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May 17, 2012

Linda Roberts
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

RECEIVED
MAY 18 2012
CONNECTICUT
SITING COUNCIL

Re: **EM-VER-007-120125 – 1684 Chamberlain Highway, Berlin, Connecticut**
EM-VER-014-120110 – 405 Brushy Hill Road, Branford, Connecticut
EM-VER-026-111130 – Wig Hill Road, Chester, Connecticut
EM-VER-070-120202 – 78 Route 81, Killingworth, Connecticut
EM-VER-030-120106 – 330 Middletown Road, Columbia, Connecticut
EM-VER-046-120123 – 206 Everett Road, Easton, Connecticut
EM-VER-049-120214 – Town Farm Road, Enfield, Connecticut
EM-VER-013-111220 – 12 Polly Lane, Bozrah, Connecticut

Completion of Construction Activity

Dear Ms. Roberts:

The purpose of this letter is to notify you and the Connecticut Siting Council that construction activity associated with each of the above-referenced modification filings has been completed.

If you have any questions or need any additional information regarding these facilities please do not hesitate to contact me.

Sincerely,



Kenneth C. Baldwin

Copy to:
Sandy M. Carter



Law Offices

BOSTON

PROVIDENCE

HARTFORD

NEW LONDON

STAMFORD

WHITE PLAINS

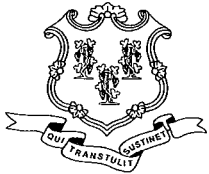
NEW YORK CITY

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STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@ct.gov

www.ct.gov/csc

January 6, 2012

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

RE: **EM EM-VER-013-111220** - Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at Polly Lane, Bozrah, Connecticut.

Dear Attorney Baldwin:

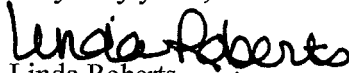

The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies with the following conditions:

- Any deviation from the proposed modification as specified in this notice and supporting materials with Council shall render this acknowledgement invalid;
- Any material changes to this modification as proposed shall require the filing of a new notice with the Council;
- Not less than 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;
- The validity of this action shall expire one year from the date of this letter; and
- The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration;

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated December 19, 2011. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Thank you for your attention and cooperation.

Very truly yours,


Linda Roberts
Executive Director 

LR/CDM/laf

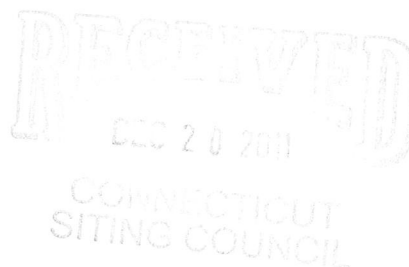
c: The Honorable William E. Ballinger, First Selectman, Town of Bozrah
Seymour Adelman, Planning and Zoning Chairman, Town of Bozrah
Cordless Data Transfer



280 Trumbull Street
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December 19, 2011

Linda Roberts
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051



Re: **Notice of Exempt Modification – Antenna Swap
Polly Lane, Bozrah, Connecticut**

Dear Ms. Roberts:

Cellco Partnership d/b/a Verizon Wireless (“Cellco”) currently maintains twelve (12) wireless telecommunications antennas at the 136-foot level on the existing 185-foot tower at the above-referenced address. The tower is owned by Cordless Data Transfer, Inc. The Council approved Cellco’s shared use of the existing tower in 2000. Cellco now intends to modify its installation by replacing all of its existing antennas with six (6) model LPA-80080/4CF cellular antennas; three (3) model BXA-171085-8BF PCS antennas; and three (3) model BXA-70063/6CF LTE antennas, all at the same 136-foot level on the tower. Cellco also intends to install six coax cable diplexers on its antenna platform. Attached behind Tab 1 are the specifications for the proposed replacement antennas and cable diplexers.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to William Ballinger, First Selectman of the Town of Bozrah. A copy of this letter is also being sent to Alice Maynard, 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 overall height of the existing tower. Cellco’s antennas and diplexers will be located at the 136-foot level on the existing 185-foot tower.



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Linda Roberts
December 19, 2011
Page 2

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

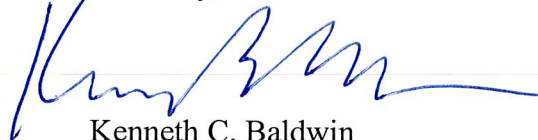
3. The proposed modifications will not increase noise levels at the facility by six decibels or more.

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

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

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

Sincerely,



Kenneth C. Baldwin

Enclosures

Copy to:

William Ballinger, Bozrah First Selectman
Alice Maynard
Sandy M. Carter

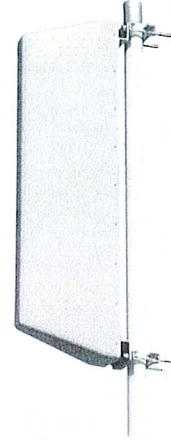


LPA-80080-4CF-EDIN-X

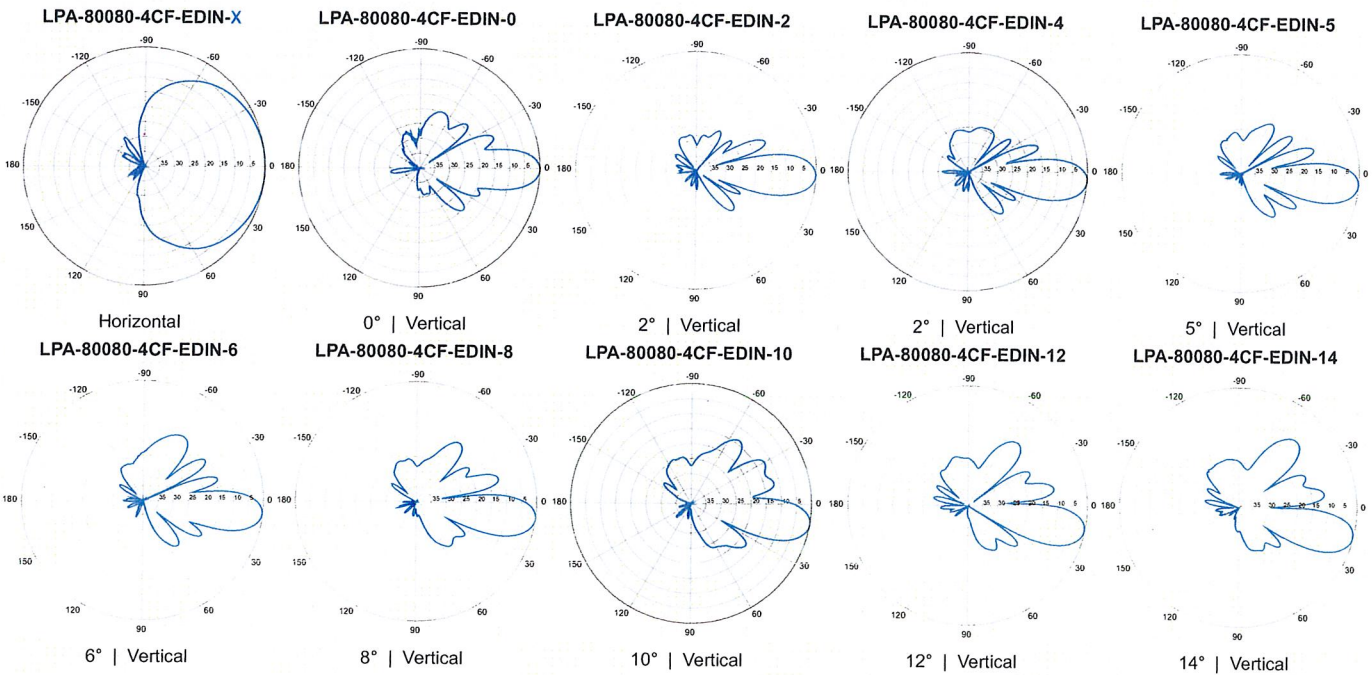
V-Pol | Log Periodic | 80° | 12.5 dBd

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	806-960 MHz
Polarization	Vertical
Horizontal beamwidth	80°
Vertical beamwidth	15°
Gain	12.5 dBd (14.6 dBi)
Electrical downtilt (X)	0, 2, 4, 5, 6, 8, 10, 12, 14
Impedance	50Ω
VSWR	≤1.4:1
Upper sidelobe suppression (0°)	-14.2 dB
Front-to-back ratio (+/-30°)	-34.7 dB
Null fill	15% (-16.48 dB)
Input power	500 W
Lightning protection	Direct Ground
Connector(s)	1 Port / EDIN or NE / Female / Center (Back)
Mechanical Characteristics	
Dimensions Length x Width x Depth	1200 x 140 x 335 mm 47.2 x 5.5 x 13.2 in
Depth of antenna with z-bracket	375 mm 14.8 in
Weight without mounting brackets	5.4 kg 12 lbs
Survival wind speed	> 201 km/hr > 125 mph
Wind area	Front: 0.17 m ² Side: 0.40 m ² Front: 1.8 ft ² Side: 4.3 ft ²
Wind load @ 161 km/hr (100 mph)	Front: 254 N Side: 574 N Front: 57 lbf Side: 129 lbf
Mounting Options	
	Part Number Fits Pipe Diameter Weight
2-Point Mounting & Downtilt Bracket Kit (0-20°)	21699999 50-102 mm 2.0-4.0 in 5.4 kg 12 lbs
Lock-Down Brace	If the lock-down brace is used, the maximum diameter of the mounting pipe is 88.9 mm or 3.5 in.



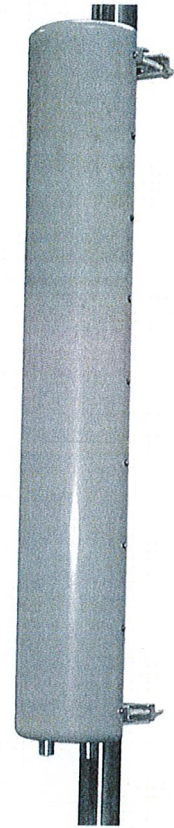
Quoted performance parameters are provided to offer typical or range values only and may vary as a result of normal manufacturing and operational conditions. Extreme operational conditions and/or stress on structural supports is beyond our control. Such conditions may result in damage to this product.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

BXA-171085-8BF-EDIN-X

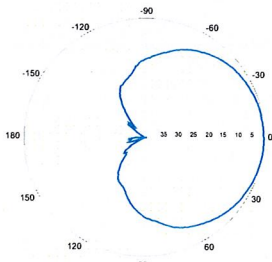
Replace 'X' with desired electrical downtilt.

X-Pol | FET Panel | 85° | 16.4 dBi

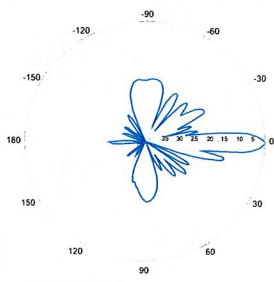
Electrical Characteristics		1710-2170 MHz			
Frequency bands	1710-1880 MHz	1850-1990 MHz	1920-2170 MHz		
Polarization	±45°	±45°	±45°		
Horizontal beamwidth	88°	85°	80°		
Vertical beamwidth	7°	7°	7°		
Gain	13.5 dBd / 15.6 dBi	13.9 dBd / 16.0 dBi	14.3 dBd / 16.4 dBi		
Electrical downtilt (X)		0, 2, 4			
Impedance	50Ω				
VSWR	≤1.5:1				
First upper sidelobe	< -17 dB				
Front-to-back isolation	> 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	1232 x 154 x 105 mm	48.5 x 6.1 x 4.1 in			
Depth with t-brackets	133 mm	5.2 in			
Weight without mounting brackets	4.8 kg	10.5 lbs			
Survival wind speed	296 km/hr	184 mph			
Wind area	Front: 0.19 m ² Side: 0.14 m ²	Front: 2.0 ft ²	Side: 1.5 ft ²		
Wind load @ 161 km/hr (100 mph)	Front: 281 N Side: 223 N	Front: 63 lbf	Side: 50 lbf		
Mounting Options		Part Number	Fits Pipe Diameter		Weight
2-Point Mounting Bracket Kit	26799997	50-102 mm	2.0-4.0 in		2.3 kg 5 lbs
2-Point Mounting & Downtilt Bracket Kit	26799999	50-102 mm	2.0-4.0 in		3.6 kg 8 lbs
Concealment Configurations	For concealment configurations, order BXA-171085-8BF-EDIN-X-FP				



BXA-171085-8BF-EDIN-X

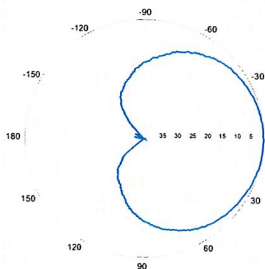


Horizontal | 1710-1880 MHz
BXA-171085-8BF-EDIN-0

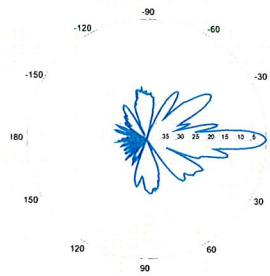


0° | Vertical | 1710-1880 MHz

BXA-171085-8BF-EDIN-X

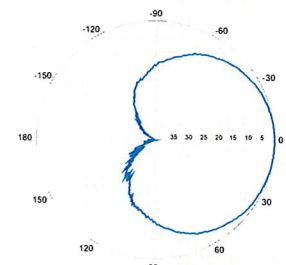


Horizontal | 1850-1990 MHz
BXA-171085-8BF-EDIN-0

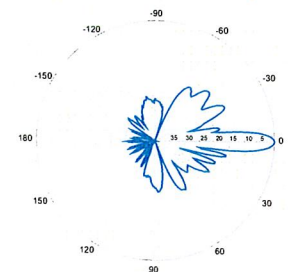


0° | Vertical | 1850-1990 MHz

BXA-171085-8BF-EDIN-X



Horizontal | 1920-2170 MHz
BXA-171085-8BF-EDIN-0



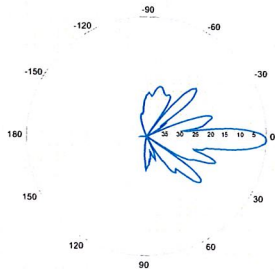
0° | Vertical | 1920-2170 MHz

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-171085-8BF-EDIN-X

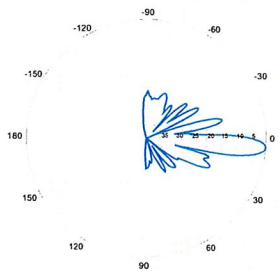
X-Pol | FET Panel | 85° | 16.4 dBi

BXA-171085-8BF-EDIN-2



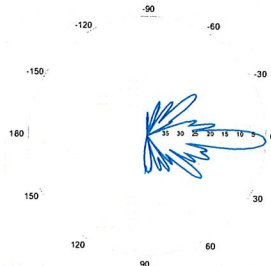
2° | Vertical | 1710-1880 MHz

BXA-171085-8BF-EDIN-4



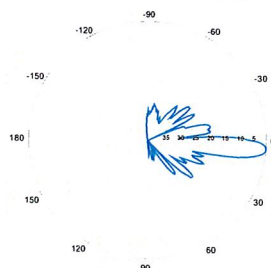
4° | Vertical | 1710-1880 MHz

BXA-171085-8BF-EDIN-2



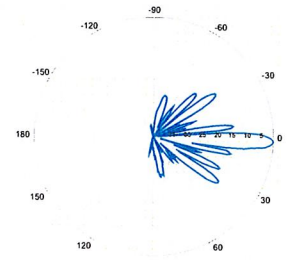
2° | Vertical | 1850-1990 MHz

BXA-171085-8BF-EDIN-4



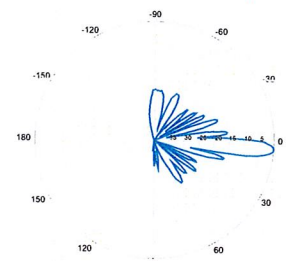
4° | Vertical | 1850-1990 MHz

BXA-171085-8BF-EDIN-2



2° | Vertical | 1920-2170 MHz

BXA-171085-8BF-EDIN-4



4° | Vertical | 1920-2170 MHz

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BXA-70063-6CF-EDIN-X

X-Pol | FET Panel | 63° | 14.5 dBd

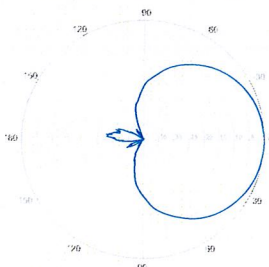
Replace "X" with desired electrical downtilt.

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



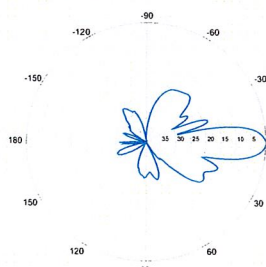
Electrical Characteristics	696-900 MHz		
Frequency bands	696-806 MHz	806-900 MHz	
Polarization	±45°		
Horizontal beamwidth	65°	63°	
Vertical beamwidth	13°	11°	
Gain	14.0 dBd (16.1 dBi)	14.5 dBd (16.6 dBi)	
Electrical downtilt (X)	0, 2, 3, 4, 5, 6, 8, 10		
Impedance	50Ω		
VSWR	≤1.35:1		
Upper sidelobe suppression (0°)	-18.3 dB	-18.2 dB	
Front-to-back ratio (+/-30°)	-33.4 dB	-36.3 dB	
Null fill	5% (-26.02 dB)		
Isolation between ports	< -25 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	1804 x 285 x 132 mm	71.0 x 11.2 x 5.2 in	
Depth with z-brackets	172 mm	6.8 in	
Weight without mounting brackets	7.9 kg	17 lbs	
Survival wind speed	> 201 km/hr > 125 mph		
Wind area	Front: 0.51 m ² Side: 0.24 m ²	Front: 5.5 ft ² Side: 2.6 ft ²	
Wind load @ 161 km/hr (100 mph)	Front: 759 N Side: 391 N	Front: 169 lbf Side: 89 lbf	
Mounting Options	Part Number	Fits Pipe Diameter	Weight
3-Point Mounting & Downtilt Bracket Kit	36210008	40-115 mm 1.57-4.5 in	6.9 kg 15.2 lbs
Concealment Configurations	For concealment configurations, order BXA-70063-6CF-EDIN-X-FP		

BXA-70063-6CF-EDIN-X



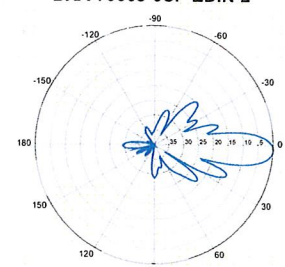
Horizontal | 750 MHz

BXA-70063-6CF-EDIN-0

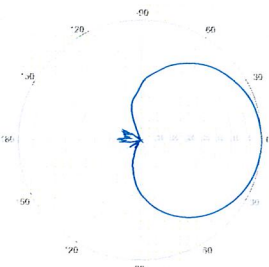


0° | Vertical | 750 MHz

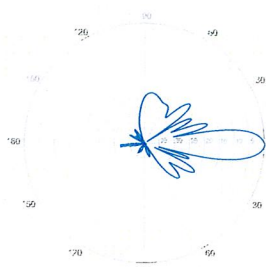
BXA-70063-6CF-EDIN-2



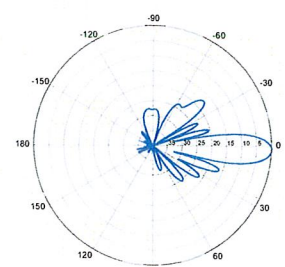
2° | Vertical | 750 MHz



Horizontal | 850 MHz



0° | Vertical | 850 MHz



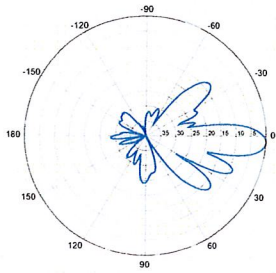
2° | Vertical | 850 MHz

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-70063-6CF-EDIN-X

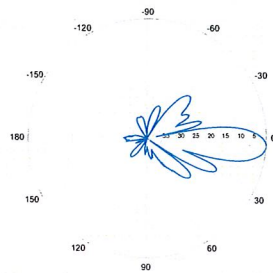
X-Pol | FET Panel | 63° | 14.5 dBd

BXA-70063-6CF-EDIN-3



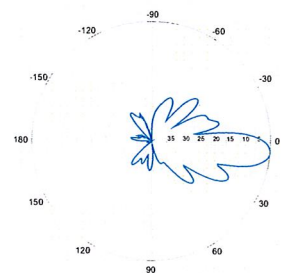
3° | Vertical | 750 MHz

BXA-70063-6CF-EDIN-4

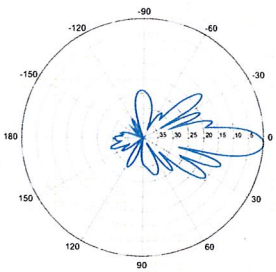


4° | Vertical | 750 MHz

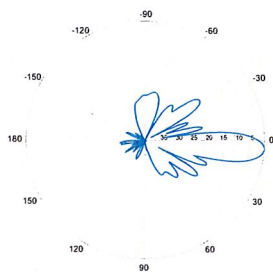
BXA-70063-6CF-EDIN-5



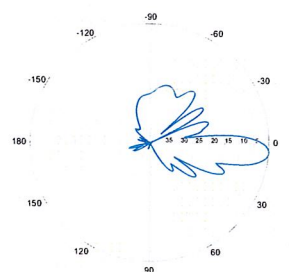
5° | Vertical | 750 MHz



3° | Vertical | 850 MHz

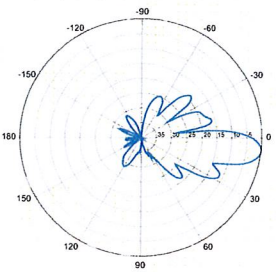


4° | Vertical | 850 MHz



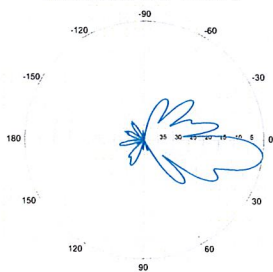
5° | Vertical | 850 MHz

BXA-70063-6CF-EDIN-6



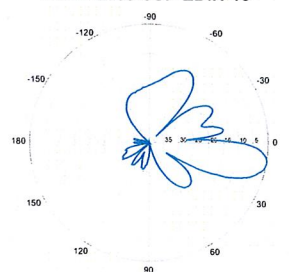
6° | Vertical | 750 MHz

BXA-70063-6CF-EDIN-8

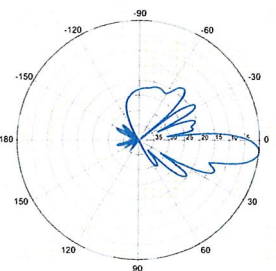


8° | Vertical | 750 MHz

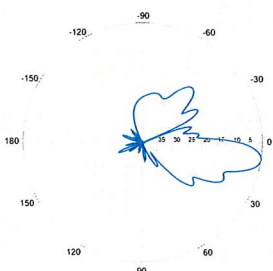
BXA-70063-6CF-EDIN-10



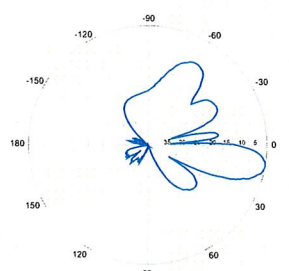
10° | Vertical | 750 MHz



6° | Vertical | 850 MHz



8° | Vertical | 850 MHz



10° | Vertical | 850 MHz

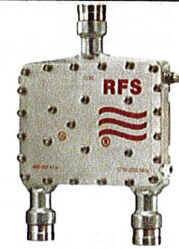
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ShareLite Wideband Diplexer – In-line 698-960 MHz/1710-2200 MHz, DC pass in high frequency path

Product Description

The ShareLite FD9R6004 Series of diplexers are designed to enable feeder sharing between systems in the 698-960 MHz range and in the 1710-2200 MHz range. The diplexer is equipped with in-line connector placement so it can be installed in the BTS cabinet or at the tower top. This is especially valuable in crowded sites or when the feeders are not easily accessible. Due to its wideband design, the FD9R6004 Series can accommodate many combining solutions between 698-960 MHz and 1710-2200 MHz systems such as LTE 700 MHz, Cellular 800 MHz with PCS, GSM900 with GSM1800, or GSM900 with UMTS. This diplexer features a highly selective filter. It provides a high level of isolation between ports, while keeping the insertion loss on both paths at an extremely low level. The FD9R6004 diplexers are available with various DC pass options, helpful in configurations with or without the Tower Mount Amplifiers installed.



Features/Benefits

- LTE ready design
- Extremely Low Insertion Loss
- High level of Rejection between bands – Protection against interferences
- Extremely High Power Handling Capability
- Integrated DC block/bypass versions available
- Very compact & small size design – Easy installation and reduced tower load
- In-line long-neck connectors for easy connection & waterproofing
- Exceptional reliability & environmental protection (IP 67)
- Equipped with 1 * Breathable Vent – Prevent any humidity inside the product
- Mounting hardware for Wall and Pole mount provided (P/N SEM2-1A)
- Grounding already provided through the mounting bracket
- Kit available for easy dual mount

Technical Specifications

Product Type	Diplexer/Cross Band Coupler
Frequency Range 1, MHz	698-960
Frequency Range 2, MHz	1710-2200
Application	LTE700, GSM900, UMTS, GSM1800, Cellular 800, PCS
Configuration	Sharelite Single diplexer, outdoor, DC pass in the 1710-2170MHz path, with mounting hardware SEM2-1A
Mounting	Wall Mounting: With 4 screws (maximum 6mm diameter); Pole Mounting: With included clamp set 40-110mm (1.57-4.33)
Return Loss All Ports Min/Typ, dB	19/23
Power Handling Continuous, Max, W	1250 at common port; 750 in low frequency path & 500 in high frequency path
Power Handling Peak, Max, W	15000 in low frequency path & 8000 in high frequency path
Impedance, Ohms	50
Insertion Loss, Path 1, dB	0.07 typ.
Insertion Loss, Path 2, dB	0.13 typ.
Rejection Between Bands Min/Typ, dB	58/64@698-960MHz; 60/70@1710-2200MHz
IMP Level at the COM Port, Typ, dBm	-112 @ 2x43
DC Pass in Low Frequency Path	No
DC Pass in High Frequency Path	Yes
Temperature Range, °C (°F)	-40 to +60 (-40 to +140)
Environmental	ETSI 300-019-2-4 Class 4.1E
Ingress Protection	IP 67
Lightning Protection	EN/IEC61000-4-5 Level 4
Connectors	In-line long-neck 7-16-Female
Weight, kg (lb)	1.2 (2.6)
Shipping Weight, kg (lb)	3.2 (7) for 2 * single units in 1 * box, 9.8 (21.6) for 6 * units = 3 * Boxes in 1 * overwrap
Dimensions, H x W x D, mm (in)	147 x 164 x 37 (5.8 x 6.5 x 1.5)
Shipping Dimensions, H x W x D, mm (in)	254 x 406 x 82 (10 x 16 x 3.2) for 2 * Single Units in 1 * box, 280 x 406 x 241 (11 x 16 x 9.5) for 6 * units = 3 * Boxes in 1 * overwrap
Volume, L	0.43
Housing	Aluminum

Notes

All information contained in the present datasheet is subject to confirmation at time of ordering

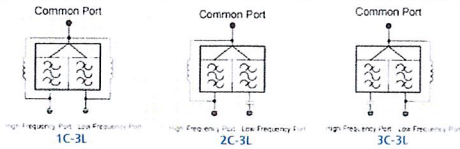


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Other Documentation

FD9R6004/2C-3L Installation Instructions: [Wideband_Diplexer_Installation_Rev5.pdf](#)

Selection Guide Diplexer 698-960 / 1710-2200MHz					
	Model Number	Full DC Pass	DC Pass High Band	DC Pass Low Band	Mounting Hardware Included
Single	FD9R6004/1C-3L				X
	FD9R6004/2C-3L				X
	FD9R6004/3C-3L				X
Dual	KIT-FD9R6004/1C-DL				X
	KIT-FD9R6004/2C-DL				X
	KIT-FD9R6004/3C-DL				X

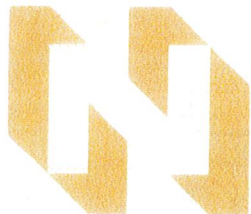


The FD9R6004 Series is upgradeable to a Dual Diplexer kit by means of 2 diplexers and mounting hardware kits SEM2-1A and SEM2-3

Mounting Hardware and Ground Cable Ordering Information	
Model Number	Description
SEM2-1A	Mounting Hardware, Pole mount ø40-110mm (Included with the Single and Dual Diplexer) Wall Screws M6 (Not included with the product)
SEM2-3	Assembly kit for 2 pcs of FD9R6004/xC-3L (Can be ordered separately but included with the Dual Diplexer Kit)
CA020-2	Ground Cable, 2m, includes lugs (Optional)
CA030-2	Ground Cable, 2m, includes lugs (Optional)
SEM6	Mounting Hardware for 6 Diplexers, Tower Base (Optional)

All information contained in the present datasheet is subject to confirmation at time of ordering

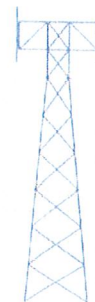
		General		Power		Density							
Site Name: Gilman (Bozrah)													
Tower Height: Verizon @ 136 ft													
CARRIER	# OF CHAN.	WATTS ERP	HEIGHT	CALC. POWER DENS	FREQ.	MAX. PERMISS. EXP.	FRACTION MPE	Total					
*Omniport	2	386	195	0.0073	1930	1.0000	0.73%						
*Sprint	11	122	175	0.0158	1962.5	1.0000	1.58%						
*Cingular UMTS	1	500	182	0.0054	880	0.5867	0.93%						
*Cingular GSM	4	296	182	0.0129	880	0.5867	2.19%						
*Cingular	2	427	182	0.0093	1900	1.0000	0.93%						
Verizon PCS	7	223	136	0.0303	1970	1.0000	3.03%						
Verizon Cellular	9	268	136	0.0469	869	0.5793	8.09%						
Verizon AWS	1	558	136	0.0130	2145	1.0000	1.30%						
Verizon 700	2	790	136	0.0307	698	0.4653	6.60%						
								25.38%					
* Source: Siting Council													



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October 19, 2011

Mark LeGault
Cordless Data Transfer, Inc.

Subject: Structural Analysis of a 187 ft Guyed Tower (Lat. 41-34-27.31 Long. 72-12-1.53)

Mr. LeGault,

Fred A. Nudd Corporation has completed a three-dimensional, finite element model structural analysis of the above noted guyed tower. This tower was analyzed considering appurtenance loads noted in the appurtenance loading table on the following page. The design loading criteria and strength design are per the TIA/EIA-222-F standard, which is the recommended design standard per the 2003 International Building Code (Sec. 1609 & 3108), including 2005 and 2009 Connecticut Building Code Amendments. Additional standards used in this analysis include the AISC Manual for Steel Construction, Allowable Stress Design, 9th Ed. and ACI 318-05, Building Code Requirements for Structural Concrete and Commentary. The original tower and foundation dimensions have been taken from original design drawings by Fred A. Nudd Corporation (Drawing Number 02-8869-1 & 97-5463-2, dated March 27, 2002 & November 3, 1997). A 7 ft, 2 bay extension has been installed in this tower, raising the overall tower height to 187 ft (Project Number 209-13046, dated April 10, 2009) and this addition has been included in this analysis. Subsurface soil conditions were taken from a geotechnical report by Tower Engineering Professionals, Inc. (TEP Project Number 080004.46E, dated August 24, 2009). Additional tower information was taken from a post modification inspection report by Tower Engineering Professionals, Inc. (TEP Project Number 080004.46, dated July 24, 2009).

The purpose of this analysis is to determine the structure's ability to support new Verizon equipment installed at a rad center of 136 ft above ground level (AGL). The new equipment to be installed, which includes antennas, diplexers, and associated hardware are listed on the following page in the appurtenance loading table. All existing Verizon equipment, aside from coax, is to be removed prior to installation of the new Verizon equipment.

Results of the analysis indicate the tower will be able to support the design loads noted in the appurtenance loading table on the following page. Specific section design loads, capacities and stress ratios are provided on the following pages. Maximum member usage was found to be 98.1%.

The tower base foundation and anchors were analyzed considering onsite soil information from the aforementioned geotechnical report. Based on this analysis, the foundation and anchors will be able support the new Verizon loading, in addition to the existing wireless equipment and tower superstructure. Specific design loads, capacities and stress ratios are provided on the following pages. Maximum element usage was found to be 85%.

In conclusion, the tower superstructure and substructure can support the listed existing and proposed appurtenance loading.

We trust this report satisfies your needs. Please contact us with any questions or concerns regarding this report.

Best Regards,
Fred A. Nudd Corporation



David Tan, P.E. (CT License No. 22092)

Appurtenance Loading – Existing / Remaining

Height (ft)	Carrier	Appurtenance	Mount	Coax (in)
188	AT&T	(6) Powerwave 7770 (6) TMA (6) Diplexers	(3) 10 ft Boom / Frame	(12) 1-5/8
180	T-Mobile	(9) RFS APX199015-CT2 (3) TMA (3) Diplexers	(3) 12 ft Boom / Frame	(9) 1-1/4
173	Nextel	(9) Swedcom ALP-E-9011	(3) 12 ft Boom / Frame	(9) 1-1/4
152	Sprint	(9) Decibel DB980H90	(3) 12 ft Boom / Frame	(9) 1-5/8

- Height measurement taken as distance from top of base foundation to center of appurtenance.

Appurtenance Loading – To Be Removed from Tower

Height (ft)	Carrier	Appurtenance	Mount	Coax (in)
136	Verizon	(6) Decibel DB844H80E-XY (6) Decibel 948F85T2E-M	(3) 12 ft Boom / Frame	-

- Height measurement taken as distance from top of base foundation to center of appurtenance.

Appurtenance Loading – Final Configuration for Verizon

Height (ft)	Carrier	Appurtenance	Mount	Coax (in)
136	Verizon	(6) Antel LPA-80080-4CF (3) Antel BXA-70063-6CF (3) Antel BXA-171085-8BF (6) RFS FD9R6004/2C-3L	(3) 12 ft Boom / Frame	(12) 1-5/8

- Height measurement taken as distance from top of base foundation to center of appurtenance.
- Verizon's coax will be unchanged from how it's currently installed through the final equipment installation.

Foundation Reaction Comparison

Design Load	Capacity (kips)	Analysis (kips)	Percentage
Base Axial	143.7	117.9	82
Base Shear	3.6	3.0	83
Anchor Uplift	61.7	42.2	68
Anchor Shear	61.3	51.9	85

- Percentage less than 100% denote foundation is satisfactory for loading
- Percentage greater than 100% indicates foundation analysis is required

Maximum Member Usage

Member	Percentage
Leg	93.4
Diagonal	92.2
Horizontal	68.4
Bolts	62.6
Guys	81.6

- Percentage less than 100% denote member stress levels are satisfactory for loading
- Percentage greater than 100% indicates member strengthening is required

Section	T0	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	T14	T15	T16	T17	T18	T19	T20	T21	T22	T23	T24	T25	T26	T27	T28	T29	T30	T31	T32	T33	T34	T35	T36	T37	T38	T39	T40	T41	T42	T43	T44	T45	T46	T47	T48	T49	T50	T51	T52	T53	T54	T55	T56	T57	T58	T59	T60	T61	T62	T63	T64	T65	T66	T67	T68	T69	T70	T71	T72	T73	T74	T75	T76	T77	T78	T79	T80	T81	T82	T83	T84	T85	T86	T87	T88	T89	T90	T91	T92	T93	T94	T95	T96	T97	T98	T99	T100	T101	T102	T103	T104	T105	T106	T107	T108	T109	T110	T111	T112	T113	T114	T115	T116	T117	T118	T119	T120	T121	T122	T123	T124	T125	T126	T127	T128	T129	T130	T131	T132	T133	T134	T135	T136	T137	T138	T139	T140	T141	T142	T143	T144	T145	T146	T147	T148	T149	T150	T151	T152	T153	T154	T155	T156	T157	T158	T159	T160	T161	T162	T163	T164	T165	T166	T167	T168	T169	T170	T171	T172	T173	T174	T175	T176	T177	T178	T179	T180	T181	T182	T183	T184	T185	T186	T187	T188	T189	T190	T191	T192	T193	T194	T195	T196	T197	T198	T199	T200	T201	T202	T203	T204	T205	T206	T207	T208	T209	T210	T211	T212	T213	T214	T215	T216	T217	T218	T219	T220	T221	T222	T223	T224	T225	T226	T227	T228	T229	T230	T231	T232	T233	T234	T235	T236	T237	T238	T239	T240	T241	T242	T243	T244	T245	T246	T247	T248	T249	T250	T251	T252	T253	T254	T255	T256	T257	T258	T259	T260	T261	T262	T263	T264	T265	T266	T267	T268	T269	T270	T271	T272	T273	T274	T275	T276	T277	T278	T279	T280	T281	T282	T283	T284	T285	T286	T287	T288	T289	T290	T291	T292	T293	T294	T295	T296	T297	T298	T299	T300	T301	T302	T303	T304	T305	T306	T307	T308	T309	T310	T311	T312	T313	T314	T315	T316	T317	T318	T319	T320	T321	T322	T323	T324	T325	T326	T327	T328	T329	T330	T331	T332	T333	T334	T335	T336	T337	T338	T339	T340	T341	T342	T343	T344	T345	T346	T347	T348	T349	T350	T351	T352	T353	T354	T355	T356	T357	T358	T359	T360	T361	T362	T363	T364	T365	T366	T367	T368	T369	T370	T371	T372	T373	T374	T375	T376	T377	T378	T379	T380	T381	T382	T383	T384	T385	T386	T387	T388	T389	T390	T391	T392	T393	T394	T395	T396	T397	T398	T399	T400	T401	T402	T403	T404	T405	T406	T407	T408	T409	T410	T411	T412	T413	T414	T415	T416	T417	T418	T419	T420	T421	T422	T423	T424	T425	T426	T427	T428	T429	T430	T431	T432	T433	T434	T435	T436	T437	T438	T439	T440	T441	T442	T443	T444	T445	T446	T447	T448	T449	T450	T451	T452	T453	T454	T455	T456	T457	T458	T459	T460	T461	T462	T463	T464	T465	T466	T467	T468	T469	T470	T471	T472	T473	T474	T475	T476	T477	T478	T479	T480	T481	T482	T483	T484	T485	T486	T487	T488	T489	T490	T491	T492	T493	T494	T495	T496	T497	T498	T499	T500	T501	T502	T503	T504	T505	T506	T507	T508	T509	T510	T511	T512	T513	T514	T515	T516	T517	T518	T519	T520	T521	T522	T523	T524	T525	T526	T527	T528	T529	T530	T531	T532	T533	T534	T535	T536	T537	T538	T539	T540	T541	T542	T543	T544	T545	T546	T547	T548	T549	T550	T551	T552	T553	T554	T555	T556	T557	T558	T559	T560	T561	T562	T563	T564	T565	T566	T567	T568	T569	T570	T571	T572	T573	T574	T575	T576	T577	T578	T579	T580	T581	T582	T583	T584	T585	T586	T587	T588	T589	T590	T591	T592	T593	T594	T595	T596	T597	T598	T599	T600	T601	T602	T603	T604	T605	T606	T607	T608	T609	T610	T611	T612	T613	T614	T615	T616	T617	T618	T619	T620	T621	T622	T623	T624	T625	T626	T627	T628	T629	T630	T631	T632	T633	T634	T635	T636	T637	T638	T639	T640	T641	T642	T643	T644	T645	T646	T647	T648	T649	T650	T651	T652	T653	T654	T655	T656	T657	T658	T659	T660	T661	T662	T663	T664	T665	T666	T667	T668	T669	T670	T671	T672	T673	T674	T675	T676	T677	T678	T679	T680	T681	T682	T683	T684	T685	T686	T687	T688	T689	T690	T691	T692	T693	T694	T695	T696	T697	T698	T699	T700	T701	T702	T703	T704	T705	T706	T707	T708	T709	T710	T711	T712	T713	T714	T715	T716	T717	T718	T719	T720	T721	T722	T723	T724	T725	T726	T727	T728	T729	T730	T731	T732	T733	T734	T735	T736	T737	T738	T739	T740	T741	T742	T743	T744	T745	T746	T747	T748	T749	T750	T751	T752	T753	T754	T755	T756	T757	T758	T759	T760	T761	T762	T763	T764	T765	T766	T767	T768	T769	T770	T771	T772	T773	T774	T775	T776	T777	T778	T779	T780	T781	T782	T783	T784	T785	T786	T787	T788	T789	T790	T791	T792	T793	T794	T795	T796	T797	T798	T799	T800	T801	T802	T803	T804	T805	T806	T807	T808	T809	T810	T811	T812	T813	T814	T815	T816	T817	T818	T819	T820	T821	T822	T823	T824	T825	T826	T827	T828	T829	T830	T831	T832	T833	T834	T835	T836	T837	T838	T839	T840	T841	T842	T843	T844	T845	T846	T847	T848	T849	T850	T851	T852	T853	T854	T855	T856	T857	T858	T859	T860	T861	T862	T863	T864	T865	T866	T867	T868	T869	T870	T871	T872	T873	T874	T875	T876	T877	T878	T879	T880	T881	T882	T883	T884	T885	T886	T887	T888	T889	T890	T891	T892	T893	T894	T895	T896	T897	T898	T899	T900	T901	T902	T903	T904	T905	T906	T907	T908	T909	T910	T911	T912	T913	T914	T915	T916	T917	T918	T919	T920	T921	T922	T923	T924	T925	T926	T927	T928	T929	T930	T931	T932	T933	T934	T935	T936	T937	T938	T939	T940	T941	T942	T943	T944	T945	T946	T947	T948	T949	T950	T951	T952	T953	T954	T955	T956	T957	T958	T959	T960	T961	T962	T963	T964	T965	T966	T967	T968	T969	T970	T971	T972	T973	T974	T975	T976	T977	T978	T979	T980	T981	T982	T983	T984	T985	T986	T987	T988	T989	T990	T991	T992	T993	T994	T995	T996	T997	T998	T999	T1000	T1001	T1002	T1003	T1004	T1005	T1006	T1007	T1008	T1009	T1010	T1011	T1012	T1013	T1014	T1015	T1016	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	Project Bozrah, CT	Date 17:13:06 10/21/11
	Client Mark LeGault	Designed by bryan.lanier

Tower Input Data

The main tower is a 3x guyed tower with an overall height of 187.00 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 3.50 ft at the top and 3.50 ft at the base.

This tower is designed using the TIA/EIA-222-F standard.

The following design criteria apply:

Tower is located in New London County, Connecticut.

Basic wind speed of 85 mph.

Nominal ice thickness of 0.5000 in.

Ice density of 56 pcf.

A wind speed of 74 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 50 mph.

Weld together tower sections have flange connections..

Tension only take-up is 0.0313 in.

Pressures are calculated at each section.

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

- | | | |
|--|--|---|
| <ul style="list-style-type: none"> Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification v Use Code Stress Ratios v Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile v Include Bolts In Member Capacity v Leg Bolts Are At Top Of Section v Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) Add IBC .6D+W Combination | <ul style="list-style-type: none"> Distribute Leg Loads As Uniform Assume Legs Pinned v Assume Rigid Index Plate v Use Clear Spans For Wind Area v Use Clear Spans For KL/r v Retension Guys To Initial Tension Bypass Mast Stability Checks v Use Azimuth Dish Coefficients v Project Wind Area of Appurt. v Autocalc Torque Arm Areas SR Members Have Cut Ends Sort Capacity Reports By Component v Triangulate Diamond Inner Bracing | <ul style="list-style-type: none"> Treat Feedline Bundles As Cylinder Use ASCE 10 X-Brace Ly Rules v Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression v All Leg Panels Have Same Allowable Offset Girt At Foundation v Consider Feedline Torque Include Angle Block Shear Check <li style="padding-left: 40px;">Poles Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets |
|--|--|---|

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Project

Bozrah, CT

Date

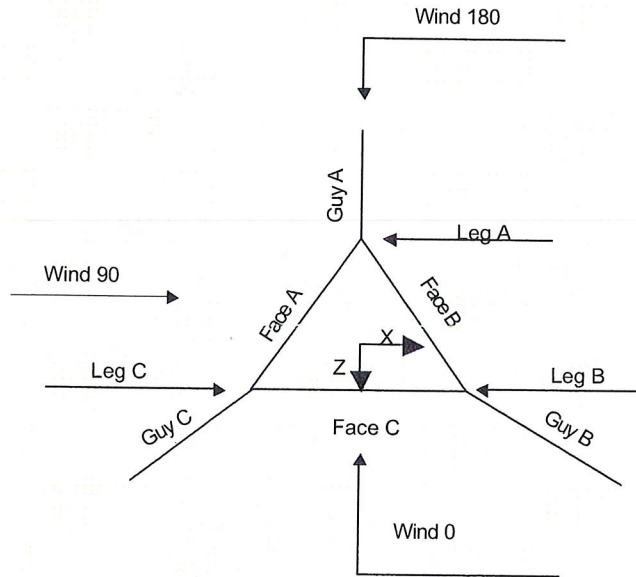
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Client

Mark LeGault

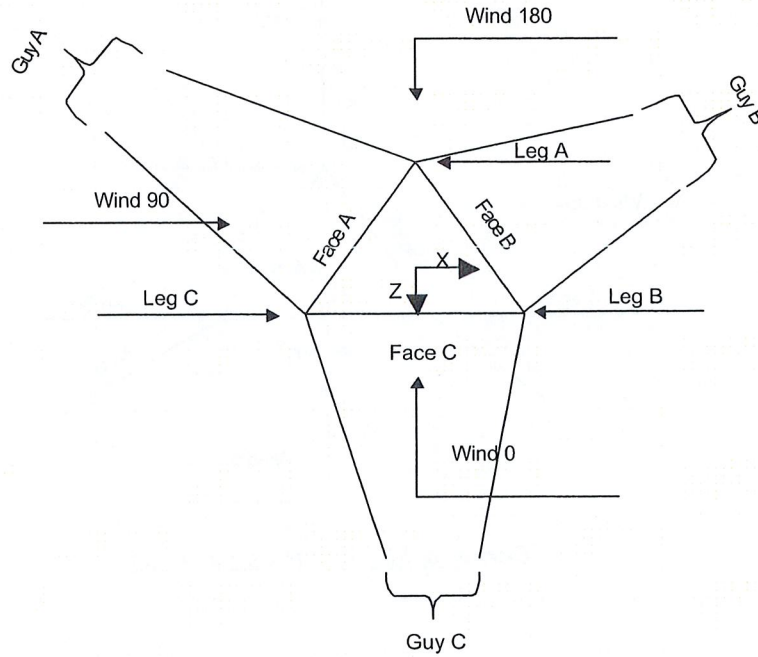
Designed by

bryan.lanier



Corner & Starmount Guyed Tower

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	Client Mark LeGault	Designed by bryan.lanier



Face Guyed

Tower Section Geometry

<i>Tower Section</i>	<i>Tower Elevation</i>	<i>Assembly Database</i>	<i>Description</i>	<i>Section Width</i>	<i>Number of Sections</i>	<i>Section Length</i>
	<i>ft</i>			<i>ft</i>		<i>ft</i>
T1	187.00-180.00			3.50	1	7.00
T2	180.00-160.00			3.50	1	20.00
T3	160.00-140.00			3.50	1	20.00
T4	140.00-120.00			3.50	1	20.00
T5	120.00-100.00			3.50	1	20.00
T6	100.00-80.00			3.50	1	20.00
T7	80.00-60.00			3.50	1	20.00
T8	60.00-40.00			3.50	1	20.00
T9	40.00-20.00			3.50	1	20.00
T10	20.00-0.00			3.50	1	20.00

Tower Section Geometry (cont'd)

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Tower Section	Tower Elevation <i>ft</i>	Diagonal Spacing <i>ft</i>	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset <i>in</i>	Bottom Girt Offset <i>in</i>
T1	187.00-180.00	2.85	TX Brace	No	Yes	3.7500	11.8750
T2	180.00-160.00	3.21	TX Brace	No	Yes	4.5000	4.5000
T3	160.00-140.00	3.21	TX Brace	No	Yes	4.5000	4.5000
T4	140.00-120.00	3.21	TX Brace	No	Yes	4.5000	4.5000
T5	120.00-100.00	3.21	TX Brace	No	Yes	4.5000	4.5000
T6	100.00-80.00	3.21	TX Brace	No	Yes	4.5000	4.5000
T7	80.00-60.00	3.21	TX Brace	No	Yes	4.5000	4.5000
T8	60.00-40.00	3.21	TX Brace	No	Yes	4.5000	4.5000
T9	40.00-20.00	3.21	TX Brace	No	Yes	4.5000	4.5000
T10	20.00-0.00	3.21	TX Brace	No	Yes	4.5000	4.5000

Tower Section Geometry (cont'd)

Tower Elevation <i>ft</i>	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 187.00-180.00	Pipe	P2.5x.203	A500M-54 (54 ksi)	Solid Round	5/8	A36 (36 ksi)
T2 180.00-160.00	Pipe	P2.5x.203	A500M-60 (60 ksi)	Solid Round	5/8	A36 (36 ksi)
T3 160.00-140.00	Pipe	P2.5x.203	A500M-60 (60 ksi)	Solid Round	5/8	A36 (36 ksi)
T4 140.00-120.00	Pipe	P2.5x.203	A500M-60 (60 ksi)	Solid Round	5/8	A36 (36 ksi)
T5 120.00-100.00	Pipe	P2.5x.203	A500M-60 (60 ksi)	Solid Round	5/8	A36 (36 ksi)
T6 100.00-80.00	Pipe	P2.5x.203	A500M-60 (60 ksi)	Solid Round	5/8	A36 (36 ksi)
T7 80.00-60.00	Pipe	P2.5x.203	A500M-60 (60 ksi)	Solid Round	5/8	A36 (36 ksi)
T8 60.00-40.00	Pipe	P2.5x.203	A500M-60 (60 ksi)	Solid Round	5/8	A36 (36 ksi)
T9 40.00-20.00	Pipe	P2.5x.203	A500M-60 (60 ksi)	Solid Round	5/8	A36 (36 ksi)
T10 20.00-0.00	Pipe	P2.5x.203	A500M-60 (60 ksi)	Solid Round	5/8	A36 (36 ksi)

Tower Section Geometry (cont'd)

Tower Elevation <i>ft</i>	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 187.00-180.00	Equal Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)	Equal Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)
T2 180.00-160.00	Equal Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)	Equal Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)
T3 160.00-140.00	Equal Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)	Equal Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)
T4 140.00-120.00	Equal Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)	Equal Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)
T5 120.00-100.00	Equal Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)	Equal Angle	L1 1/2x1 1/2x3/16	A36 (36 ksi)

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Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T6 100.00-80.00	Equal Angle	L1 1/2x1 1/2x3/16	(36 ksi) A36	Equal Angle	L1 1/2x1 1/2x3/16	(36 ksi) A36
T7 80.00-60.00	Equal Angle	L1 1/2x1 1/2x3/16	(36 ksi) A36	Equal Angle	L1 1/2x1 1/2x3/16	(36 ksi) A36
T8 60.00-40.00	Equal Angle	L1 1/2x1 1/2x3/16	(36 ksi) A36	Equal Angle	L1 1/2x1 1/2x3/16	(36 ksi) A36
T9 40.00-20.00	Equal Angle	L1 1/2x1 1/2x3/16	(36 ksi) A36	Equal Angle	L1 1/2x1 1/2x3/16	(36 ksi) A36
T10 20.00-0.00	Equal Angle	L1 1/2x1 1/2x3/16	(36 ksi) A36	Equal Angle	L1 1/2x1 1/2x3/16	(36 ksi) A36

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 187.00-180.00	None	Flat Bar		(36 ksi) A36	Single Angle	L1 1/2x1 1/2x3/16	(36 ksi) A36
T2 180.00-160.00	None	Flat Bar		(36 ksi) A36	Single Angle	L1 1/2x1 1/2x3/16	(36 ksi) A36
T3 160.00-140.00	None	Flat Bar		(36 ksi) A36	Single Angle	L1 1/2x1 1/2x3/16	(36 ksi) A36
T4 140.00-120.00	None	Flat Bar		(36 ksi) A36	Single Angle	L1 1/2x1 1/2x3/16	(36 ksi) A36
T5 120.00-100.00	None	Flat Bar		(36 ksi) A36	Single Angle	L1 1/2x1 1/2x3/16	(36 ksi) A36
T6 100.00-80.00	None	Flat Bar		(36 ksi) A36	Single Angle	L1 1/2x1 1/2x3/16	(36 ksi) A36
T7 80.00-60.00	None	Flat Bar		(36 ksi) A36	Single Angle	L1 1/2x1 1/2x3/16	(36 ksi) A36
T8 60.00-40.00	None	Flat Bar		(36 ksi) A36	Single Angle	L1 1/2x1 1/2x3/16	(36 ksi) A36
T9 40.00-20.00	None	Flat Bar		(36 ksi) A36	Single Angle	L1 1/2x1 1/2x3/16	(36 ksi) A36
T10 20.00-0.00	None	Flat Bar		(36 ksi) A36	Single Angle	L1 1/2x1 1/2x3/16	(36 ksi) A36

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 187.00-180.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T2 180.00-160.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T3	0.00	0.0000	A36	1	1	1	36.0000	36.0000

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Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
ft	ft ²	in						
160.00-140.00			(36 ksi)					
T4	0.00	0.0000	A36	1	1	1	36.0000	36.0000
140.00-120.00			(36 ksi)					
T5	0.00	0.0000	A36	1	1	1	36.0000	36.0000
120.00-100.00			(36 ksi)					
T6	0.00	0.0000	A36	1	1	1	36.0000	36.0000
100.00-80.00			(36 ksi)					
T7 80.00-60.00	0.00	0.0000	A36	1	1	1	36.0000	36.0000
80.00-60.00			(36 ksi)					
T8 60.00-40.00	0.00	0.0000	A36	1	1	1	36.0000	36.0000
60.00-40.00			(36 ksi)					
T9 40.00-20.00	0.00	0.0000	A36	1	1	1	36.0000	36.0000
40.00-20.00			(36 ksi)					
T10 20.00-0.00	0.00	0.0000	A36	1	1	1	36.0000	36.0000
20.00-0.00			(36 ksi)					

Tower Section Geometry (cont'd)

Tower Elevation	Calc K Single Angles	Calc K Solid Rounds	Legs	K Factors ¹						
				X Brace Diags	K Brace Diags	Single Diags	Girts	Horiz.	Sec. Horiz.	Inner Brace
				X Y	X Y	X Y	X Y	X Y	X Y	X Y
T1	No	No	1	1	1	1	0.65	0.65	1	1
187.00-180.00				1	1	1	0.65	0.65	1	1
T2	No	No	1	1	1	1	0.65	0.65	1	1
180.00-160.00				1	1	1	0.65	0.65	1	1
T3	No	No	1	1	1	1	0.65	0.65	1	1
160.00-140.00				1	1	1	0.65	0.65	1	1
T4	No	No	1	1	1	1	0.65	0.65	1	1
140.00-120.00				1	1	1	0.65	0.65	1	1
T5	No	No	1	1	1	1	0.65	0.65	1	1
120.00-100.00				1	1	1	0.65	0.65	1	1
T6	No	No	1	1	1	1	0.65	0.65	1	1
100.00-80.00				1	1	1	0.65	0.65	1	1
T7	No	No	1	1	1	1	0.65	0.65	1	1
80.00-60.00				1	1	1	0.65	0.65	1	1
T8	No	No	1	1	1	1	0.65	0.65	1	1
60.00-40.00				1	1	1	0.65	0.65	1	1
T9	No	No	1	1	1	1	0.65	0.65	1	1
40.00-20.00				1	1	1	0.65	0.65	1	1
T10	No	No	1	1	1	1	0.65	0.65	1	1
20.00-0.00				1	1	1	0.65	0.65	1	1

¹Note: 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)

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Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75
187.00-180.00														
T2	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75
180.00-160.00														
T3	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75
160.00-140.00														
T4	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75
140.00-120.00														
T5	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75
120.00-100.00														
T6	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75
100.00-80.00														
T7 80.00-60.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75
T8 60.00-40.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75
T9 40.00-20.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75
T10 20.00-0.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	0.75

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1	Flange	0.7500	4	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
187.00-180.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T2	Flange	0.7500	4	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
180.00-160.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T3	Flange	0.7500	4	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
160.00-140.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T4	Flange	0.7500	4	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
140.00-120.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T5	Flange	0.7500	4	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
120.00-100.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T6	Flange	0.7500	4	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0	0.6250	0
100.00-80.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T7 80.00-60.00	Flange	0.7500	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	
T8 60.00-40.00	Flange	0.7500	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	
T9 40.00-20.00	Flange	0.7500	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	
T10 20.00-0.00	Flange	0.7500	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

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Guy Elevation	Guy Grade	Guy Size	Initial Tension	%	Guy Modulus	Guy Weight	L_u	Anchor Radius	Anchor Azimuth Adj.	Anchor Elevation	End Fitting Efficiency	
ft			lb		ksi	plf	ft	ft	°	ft	%	
160.375	EHS	A	5/8	6360.00	15%	21000	0.813	217.96	150.00	0.0000	0.00	100%
		B	5/8	6360.00	15%	21000	0.813	217.96	150.00	0.0000	0.00	100%
		C	5/8	6360.00	15%	21000	0.813	217.96	150.00	0.0000	0.00	100%
120.375	EHS	A	9/16	4025.00	11.5%	21000	0.671	190.60	150.00	0.0000	0.00	100%
		B	9/16	4025.00	11.5%	21000	0.671	190.60	150.00	0.0000	0.00	100%
		C	9/16	4025.00	11.5%	21000	0.671	190.60	150.00	0.0000	0.00	100%
60.375	EHS	A	9/16	4025.00	11.5%	21000	0.671	159.67	150.00	0.0000	0.00	100%
		B	9/16	4025.00	11.5%	21000	0.671	159.67	150.00	0.0000	0.00	100%
		C	9/16	4025.00	11.5%	21000	0.671	159.67	150.00	0.0000	0.00	100%

Guy Data (cont'd)

Guy Elevation	Moumt Type	Torque-Arm Spread	Torque-Arm Leg Angle	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
ft		ft	°				
160.375	Torque Arm	7.00	30.0000	Dog Ear	A36 (36 ksi)	Single Angle	L3x3x1/4
120.375	Torque Arm	7.00	30.0000	Dog Ear	A36 (36 ksi)	Single Angle	L3x3x1/4
60.375	Corner						

Guy Data (cont'd)

Guy Elevation	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap.	Pull-Off Grade	Pull-Off Type	Pull-Off Size
ft								
160.38	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Equal Angle	L2x2x5/16
120.38	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Equal Angle	L2x2x5/16
60.38	A572-50 (50 ksi)	Solid Round			No	A36 (36 ksi)	Equal Angle	L1 1/2x1 1/2x3/16

Guy Data (cont'd)

Guy Elevation	Cable Weight A	Cable Weight B	Cable Weight C	Cable Weight D	Tower Intercept A	Tower Intercept B	Tower Intercept C	Tower Intercept D
ft	lb	lb	lb	lb	ft	ft	ft	ft
160.375	177.20	177.20	177.20		3.01	3.01	3.01	
					3.0 sec/pulse	3.0 sec/pulse	3.0 sec/pulse	
120.375	127.89	127.89	127.89		3.00	3.00	3.00	
					3.0 sec/pulse	3.0 sec/pulse	3.0 sec/pulse	
60.375	107.14	107.14	107.14		2.12	2.12	2.12	
					2.5 sec/pulse	2.5 sec/pulse	2.5 sec/pulse	

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Guy Data (cont'd)

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm		Pull Off		Diagonal	
			K _x	K _y	K _x	K _y	K _x	K _y
160.375	No	No	1	1	1	1	1	1
120.375	No	No	1	1	1	1	1	1
60.375	No	No			1	1	1	1

Guy Data (cont'd)

Guy Elevation ft	Torque-Arm				Pull Off				Diagonal			
	Bolt Size in	Number	Net Width Deduct in	U	Bolt Size in	Number	Net Width Deduct in	U	Bolt Size in	Number	Net Width Deduct in	U
160.375	0.7500 A325N	2	0.0000	0.75	0.7500 A325N	2	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
120.375	0.7500 A325N	2	0.0000	0.75	0.7500 A325N	2	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
60.375	0.6250 A325N	0	0.0000	0.75	0.0000 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75

Guy Pressures

Guy Elevation ft	Guy Location	z ft	q _z psf	q _z Ice psf	Ice Thickness in
160.375	A	80.19	24	18	0.5000
	B	80.19	24	18	0.5000
	C	80.19	24	18	0.5000
120.375	A	60.19	22	16	0.5000
	B	60.19	22	16	0.5000
	C	60.19	22	16	0.5000
60.375	A	30.19	18	14	0.5000
	B	30.19	18	14	0.5000
	C	30.19	18	14	0.5000

Guy-Mast Forces (Excluding Wind) - No Ice

Guy Elevation ft	Guy Location	Chord Angle °	Guy Tension Top Bottom lb	F _x lb	F _y lb	F _z lb	M _x lb-ft	M _y lb-ft	M _z lb-ft
160.375	A	47.2940	6490.21 6360.00	-103.03	4809.94	-4356.23	-9719.57	15455.00	-16834.80
	A	47.2940	6490.21	103.03	4809.94	-4356.23	-9719.57	-15455.00	16834.80

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Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom lb	F _x	F _y	F _z	M _x	M _y	M _z	
ft		°	lb	lb	lb	lb-ft	lb-ft	lb-ft	lb-ft	
60.375	B	39.1191	5425.88 5584.62	3747.58	3599.04	2047.08	14545.33	15145.67	0.00	
	B	39.1191	5425.88 5584.62	3646.61	3599.04	2221.96	-7272.67	-15145.67	-12596.63	
	C	39.1191	5425.88 5584.62	-3646.61	3599.04	2221.96	-7272.67	15145.67	12596.63	
	C	39.1191	5425.88 5584.62	-3747.58	3599.04	2047.08	14545.33	-15145.67	0.00	
				Sum:	0.00	21594.22	0.00	-0.00	0.00	0.00
	A	22.1953	5446.77 5526.39	0.00	2177.91	-5079.14	-4400.96	0.00	0.00	
	B	22.1953	5446.77 5526.39	4398.67	2177.91	2539.57	2200.48	0.00	-3811.34	
	C	22.1953	5446.77 5526.39	-4398.67	2177.91	2539.57	2200.48	-0.00	3811.34	
				Sum:	0.00	6533.73	-0.00	0.00	0.00	0.00

Guy-Mast Forces (Excluding Wind) - Service

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom lb	F _x	F _y	F _z	M _x	M _y	M _z
ft		°	lb	lb	lb	lb-ft	lb-ft	lb-ft	lb-ft
160.375	A	47.2940	6490.21 6360.00	-103.03	4809.94	-4356.23	-9719.57	15455.00	-16834.80
	A	47.2940	6490.21 6360.00	103.03	4809.94	-4356.23	-9719.57	-15455.00	16834.80
	B	47.2940	6490.21 6360.00	3824.12	4809.94	2088.88	19439.15	15455.00	0.00
	B	47.2940	6490.21 6360.00	3721.09	4809.94	2267.34	-9719.57	-15455.00	-16834.80
	C	47.2940	6490.21 6360.00	-3721.09	4809.94	2267.34	-9719.57	15455.00	16834.80
	C	47.2940	6490.21 6360.00	-3824.12	4809.94	2088.88	19439.15	-15455.00	0.00
120.375			Sum:	0.00	28859.65	0.00	-0.00	0.00	0.00
	A	39.1191	4105.69 4025.00	-74.57	2628.85	-3152.82	-5312.18	11185.57	-9200.97
	A	39.1191	4105.69 4025.00	74.57	2628.85	-3152.82	-5312.18	-11185.57	9200.97
	B	39.1191	4105.69 4025.00	2767.71	2628.85	1511.83	10624.37	11185.57	0.00
	B	39.1191	4105.69 4025.00	2693.14	2628.85	1640.99	-5312.18	-11185.57	-9200.97
	C	39.1191	4105.69 4025.00	-2693.14	2628.85	1640.99	-5312.18	11185.57	9200.97
60.375	C	39.1191	4105.69 4025.00	-2767.71	2628.85	1511.83	10624.37	-11185.57	0.00
			Sum:	0.00	15773.09	0.00	-0.00	0.00	0.00
	A	22.1953	4065.47 4025.00	0.00	1581.67	-3745.18	-3196.13	0.00	0.00
	B	22.1953	4065.47	3243.42	1581.67	1872.59	1598.06	0.00	-2767.93

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Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom lb	F _x	F _y	F _z	M _x	M _y	M _z
ft		°		lb	lb	lb	lb-ft	lb-ft	lb-ft
	C	22.1953	4025.00 4065.47 4025.00	-3243.42	1581.67	1872.59	1598.06	-0.00	2767.93
			Sum:	0.00	4745.02	-0.00	0.00	0.00	0.00

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
1 1/4 (T-Mobile)	A	Yes	Ar(CfAe)	180.00 - 0.00	0.0000	-0.25	9	9	1.2000	1.5500		0.66
1 5/8 (Sprint)	B	Yes	Ar(CfAe)	152.00 - 0.00	0.0000	0.25	9	6	1.0000	1.9800		1.04
1 1/4 (Nextel)	C	Yes	Ar(CfAe)	173.00 - 0.00	0.0000	0.25	9	6	1.2000	1.5500		0.66
1 5/8 (AT&T)	B	Yes	Ar(CfAe)	187.00 - 0.00	0.0000	-0.25	12	4	1.0000	1.9800		1.04
1 5/8 (Verizon)	A	Yes	Ar(CfAe)	136.00 - 0.00	0.0000	0.4	12	6	1.0000	1.9800		1.04

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight lb
T1	187.00-180.00	A	0.000	0.000	0.000	0.000	0.00
		B	4.620	0.000	0.000	0.000	87.36
		C	0.000	0.000	0.000	0.000	0.00
T2	180.00-160.00	A	23.250	0.000	0.000	0.000	118.80
		B	13.200	0.000	0.000	0.000	249.60
		C	10.075	0.000	0.000	0.000	77.22
T3	160.00-140.00	A	23.250	0.000	0.000	0.000	118.80
		B	25.080	0.000	0.000	0.000	361.92
		C	15.500	0.000	0.000	0.000	118.80
T4	140.00-120.00	A	39.090	0.000	0.000	0.000	318.48
		B	33.000	0.000	0.000	0.000	436.80
		C	15.500	0.000	0.000	0.000	118.80
T5	120.00-100.00	A	43.050	0.000	0.000	0.000	368.40
		B	33.000	0.000	0.000	0.000	436.80
		C	15.500	0.000	0.000	0.000	118.80
T6	100.00-80.00	A	43.050	0.000	0.000	0.000	368.40
		B	33.000	0.000	0.000	0.000	436.80
		C	15.500	0.000	0.000	0.000	118.80
T7	80.00-60.00	A	43.050	0.000	0.000	0.000	368.40
		B	33.000	0.000	0.000	0.000	436.80
		C	15.500	0.000	0.000	0.000	118.80
T8	60.00-40.00	A	43.050	0.000	0.000	0.000	368.40
		B	33.000	0.000	0.000	0.000	436.80
		C	15.500	0.000	0.000	0.000	118.80

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Tower Section	Tower Elevation ft	Face	A_R ft ²	A_F ft ²	C_{AA} In Face ft ²	C_{AA} Out Face ft ²	Weight lb
T9	40.00-20.00	A	43.050	0.000	0.000	0.000	368.40
		B	33.000	0.000	0.000	0.000	436.80
		C	15.500	0.000	0.000	0.000	118.80
T10	20.00-0.00	A	43.050	0.000	0.000	0.000	368.40
		B	33.000	0.000	0.000	0.000	436.80
		C	15.500	0.000	0.000	0.000	118.80

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} In Face ft ²	C_{AA} Out Face ft ²	Weight lb
T1	187.00-180.00	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		1.738	5.215	0.000	0.000	261.31
		C		0.000	0.000	0.000	0.000	0.00
T2	180.00-160.00	A	0.500	38.250	0.000	0.000	0.000	344.21
		B		4.967	14.900	0.000	0.000	746.59
		C		16.575	0.000	0.000	0.000	223.74
T3	160.00-140.00	A	0.500	38.250	0.000	0.000	0.000	344.21
		B		7.947	29.800	0.000	0.000	1056.96
		C		25.500	0.000	0.000	0.000	344.21
T4	140.00-120.00	A	0.500	42.223	19.867	0.000	0.000	953.34
		B		9.933	39.733	0.000	0.000	1263.88
		C		25.500	0.000	0.000	0.000	344.21
T5	120.00-100.00	A	0.500	43.217	24.833	0.000	0.000	1105.62
		B		9.933	39.733	0.000	0.000	1263.88
		C		25.500	0.000	0.000	0.000	344.21
T6	100.00-80.00	A	0.500	43.217	24.833	0.000	0.000	1105.62
		B		9.933	39.733	0.000	0.000	1263.88
		C		25.500	0.000	0.000	0.000	344.21
T7	80.00-60.00	A	0.500	43.217	24.833	0.000	0.000	1105.62
		B		9.933	39.733	0.000	0.000	1263.88
		C		25.500	0.000	0.000	0.000	344.21
T8	60.00-40.00	A	0.500	43.217	24.833	0.000	0.000	1105.62
		B		9.933	39.733	0.000	0.000	1263.88
		C		25.500	0.000	0.000	0.000	344.21
T9	40.00-20.00	A	0.500	43.217	24.833	0.000	0.000	1105.62
		B		9.933	39.733	0.000	0.000	1263.88
		C		25.500	0.000	0.000	0.000	344.21
T10	20.00-0.00	A	0.500	43.217	24.833	0.000	0.000	1105.62
		B		9.933	39.733	0.000	0.000	1263.88
		C		25.500	0.000	0.000	0.000	344.21

Feed Line Shielding

Section	Elevation ft	Face	A_R ft ²	A_R Ice ft ²	A_F ft ²	A_F Ice ft ²
T1	187.00-180.00	A	0.000	0.000	0.000	0.000
		B	0.177	0.942	0.248	0.373
		C	0.000	0.000	0.000	0.000
T2	180.00-160.00	A	0.986	5.332	1.066	1.753
		B	0.560	2.769	0.605	0.911
		C	0.427	2.310	0.462	0.760

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Section	Elevation	Face	A_R	$A_{R\ Ice}$	A_F	$A_{F\ Ice}$
	ft		ft ²	ft ²	ft ²	ft ²
T3	160.00-140.00	A	0.986	5.332	1.017	1.673
		B	1.063	5.261	1.097	1.651
		C	0.657	3.554	0.678	1.116
T4	140.00-120.00	A	1.657	8.655	1.792	2.846
		B	1.399	6.923	1.513	2.276
		C	0.657	3.554	0.710	1.169
T5	120.00-100.00	A	1.825	9.485	1.883	2.977
		B	1.399	6.923	1.444	2.173
		C	0.657	3.554	0.678	1.116
T6	100.00-80.00	A	1.825	9.485	1.883	2.977
		B	1.399	6.923	1.444	2.173
		C	0.657	3.554	0.678	1.116
T7	80.00-60.00	A	1.825	9.485	1.883	2.977
		B	1.399	6.923	1.444	2.173
		C	0.657	3.554	0.678	1.116
T8	60.00-40.00	A	1.825	9.485	1.883	2.977
		B	1.399	6.923	1.444	2.173
		C	0.657	3.554	0.678	1.116
T9	40.00-20.00	A	1.825	9.485	1.883	2.977
		B	1.399	6.923	1.444	2.173
		C	0.657	3.554	0.678	1.116
T10	20.00-0.00	A	1.825	9.485	1.883	2.977
		B	1.399	6.923	1.444	2.173
		C	0.657	3.554	0.678	1.116

Feed Line Center of Pressure

Section	Elevation	CP_x	CP_z	$CP_x\ Ice$	$CP_z\ Ice$
	ft	in	in	in	in
T1	187.00-180.00	1.7734	-3.4986	1.0542	-2.0797
T2	180.00-160.00	-3.8448	-0.2163	-4.0937	0.6098
T3	160.00-140.00	-1.9101	0.6835	-2.7043	1.3190
T4	140.00-120.00	-1.0342	-1.8413	-1.8864	-0.6230
T5	120.00-100.00	-1.1282	-2.4088	-1.9287	-1.0533
T6	100.00-80.00	-1.1282	-2.4088	-1.9287	-1.0533
T7	80.00-60.00	-1.1282	-2.4088	-1.9287	-1.0533
T8	60.00-40.00	-1.1282	-2.4088	-1.9287	-1.0533
T9	40.00-20.00	-1.1282	-2.4088	-1.9287	-1.0533
T10	20.00-0.00	-1.1282	-2.4088	-1.9287	-1.0533

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral	Azimuth Adjustment	Placemem	$C_{AA}\ Front$	$C_{AA}\ Side$	Weight	
			ft	°	ft	ft ²	ft ²	lb	
(2) Antel LPA-80080-4CF (Verizon)	A	From Leg	3.00 0.00	0.0000	136.00	No Ice 1/2" Ice	2.62 2.92	5.40 5.71	12.00 45.10

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placemen	CAA Front	CAA Side	Weight	
			Horz	Lateral						Vert
			ft	ft						
(2) Antel LPA-80080-4CF (Verizon)	B	From Leg	0.00		0.0000	136.00	No Ice	2.62	5.40	12.00
			3.00				1/2" Ice	2.92	5.71	45.10
			0.00							
(2) Antel LPA-80080-4CF (Verizon)	C	From Leg	0.00		0.0000	136.00	No Ice	2.62	5.40	12.00
			3.00				1/2" Ice	2.92	5.71	45.10
			0.00							
Sector Frame (Verizon)	A	From Leg	0.00		0.0000	136.00	No Ice	13.60	13.60	465.00
			0.00				1/2" Ice	18.40	18.40	600.00
			0.00							
Sector Frame (Verizon)	B	From Leg	0.00		0.0000	136.00	No Ice	13.60	13.60	465.00
			0.00				1/2" Ice	18.40	18.40	600.00
			0.00							
Sector Frame (Verizon)	C	From Leg	0.00		0.0000	136.00	No Ice	13.60	13.60	465.00
			0.00				1/2" Ice	18.40	18.40	600.00
			0.00							
Antel BXA-70063-6CF (Verizon)	A	From Leg	0.00		0.0000	136.00	No Ice	7.57	2.43	17.00
			3.00				1/2" Ice	8.02	2.91	59.50
			0.00							
Antel BXA-70063-6CF (Verizon)	B	From Leg	0.00		0.0000	136.00	No Ice	7.57	2.43	17.00
			3.00				1/2" Ice	8.02	2.91	59.50
			0.00							
Antel BXA-70063-6CF (Verizon)	C	From Leg	0.00		0.0000	136.00	No Ice	7.57	2.43	17.00
			3.00				1/2" Ice	8.02	2.91	59.50
			0.00							
Sector Frame (Sprint)	A	From Leg	0.00		0.0000	152.00	No Ice	13.60	13.60	465.00
			0.00				1/2" Ice	18.40	18.40	600.00
			0.00							
Sector Frame (Sprint)	B	From Leg	0.00		0.0000	152.00	No Ice	13.60	13.60	465.00
			0.00				1/2" Ice	18.40	18.40	600.00
			0.00							
Sector Frame (Sprint)	C	From Leg	0.00		0.0000	152.00	No Ice	13.60	13.60	465.00
			0.00				1/2" Ice	18.40	18.40	600.00
			0.00							
(3) Decibel DB980H90 (Sprint)	A	From Leg	0.00		0.0000	152.00	No Ice	3.90	2.29	8.50
			3.00				1/2" Ice	4.28	2.73	29.50
			0.00							
(3) Decibel DB980H90 (Sprint)	B	From Leg	0.00		0.0000	152.00	No Ice	3.90	2.29	8.50
			3.00				1/2" Ice	4.28	2.73	29.50
			0.00							
(3) Decibel DB980H90 (Sprint)	C	From Leg	0.00		0.0000	152.00	No Ice	3.90	2.29	8.50
			3.00				1/2" Ice	4.28	2.73	29.50
			0.00							
Sector Frame (Nextel)	A	From Leg	0.00		0.0000	173.00	No Ice	13.60	13.60	465.00
			0.00				1/2" Ice	18.40	18.40	600.00
			0.00							
Sector Frame (Nextel)	B	From Leg	0.00		0.0000	173.00	No Ice	13.60	13.60	465.00
			0.00				1/2" Ice	18.40	18.40	600.00
			0.00							
Sector Frame (Nextel)	C	From Leg	0.00		0.0000	173.00	No Ice	13.60	13.60	465.00
			0.00				1/2" Ice	18.40	18.40	600.00
			0.00							
(3) Swedcom ALP -E-9011 (Nextel)	A	From Leg	0.00		0.0000	173.00	No Ice	2.68	3.17	20.00
			3.00				1/2" Ice	2.96	3.44	49.80
			0.00							
(3) Swedcom ALP -E-9011 (Nextel)	B	From Leg	0.00		0.0000	173.00	No Ice	2.68	3.17	20.00
			3.00				1/2" Ice	2.96	3.44	49.80
			0.00							

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Description	Face or Leg	Offset Type	Offsets:			Azimuth Adjustment	Placemem	C _{AA} Front	C _{AA} Side	Weight	
			Horz	Vert	Lateral						°
			ft	ft	ft						
(3) Swedcom ALP -E-9011 (Nextel)	C	From Leg	0.00			0.0000	173.00	No Ice	2.68	3.17	20.00
			3.00					1/2" Ice	2.96	3.44	49.80
			0.00								
Sector Frame (T-Mobile)	A	From Leg	0.00			0.0000	180.00	No Ice	13.60	13.60	465.00
			0.00					1/2" Ice	18.40	18.40	600.00
			0.00								
Sector Frame (T-Mobile)	B	From Leg	0.00			0.0000	180.00	No Ice	13.60	13.60	465.00
			0.00					1/2" Ice	18.40	18.40	600.00
			0.00								
Sector Frame (T-Mobile)	C	From Leg	0.00			0.0000	180.00	No Ice	13.60	13.60	465.00
			0.00					1/2" Ice	18.40	18.40	600.00
			0.00								
(3) RFS APX199015-CT2 (T-Mobile)	A	From Leg	3.00			0.0000	180.00	No Ice	5.28	1.82	20.30
			0.00					1/2" Ice	5.75	2.38	47.20
			0.00								
(3) RFS APX199015-CT2 (T-Mobile)	B	From Leg	3.00			0.0000	180.00	No Ice	5.28	1.82	20.30
			0.00					1/2" Ice	5.75	2.38	47.20
			0.00								
(3) RFS APX199015-CT2 (T-Mobile)	C	From Leg	3.00			0.0000	180.00	No Ice	5.28	1.82	20.30
			0.00					1/2" Ice	5.75	2.38	47.20
			0.00								
Sector Frame (AT&T)	A	From Leg	0.00			0.0000	187.00	No Ice	9.30	9.30	251.00
			0.00					1/2" Ice	14.50	14.50	344.00
			0.00								
Sector Frame (AT&T)	B	From Leg	0.00			0.0000	187.00	No Ice	9.30	9.30	251.00
			0.00					1/2" Ice	14.50	14.50	344.00
			0.00								
Sector Frame (AT&T)	C	From Leg	0.00			0.0000	187.00	No Ice	9.30	9.30	251.00
			0.00					1/2" Ice	14.50	14.50	344.00
			0.00								
(2) Powerwave 7770.00 (AT&T)	C	From Leg	3.00			0.0000	187.00	No Ice	5.51	2.93	35.00
			0.00					1/2" Ice	5.86	3.29	67.60
			1.00								
(2) Powerwave 7770.00 (AT&T)	A	From Leg	3.00			0.0000	187.00	No Ice	5.51	2.93	35.00
			0.00					1/2" Ice	5.86	3.29	67.60
			1.00								
(2) Powerwave 7770.00 (AT&T)	B	From Leg	3.00			0.0000	187.00	No Ice	5.51	2.93	35.00
			0.00					1/2" Ice	5.86	3.29	67.60
			1.00								
TMA (T-Mobile)	C	From Leg	3.00			0.0000	180.00	No Ice	1.40	0.60	20.00
			0.00					1/2" Ice	1.32	0.69	30.30
			1.00								
TMA (T-Mobile)	A	From Leg	3.00			0.0000	180.00	No Ice	1.40	0.60	20.00
			0.00					1/2" Ice	1.32	0.69	30.30
			1.00								
TMA (T-Mobile)	B	From Leg	3.00			0.0000	180.00	No Ice	1.40	0.60	20.00
			0.00					1/2" Ice	1.32	0.69	30.30
			1.00								
Diplexor (T-Mobile)	C	From Leg	3.00			0.0000	180.00	No Ice	1.40	0.60	20.00
			0.00					1/2" Ice	1.32	0.69	30.30
			1.00								
Diplexor (T-Mobile)	A	From Leg	3.00			0.0000	180.00	No Ice	1.40	0.60	20.00
			0.00					1/2" Ice	1.32	0.69	30.30
			1.00								
Diplexor (T-Mobile)	B	From Leg	3.00			0.0000	180.00	No Ice	1.40	0.60	20.00
			0.00					1/2" Ice	1.32	0.69	30.30
			1.00								

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placemem	C _{AA} Front	C _{AA} Side	Weight	
			Horz	Lateral						
			ft	ft	°	ft	ft ²	ft ²	lb	
(2) TMA (AT&T)	C	From Leg	1.00		0.0000	187.00	No Ice	1.40	0.60	20.00
			3.00				1/2" Ice	1.32	0.69	30.30
			0.00							
(2) TMA (AT&T)	A	From Leg	1.00		0.0000	187.00	No Ice	1.40	0.60	20.00
			3.00				1/2" Ice	1.32	0.69	30.30
			0.00							
(2) TMA (AT&T)	B	From Leg	1.00		0.0000	187.00	No Ice	1.40	0.60	20.00
			3.00				1/2" Ice	1.32	0.69	30.30
			0.00							
(2) Diplexor (AT&T)	C	From Leg	1.00		0.0000	187.00	No Ice	1.40	0.60	20.00
			3.00				1/2" Ice	1.32	0.69	30.30
			0.00							
(2) Diplexor (AT&T)	A	From Leg	1.00		0.0000	187.00	No Ice	1.40	0.60	20.00
			3.00				1/2" Ice	1.32	0.69	30.30
			0.00							
(2) Diplexor (AT&T)	B	From Leg	1.00		0.0000	187.00	No Ice	1.40	0.60	20.00
			3.00				1/2" Ice	1.32	0.69	30.30
			0.00							
Antel BXA-171085-8BF (Verizon)	A	From Leg	1.00		0.0000	136.00	No Ice	2.94	2.16	10.50
			3.00				1/2" Ice	3.25	2.48	29.30
			0.00							
Antel BXA-171085-8BF (Verizon)	B	From Leg	1.00		0.0000	136.00	No Ice	2.94	2.16	10.50
			3.00				1/2" Ice	3.25	2.48	29.30
			0.00							
Antel BXA-171085-8BF (Verizon)	C	From Leg	1.00		0.0000	136.00	No Ice	2.94	2.16	10.50
			3.00				1/2" Ice	3.25	2.48	29.30
			0.00							
(2) RFS FD0R6004/2C-3L (Verizon)	A	From Leg	1.00		0.0000	136.00	No Ice	0.00	0.08	2.60
			3.00				1/2" Ice	0.00	0.12	4.90
			0.00							
(2) RFS FD0R6004/2C-3L (Verizon)	B	From Leg	1.00		0.0000	136.00	No Ice	0.00	0.08	2.60
			3.00				1/2" Ice	0.00	0.12	4.90
			0.00							
(2) RFS FD0R6004/2C-3L (Verizon)	A	From Leg	1.00		0.0000	136.00	No Ice	0.00	0.08	2.60
			3.00				1/2" Ice	0.00	0.12	4.90
			0.00							

Tower Pressures - No Ice

$G_H = 1.118$

Section Elevation	z	K _Z	q _z	A _G	F _a	A _F	A _R	A _{leg}	Leg %	C _{AA} In Face	C _{AA} Out Face
ft	ft		psf	ft ²	c	ft ²	ft ²	ft ²		ft ²	ft ²
T1 187.00-180.00	183.50	1.633	30	26.177	A	1.223	4.230	3.354	61.51	0.000	0.000
					B	0.975	8.673		34.77	0.000	0.000
					C	1.223	4.230		61.51	0.000	0.000
T2	170.00	1.597	30	74.792	A	1.923	34.612	9.583	26.23	0.000	0.000

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Section Elevation ft	z ft	K _Z	q _z psf	A _G ft ²	F a c e	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _{AA} In Face ft ²	C _{AA} Out Face ft ²
180.00-160.00					B	2.384	24.988		35.01	0.000	0.000
					C	2.527	21.996		39.08	0.000	0.000
T3 160.00-140.00	150.00	1.541	29	74.792	A	1.836	34.612	9.583	26.29	0.000	0.000
					B	1.756	36.364		25.14	0.000	0.000
					C	2.175	27.191		32.63	0.000	0.000
T4 140.00-120.00	130.00	1.48	27	74.792	A	1.197	49.781	9.583	18.80	0.000	0.000
					B	1.476	43.949		21.10	0.000	0.000
					C	2.278	27.191		32.52	0.000	0.000
T5 120.00-100.00	110.00	1.411	26	74.792	A	0.969	53.573	9.583	17.57	0.000	0.000
					B	1.409	43.949		21.13	0.000	0.000
					C	2.175	27.191		32.63	0.000	0.000
T6 100.00-80.00	90.00	1.332	25	74.792	A	0.969	53.573	9.583	17.57	0.000	0.000
					B	1.409	43.949		21.13	0.000	0.000
					C	2.175	27.191		32.63	0.000	0.000
T7 80.00-60.00	70.00	1.24	23	74.792	A	0.969	53.573	9.583	17.57	0.000	0.000
					B	1.409	43.949		21.13	0.000	0.000
					C	2.175	27.191		32.63	0.000	0.000
T8 60.00-40.00	50.00	1.126	21	74.792	A	0.969	53.573	9.583	17.57	0.000	0.000
					B	1.409	43.949		21.13	0.000	0.000
					C	2.175	27.191		32.63	0.000	0.000
T9 40.00-20.00	30.00	1	18	74.792	A	0.969	53.573	9.583	17.57	0.000	0.000
					B	1.409	43.949		21.13	0.000	0.000
					C	2.175	27.191		32.63	0.000	0.000
T10 20.00-0.00	10.00	1	18	74.792	A	0.969	53.573	9.583	17.57	0.000	0.000
					B	1.409	43.949		21.13	0.000	0.000
					C	2.175	27.191		32.63	0.000	0.000

Tower Pressure - With Ice

$G_H = 1.118$

Section Elevation ft	z ft	K _Z	q _z psf	t _z in	A _G ft ²	F a c e	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _{AA} In Face ft ²	C _{AA} Out Face ft ²
T1 187.00-180.00	183.50	1.633	23	0.5000	26.760	A	1.223	7.613	4.521	51.17	0.000	0.000
						B	6.065	8.409		31.23	0.000	0.000
						C	1.223	7.613		51.17	0.000	0.000
T2 180.00-160.00	170.00	1.597	22	0.5000	76.458	A	1.236	54.924	12.917	23.00	0.000	0.000
						B	16.978	24.203		31.37	0.000	0.000
						C	2.229	36.271		33.55	0.000	0.000
T3 160.00-140.00	150.00	1.541	21	0.5000	76.458	A	1.179	54.924	12.917	23.02	0.000	0.000
						B	31.001	24.691		23.19	0.000	0.000
						C	1.737	43.952		28.27	0.000	0.000
T4 140.00-120.00	130.00	1.48	21	0.5000	76.458	A	20.010	55.575	12.917	17.09	0.000	0.000
						B	40.446	25.016		19.73	0.000	0.000
						C	1.820	43.952		28.22	0.000	0.000
T5 120.00-100.00	110.00	1.411	20	0.5000	76.458	A	24.709	55.737	12.917	16.06	0.000	0.000
						B	40.413	25.016		19.74	0.000	0.000
						C	1.737	43.952		28.27	0.000	0.000
T6 100.00-80.00	90.00	1.332	18	0.5000	76.458	A	24.709	55.737	12.917	16.06	0.000	0.000
						B	40.413	25.016		19.74	0.000	0.000
						C	1.737	43.952		28.27	0.000	0.000
T7 80.00-60.00	70.00	1.24	17	0.5000	76.458	A	24.709	55.737	12.917	16.06	0.000	0.000
						B	40.413	25.016		19.74	0.000	0.000
						C	1.737	43.952		28.27	0.000	0.000

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Section Elevation ft	z ft	K _Z	q _z psf	t _z in	A _G ft ²	F a c e	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _{AA} In Face ft ²	C _{AA} Out Face ft ²
T8 60.00-40.00	50.00	1.126	16	0.5000	76.458	A	24.709	55.737	12.917	16.06	0.000	0.000
						B	40.413	25.016	19.74	0.000	0.000	
						C	1.737	43.952	28.27	0.000	0.000	
T9 40.00-20.00	30.00	1	14	0.5000	76.458	A	24.709	55.737	12.917	16.06	0.000	0.000
						B	40.413	25.016	19.74	0.000	0.000	
						C	1.737	43.952	28.27	0.000	0.000	
T10 20.00-0.00	10.00	1	14	0.5000	76.458	A	24.709	55.737	12.917	16.06	0.000	0.000
						B	40.413	25.016	19.74	0.000	0.000	
						C	1.737	43.952	28.27	0.000	0.000	

Tower Pressure - Service

$G_H = 1.118$

Section Elevation ft	z ft	K _Z	q _z psf	A _G ft ²	F a c e	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _{AA} In Face ft ²	C _{AA} Out Face ft ²
T1 187.00-180.00	183.50	1.633	10	26.177	A	1.223	4.230	3.354	61.51	0.000	0.000
					B	0.975	8.673	34.77	0.000	0.000	
					C	1.223	4.230	61.51	0.000	0.000	
T2 180.00-160.00	170.00	1.597	10	74.792	A	1.923	34.612	9.583	26.23	0.000	0.000
					B	2.384	24.988	35.01	0.000	0.000	
					C	2.527	21.996	39.08	0.000	0.000	
T3 160.00-140.00	150.00	1.541	10	74.792	A	1.836	34.612	9.583	26.29	0.000	0.000
					B	1.756	36.364	25.14	0.000	0.000	
					C	2.175	27.191	32.63	0.000	0.000	
T4 140.00-120.00	130.00	1.48	9	74.792	A	1.197	49.781	9.583	18.80	0.000	0.000
					B	1.476	43.949	21.10	0.000	0.000	
					C	2.278	27.191	32.52	0.000	0.000	
T5 120.00-100.00	110.00	1.411	9	74.792	A	0.969	53.573	9.583	17.57	0.000	0.000
					B	1.409	43.949	21.13	0.000	0.000	
					C	2.175	27.191	32.63	0.000	0.000	
T6 100.00-80.00	90.00	1.332	9	74.792	A	0.969	53.573	9.583	17.57	0.000	0.000
					B	1.409	43.949	21.13	0.000	0.000	
					C	2.175	27.191	32.63	0.000	0.000	
T7 80.00-60.00	70.00	1.24	8	74.792	A	0.969	53.573	9.583	17.57	0.000	0.000
					B	1.409	43.949	21.13	0.000	0.000	
					C	2.175	27.191	32.63	0.000	0.000	
T8 60.00-40.00	50.00	1.126	7	74.792	A	0.969	53.573	9.583	17.57	0.000	0.000
					B	1.409	43.949	21.13	0.000	0.000	
					C	2.175	27.191	32.63	0.000	0.000	
T9 40.00-20.00	30.00	1	6	74.792	A	0.969	53.573	9.583	17.57	0.000	0.000
					B	1.409	43.949	21.13	0.000	0.000	
					C	2.175	27.191	32.63	0.000	0.000	
T10 20.00-0.00	10.00	1	6	74.792	A	0.969	53.573	9.583	17.57	0.000	0.000
					B	1.409	43.949	21.13	0.000	0.000	
					C	2.175	27.191	32.63	0.000	0.000	

Tower Forces - No Ice - Wind Normal To Face

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Section Elevation ft	Add Weight lb	Self Weight lb	F a c e	e	C _F	R _R	D _F	D _R	A _E ft ²	F lb	w plf	Ctrl. Face
T1 187.00-180.00	87.36	234.83	A	0.208	2.569	0.592	1	1	3.727	468.86	66.98	B
			B	0.369	2.13	0.639	1	1	6.519			
			C	0.208	2.569	0.592	1	1	3.727			
T2 180.00-160.00	445.62	680.49 TA 242.49	A	0.488	1.915	0.692	1	1	25.864	1636.86	81.84	A
			B	0.366	2.135	0.638	1	1	18.334			
			C	0.328	2.224	0.625	1	1	16.270			
T3 160.00-140.00	599.52	658.24	A	0.487	1.917	0.691	1	1	25.757	1643.01	82.15	B
			B	0.51	1.888	0.702	1	1	27.301			
			C	0.393	2.079	0.649	1	1	19.811			
T4 140.00-120.00	874.08	680.49 TA 242.49	A	0.682	1.776	0.807	1	1	41.367	2248.37	112.42	A
			B	0.607	1.8	0.758	1	1	34.795			
			C	0.394	2.076	0.649	1	1	19.930			
T5 120.00-100.00	924.00	658.24	A	0.729	1.781	0.841	1	1	46.036	2391.74	119.59	A
			B	0.606	1.8	0.758	1	1	34.703			
			C	0.393	2.079	0.649	1	1	19.811			
T6 100.00-80.00	924.00	658.24	A	0.729	1.781	0.841	1	1	46.036	2258.47	112.92	A
			B	0.606	1.8	0.758	1	1	34.703			
			C	0.393	2.079	0.649	1	1	19.811			
T7 80.00-60.00	924.00	658.24	A	0.729	1.781	0.841	1	1	46.036	2101.99	105.10	A
			B	0.606	1.8	0.758	1	1	34.703			
			C	0.393	2.079	0.649	1	1	19.811			
T8 60.00-40.00	924.00	658.24	A	0.729	1.781	0.841	1	1	46.036	1909.32	95.47	A
			B	0.606	1.8	0.758	1	1	34.703			
			C	0.393	2.079	0.649	1	1	19.811			
T9 40.00-20.00	924.00	658.24	A	0.729	1.781	0.841	1	1	46.036	1695.59	84.78	A
			B	0.606	1.8	0.758	1	1	34.703			
			C	0.393	2.079	0.649	1	1	19.811			
T10 20.00-0.00	924.00	658.24	A	0.729	1.781	0.841	1	1	46.036	1695.59	84.78	A
			B	0.606	1.8	0.758	1	1	34.703			
			C	0.393	2.079	0.649	1	1	19.811			
Sum Weight	7550.58	6688.50								18049.78		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	F a c e	e	C _F	R _R	D _F	D _R	A _E ft ²	F lb	w plf	Ctrl. Face
T1 187.00-180.00	87.36	234.83	A	0.208	2.569	0.592	0.8	1	3.483	454.83	64.98	B
			B	0.369	2.13	0.639	0.8	1	6.324			
			C	0.208	2.569	0.592	0.8	1	3.483			
T2 180.00-160.00	445.62	680.49 TA 242.49	A	0.488	1.915	0.692	0.8	1	25.480	1612.52	80.63	A
			B	0.366	2.135	0.638	0.8	1	17.857			
			C	0.328	2.224	0.625	0.8	1	15.765			
T3 160.00-140.00	599.52	658.24	A	0.487	1.917	0.691	0.8	1	25.390	1621.88	81.09	B
			B	0.51	1.888	0.702	0.8	1	26.950			
			C	0.393	2.079	0.649	0.8	1	19.376			
T4 140.00-120.00	874.08	680.49 TA 242.49	A	0.682	1.776	0.807	0.8	1	41.127	2235.35	111.77	A
			B	0.607	1.8	0.758	0.8	1	34.500			
			C	0.394	2.076	0.649	0.8	1	19.474			
T5 120.00-100.00	924.00	658.24	A	0.729	1.781	0.841	0.8	1	45.842	2381.67	119.08	A
			B	0.606	1.8	0.758	0.8	1	34.422			
			C	0.393	2.079	0.649	0.8	1	19.376			
T6 100.00-80.00	924.00	658.24	A	0.729	1.781	0.841	0.8	1	45.842	2248.96	112.45	A
			B	0.606	1.8	0.758	0.8	1	34.422			
			C	0.393	2.079	0.649	0.8	1	19.376			

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	Client	Mark LeGault	Designed by	bryan.lanier

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	lb	lb							ft ²	lb	plf	
T7 80.00-60.00	924.00	658.24	A	0.729	1.781	0.841	0.8	1	45.842	2093.13	104.66	A
			B	0.606	1.8	0.758	0.8	1	34.422			
			C	0.393	2.079	0.649	0.8	1	19.376			
T8 60.00-40.00	924.00	658.24	A	0.729	1.781	0.841	0.8	1	45.842	1901.28	95.06	A
			B	0.606	1.8	0.758	0.8	1	34.422			
			C	0.393	2.079	0.649	0.8	1	19.376			
T9 40.00-20.00	924.00	658.24	A	0.729	1.781	0.841	0.8	1	45.842	1688.45	84.42	A
			B	0.606	1.8	0.758	0.8	1	34.422			
			C	0.393	2.079	0.649	0.8	1	19.376			
T10 20.00-0.00	924.00	658.24	A	0.729	1.781	0.841	0.8	1	45.842	1688.45	84.42	A
			B	0.606	1.8	0.758	0.8	1	34.422			
			C	0.393	2.079	0.649	0.8	1	19.376			
Sum Weight	7550.58	6688.50								17926.51		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	lb	lb							ft ²	lb	plf	
T1 187.00-180.00	87.36	234.83	A	0.208	2.569	0.592	0.85	1	3.544	458.34	65.48	B
			B	0.369	2.13	0.639	0.85	1	6.373			
			C	0.208	2.569	0.592	0.85	1	3.544			
T2 180.00-160.00	445.62	680.49	A	0.488	1.915	0.692	0.85	1	25.576	1618.60	80.93	A
		TA 242.49	B	0.366	2.135	0.638	0.85	1	17.976			
			C	0.328	2.224	0.625	0.85	1	15.891			
T3 160.00-140.00	599.52	658.24	A	0.487	1.917	0.691	0.85	1	25.481	1627.16	81.36	B
			B	0.51	1.888	0.702	0.85	1	27.038			
			C	0.393	2.079	0.649	0.85	1	19.485			
T4 140.00-120.00	874.08	680.49	A	0.682	1.776	0.807	0.85	1	41.187	2238.61	111.93	A
		TA 242.49	B	0.607	1.8	0.758	0.85	1	34.574			
			C	0.394	2.076	0.649	0.85	1	19.588			
T5 120.00-100.00	924.00	658.24	A	0.729	1.781	0.841	0.85	1	45.891	2384.19	119.21	A
			B	0.606	1.8	0.758	0.85	1	34.492			
			C	0.393	2.079	0.649	0.85	1	19.485			
T6 100.00-80.00	924.00	658.24	A	0.729	1.781	0.841	0.85	1	45.891	2251.33	112.57	A
			B	0.606	1.8	0.758	0.85	1	34.492			
			C	0.393	2.079	0.649	0.85	1	19.485			
T7 80.00-60.00	924.00	658.24	A	0.729	1.781	0.841	0.85	1	45.891	2095.35	104.77	A
			B	0.606	1.8	0.758	0.85	1	34.492			
			C	0.393	2.079	0.649	0.85	1	19.485			
T8 60.00-40.00	924.00	658.24	A	0.729	1.781	0.841	0.85	1	45.891	1903.29	95.16	A
			B	0.606	1.8	0.758	0.85	1	34.492			
			C	0.393	2.079	0.649	0.85	1	19.485			
T9 40.00-20.00	924.00	658.24	A	0.729	1.781	0.841	0.85	1	45.891	1690.23	84.51	A
			B	0.606	1.8	0.758	0.85	1	34.492			
			C	0.393	2.079	0.649	0.85	1	19.485			
T10 20.00-0.00	924.00	658.24	A	0.729	1.781	0.841	0.85	1	45.891	1690.23	84.51	A
			B	0.606	1.8	0.758	0.85	1	34.492			
			C	0.393	2.079	0.649	0.85	1	19.485			
Sum Weight	7550.58	6688.50								17957.32		

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	Project Bozrah, CT	Date 17:13:06 10/21/11
	Client Mark LeGault	Designed by bryan.lanier

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	F a c e	e	C _F	R _R	D _F	D _R	A _E ft ²	F lb	w plf	Ctrl. Face
T1 187.00-180.00	261.31	364.12	A	0.33	2.219	0.626	1	1	5.985	568.35	81.19	B
			B	0.541	1.853	0.719	1	1	12.113			
			C	0.33	2.219	0.626	1	1	5.985			
T2 180.00-160.00	1314.53	1039.55 TA 376.86	A	0.735	1.782	0.845	1	1	47.655	2104.54	105.23	A
			B	0.539	1.855	0.718	1	1	34.355			
			C	0.504	1.895	0.699	1	1	27.593			
T3 160.00-140.00	1745.38	1013.22	A	0.734	1.782	0.845	1	1	47.569	2203.31	110.17	B
			B	0.728	1.78	0.841	1	1	51.757			
			C	0.598	1.806	0.752	1	1	34.794			
T4 140.00-120.00	2561.43	1039.55 TA 376.86	A	0.989	2.076	1	1	1	75.584	3509.77*	175.49	A
			B	0.856	1.868	0.944	1	1	64.057			
			C	0.599	1.805	0.753	1	1	34.905			
T5 120.00-100.00	2713.71	1013.22	A	1	2.1	1	1	1	80.446	3346.19*	167.31	A
			B	0.856	1.868	0.943	1	1	64.016			
			C	0.598	1.806	0.752	1	1	34.794			
T6 100.00-80.00	2713.71	1013.22	A	1	2.1	1	1	1	80.446	3159.73*	157.99	A
			B	0.856	1.868	0.943	1	1	64.016			
			C	0.598	1.806	0.752	1	1	34.794			
T7 80.00-60.00	2713.71	1013.22	A	1	2.1	1	1	1	80.446	2940.80*	147.04	A
			B	0.856	1.868	0.943	1	1	64.016			
			C	0.598	1.806	0.752	1	1	34.794			
T8 60.00-40.00	2713.71	1013.22	A	1	2.1	1	1	1	80.446	2671.25*	133.56	A
			B	0.856	1.868	0.943	1	1	64.016			
			C	0.598	1.806	0.752	1	1	34.794			
T9 40.00-20.00	2713.71	1013.22	A	1	2.1	1	1	1	80.446	2372.23*	118.61	A
			B	0.856	1.868	0.943	1	1	64.016			
			C	0.598	1.806	0.752	1	1	34.794			
T10 20.00-0.00	2713.71	1013.22	A	1	2.1	1	1	1	80.446	2372.23*	118.61	A
			B	0.856	1.868	0.943	1	1	64.016			
			C	0.598	1.806	0.752	1	1	34.794			
Sum Weight	22164.93	10289.49								25248.42		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	F a c e	e	C _F	R _R	D _F	D _R	A _E ft ²	F lb	w plf	Ctrl. Face
T1 187.00-180.00	261.31	364.12	A	0.33	2.219	0.626	0.8	1	5.741	511.44	73.06	B
			B	0.541	1.853	0.719	0.8	1	10.900			
			C	0.33	2.219	0.626	0.8	1	5.741			
T2 180.00-160.00	1314.53	1039.55 TA 376.86	A	0.735	1.782	0.845	0.8	1	47.408	2093.63	104.68	A
			B	0.539	1.855	0.718	0.8	1	30.959			
			C	0.504	1.895	0.699	0.8	1	27.148			
T3 160.00-140.00	1745.38	1013.22	A	0.734	1.782	0.845	0.8	1	47.333	2016.64	100.83	A
			B	0.728	1.78	0.841	0.8	1	45.556			
			C	0.598	1.806	0.752	0.8	1	34.446			
T4 140.00-120.00	2561.43	1039.55 TA 376.86	A	0.989	2.076	1	0.8	1	71.582	3411.53	170.58	A
			B	0.856	1.868	0.944	0.8	1	55.968			
			C	0.599	1.805	0.753	0.8	1	34.541			
T5 120.00-100.00	2713.71	1013.22	A	1	2.1	1	0.8	1	75.504	3346.19*	167.31	A
			B	0.856	1.868	0.943	0.8	1	55.933			

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	Project		Bozrah, CT		Date		17:13:06 10/21/11	
	Client		Mark LeGault		Designed by		bryan.lanier	

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	lb	lb							ft ²	lb	plf	
T6 100.00-80.00	2713.71	1013.22	C	0.598	1.806	0.752	0.8	1	34.446	3159.73*	157.99	A
			A	1	2.1	1	0.8	1	75.504			
			B	0.856	1.868	0.943	0.8	1	55.933			
T7 80.00-60.00	2713.71	1013.22	C	0.598	1.806	0.752	0.8	1	34.446	2940.80*	147.04	A
			A	1	2.1	1	0.8	1	75.504			
			B	0.856	1.868	0.943	0.8	1	55.933			
T8 60.00-40.00	2713.71	1013.22	C	0.598	1.806	0.752	0.8	1	34.446	2671.25*	133.56	A
			A	1	2.1	1	0.8	1	75.504			
			B	0.856	1.868	0.943	0.8	1	55.933			
T9 40.00-20.00	2713.71	1013.22	C	0.598	1.806	0.752	0.8	1	34.446	2372.23*	118.61	A
			A	1	2.1	1	0.8	1	75.504			
			B	0.856	1.868	0.943	0.8	1	55.933			
T10 20.00-0.00	2713.71	1013.22	C	0.598	1.806	0.752	0.8	1	34.446	2372.23*	118.61	A
			A	1	2.1	1	0.8	1	75.504			
			B	0.856	1.868	0.943	0.8	1	55.933			
Sum Weight	22164.93	10289.49	C	0.598	1.806	0.752	0.8	1	34.446	24895.67		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	lb	lb							ft ²	lb	plf	
T1 187.00-180.00	261.31	364.12	A	0.33	2.219	0.626	0.85	1	5.802	525.67	75.10	B
			B	0.541	1.853	0.719	0.85	1	11.203			
			C	0.33	2.219	0.626	0.85	1	5.802			
T2 180.00-160.00	1314.53	1039.55 TA 376.86	A	0.735	1.782	0.845	0.85	1	47.470	2096.36	104.82	A
			B	0.539	1.855	0.718	0.85	1	31.808			
			C	0.504	1.895	0.699	0.85	1	27.259			
T3 160.00-140.00	1745.38	1013.22	A	0.734	1.782	0.845	0.85	1	47.392	2019.15	100.96	A
			B	0.728	1.78	0.841	0.85	1	47.106			
			C	0.598	1.806	0.752	0.85	1	34.533			
T4 140.00-120.00	2561.43	1039.55 TA 376.86	A	0.989	2.076	1	0.85	1	72.583	3459.21	172.96	A
			B	0.856	1.868	0.944	0.85	1	57.990			
			C	0.599	1.805	0.753	0.85	1	34.632			
T5 120.00-100.00	2713.71	1013.22	A	1	2.1	1	0.85	1	76.740	3346.19*	167.31	A
			B	0.856	1.868	0.943	0.85	1	57.954			
			C	0.598	1.806	0.752	0.85	1	34.533			
T6 100.00-80.00	2713.71	1013.22	A	1	2.1	1	0.85	1	76.740	3159.73*	157.99	A
			B	0.856	1.868	0.943	0.85	1	57.954			
			C	0.598	1.806	0.752	0.85	1	34.533			
T7 80.00-60.00	2713.71	1013.22	A	1	2.1	1	0.85	1	76.740	2940.80*	147.04	A
			B	0.856	1.868	0.943	0.85	1	57.954			
			C	0.598	1.806	0.752	0.85	1	34.533			
T8 60.00-40.00	2713.71	1013.22	A	1	2.1	1	0.85	1	76.740	2671.25*	133.56	A
			B	0.856	1.868	0.943	0.85	1	57.954			
			C	0.598	1.806	0.752	0.85	1	34.533			
T9 40.00-20.00	2713.71	1013.22	A	1	2.1	1	0.85	1	76.740	2372.23*	118.61	A
			B	0.856	1.868	0.943	0.85	1	57.954			
			C	0.598	1.806	0.752	0.85	1	34.533			
T10 20.00-0.00	2713.71	1013.22	A	1	2.1	1	0.85	1	76.740	2372.23*	118.61	A
			B	0.856	1.868	0.943	0.85	1	57.954			
			C	0.598	1.806	0.752	0.85	1	34.533			

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	Project Bozrah, CT	Date 17:13:06 10/21/11
	Client Mark LeGault	Designed by bryan.lanier

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	lb	lb							ft ²	lb	plf	
Sum Weight	22164.93	10289.49			2A _g limit					24962.82		

Tower Forces - Service - Wind Normal To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	lb	lb							ft ²	lb	plf	
T1 187.00-180.00	87.36	234.83	A	0.208	2.569	0.592	1	1	3.727	162.23	23.18	B
			B	0.369	2.13	0.639	1	1	6.519			
			C	0.208	2.569	0.592	1	1	3.727			
T2 180.00-160.00	445.62	680.49 TA 242.49	A	0.488	1.915	0.692	1	1	25.864	566.39	28.32	A
			B	0.366	2.135	0.638	1	1	18.334			
			C	0.328	2.224	0.625	1	1	16.270			
T3 160.00-140.00	599.52	658.24	A	0.487	1.917	0.691	1	1	25.757	568.52	28.43	B
			B	0.51	1.888	0.702	1	1	27.301			
			C	0.393	2.079	0.649	1	1	19.811			
T4 140.00-120.00	874.08	680.49 TA 242.49	A	0.682	1.776	0.807	1	1	41.367	777.98	38.90	A
			B	0.607	1.8	0.758	1	1	34.795			
			C	0.394	2.076	0.649	1	1	19.930			
T5 120.00-100.00	924.00	658.24	A	0.729	1.781	0.841	1	1	46.036	827.59	41.38	A
			B	0.606	1.8	0.758	1	1	34.703			
			C	0.393	2.079	0.649	1	1	19.811			
T6 100.00-80.00	924.00	658.24	A	0.729	1.781	0.841	1	1	46.036	781.48	39.07	A
			B	0.606	1.8	0.758	1	1	34.703			
			C	0.393	2.079	0.649	1	1	19.811			
T7 80.00-60.00	924.00	658.24	A	0.729	1.781	0.841	1	1	46.036	727.33	36.37	A
			B	0.606	1.8	0.758	1	1	34.703			
			C	0.393	2.079	0.649	1	1	19.811			
T8 60.00-40.00	924.00	658.24	A	0.729	1.781	0.841	1	1	46.036	660.66	33.03	A
			B	0.606	1.8	0.758	1	1	34.703			
			C	0.393	2.079	0.649	1	1	19.811			
T9 40.00-20.00	924.00	658.24	A	0.729	1.781	0.841	1	1	46.036	586.71	29.34	A
			B	0.606	1.8	0.758	1	1	34.703			
			C	0.393	2.079	0.649	1	1	19.811			
T10 20.00-0.00	924.00	658.24	A	0.729	1.781	0.841	1	1	46.036	586.71	29.34	A
			B	0.606	1.8	0.758	1	1	34.703			
			C	0.393	2.079	0.649	1	1	19.811			
Sum Weight	7550.58	6688.50								6245.60		

Tower Forces - Service - Wind 60 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	lb	lb							ft ²	lb	plf	
T1 187.00-180.00	87.36	234.83	A	0.208	2.569	0.592	0.8	1	3.483	157.38	22.48	B
			B	0.369	2.13	0.639	0.8	1	6.324			
			C	0.208	2.569	0.592	0.8	1	3.483			
T2	445.62	680.49	A	0.488	1.915	0.692	0.8	1	25.480	557.96	27.90	A

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	Project	Bozrah, CT	Date	17:13:06 10/21/11
	Client	Mark LeGault	Designed by	bryan.lanier

Section Elevation ft	Add Weight lb	Self Weight lb	F a c e	e	C _F	R _R	D _F	D _R	A _E ft ²	F lb	w plf	Ctrl. Face
180.00-160.00		TA 242.49	B	0.366	2.135	0.638	0.8	1	17.857			
			C	0.328	2.224	0.625	0.8	1	15.765			
T3	599.52	658.24	A	0.487	1.917	0.691	0.8	1	25.390	561.20	28.06	B
160.00-140.00			B	0.51	1.888	0.702	0.8	1	26.950			
			C	0.393	2.079	0.649	0.8	1	19.376			
T4	874.08	680.49	A	0.682	1.776	0.807	0.8	1	41.127	773.48	38.67	A
140.00-120.00		TA 242.49	B	0.607	1.8	0.758	0.8	1	34.500			
			C	0.394	2.076	0.649	0.8	1	19.474			
T5	924.00	658.24	A	0.729	1.781	0.841	0.8	1	45.842	824.11	41.21	A
120.00-100.00			B	0.606	1.8	0.758	0.8	1	34.422			
			C	0.393	2.079	0.649	0.8	1	19.376			
T6	924.00	658.24	A	0.729	1.781	0.841	0.8	1	45.842	778.19	38.91	A
100.00-80.00			B	0.606	1.8	0.758	0.8	1	34.422			
			C	0.393	2.079	0.649	0.8	1	19.376			
T7	924.00	658.24	A	0.729	1.781	0.841	0.8	1	45.842	724.27	36.21	A
80.00-60.00			B	0.606	1.8	0.758	0.8	1	34.422			
			C	0.393	2.079	0.649	0.8	1	19.376			
T8	924.00	658.24	A	0.729	1.781	0.841	0.8	1	45.842	657.88	32.89	A
60.00-40.00			B	0.606	1.8	0.758	0.8	1	34.422			
			C	0.393	2.079	0.649	0.8	1	19.376			
T9	924.00	658.24	A	0.729	1.781	0.841	0.8	1	45.842	584.24	29.21	A
40.00-20.00			B	0.606	1.8	0.758	0.8	1	34.422			
			C	0.393	2.079	0.649	0.8	1	19.376			
T10	924.00	658.24	A	0.729	1.781	0.841	0.8	1	45.842	584.24	29.21	A
20.00-0.00			B	0.606	1.8	0.758	0.8	1	34.422			
			C	0.393	2.079	0.649	0.8	1	19.376			
Sum Weight	7550.58	6688.50								6202.94		

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	F a c e	e	C _F	R _R	D _F	D _R	A _E ft ²	F lb	w plf	Ctrl. Face
T1	87.36	234.83	A	0.208	2.569	0.592	0.85	1	3.544	158.59	22.66	B
187.00-180.00			B	0.369	2.13	0.639	0.85	1	6.373			
			C	0.208	2.569	0.592	0.85	1	3.544			
T2	445.62	680.49	A	0.488	1.915	0.692	0.85	1	25.576	560.07	28.00	A
180.00-160.00		TA 242.49	B	0.366	2.135	0.638	0.85	1	17.976			
			C	0.328	2.224	0.625	0.85	1	15.891			
T3	599.52	658.24	A	0.487	1.917	0.691	0.85	1	25.481	563.03	28.15	B
160.00-140.00			B	0.51	1.888	0.702	0.85	1	27.038			
			C	0.393	2.079	0.649	0.85	1	19.485			
T4	874.08	680.49	A	0.682	1.776	0.807	0.85	1	41.187	774.60	38.73	A
140.00-120.00		TA 242.49	B	0.607	1.8	0.758	0.85	1	34.574			
			C	0.394	2.076	0.649	0.85	1	19.588			
T5	924.00	658.24	A	0.729	1.781	0.841	0.85	1	45.891	824.98	41.25	A
120.00-100.00			B	0.606	1.8	0.758	0.85	1	34.492			
			C	0.393	2.079	0.649	0.85	1	19.485			
T6	924.00	658.24	A	0.729	1.781	0.841	0.85	1	45.891	779.01	38.95	A
100.00-80.00			B	0.606	1.8	0.758	0.85	1	34.492			
			C	0.393	2.079	0.649	0.85	1	19.485			
T7	924.00	658.24	A	0.729	1.781	0.841	0.85	1	45.891	725.03	36.25	A
80.00-60.00			B	0.606	1.8	0.758	0.85	1	34.492			
			C	0.393	2.079	0.649	0.85	1	19.485			
T8	924.00	658.24	A	0.729	1.781	0.841	0.85	1	45.891	658.58	32.93	A

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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
60.00-40.00			B	0.606	1.8	0.758	0.85	1	34.492			
			C	0.393	2.079	0.649	0.85	1	19.485			
T9 40.00-20.00	924.00	658.24	A	0.729	1.781	0.841	0.85	1	45.891	584.86	29.24	A
			B	0.606	1.8	0.758	0.85	1	34.492			
			C	0.393	2.079	0.649	0.85	1	19.485			
T10 20.00-0.00	924.00	658.24	A	0.729	1.781	0.841	0.85	1	45.891	584.86	29.24	A
			B	0.606	1.8	0.758	0.85	1	34.492			
			C	0.393	2.079	0.649	0.85	1	19.485			
Sum Weight	7550.58	6688.50								6213.61		

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	3252.97			
Bracing Weight	3435.53			
Total Member Self-Weight	6688.50			
Guy Weight	2152.01			
Total Weight	23903.39			
Wind 0 deg - No Ice		2.15	-31039.21	-2022.08
Wind 30 deg - No Ice		15478.96	-26801.75	-3172.82
Wind 60 deg - No Ice		26781.50	-15459.83	-3479.41
Wind 90 deg - No Ice		30954.19	-2.15	-2862.76
Wind 120 deg - No Ice		26886.11	15517.74	-1478.26
Wind 150 deg - No Ice		15475.24	26799.60	310.06
Wind 180 deg - No Ice		-2.15	30915.93	2007.09
Wind 210 deg - No Ice		-15478.96	26801.75	3172.82
Wind 240 deg - No Ice		-26888.26	15521.46	3500.33
Wind 270 deg - No Ice		-30954.19	2.15	2862.76
Wind 300 deg - No Ice		-26779.35	-15456.11	1472.32
Wind 330 deg - No Ice		-15475.24	-26799.60	-310.06
Member Ice	3600.98			
Guy Ice	1951.89			
Total Weight Ice	47446.21			
Wind 0 deg - Ice		2.42	-37331.83	-4402.22
Wind 30 deg - Ice		18529.39	-32084.19	-4502.63
Wind 60 deg - Ice		32033.28	-18491.63	-3437.27
Wind 90 deg - Ice		37054.60	-2.42	-1464.39
Wind 120 deg - Ice		32336.36	18663.82	942.12
Wind 150 deg - Ice		18525.21	32081.77	3038.25
Wind 180 deg - Ice		-2.42	36979.08	4345.99
Wind 210 deg - Ice		-18529.39	32084.19	4502.63
Wind 240 deg - Ice		-32338.77	18668.01	3460.10
Wind 270 deg - Ice		-37054.60	2.42	1464.39
Wind 300 deg - Ice		-32030.86	-18487.45	-908.72
Wind 330 deg - Ice		-18525.21	-32081.77	-3038.25
Total Weight	23903.39			
Wind 0 deg - Service		0.74	-10740.21	-699.68
Wind 30 deg - Service		5356.04	-9273.96	-1097.86
Wind 60 deg - Service		9266.96	-5349.42	-1203.95
Wind 90 deg - Service		10710.79	-0.74	-990.57
Wind 120 deg - Service		9303.15	5369.46	-511.51
Wind 150 deg - Service		5354.75	9273.22	107.29
Wind 180 deg - Service		-0.74	10697.56	694.50

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Load Case	Vertical Forces <i>lb</i>	Sum of Forces <i>X</i> <i>lb</i>	Sum of Forces <i>Z</i> <i>lb</i>	Sum of Torques <i>lb-ft</i>
Wind 210 deg - Service		-5356.04	9273.96	1097.86
Wind 240 deg - Service		-9303.90	5370.75	1211.19
Wind 270 deg - Service		-10710.79	0.74	990.57
Wind 300 deg - Service		-9266.21	-5348.13	509.45
Wind 330 deg - Service		-5354.75	-9273.22	-107.29

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

Maximum Member Forces

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft		
T1	187 - 180	Leg	Max Tension	4	5475.12	642.08	-390.76		
			Max. Compression	15	-9279.51	-17.92	-825.27		
			Max. Mx	11	-5596.90	-792.93	59.64		
			Max. My	2	-6499.16	-12.98	-832.46		
			Max. Vy	5	925.78	-120.33	-13.33		
		Diagonal	Max. Vx	15	-983.97	3.46	144.00		
			Max Tension	7	4924.57	0.00	0.00		
			Horizontal	Max Tension	15	160.73	0.00	0.00	
				Max. Compression	9	-5284.39	0.00	0.00	
				Max. Mx	14	88.71	-5.12	0.00	
				Max. My	15	160.73	0.00	-0.00	
				Max. Vy	14	5.85	0.00	0.00	
			Top Girt	Max. Vx	15	0.00	0.00	0.00	
				Max Tension	1	0.00	0.00	0.00	
				Max. Compression	8	-3034.07	0.00	0.00	
		Max. Mx		14	-2644.39	-5.12	0.00		
		Max. My		15	-2825.87	0.00	-0.00		
		Max. Vy		14	5.85	0.00	0.00		
		Max. Vx		15	0.00	0.00	0.00		
		Bottom Girt		Max Tension	1	0.00	0.00	0.00	
				Max. Compression	2	-3259.03	0.00	0.00	
				Max. Mx	14	-2650.89	-5.12	0.00	
			Max. My	15	-2345.31	0.00	-0.00		
			Max. Vy	14	5.85	0.00	0.00		
		T2	180 - 160	Leg	Max Tension	4	33610.19	-80.55	52.87
					Max. Compression	15	-60385.94	-59.41	792.14
					Max. Mx	5	-18321.35	-937.30	70.84
					Max. My	21	-39717.21	-56.11	-988.92
Max. Vy	18				-1905.70	-934.09	73.67		
Diagonal	Max. Vx			21	-2034.43	-57.59	-988.83		
	Max Tension			16	8148.38	0.00	0.00		
	Horizontal			Max Tension	15	1045.92	0.00	0.00	
				Max. Compression	2	-5938.18	0.00	0.00	
				Max. Mx	14	305.93	-5.12	0.00	
				Max. My	15	1045.92	0.00	-0.00	
				Max. Vy	14	5.85	0.00	0.00	
	Top Girt			Max. Vx	15	0.00	0.00	0.00	
				Max Tension	1	0.00	0.00	0.00	
				Max. Compression	8	-3246.85	0.00	0.00	
Max. Mx				14	-2411.52	-5.12	0.00		
Max. My				15	-2826.86	0.00	-0.00		
Max. Vy				14	5.85	0.00	0.00		
Max. Vx				15	0.00	0.00	0.00		
Bottom Girt				Max Tension	17	1266.06	0.00	0.00	
				Max. Compression	2	-4923.00	0.00	0.00	
				Max. Mx	14	-2014.70	-5.12	0.00	
	Max. My			26	-2148.11	0.00	0.00		
	Max. Vy			14	5.85	0.00	0.00		
Guy A	Max. Vx			26	-0.00	0.00	0.00		
	Bottom Tension			21	17028.75				
	Top Tension			21	17267.40				
	Top Cable Vert			21	12862.63				
	Top Cable Norm	21	11520.24						
	Top Cable Tan	21	5.20						
	Bot Cable Vert	21	-12276.45						
	Bot Cable Norm	21	11801.15						
	Bot Cable Tan	21	7.11						
	Guy B	Bottom Tension	25	16990.76					
		Top Tension	25	17229.42					
		Top Cable Vert	25	12834.94					

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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	25	11494.23		
			Top Cable Tan	25	4.62		
			Bot Cable Vert	25	-12248.75		
			Bot Cable Norm	25	11775.14		
			Bot Cable Tan	25	7.69		
		Guy C	Bottom Tension	17	17052.53		
			Top Tension	17	17291.18		
			Top Cable Vert	17	12879.99		
			Top Cable Norm	17	11536.49		
			Top Cable Tan	17	5.38		
			Bot Cable Vert	17	-12293.81		
			Bot Cable Norm	17	11817.40		
			Bot Cable Tan	17	6.92		
		Top Guy Pull-Off	Max Tension	17	1601.17	0.00	0.00
			Max. Compression	2	-10373.03	0.00	0.00
			Max. Mx	14	-4468.30	-8.96	0.00
			Max. My	26	-4811.96	0.00	0.00
			Max. Vy	14	10.24	0.00	0.00
			Max. Vx	26	-0.00	0.00	0.00
		Torque Arm Top	Max Tension	15	15488.13	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	16	13817.92	-16.02	0.00
			Max. My	15	6328.47	0.00	0.19
			Max. Vy	16	13.49	0.00	0.00
			Max. Vx	15	0.16	0.00	0.00
		Torque Arm Bottom	Max Tension	3	4949.65	0.00	0.00
			Max. Compression	16	-12852.33	0.00	0.00
			Max. Mx	17	-12599.97	-11.66	0.00
			Max. My	26	-6293.36	0.00	0.00
			Max. Vy	17	13.33	0.00	0.00
			Max. Vx	26	-0.00	0.00	0.00
T3	160 - 140	Leg	Max Tension	12	28433.29	192.91	119.02
			Max. Compression	15	-57918.19	-1.53	210.37
			Max. Mx	18	-20881.79	497.02	-65.07
			Max. My	21	-38100.95	36.40	538.63
			Max. Vy	18	-1910.00	-219.22	3.80
			Max. Vx	21	-2042.71	-11.11	-226.70
		Diagonal	Max Tension	4	5593.27	0.00	0.00
		Horizontal	Max Tension	15	1003.17	0.00	0.00
			Max. Compression	2	-4928.86	0.00	0.00
			Max. Mx	14	324.35	-5.12	0.00
			Max. My	26	902.07	0.00	0.00
			Max. Vy	14	5.85	0.00	0.00
			Max. Vx	26	-0.00	0.00	0.00
		Top Girt	Max Tension	17	214.12	0.00	0.00
			Max. Compression	2	-3831.94	0.00	0.00
			Max. Mx	14	-1932.04	-5.12	0.00
			Max. My	26	-1897.70	0.00	0.00
			Max. Vy	14	5.85	0.00	0.00
			Max. Vx	26	-0.00	0.00	0.00
		Bottom Girt	Max Tension	1	0.00	0.00	0.00
			Max. Compression	6	-2292.33	0.00	0.00
			Max. Mx	14	-1854.32	-5.12	0.00
			Max. My	15	-1514.71	0.00	0.00
			Max. Vy	14	5.85	0.00	0.00
			Max. Vx	15	-0.00	0.00	0.00
T4	140 - 120	Leg	Max Tension	4	6270.96	-51.72	-25.98
			Max. Compression	15	-64141.30	-190.37	982.48
			Max. Mx	23	-13887.20	1224.96	-495.44
			Max. My	15	-13787.27	172.36	1338.58
			Max. Vy	23	2446.61	1224.64	-495.95

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. Vx	15	2663.69	171.72	1338.55
		Diagonal	Max Tension	25	4073.00	0.00	0.00
		Horizontal	Max Tension	15	1110.96	0.00	0.00
			Max. Compression	2	-4700.74	0.00	0.00
			Max. Mx	14	462.20	-5.12	0.00
			Max. My	15	1110.96	0.00	0.00
			Max. Vy	14	5.85	0.00	0.00
			Max. Vx	15	-0.00	0.00	0.00
		Top Girt	Max Tension	1	0.00	0.00	0.00
			Max. Compression	2	-2558.92	0.00	0.00
			Max. Mx	14	-1837.10	-5.12	0.00
			Max. My	15	-1394.81	0.00	0.00
			Max. Vy	14	5.85	0.00	0.00
			Max. Vx	15	-0.00	0.00	0.00
		Bottom Girt	Max Tension	17	1222.58	0.00	0.00
			Max. Compression	15	-4512.87	0.00	0.00
			Max. Mx	14	-1578.75	-5.12	0.00
			Max. My	15	70.73	0.00	0.00
			Max. Vy	14	5.85	0.00	0.00
			Max. Vx	15	-0.00	0.00	0.00
		Guy A	Bottom Tension	21	11002.19		
			Top Tension	21	11160.16		
			Top Cable Vert	21	7185.89		
			Top Cable Norm	21	8538.86		
			Top Cable Tan	21	3.85		
			Bot Cable Vert	21	-6764.93		
			Bot Cable Norm	21	8676.63		
			Bot Cable Tan	21	4.34		
		Guy B	Bottom Tension	25	10844.82		
			Top Tension	25	11002.81		
			Top Cable Vert	25	7087.11		
			Top Cable Norm	25	8416.33		
			Top Cable Tan	25	3.48		
			Bot Cable Vert	25	-6666.15		
			Bot Cable Norm	25	8554.09		
			Bot Cable Tan	25	4.71		
		Guy C	Bottom Tension	17	10991.67		
			Top Tension	17	11149.64		
			Top Cable Vert	17	7179.28		
			Top Cable Norm	17	8530.68		
			Top Cable Tan	17	3.86		
			Bot Cable Vert	17	-6758.32		
			Bot Cable Norm	17	8668.44		
			Bot Cable Tan	17	4.32		
		Top Guy Pull-Off	Max Tension	1	0.00	0.00	0.00
			Max. Compression	23	-6634.59	0.00	0.00
			Max. Mx	14	-3424.05	-8.96	0.00
			Max. My	15	-1297.69	0.00	0.00
			Max. Vy	14	10.24	0.00	0.00
			Max. Vx	15	-0.00	0.00	0.00
		Torque Arm Top	Max Tension	18	8332.66	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	16	7655.87	-15.87	0.00
			Max. My	15	3184.44	0.00	0.09
			Max. Vy	16	13.37	0.00	0.00
			Max. Vx	15	0.07	0.00	0.00
		Torque Arm Bottom	Max Tension	15	5010.62	0.00	0.00
			Max. Compression	16	-8285.56	0.00	0.00
			Max. Mx	22	4784.33	-11.66	0.00
			Max. My	15	-6841.45	0.00	0.00
			Max. Vy	22	13.33	0.00	0.00

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft	
T5	120 - 100	Leg	Max. Vx	15	-0.00	0.00	0.00	
			Max Tension	4	3312.78	228.21	-272.22	
			Max. Compression	15	-62270.52	-16.71	238.46	
			Max. Mx	18	-28760.34	661.50	-38.15	
			Max. My	15	-16946.55	-97.33	-657.51	
			Max. Vy	23	2446.99	307.46	-135.21	
		Diagonal Horizontal	Max. Vx	15	2663.97	36.87	340.60	
			Max Tension	16	7077.96	0.00	0.00	
			Max Tension	15	1078.56	0.00	0.00	
			Max. Compression	16	-4703.84	0.00	0.00	
			Max. Mx	14	478.71	-5.12	0.00	
			Max. My	15	1078.56	0.00	0.00	
		Top Girt	Max. Vy	14	5.85	0.00	0.00	
			Max. Vx	15	-0.00	0.00	0.00	
			Max Tension	17	394.84	0.00	0.00	
			Max. Compression	15	-3410.12	0.00	0.00	
			Max. Mx	14	-1503.19	-5.12	0.00	
			Max. My	15	-793.45	0.00	0.00	
		Bottom Girt	Max. Vy	14	5.85	0.00	0.00	
			Max. Vx	15	-0.00	0.00	0.00	
			Max Tension	1	0.00	0.00	0.00	
			Max. Compression	12	-1832.62	0.00	0.00	
			Max. Mx	14	-1451.38	-5.12	0.00	
			Max. My	16	-1578.10	0.00	-0.00	
T6	100 - 80	Leg	Max. Vy	14	5.85	0.00	0.00	
			Max. Vx	16	0.00	0.00	0.00	
			Max Tension	1	0.00	0.00	0.00	
			Max. Compression	21	-40417.51	84.44	148.18	
			Max. Mx	23	-31093.54	-418.08	191.93	
			Max. My	15	-32213.59	126.20	-497.38	
		Diagonal Horizontal	Max. Vy	23	1116.58	0.02	-13.51	
			Max. Vx	15	1298.23	-11.72	8.27	
			Max Tension	16	3657.26	0.00	0.00	
			Max Tension	21	700.05	0.00	0.00	
			Max. Compression	33	-3210.41	0.00	0.00	
			Max. Mx	14	498.38	-5.12	0.00	
		Top Girt	Max. My	16	678.23	0.00	-0.00	
			Max. Vy	14	5.85	0.00	0.00	
			Max. Vx	16	0.00	0.00	0.00	
			Max Tension	1	0.00	0.00	0.00	
			Max. Compression	2	-2093.24	0.00	0.00	
			Max. Mx	14	-1427.53	-5.12	0.00	
		Bottom Girt	Max. My	16	-1327.78	0.00	-0.00	
			Max. Vy	14	5.85	0.00	0.00	
			Max. Vx	16	0.00	0.00	0.00	
			Max Tension	1	0.00	0.00	0.00	
			Max. Compression	29	-1674.74	0.00	0.00	
			Max. Mx	14	-1400.31	-5.12	0.00	
T7	80 - 60	Leg	Max. My	16	5.85	0.00	0.00	
			Max. Vx	16	0.00	0.00	0.00	
			Max Tension	1	0.00	0.00	0.00	
			Max. Compression	21	-39664.86	20.13	63.44	
			Max. Mx	18	-30573.54	-920.83	277.96	
			Max. My	21	-29271.54	126.79	-1034.64	
		Diagonal Horizontal	Max. Vy	18	-2049.39	-920.80	277.96	
			Max. Vx	21	-2315.73	126.94	-1034.62	
			Max Tension	21	3537.85	0.00	0.00	
			Max Tension	21	687.02	0.00	0.00	
			Max. Compression	27	-3302.71	0.00	0.00	
			Max. Mx	14	525.14	-5.12	0.00	

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. My	16	669.47	0.00	-0.00
			Max. Vy	14	5.85	0.00	0.00
			Max. Vx	16	0.00	0.00	0.00
		Top Girt	Max Tension	1	0.00	0.00	0.00
			Max. Compression	33	-1698.17	0.00	0.00
			Max. Mx	14	-1376.31	-5.12	0.00
			Max. My	16	-1158.93	0.00	-0.00
			Max. Vy	14	5.85	0.00	0.00
			Max. Vx	16	0.00	0.00	0.00
		Guy A	Bottom Tension	21	12245.63		
			Top Tension	21	12324.98		
			Top Cable Vert	21	4759.39		
			Top Cable Norm	21	11368.96		
			Top Cable Tan	21	1.51		
			Bot Cable Vert	21	-4497.50		
			Bot Cable Norm	21	11389.82		
			Bot Cable Tan	21	1.51		
		Guy B	Bottom Tension	25	12239.12		
			Top Tension	25	12318.46		
			Top Cable Vert	25	4756.94		
			Top Cable Norm	25	11362.92		
			Top Cable Tan	25	0.09		
			Bot Cable Vert	25	-4495.06		
			Bot Cable Norm	25	11383.78		
			Bot Cable Tan	25	0.09		
		Guy C	Bottom Tension	17	12241.43		
			Top Tension	17	12320.77		
			Top Cable Vert	17	4757.81		
			Top Cable Norm	17	11365.06		
			Top Cable Tan	17	1.43		
			Bot Cable Vert	17	-4495.93		
			Bot Cable Norm	17	11385.92		
			Bot Cable Tan	17	1.43		
		Top Guy Pull-Off	Max Tension	15	3658.91	0.00	0.00
			Max. Compression	12	-841.88	0.00	0.00
			Max. Mx	14	1000.53	-5.12	0.00
			Max. My	16	1633.80	0.00	-0.00
			Max. Vy	14	5.85	0.00	0.00
			Max. Vx	16	0.00	0.00	0.00
T8	60 - 40	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	21	-51384.93	50.98	-185.25
			Max. Mx	25	-29724.47	-620.41	-368.36
			Max. My	21	-34738.97	-61.06	702.43
			Max. Vy	18	-2052.69	-152.71	23.19
			Max. Vx	21	-2319.01	32.95	-166.73
		Diagonal	Max Tension	16	5056.70	0.00	0.00
		Horizontal	Max Tension	21	890.01	0.00	0.00
			Max. Compression	16	-3348.02	0.00	0.00
			Max. Mx	14	570.71	-5.12	0.00
			Max. My	16	866.09	0.00	-0.00
			Max. Vy	14	5.85	0.00	0.00
			Max. Vx	16	0.00	0.00	0.00
		Top Girt	Max Tension	1	0.00	0.00	0.00
			Max. Compression	2	-1580.33	0.00	0.00
			Max. Mx	14	-1042.87	-5.12	0.00
			Max. My	16	-1513.43	0.00	-0.00
			Max. Vy	14	5.85	0.00	0.00
			Max. Vx	16	0.00	0.00	0.00
		Bottom Girt	Max Tension	1	0.00	0.00	0.00
			Max. Compression	4	-1862.15	0.00	0.00
			Max. Mx	14	-1210.25	-5.12	0.00

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft		
T9	40 - 20	Leg	Max. My	16	-1011.12	0.00	-0.00		
			Max. Vy	14	5.85	0.00	0.00		
			Max. Vx	16	0.00	0.00	0.00		
			Max Tension	1	0.00	0.00	0.00		
			Max. Compression	21	-56066.31	1.63	66.08		
			Max. Mx	23	-18122.34	-264.42	126.93		
			Max. My	15	-18442.29	45.91	-293.57		
			Max. Vy	17	-549.35	33.47	-37.03		
			Max. Vx	16	630.63	16.19	-36.55		
			Diagonal	Max Tension	10	2674.64	0.00	0.00	
				Horizontal	Max Tension	21	971.10	0.00	0.00
					Max. Compression	12	-3315.03	0.00	0.00
		Max. Mx			14	590.40	-5.12	0.00	
		Max. My			16	935.91	0.00	-0.00	
		Max. Vy			14	5.85	0.00	0.00	
		Max. Vx	16		0.00	0.00	0.00		
		Top Girt	Max Tension	1	0.00	0.00	0.00		
			Max. Compression	33	-1578.03	0.00	0.00		
			Max. Mx	14	-1186.13	-5.12	0.00		
			Max. My	16	-1021.43	0.00	-0.00		
			Max. Vy	14	5.85	0.00	0.00		
			Max. Vx	16	0.00	0.00	0.00		
		Bottom Girt	Max Tension	1	0.00	0.00	0.00		
			Max. Compression	4	-1599.84	0.00	0.00		
Max. Mx	14		-1158.54	-5.12	0.00				
Max. My	16		-958.85	0.00	-0.00				
Max. Vy	14		5.85	0.00	0.00				
Max. Vx	16		0.00	0.00	0.00				
T10	20 - 0		Leg	Max Tension	1	0.00	0.00	0.00	
				Max. Compression	21	-54259.24	5.76	100.91	
				Max. Mx	24	-38625.19	1259.11	484.00	
				Max. My	21	-38433.35	32.24	-1396.30	
				Max. Vy	24	-3252.61	1259.11	484.00	
				Max. Vx	21	3684.61	32.24	-1396.30	
		Diagonal	Max Tension	20	3405.15	0.00	0.00		
			Horizontal	Max Tension	21	939.80	0.00	0.00	
				Max. Compression	12	-3157.02	0.00	0.00	
				Max. Mx	14	613.52	-5.12	0.00	
				Max. My	16	909.07	0.00	-0.00	
				Max. Vy	14	5.85	0.00	0.00	
Max. Vx	16	0.00		0.00	0.00				
Top Girt	Max Tension	1	0.00	0.00	0.00				
	Max. Compression	8	-1821.62	0.00	0.00				
	Max. Mx	14	-1134.35	-5.12	0.00				
	Max. My	16	-955.69	0.00	-0.00				
	Max. Vy	14	5.85	0.00	0.00				
	Max. Vx	16	0.00	0.00	0.00				
Bottom Girt	Max Tension	21	357.37	0.00	0.00				
	Max. Compression	35	-368.46	0.00	0.00				
	Max. Mx	14	-36.81	-5.12	0.00				
	Max. My	16	-55.03	0.00	-0.00				
	Max. Vy	14	5.85	0.00	0.00				
	Max. Vx	16	0.00	0.00	0.00				
Base Beam	Max Tension	1	0.00	0.00	0.00				
	Max. Compression	21	-3667.33	1395.00	3.34				
	Max. Mx	26	-38679.37	-76836.98	-828.80				
	Max. My	20	-38167.52	-76384.42	-1781.45				
	Max. Vy	26	-38679.37	-76836.98	-828.80				
	Max. Vx	20	-880.84	-76384.42	-1781.45				

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Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Guy C @ 150 ft Elev 0 ft Azimuth 240 deg	Max. Vert	10	-1092.19	-1281.98	738.60
	Max. H _x	10	-1092.19	-1281.98	738.60
	Max. H _z	17	-42237.01	-44974.20	25980.78
	Min. Vert	17	-42237.01	-44974.20	25980.78
	Min. H _x	17	-42237.01	-44974.20	25980.78
Guy B @ 150 ft Elev 0 ft Azimuth 120 deg	Min. H _z	10	-1092.19	-1281.98	738.60
	Max. Vert	6	-1086.41	1276.19	736.11
	Max. H _x	25	-42211.83	44959.65	25954.65
	Max. H _z	25	-42211.83	44959.65	25954.65
	Min. Vert	25	-42211.83	44959.65	25954.65
Guy A @ 150 ft Elev 0 ft Azimuth 0 deg	Min. H _x	6	-1086.41	1276.19	736.11
	Min. H _z	6	-1086.41	1276.19	736.11
	Max. Vert	2	-1081.00	-0.68	-1468.30
	Max. H _x	24	-22210.54	1530.21	-27044.57
	Max. H _z	2	-1081.00	-0.68	-1468.30
Mast	Min. Vert	21	-42103.95	15.34	-51808.86
	Min. H _x	18	-22216.12	-1530.29	-27048.64
	Min. H _z	21	-42103.95	15.34	-51808.86
	Max. Vert	16	114730.04	-1370.69	2384.22
	Max. H _x	24	114560.13	2859.76	-121.54
	Max. H _z	15	113995.62	26.90	2872.32
	Max. M _x	1	0.00	5.23	-30.79
	Max. M _z	1	0.00	5.23	-30.79
	Max. Torsion	1	0.00	5.23	-30.79
	Min. Vert	1	70690.76	5.23	-30.79
	Min. H _x	18	114586.89	-2832.73	-121.48
	Min. H _z	21	113792.93	18.67	-2911.05
	Min. M _x	1	0.00	5.23	-30.79
	Min. M _z	1	0.00	5.23	-30.79
	Min. Torsion	1	0.00	5.23	-30.79

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	70690.76	-5.23	30.79	0.00	0.00	0.00
Dead+Wind 0 deg - No Ice+Guy	79527.13	-7.81	-2236.99	0.00	0.00	0.00
Dead+Wind 30 deg - No Ice+Guy	79226.44	1074.06	-1865.07	0.00	0.00	0.00
Dead+Wind 60 deg - No Ice+Guy	77352.83	1873.23	-1056.81	0.00	0.00	0.00
Dead+Wind 90 deg - No Ice+Guy	79198.76	2177.75	39.05	0.00	0.00	0.00

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<i>Load Combination</i>	<i>Vertical</i>	<i>Shear_x</i>	<i>Shear_z</i>	<i>Overturing Moment, M_x</i>	<i>Overturing Moment, M_z</i>	<i>Torque</i>
	<i>lb</i>	<i>lb</i>	<i>lb</i>	<i>lb-ft</i>	<i>lb-ft</i>	<i>lb-ft</i>
Dead+Wind 120 deg - No Ice+Guy	79449.27	1961.03	1163.82	0.00	0.00	0.00
Dead+Wind 150 deg - No Ice+Guy	79178.72	1095.63	1917.01	0.00	0.00	0.00
Dead+Wind 180 deg - No Ice+Guy	77325.95	-6.42	2202.53	0.00	0.00	0.00
Dead+Wind 210 deg - No Ice+Guy	79170.64	-1107.53	1914.59	0.00	0.00	0.00
Dead+Wind 240 deg - No Ice+Guy	79455.88	-1971.49	1161.22	0.00	0.00	0.00
Dead+Wind 270 deg - No Ice+Guy	79188.67	-2188.30	39.07	0.00	0.00	0.00
Dead+Wind 300 deg - No Ice+Guy	77340.36	-1884.78	-1055.72	0.00	0.00	0.00
Dead+Wind 330 deg - No Ice+Guy	79224.62	-1087.95	-1864.86	0.00	0.00	0.00
Dead+Ice+Temp+Guy	99836.15	-13.48	94.56	0.00	0.00	0.00
Dead+Wind 0 deg+Ice+Temp+Guy	113995.62	-26.90	-2872.32	0.00	0.00	0.00
Dead+Wind 30 deg+Ice+Temp+Guy	114730.04	1370.69	-2384.22	0.00	0.00	0.00
Dead+Wind 60 deg+Ice+Temp+Guy	113860.80	2420.12	-1317.20	0.00	0.00	0.00
Dead+Wind 90 deg+Ice+Temp+Guy	114586.89	2832.73	121.48	0.00	0.00	0.00
Dead+Wind 120 deg+Ice+Temp+Guy	113793.34	2559.81	1582.27	0.00	0.00	0.00
Dead+Wind 150 deg+Ice+Temp+Guy	114571.76	1431.83	2548.75	0.00	0.00	0.00
Dead+Wind 180 deg+Ice+Temp+Guy	113792.93	-18.67	2911.05	0.00	0.00	0.00
Dead+Wind 210 deg+Ice+Temp+Guy	114546.29	-1467.42	2537.27	0.00	0.00	0.00
Dead+Wind 240 deg+Ice+Temp+Guy	113742.91	-2591.28	1572.27	0.00	0.00	0.00
Dead+Wind 270 deg+Ice+Temp+Guy	114560.13	-2859.76	121.54	0.00	0.00	0.00
Dead+Wind 300 deg+Ice+Temp+Guy	113844.56	-2453.48	-1312.29	0.00	0.00	0.00
Dead+Wind 330 deg+Ice+Temp+Guy	114729.95	-1415.88	-2380.48	0.00	0.00	0.00
Dead+Wind 0 deg - Service+Guy	71360.94	-5.36	-743.44	0.00	0.00	0.00
Dead+Wind 30 deg - Service+Guy	71354.38	375.86	-636.37	0.00	0.00	0.00
Dead+Wind 60 deg - Service+Guy	71366.01	656.45	-351.30	0.00	0.00	0.00
Dead+Wind 90 deg - Service+Guy	71354.86	762.96	34.27	0.00	0.00	0.00
Dead+Wind 120 deg - Service+Guy	71361.30	665.36	418.18	0.00	0.00	0.00
Dead+Wind 150 deg - Service+Guy	71353.70	381.87	694.76	0.00	0.00	0.00
Dead+Wind 180 deg - Service+Guy	71364.70	-5.24	795.37	0.00	0.00	0.00
Dead+Wind 210 deg - Service+Guy	71354.08	-392.31	694.72	0.00	0.00	0.00
Dead+Wind 240 deg - Service+Guy	71361.71	-675.78	418.12	0.00	0.00	0.00
Dead+Wind 270 deg - Service+Guy	71354.82	-773.42	34.26	0.00	0.00	0.00

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Load Combination	Vertical lb	Shear _x lb	Shear _z lb	Overturning Moment, M _x lb-ft	Overturning Moment, M _z lb-ft	Torque lb-ft
Dead+Wind 300 deg - Service+Guy	71365.50	-667.02	-351.25	0.00	0.00	0.00
Dead+Wind 330 deg - Service+Guy	71353.96	-386.52	-636.29	0.00	0.00	0.00

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	
1	0.00	-23902.95	0.00	3.81	23466.06	-23.65	1.831%
2	2.15	-24085.06	-33761.84	-2.00	24076.68	33620.54	0.341%
3	16836.59	-23902.95	-29153.25	-16837.76	23895.09	28994.51	0.385%
4	29139.37	-23720.83	-16821.14	-28971.92	23714.62	16726.89	0.467%
5	33669.47	-23902.95	-2.15	-33534.71	23895.24	81.75	0.380%
6	29243.98	-24085.06	16879.06	-29117.03	24076.38	-16805.54	0.354%
7	16832.87	-23902.95	29151.10	-16696.84	23895.24	-29074.07	0.379%
8	-2.15	-23720.83	33638.56	4.46	23714.68	-33447.26	0.465%
9	-16836.59	-23902.95	29153.25	16700.37	23895.22	-29075.91	0.380%
10	-29246.13	-24085.06	16882.78	29120.70	24076.44	-16809.99	0.350%
11	-33669.47	-23902.95	2.15	33535.04	23895.27	77.26	0.379%
12	-29137.22	-23720.83	-16817.42	28971.17	23714.64	16721.27	0.466%
13	-16832.87	-23902.95	-29151.10	16834.21	23895.14	28993.08	0.383%
14	0.00	-47445.37	0.00	10.06	46904.19	-72.17	1.151%
15	2.42	-47814.88	-42804.36	-1.95	47804.34	42559.63	0.382%
16	21258.08	-47445.37	-36810.41	-21280.68	47436.21	36551.45	0.408%
17	36772.63	-47075.87	-21227.90	-36517.67	47066.35	21074.84	0.469%
18	42511.98	-47445.37	-2.42	-42292.25	47436.14	157.81	0.423%
19	37075.71	-47814.88	21400.09	-36867.81	47804.63	-21279.96	0.374%
20	21253.90	-47445.37	36808.00	-21009.71	47436.13	-36695.28	0.422%
21	-2.42	-47075.87	42451.61	5.33	47066.52	-42156.81	0.465%
22	-21258.08	-47445.37	36810.41	21014.97	47436.10	-36696.94	0.421%
23	-37078.12	-47814.88	21404.27	36860.22	47804.16	-21277.82	0.393%
24	-42511.98	-47445.37	2.42	42293.08	47436.20	152.47	0.421%
25	-36770.22	-47075.87	-21223.71	36518.25	47066.46	21068.73	0.467%
26	-21253.90	-47445.37	-36808.00	21277.58	47436.31	36549.16	0.408%
27	0.74	-23965.96	-11682.30	-0.67	23965.72	11603.89	0.294%
28	5825.81	-23902.95	-10087.63	-5788.85	23902.65	10024.97	0.274%
29	10082.83	-23839.93	-5820.46	-10018.79	23839.56	5783.31	0.279%
30	11650.34	-23902.95	-0.74	-11571.69	23902.63	-0.26	0.296%
31	10119.02	-23965.96	5840.50	-10051.32	23965.72	-5801.72	0.293%
32	5824.52	-23902.95	10086.89	-5785.83	23902.64	-10018.74	0.295%
33	-0.74	-23839.93	11639.64	0.83	23839.57	-11566.07	0.277%
34	-5825.81	-23902.95	10087.63	5787.27	23902.64	-10019.47	0.294%
35	-10119.77	-23965.96	5841.79	10052.16	23965.72	-5802.97	0.292%
36	-11650.34	-23902.95	0.74	11571.78	23902.64	-1.75	0.295%
37	-10082.08	-23839.93	-5819.18	10018.16	23839.57	5781.99	0.279%
38	-5824.52	-23902.95	-10086.89	5787.71	23902.65	10024.19	0.273%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
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	Project	Bozrah, CT	Date	17:13:06 10/21/11
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1	Yes	112	0.00000001	0.00095358
2	Yes	278	0.00096261	0.00045769
3	Yes	266	0.00099393	0.00047025
4	Yes	237	0.00095055	0.00058971
5	Yes	266	0.00098297	0.00046490
6	Yes	277	0.00099617	0.00047286
7	Yes	266	0.00098450	0.00046503
8	Yes	237	0.00094892	0.00058764
9	Yes	266	0.00098556	0.00046548
10	Yes	277	0.00099383	0.00047435
11	Yes	266	0.00098129	0.00046390
12	Yes	237	0.00095031	0.00058925
13	Yes	266	0.00099116	0.00046877
14	Yes	112	0.00000001	0.00094469
15	Yes	277	0.00097748	0.00036423
16	Yes	266	0.00098290	0.00037511
17	Yes	237	0.00097077	0.00055631
18	Yes	265	0.00099538	0.00037605
19	Yes	277	0.00096257	0.00035561
20	Yes	265	0.00099735	0.00037676
21	Yes	237	0.00096491	0.00055035
22	Yes	265	0.00099753	0.00037684
23	Yes	276	0.00099667	0.00036657
24	Yes	265	0.00099081	0.00037373
25	Yes	237	0.00096939	0.00055535
26	Yes	266	0.00097856	0.00037290
27	Yes	228	0.00098636	0.00026136
28	Yes	229	0.00094604	0.00025269
29	Yes	229	0.00095583	0.00025775
30	Yes	228	0.00099882	0.00026574
31	Yes	228	0.00098359	0.00025950
32	Yes	228	0.00099760	0.00026443
33	Yes	229	0.00095325	0.00025549
34	Yes	228	0.00099669	0.00026409
35	Yes	228	0.00098243	0.00025904
36	Yes	228	0.00099796	0.00026520
37	Yes	229	0.00095553	0.00025730
38	Yes	229	0.00094611	0.00025242

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	187 - 180	3.886	29	0.3494	0.0293
T2	180 - 160	3.355	29	0.3448	0.0286
T3	160 - 140	2.021	29	0.2404	0.0258
T4	140 - 120	1.301	29	0.1334	0.0398
T5	120 - 100	0.897	29	0.0528	0.0501
T6	100 - 80	0.832	37	0.0073	0.0993
T7	80 - 60	0.805	37	0.0142	0.1376
T8	60 - 40	0.725	33	0.0155	0.1654
T9	40 - 20	0.662	35	0.0342	0.1871
T10	20 - 0	0.425	35	0.0810	0.1999

Critical Deflections and Radius of Curvature - Service Wind

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Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
187.00	Sector Frame	29	3.886	0.3494	0.0293	70534
180.00	Sector Frame	29	3.355	0.3448	0.0286	43394
173.00	Sector Frame	29	2.838	0.3197	0.0267	13243
160.38	Guy	29	2.040	0.2428	0.0256	5950
152.00	Sector Frame	29	1.670	0.1935	0.0309	8312
136.00	(2) Antel LPA-80080-4CF	29	1.199	0.1154	0.0411	23020
120.38	Guy	29	0.901	0.0541	0.0496	10480
60.38	Guy	33	0.726	0.0154	0.1649	56810

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	187 - 180	15.174	15	1.2811	0.1801
T2	180 - 160	13.396	15	1.2680	0.1815
T3	160 - 140	8.815	15	0.9628	0.2001
T4	140 - 120	6.063	15	0.6167	0.2167
T5	120 - 100	4.649	26	0.2890	0.2348
T6	100 - 80	4.515	16	0.0677	0.4694
T7	80 - 60	4.341	15	0.0957	0.5711
T8	60 - 40	4.001	23	0.1126	0.6436
T9	40 - 20	3.556	23	0.2070	0.7698
T10	20 - 0	2.217	23	0.4338	0.8133

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
187.00	Sector Frame	15	15.174	1.2811	0.1801	25746
180.00	Sector Frame	15	13.396	1.2680	0.1815	15614
173.00	Sector Frame	15	11.651	1.1956	0.1755	4613
160.38	Guy	15	8.885	0.9699	0.1995	2016
152.00	Sector Frame	15	7.520	0.8190	0.2107	2661
136.00	(2) Antel LPA-80080-4CF	16	5.674	0.5493	0.2159	5210
120.38	Guy	26	4.663	0.2947	0.2324	2356
60.38	Guy	23	4.007	0.1122	0.6414	11926

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	187	Leg	A325N	0.7500	4	7.93	19434.80	0.000	1.333	Bolt Tension

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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
T2	180	Leg	A325N	0.7500	4	1368.67	19414.60	0.070 ✓	1.333	Bolt Tension
		Top Guy Pull-Off@160.375	A325N	0.7500	2	5186.51	9277.52	0.559 ✓	1.333	Bolt Shear
		Torque Arm Top@160.375	A325N	0.7500	2	7744.07	9277.52	0.835 ✓	1.333	Bolt Shear
		Torque Arm Bottom@160.375	A325N	0.7500	2	6426.16	9277.52	0.693 ✓	1.333	Bolt Shear
T3	160	Leg	A325N	0.7500	4	7108.32	19421.20	0.366 ✓	1.333	Bolt Tension
T4	140	Leg	A325N	0.7500	4	1474.74	19435.60	0.076 ✓	1.333	Bolt Tension
		Top Guy Pull-Off@120.375	A325N	0.7500	2	3317.29	9277.52	0.358 ✓	1.333	Bolt Shear
		Torque Arm Top@120.375	A325N	0.7500	2	4166.33	9277.52	0.449 ✓	1.333	Bolt Shear
		Torque Arm Bottom@120.375	A325N	0.7500	2	4142.78	9277.52	0.447 ✓	1.333	Bolt Shear
T5	120	Leg	A325N	0.7500	4	828.20	19425.30	0.043 ✓	1.333	Bolt Tension
T6	100	Leg	A325N	0.7500	4	0.00	19426.10	0.000 ✓	1.333	Bolt Tension
T7	80	Leg	A325N	0.7500	4	0.00	19436.80	0.000 ✓	1.333	Bolt Tension
T8	60	Leg	A325N	0.7500	4	0.00	19397.80	0.000 ✓	1.333	Bolt Tension
T9	40	Leg	A325N	0.7500	4	0.00	19435.20	0.000 ✓	1.333	Bolt Tension
T10	20	Leg	A325N	0.7500	4	0.00	19436.10	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.
T2	160.38 (A) (577)	5/8 EHS	6360.00	42399.99	16976.30	21200.00	2.000	2.498 ✓
	160.38 (A) (578)	5/8 EHS	6360.00	42399.99	17267.40	21200.00	2.000	2.455 ✓
	160.38 (B) (571)	5/8 EHS	6360.00	42399.99	17229.40	21200.00	2.000	2.461 ✓
	160.38 (B) (572)	5/8 EHS	6360.00	42399.99	17130.60	21200.00	2.000	2.475 ✓
	160.38 (C) (565)	5/8 EHS	6360.00	42399.99	17291.20	21200.00	2.000	2.452 ✓
	160.38 (C) (566)	5/8 EHS	6360.00	42399.99	17098.70	21200.00	2.000	2.480 ✓
T4	120.38 (A) (595)	9/16 EHS	4025.00	35000.04	10740.30	17500.00	2.000	3.259 ✓
	120.38 (A) (596)	9/16 EHS	4025.00	35000.04	11160.20	17500.00	2.000	3.136 ✓
	120.38 (B) (589)	9/16 EHS	4025.00	35000.04	11002.80	17500.00	2.000	3.181 ✓

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Section No.	Elevation ft	Size	Initial Tension lb	Breaking Load lb	Actual T lb	Allowable T_a lb	Required S.F.	Actual S.F.
T7	120.38 (B) (590)	9/16 EHS	4025.00	35000.04	10937.90	17500.00	2.000	3.200 ✓
	120.38 (C) (583)	9/16 EHS	4025.00	35000.04	11149.60	17500.00	2.000	3.139 ✓
	120.38 (C) (584)	9/16 EHS	4025.00	35000.04	10795.10	17500.00	2.000	3.242 ✓
	60.38 (A) (603)	9/16 EHS	4025.00	35000.04	12325.00	17500.00	2.000	2.840 ✓
	60.38 (B) (602)	9/16 EHS	4025.00	35000.04	12318.50	17500.00	2.000	2.841 ✓
	60.38 (C) (601)	9/16 EHS	4025.00	35000.04	12320.80	17500.00	2.000	2.841 ✓

Compression Checks

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	187 - 180	P2.5x.203	7.00	2.85	36.1 K=1.00	1.00	28.272	1.7040	-9279.51	48176.80	0.193
T2	180 - 160	P2.5x.203	20.00	3.21	40.6 K=1.00	1.00	30.219	1.7040	-60385.90	51494.50	1.173 ✓
T3	160 - 140	P2.5x.203	20.00	3.21	40.6 K=1.00	1.00	30.219	1.7040	-57918.20	51494.50	1.125 ✓
T4	140 - 120	P2.5x.203	20.00	3.21	40.6 K=1.00	1.00	30.219	1.7040	-64141.30	51494.50	1.246 ✓
T5	120 - 100	P2.5x.203	20.00	3.21	40.6 K=1.00	0.99	30.017	1.7040	-62270.50	51150.00	1.217 ✓
T6	100 - 80	P2.5x.203	20.00	3.21	40.6 K=1.00	0.99	29.885	1.7040	-40417.50	50924.80	0.794 ✓
T7	80 - 60	P2.5x.203	20.00	3.21	40.6 K=1.00	0.99	29.876	1.7040	-39664.90	50909.90	0.779 ✓
T8	60 - 40	P2.5x.203	20.00	3.21	40.6 K=1.00	0.99	29.883	1.7040	-51384.90	50921.60	1.009 ✓
T9	40 - 20	P2.5x.203	20.00	3.21	40.6 K=1.00	0.99	29.905	1.7040	-56066.30	50959.50	1.100 ✓
T10	20 - 0	P2.5x.203	20.00	3.21	40.6 K=1.00	0.99	29.887	1.7040	-54259.20	50929.60	1.065 ✓

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 $\frac{P}{P_a}$
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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P lb	Allow. P _a lb	Ratio P P _a
T1	187 - 180	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	14.594	0.5273	-5261.60	7695.87	0.684*
T2	180 - 160	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	14.594	0.5273	-4645.14	7695.87	0.604*
T3	160 - 140	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	14.594	0.5273	-3794.16	7695.87	0.493*
T4	140 - 120	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	14.594	0.5273	-3709.81	7695.87	0.482*
T5	120 - 100	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	14.594	0.5273	-4703.84	7695.87	0.611
T6	100 - 80	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	14.594	0.5273	-3178.81	7695.87	0.413*
T7	80 - 60	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	14.594	0.5273	-3239.19	7695.87	0.421*
T8	60 - 40	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	14.594	0.5273	-3004.22	7695.87	0.390*
T9	40 - 20	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	14.594	0.5273	-2929.85	7695.87	0.381*
T10	20 - 0	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	14.594	0.5273	-2970.07	7695.87	0.386*

* DL controls

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 P P _a
T1	187 - 180	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	14.594	0.5273	-2654.57	7695.87	0.345*
T2	180 - 160	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	14.594	0.5273	-2442.15	7695.87	0.317*
T3	160 - 140	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	14.594	0.5273	-3831.94	7695.87	0.498
T4	140 - 120	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	14.594	0.5273	-1966.69	7695.87	0.256*
T5	120 - 100	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	14.594	0.5273	-3410.12	7695.87	0.443
T6	100 - 80	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	14.594	0.5273	-1679.81	7695.87	0.218*
T7	80 - 60	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	14.594	0.5273	-1658.58	7695.87	0.216*
T8	60 - 40	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	14.594	0.5273	-1419.23	7695.87	0.184*
T9	40 - 20	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	14.594	0.5273	-1548.71	7695.87	0.201*
T10	20 - 0	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	14.594	0.5273	-1526.75	7695.87	0.198*

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* DL controls

Bottom Girt Design Data (Compression)

Section No.	Elevation <i>ft</i>	Size	L <i>ft</i>	L _u <i>ft</i>	Kl/r	F _a <i>ksi</i>	A <i>in²</i>	Actual P <i>lb</i>	Allow. P _a <i>lb</i>	Ratio $\frac{P}{P_a}$
T1	187 - 180	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	14.594	0.5273	-2661.48	7695.87	0.346*
T2	180 - 160	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	14.594	0.5273	-4923.00	7695.87	0.640 ✓
T3	160 - 140	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	14.594	0.5273	-1968.52	7695.87	0.256* ✓
T4	140 - 120	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	14.594	0.5273	-4512.87	7695.87	0.586 ✓
T5	120 - 100	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	14.594	0.5273	-1680.99	7695.87	0.218* ✓
T6	100 - 80	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	14.594	0.5273	-1659.57	7695.87	0.216* ✓
T8	60 - 40	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	14.594	0.5273	-1550.06	7695.87	0.201* ✓
T9	40 - 20	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	14.594	0.5273	-1528.25	7695.87	0.199* ✓
T10	20 - 0	L1 1/2x1 1/2x3/16	3.50	3.26	86.7 K=0.65	14.594	0.5273	-347.83	7695.87	0.045* ✓

* DL controls

Top Guy Pull-Off Design Data (Compression)

Section No.	Elevation <i>ft</i>	Size	L <i>ft</i>	L _u <i>ft</i>	Kl/r	F _a <i>ksi</i>	A <i>in²</i>	Actual P <i>lb</i>	Allow. P _a <i>lb</i>	Ratio $\frac{P}{P_a}$
T2	180 - 160	L2x2x5/16	3.50	3.26	100.3 K=1.00	12.937	1.1500	-10373.00	14877.70	0.697 ✓
T4	140 - 120	L2x2x5/16	3.50	3.26	100.3 K=1.00	12.937	1.1500	-6634.59	14877.70	0.446 ✓
T7	80 - 60	L1 1/2x1 1/2x3/16	3.50	3.26	133.4 K=1.00	8.395	0.5273	-841.88	4427.01	0.190 ✓

Torque-Arm Bottom Design Data

Section No.	Elevation <i>ft</i>	Size	L <i>ft</i>	L _u <i>ft</i>	Kl/r	F _a <i>ksi</i>	A <i>in²</i>	Actual P <i>lb</i>	Allow. P _a <i>lb</i>	Ratio $\frac{P}{P_a}$
T2	180 - 160 (569)	L3x3x1/4	3.50	3.38	68.5 K=1.00	16.584	1.4400	-12852.30	23880.20	0.538 ✓

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P lb	Allow. P _a lb	Ratio P/P _a
T2	180 - 160 (570)	L3x3x1/4	3.50	3.38	68.5 K=1.00	16.584	1.4400	-12732.80	23880.20	0.533
T2	180 - 160 (575)	L3x3x1/4	3.50	3.38	68.5 K=1.00	16.584	1.4400	-12648.20	23880.20	0.530
T2	180 - 160 (576)	L3x3x1/4	3.50	3.38	68.5 K=1.00	16.584	1.4400	-12698.50	23880.20	0.532
T2	180 - 160 (581)	L3x3x1/4	3.50	3.38	68.5 K=1.00	16.584	1.4400	-12677.80	23880.20	0.531
T2	180 - 160 (582)	L3x3x1/4	3.50	3.38	68.5 K=1.00	16.584	1.4400	-12528.60	23880.20	0.525
T4	140 - 120 (587)	L3x3x1/4	3.50	3.38	68.5 K=1.00	16.584	1.4400	-8285.56	23880.20	0.347
T4	140 - 120 (588)	L3x3x1/4	3.50	3.38	68.5 K=1.00	16.584	1.4400	-8203.82	23880.20	0.344
T4	140 - 120 (593)	L3x3x1/4	3.50	3.38	68.5 K=1.00	16.584	1.4400	-7813.40	23880.20	0.327
T4	140 - 120 (594)	L3x3x1/4	3.50	3.38	68.5 K=1.00	16.584	1.4400	-7799.86	23880.20	0.327
T4	140 - 120 (599)	L3x3x1/4	3.50	3.38	68.5 K=1.00	16.584	1.4400	-7827.86	23880.20	0.328
T4	140 - 120 (600)	L3x3x1/4	3.50	3.38	68.5 K=1.00	16.584	1.4400	-7759.22	23880.20	0.325

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 P/P _a
T1	187 - 180	P2.5x.203	7.00	2.85	36.1	32.400	1.7040	5475.12	55211.20	0.099
T2	180 - 160	P2.5x.203	20.00	3.21	40.6	36.000	1.7040	33610.20	61345.80	0.548
T3	160 - 140	P2.5x.203	20.00	3.21	40.6	36.000	1.7040	28433.30	61345.80	0.463
T4	140 - 120	P2.5x.203	20.00	3.21	40.6	36.000	1.7040	6270.96	61345.80	0.102
T5	120 - 100	P2.5x.203	20.00	3.21	40.6	36.000	1.7040	3312.78	61345.80	0.054

Diagonal Design Data (Tension)

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P lb	Allow. P _a lb	Ratio P P _a
T1	187 - 180	5/8	4.51	4.20	322.9	21.600	0.3068	4924.57	6626.80	0.743
T2	180 - 160	5/8	4.75	4.42	339.7	21.600	0.3068	8148.38	6626.80	1.230
T3	160 - 140	5/8	4.75	4.42	339.7	21.600	0.3068	5593.27	6626.80	0.844
T4	140 - 120	5/8	4.75	4.42	339.7	21.600	0.3068	4073.00	6626.80	0.615
T5	120 - 100	5/8	4.75	4.42	339.7	21.600	0.3068	7077.96	6626.80	1.068
T6	100 - 80	5/8	4.75	4.42	339.7	21.600	0.3068	3657.26	6626.80	0.552
T7	80 - 60	5/8	4.75	4.42	339.7	21.600	0.3068	3537.85	6626.80	0.534
T8	60 - 40	5/8	4.75	4.42	339.7	21.600	0.3068	5056.70	6626.80	0.763
T9	40 - 20	5/8	4.75	4.42	339.7	21.600	0.3068	2103.36	6626.80	0.317*
T10	20 - 0	5/8	4.75	4.42	339.7	21.600	0.3068	3405.15	6626.80	0.514

* DL controls

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 P P _a
T1	187 - 180	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	21.600	0.5273	160.73	11390.60	0.014
T2	180 - 160	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	21.600	0.5273	1045.92	11390.60	0.092
T3	160 - 140	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	21.600	0.5273	1003.17	11390.60	0.088
T4	140 - 120	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	21.600	0.5273	1110.96	11390.60	0.098
T5	120 - 100	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	21.600	0.5273	1078.56	11390.60	0.095
T6	100 - 80	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	21.600	0.5273	700.05	11390.60	0.061
T7	80 - 60	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	21.600	0.5273	525.14	11390.60	0.046*
T8	60 - 40	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	21.600	0.5273	890.01	11390.60	0.078
T9	40 - 20	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	21.600	0.5273	971.10	11390.60	0.085
T10	20 - 0	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	21.600	0.5273	939.80	11390.60	0.083

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* DL controls

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 $\frac{P}{P_a}$
T3	160 - 140	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	21.600	0.5273	214.12	11390.60	0.019
T5	120 - 100	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	21.600	0.5273	394.84	11390.60	0.035

Bottom 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 $\frac{P}{P_a}$
T2	180 - 160	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	21.600	0.5273	1266.06	11390.60	0.111
T4	140 - 120	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	21.600	0.5273	1222.58	11390.60	0.107
T10	20 - 0	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	21.600	0.5273	357.37	11390.60	0.031

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 $\frac{P}{P_a}$
T2	180 - 160	L2x2x5/16	3.50	3.26	65.1	29.000	0.6574	1601.17	19065.20	0.084
T7	80 - 60	L1 1/2x1 1/2x3/16	3.50	3.26	85.7	21.600	0.5273	3658.91	11390.60	0.321

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 $\frac{P}{P_a}$
T2	180 - 160 (567)	L3x3x1/4	4.75	4.59	59.2	29.000	0.9159	15360.70	26562.20	0.578
T2	180 - 160 (568)	L3x3x1/4	4.75	4.59	59.2	29.000	0.9159	15200.60	26562.20	0.572
T2	180 - 160 (573)	L3x3x1/4	4.75	4.59	59.2	29.000	0.9159	15216.30	26562.20	0.573

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P lb	Allow. P _a lb	Ratio P P _a
T2	180 - 160 (574)	L3x3x1/4	4.75	4.59	59.2	29.000	0.9159	15488.10	26562.20	0.583
T2	180 - 160 (579)	L3x3x1/4	4.75	4.59	59.2	29.000	0.9159	15203.00	26562.20	0.572
T2	180 - 160 (580)	L3x3x1/4	4.75	4.59	59.2	29.000	0.9159	15314.70	26562.20	0.577
T4	140 - 120 (585)	L3x3x1/4	4.75	4.59	59.2	29.000	0.9159	8332.66	26562.20	0.314
T4	140 - 120 (586)	L3x3x1/4	4.75	4.59	59.2	29.000	0.9159	8195.75	26562.20	0.309
T4	140 - 120 (591)	L3x3x1/4	4.75	4.59	59.2	29.000	0.9159	8241.10	26562.20	0.310
T4	140 - 120 (592)	L3x3x1/4	4.75	4.59	59.2	29.000	0.9159	8246.24	26562.20	0.310
T4	140 - 120 (597)	L3x3x1/4	4.75	4.59	59.2	29.000	0.9159	8324.38	26562.20	0.313
T4	140 - 120 (598)	L3x3x1/4	4.75	4.59	59.2	29.000	0.9159	8191.59	26562.20	0.308



Torque-Arm Bottom 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 P P _a
T2	180 - 160 (569)	L3x3x1/4	3.50	3.38	43.6	29.000	0.9159	4921.60	26562.20	0.185
T2	180 - 160 (570)	L3x3x1/4	3.50	3.38	43.6	29.000	0.9159	4949.65	26562.20	0.186
T2	180 - 160 (575)	L3x3x1/4	3.50	3.38	43.6	29.000	0.9159	4862.67	26562.20	0.183
T2	180 - 160 (576)	L3x3x1/4	3.50	3.38	43.6	29.000	0.9159	4867.44	26562.20	0.183
T2	180 - 160 (581)	L3x3x1/4	3.50	3.38	43.6	29.000	0.9159	4897.42	26562.20	0.184
T2	180 - 160 (582)	L3x3x1/4	3.50	3.38	43.6	29.000	0.9159	4920.61	26562.20	0.185
T4	140 - 120 (587)	L3x3x1/4	3.50	3.38	43.6	29.000	0.9159	4938.17	26562.20	0.186
T4	140 - 120 (588)	L3x3x1/4	3.50	3.38	43.6	29.000	0.9159	5010.62	26562.20	0.189
T4	140 - 120 (593)	L3x3x1/4	3.50	3.38	43.6	29.000	0.9159	4589.68	26562.20	0.173
T4	140 - 120 (594)	L3x3x1/4	3.50	3.38	43.6	29.000	0.9159	4791.26	26562.20	0.180
T4	140 - 120 (599)	L3x3x1/4	3.50	3.38	43.6	29.000	0.9159	4762.94	26562.20	0.179
T4	140 - 120 (600)	L3x3x1/4	3.50	3.38	43.6	29.000	0.9159	4634.60	26562.20	0.174



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Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	SF*P _{allow} lb	% Capacity	Pass Fail	
T1	187 - 180	Leg	P2.5x.203	3	-9279.51	64219.67	14.4	Pass	
		Diagonal	5/8	13	4924.57	8833.52	55.7	Pass	
		Horizontal	L1 1/2x1 1/2x3/16	16	-5261.60	7695.87	68.4	Pass	
		Top Girt	L1 1/2x1 1/2x3/16	4	-2654.57	7695.87	34.5	Pass	
		Bottom Girt	L1 1/2x1 1/2x3/16	9	-2661.48	7695.87	34.6	Pass	
T2	180 - 160	Leg	P2.5x.203	27	-60385.90	68642.17	88.0	Pass	
		Diagonal	5/8	48	8148.38	8833.52	92.2	Pass	
		Horizontal	L1 1/2x1 1/2x3/16	76	-4645.14	7695.87	60.4	Pass	
		Top Girt	L1 1/2x1 1/2x3/16	28	-2442.15	7695.87	31.7	Pass	
		Bottom Girt	L1 1/2x1 1/2x3/16	31	-4923.00	10258.59	48.0	Pass	
		Guy A@160.375	5/8	578	17267.40	21200.00	81.4	Pass	
		Guy B@160.375	5/8	571	17229.40	21200.00	81.3	Pass	
		Guy C@160.375	5/8	565	17291.20	21200.00	81.6	Pass	
		Top Guy	L2x2x5/16	40	-10373.00	19831.97	52.3	Pass	
		Pull-Off@160.375							
		Torque Arm Top@160.375	L3x3x1/4	574	15488.10	35407.41	43.7	Pass	
		Torque Arm Bottom@160.375	L3x3x1/4	569	-12852.30	31832.30	40.4	Pass	
		T3	160 - 140	Leg	P2.5x.203	87	-57918.20	68642.17	84.4
Diagonal	5/8			143	5593.27	8833.52	63.3	Pass	
Horizontal	L1 1/2x1 1/2x3/16			136	-3794.16	7695.87	49.3	Pass	
Top Girt	L1 1/2x1 1/2x3/16			88	-3831.94	10258.59	37.4	Pass	
Bottom Girt	L1 1/2x1 1/2x3/16			92	-1968.52	7695.87	25.6	Pass	
T4	140 - 120	Leg	P2.5x.203	147	-64141.30	68642.17	93.4	Pass	
		Diagonal	5/8	164	4073.00	8833.52	46.1	Pass	
		Horizontal	L1 1/2x1 1/2x3/16	197	-3709.81	7695.87	48.2	Pass	
		Top Girt	L1 1/2x1 1/2x3/16	148	-1966.69	7695.87	25.6	Pass	
		Bottom Girt	L1 1/2x1 1/2x3/16	151	-4512.87	10258.59	44.0	Pass	
		Guy A@120.375	9/16	596	11160.20	17500.00	63.8	Pass	
		Guy B@120.375	9/16	589	11002.80	17500.00	62.9	Pass	
		Guy C@120.375	9/16	583	11149.60	17500.00	63.7	Pass	
		Top Guy	L2x2x5/16	161	-6634.59	19831.97	33.5	Pass	
		Pull-Off@120.375							
		Torque Arm Top@120.375	L3x3x1/4	585	8332.66	35407.41	23.5	Pass	
		Torque Arm Bottom@120.375	L3x3x1/4	587	-8285.56	31832.30	26.0	Pass	
		T5	120 - 100	Leg	P2.5x.203	207	-62270.50	68182.95	91.3
Diagonal	5/8			263	7077.96	8833.52	80.1	Pass	
Horizontal	L1 1/2x1 1/2x3/16			258	-4703.84	10258.59	45.9	Pass	
Top Girt	L1 1/2x1 1/2x3/16			208	-3410.12	10258.59	33.2	Pass	
Bottom Girt	L1 1/2x1 1/2x3/16			212	-1680.99	7695.87	21.8	Pass	
T6	100 - 80	Leg	P2.5x.203	267	-40417.50	67882.76	59.5	Pass	
		Diagonal	5/8	323	3657.26	8833.52	41.4	Pass	
		Horizontal	L1 1/2x1 1/2x3/16	317	-3178.81	7695.87	41.3	Pass	
		Top Girt	L1 1/2x1 1/2x3/16	268	-1679.81	7695.87	21.8	Pass	
		Bottom Girt	L1 1/2x1 1/2x3/16	272	-1659.57	7695.87	21.6	Pass	
T7	80 - 60	Leg	P2.5x.203	327	-39664.90	67862.89	58.4	Pass	
		Diagonal	5/8	337	3537.85	8833.52	40.1	Pass	
		Horizontal	L1 1/2x1 1/2x3/16	340	-3239.19	7695.87	42.1	Pass	
		Top Girt	L1 1/2x1 1/2x3/16	328	-1658.58	7695.87	21.6	Pass	
		Guy A@60.375	9/16	603	12325.00	17500.00	70.4	Pass	
		Guy B@60.375	9/16	602	12318.50	17500.00	70.4	Pass	
		Guy C@60.375	9/16	601	12320.80	17500.00	70.4	Pass	
		Top Guy	L1 1/2x1 1/2x3/16	331	3658.91	15183.67	24.1	Pass	

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Section No.	Elevation ft	Componem Type	Size	Critical Element	P lb	SF*Pallow lb	% Capacity	Pass Fail
T8	60 - 40	Pull-Off@60.375						
		Leg	P2.5x.203	387	-51384.90	67878.49	75.7	Pass
		Diagonal	5/8	443	5056.70	8833.52	57.2	Pass
		Horizontal	L1 1/2x1 1/2x3/16	437	-3004.22	7695.87	39.0	Pass
		Top Girt	L1 1/2x1 1/2x3/16	388	-1419.23	7695.87	18.4	Pass
T9	40 - 20	Bottom Girt	L1 1/2x1 1/2x3/16	392	-1550.06	7695.87	20.1	Pass
		Leg	P2.5x.203	447	-56066.30	67929.01	82.5	Pass
		Diagonal	5/8	503	2103.36	6626.80	31.7	Pass
		Horizontal	L1 1/2x1 1/2x3/16	497	-2929.85	7695.87	38.1	Pass
		Top Girt	L1 1/2x1 1/2x3/16	448	-1548.71	7695.87	20.1	Pass
T10	20 - 0	Bottom Girt	L1 1/2x1 1/2x3/16	452	-1528.25	7695.87	19.9	Pass
		Leg	P2.5x.203	507	-54259.20	67889.16	79.9	Pass
		Diagonal	5/8	517	3405.15	8833.52	38.5	Pass
		Horizontal	L1 1/2x1 1/2x3/16	521	-2970.07	7695.87	38.6	Pass
		Top Girt	L1 1/2x1 1/2x3/16	508	-1526.75	7695.87	19.8	Pass
		Bottom Girt	L1 1/2x1 1/2x3/16	512	-347.83	7695.87	4.5	Pass
Summary								
		Leg (T4)				93.4		Pass
		Diagonal (T2)				92.2		Pass
		Horizontal (T1)				68.4		Pass
		Top Girt (T3)				37.4		Pass
		Bottom Girt (T2)				48.0		Pass
		Guy A (T2)				81.4		Pass
		Guy B (T2)				81.3		Pass
		Guy C (T2)				81.6		Pass
		Top Guy				52.3		Pass
		Pull-Off (T2)						
		Torque Arm Top (T2)				62.6		Pass
		Torque Arm Bottom (T2)				52.0		Pass
		Bolt Checks				62.6		Pass
		RATING =				93.4		Pass

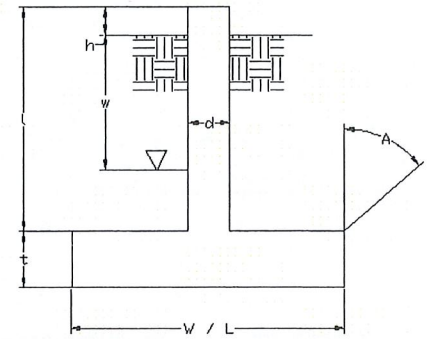
Site Name: **Bozrah**
 Client: **Mark Legault**
 Job Number: **111-13175**
 Engineer: **BKL**
 Date: **10/19/2011**

Design Base Loads (Unfactored) per TIA-222-F

Foundation Mapped:	N		
Moment (M):	0.0 k-ft	Concrete Compressive Strength (f'_c):	3000 psi
Shear/Leg (V):	3.0 k	Vertical Steel Rebar Size #:	5
Compression/Leg (P):	114.7 k	Vertical Steel Rebar Area:	0.31 in ²
Uplift/Leg (U):	0.0 k	# of Vertical Steel Rebars:	8
Tower Type (GT / SST):	SST	Vertical Steel Rebar Yield Strength (F_y):	60 ksi
Diameter of Prismatic Portion of Pier (d):	2.0 ft	Tie / Stirrup Size #:	4
Depth to Base of Foundation:	4.5 ft	Tie / Stirrup Area:	0.20 in ²
Pier Height Above Ground (h):	1.00 ft	Tie / Stirrup Spacing:	10.0 in
Length / Width of Pad (w):	5.5 ft	Tie / Stirrup Steel Yield Strength (F_y):	40 ksi
Thickness of Pad (t):	1.5 ft	Rebar Cage Diameter:	16.0 in
Depth Below Ground Surface to Water Table (w):	20.0 ft	Bending/Tension Reduction Factor (ϕ_B):	0.90
Unit Weight of Concrete:	150.0 pcf	Shear Reduction Factor (ϕ_V):	0.75
Unit Weight of Water:	62.4 pcf	Compression Reduction Factor (ϕ_C):	0.65
Unit Weight of Soil Above Water Table:	100.0 pcf	Wind Design Factor:	1.30
Unit Weight of Soil Below Water Table:	50.0 pcf	Steel Elastic Modulus:	29000 ksi
Friction Angle of Uplift from Top of Pad:	30 Degrees	Pad Steel Rebar Size #:	5
Friction Angle of Uplift from Base of Pad:	30 Degrees	Pad Steel Rebar Area:	0.31 in ²
Uplift Angle Started at Top or Base of Pad (T/B):	T	Pad Steel Rebar Yield Strength (F_y):	60 ksi
Allowable Skin Friction:	0 psf	# of Rebar in Top of Pad:	8
Allowable Compressive Bearing Pressure:	4750 psf	# of Rebar in Base of Pad:	10
Capacity Increase (Due to Transient Loads):	1.00	Pad Clear Cover:	3 in

Axial Capacities and Design Moment

Weight of Concrete (Bouyancy Considered):	8.7 k
Weight of Soil (Bouyancy Considered):	15.0 k
Allowable Skin Friction Resistance:	0.0 k
Controlling Failure Mode (Top / Base):	Top
Allowable Uplift Capacity per Leg:	14.5 k
Compressive Design Load:	117.9 k
Allowable Compression Capacity per Leg:	143.7 k
Uplift Design Load/Uplift Capacity:	0.00 Result: OK
Compression Design Load/Compression Capacity:	0.82 Result: OK



Depth (ft)		Ultimate Lateral Bearing Pressure (psf)	Increment (psf/ft)	γ_{Soil} (pcf)	Cohesion (psf)	ϕ (degree)
Top	Bottom					
0.0	2.0	0.0	115.0	115	0	0
2.0	3.0	885.9	443.0	115	0	36

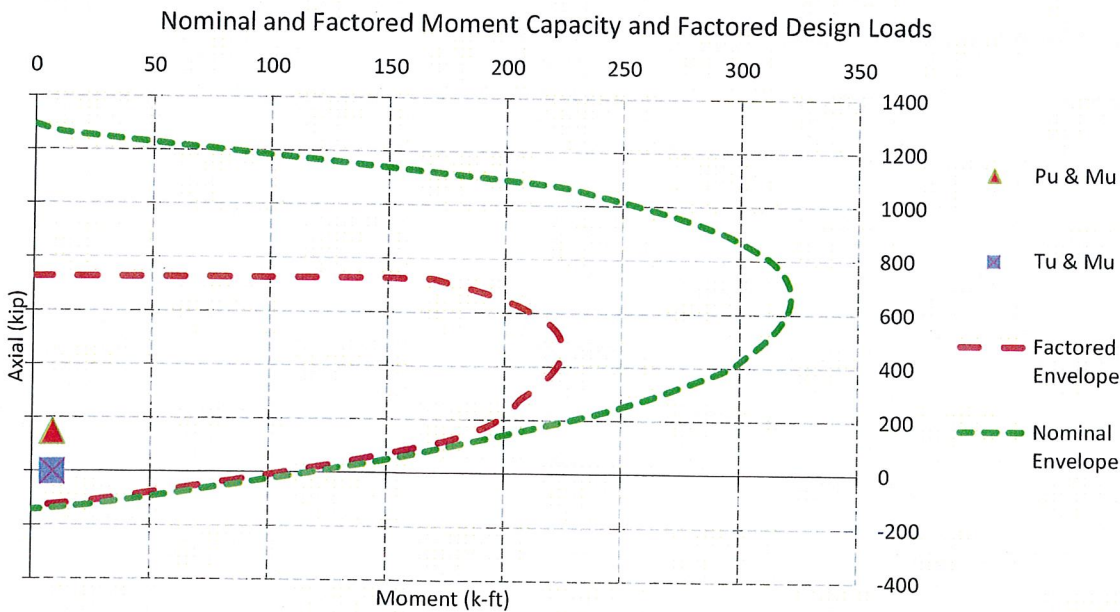
Inflection Point (Below Ground Surface): 3.0 ft
 Unfactored Design Moment At Inflection Point: 6.8 k-ft

Pad Strength Capacity

β :	0.85 ACI318-05 - 10.2.7.3
Lower Pad Flexural Reinforcement Ratio:	0.0033 OK - Minimum Reinforcement Ratio Met - ACI10.5.1
Upper Pad Flexural Reinforcement Ratio:	0.0000 OK - Minimum Reinforcement Ratio Met - ACI10.5.1
Lower Pad Flexural Reinforcement Spacing:	7 in - Pad Reinforcing Spacing OK - ACI7.12.2.2 & 10.5.4
Upper Pad Flexural Reinforcement Spacing:	0 in - Pad Reinforcing Spacing OK - ACI7.12.2.2 & 10.5.4
One Way Design Shear (V_u):	14.7 k
One Way Shear Capacity (ϕV_c):	81.2 k - ACI318-05 - 11.3.1.1
$V_u / \phi V_c$:	0.18 Result: OK
Punching Design Shear (V_u):	107.7 k
Nominal Punching Shear Capacity ($\phi_c V_n$):	293.3 k - ACI318-05 - 11.12.2.1
$V_u / \phi V_c$:	0.37 Result: OK
Flexural Loading Due to Soil Pressure (M_u):	42.7 k-ft
Lower Steel Pad Moment Capacity (ϕM_n):	197.2 k-ft - ACI318-05 - 10.3
$M_u / \phi M_n$:	0.22 Result: OK
Flexural Loading Due to Uplift (M_u):	0.0 k-ft
Upper Steel Pad Moment Capacity (ϕM_n):	0.0 k-ft - ACI318-05 - 10.3
$M_u / \phi M_n$:	0.00 Result: OK

Pier Strength Capacity

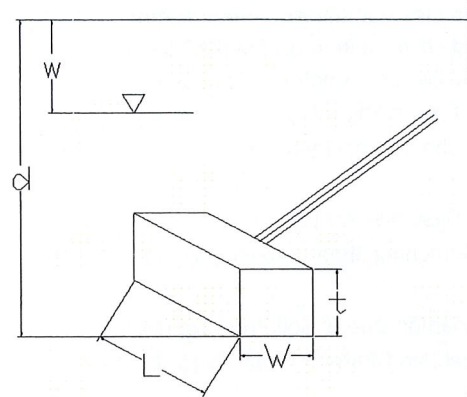
Design Moment (M_u):	8.8 k-ft
Nominal Moment Capacity ($\phi_B M_n$):	88.9 k-ft - ACI318-005 - 10.2
$M_u / \phi_B M_n$:	0.10 Result: OK
Design Shear (V_u):	3.9 k
Nominal Shear Capacity ($\phi_V V_n$):	67.9 k - ACI318-05 - 11.3.1.1 or 11.5.7.2
$V_u / \phi_V V_n$:	0.06 Result: OK
Design Tension (T_u):	0.0 k
Nominal Tension Capacity ($\phi_T T_n$):	133.9 k - ACI318-05 - 10.2
$T_u / \phi_T T_n$:	0.00 Result: OK
Design Compression (P_u):	149.1 k
Nominal Compression Capacity ($\phi_P P_n$):	701.9 k - ACI318-05 - 10.3.6.2
$P_u / \phi_P P_n$:	0.21 Result: OK
Pier Reinforcement Ratio:	0.005 Reinforcement Ratio is Satisfactory - ACI318-05 - 10.9.1 & 10.8.4
$M_u / \phi_B M_n + T_u / \phi_T T_n$:	0.10 Result: OK



Site Name: **Bozrah**
 Client: **Mark Legault**
 Job Number: **111-13175**
 Engineer: **BKL**
 Date: **10/19/2011**

Design Standard per TIA-222-F

Anchor Radius:	150.0 ft
Uplift (Unfactored):	42.2 k
Shear (Unfactored):	51.9 k
Berm Present:	N
Design Anchor Rod:	Y
Mapped Foundation:	N
Anchor Base Depth (d):	8.0 ft
Width of Anchor (W):	5.5 ft
Length of Anchor (L):	11.5 ft
Thickness of Anchor (t):	2.0 ft
Depth Below Ground Surface to Water Table (w):	20.0 ft
Soil Uplift at Base / Top of Anchor (B/T):	T
Unit Weight of Concrete:	150.0 pcf
Unit Weight of Soil Above Water Table:	115.0 pcf
Unit Weight of Water:	62.4 pcf
Submerged Soil Unit Weight:	50.0 pcf
Internal Angle of Friction:	36 Degrees
Cohesion:	500 psf
Allowable Skin Friction of Pad Sides to Soil:	500 psf
Ultimate Coefficient of Shear Friction:	0.30
Maximum Top Conical Failure Angle:	30 Degrees
Maximum Base Conical Failure Angle:	30 Degrees
Allowable Capacity Increase:	1.00 (Due to Transient Loads)



Uplift

Weight of Concrete (Buoyancy Effect Considered):	19.0 k
Weight of Soil (Buoyancy Effect Considered):	92.9 k
Uplift Resistance from Skin Friction:	22.5 k
Allowable Uplift Resistance (FS = 1.5 to 2):	61.7 k
Uplift Design Load/Allowable Uplift Resistance:	0.68 Result: OK

Shear

Ultimate Shear Friction Resistance Due to Normal Force - Uplift:	6.1 k
Passive Pressure:	5063 psf
Ultimate Passure Pressure Resistance:	116.5 k
Allowable Shear Resistance (FS = 1.5 to 2):	61.3 k
Shear Design Load/Allowable Shear Resistance:	0.85 Result: OK

Anchor Rod Capacity

# of Anchor Rods:	1
Anchor Rod Gross Area:	2.41 in ²
Anchor Rod Net Area:	2.41 in ²
Anchor Rod Yield Strength:	48 ksi
Anchor Rod Ultimate Strength:	62 ksi
Allowable Stress Increase:	1.33
Resultant Tensile Load:	66.9 k
Anchor Rod Tensile Resistance:	92.4 k
Resultant Tensile Load / Anchor Rod Tensile Resistance:	0.72 Result: OK

Strength Analysis of Reinforced Concrete

Concrete Compressive Strength (f'_c):	3000 psi
Longitudinal Rebar Yield Strength:	60000 psi
# Longitudinal Rebar (Top):	9
# Longitudinal Rebar (1 Side):	3
Rebar Size:	4
Wind Load Factor:	1.3
Strength Reduction Factor for Shear (ϕ_v):	0.75
Strength Reduction Factor for Flexure (ϕ_b):	0.9
Compression Zone Factor (β_1):	0.85
Area of Single Rebar:	0.20 in ²
One Way Shear due to Shear Load (V_u):	18.6 k
Nominal One Way Shear Capacity for Shear Load ($\phi_c V_n$):	122.3 k
$V_u/\phi_v V_n$:	0.15 Result: OK
One Way Shear due to Uplift (V_u):	23.5 k
Nominal One Way Shear Capacity for Uplift ($\phi_c V_n$):	108.4 k
$V_u/\phi_v V_n$:	0.22 Result: OK
Pad Flexure due to Shear Load (M_u):	97.0 k-ft
Nominal Flexural Capacity for Shear Load ($\phi_b M_n$):	167.4 k-ft
Pad Flexure due to Uplift (M_u):	78.9 k-ft
Nominal Flexural Capacity for Uplift ($\phi_b M_n$):	161.9 k-ft
$M_u/\phi_b M_n$ (Max.):	0.58 Result: OK