51	Guy	27	16.016	0.2974	0.4063	15467
255.00	OGC9-825	27	16.035	0.2904	0.3957	19949
250.00	OGT9-840	27	16.093	0.2885	0.3639	8106
240.00	SC479-HF1LDF	28	16.192	0.2742	0.3142	3968
236.00	(4) DB844H90	28	16.206	0.2663	0.2984	4453
216.51	Guy	25	15.994	0.2359	0.2355	23540
211.00	6813 1-Bay w/radome	25	15.981	0.2327	0.2182	11656
198.00	6813 1-Bay w/radome	24	15.814	0.2307	0.1943	6103
187.42	4'x1'x4" Panel	24	15.467	0.2758	0.1797	12612
172.17	24"x12"x5" Panel	24	14.822	0.2657	0.1715	14257
172.00	3" x 8' Omni	24	14.815	0.2649	0.1716	14066
171.50	5' Grid Dish	24	14.794	0.2625	0.1716	13521
166.51	Guy	24	14.592	0.2356	0.1723	9750
166.00	16"x12"x3" TTA	24	14.572	0.2328	0.1724	9481
158.83	2'x1'x5" Panel	24	14.318	0.2047	0.1751	8072
157.00	L-810 Flashing Beacon	24	14.261	0.2017	0.1761	9007
125.00	2' Sidearm	24	13.102	0.2603	0.2301	8909
124.00	6'x4' Ice Shield	24	13.052	0.2616	0.2322	9245
116.00	6 FT DISH	24	12.638	0.2652	0.2452	11937
112.00	PD1110	24	12.425	0.2628	0.2489	13148
106.51	Guy	7	12.177	0.2591	0.2520	15270
104.00	6 FT DISH	7	12.096	0.2589	0.2529	16473
94.00	PR-850	7	11.727	0.2800	0.2558	9898
84.00	BXA-171063-12CF-EDIN-X	7	11.235	0.3371	0.2574	5441
56.51	Guy	7	8.800	0.5364	0.2686	8733
18.00	6' Yagi	7	3.272	0.8167	0.3511	9099
13.00	1.2M	7	2.382	0.8380	0.3533	14280

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load lb	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	291.84	Leg	A325N	1.0000	4	2190	34555	0.063 ✔	1.333	Bolt Tension
		Top Guy Pull-Off@285.84	A325N	0.6250	5	1373	6443	0.213 ✔	1.333	Bolt Shear
		Torque Arm Top@285.84	A325N	0.6250	5	2122	6443	0.329 ✔	1.333	Bolt Shear
T2	279.84	Leg	A325N	1.0000	4	0	34548	0.000 ✔	1.333	Bolt Tension
T3	259.84	Leg	A325N	1.0000	4	0	34551	0.000 ✔	1.333	Bolt Tension
		Top Guy Pull-Off@256.507	A325N	0.6250	5	1927	6443	0.299 ✔	1.333	Bolt Shear
		Torque Arm Top@256.507	A325N	0.6250	5	2603	6443	0.404 ✔	1.333	Bolt Shear

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load lb	Ratio Load / Allowable	Allowable Ratio	Criteria
T4	239.84	Leg	A325N	1.0000	4	1009	34557	0.029 ✔	1.333	Bolt Tension
T5	219.84	Leg	A325N	1.0000	4	0	34552	0.000 ✔	1.333	Bolt Tension
		Top Guy Pull-Off@216.507	A325N	0.6250	5	2591	6443	0.402 ✔	1.333	Bolt Shear
		Torque Arm Top@216.507	A325N	0.6250	5	3098	6443	0.481 ✔	1.333	Bolt Shear
T6	199.84	Leg	A325N	1.0000	4	0	34556	0.000 ✔	1.333	Bolt Tension
T7	179.84	Leg	A325N	1.0000	4	0	34557	0.000 ✔	1.333	Bolt Tension
		Top Guy Pull-Off@166.507	A325N	0.6250	5	3643	6443	0.565 ✔	1.333	Bolt Shear
		Torque Arm Top@166.507	A325N	0.6250	5	3967	6443	0.616 ✔	1.333	Bolt Shear
T8	159.84	Leg	A325N	1.0000	4	0	34557	0.000 ✔	1.333	Bolt Tension
T9	139.84	Leg	A325N	1.0000	4	0	34557	0.000 ✔	1.333	Bolt Tension
T10	119.84	Leg	A325N	1.0000	4	0	34557	0.000 ✔	1.333	Bolt Tension
		Top Guy Pull-Off@106.507	A325N	0.6250	5	3413	6443	0.530 ✔	1.333	Bolt Shear
		Torque Arm Top@106.507	A325N	0.6250	5	3614	6443	0.561 ✔	1.333	Bolt Shear
T11	99.84	Leg	A325N	1.0000	4	0	34556	0.000 ✔	1.333	Bolt Tension
T12	79.84	Leg	A325N	1.3750	4	563	65335	0.009 ✔	1.333	Bolt Tension
T13	59.84	Leg	A325N	1.3750	4	0	65334	0.000 ✔	1.333	Bolt Tension
		Top Guy Pull-Off@56.5067	A325N	0.6250	5	1567	6443	0.243 ✔	1.333	Bolt Shear
		Torque Arm Top@56.5067	A325N	0.6250	5	1685	6443	0.262 ✔	1.333	Bolt Shear
T14	39.84	Leg	A325N	1.3750	4	0	65334	0.000 ✔	1.333	Bolt Tension
T15	19.84	Leg	A325N	1.3750	4	0	65334	0.000 ✔	1.333	Bolt Tension
T16	6.5	Leg	A325N	1.3750	4	0	65335	0.000 ✔	1.333	Bolt Tension

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension lb	Breaking Load lb	Actual T lb	Allowable T_a lb	Required S.F.	Actual S.F.
T1	285.84 (A) (672)	3/4 EHS	5830	58300	20645	29150	2.000	2.824 ✔
	285.84 (A) (673)	3/4 EHS	5830	58300	21011	29150	2.000	2.775 ✔
	285.84 (B) (668)	3/4 EHS	5830	58300	20079	29150	2.000	2.903 ✔
	285.84 (B) (669)	3/4 EHS	5830	58300	19849	29150	2.000	2.937 ✔

Section No.	Elevation ft	Size	Initial Tension lb	Breaking Load lb	Actual T lb	Allowable T_a lb	Required S.F.	Actual S.F.
	285.84 (C) (664)	3/4 EHS	5830	58300	20781	29150	2.000	2.805 ✔
	285.84 (C) (665)	3/4 EHS	5830	58300	20604	29150	2.000	2.830 ✔
T3	256.51 (A) (684)	3/4 EHS	5830	58300	21951	29150	2.000	2.656 ✔
	256.51 (A) (685)	3/4 EHS	5830	58300	22336	29150	2.000	2.610 ✔
	256.51 (B) (680)	3/4 EHS	5830	58300	21181	29150	2.000	2.752 ✔
	256.51 (B) (681)	3/4 EHS	5830	58300	21126	29150	2.000	2.760 ✔
	256.51 (C) (676)	3/4 EHS	5830	58300	22069	29150	2.000	2.642 ✔
	256.51 (C) (677)	3/4 EHS	5830	58300	21845	29150	2.000	2.669 ✔
T5	216.51 (A) (696)	3/4 EHS	4664	58300	22468	29150	2.000	2.595 ✔
	216.51 (A) (697)	3/4 EHS	4664	58300	22682	29150	2.000	2.570 ✔
	216.51 (B) (692)	3/4 EHS	4664	58300	21350	29150	2.000	2.731 ✔
	216.51 (B) (693)	3/4 EHS	4664	58300	21355	29150	2.000	2.730 ✔
	216.51 (C) (688)	3/4 EHS	4664	58300	22348	29150	2.000	2.609 ✔
	216.51 (C) (689)	3/4 EHS	4664	58300	22247	29150	2.000	2.621 ✔
T7	166.51 (A) (708)	3/4 EHS	5830	58300	24388	29150	2.000	2.391 ✔
	166.51 (A) (709)	3/4 EHS	5830	58300	24411	29150	2.000	2.388 ✔
	166.51 (B) (704)	3/4 EHS	5830	58300	22760	29150	2.000	2.561 ✔
	166.51 (B) (705)	3/4 EHS	5830	58300	22700	29150	2.000	2.568 ✔
	166.51 (C) (700)	3/4 EHS	5830	58300	24072	29150	2.000	2.422 ✔
	166.51 (C) (701)	3/4 EHS	5830	58300	23926	29150	2.000	2.437 ✔
T10	106.51 (A) (720)	5/8 EHS	4240	42400	19084	21200	2.000	2.222 ✔
	106.51 (A) (721)	5/8 EHS	4240	42400	19281	21200	2.000	2.199 ✔
	106.51 (B) (716)	5/8 EHS	4240	42400	18018	21200	2.000	2.353 ✔
	106.51 (B) (717)	5/8 EHS	4240	42400	17749	21200	2.000	2.389 ✔
	106.51 (C) (712)	5/8 EHS	4240	42400	19038	21200	2.000	2.227 ✔
	106.51 (C) (713)	5/8 EHS	4240	42400	18881	21200	2.000	2.246 ✔
T13	56.51 (A) (732)	7/16 EHS	2080	20800	8492	10400	2.000	2.449 ✔
	56.51 (A) (733)	7/16 EHS	2080	20800	8747	10400	2.000	2.378 ✔
	56.51 (B) (728)	7/16 EHS	2080	20800	8207	10400	2.000	2.534 ✔
	56.51 (B) (729)	7/16 EHS	2080	20800	8092	10400	2.000	2.570 ✔
	56.51 (C) (724)	7/16 EHS	2080	20800	8606	10400	2.000	2.417 ✔

Section No.	Elevation ft	Size	Initial Tension lb	Breaking Load lb	Actual T lb	Allowable T_a lb	Required S.F.	Actual S.F.
	56.51 (C) (725)	7/16 EHS	2080	20800	8549	10400	2.000	2.433 ✔

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
L1	327 - 291.84 (1)	P10.75x0.843	35.16	35.16	120.0	10.366	26.2373	-3724	271981	0.014

Pole Bending Design Data

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L1	327 - 291.84 (1)	P10.75x0.843	26411.17	-5.254	33.000	0.159	0.00	0.000	33.000	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	327 - 291.84 (1)	P10.75x0.843	0.014	0.159	0.000	0.173 ✔	1.066	H1-3 ✔

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	Mast Stability Index	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	291.84 - 279.84	2	12.00	3.00	72.0 K=1.00	1.00	20.564	3.1416	-27219	64605	0.421
T2	279.84 - 259.84	2	20.00	3.33	80.0 K=1.00	1.00	19.012	3.1416	-29478	59729	0.494
T3	259.84 - 239.84	2 1/4	20.00	3.33	71.1 K=1.00	1.00	20.731	3.9761	-82203	82428	0.997
T4	239.84 - 219.84	2 1/4	20.00	3.33	71.1 K=1.00	1.00	20.731	3.9761	-83906	82428	1.018

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	Mast Stability Index	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T5	219.84 - 199.84	2 1/2	20.00	3.33	64.0 K=1.00	1.00	22.023	4.9087	-92609	108105	0.857
T6	199.84 - 179.84	2 1/2	20.00	3.33	64.0 K=1.00	1.00	22.023	4.9087	-92097	108105	0.852
T7	179.84 - 159.84	2 3/4	20.00	3.33	58.2 K=1.00	1.00	23.025	5.9396	-109458	136761	0.800
T8	159.84 - 139.84	2 1/2	20.00	3.33	64.0 K=1.00	1.00	22.023	4.9087	-98135	108105	0.908
T9	139.84 - 119.84	2 3/4	20.00	3.33	58.2 K=1.00	1.00	23.025	5.9396	-100103	136761	0.732
T10	119.84 - 99.84	2 3/4	20.00	3.33	58.2 K=1.00	1.00	23.025	5.9396	-111471	136761	0.815
T11	99.84 - 79.84	3	20.00	3.33	53.3 K=1.00	1.00	23.823	7.0686	-156557	168393	0.930
T12	79.84 - 59.84	3	20.00	3.33	53.3 K=1.00	1.00	23.823	7.0686	-160444	168393	0.953
T13	59.84 - 39.84	3	20.00	3.33	53.3 K=1.00	1.00	23.823	7.0686	-170303	168393	1.011
T14	39.84 - 19.84	3	20.00	3.33	53.3 K=1.00	1.00	23.823	7.0686	-170505	168393	1.013
T15	19.84 - 6.5	3	13.34	3.34	53.4 K=1.00	1.00	23.819	7.0686	-155263	168363	0.922
T16	6.5 - 0	3	6.84	2.10	67.3 K=2.00	1.00	21.431	7.0686	-140604	151486	0.928

Leg Bending Design Data (Compression)

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

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
T16	6.5 - 0	3	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000

Leg Interaction Design Data (Compression)

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	291.84 - 279.84	2	0.421	0.000	0.000	0.421 ✔	1.333	H1-3 ✔
T2	279.84 - 259.84	2	0.494	0.000	0.000	0.494 ✔	1.333	H1-3 ✔
T3	259.84 - 239.84	2 1/4	0.997	0.000	0.000	0.997 ✔	1.333	H1-3 ✔
T4	239.84 - 219.84	2 1/4	1.018	0.000	0.000	1.018 ✔	1.333	H1-3 ✔
T5	219.84 - 199.84	2 1/2	0.857	0.000	0.000	0.857 ✔	1.333	H1-3 ✔
T6	199.84 - 179.84	2 1/2	0.852	0.000	0.000	0.852 ✔	1.333	H1-3 ✔
T7	179.84 - 159.84	2 3/4	0.800	0.000	0.000	0.800 ✔	1.333	H1-3 ✔
T8	159.84 - 139.84	2 1/2	0.908	0.000	0.000	0.908 ✔	1.333	H1-3 ✔
T9	139.84 - 119.84	2 3/4	0.732	0.000	0.000	0.732 ✔	1.333	H1-3 ✔
T10	119.84 - 99.84	2 3/4	0.815	0.000	0.000	0.815 ✔	1.333	H1-3 ✔
T11	99.84 - 79.84	3	0.930	0.000	0.000	0.930 ✔	1.333	H1-3 ✔
T12	79.84 - 59.84	3	0.953	0.000	0.000	0.953 ✔	1.333	H1-3 ✔
T13	59.84 - 39.84	3	1.011	0.000	0.000	1.011 ✔	1.333	H1-3 ✔
T14	39.84 - 19.84	3	1.013	0.000	0.000	1.013 ✔	1.333	H1-3 ✔
T15	19.84 - 6.5	3	0.922	0.000	0.000	0.922 ✔	1.333	H1-3 ✔
T16	6.5 - 0	3	0.928	0.000	0.000	0.928 ✔	1.333	H1-3 ✔

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	291.84 - 279.84	1 3/8	4.74	4.52	110.5 K=0.70	11.603	1.4849	-4155	17229	0.241 ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T2	279.84 - 259.84	1 3/8	4.96	4.73	115.6 K=0.70	10.905	1.4849	-3619	16193	0.223 ✔
T3	259.84 - 239.84	1 3/8	4.96	4.70	114.9 K=0.70	11.001	1.4849	-10587	16336	0.648 ✔
T4	239.84 - 219.84	1 3/8	4.96	4.70	114.9 K=0.70	11.001	1.4849	-9860	16336	0.604 ✔
T5	219.84 - 199.84	1 1/2	4.96	4.67	104.7 K=0.70	12.374	1.7672	-9407	21867	0.430 ✔
T6	199.84 - 179.84	1 1/4	4.96	4.67	125.6 K=0.70	9.460	1.2272	-9103	11609	0.784 ✔
T7	179.84 - 159.84	1 1/2	4.96	4.65	104.1 K=0.70	12.456	1.7672	-12505	22012	0.568 ✔
T8	159.84 - 139.84	1 3/8	4.96	4.67	114.2 K=0.70	11.097	1.4849	-7515	16477	0.456 ✔
T9	139.84 - 119.84	1 1/4	4.96	4.65	124.9 K=0.70	9.572	1.2272	-5479	11747	0.466 ✔
T10	119.84 - 99.84	1 1/2	4.96	4.65	104.1 K=0.70	12.456	1.7672	-13175	22012	0.599 ✔
T11	99.84 - 79.84	1 3/8	4.96	4.62	112.8 K=0.70	11.286	1.4849	-10565	16758	0.630 ✔
T12	79.84 - 59.84	1 1/4	4.96	4.62	124.1 K=0.70	9.684	1.2272	-4753	11884	0.400 ✔
T13	59.84 - 39.84	1 1/4	4.96	4.62	124.1 K=0.70	9.684	1.2272	-6016	11884	0.506 ✔
T14	39.84 - 19.84	1 1/4	4.96	4.62	124.1 K=0.70	9.684	1.2272	-5577	11884	0.469 ✔
T15	19.84 - 6.5	1 1/4	4.96	4.62	124.2 K=0.70	9.679	1.2272	-7315	11878	0.616 ✔

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	291.84 - 279.84	1	3.67	3.50	117.6 K=0.70	10.622	0.7854	-903	8343	0.108 ✔
T2	279.84 - 259.84	1	3.67	3.50	117.6 K=0.70	10.622	0.7854	-1575	8343	0.189 ✔
T3	259.84 - 239.84	1	3.67	3.48	116.9 K=0.70	10.721	0.7854	-1424	8420	0.169 ✔
T4	239.84 - 219.84	1	3.67	3.48	116.9 K=0.70	10.721	0.7854	-1854	8420	0.220 ✔
T5	219.84 - 199.84	1	3.67	3.46	116.2 K=0.70	10.819	0.7854	-1604	8497	0.189 ✔
T6	199.84 - 179.84	1	3.67	3.46	116.2 K=0.70	10.819	0.7854	-1595	8497	0.188 ✔
T7	179.84 - 159.84	1	3.67	3.44	115.5 K=0.70	10.917	0.7854	-1896	8574	0.221 ✔
T8	159.84 - 139.84	1	3.67	3.46	116.2 K=0.70	10.819	0.7854	-1700	8497	0.200 ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T9	139.84 - 119.84	1	3.67	3.44	115.5 K=0.70	10.917	0.7854	-1734	8574	0.202 ✔
T10	119.84 - 99.84	1	3.67	3.44	115.5 K=0.70	10.917	0.7854	-1931	8574	0.225 ✔
T11	99.84 - 79.84	1	3.67	3.42	114.8 K=0.70	11.014	0.7854	-2712	8651	0.313 ✔
T12	79.84 - 59.84	1	3.67	3.42	114.8 K=0.70	11.014	0.7854	-2779	8651	0.321 ✔
T13	59.84 - 39.84	1	3.67	3.42	114.8 K=0.70	11.014	0.7854	-2950	8651	0.341 ✔
T14	39.84 - 19.84	1	3.67	3.42	114.8 K=0.70	11.014	0.7854	-2953	8651	0.341 ✔
T15	19.84 - 6.5	1	3.67	3.42	114.8 K=0.70	11.014	0.7854	-2689	8651	0.311 ✔

Secondary Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	291.84 - 279.84	1	1.83	1.75	81.5 K=0.97	15.189	0.7854	0	11930	0.000 ✔
T2	279.84 - 259.84	1	1.83	1.75	81.5 K=0.97	15.189	0.7854	0	11930	0.000 ✔
T3	259.84 - 239.84	1	1.83	1.74	81.3 K=0.97	15.208	0.7854	0	11945	0.000 ✔
T4	239.84 - 219.84	1	1.83	1.74	81.3 K=0.97	15.208	0.7854	0	11945	0.000 ✔
T5	219.84 - 199.84	1	1.83	1.73	81.1 K=0.98	15.228	0.7854	0	11960	0.000 ✔
T6	199.84 - 179.84	1	1.83	1.73	81.1 K=0.98	15.228	0.7854	0	11960	0.000 ✔
T7	179.84 - 159.84	1	1.83	1.72	81.0 K=0.98	15.248	0.7854	0	11976	0.000 ✔
T8	159.84 - 139.84	1	1.83	1.73	81.1 K=0.98	15.228	0.7854	0	11960	0.000 ✔
T9	139.84 - 119.84	1	1.83	1.72	81.0 K=0.98	15.248	0.7854	0	11976	0.000 ✔
T10	119.84 - 99.84	1	1.83	1.72	81.0 K=0.98	15.248	0.7854	0	11976	0.000 ✔
T11	99.84 - 79.84	1	1.83	1.71	80.8 K=0.98	15.269	0.7854	0	11992	0.000 ✔
T12	79.84 - 59.84	1	1.83	1.71	80.8 K=0.98	15.269	0.7854	0	11992	0.000 ✔
T13	59.84 - 39.84	1	1.83	1.71	80.8 K=0.98	15.269	0.7854	0	11992	0.000 ✔
T14	39.84 - 19.84	1	1.83	1.71	80.8 K=0.98	15.269	0.7854	0	11992	0.000 ✔
T15	19.84 - 6.5	1	1.83	1.71	80.8 K=0.98	15.269	0.7854	0	11992	0.000 ✔

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

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	291.84 - 279.84	1	3.67	3.50	117.6 K=0.70	10.622	0.7854	0	8343	0.000 ✔
T2	279.84 - 259.84	1	3.67	3.50	117.6 K=0.70	10.622	0.7854	-17	8343	0.002 ✔
T4	239.84 - 219.84	1	3.67	3.48	116.9 K=0.70	10.721	0.7854	-844	8420	0.100 ✔
T6	199.84 - 179.84	1	3.67	3.46	116.2 K=0.70	10.819	0.7854	-209	8497	0.025 ✔

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T16	6.5 - 0	12x3/8	0.28	0.03	3.6 K=1.00	21.455	4.5000	-4241	96549	0.044 ✔

Mid Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T16	6.5 - 0	9x3/8	1.41	1.16	128.6 K=1.00	9.025	3.3750	-251	30461	0.008 ✔

Top Guy Pull-Off Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	291.84 - 279.84	MC12x35	3.67	3.50	115.1 K=1.00	10.968	10.3000	-6043	112971	0.053
T3	259.84 - 239.84	MC12x35	3.67	3.48	114.6 K=1.00	11.042	10.3000	-8486	113735	0.075
T5	219.84 - 199.84	MC12x35	3.67	3.46	114.1 K=1.00	11.116	10.3000	-11226	114498	0.098

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T7	179.84 - 159.84	MC12x35	3.67	3.44	113.5 K=1.00	11.191	10.3000	-16076	115263	0.139
T10	119.84 - 99.84	MC12x35	3.67	3.44	113.5 K=1.00	11.191	10.3000	-14642	115263	0.127
T13	59.84 - 39.84	MC12x35	3.67	3.42	113.0 K=1.00	11.265	10.3000	-5354	116028	0.046

Top Guy Pull-Off Bending Design Data

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

Top Guy Pull-Off Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	291.84 - 279.84	MC12x35	0.053	0.001	0.000	0.055 ✔	1.333	H1-3 ✔
T3	259.84 - 239.84	MC12x35	0.075	0.001	0.000	0.076 ✔	1.333	H1-3 ✔
T5	219.84 - 199.84	MC12x35	0.098	0.001	0.000	0.099 ✔	1.333	H1-3 ✔
T7	179.84 - 159.84	MC12x35	0.139	0.001	0.000	0.141 ✔	1.333	H1-3 ✔
T10	119.84 - 99.84	MC12x35	0.127	0.001	0.000	0.128 ✔	1.333	H1-3 ✔
T13	59.84 - 39.84	MC12x35	0.046	0.001	0.000	0.047 ✔	1.333	H1-3 ✔

Torque-Arm Top Design Data

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

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	291.84 - 279.84 (666)	MC12x35	4.00	3.92	125.5 K=1.00	9.483	10.3000	-708	97671	0.007
T1	291.84 - 279.84 (667)	MC12x35	4.00	3.92	125.5 K=1.00	9.483	10.3000	-825	97671	0.008
T1	291.84 - 279.84 (670)	MC12x35	4.00	3.92	125.5 K=1.00	9.483	10.3000	-505	97671	0.005
T1	291.84 - 279.84 (671)	MC12x35	4.00	3.92	125.5 K=1.00	9.483	10.3000	-725	97671	0.007
T1	291.84 - 279.84 (674)	MC12x35	4.00	3.92	125.5 K=1.00	9.483	10.3000	-517	97671	0.005
T1	291.84 - 279.84 (675)	MC12x35	4.00	3.92	125.5 K=1.00	9.483	10.3000	-454	97671	0.005
T3	259.84 - 239.84 (678)	MC12x35	4.00	3.91	125.2 K=1.00	9.519	10.3000	-2400	98046	0.024
T3	259.84 - 239.84 (679)	MC12x35	4.00	3.91	125.2 K=1.00	9.519	10.3000	-2277	98046	0.023
T3	259.84 - 239.84 (682)	MC12x35	4.00	3.91	125.2 K=1.00	9.519	10.3000	-2167	98046	0.022
T3	259.84 - 239.84 (683)	MC12x35	4.00	3.91	125.2 K=1.00	9.519	10.3000	-2092	98046	0.021
T3	259.84 - 239.84 (686)	MC12x35	4.00	3.91	125.2 K=1.00	9.519	10.3000	-2161	98046	0.022
T3	259.84 - 239.84 (687)	MC12x35	4.00	3.91	125.2 K=1.00	9.519	10.3000	-2094	98046	0.021
T5	219.84 - 199.84 (690)	MC12x35	4.00	3.90	125.0 K=1.00	9.555	10.3000	-4247	98421	0.043
T5	219.84 - 199.84 (691)	MC12x35	4.00	3.90	125.0 K=1.00	9.555	10.3000	-5391	98421	0.055
T5	219.84 - 199.84 (694)	MC12x35	4.00	3.90	125.0 K=1.00	9.555	10.3000	-3969	98421	0.040
T5	219.84 - 199.84 (695)	MC12x35	4.00	3.90	125.0 K=1.00	9.555	10.3000	-4070	98421	0.041
T5	219.84 - 199.84 (698)	MC12x35	4.00	3.90	125.0 K=1.00	9.555	10.3000	-4030	98421	0.041
T5	219.84 - 199.84 (699)	MC12x35	4.00	3.90	125.0 K=1.00	9.555	10.3000	-4149	98421	0.042
T7	179.84 - 159.84 (702)	MC12x35	4.00	3.89	124.7 K=1.00	9.592	10.3000	-8138	98797	0.082
T7	179.84 - 159.84 (703)	MC12x35	4.00	3.89	124.7 K=1.00	9.592	10.3000	-6538	98797	0.066
T7	179.84 - 159.84 (706)	MC12x35	4.00	3.89	124.7 K=1.00	9.592	10.3000	-6262	98797	0.063
T7	179.84 - 159.84 (707)	MC12x35	4.00	3.89	124.7 K=1.00	9.592	10.3000	-6024	98797	0.061
T7	179.84 - 159.84 (710)	MC12x35	4.00	3.89	124.7 K=1.00	9.592	10.3000	-7816	98797	0.079
T7	179.84 - 159.84 (711)	MC12x35	4.00	3.89	124.7 K=1.00	9.592	10.3000	-6547	98797	0.066
T10	119.84 - 99.84 (714)	MC12x35	4.00	3.89	124.7 K=1.00	9.592	10.3000	-7959	98797	0.081
T10	119.84 - 99.84 (715)	MC12x35	4.00	3.89	124.7 K=1.00	9.592	10.3000	-6572	98797	0.067
T10	119.84 - 99.84 (718)	MC12x35	4.00	3.89	124.7 K=1.00	9.592	10.3000	-6079	98797	0.062
T10	119.84 - 99.84 (719)	MC12x35	4.00	3.89	124.7 K=1.00	9.592	10.3000	-6060	98797	0.061
T10	119.84 - 99.84 (722)	MC12x35	4.00	3.89	124.7 K=1.00	9.592	10.3000	-7354	98797	0.074
T10	119.84 - 99.84 (723)	MC12x35	4.00	3.89	124.7 K=1.00	9.592	10.3000	-6134	98797	0.062

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T13	59.84 - 39.84 (726)	MC12x35	4.00	3.88	124.5 K=1.00	9.628	10.3000	-3626	99173	0.037
T13	59.84 - 39.84 (727)	MC12x35	4.00	3.88	124.5 K=1.00	9.628	10.3000	-3576	99173	0.036
T13	59.84 - 39.84 (730)	MC12x35	4.00	3.88	124.5 K=1.00	9.628	10.3000	-3334	99173	0.034
T13	59.84 - 39.84 (731)	MC12x35	4.00	3.88	124.5 K=1.00	9.628	10.3000	-3470	99173	0.035
T13	59.84 - 39.84 (734)	MC12x35	4.00	3.88	124.5 K=1.00	9.628	10.3000	-3262	99173	0.033
T13	59.84 - 39.84 (735)	MC12x35	4.00	3.88	124.5 K=1.00	9.628	10.3000	-3318	99173	0.033

Torque-Arm Top Bending Design Data

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
T1	291.84 - 279.84 (666)	MC12x35	-66633.50	-22.150	21.600	1.025	-0.00	-0.000	21.600	0.000
T1	291.84 - 279.84 (667)	MC12x35	-67419.83	-22.411	21.600	1.038	0.00	-0.000	21.600	0.000
T1	291.84 - 279.84 (670)	MC12x35	-66704.58	-22.173	21.600	1.027	-0.00	-0.000	21.600	0.000
T1	291.84 - 279.84 (671)	MC12x35	-62053.42	-20.627	21.600	0.955	-0.00	-0.000	21.600	0.000
T1	291.84 - 279.84 (674)	MC12x35	-62141.42	-20.656	21.600	0.956	-0.00	-0.000	21.600	0.000
T1	291.84 - 279.84 (675)	MC12x35	-67221.42	-22.345	21.600	1.034	0.00	-0.000	21.600	0.000
T3	259.84 - 239.84 (678)	MC12x35	-68521.25	-22.777	21.600	1.054	0.00	-0.000	21.600	0.000
T3	259.84 - 239.84 (679)	MC12x35	-68038.00	-22.616	21.600	1.047	-0.00	-0.000	21.600	0.000
T3	259.84 - 239.84 (682)	MC12x35	-62237.08	-20.688	21.600	0.958	-0.00	-0.000	21.600	0.000
T3	259.84 - 239.84 (683)	MC12x35	-67426.33	-22.413	21.600	1.038	-0.00	-0.000	21.600	0.000
T3	259.84 - 239.84 (686)	MC12x35	-62401.67	-20.743	21.600	0.960	-0.00	-0.000	21.600	0.000
T3	259.84 - 239.84 (687)	MC12x35	-68687.83	-22.833	21.600	1.057	0.00	-0.000	21.600	0.000
T5	219.84 - 199.84 (690)	MC12x35	-64905.25	-21.575	21.600	0.999	0.00	-0.000	21.600	0.000
T5	219.84 - 199.84 (691)	MC12x35	-63114.00	-20.980	21.600	0.971	0.00	-0.000	21.600	0.000
T5	219.84 - 199.84 (694)	MC12x35	-57393.83	-19.078	21.600	0.883	0.00	-0.000	21.600	0.000
T5	219.84 - 199.84 (695)	MC12x35	-63745.92	-21.190	21.600	0.981	-0.00	-0.000	21.600	0.000
T5	219.84 - 199.84 (698)	MC12x35	-57218.83	-19.020	21.600	0.881	-0.00	0.000	21.600	0.000
T5	219.84 - 199.84 (699)	MC12x35	-65146.50	-21.655	21.600	1.003	0.00	-0.000	21.600	0.000
T7	179.84 - 159.84 (702)	MC12x35	-59034.33	-19.624	21.600	0.909	0.00	-0.000	21.600	0.000

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
T7	179.84 - 159.84 (703)	MC12x35	-61588.00	-20.473	21.600	0.948	-0.00	0.000	21.600	0.000
T7	179.84 - 159.84 (706)	MC12x35	-59886.42	-19.907	21.600	0.922	-0.00	-0.000	21.600	0.000
T7	179.84 - 159.84 (707)	MC12x35	-50944.33	-16.934	21.600	0.784	-0.00	0.000	21.600	0.000
T7	179.84 - 159.84 (710)	MC12x35	-50205.92	-16.689	21.600	0.773	-0.00	-0.000	21.600	0.000
T7	179.84 - 159.84 (711)	MC12x35	-61274.58	-20.368	21.600	0.943	0.00	-0.000	21.600	0.000
T10	119.84 - 99.84 (714)	MC12x35	-35981.75	-11.961	21.600	0.554	-0.00	-0.000	21.600	0.000
T10	119.84 - 99.84 (715)	MC12x35	-37755.92	-12.551	21.600	0.581	0.00	-0.000	21.600	0.000
T10	119.84 - 99.84 (718)	MC12x35	-36484.42	-12.128	21.600	0.561	-0.00	-0.000	21.600	0.000
T10	119.84 - 99.84 (719)	MC12x35	-28050.83	-9.324	21.600	0.432	-0.00	-0.000	21.600	0.000
T10	119.84 - 99.84 (722)	MC12x35	-27404.17	-9.109	21.600	0.422	-0.00	-0.000	21.600	0.000
T10	119.84 - 99.84 (723)	MC12x35	-37372.75	-12.423	21.600	0.575	0.00	-0.000	21.600	0.000
T13	59.84 - 39.84 (726)	MC12x35	-11231.58	-3.733	21.600	0.173	0.00	-0.000	21.600	0.000
T13	59.84 - 39.84 (727)	MC12x35	-10822.00	-3.597	21.600	0.167	0.00	-0.000	21.600	0.000
T13	59.84 - 39.84 (730)	MC12x35	-6842.87	-2.275	21.600	0.105	0.00	-0.000	21.600	0.000
T13	59.84 - 39.84 (731)	MC12x35	-10572.92	-3.515	21.600	0.163	-0.00	-0.000	21.600	0.000
T13	59.84 - 39.84 (734)	MC12x35	-6734.91	-2.239	21.600	0.104	-0.00	-0.000	21.600	0.000
T13	59.84 - 39.84 (735)	MC12x35	-10973.83	-3.648	21.600	0.169	0.00	-0.000	21.600	0.000

Torque-Arm Top Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	291.84 - 279.84 (666)	MC12x35	0.007	1.025	0.000	1.033 ✔	1.333	H1-3 ✔
T1	291.84 - 279.84 (667)	MC12x35	0.008	1.038	0.000	1.046 ✔	1.333	H1-3 ✔
T1	291.84 - 279.84 (670)	MC12x35	0.005	1.027	0.000	1.032 ✔	1.333	H1-3 ✔
T1	291.84 - 279.84 (671)	MC12x35	0.007	0.955	0.000	0.962 ✔	1.333	H1-3 ✔
T1	291.84 - 279.84 (674)	MC12x35	0.005	0.956	0.000	0.962 ✔	1.333	H1-3 ✔
T1	291.84 - 279.84 (675)	MC12x35	0.005	1.034	0.000	1.039 ✔	1.333	H1-3 ✔
T3	259.84 - 239.84 (678)	MC12x35	0.024	1.054	0.000	1.079 ✔	1.333	H1-3 ✔

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T3	259.84 - 239.84 (679)	MC12x35	0.023	1.047	0.000	1.070 ✔	1.333	H1-3 ✔
T3	259.84 - 239.84 (682)	MC12x35	0.022	0.958	0.000	0.980 ✔	1.333	H1-3 ✔
T3	259.84 - 239.84 (683)	MC12x35	0.021	1.038	0.000	1.059 ✔	1.333	H1-3 ✔
T3	259.84 - 239.84 (686)	MC12x35	0.022	0.960	0.000	0.982 ✔	1.333	H1-3 ✔
T3	259.84 - 239.84 (687)	MC12x35	0.021	1.057	0.000	1.078 ✔	1.333	H1-3 ✔
T5	219.84 - 199.84 (690)	MC12x35	0.043	0.999	0.000	1.042 ✔	1.333	H1-3 ✔
T5	219.84 - 199.84 (691)	MC12x35	0.055	0.971	0.000	1.026 ✔	1.333	H1-3 ✔
T5	219.84 - 199.84 (694)	MC12x35	0.040	0.883	0.000	0.924 ✔	1.333	H1-3 ✔
T5	219.84 - 199.84 (695)	MC12x35	0.041	0.981	0.000	1.022 ✔	1.333	H1-3 ✔
T5	219.84 - 199.84 (698)	MC12x35	0.041	0.881	0.000	0.922 ✔	1.333	H1-3 ✔
T5	219.84 - 199.84 (699)	MC12x35	0.042	1.003	0.000	1.045 ✔	1.333	H1-3 ✔
T7	179.84 - 159.84 (702)	MC12x35	0.082	0.909	0.000	0.991 ✔	1.333	H1-3 ✔
T7	179.84 - 159.84 (703)	MC12x35	0.066	0.948	0.000	1.014 ✔	1.333	H1-3 ✔
T7	179.84 - 159.84 (706)	MC12x35	0.063	0.922	0.000	0.985 ✔	1.333	H1-3 ✔
T7	179.84 - 159.84 (707)	MC12x35	0.061	0.784	0.000	0.845 ✔	1.333	H1-3 ✔
T7	179.84 - 159.84 (710)	MC12x35	0.079	0.773	0.000	0.852 ✔	1.333	H1-3 ✔
T7	179.84 - 159.84 (711)	MC12x35	0.066	0.943	0.000	1.009 ✔	1.333	H1-3 ✔
T10	119.84 - 99.84 (714)	MC12x35	0.081	0.554	0.000	0.634 ✔	1.333	H1-3 ✔
T10	119.84 - 99.84 (715)	MC12x35	0.067	0.581	0.000	0.648 ✔	1.333	H1-3 ✔
T10	119.84 - 99.84 (718)	MC12x35	0.062	0.561	0.000	0.623 ✔	1.333	H1-3 ✔
T10	119.84 - 99.84 (719)	MC12x35	0.061	0.432	0.000	0.493 ✔	1.333	H1-3 ✔
T10	119.84 - 99.84 (722)	MC12x35	0.074	0.422	0.000	0.496 ✔	1.333	H1-3 ✔
T10	119.84 - 99.84 (723)	MC12x35	0.062	0.575	0.000	0.637 ✔	1.333	H1-3 ✔
T13	59.84 - 39.84 (726)	MC12x35	0.037	0.173	0.000	0.209 ✔	1.333	H1-3 ✔
T13	59.84 - 39.84 (727)	MC12x35	0.036	0.167	0.000	0.203 ✔	1.333	H1-3 ✔
T13	59.84 - 39.84 (730)	MC12x35	0.034	0.105	0.000	0.139 ✔	1.333	H1-3 ✔

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T13	59.84 - 39.84 (731)	MC12x35	0.035	0.163	0.000	0.198 ✔	1.333	H1-3 ✔
T13	59.84 - 39.84 (734)	MC12x35	0.033	0.104	0.000	0.137 ✔	1.333	H1-3 ✔
T13	59.84 - 39.84 (735)	MC12x35	0.033	0.169	0.000	0.202 ✔	1.333	H1-3 ✔

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	291.84 - 279.84	2	12.00	3.00	72.0	30.000	3.1416	12477	94248	0.132
T3	259.84 - 239.84	2 1/4	20.00	3.33	71.1	30.000	3.9761	1228	119282	0.010
T4	239.84 - 219.84	2 1/4	20.00	3.33	71.1	30.000	3.9761	4038	119282	0.034
T11	99.84 - 79.84	3	20.00	3.33	53.3	30.000	7.0686	2115	212058	0.010
T12	79.84 - 59.84	3	20.00	3.33	53.3	30.000	7.0686	2252	212058	0.011

Leg Bending Design Data (Tension)

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
T1	291.84 - 279.84	2	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T3	259.84 - 239.84	2 1/4	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T4	239.84 - 219.84	2 1/4	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T11	99.84 - 79.84	3	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000
T12	79.84 - 59.84	3	0.00	0.000	37.500	0.000	0.00	0.000	37.500	0.000

Leg Interaction Design Data (Tension)

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	291.84 - 279.84	2	0.132	0.000	0.000	0.132 ✔	1.333	H2-1 ✔
T3	259.84 - 239.84	2 1/4	0.010	0.000	0.000	0.010 ✔	1.333	H2-1 ✔
T4	239.84 - 219.84	2 1/4	0.034	0.000	0.000	0.034	1.333	H2-1 ✔

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T11	99.84 - 79.84	3	0.010	0.000	0.000	0.010	1.333	H2-1
T12	79.84 - 59.84	3	0.011	0.000	0.000	0.011	1.333	H2-1

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	291.84 - 279.84	1 3/8	4.74	4.52	157.9	21.600	1.4849	4087	32074	0.127
T2	279.84 - 259.84	1 3/8	4.96	4.73	165.1	21.600	1.4849	3205	32074	0.100
T3	259.84 - 239.84	1 3/8	4.96	4.70	164.1	21.600	1.4849	9666	32074	0.301
T4	239.84 - 219.84	1 3/8	4.96	4.70	164.1	21.600	1.4849	9025	32074	0.281
T5	219.84 - 199.84	1 1/2	4.96	4.67	149.6	21.600	1.7672	8508	38170	0.223
T6	199.84 - 179.84	1 1/4	4.96	4.67	179.5	21.600	1.2272	7559	26507	0.285
T7	179.84 - 159.84	1 1/2	4.96	4.65	148.7	21.600	1.7672	11172	38170	0.293
T8	159.84 - 139.84	1 3/8	4.96	4.67	163.2	21.600	1.4849	6025	32074	0.188
T9	139.84 - 119.84	1 1/4	4.96	4.65	178.4	21.600	1.2272	2917	26507	0.110
T10	119.84 - 99.84	1 1/2	4.96	4.65	148.7	21.600	1.7672	10633	38170	0.279
T11	99.84 - 79.84	1 3/8	4.96	4.62	161.2	21.600	1.4849	7893	32074	0.246
T12	79.84 - 59.84	1 1/4	4.96	4.62	177.3	21.600	1.2272	3034	26507	0.114
T13	59.84 - 39.84	1 1/4	4.96	4.62	177.3	21.600	1.2272	3057	26507	0.115
T14	39.84 - 19.84	1 1/4	4.96	4.62	177.3	21.600	1.2272	2953	26507	0.111
T15	19.84 - 6.5	1 1/4	4.96	4.62	177.4	21.600	1.2272	5591	26507	0.211

Horizontal Design Data (Tension)

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

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	291.84 - 279.84	1	3.67	3.50	168.0	21.600	0.7854	1266	16965	0.075 ✔
T2	279.84 - 259.84	1	3.67	3.50	168.0	21.600	0.7854	1767	16965	0.104 ✔
T3	259.84 - 239.84	1	3.67	3.48	167.0	21.600	0.7854	1424	16965	0.084 ✔
T4	239.84 - 219.84	1	3.67	3.48	167.0	21.600	0.7854	2389	16965	0.141 ✔
T5	219.84 - 199.84	1	3.67	3.46	166.0	21.600	0.7854	1604	16965	0.095 ✔
T6	199.84 - 179.84	1	3.67	3.46	166.0	21.600	0.7854	2205	16965	0.130 ✔
T7	179.84 - 159.84	1	3.67	3.44	165.0	21.600	0.7854	1896	16965	0.112 ✔
T8	159.84 - 139.84	1	3.67	3.46	166.0	21.600	0.7854	1700	16965	0.100 ✔
T9	139.84 - 119.84	1	3.67	3.44	165.0	21.600	0.7854	1734	16965	0.102 ✔
T10	119.84 - 99.84	1	3.67	3.44	165.0	21.600	0.7854	2044	16965	0.121 ✔
T11	99.84 - 79.84	1	3.67	3.42	164.0	21.600	0.7854	2712	16965	0.160 ✔
T12	79.84 - 59.84	1	3.67	3.42	164.0	21.600	0.7854	2779	16965	0.164 ✔
T13	59.84 - 39.84	1	3.67	3.42	164.0	21.600	0.7854	2950	16965	0.174 ✔
T14	39.84 - 19.84	1	3.67	3.42	164.0	21.600	0.7854	2953	16965	0.174 ✔
T15	19.84 - 6.5	1	3.67	3.42	164.0	21.600	0.7854	2689	16965	0.159 ✔

Secondary Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	291.84 - 279.84	1	1.83	1.75	84.0	21.600	0.7854	0	16965	0.000 ✔
T2	279.84 - 259.84	1	1.83	1.75	84.0	21.600	0.7854	0	16965	0.000 ✔
T3	259.84 - 239.84	1	1.83	1.74	83.5	21.600	0.7854	0	16965	0.000 ✔
T4	239.84 - 219.84	1	1.83	1.74	83.5	21.600	0.7854	0	16965	0.000 ✔
T5	219.84 - 199.84	1	1.83	1.73	83.0	21.600	0.7854	0	16965	0.000 ✔
T6	199.84 - 179.84	1	1.83	1.73	83.0	21.600	0.7854	0	16965	0.000 ✔
T7	179.84 - 159.84	1	1.83	1.72	82.5	21.600	0.7854	0	16965	0.000 ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T8	159.84 - 139.84	1	1.83	1.73	83.0	21.600	0.7854	0	16965	0.000 ✔
T9	139.84 - 119.84	1	1.83	1.72	82.5	21.600	0.7854	0	16965	0.000 ✔
T10	119.84 - 99.84	1	1.83	1.72	82.5	21.600	0.7854	0	16965	0.000 ✔
T11	99.84 - 79.84	1	1.83	1.71	82.0	21.600	0.7854	0	16965	0.000 ✔
T12	79.84 - 59.84	1	1.83	1.71	82.0	21.600	0.7854	0	16965	0.000 ✔
T13	59.84 - 39.84	1	1.83	1.71	82.0	21.600	0.7854	0	16965	0.000 ✔
T14	39.84 - 19.84	1	1.83	1.71	82.0	21.600	0.7854	0	16965	0.000 ✔
T15	19.84 - 6.5	1	1.83	1.71	82.0	21.600	0.7854	0	16965	0.000 ✔

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	291.84 - 279.84	1	3.67	3.50	168.0	21.600	0.7854	0	16965	0.000 ✔
T2	279.84 - 259.84	1	3.67	3.50	168.0	21.600	0.7854	622	16965	0.037 ✔
T3	259.84 - 239.84	1	3.67	3.50	168.0	21.600	0.7854	970	16965	0.057 ✔
T4	239.84 - 219.84	1	3.67	3.48	167.0	21.600	0.7854	1361	16965	0.080 ✔
T5	219.84 - 199.84	1	3.67	3.48	167.0	21.600	0.7854	969	16965	0.057 ✔
T6	199.84 - 179.84	1	3.67	3.46	166.0	21.600	0.7854	1207	16965	0.071 ✔
T7	179.84 - 159.84	1	3.67	3.46	166.0	21.600	0.7854	1013	16965	0.060 ✔
T8	159.84 - 139.84	1	3.67	3.44	165.0	21.600	0.7854	1097	16965	0.065 ✔
T9	139.84 - 119.84	1	3.67	3.46	166.0	21.600	0.7854	1071	16965	0.063 ✔
T10	119.84 - 99.84	1	3.67	3.44	165.0	21.600	0.7854	1107	16965	0.065 ✔
T11	99.84 - 79.84	1	3.67	3.44	165.0	21.600	0.7854	1330	16965	0.078 ✔
T12	79.84 - 59.84	1	3.67	3.42	164.0	21.600	0.7854	1314	16965	0.077 ✔
T13	59.84 - 39.84	1	3.67	3.42	164.0	21.600	0.7854	1313	16965	0.077 ✔
T14	39.84 - 19.84	1	3.67	3.42	164.0	21.600	0.7854	1420	16965	0.084 ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T15	19.84 - 6.5	1	3.67	3.42	164.0	21.600	0.7854	1449	16965	0.085 ✔
T16	6.5 - 0	12x3/8	3.67	3.42	378.8	21.600	4.5000	24992	97200	0.257 ✔

Mid Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T16	6.5 - 0	9x3/8	2.54	2.29	253.7	21.600	3.3750	387	72900	0.005 ✔

Top Guy Pull-Off Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	291.84 - 279.84	MC12x35	3.67	3.50	37.8	21.600	10.3000	6865	222480	0.031
T3	259.84 - 239.84	MC12x35	3.67	3.48	37.6	21.600	10.3000	9635	222480	0.043
T5	219.84 - 199.84	MC12x35	3.67	3.46	37.4	21.600	10.3000	12956	222480	0.058
T7	179.84 - 159.84	MC12x35	3.67	3.44	37.2	21.600	10.3000	18214	222480	0.082
T10	119.84 - 99.84	MC12x35	3.67	3.44	37.2	21.600	10.3000	17064	222480	0.077
T13	59.84 - 39.84	MC12x35	3.67	3.42	36.9	21.600	10.3000	7834	222480	0.035

Top Guy Pull-Off Bending Design Data

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

Top Guy Pull-Off Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	291.84 - 279.84	MC12x35	0.031	0.001	0.000	0.032 ✔	1.333	H2-1 ✔
T3	259.84 - 239.84	MC12x35	0.043	0.001	0.000	0.044 ✔	1.333	H2-1 ✔
T5	219.84 - 199.84	MC12x35	0.058	0.001	0.000	0.059 ✔	1.333	H2-1 ✔
T7	179.84 - 159.84	MC12x35	0.082	0.001	0.000	0.083 ✔	1.333	H2-1 ✔
T10	119.84 - 99.84	MC12x35	0.077	0.001	0.000	0.078 ✔	1.333	H2-1 ✔
T13	59.84 - 39.84	MC12x35	0.035	0.001	0.000	0.036 ✔	1.333	H2-1 ✔

Torque-Arm Top Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	291.84 - 279.84 (666)	MC12x35	4.00	3.92	42.4	21.600	10.3000	1487	222480	0.007
T1	291.84 - 279.84 (667)	MC12x35	4.00	3.92	42.4	21.600	10.3000	1254	222480	0.006
T1	291.84 - 279.84 (670)	MC12x35	4.00	3.92	42.4	21.600	10.3000	592	222480	0.003
T1	291.84 - 279.84 (671)	MC12x35	4.00	3.92	42.4	21.600	10.3000	208	222480	0.001
T1	291.84 - 279.84 (674)	MC12x35	4.00	3.92	42.4	21.600	10.3000	1531	222480	0.007
T1	291.84 - 279.84 (675)	MC12x35	4.00	3.92	42.4	21.600	10.3000	1783	222480	0.008
T3	259.84 - 239.84 (678)	MC12x35	4.00	3.91	42.3	21.600	10.3000	630	222480	0.003
T3	259.84 - 239.84 (679)	MC12x35	4.00	3.91	42.3	21.600	10.3000	849	222480	0.004
T3	259.84 - 239.84 (682)	MC12x35	4.00	3.91	42.3	21.600	10.3000	828	222480	0.004
T3	259.84 - 239.84 (683)	MC12x35	4.00	3.91	42.3	21.600	10.3000	1210	222480	0.005
T3	259.84 - 239.84 (686)	MC12x35	4.00	3.91	42.3	21.600	10.3000	834	222480	0.004
T3	259.84 - 239.84 (687)	MC12x35	4.00	3.91	42.3	21.600	10.3000	1132	222480	0.005
T5	219.84 - 199.84 (690)	MC12x35	4.00	3.90	42.2	21.600	10.3000	2331	222480	0.010
T5	219.84 - 199.84 (691)	MC12x35	4.00	3.90	42.2	21.600	10.3000	27	222480	0.000
T5	219.84 - 199.84 (694)	MC12x35	4.00	3.90	42.2	21.600	10.3000	123	222480	0.001
T5	219.84 - 199.84 (695)	MC12x35	4.00	3.90	42.2	21.600	10.3000	183	222480	0.001
T5	219.84 - 199.84 (698)	MC12x35	4.00	3.90	42.2	21.600	10.3000	67	222480	0.000
T5	219.84 - 199.84 (699)	MC12x35	4.00	3.90	42.2	21.600	10.3000	26	222480	0.000
T7	179.84 - 159.84	MC12x35	4.00	3.89	42.1	21.600	10.3000	7395	222480	0.033

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
	(702)									
T7	179.84 - 159.84 (703)	MC12x35	4.00	3.89	42.1	21.600	10.3000	2680	222480	0.012
T7	179.84 - 159.84 (706)	MC12x35	4.00	3.89	42.1	21.600	10.3000	7032	222480	0.032
T7	179.84 - 159.84 (707)	MC12x35	4.00	3.89	42.1	21.600	10.3000	7228	222480	0.032
T7	179.84 - 159.84 (710)	MC12x35	4.00	3.89	42.1	21.600	10.3000	7780	222480	0.035
T7	179.84 - 159.84 (711)	MC12x35	4.00	3.89	42.1	21.600	10.3000	2638	222480	0.012
T10	119.84 - 99.84 (714)	MC12x35	4.00	3.89	42.1	21.600	10.3000	6782	222480	0.030
T10	119.84 - 99.84 (715)	MC12x35	4.00	3.89	42.1	21.600	10.3000	2060	222480	0.009
T10	119.84 - 99.84 (718)	MC12x35	4.00	3.89	42.1	21.600	10.3000	6196	222480	0.028
T10	119.84 - 99.84 (719)	MC12x35	4.00	3.89	42.1	21.600	10.3000	6405	222480	0.029
T10	119.84 - 99.84 (722)	MC12x35	4.00	3.89	42.1	21.600	10.3000	7043	222480	0.032
T10	119.84 - 99.84 (723)	MC12x35	4.00	3.89	42.1	21.600	10.3000	2085	222480	0.009
T13	59.84 - 39.84 (726)	MC12x35	4.00	3.88	41.9	21.600	10.3000	490	222480	0.002
T13	59.84 - 39.84 (727)	MC12x35	4.00	3.88	41.9	21.600	10.3000	771	222480	0.003
T13	59.84 - 39.84 (730)	MC12x35	4.00	3.88	41.9	21.600	10.3000	803	222480	0.004
T13	59.84 - 39.84 (731)	MC12x35	4.00	3.88	41.9	21.600	10.3000	711	222480	0.003
T13	59.84 - 39.84 (734)	MC12x35	4.00	3.88	41.9	21.600	10.3000	3397	222480	0.015
T13	59.84 - 39.84 (735)	MC12x35	4.00	3.88	41.9	21.600	10.3000	762	222480	0.003

Torque-Arm Top Bending Design Data

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
T1	291.84 - 279.84 (666)	MC12x35	-62247.50	20.692	21.600	0.958	-0.00	0.000	27.000	0.000
T1	291.84 - 279.84 (667)	MC12x35	-62932.58	20.919	21.600	0.968	0.00	0.000	27.000	0.000
T1	291.84 - 279.84 (670)	MC12x35	-66172.42	21.996	21.600	1.018	-0.00	0.000	27.000	0.000
T1	291.84 - 279.84 (671)	MC12x35	-61256.75	20.362	21.600	0.943	-0.00	0.000	27.000	0.000
T1	291.84 - 279.84 (674)	MC12x35	-58653.83	19.497	21.600	0.903	0.00	0.000	27.000	0.000
T1	291.84 - 279.84 (675)	MC12x35	-63965.33	21.263	21.600	0.984	0.00	0.000	27.000	0.000
T3	259.84 - 239.84 (678)	MC12x35	-63405.25	21.076	21.600	0.976	0.00	0.000	27.000	0.000
T3	259.84 -	MC12x35	-63126.8	20.984	21.600	0.971	-0.00	0.000	27.000	0.000

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
	239.84 (679)		3							
T3	259.84 - 239.84 (682)	MC12x35	-58455.9 2	19.431	21.600	0.900	-0.00	0.000	27.000	0.000
T3	259.84 - 239.84 (683)	MC12x35	-64034.0 8	21.286	21.600	0.985	-0.00	0.000	27.000	0.000
T3	259.84 - 239.84 (686)	MC12x35	-58282.5 0	19.374	21.600	0.897	0.00	0.000	27.000	0.000
T3	259.84 - 239.84 (687)	MC12x35	-64914.8 3	21.578	21.600	0.999	0.00	0.000	27.000	0.000
T5	219.84 - 199.84 (690)	MC12x35	-54819.3 3	18.223	21.600	0.844	0.00	0.000	27.000	0.000
T5	219.84 - 199.84 (691)	MC12x35	-59283.1 7	19.706	21.600	0.912	-0.00	0.000	27.000	0.000
T5	219.84 - 199.84 (694)	MC12x35	-53883.0 8	17.911	21.600	0.829	-0.00	0.000	27.000	0.000
T5	219.84 - 199.84 (695)	MC12x35	-60463.1 7	20.099	21.600	0.930	0.00	0.000	27.000	0.000
T5	219.84 - 199.84 (698)	MC12x35	-53277.3 3	17.710	21.600	0.820	0.00	0.000	27.000	0.000
T5	219.84 - 199.84 (699)	MC12x35	-61564.3 3	20.465	21.600	0.947	-0.00	0.000	27.000	0.000
T7	179.84 - 159.84 (702)	MC12x35	-45664.5 0	15.179	21.600	0.703	0.00	0.000	27.000	0.000
T7	179.84 - 159.84 (703)	MC12x35	-53537.5 8	17.796	21.600	0.824	0.00	0.000	27.000	0.000
T7	179.84 - 159.84 (706)	MC12x35	-47692.2 5	15.853	21.600	0.734	0.00	0.000	27.000	0.000
T7	179.84 - 159.84 (707)	MC12x35	-40129.9 2	13.340	21.600	0.618	0.00	0.000	27.000	0.000
T7	179.84 - 159.84 (710)	MC12x35	-39826.0 0	13.239	21.600	0.613	0.00	0.000	27.000	0.000
T7	179.84 - 159.84 (711)	MC12x35	-54049.0 8	17.967	21.600	0.832	-0.00	0.000	27.000	0.000
T10	119.84 - 99.84 (714)	MC12x35	-28109.2 5	9.344	21.600	0.433	-0.00	0.000	27.000	0.000
T10	119.84 - 99.84 (715)	MC12x35	-32735.7 5	10.882	21.600	0.504	-0.00	0.000	27.000	0.000
T10	119.84 - 99.84 (718)	MC12x35	-28584.7 5	9.502	21.600	0.440	0.00	0.000	27.000	0.000
T10	119.84 - 99.84 (719)	MC12x35	-21857.3 3	7.266	21.600	0.336	0.00	0.000	27.000	0.000
T10	119.84 - 99.84 (722)	MC12x35	-22041.4 2	7.327	21.600	0.339	0.00	0.000	27.000	0.000
T10	119.84 - 99.84 (723)	MC12x35	-32862.8 3	10.924	21.600	0.506	0.00	0.000	27.000	0.000
T13	59.84 - 39.84 (726)	MC12x35	-11228.3 3	3.732	21.600	0.173	-0.00	0.000	27.000	0.000
T13	59.84 - 39.84 (727)	MC12x35	-10929.5 8	3.633	21.600	0.168	0.00	0.000	27.000	0.000
T13	59.84 - 39.84 (730)	MC12x35	-7059.07	2.347	21.600	0.109	0.00	0.000	27.000	0.000
T13	59.84 - 39.84 (731)	MC12x35	-10881.5 0	3.617	21.600	0.167	-0.00	0.000	27.000	0.000
T13	59.84 - 39.84 (734)	MC12x35	-6351.19	2.111	21.600	0.098	-0.00	0.000	27.000	0.000
T13	59.84 - 39.84 (735)	MC12x35	-11337.5 0	3.769	21.600	0.174	-0.00	0.000	27.000	0.000

Torque-Arm Top Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	291.84 - 279.84 (666)	MC12x35	0.007	0.958	0.000	0.965 ✓	1.333	H2-1 ✓
T1	291.84 - 279.84 (667)	MC12x35	0.006	0.968	0.000	0.974 ✓	1.333	H2-1 ✓
T1	291.84 - 279.84 (670)	MC12x35	0.003	1.018	0.000	1.021 ✓	1.333	H2-1 ✓
T1	291.84 - 279.84 (671)	MC12x35	0.001	0.943	0.000	0.944 ✓	1.333	H2-1 ✓
T1	291.84 - 279.84 (674)	MC12x35	0.007	0.903	0.000	0.910 ✓	1.333	H2-1 ✓
T1	291.84 - 279.84 (675)	MC12x35	0.008	0.984	0.000	0.992 ✓	1.333	H2-1 ✓
T3	259.84 - 239.84 (678)	MC12x35	0.003	0.976	0.000	0.979 ✓	1.333	H2-1 ✓
T3	259.84 - 239.84 (679)	MC12x35	0.004	0.971	0.000	0.975 ✓	1.333	H2-1 ✓
T3	259.84 - 239.84 (682)	MC12x35	0.004	0.900	0.000	0.903 ✓	1.333	H2-1 ✓
T3	259.84 - 239.84 (683)	MC12x35	0.005	0.985	0.000	0.991 ✓	1.333	H2-1 ✓
T3	259.84 - 239.84 (686)	MC12x35	0.004	0.897	0.000	0.901 ✓	1.333	H2-1 ✓
T3	259.84 - 239.84 (687)	MC12x35	0.005	0.999	0.000	1.004 ✓	1.333	H2-1 ✓
T5	219.84 - 199.84 (690)	MC12x35	0.010	0.844	0.000	0.854 ✓	1.333	H2-1 ✓
T5	219.84 - 199.84 (691)	MC12x35	0.000	0.912	0.000	0.912 ✓	1.333	H2-1 ✓
T5	219.84 - 199.84 (694)	MC12x35	0.001	0.829	0.000	0.830 ✓	1.333	H2-1 ✓
T5	219.84 - 199.84 (695)	MC12x35	0.001	0.930	0.000	0.931 ✓	1.333	H2-1 ✓
T5	219.84 - 199.84 (698)	MC12x35	0.000	0.820	0.000	0.820 ✓	1.333	H2-1 ✓
T5	219.84 - 199.84 (699)	MC12x35	0.000	0.947	0.000	0.948 ✓	1.333	H2-1 ✓
T7	179.84 - 159.84 (702)	MC12x35	0.033	0.703	0.000	0.736 ✓	1.333	H2-1 ✓
T7	179.84 - 159.84 (703)	MC12x35	0.012	0.824	0.000	0.836 ✓	1.333	H2-1 ✓
T7	179.84 - 159.84 (706)	MC12x35	0.032	0.734	0.000	0.766 ✓	1.333	H2-1 ✓
T7	179.84 - 159.84 (707)	MC12x35	0.032	0.618	0.000	0.650 ✓	1.333	H2-1 ✓
T7	179.84 - 159.84 (710)	MC12x35	0.035	0.613	0.000	0.648 ✓	1.333	H2-1 ✓
T7	179.84 - 159.84 (711)	MC12x35	0.012	0.832	0.000	0.844 ✓	1.333	H2-1 ✓
T10	119.84 - 99.84 (714)	MC12x35	0.030	0.433	0.000	0.463 ✓	1.333	H2-1 ✓

Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T10	119.84 - 99.84 (715)	MC12x35	0.009	0.504	0.000	0.513 ✔	1.333	H2-1 ✔
T10	119.84 - 99.84 (718)	MC12x35	0.028	0.440	0.000	0.468 ✔	1.333	H2-1 ✔
T10	119.84 - 99.84 (719)	MC12x35	0.029	0.336	0.000	0.365 ✔	1.333	H2-1 ✔
T10	119.84 - 99.84 (722)	MC12x35	0.032	0.339	0.000	0.371 ✔	1.333	H2-1 ✔
T10	119.84 - 99.84 (723)	MC12x35	0.009	0.506	0.000	0.515 ✔	1.333	H2-1 ✔
T13	59.84 - 39.84 (726)	MC12x35	0.002	0.173	0.000	0.175 ✔	1.333	H2-1 ✔
T13	59.84 - 39.84 (727)	MC12x35	0.003	0.168	0.000	0.172 ✔	1.333	H2-1 ✔
T13	59.84 - 39.84 (730)	MC12x35	0.004	0.109	0.000	0.112 ✔	1.333	H2-1 ✔
T13	59.84 - 39.84 (731)	MC12x35	0.003	0.167	0.000	0.171 ✔	1.333	H2-1 ✔
T13	59.84 - 39.84 (734)	MC12x35	0.015	0.098	0.000	0.113 ✔	1.333	H2-1 ✔
T13	59.84 - 39.84 (735)	MC12x35	0.003	0.174	0.000	0.178 ✔	1.333	H2-1 ✔

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
L1	327 - 291.84	Pole	P10.75x0.843	1	-3724	290041	16.2	Pass
T1	291.84 - 279.84	Leg	2	2	-27219	86118	31.6	Pass
T2	279.84 - 259.84	Leg	2	36	-29478	79619	37.0	Pass
T3	259.84 - 239.84	Leg	2 1/4	83	-82203	109877	74.8	Pass
T4	239.84 - 219.84	Leg	2 1/4	126	-83906	109877	76.4	Pass
T5	219.84 - 199.84	Leg	2 1/2	173	-92609	144104	64.3	Pass
T6	199.84 - 179.84	Leg	2 1/2	218	-92097	144104	63.9	Pass
T7	179.84 - 159.84	Leg	2 3/4	263	-109458	182302	60.0	Pass
T8	159.84 - 139.84	Leg	2 1/2	307	-98135	144104	68.1	Pass
T9	139.84 - 119.84	Leg	2 3/4	353	-100103	182302	54.9	Pass
T10	119.84 - 99.84	Leg	2 3/4	398	-111471	182302	61.1	Pass
T11	99.84 - 79.84	Leg	3	441	-156557	224468	69.7	Pass
T12	79.84 - 59.84	Leg	3	486	-160444	224468	71.5	Pass
T13	59.84 - 39.84	Leg	3	531	-170303	224468	75.9	Pass
T14	39.84 - 19.84	Leg	3	578	-170505	224468	76.0	Pass
T15	19.84 - 6.5	Leg	3	623	-155263	224428	69.2	Pass
T16	6.5 - 0	Leg	3	652	-140604	201931	69.6	Pass
T1	291.84 - 279.84	Diagonal	1 3/8	26	-4155	22966	18.1	Pass
T2	279.84 - 259.84	Diagonal	1 3/8	42	-3619	21586	16.8	Pass
T3	259.84 - 239.84	Diagonal	1 3/8	116	-10587	21775	48.6	Pass
T4	239.84 - 219.84	Diagonal	1 3/8	134	-9860	21775	45.3	Pass
T5	219.84 - 199.84	Diagonal	1 1/2	214	-9407	29149	32.3	Pass
T6	199.84 - 179.84	Diagonal	1 1/4	224	-9103	15475	58.8	Pass
T7	179.84 - 159.84	Diagonal	1 1/2	290	-12505	29342	42.6	Pass
T8	159.84 - 139.84	Diagonal	1 3/8	347	-7515	21964	34.2	Pass
T9	139.84 - 119.84	Diagonal	1 1/4	358	-5479	15658	35.0	Pass
T10	119.84 - 99.84	Diagonal	1 1/2	411	-13175	29342	44.9	Pass
T11	99.84 - 79.84	Diagonal	1 3/8	482	-10565	22339	47.3	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
T12	79.84 - 59.84	Diagonal	1 1/4	493	-4753	15841	30.0	Pass
T13	59.84 - 39.84	Diagonal	1 1/4	567	-6016	15841	38.0	Pass
T14	39.84 - 19.84	Diagonal	1 1/4	583	-5577	15841	35.2	Pass
T15	19.84 - 6.5	Diagonal	1 1/4	634	-7315	15834	46.2	Pass
T1	291.84 - 279.84	Horizontal	1	16	-903	11121	8.1	Pass
T2	279.84 - 259.84	Horizontal	1	74	-1575	11121	14.2	Pass
T3	259.84 - 239.84	Horizontal	1	92	-1424	11224	12.7	Pass
T4	239.84 - 219.84	Horizontal	1	165	-1854	11224	16.5	Pass
T5	219.84 - 199.84	Horizontal	1	183	-1604	11327	14.2	Pass
T6	199.84 - 179.84	Horizontal	1	228	-1595	11327	14.1	Pass
T7	179.84 - 159.84	Horizontal	1	272	-1896	11429	16.6	Pass
T8	159.84 - 139.84	Horizontal	1	317	-1700	11327	15.0	Pass
T9	139.84 - 119.84	Horizontal	1	362	-1734	11429	15.2	Pass
T10	119.84 - 99.84	Horizontal	1	407	-1931	11429	16.9	Pass
T11	99.84 - 79.84	Horizontal	1	451	-2712	11531	23.5	Pass
T12	79.84 - 59.84	Horizontal	1	496	-2779	11531	24.1	Pass
T13	59.84 - 39.84	Horizontal	1	541	-2950	11531	25.6	Pass
T14	39.84 - 19.84	Horizontal	1	587	-2953	11531	25.6	Pass
T15	19.84 - 6.5	Horizontal	1	632	-2689	11531	23.3	Pass
T1	291.84 - 279.84	Secondary Horizontal	1	28	0	15902	0.0	Pass
T2	279.84 - 259.84	Secondary Horizontal	1	73	0	15902	0.0	Pass
T3	259.84 - 239.84	Secondary Horizontal	1	118	0	15922	0.0	Pass
T4	239.84 - 219.84	Secondary Horizontal	1	142	0	15922	0.0	Pass
T5	219.84 - 199.84	Secondary Horizontal	1	180	0	22614	0.0	Pass
T6	199.84 - 179.84	Secondary Horizontal	1	225	0	15943	0.0	Pass
T7	179.84 - 159.84	Secondary Horizontal	1	284	0	15964	0.0	Pass
T8	159.84 - 139.84	Secondary Horizontal	1	315	0	22614	0.0	Pass
T9	139.84 - 119.84	Secondary Horizontal	1	360	0	22614	0.0	Pass
T10	119.84 - 99.84	Secondary Horizontal	1	419	0	22614	0.0	Pass
T11	99.84 - 79.84	Secondary Horizontal	1	450	0	22614	0.0	Pass
T12	79.84 - 59.84	Secondary Horizontal	1	495	0	15985	0.0	Pass
T13	59.84 - 39.84	Secondary Horizontal	1	540	0	15985	0.0	Pass
T14	39.84 - 19.84	Secondary Horizontal	1	585	0	15985	0.0	Pass
T15	19.84 - 6.5	Secondary Horizontal	1	630	0	15985	0.0	Pass
T1	291.84 - 279.84	Top Girt	1	6	0	11121	0.0	Pass
T2	279.84 - 259.84	Top Girt	1	10	622	22614	2.8	Pass
T3	259.84 - 239.84	Top Girt	1	41	970	22614	4.3	Pass
T4	239.84 - 219.84	Top Girt	1	86	-844	11224	7.5	Pass
T5	219.84 - 199.84	Top Girt	1	131	969	22614	4.3	Pass
T6	199.84 - 179.84	Top Girt	1	174	1207	22614	5.3	Pass
T7	179.84 - 159.84	Top Girt	1	219	1013	22614	4.5	Pass
T8	159.84 - 139.84	Top Girt	1	264	1097	22614	4.9	Pass
T9	139.84 - 119.84	Top Girt	1	309	1071	22614	4.7	Pass
T10	119.84 - 99.84	Top Girt	1	354	1107	22614	4.9	Pass
T11	99.84 - 79.84	Top Girt	1	400	1330	22614	5.9	Pass
T12	79.84 - 59.84	Top Girt	1	446	1314	22614	5.8	Pass
T13	59.84 - 39.84	Top Girt	1	490	1313	22614	5.8	Pass
T14	39.84 - 19.84	Top Girt	1	536	1420	22614	6.3	Pass
T15	19.84 - 6.5	Top Girt	1	581	1449	22614	6.4	Pass
T16	6.5 - 0	Top Girt	12x3/8	626	24992	129568	19.3	Pass
T16	6.5 - 0	Bottom Girt	12x3/8	655	-4157	128700	7.0	Pass
T16	6.5 - 0	Mid Girt	9x3/8	659	-251	40604	0.6	Pass
T1	291.84 - 279.84	Guy A@285.84	3/4	673	21011	29150	72.1	Pass
T3	259.84 - 239.84	Guy A@256.507	3/4	685	22336	29150	76.6	Pass
T5	219.84 - 199.84	Guy A@216.507	3/4	697	22682	29150	77.8	Pass
T7	179.84 - 159.84	Guy A@166.507	3/4	709	24411	29150	83.7	Pass
T10	119.84 - 99.84	Guy A@106.507	5/8	721	19281	21200	90.9	Pass
T13	59.84 - 39.84	Guy A@56.5067	7/16	733	8747	10400	84.1	Pass
T1	291.84 - 279.84	Guy B@285.84	3/4	668	20079	29150	68.9	Pass
T3	259.84 - 239.84	Guy B@256.507	3/4	680	21181	29150	72.7	Pass
T5	219.84 - 199.84	Guy B@216.507	3/4	693	21355	29150	73.3	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
T7	179.84 - 159.84	Guy B@166.507	3/4	704	22760	29150	78.1	Pass
T10	119.84 - 99.84	Guy B@106.507	5/8	716	18018	21200	85.0	Pass
T13	59.84 - 39.84	Guy B@56.5067	7/16	728	8207	10400	78.9	Pass
T1	291.84 - 279.84	Guy C@285.84	3/4	664	20781	29150	71.3	Pass
T3	259.84 - 239.84	Guy C@256.507	3/4	676	22069	29150	75.7	Pass
T5	219.84 - 199.84	Guy C@216.507	3/4	688	22348	29150	76.7	Pass
T7	179.84 - 159.84	Guy C@166.507	3/4	700	24072	29150	82.6	Pass
T10	119.84 - 99.84	Guy C@106.507	5/8	712	19038	21200	89.8	Pass
T13	59.84 - 39.84	Guy C@56.5067	7/16	724	8606	10400	82.7	Pass
T1	291.84 - 279.84	Top Guy Pull-Off@285.84	MC12x35	24	-6043	150590	4.1 16.0 (b)	Pass
T3	259.84 - 239.84	Top Guy Pull-Off@256.507	MC12x35	119	-8486	151609	5.7 22.4 (b)	Pass
T5	219.84 - 199.84	Top Guy Pull-Off@216.507	MC12x35	209	-11226	152626	7.4 30.2 (b)	Pass
T7	179.84 - 159.84	Top Guy Pull-Off@166.507	MC12x35	280	-16076	153646	10.5 42.4 (b)	Pass
T10	119.84 - 99.84	Top Guy Pull-Off@106.507	MC12x35	415	-14642	153646	9.6 39.7 (b)	Pass
T13	59.84 - 39.84	Top Guy Pull-Off@56.5067	MC12x35	570	-5354	154665	3.5 18.2 (b)	Pass
T1	291.84 - 279.84	Torque Arm Top@285.84	MC12x35	667	-825	130195	78.5	Pass
T3	259.84 - 239.84	Torque Arm Top@256.507	MC12x35	678	-2400	130695	80.9	Pass
T5	219.84 - 199.84	Torque Arm Top@216.507	MC12x35	699	-4149	131195	78.4	Pass
T7	179.84 - 159.84	Torque Arm Top@166.507	MC12x35	703	-6538	131696	76.1	Pass
T10	119.84 - 99.84	Torque Arm Top@106.507	MC12x35	715	-6572	131696	48.6	Pass
T13	59.84 - 39.84	Torque Arm Top@56.5067	MC12x35	726	-3626	132197	15.7 19.6 (b)	Pass
							Summary	
						Pole (L1)	16.2	Pass
						Leg (T4)	76.4	Pass
						Diagonal (T6)	58.8	Pass
						Horizontal (T14)	25.6	Pass
						Secondary Horizontal (T15)	0.0	Pass
						Top Girt (T16)	19.3	Pass
						Bottom Girt (T16)	7.0	Pass
						Mid Girt (T16)	0.6	Pass
						Guy A (T10)	90.9	Pass
						Guy B (T10)	85.0	Pass
						Guy C (T10)	89.8	Pass
						Top Guy Pull-Off (T7)	42.4	Pass
						Torque Arm Top (T3)	80.9	Pass
						Bolt Checks	46.2	Pass
						RATING =	**90.9**	**Pass**

FOUNDATION ANALYSIS

FOUNDATION ANALYSIS

TOWER FORCES:

Moment Caused by Tower	$M_t := 0 \cdot ft \cdot kips$
Shear at Base of Tower	$S_t := 5.188 kip$
Max Compressive Force	$C_t := 350.6 \cdot kip$
Height of Tower	$H_t := 327 \cdot ft$
Base Plate Bolt Circle	$MP := 1.0 ft$

FOOTING DIMENSIONS:

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

PROPERTIES:

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

PIER REINFORCEMENT:

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

PAD REINFORCEMENT:

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

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

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

CHECK ANCHOR STEEL EMBEDMENT

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

Depth:

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

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

$L_{anchor} = 10.0416 \cdot ft$

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

STABILITY OF FOOTING

Passive Pressure:

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

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

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

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

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

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

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

Ultimate Shear:

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

Weight of Concrete Pad:

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

Weight of Soil: above Footing:

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

Weight of Soil Wedge at back face:

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

Total Weight:

$WT_{tot} := WT_c + WT_{s1} + C_t$ $\quad WT_{tot} = 406.4836 \cdot kip$

Resisting Moment:

$M_r := (WT_{tot}) \cdot \frac{W_f}{2} + S_u \cdot \frac{T_f}{3} + WT_{s2} \cdot \left(W_f + \frac{D_f \cdot \tan(\phi_s)}{3} \right)$ $\quad M_r = 2109.5973 \cdot kip \cdot ft$

Overturning Moment:

$M_{ot} := M_t + S_t \cdot (L_p + T_f)$ $\quad M_{ot} = 23.346 \cdot kip \cdot ft$

Factor of Safety:

$FS := \frac{M_r}{M_{ot}}$ $\quad FS_{req} := 2$ $\quad FS = 90.36$

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

SHEAR CAPACITY IN PIER

$FS := 2$

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

$S_p = 112.8709 \cdot kips$

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

$ShearCheck = "Okay"$

BEARING PRESSURE CAUSED BY FOOTING

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

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

$P_{max} := \frac{WT_{tot}}{A_{mat}} + \frac{M_{ot}}{S}$ $\quad P_{max} = 4.2049 \cdot ksf$

$P_{min} := \frac{WT_{tot}}{A_{mat}} - \frac{M_{ot}}{S}$ $\quad P_{min} = 3.9248 \cdot ksf$

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

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

Distance to Resultant of Pressure Distribution:

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

$X_p = 50.0313 \cdot ft$

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

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

Eccentricity: $e := \frac{M_{ot}}{WT_{tot}}$ $\quad e = 0.0574$

Adjusted Soil Pressure: $P_a := \frac{2 \cdot WT_{tot}}{3 \cdot W_f \cdot \left(\frac{W_f}{2} - e\right)}$ $\quad P_a = 5.4828 \cdot ksf$

$q_{adj} := if\left(P_{min} < 0, P_a, \frac{P_{max}}{ft^2}\right)$ $\quad q_{adj} = 4.2049 \cdot ksf$

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

CONCRETE BEARING CAPACITY (ACI 10.17)

$\phi_c := 0.75$ (ACI 9.3.2.2)

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

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

SHEAR STRENGTH OF CONCRETE

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

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

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

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

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

$L := \left(\frac{W_f}{2} - e\right) \cdot 3$ $L = 14.8277 \cdot ft$

$Slope := if\left(L > W_f, \frac{P_{max} - P_{min}}{W_f}, \frac{q_{adj}}{L}\right)$ $Slope = 0.028 \cdot kcf$

$V_{req} := LF \cdot \left[\left(q_{adj} - Slope \cdot d_1\right) + \left(\frac{Slope \cdot d_1}{2}\right)\right] \cdot W_f \cdot d_1$ $V_{req} = 189.0928 \cdot kip$

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

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

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

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

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

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

Guess Value: $v_u := 1ksf$ (From "Foundation Analysis and design", By Joseph Bowles, Eq. 8-9)

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

$v_u := Find(v_u)$ $v_u = 16.0862 \cdot ksf$

$V_u := v_u \cdot d \cdot W_f$ $V_u = 274.8058 \cdot kips$

$V_{req} := LF \cdot V_u$ $V_{req} = 357.2476 \cdot kips$

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

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

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

Take Maximum Bending at face of Pier:

$q_b := q_{adj} - d_1 \cdot Slope$ $q_b = 4.1069 \cdot ksf$

$M_n := \frac{LF}{\phi_m} \cdot \left[(q_{adj} - q_b) \cdot \frac{d_1^2}{3} + q_b \cdot \frac{d_1^2}{2} \right] \cdot W_f$ $M_n = 369.1262 \cdot kip \cdot ft$

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

$A_s := \frac{M_n}{\phi_m \cdot fy \cdot d}$ $A_s = 4.0014 \cdot in^2$

$a := \frac{A_s \cdot fy}{\beta \cdot f'c \cdot W_f}$ $a = 0.7846 \cdot in$

$A_s := \frac{M_n}{fy \cdot \left(d - \frac{a}{2} \right)}$ $A_s = 3.6715 \cdot in^2$

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

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

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

(ACI 7.12.2.1b)

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

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

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

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

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

Development Length Factors:

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

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

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

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

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

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

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

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

REINFORCEMENT IN PIER

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

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

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

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

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

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

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

Maximum Moment in Pier: $M_p := \left[M_t + S_t \cdot \left(L_p + \frac{A_{BP}}{2} \right) \right] \cdot LF$ $M_p = 242.7984 \cdot in \cdot kips$

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

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

The required input is column diameter in inches, number of reinforcing bars, bar size number, factored axial load in kips and moment in kip inches: $(D \;\; N \;\; n \;\; P_u \;\; M_{xu}) := (36 \;\; 10 \;\; 7 \;\; 712 \;\; 50)$

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

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

The Output is given as useable axial load in kips, moment capacity in kip inches, splicing stress in ksi, and reinforcement ratio: $(\phi P_n \;\; \phi M_{xn} \;\; f_{sp} \;\; \rho) = (2644.9842 \;\; 185.7433 \;\; 47.6351 \;\; 0.0059)$

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

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

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

DEVELOPMENT LENGTH OF PIER REINFORCEMENT

TENSION (ACI 12.2.3)

Factors for development:

Reinforcement Location Factor $\alpha := 1.0$

Coating Factor $\beta := 1.0$

Concrete strength Factor $\lambda := 1.0$

Reinforcement Size Factor $\gamma := 1.0$

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

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

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

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

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

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

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

COMPRESSION: (ACI 12.3.2)

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

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

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

Available Length in Pier:

$$L_{pier} := L_p - 3\cdot in \qquad L_{pier} = 27\cdot in$$

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

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

Available Length in Pad:

$$L_{pad} := T_f - 3\cdot in \qquad L_{pad} = 21\cdot in$$

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

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

TIE SIZE AND SPACING IN COLUMN

Minimum Tie Size:

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

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

Seismic factor:
(ACI 21.10.5)

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

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

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

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

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

Maximum Spacing:

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

Number of Ties Required:

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

GUY ANCHOR ANALYSIS

URS

Job :	WHUS Guyed Tower - Storrs, CT	Project No.:	VZ5-143 (Rev 2)	Page	of
Description:	Anchor Block Evaluation - UCONN	Computed by:	MCD	Sheet	1 of 2
	Typical Anchor Block	Checked by:		Date	7/17/13
				Date	

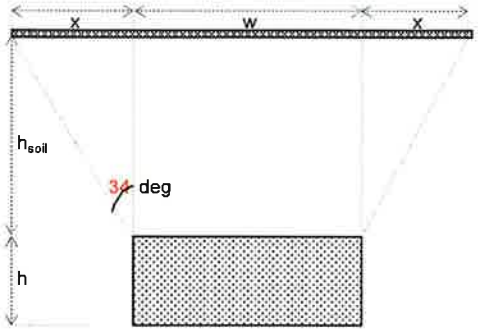
CHECK UPLIFT RESISTANCE

RESULTS FROM COMPUTER ANALYSIS:

Uplift =	146.49	kips
Sliding =	174.472	kips

CONCRETE PARAMETERS:

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



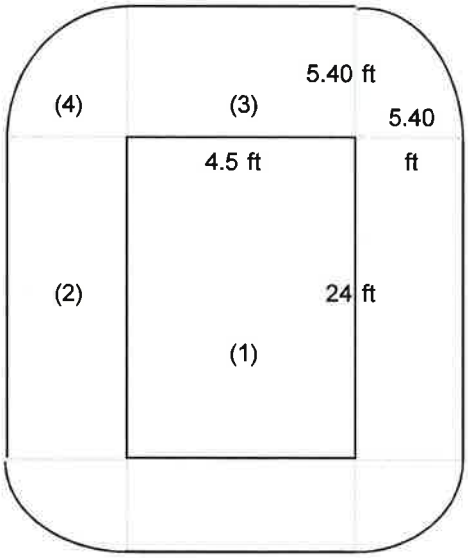
Foundation Section

SOIL PARAMETERS:

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

Soil Weight (Wr):

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



Foundation Plan View

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

Wr / 2.0 + Wc / 1.25 > UPLIFT

192.13 > *146.49* ***OK***

(Wr + Wc) / 1.5 > UPLIFT

230.26 > *146.49* ***OK***

CHECK UPLIFT (PER 2005 CT BLDG CODE 3108.4):

(Wr + Wc) / 2.0 > UPLIFT *172.69* > *146.49* ***OK***

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

URS

Job :	WHUS Guyed Tower - Storrs, CT	**Project No.:**	VZ5-143 (Rev 2)	**Page**	___ of ___
Description:	Anchor Block Evaluation - UCONN	**Computed by:**	MCD	**Sheet**	2 of 2
	Typical Anchor Block	**Checked by:**		**Date**	7/17/13
				Date	

CHECK SLIDING RESISTANCE

SOIL PARAMETERS

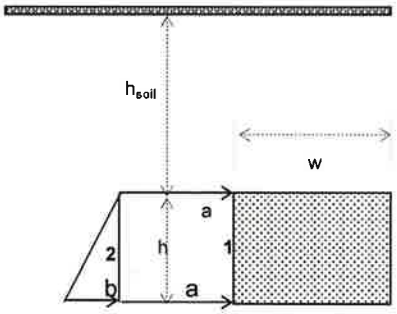
$\gamma soil$ =	120	pcf
h_{soil} =	8	ft
h =	4	ft
ϕ =	34	degrees

ANCHOR PARAMETERS

w = 4.5 ft

h = 4.0 ft

d = 24.0 ft



Foundation Elevation View

K_a = 0.28

K_p = 3.54

Δ = 3.25

HORIZONTAL FORCES

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

SOIL & CONCRETE WEIGHT =	Wr + Wc =	345.39	k
UPLIFT REACTIONS =		-146.49	k
SUM =		198.90	k

COEF. OF FRICTION, (0.5) =	99.45	k
RESIST TO SLIDING =	318.67	k
SUM =	418.12	k

SF AGAINST SLIDING

SF = 2.40 > 2.0 OK

→ ***GUY ANCHORS AGAINST SLIDING ARE ADEQUATE***