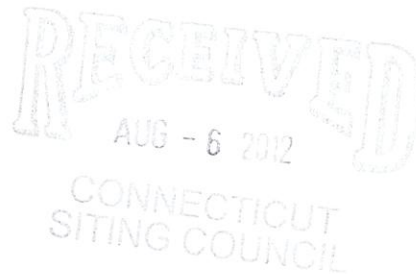


280 Trumbull Street
Hartford, CT 06103-3597
Main (860) 275-8200
Fax (860) 275-8299
kbaldwin@rc.com
Direct (860) 275-8345

Also admitted in Massachusetts

August 2, 2012

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



Re: **Notice of Exempt Modification – Antenna Swap
Hebron Avenue, Glastonbury, Connecticut**

Dear Ms. Roberts:

Cellco Partnership d/b/a Verizon Wireless (“Cellco”) currently maintains twelve (12) wireless telecommunications antennas at the 132-foot level on the existing Northeast Utilities (“NU”) transmission line power-mount structure off Hebron Avenue in Glastonbury. The Connecticut Siting Council (“Council”) approved Cellco’s use of this structure in Petition No. 618. Cellco now intends to remove eight (8) of its twelve (12) antennas and replace them with two (2) model LPA-80063-4CF cellular antennas; two (2) model BXA-171063-12BF PCS antennas; one (1) model BXA-171063-8BF PCS antenna; two (2) model SLCP 2X6014 LTE antennas; and one (1) model BXA-70063-4CF LTE antenna, all at the same 132-foot level on the structure. Cellco will also install six (6) coax cable diplexers behind its antennas on the antenna platform. Attached behind Tab 1 are the specifications for the 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 Richard J. Johnson, Town Manager for the Town of Glastonbury. A copy of this letter is also being sent to NU, 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).



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Linda Roberts
August 2, 2012
Page 2

1. The proposed modifications will not result in an increase in the height of the existing transmission line tower or power-mount structure. Cellco's replacement antennas and cable diplexers will be located at the same 132-foot level.

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

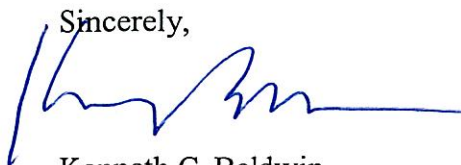
3. The proposed modifications will not increase noise levels at the facility by six decibels or more.

4. The operation of the replacement antennas will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) adopted safety standard. A General Power Density table for the modified facility is included behind Tab 2.

Also attached is a Structural Analysis confirming that the NU transmission line tower and power-mount structure 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:

Richard J. Johnson, Glastonbury Town Manager
Michael Greene, Northeast Utilities
Sandy M. Carter



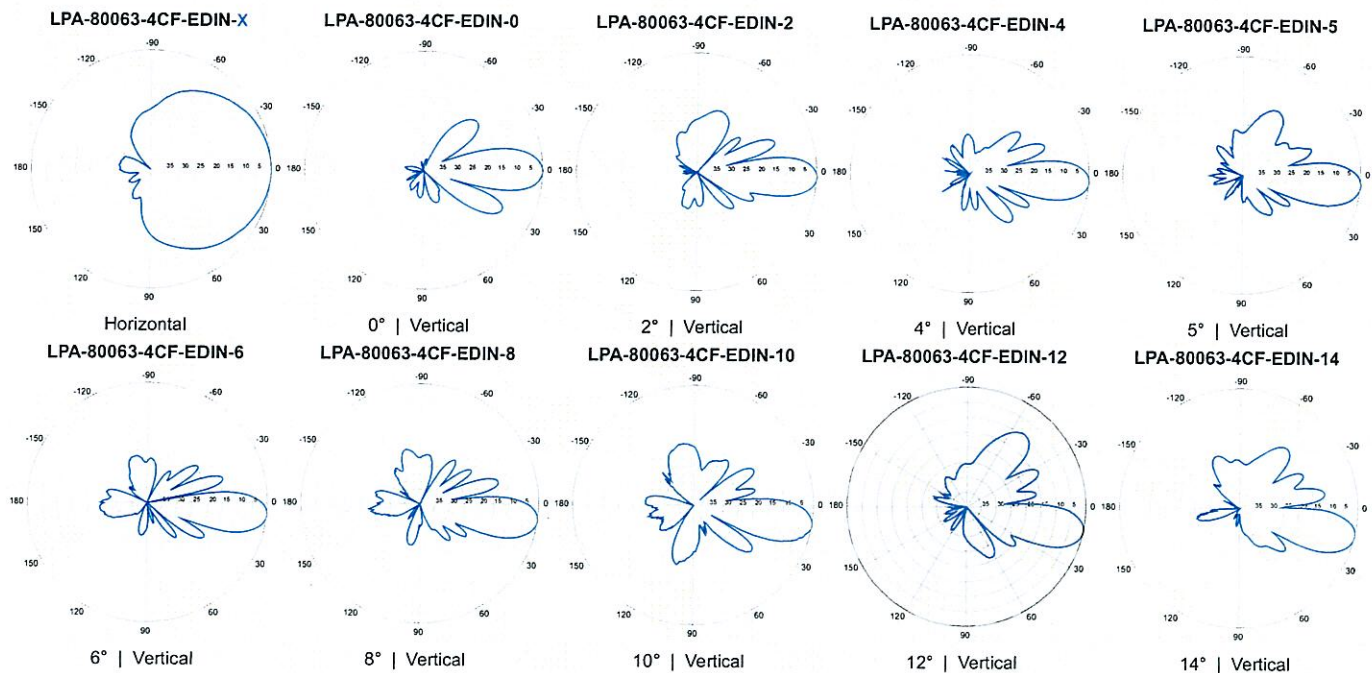
LPA-80063-4CF-EDIN-X

V-Pol | Log Periodic | 63° | 13.0 dBd

Replace "X" with desired electrical downtilt.

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

Electrical Characteristics	
Frequency bands	806-960 MHz
Polarization	Vertical
Horizontal beamwidth	63°
Vertical beamwidth	15°
Gain	13.0 dBd (15.1 dBi)
Electrical downtilt (X)	0, 2, 4, 5, 6, 8, 10, 12, 14
Impedance	50Ω
VSWR	≤1.4:1
Upper sidelobe suppression (0°)	-15.7 dB
Front-to-back ratio (+/-30°)	-31.7 dB
Null fill	5% (-26.02 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	1205 x 385 x 332 mm 47.4 x 15.2 x 13.1 in
Depth of antenna with z-bracket	372 mm 14.6 in
Weight without mounting brackets	9.1 kg 20 lbs
Survival wind speed	> 201 km/hr > 125 mph
Wind area	Front: 0.46 m ² Side: 0.39 m ² Front: 5.0 ft ² Side: 4.2 ft ²
Wind load @ 161 km/hr (100 mph)	Front: 660 N Side: 550 N Front: 149 lbf Side: 124 lbf
Mounting Options	
Part Number	Fits Pipe Diameter
2-Point Mounting & Downtilt Bracket Kit (0-20°)	21699999 50-102 mm 2.0-4.0 in
Lock-Down Brace	Weight 5.4 kg 12 lbs
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-171063-12BF-EDIN-X

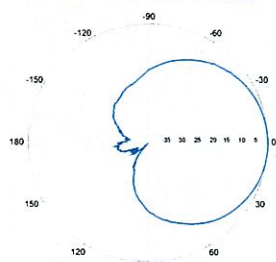
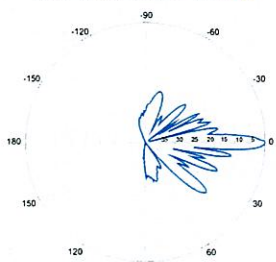
Replace "X" with desired electrical downtilt

X-Pol | FET Panel | 63° | 19.0 dBi

Electrical Characteristics	1710-2170 MHz		
Frequency bands	1710-1880 MHz	1850-1990 MHz	1920-2170 MHz
Polarization	±45°	±45°	±45°
Horizontal beamwidth	68°	65°	60°
Vertical beamwidth	4.5°	4.5°	4.5°
Gain	16.1 dBd / 18.2 dBi	16.5 dBd / 18.6 dBi	16.9 dBd / 19.0 dBi
Electrical downtilt (X)	0, 2, 5		
Impedance	50Ω		
VSWR	≤1.5:1		
First upper sidelobe	< -17 dB		
Front-to-back ratio	> 30 dB		
In-band isolation	> 28 dB		
IM3 (20W carrier)	< -150 dBc		
Input power	300 W		
Lightning protection	Direct Ground		
Connector(s)	2 Ports / EDIN / Female / Bottom		
Operating temperature	-40° to +60° C / -40° to +140° F		
Mechanical Characteristics			
Dimensions Length x Width x Depth	1820 x 154 x 105 mm	71.7 x 6.1 x 4.1 in	
Depth with z-brackets	133 mm	5.2 in	
Weight without mounting brackets	6.8 kg	15 lbs	
Survival wind speed	> 201 km/hr	> 125 mph	
Wind area	Front: 0.28 m ² Side: 0.19 m ²	Front: 3.1 ft ² Side: 2.1 ft ²	
Wind load @ 161 km/hr (100 mph)	Front: 460 N Side: 304 N	Front: 103 lbf Side: 68 lbf	
Mounting Options	Part Number	Fits Pipe Diameter	Weight
2-Point Mounting Bracket Kit	26799997	50-102 mm 2.0-4.0 in	2.3 kg 5 lbs
2-Point Mounting & Downtilt Bracket Kit	26799999	50-102 mm 2.0-4.0 in	3.6 kg 8 lbs
Concealment Configurations	For concealment configurations, order BXA-171063-12BF-EDIN-X-FP		

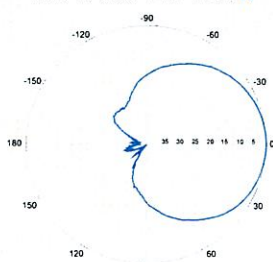
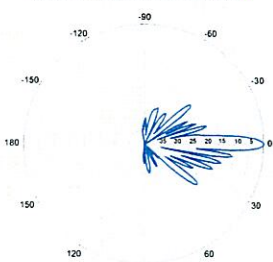


BXA-171063-12BF-EDIN-X

Horizontal | 1710-1880 MHz
BXA-171063-12BF-EDIN-0

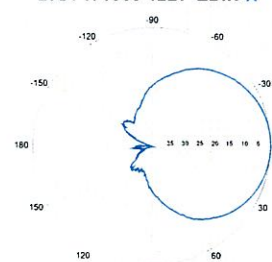
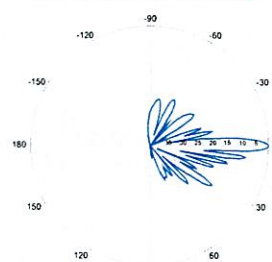
0° | Vertical | 1710-1880 MHz

BXA-171063-12BF-EDIN-X

Horizontal | 1850-1990 MHz
BXA-171063-12BF-EDIN-0

0° | Vertical | 1850-1990 MHz

BXA-171063-12BF-EDIN-X

Horizontal | 1920-2170 MHz
BXA-171063-12BF-EDIN-0

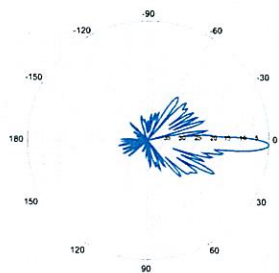
0° | Vertical | 1920-2170 MHz

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.

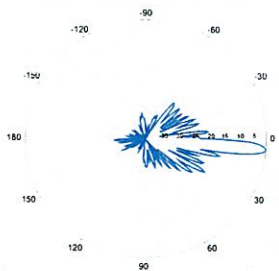
BXA-171063-12BF-EDIN-X

X-Pol | FET Panel | 63° | 19.0 dBi

BXA-171063-12BF-EDIN-2

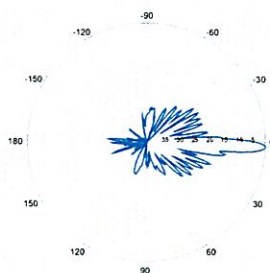


2° | Vertical | 1710-1880 MHz
BXA-171063-12BF-EDIN-5

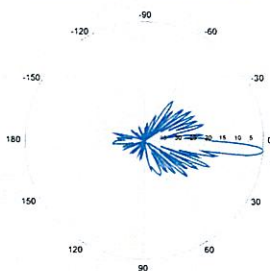


5° | Vertical | 1710-1880 MHz

BXA-171063-12BF-EDIN-2

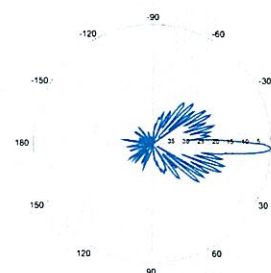


2° | Vertical | 1850-1990 MHz
BXA-171063-12BF-EDIN-5

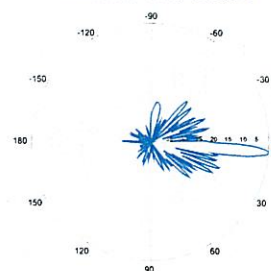


5° | Vertical | 1850-1990 MHz

BXA-171063-12BF-EDIN-2



2° | Vertical | 1920-2170 MHz
BXA-171063-12BF-EDIN-5



5° | Vertical | 1920-2170 MHz

BXA-171063-8BF-EDIN-X

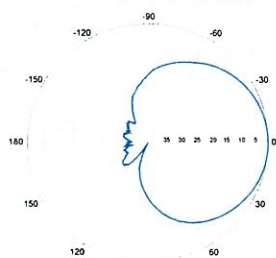
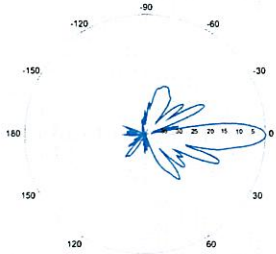
Replace "X" with desired electrical downtilt.

X-Pol | FET Panel | 63° | 17.4 dBi

Electrical Characteristics	1710-2170 MHz		
Frequency bands	1710-1880 MHz	1850-1990 MHz	1920-2170 MHz
Polarization	±45°	±45°	±45°
Horizontal beamwidth	68°	65°	60°
Vertical beamwidth	7°	7°	7°
Gain	14.5 dBd / 16.6 dBi	14.9 dBd / 17.0 dBi	15.3 dBd / 17.4 dBi
Electrical downtilt (X)	0, 2, 4, 8		
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-171063-8BF-EDIN-X-FP		

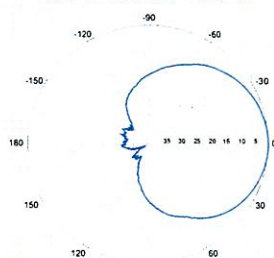
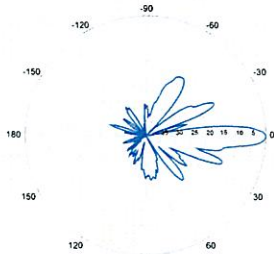


BXA-171063-8BF-EDIN-X

Horizontal | 1710-1880 MHz
BXA-171063-8BF-EDIN-0

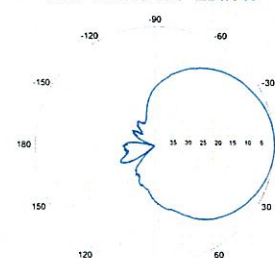
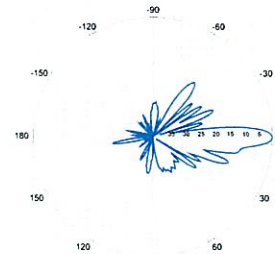
0° | Vertical | 1710-1880 MHz

BXA-171063-8BF-EDIN-X

Horizontal | 1850-1990 MHz
BXA-171063-8BF-EDIN-0

0° | Vertical | 1850-1990 MHz

BXA-171063-8BF-EDIN-X

Horizontal | 1920-2170 MHz
BXA-171063-8BF-EDIN-0

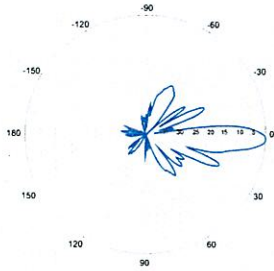
0° | Vertical | 1920-2170 MHz

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-171063-8BF-EDIN-X

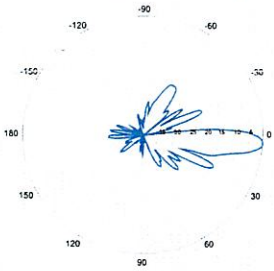
X-Pol | FET Panel | 63° | 17.4 dBi

BXA-171063-8BF-EDIN-2



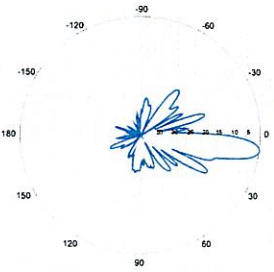
2° | Vertical | 1710-1880 MHz

BXA-171063-8BF-EDIN-4



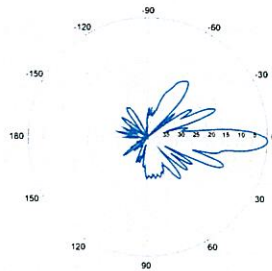
4° | Vertical | 1710-1880 MHz

BXA-171063-8BF-EDIN-8



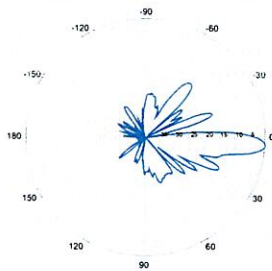
8° | Vertical | 1710-1880 MHz

BXA-171063-8BF-EDIN-2



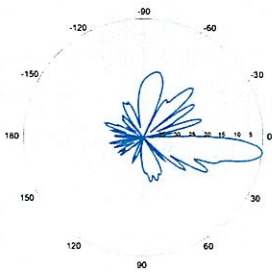
2° | Vertical | 1850-1990 MHz

BXA-171063-8BF-EDIN-4



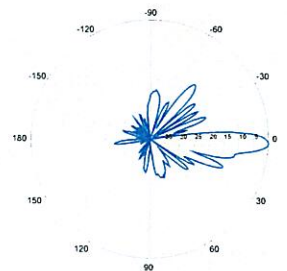
4° | Vertical | 1850-1990 MHz

BXA-171063-8BF-EDIN-8



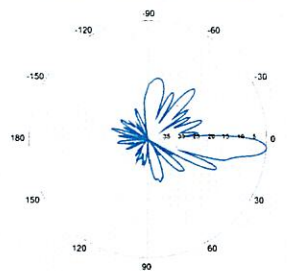
8° | Vertical | 1850-1990 MHz

BXA-171063-8BF-EDIN-2



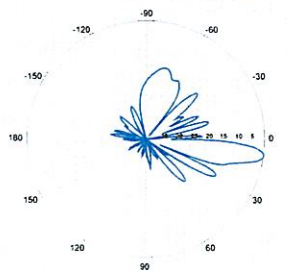
2° | Vertical | 1920-2170 MHz

BXA-171063-8BF-EDIN-4



4° | Vertical | 1920-2170 MHz

BXA-171063-8BF-EDIN-8



8° | Vertical | 1920-2170 MHz

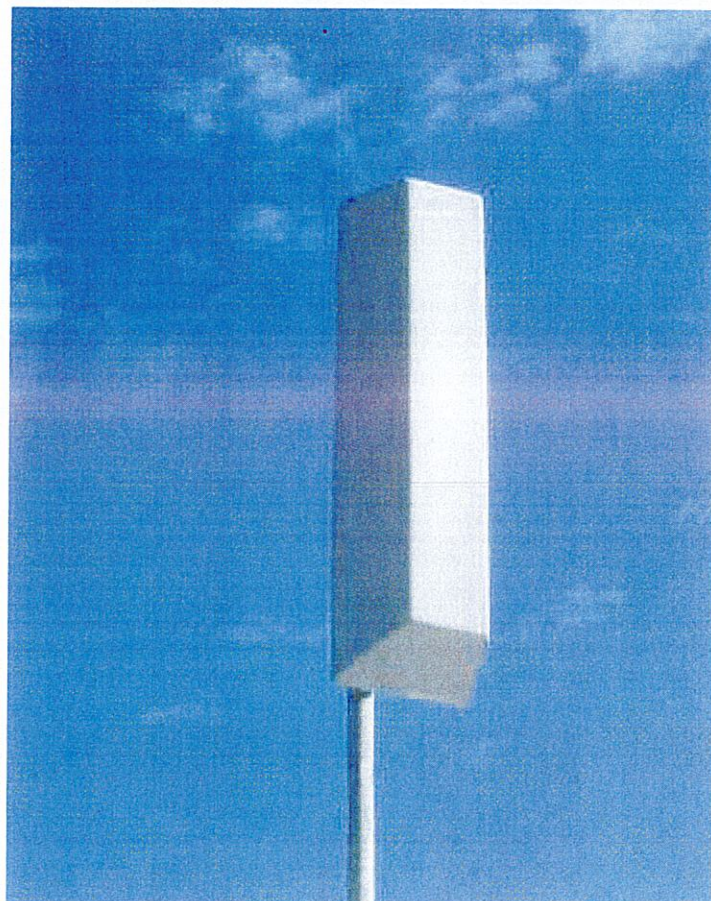
Quoted performance parameters are provided to offer typical or range values only and may vary as a result of normal manufacturing and operational conditions. Extreme operational conditions and/or stress on structural supports is beyond our control. Such conditions may result in damage to this product.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

SLCP 2x6014

Dual (2x) Circularly Polarized log-periodic antenna

Features

- ☐ **Transmit Diversity Gain**
- ☐ **Can be configured to combine space & polarization diversity**
- ☐ **Outstanding performance over the entire band (700 - 800 MHz)**
- ☐ **Excellent Axial Ratio**
- ☐ **Optimized for 4G & 3G systems**
- ☐ **Low intermodulation**
- ☐ **Improved Side-to-side rejection**
- ☐ **Fading reduction**
- ☐ **Excellent isolation between ports**



Electrical specifications

Frequency range:	700-800 MHz	
Impedance:	50 ohm	
Connector type:	7/16 Din	
Return loss:	18 dB	
Polarization:	Circular	
Gain ea. port [Circular]:	2x14 dBdC	
Gain ea. port [Linear]:	2x11 dBdL	
Axial Ratio:	2 dB	
Isolation between ports (TX band):	30 dB	
Front-to-back ratio:	30 dB	
Intermodulation (2x20W):	IM3	150 dB
	IM5	160 dB
	IM7/9	170 dB
Power rating:	2x 500 W	
H-plane (-3 dB point):	2x 55°	
V-plane (-3 dB point):	2x 16°	
Lightning protection:	DC grounded	

Mechanical specifications

Overall height:	53 in	[1346 mm]
Width:	14 in	[356 mm]
Depth:	11 in	[279 mm]
Weight (excluding brackets):	20 lbs	[9 Kg]
Wind load measured up to:	150 mph	[240 Km/h]
Wind area (side of antenna):	5.15 sq. ft.	[0.48 sq.m]
Lateral thrust at 113 mph/ 180 Km/h (worst case):	263 lbs	[1171 N]

Materials

Radiating Elements:	Aluminum
Transformer (Power distribution)	Ceramic PCB
Chassis:	Aluminum
Radome:	Grey Fiberglass/PVC
Mounting bolts:	Stainless steel

The SLCP 2x6014 is made in the U.S.A.

BXA-70063-4CF-EDIN-X

X-Pol | FET Panel | 63° | 13.0 dBd

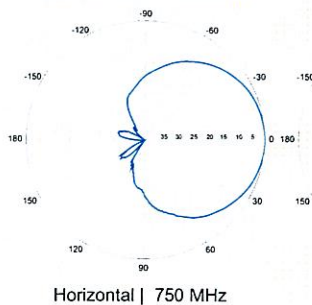
Replace "X" with desired electrical downtilt.

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

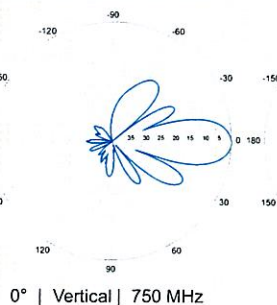
Electrical Characteristics	696-900 MHz			
Frequency bands	696-806 MHz		806-900 MHz	
Polarization	±45°			
Horizontal beamwidth	65°		63°	
Vertical beamwidth	17°		15°	
Gain	12.5 dBd (14.6 dBi)		13.0 dBd (15.1 dBi)	
Electrical downtilt (X)	0, 2, 3, 4, 5, 6, 8, 9, 10, 12, 14			
Impedance	50Ω			
VSWR	≤1.35:1			
Upper sidelobe suppression (0°)	-16.3 dB		-22.1 dB	
Front-to-back ratio (+/-30°)	-36.1 dB		-34.9 dB	
Null fill	5% (-26.02 dB)			
Isolation between ports	< -30 dB			
Input power with EDIN connectors	500 W			
Input power with NE connectors	300 W			
Lightning protection	Direct Ground			
Connector(s)	2 Ports / EDIN or NE / Female / Center (Back)			
Mechanical Characteristics				
Dimensions Length x Width x Depth	1205 x 285 x 133 mm		47.4 x 11.2 x 5.2 in	
Depth with z-brackets	173 mm		6.8 in	
Weight without mounting brackets	4.5 kg		9.9 lbs	
Survival wind speed	> 201 km/hr		> 125 mph	
Wind area	Front: 0.34 m ²	Side: 0.16 m ²	Front: 3.7 ft ²	Side: 1.7 ft ²
Wind load @ 161 km/hr (100 mph)	Front: 498 N	Side: 260 N	Front: 111 lbf	Side: 55 lbf
Mounting Options	Part Number	Fits Pipe Diameter		Weight
2-Point Mounting & Downtilt Bracket Kit	36210006	40-115 mm	1.57-4.5 in	4.1 kg 9 lbs
Concealment Configurations	For concealment configurations, order BXA-70063-4CF-EDIN-X-FP			



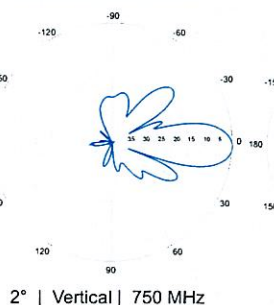
BXA-70063-4CF-EDIN-X



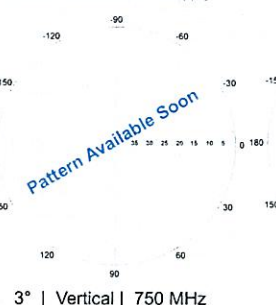
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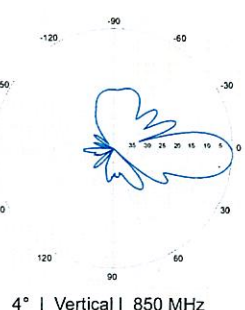
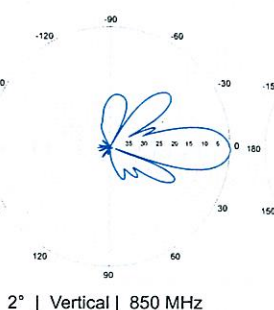
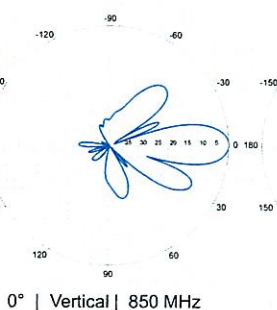
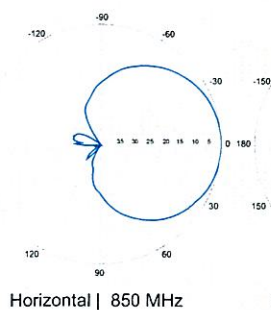
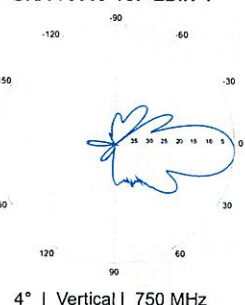
BXA-70063-4CF-EDIN-2



BXA-70063-4CF-EDIN-3



BXA-70063-4CF-EDIN-4

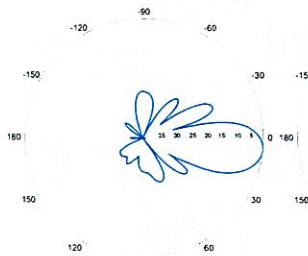


Quoted performance parameters are provided to offer typical or range values only and may vary as a result of normal manufacturing and operational conditions. Extreme operational conditions and/or stress on structural supports is beyond our control. Such conditions may result in damage to this product.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

BXA-70063-4CF-EDIN-X

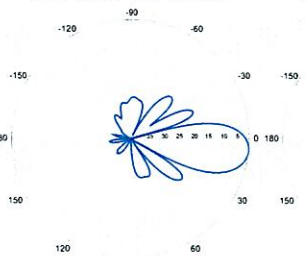
X-Pol | FET Panel | 63° | 13.0 dBd

BXA-70063-4CF-EDIN-5



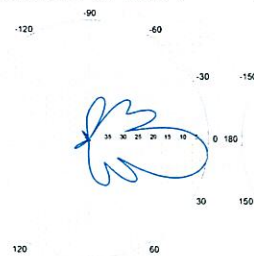
5° | Vertical | 750 MHz

BXA-70063-4CF-EDIN-6



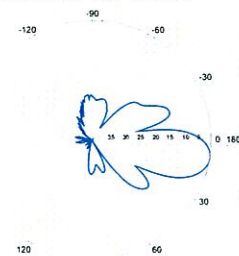
6° | Vertical | 750 MHz

BXA-70063-4CF-EDIN-8



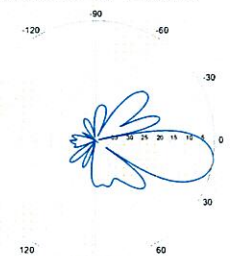
8° | Vertical | 750 MHz

BXA-70063-4CF-EDIN-9

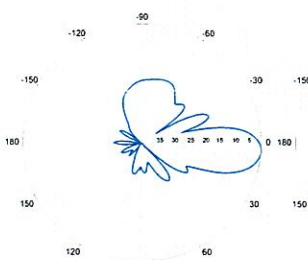


9° | Vertical | 750 MHz

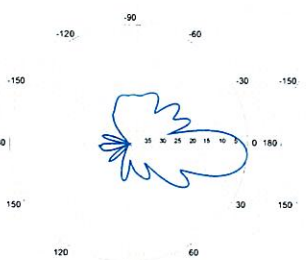
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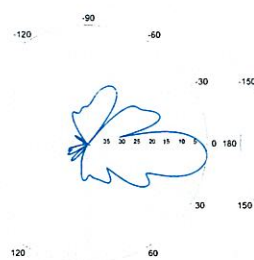
10° | Vertical | 750 MHz



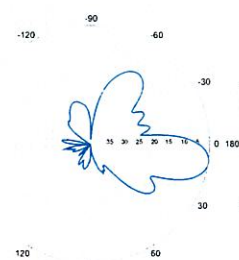
5° | Vertical | 850 MHz



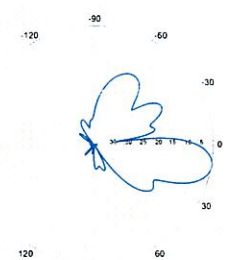
6° | Vertical | 850 MHz



8° | Vertical | 850 MHz

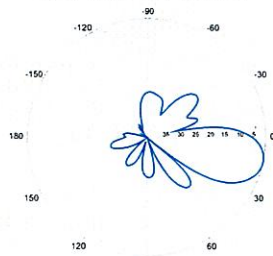


9° | Vertical | 850 MHz

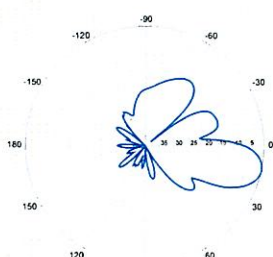


10° | Vertical | 850 MHz

BXA-70063-4CF-EDIN-12

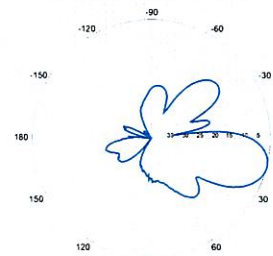


12° | Vertical | 750 MHz

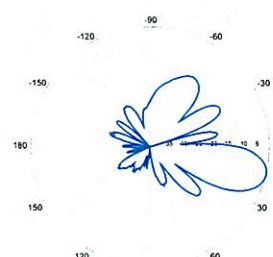


12° | Vertical | 850 MHz

BXA-70063-4CF-EDIN-14



14° | Vertical | 750 MHz



14° | 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.



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
Application	LTE700, GSM900, UMTS, GSM1800, Cellular 800, PCS
Frequency Range 1, MHz	698-960
Frequency Range 2, MHz	1710-2200
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; 57/70@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

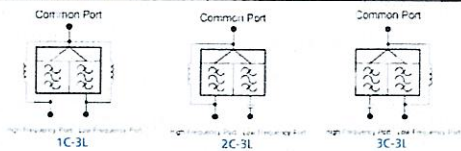


ShareLite Wideband Diplexer – In-line 698-960 MHz/1710-2200 MHz, DC pass in high frequency path

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)	

General Power Density

Site Name: E GLASTONBURY 3, CT
Cumulative Power Density

Operator	Operating Frequency (MHz)	Number of Trans.	ERP Per Trans. (watts)	Total ERP (watts)	Distance to Target (feet)	Calculated Power Density (mW/cm^2)	Maximum Permissible Exposure* (mW/cm^2)	Fraction of MPE (%)
VZW PCS	1970	11	249	2739	132	0.0565	1.0	5.65%
VZW Cellular	869	9	256	2304	132	0.0476	0.5793333333	8.21%
VZW AWS	2145	1	604	604	132	0.0125	1.0	1.25%
VZW 700	698	1	839	839	132	0.0173	0.4653333333	3.72%
Total Percentage of Maximum Permissible Exposure								18.83%

*Guidelines adopted by the FCC on August 1, 1996, 47 CFR Part 1 based on NCRP Report 86, 1986 and generally on ANSI/IEEE C95.1-1992

MHz = Megahertz

mW/cm^2 = milliwatts per square centimeter

ERP = Effective Radiated Power

Absolute worst case maximum values used.

**Structural Analysis of
Powermount and CL&P Tower**

Verizon Wireless Site Ref:
East Glastonbury 3

CL&P Structure No. 12197
111' Electric Transmission Lattice Tower

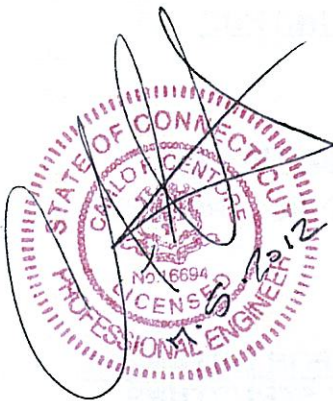
Hebron Ave
Glastonbury, CT

CEN TEK Project No. 12001.CO16

~~Date: February 27, 2012~~

~~Rev 1: April 25, 2012~~

Rev 2: July 3, 2012



Prepared for:
Verizon Wireless
99 East River Road, 9th Floor
East Hartford, CT 06108

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Introduction

The purpose of this report is to analyze the existing powermount and 111' CL&P tower located on Hebron Ave., in Glastonbury, CT for the proposed antenna and equipment upgrade by Verizon Wireless.

The proposed loads consist of the following:

- VERIZON WIRELESS (Existing to Remain):

Antennas: Four (4) Antel LPD-6513 panel antennas mounted on a 12-ft low profile platform to the existing FWT Powermount with a RAD center elevation of 132-ft above grade.

Coax Cables: Twelve (12) 1-5/8" Ø coax cables running on the inside of the existing FWT Powermount.

- VERIZON WIRELESS (Existing to Remove):

Antennas: Two (2) Antel LPD-6513 and six (6) Antel LPA-185063-8CF panel antennas mounted on a 12-ft low profile platform to the existing FWT Powermount with a RAD center elevation of 132-ft above grade.

- VERIZON WIRELESS (Proposed):

Antennas: Two (2) Swedcom SLCP 2x6014 panel antennas, one (1) Antel BXA-70063-4CF panel antenna, two (2) Antel LPA-80063-4CF panel antennas, three (3) Antel BXA-171063-12BF panel antennas and six (6) RFS FD9R6004/2C-3L Diplexers mounted on a 12-ft low profile platform to the existing FWT Powermount with a RAD center elevation of 132-ft above grade.

Primary assumptions used in the analysis

- Allowable steel stresses are defined by AISC-ASD 9th edition for design of the Powermount and antenna supporting elements.
- ASCE Manual No. 10-97, "Design of Latticed Steel Transmission Structures", defines allowable steel stresses for evaluation of the CL&P utility tower.
- All utility tower members are adequately protected to prevent corrosion of steel members.
- All proposed antenna mounts are modeled as listed above.
- All coaxial cable will be installed within the powermount unless specified otherwise.
- Powermount will be properly installed and maintained.
- No residual stresses exist due to incorrect tower erection.
- All bolts are appropriately tightened providing the necessary connection continuity.
- All welds conform to the requirements of AWS D1.1.
- Powermount and utility tower will be in plumb condition.
- Utility tower was properly installed and maintained and all members were properly designed, detailed, fabricated, and installed and have been properly maintained since erection.
- Any deviation from the analyzed loading will require a new analysis for verification of structural adequacy.

A n a l y s i s

Structural analysis of the existing *Powermount* was independently completed using the current version of RISA-3D computer program licensed to CENTEK Engineering, Inc.

The existing FWT powermount consisting of a 18" Std. pipe conforming to ASTM A53 Grade B ($F_y = 35\text{ksi}$) connected at four points to the existing tower was analyzed for its ability to resist loads prescribed by the TIA/EIA standard. Section 5 of this report details these gravity and lateral wind loads. NESC prescribed loads were also applied to the powermount in order to obtain reactions needed for analyzing the CL&P tower structure. These loads are developed in Section 7 of this report. Load cases and combinations used in RISA-3D for TIA/EIA loading and for NESC/NU loading are listed in report Sections 6 and 8, respectively.

An envelope solution was first made to determine maximum and minimum forces, stresses, and deflections to confirm the selected section as adequate. Additional analyses were then made to determine the NESC forces to be applied to the CL&P tower structure.

The RISA-3D program contains a library of all AISC shapes and corresponding section properties are computed and applied directly within the program. The program's Steel Code Check option was also utilized. The forces calculated in RISA-3D using NESC guidelines were then applied to the CL&P tower using PLS-Tower. Maximum usage for the tower was calculated considering the additional forces from the mast and associated appurtenances.

D e s i g n B a s i s

Our analysis was performed in accordance with EIA-222-F-1996, ASCE Manual No. 10-97, "Design of Latticed Steel Transmission Structures", NESC C2-2007 and Northeast Utilities Design Criteria.

The CL&P tower structure, considering existing and future conductor and shield wire loading, with the proposed antenna mast was analyzed under two conditions:

▪ UTILITY TOWER ANALYSIS

The purpose of this analysis is to determine the adequacy of the existing utility structure to support the proposed antenna loads. The loading and design requirements were analyzed in accordance with the NU Design Criteria Table, NESC C2-2007 ~ Construction Grade B, and ASCE Manual No. 10-97, "Design of Latticed Steel Transmission Structures".

Load cases considered:

Load Case 1: NESC Heavy

Wind Pressure.....	4.0 psf
Radial Ice Thickness.....	0.5"
Vertical Overload Capacity Factor.....	1.50
Wind Overload Capacity Factor.....	2.50
Wire Tension Overload Capacity Factor.....	1.65

Load Case 2: NESC Extreme

Wind Speed.....	110 mph ⁽¹⁾
Radial Ice Thickness.....	0"

Note 1: NESC C2-2007, Section 25, Rule 250C: Extreme Wind Loading, $1.25 \times$ Gust Response Factor (wind speed: 3-second gust)

■ POWERMOUNT ANALYSIS

Powermount, appurtenances and connections to the utility tower were analyzed and designed in accordance with the NU Design Criteria Table, TIA/EIA-222-F, and AISC-ASD standards.

Load cases considered:

Load Case 1:

Wind Speed..... 85 mph ⁽²⁾

Radial Ice Thickness..... 0"

Load Case 2:

Wind Pressure..... 75% of 85 mph wind pressure

Radial Ice Thickness..... 0.5"

| Note 2: Per NU Mast Design Criteria Exception 1.

R e s u l t s

■ POWERMOUNT

The existing powermount was determined to be structurally **adequate**.

FWT Powermount	Stress Ratio (% of capacity)	Result
18" Std. Pipe	64.0%	PASS

■ UTILITY TOWER

This analysis finds that the subject utility structure is adequate to support the existing powermount and related appurtenances. The tower stresses meet the requirements set forth by the ASCE Manual No. 10-97, "Design of Latticed Steel Transmission Structures", for the applied NESC Heavy and Hi-Wind load cases. The detailed analysis results are provided in Section 9 of this report. The analysis results are summarized as follows:

A maximum usage of **94.84%** occurs in the utility tower under the **NESC Heavy** loading condition.

TOWER SECTION:

The utility tower was found to be within allowable limits.

Tower Member	Stress Ratio (% of capacity)	Result
Angle g36P	94.84%	PASS

■ FOUNDATION AND ANCHORS

The existing foundation consists of four (4) 6-ft square steel grillage assemblies. Foundation information was obtained from NUSCO drawing # 01164-50001.

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

BASE REACTIONS:

From PLS-Tower analysis of CL&P tower based on NESC/NU prescribed loads. Base reactions are taken from tower analysis with all horizontal shear force assumed to occur at compression legs of the tower. (Analysis is included in section 9 of this report for reference).

Load Case	Shear	Uplift	Compression
NESC Heavy Wind	14.24 kips	14.44 kips	35.28 kips
NESC Extreme Wind	28.00 kips	53.80 kips	70.15 kips

Note 1 – 10% increase to be applied to the above tower base reactions for foundation verification per OTRM 051

FOUNDATION:

The foundation was found to be within allowable limits.

Foundation	Design Limit	Allowable Limit	Proposed Loading ⁽²⁾	Result
Grillage	Uplift	1.0 FS ⁽¹⁾	1.1 FS ⁽¹⁾	PASS

Note 1: FS denotes Factor of Safety

Note 2: 10% increase to PLS base reactions used in foundation analysis per OTRM 051.

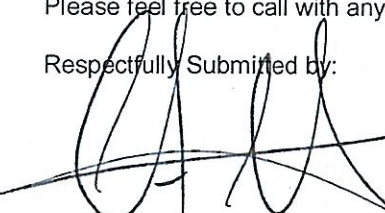
Conclusions and Recommendations

This analysis shows that the subject utility tower **is adequate** to support the proposed Verizon Wireless equipment upgrade.

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

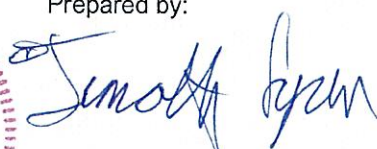
Please feel free to call with any questions or comments.

Respectfully Submitted by:


Carlo F. Centore, PE
Principal ~ Structural Engineer



Prepared by:


Timothy J. Lynn, EIT
Structural Engineer

STANDARD CONDITIONS FOR FURNISHING OF
PROFESSIONAL ENGINEERING SERVICES ON
EXISTING STRUCTURES

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

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

GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAM ~ RISA - 3 D

RISA-3D Structural Analysis Program is an integrated structural analysis and design software package for buildings, bridges, tower structures, etc.

Modeling Features:

- Comprehensive CAD-like graphic drawing/editing capabilities that let you draw, modify and load elements as well as snap, move, rotate, copy, mirror, scale, split, merge, mesh, delete, apply, etc.
- Versatile drawing grids (orthogonal, radial, skewed)
- Universal snaps and object snaps allow drawing without grids
- Versatile general truss generator
- Powerful graphic select/unselect tools including box, line, polygon, invert, criteria, spreadsheet selection, with locking
- Saved selections to quickly recall desired selections
- Modification tools that modify single items or entire selections
- Real spreadsheets with cut, paste, fill, math, sort, find, etc.
- Dynamic synchronization between spreadsheets and views so you can edit or view any data in the plotted views or in the spreadsheets
- Simultaneous view of multiple spreadsheets
- Constant in-stream error checking and data validation
- Unlimited undo/redo capability
- Generation templates for grids, disks, cylinders, cones, arcs, trusses, tanks, hydrostatic loads, etc.
- Support for all units systems & conversions at any time
- Automatic interaction with RISASection libraries
- Import DXF, RISA-2D, STAAD and ProSteel 3D files
- Export DXF, SDNF and ProSteel 3D files

Analysis Features:

- Static analysis and P-Delta effects
- Multiple simultaneous dynamic and response spectra analysis using Gupta, CQC or SRSS mode combinations
- Automatic inclusion of mass offset (5% or user defined) for dynamic analysis
- Physical member modeling that does not require members to be broken up at intermediate joints
- State of the art 3 or 4 node plate/shell elements
- High-end automatic mesh generation — draw a polygon with any number of sides to create a mesh of well-formed quadrilateral (NOT triangular) elements.
- Accurate analysis of tapered wide flanges - web, top and bottom flanges may all taper independently
- Automatic rigid diaphragm modeling
- Area loads with one-way or two-way distributions
- Multiple simultaneous moving loads with standard AASHTO loads and custom moving loads for bridges, cranes, etc.
- Torsional warping calculations for stiffness, stress and design
- Automatic Top of Member offset modeling
- Member end releases & rigid end offsets
- Joint master-slave assignments
- Joints detachable from diaphragms
- Enforced joint displacements
- 1-Way members, for tension only bracing, slipping, etc.

- 1-Way springs, for modeling soils and other effects
- Euler members that take compression up to their buckling load, then turn off.
- Stress calculations on any arbitrary shape
- Inactive members, plates, and diaphragms allows you to quickly remove parts of structures from consideration
- Story drift calculations provide relative drift and ratio to height
- Automatic self-weight calculations for members and plates
- Automatic subgrade soil spring generator

Graphics Features:

- Unlimited simultaneous model view windows
- Extraordinary “true to scale” rendering, even when drawing
- High-speed redraw algorithm for instant refreshing
- Dynamic scrolling stops right where you want
- Plot & print virtually everything with color coding & labeling
- Rotate, zoom, pan, scroll and snap views
- Saved views to quickly restore frequent or desired views
- Full render or wire-frame animations of deflected model and dynamic mode shapes with frame and speed control
- Animation of moving loads with speed control
- High quality customizable graphics printing

Design Features:

- Designs concrete, hot rolled steel, cold formed steel and wood
- ACI 1999/2002, BS 8110-97, CSA A23.3-94, IS456:2000, EC 2-1992 with consistent bar sizes through adjacent spans
- Exact integration of concrete stress distributions using parabolic or rectangular stress blocks
- Concrete beam detailing (Rectangular, T and L)
- Concrete column interaction diagrams
- Steel Design Codes: AISC ASD 9th, LRFD 2nd & 3rd, HSS Specification, CAN/CSA-S16.1-1994 & 2004, BS 5950-1-2000, IS 800-1984, Euro 3-1993 including local shape databases
- AISI 1999 cold formed steel design
- NDS 1991/1997/2001 wood design, including Structural Composite Lumber, multi-ply, full sawn
- Automatic spectra generation for UBC 1997, IBC 2000/2003
- Generation of load combinations: ASCE, UBC, IBC, BOCA, SBC, ACI
- Unbraced lengths for physical members that recognize connecting elements and full lengths of members
- Automatic approximation of K factors
- Tapered wide flange design with either ASD or LRFD codes
- Optimization of member sizes for all materials and all design codes, controlled by standard or user-defined lists of available sizes and criteria such as maximum depths
- Automatic calculation of custom shape properties
- Steel Shapes: AISC, HSS, CAN, ARBED, British, Euro, Indian, Chilean
- Light Gage Shapes: AISI, SSMA, Dale / Incor, Dietrich, Marino\WARE
- Wood Shapes: Complete NDS species/grade database
- Full seamless integration with RISAFoot (Ver 2 or better) for advanced footing design and detailing
- Plate force summation tool

Results Features:

- Graphic presentation of color-coded results and plotted designs
- Color contours of plate stresses and forces with quadratic smoothing, the contours may also be animated
- Spreadsheet results with sorting and filtering of: reactions, member & joint deflections, beam & plate forces/stresses, optimized sizes, code designs, concrete reinforcing, material takeoffs, frequencies and mode shapes
- Standard and user-defined reports
- Graphic member detail reports with force/stress/deflection diagrams and detailed design calculations and expanded diagrams that display magnitudes at any dialed location
- Saved solutions quickly restore analysis and design results.

GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAM ~ PLS-TOWER

PLS-TOWER is a Microsoft Windows program for the analysis and design of steel latticed towers used in electric power lines or communication facilities. Both self-supporting and guyed towers can be modeled. The program performs design checks of structures under user specified loads. For electric power structures it can also calculate maximum allowable wind and weight spans and interaction diagrams between different ratios of allowable wind and weight spans.

Modeling Features:

- Powerful graphics module (stress usages shown in different colors)
- Graphical selection of joints and members allows graphical editing and checking
- Towers can be shown as lines, wire frames or can be rendered as 3-d polygon surfaces
- Can extract geometry and connectivity information from a DXF CAD drawing
- CAD design drawings, title blocks, drawing borders or photos can be tied to structure model
- XML based post processor interface
- Steel Detailing Neutral File (SDNF) export to link with detailing packages
- Can link directly to line design program PLS-CADD
- Automatic generation of structure files for PLS-CADD
- Databases of steel angles, rounds, bolts, guys, etc.
- Automatic generation of joints and members by symmetries and interpolations
- Automated mast generation (quickly builds model for towers that have regular repeating sections) via graphical copy/paste
- Steel angles and rounds modeled either as truss, beam or tension-only elements
- Guys are easily handled (can be modeled as exact cable elements)

Analysis Features:

- Automatic handling of tension-only members
- Automatic distribution of loads in 2-part suspension insulators (v-strings, horizontal vees, etc.)
- Automatic calculation of tower dead, ice, and wind loads as well as drag coefficients according to:
 - ASCE 74-1991
 - NESC 2002
 - NESC 2007
 - IEC 60826:2003
 - EN50341-1:2001 (CENELEC)
 - EN50341-3-9:2001 (UK NNA)
 - EN50341-3-17:2001 (Portugal NNA)
 - ESAA C(b)1-2003 (Australia)
 - TPNZ (New Zealand)
 - REE (Spain)
 - EIA/TIA 222-F
 - ANSI/TIA 222-G
 - CSA S37-01
- Automated microwave antenna loading as per EIA/TIA 222-F and ANSI/TIA 222-G
- Minimization of problems caused by unstable joints and mechanisms
- Automatic bandwidth minimization and ability to solve large problems
- Design checks according to (other standards can be added easily):
 - ASCE Standard 10-90

- AS 3995 (Australian Standard 3995)
- BS 8100 (British Standard 8100)
- EN50341-1 (CENELEC, both empirical and analytical methods are available)
- ECCS 1985
- NGT-ECCS
- PN-90/B-03200
- EIA/TIA 222-F
- ANSI/TIA 222-G
- CSA S37-01
- EDF/RTE Resal
- IS 802 (India Standard 802)

Results Features:

- Design summaries printed for each group of members
 - Easy to interpret text, spreadsheet and graphics design summaries
 - Automatic determination of allowable wind and weight spans
 - Automatic determination of interaction diagrams between allowable wind and weight spans
 - Capability to batch run multiple tower configurations and consolidate the results
 - Automated optimum angle member size selection and bolt quantity determination
- Tool for interactive angle member sizing and bolt quantity determination.

Criteria for Design of PCS Facilities On or
Extending Above Metal Electric Transmission
Towers & Analysis of Transmission Towers
Supporting PCS Masts ⁽¹⁾

Introduction

This criteria is the result from an evaluation of the methods and loadings specified by the separate standards, which are used in designing telecommunications towers and electric transmission towers. That evaluation is detailed elsewhere, but in summary; the methods and loadings are significantly different. This criteria specifies the manner in which the appropriate standard is used to design PCS facilities including masts and brackets (hereafter referred to as “masts”), and to evaluate the electric transmission towers to support PCS masts. The intent is to achieve an equivalent level of safety and security under the extreme design conditions expected in Connecticut and Massachusetts.

ANSI Standard TIA/EIA-222 (Rev. F) covering the design of telecommunications structures specifies a working strength/allowable stress design approach. This approach applies the loads from extreme weather loading conditions, and designs the structure so that it does not exceed some defined percentage of failure strength (allowable stress).

ANSI Standard C2-2007 (National Electrical Safety Code) covering the design of electric transmission metal structures is based upon an ultimate strength/yield stress design approach. This approach applies a multiplier (overload capacity factor) to the loads possible from extreme weather loading conditions, and designs the structure so that it does not exceed its ultimate strength (yield stress).

Each standard defines the details of how loads are to be calculated differently. Most of the NU effort in “unifying” both codes was to establish what level of strength each approach would provide, and then increasing the appropriate elements of each to achieve a similar level of security under extreme weather loadings.

Two extreme weather conditions are considered. The first is an extreme wind condition (hurricane) based upon a 50-year recurrence (2% annual probability). The second is a winter condition combining wind and ice loadings.

The following sections describe the design criteria for any PCS mast extending above the top of an electric transmission tower, and the analysis criteria for evaluating the loads on the transmission tower from such a mast from the lower portions of such a mast, and loads on the pre-existing electric lower portions of such a mast, and loads on the pre-existing electric transmission tower and the conductors it supports.

| Note 1: Prepared from documentation provide from Northeast Utilities.

P C S M a s t

The PCS facility (mast, external cable/trays, including the initial and any planned future support platforms, antennas, etc. extending the full height above the top level of the electric transmission structure) shall be designed in accordance with the provisions of TIA/EIA-222 (Rev. F) with two exceptions:

1. An 85 mph extreme wind speed shall be used for locations in all counties throughout the NU system.
2. The allowable stress increase of TIA Section 3.1.1.1 is allowed for the mast section, but is disallowed for the mast to structure connection design.

The combined wind and ice condition shall consider ½" radial ice in combination with the wind load (0.75 W_i) as specified in TIA section 2.3.16.

E L E C T R I C T R A N S M I S S I O N T O W E R

The electric transmission tower shall be analyzed using yield stress theory in accordance with the attached table titled "NU Design Criteria". This specifies uniform loadings (different from the TIA loadings) on the each of the following components of the installed facility:

- PCS mast for its total height above ground level, including the initial and planned future support platforms, antennas, etc. above the top of an electric transmission structure.
- Conductors are related devices and hardware.
- Electric transmission structure. The loads from the PCS facility and from the electric conductors shall be applied to the structure at conductor and PCS mast attachment points, where those load transfer to the tower.

The uniform loadings and factors specified for the above components in the table are based upon the National Electrical Safety Code 2007 Edition Extreme Wind (Rule 250C) and Combined Ice and Wind (Rule 250B-Heavy) Loadings. These provide equivalent loadings compared to TIA and its loads and factors with the exceptions noted above. (Note that the NESC does not require the projected wind surfaces of structures and equipment to be increased by the ice covering.)

In the event that the electric transmission tower is not sufficient to support the additional loadings of the PCS mast, reinforcement will be necessary to upgrade the strength of the overstressed members.

Northeast Utilities Overhead Transmission Standards

Attachment A

NU Design Criteria

			Basic Wind Speed	Pressure	Height Factor	Gust Factor	Load or Stress Factor	Force Coef - Shape Factor
			V (MPH)	Q (PSF)	Kz	Gh		
Ice Condition	TIA/EIA	Antenna Mount	TIA	TIA (75V/I)	TIA	TIA	TIA Section 3.1.1.1 disallowed for connection designs	TIA
	NESC Heavy	Tower/Pole Analysis with antennas extending above top of Tower/Pole (Yield Stress)	----	4	1.00	1.00	2.50	1.6 Flat Surfaces 1.3 Round Surfaces
		Tower/Pole Analysis with Antennas below top of Tower/Pole (on two faces)		4	1.00	1.00	2.50	1.6 Flat Surfaces 1.3 Round Surfaces
		Conductors:	Conductor loads provided by NU					
High Wind Condition	TIA/EIA	Antenna Mount	85	TIA	TIA	TIA	TIA Section 3.1.1.1 disallowed for connection designs	TIA
	NESC Extreme Wind	Tower/Pole Analysis with antennas extending above top of Tower/Pole	Use NESC C2-2007, Section 25, Rule 250C: Extreme Wind Loading 1.25 x Gust Response Factor Height above ground level based on top of Mast/Antenna					1.6 Flat Surfaces 1.3 Round Surfaces
		Tower/Pole Analysis with Antennas below top of Tower/Pole	Use NESC C2-2007, Section 25, Rule 250C: Extreme Wind Loading Height above ground level based on top of Tower/Pole					1.6 Flat Surfaces 1.3 Round Surfaces
		Conductors:	Conductor loads provided by NU					
NESC Extreme Ice with Wind Condition*		Tower/Pole Analysis with antennas extending above top of Tower/Pole	Use NESC C2-2007, Section 25, Rule 250D: Extreme Ice with Wind Loading 4PSF Wind Load 1.25 x Gust Response Factor Height above ground level based on top of Mast/Antenna					1.6 Flat Surfaces 1.3 Round Surfaces
		Tower/Pole Analysis with Antennas below top of Tower/Pole	Use NESC C2-2007, Section 25, Rule 250D: Extreme Ice with Wind Loading 4PSF Wind Load Height above ground level based on top of Tower/Pole					1.6 Flat Surfaces 1.3 Round Surfaces
		Conductors:	Conductor loads provided by NU					

* Only for Structures Installed after 2007

Communication Antennas on Transmission Structures (CL&P & WMECo Only)

Northeast Utilities
Approved by: DEH (NU)

Design

OTRM 059

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Northeast Utilities Overhead Transmission Standards

- 2) STEP 2 - The electric transmission structure analysis and evaluation shall be performed in accordance with NESC requirements and shall include the mast and antenna loads determined from NESC applied loading conditions (not TIA/EIA Loads) on the structure and mount as specified below, and shall include the wireless communication mast and antenna loads per NESC criteria)

The structure shall be analyzed using yield stress theory in accordance with Attachment A, "NU Design Criteria." This specifies uniform loadings (different from the TIA loadings) on each of the following components of the installed facility:

- a) Wireless communication mast for its total height above ground level, including the initial and any planned future equipment (Support Platforms, Antennas, TMA's etc.) above the top of an electric transmission structure.
- b) Conductors and related devices and hardware (wire loads will be provided by NU).
- c) Electric Transmission Structure
 - i) The loads from the wireless communication equipment components based on NESC and NU Criteria in Attachment A, and from the electric conductors shall be applied to the structure at conductor and wireless communication mast attachment points, where those loads transfer to the tower.
 - ii) Shape Factor Multiplier:

NESC Structure Shape	Cd
Polyround (for polygonal steel poles)	1.3
Flat	1.6
Open Lattice	3.2

- iii) When Coaxial Cables are mounted along side the pole structure, the shape multiplier shall be:

Mount Type	Cable Cd	Pole Cd
Coaxial Cables on outside periphery (One layer)	1.45	1.45
Coaxial Cables mounted on stand offs	1.6	1.3

- d) The uniform loadings and factors specified for the above components in Attachment A, "NU Design Criteria" are based upon the National Electric Safety Code 2007 Edition Extreme Wind (Rule 250C) and Combined Ice and Wind (Rule 250B-Heavy) Loadings. These provide equivalent loadings compared to the TIA and its loads and factors with the exceptions noted above.

Note: The NESC does not require ice load be included in the supporting structure. (Ice on conductors and shield wire only, and NU will provide these loads).

- e) Mast reaction loads shall be evaluated for local effects on the transmission structure members at the attachment points.

If the electric transmission structure is not sufficient to support the additional loadings of the wireless communication mast, reinforcement will be required to upgrade the strength of the overstressed members. Any reinforcement design will be reviewed by NU TL&CE to determine the feasibility of construction and its impact on the use of the structure as a transmission structure.

Communication Antennas on Transmission Structures (CL&P & WMECo Only)

Northeast Utilities Approved by: DEH (NU)	Design	OTRM 059	Rev.0
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Wire Ld

01/21/2005

TITLE Verizon, Glastonbury
STRUCT # 12196

Conductor/ Shield Wire/OPGW

Number of Conductors per phase	BLUEBIRD		BLUEBIRD		1
	AHEAD	BACK	AHEAD	BACK	
1	2156.000	2156.000	84/19 ACSR	84/19 ACSR	1
DIAM = WEIGHT =	1.762	1.762			
	2.507	2.507			
TENSION (LBS)	AHEAD	18,000	BACK	18,000	

LOADCASE	NESC HEAVY
WIND (PSF)	4
ICE (IN)	0.50
OLF ANG	1.65
OLF WIND	2.50
OLF WT	1.50

STR	ANGLE	WIND SPAN	WGT SPAN	H	NESC HEAVY L	V
BACK	0	395	224	910	-29700	1313
AHEAD	0	395	224	909	29700	1315
TOTALS	0.00	790	448	1819	0	2628

TITLE Verizon, Glastonbury

STRUCT # 12196

01/21/2005

Number of Conductors per phase	Conductor/ Shield Wire/OPGW		2156.000	84/19 ACSR	2156.000	84/19 ACSR	Number of Conductors per phase
	AHEAD	BACK					
1	BLUEBIRD	BLUEBIRD	2156.000	84/19 ACSR	2156.000	84/19 ACSR	1
DIAM =			1.762		1.762		
WEIGHT =			2.507		2.507		

TENSION (LBS)	AHEAD	BACK
	17,506	17,506

LOADCASE	HI WIND
WIND (mph)	110
ICE (IN)	0.00
OLF ANG	1.00
OLF WT	1.00

STR	ANGLE	WIND SPAN	WGT SPAN	H	HI WIND L	V
BACK	0	395	224	1532	-17506	561
AHEAD	0	395	224	1531	17506	562
TOTALS	0.0	790	448	3063	0	1122

Ahead
 Velocity (mph) 110
 Vel. Pres Coeff:k 1.2
 Gust Response 0.71
 Back
 Velocity (mph) 110
 Vel. Pres Coeff:k 1.2
 Gust Response 0.71

33061

Wire Ld

TITLE Verizon, Glastonbury
STRUCT # 12197

01/21/2005

		Conductor Shield Wire / OPGW		
		AHEAD	BACK	
Number of Conductors per phase		3/8 AW	3/8 AW	
1		0.000	0.000	1
		7 #8 Al Weld	7 #8 Al Weld	
	DIAM =	0.385	0.385	
	WEIGHT =	0.262	0.262	
TENSION (LBS)		AHEAD	BACK	
		4,200	4,200	

LOADCASE		NESC HEAVY
WIND (PSF)		4
ICE (IN)		0.50
OLF ANG		1.65
OLF WIND		2.50
OLF WT		1.50

STR	ANGLE	WIND SPAN	WGT SPAN	H	NESC HEAVY L	V
BACK	0	395	224	456	-6930	272
AHEAD	0	395	224	456	6930	273
TOTALS	0.00	790	448	912	0	545

Wire Wind Ld

TITLE Verizon, Glastonbury
STRUCT # 12197
01/21/2005

Conductors/Shield Wire/OPGW		AHEAD		BACK		Number of Conductors per phase
Number of Conductors per phase		3/8 AW	3/8 AW	3/8 AW	3/8 AW	
1		0.000	0.000	0.000	0.000	1
DIAM =		7 #8 Al Weld		7 #8 Al Weld		
WEIGHT =		0.385		0.385		
		0.262		0.262		

TENSION (LBS)	AHEAD	3,436	BACK	3,436
---------------	-------	-------	------	-------

LOADCASE	HI WIND
WIND (mph)	110
ICE (IN)	0.00
OLF ANG	1.00
OLF WT	1.00

STR	ANGLE	WIND SPAN	WGT SPAN	H	HI WIND L	V
BACK	0	395	224	335	-3436	59
AHEAD	0	395	224	334	3436	59
TOTALS	0.0	790	448	669	0	117

Ahead
 Velocity (mph) 110
 Vel. Pres Coeffk 1.2
 Gust Response 0.71
 Back
 Velocity (mph) 110
 Vel. Pres Coeffk 1.2
 Gust Response 0.71

☉ VERIZON WIRELESS
ANTENNAS EL. ±132'-0" AGL

☉ TOP OF CL&P TOWER
EL. ±111'-0" AGL

PROPOSED TWO (2) SWEDCOM SLCF
2X6014 PANEL ANTENNAS, ONE (1)
ANTEL BXA-70063-4CF PANEL
ANTENNA, TWO (2) ANTEL
LPA-80063-4CF PANEL ANTENNAS,
THREE (3) ANTEL BXA-171063-12BF
PANEL ANTENNAS AND SIX (6) RFS
FD9R6004/2C-3L DIPLEXERS
MOUNTED ON A 12' LOW PROFILE
PLATFORM.

NOTE:

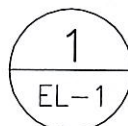
1. EXISTING FOUR (4) ANTEL
LPD-6513 PANEL ANTENNAS TO
REMAIN
2. EXISTING TWO (2) ANTEL
LPD-6513 AND SIX (6) ANTEL
LPA-185063-8CF PANEL
ANTENNAS TO BE REMOVED

EXISTING 18" SCH.
40 X 132'-0" TALL
FWT POWERMOUNT

VERIZON WIRELESS EXISTING
TWELVE (12) 1-5/8" DIA.
COAX CABLES MOUNTED
WITHIN FWT POWERMOUNT

EXISTING 111' TALL CL&P
STEEL TRANSMISSION
STRUCTURE NO. 12197

EXIST. GRADE



TOWER & MAST ELEVATION

SCALE: NOT TO SCALE

REVISIONS

A	2/27/12	ISSUED FOR NU REVIEW
1	4/25/12	CONSTRUCTION
2	7/3/12	CONSTRUCTION

CEN TEK engineering
Centered on Solutions™
www.CentekEng.com
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road, Branford, CT 06405

EAST
GLASTONBURY 3
CL&P 12197
HEBRON AVE
GLASTONBURY, CT 06033

PROJECT NO: 12001.CO16
DRAWN BY: T.JL
CHECKED BY: CFC
SCALE: AS NOTED
DATE: 2/27/12

TOWER AND MAST
ELEVATION
EL-1
DWG. 1 OF 1

**Development of Design Heights, Exposure Coefficients,
and Velocity Pressures Per TIA/EIA**

Wind Speeds

Basic Wind Speed

$$V := 85$$

mph

(User Input per NU Mast Design Criteria Exception 1)

Basic Wind Speed with Ice

$$V_i := 74$$

mph

(User Input per TIA/EIA-222-F Section 2.3.16)

Heights above ground level, z

Powermount Section 1

$$z_{pmnt1} := 126$$

ft

(User Input)

Powermount Section 2

$$z_{pmnt2} := 105$$

ft

(User Input)

Powermount Section 3

$$z_{pmnt3} := 75$$

ft

(User Input)

Powermount Section 4

$$z_{pmnt4} := 45$$

ft

(User Input)

Powermount Section 5

$$z_{pmnt5} := 15$$

ft

(User Input)

Antenna

$$z_{ant} := 132$$

ft

(User Input)

Platform

$$z_{plt} := 132$$

ft

(User Input)

Brace Member

$$z_{mem} := 111.5$$

ft

(User Input)

Exposure Coefficients, k_z

(per TIA/EIA-222-F Section 2.3.3)

Powermount Section 1

$$K_{z_{pmnt1}} := \left(\frac{z_{pmnt1}}{33} \right)^{\frac{2}{7}} = 1.466$$

Powermount Section 2

$$K_{z_{pmnt2}} := \left(\frac{z_{pmnt2}}{33} \right)^{\frac{2}{7}} = 1.392$$

Powermount Section 3

$$K_{z_{pmnt3}} := \left(\frac{z_{pmnt3}}{33} \right)^{\frac{2}{7}} = 1.264$$

Powermount Section 4

$$K_{z_{pmnt4}} := \left(\frac{z_{pmnt4}}{33} \right)^{\frac{2}{7}} = 1.093$$

Powermount Section 5

$$K_{z_{pmnt5}} := \left(\frac{z_{pmnt5}}{33} \right)^{\frac{2}{7}} = 0.798$$

Antenna

$$K_{z_{ant}} := \left(\frac{z_{ant}}{33} \right)^{\frac{2}{7}} = 1.486$$

Platform

$$K_{z_{plt}} := \left(\frac{z_{plt}}{33} \right)^{\frac{2}{7}} = 1.486$$

Brace Member

$$K_{z_{mem}} := \left(\frac{z_{mem}}{33} \right)^{\frac{2}{7}} = 1.416$$

Velocity Pressure without ice, q_z

(per TIA/EIA-222-F Section 2.3.3)

Powermount Section 1	$q_{z_{pmnt1}} := 0.00256 \cdot K_{z_{pmnt1}} \cdot V^2 = 27.122$
Powermount Section 2	$q_{z_{pmnt2}} := 0.00256 \cdot K_{z_{pmnt2}} \cdot V^2 = 25.745$
Powermount Section 3	$q_{z_{pmnt3}} := 0.00256 \cdot K_{z_{pmnt3}} \cdot V^2 = 23.386$
Powermount Section 4	$q_{z_{pmnt4}} := 0.00256 \cdot K_{z_{pmnt4}} \cdot V^2 = 20.21$
Powermount Section 5	$q_{z_{pmnt5}} := 0.00256 \cdot K_{z_{pmnt5}} \cdot V^2 = 14.765$
Antenna	$q_{z_{ant}} := 0.00256 \cdot K_{z_{ant}} \cdot V^2 = 27.485$
Platform	$q_{z_{plt}} := 0.00256 \cdot K_{z_{plt}} \cdot V^2 = 27.485$
Brace Member	$q_{z_{mem}} := 0.00256 \cdot K_{z_{mem}} \cdot V^2 = 26.191$

Velocity Pressure with ice, q_{zICE}

(per TIA/EIA-222-F Section 2.3.3)

Powermount Section 1	$q_{zICE_{pmnt1}} := 0.00256 \cdot K_{z_{pmnt1}} \cdot V_i^2 = 20.556$
Powermount Section 2	$q_{zICE_{pmnt2}} := 0.00256 \cdot K_{z_{pmnt2}} \cdot V_i^2 = 19.513$
Powermount Section 3	$q_{zICE_{pmnt3}} := 0.00256 \cdot K_{z_{pmnt3}} \cdot V_i^2 = 17.725$
Powermount Section 4	$q_{zICE_{pmnt4}} := 0.00256 \cdot K_{z_{pmnt4}} \cdot V_i^2 = 15.318$
Powermount Section 5	$q_{zICE_{pmnt5}} := 0.00256 \cdot K_{z_{pmnt5}} \cdot V_i^2 = 11.191$
Antenna	$q_{zICE_{ant}} := 0.00256 \cdot K_{z_{ant}} \cdot V_i^2 = 20.832$
Platform	$q_{zICE_{plt}} := 0.00256 \cdot K_{z_{plt}} \cdot V_i^2 = 20.832$
Brace Member	$q_{zICE_{mem}} := 0.00256 \cdot K_{z_{mem}} \cdot V_i^2 = 19.851$

TIA/EIA Common Factors:

Gust Response Factor =	$G_H := 1.69$	(User Input per TIA/EIA-222-F Section 2.3.4)
Gust Response Factor Multiplier =	$m := 1.25$	(User Input per TIA/EIA-222-F Section 2.3.4.4)
Radial Ice Thickness =	$I_r := 0.50$	in (User Input per TIA/EIA-222-F Section 2.3.1)
Radial Ice Density =	$I_d := 56.00$	pcf (User Input)

Subject:

 Load Analysis of Powermount on CL&P
 Tower # 12197

Location:

Glastonbury, CT

Rev. 1: 4/19/12

 Prepared by: T.J.L. Checked by: C.F.C.
 Job No. 12001.CO16

Development of Wind & Ice Load on Powermount
Powermount Data:

Powermount Shape = Round (User Input)
 Powermount Diameter = $D_{pmnt} := 18$ in (User Input)
 Powermount Length = $L_{pmnt} := 132$ ft (User Input)
 Powermount Thickness = $t_{pmnt} := 0.375$ in (User Input)

$$C := \sqrt{Kz_{pmnt5} \cdot V} \cdot \frac{D_{pmnt}}{12} = 114$$

Powermount Force Coefficient = $CF_{pmnt} = 0.59$ (per TIA/EIA-222-F Table 1)

(per TIA/EIA-222-F-1996 Criteria)

(18" Std. Pipe)

Wind Load (without ice)

(per TIA/EIA-222-F-1996 Section 2.3.2)

$$A_{pmnt} := \frac{D_{pmnt}}{12} = 1.5$$

Total Powermount Section 1 Wind Force =	$qz_{pmnt1} \cdot G_H \cdot CF_{pmnt} \cdot A_{pmnt} = 41$	plf	BLC 5,7
Total Powermount Section 2 Wind Force =	$qz_{pmnt2} \cdot G_H \cdot CF_{pmnt} \cdot A_{pmnt} = 39$	plf	BLC 5,7
Total Powermount Section 3 Wind Force =	$qz_{pmnt3} \cdot G_H \cdot CF_{pmnt} \cdot A_{pmnt} = 35$	plf	BLC 5,7
Total Powermount Section 4 Wind Force =	$qz_{pmnt4} \cdot G_H \cdot CF_{pmnt} \cdot A_{pmnt} = 30$	plf	BLC 5,7
Total Powermount Section 5 Wind Force =	$qz_{pmnt5} \cdot G_H \cdot CF_{pmnt} \cdot A_{pmnt} = 22$	plf	BLC 5,7

Wind Load (with ice)

(per TIA/EIA-222-F-1996 Section 2.3.2)

$$A_{ICE_{pmnt}} := \frac{(D_{pmnt} + 2 \cdot Ir)}{12} = 1.583$$

Total Powermount Section 1 Wind Force w/ Ice =	$qz_{ICE_{pmnt1}} \cdot G_H \cdot CF_{pmnt} \cdot A_{ICE_{pmnt}} = 32$	plf	BLC 4,6
Total Powermount Section 2 Wind Force w/ Ice =	$qz_{ICE_{pmnt2}} \cdot G_H \cdot CF_{pmnt} \cdot A_{ICE_{pmnt}} = 31$	plf	BLC 4,6
Total Powermount Section 3 Wind Force w/ Ice =	$qz_{ICE_{pmnt3}} \cdot G_H \cdot CF_{pmnt} \cdot A_{ICE_{pmnt}} = 28$	plf	BLC 4,6
Total Powermount Section 4 Wind Force w/ Ice =	$qz_{ICE_{pmnt4}} \cdot G_H \cdot CF_{pmnt} \cdot A_{ICE_{pmnt}} = 24$	plf	BLC 4,6
Total Powermount Section 5 Wind Force w/ Ice =	$qz_{ICE_{pmnt5}} \cdot G_H \cdot CF_{pmnt} \cdot A_{ICE_{pmnt}} = 18$	plf	BLC 4,6

Gravity Loads (without ice)

Weight of the Powermount = Self Weight (Computed internally by Risa-3D) plf **BLC 1**

Gravity Loads (Ice only)

$$A_{i_{pmnt}} := \frac{\pi}{4} \left[(D_{pmnt} + Ir \cdot 2)^2 - D_{pmnt}^2 \right] = 29.1$$

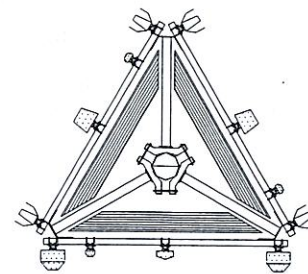
$$W_{ICE_{pmnt}} := Id \cdot \frac{A_{i_{pmnt}}}{144} = 11$$

Development of Wind & Ice Load on Antennas

(per TIA/EIA-222-F-1996 Criteria)

Antenna Data:

Antenna Model =	Swedcom SLCP 2x6014	
Antenna Shape =	Flat	(User Input)
Antenna Height =	$L_{ant} := 53$	in (User Input)
Antenna Width =	$W_{ant} := 14$	in (User Input)
Antenna Thickness =	$T_{ant} := 11$	in (User Input)
Antenna Weight =	$WT_{ant} := 20$	lbs (User Input)
Number of Antennas =	$N_{ant} := 2$	(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 3.8$	
Antenna Force Coefficient =	$Ca_{ant} = 1.4$	(per TIA/EIA-222-F-1996 Table 3)



Wind Load (without ice)

(per TIA/EIA-222-F-1996 Section 2.3.2)

*Assumes Maximum Possible Wind Pressure
Applied to all Antennas Simultaneously*

Surface Area for One Antenna =

$$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 5.2 \quad sf$$

Antenna Projected Surface Area =

$$A_{ant} := SA_{ant} \cdot N_{ant} = 10.3 \quad sf$$

Total Antenna Wind Force =

$$F_{ant} := qz_{ant} \cdot G_H \cdot Ca_{ant} \cdot A_{ant} = 670 \quad lbs \quad \text{BLC 5,7}$$

Wind Load (with ice)

(per TIA/EIA-222-F-1996 Section 2.3.2)

*Assumes Maximum Possible Wind Pressure
Applied to all Antennas Simultaneously*

Surface Area for One Antenna w/ Ice =

$$SA_{ICEant} := \frac{(L_{ant} + 1) \cdot (W_{ant} + 1)}{144} = 5.6 \quad sf$$

Antenna Projected Surface Area w/ Ice =

$$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 11.3 \quad sf$$

Total Antenna Wind Force w/ Ice =

$$F_{ICEant} := qz_{ICEant} \cdot G_H \cdot Ca_{ant} \cdot A_{ICEant} = 554 \quad lbs \quad \text{BLC 4,6}$$

Gravity Load (without ice)

Weight of All Antennas =

$$WT_{ant} \cdot N_{ant} = 40 \quad lbs \quad \text{BLC 2}$$

Gravity Loads (ice only)

Volume of Each Antenna =

$$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 8162 \quad cu \text{ in}$$

Volume of Ice on Each Antenna =

$$V_{ice} := (L_{ant} + 1) \cdot (W_{ant} + 1) \cdot (T_{ant} + 1) - V_{ant} = 1558 \quad cu \text{ in}$$

Weight of Ice on Each Antenna =

$$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 50 \quad lbs$$

Weight of Ice on All Antennas =

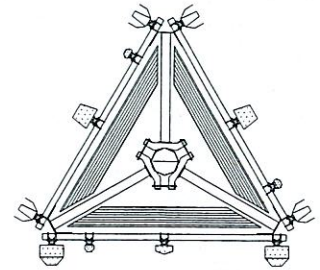
$$W_{ICEant} \cdot N_{ant} = 101 \quad lbs \quad \text{BLC 3}$$

Development of Wind & Ice Load on Antennas

(per TIA/EIA-222-F-1996 Criteria)

Antenna Data:

Antenna Model =	Antel BXA-70063-4CF	
Antenna Shape =	Flat	(User Input)
Antenna Height =	$L_{ant} := 47.4$	in (User Input)
Antenna Width =	$W_{ant} := 11.2$	in (User Input)
Antenna Thickness =	$T_{ant} := 5.2$	in (User Input)
Antenna Weight =	$WT_{ant} := 10$	lbs (User Input)
Number of Antennas =	$N_{ant} := 1$	(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 4.2$	
Antenna Force Coefficient =	$Ca_{ant} = 1.4$	(per TIA/EIA-222-F-1996 Table 3)


Wind Load (without ice)

(per TIA/EIA-222-F-1996 Section 2.3.2)

*Assumes Maximum Possible Wind Pressure
 Applied to all Antennas Simultaneously*

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 3.7$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 3.7$	sf

Total Antenna Wind Force =

$$F_{ant} := qz_{ant} \cdot G_H \cdot Ca_{ant} \cdot A_{ant} = 240 \quad \text{lbs} \quad \text{BLC 5,7}$$

Wind Load (with ice)

(per TIA/EIA-222-F-1996 Section 2.3.2)

*Assumes Maximum Possible Wind Pressure
 Applied to all Antennas Simultaneously*

Surface Area for One Antenna w/ Ice =	$SA_{ICEant} := \frac{(L_{ant} + 1) \cdot (W_{ant} + 1)}{144} = 4.1$	sf
Antenna Projected Surface Area w/ Ice =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 4.1$	sf

Total Antenna Wind Force w/ Ice =

$$F_{ant} := qz_{ICEant} \cdot G_H \cdot Ca_{ant} \cdot A_{ICEant} = 202 \quad \text{lbs} \quad \text{BLC 4,6}$$

Gravity Load (without ice)
Weight of All Antennas =

$$WT_{ant} \cdot N_{ant} = 10 \quad \text{lbs} \quad \text{BLC 2}$$

Gravity Loads (ice only)

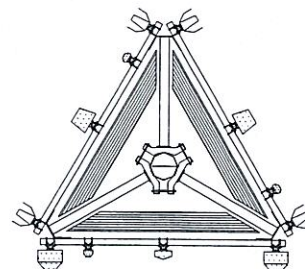
Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 2761$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 1) \cdot (W_{ant} + 1) \cdot (T_{ant} + 1) - V_{ant} = 900$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot \rho_d = 29$	lbs
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 29$	lbs BLC 3

Development of Wind & Ice Load on Antennas

(per TIA/EIA-222-F-1996 Criteria)

Antenna Data:

Antenna Model =	Antel LPD-6513	
Antenna Shape =	Flat	(User Input)
Antenna Height =	$L_{ant} := 47.2$	in (User Input)
Antenna Width =	$W_{ant} := 13.98$	in (User Input)
Antenna Thickness =	$T_{ant} := 11.22$	in (User Input)
Antenna Weight =	$WT_{ant} := 28$	lbs (User Input)
Number of Antennas =	$N_{ant} := 4$	(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 3.4$	
Antenna Force Coefficient =	$Ca_{ant} = 1.4$	(per TIA/EIA-222-F-1996 Table 3)



Wind Load (without ice)

(per TIA/EIA-222-F-1996 Section 2.3.2)

*Assumes Maximum Possible Wind Pressure
Applied to all Antennas Simultaneously*

$$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 4.6 \quad sf$$

$$A_{ant} := SA_{ant} \cdot N_{ant} = 18.3 \quad sf$$

$$F_{ant} := qz_{ant} \cdot G_H \cdot Ca_{ant} \cdot A_{ant} = 1192 \quad lbs \quad \text{BLC 5,7}$$

Wind Load (with ice)

(per TIA/EIA-222-F-1996 Section 2.3.2)

*Assumes Maximum Possible Wind Pressure
Applied to all Antennas Simultaneously*

$$SA_{ICEant} := \frac{(L_{ant} + 1) \cdot (W_{ant} + 1)}{144} = 5 \quad sf$$

$$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 20.1 \quad sf$$

$$F_{ICEant} := qz_{ICEant} \cdot G_H \cdot Ca_{ant} \cdot A_{ICEant} = 989 \quad lbs \quad \text{BLC 4,6}$$

Gravity Load (without ice)

$$WT_{ant} \cdot N_{ant} = 112 \quad lbs \quad \text{BLC 2}$$

Gravity Loads (ice only)

$$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 7404 \quad cu \text{ in}$$

$$V_{ice} := (L_{ant} + 1) \cdot (W_{ant} + 1) \cdot (T_{ant} + 1) - V_{ant} = 1420 \quad cu \text{ in}$$

$$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 46 \quad lbs$$

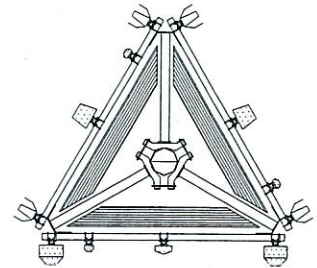
$$W_{ICEant} \cdot N_{ant} = 184 \quad lbs \quad \text{BLC 3}$$

Development of Wind & Ice Load on Antennas

(per TIA/EIA-222-F-1996 Criteria)

Antenna Data:

Antenna Model =	Antel LPA-80063-4CF	
Antenna Shape =	Flat	(User Input)
Antenna Height =	$L_{ant} := 47.4$	in (User Input)
Antenna Width =	$W_{ant} := 15.2$	in (User Input)
Antenna Thickness =	$T_{ant} := 13.1$	in (User Input)
Antenna Weight =	$WT_{ant} := 20$	lbs (User Input)
Number of Antennas =	$N_{ant} := 2$	(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 3.1$	
Antenna Force Coefficient =	$Ca_{ant} = 1.4$	(per TIA/EIA-222-F-1996 Table 3)



Wind Load (without ice)

(per TIA/EIA-222-F-1996 Section 2.3.2)

*Assumes Maximum Possible Wind Pressure
Applied to all Antennas Simultaneously*

Surface Area for One Antenna = $SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 5$ sf

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 10$ sf

Total Antenna Wind Force = $F_{ant} := qz_{ant} \cdot G_H \cdot Ca_{ant} \cdot A_{ant} = 651$ lbs **BLC 5,7**

Wind Load (with ice)

(per TIA/EIA-222-F-1996 Section 2.3.2)

*Assumes Maximum Possible Wind Pressure
Applied to all Antennas Simultaneously*

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := \frac{(L_{ant} + 1) \cdot (W_{ant} + 1)}{144} = 5.4$ sf

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 10.9$ sf

Total Antenna Wind Force w/ Ice = $F_{ICEant} := qz_{ICEant} \cdot G_H \cdot Ca_{ant} \cdot A_{ICEant} = 537$ lbs **BLC 4,6**

Gravity Load (without ice)

Weight of All Antennas = $WT_{ant} \cdot N_{ant} = 40$ lbs **BLC 2**

Gravity Loads (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 9438$ cu in

Volume of Ice on Each Antenna = $V_{ice} := (L_{ant} + 1) \cdot (W_{ant} + 1) \cdot (T_{ant} + 1) - V_{ant} = 1617$ cu in

Weight of Ice on Each Antenna = $W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 52$ lbs

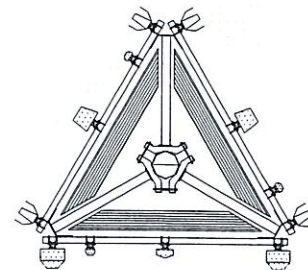
Weight of Ice on All Antennas = $W_{ICEant} \cdot N_{ant} = 105$ lbs **BLC 3**

Development of Wind & Ice Load on Antennas

(per TIA/EIA-222-F-1996 Criteria)

Antenna Data:

Antenna Model =	Antel BXA-171063-12BF	
Antenna Shape =	Flat	(User Input)
Antenna Height =	$L_{ant} := 71.7$	in (User Input)
Antenna Width =	$W_{ant} := 6.1$	in (User Input)
Antenna Thickness =	$T_{ant} := 4.1$	in (User Input)
Antenna Weight =	$WT_{ant} := 15$	lbs (User Input)
Number of Antennas =	$N_{ant} := 3$	(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 11.8$	
Antenna Force Coefficient =	$Ca_{ant} = 1.56$	(per TIA/EIA-222-F-1996 Table 3)



Wind Load (without ice)

(per TIA/EIA-222-F-1996 Section 2.3.2)

*Assumes Maximum Possible Wind Pressure
Applied to all Antennas Simultaneously*

Surface Area for One Antenna = $SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 3$ sf

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 9.1$ sf

Total Antenna Wind Force = $F_{ant} := qz_{ant} \cdot G_H \cdot Ca_{ant} \cdot A_{ant} = 660$ lbs **BLC 5,7**

Wind Load (with ice)

(per TIA/EIA-222-F-1996 Section 2.3.2)

*Assumes Maximum Possible Wind Pressure
Applied to all Antennas Simultaneously*

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := \frac{(L_{ant} + 1) \cdot (W_{ant} + 1)}{144} = 3.6$ sf

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 10.8$ sf

Total Antenna Wind Force w/ Ice = $F_{ICEant} := qz_{ICEant} \cdot G_H \cdot Ca_{ant} \cdot A_{ICEant} = 590$ lbs **BLC 4,6**

Gravity Load (without ice)

Weight of All Antennas = $WT_{ant} \cdot N_{ant} = 45$ lbs **BLC 2**

Gravity Loads (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 1793$ cu in

Volume of Ice on Each Antenna = $V_{ice} := (L_{ant} + 1) \cdot (W_{ant} + 1) \cdot (T_{ant} + 1) - V_{ant} = 839$ cu in

Weight of Ice on Each Antenna = $W_{ICEant} := \frac{V_{ice}}{1728} \cdot \rho_d = 27$ lbs

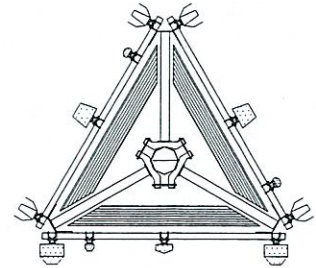
Weight of Ice on All Antennas = $W_{ICEant} \cdot N_{ant} = 82$ lbs **BLC 3**

Development of Wind & Ice Load on Antennas

(per TIA/EIA-222-F-1996 Criteria)

Antenna Data:

Antenna Model =	RFS FD9R6004/2C-3L Diplexer	
Antenna Shape =	Flat	(User Input)
Antenna Height =	$L_{ant} := 5.8$ in	(User Input)
Antenna Width =	$W_{ant} := 6.5$ in	(User Input)
Antenna Thickness =	$T_{ant} := 1.5$ in	(User Input)
Antenna Weight =	$WT_{ant} := 3$ lbs	(User Input)
Number of Antennas =	$N_{ant} := 6$	(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 0.9$	
Antenna Force Coefficient =	$Ca_{ant} = 1.4$	(per TIA/EIA-222-F-1996 Table 3)



Wind Load (without ice)

(per TIA/EIA-222-F-1996 Section 2.3.2)

*Assumes Maximum Possible Wind Pressure
Applied to all Antennas Simultaneously*

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 0.3$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 1.6$	sf

Total Antenna Wind Force =	$F_{ant} := qz_{ant} \cdot G_H \cdot Ca_{ant} \cdot A_{ant} = 102$	lbs	BLC 5,7
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Wind Load (with ice)

(per TIA/EIA-222-F-1996 Section 2.3.2)

*Assumes Maximum Possible Wind Pressure
Applied to all Antennas Simultaneously*

Surface Area for One Antenna w/ Ice =	$SA_{ICEant} := \frac{(L_{ant} + 1) \cdot (W_{ant} + 1)}{144} = 0.4$	sf
Antenna Projected Surface Area w/ Ice =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 2.1$	sf

Total Antenna Wind Force w/ Ice =	$F_{ant} := qz_{ICEant} \cdot G_H \cdot Ca_{ant} \cdot A_{ICEant} = 105$	lbs	BLC 4,6
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Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 18$	lbs	BLC 2
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Gravity Loads (Ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 57$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 1)(W_{ant} + 1)(T_{ant} + 1) - V_{ant} = 71$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot \rho_{ice} = 2$	lbs
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 14$	lbs

Subject:

Load Analysis of Powermount on CL&P
Tower # 12197

Location:

Glastonbury, CT

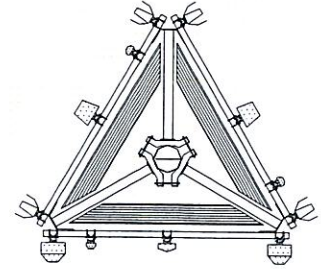
Rev. 1: 4/19/12

Prepared by: T.J.L. Checked by: C.F.C.
Job No. 12001.CO16**Development of Wind & Ice Load on Platform**

(per TIA/EIA-222-F-1996 Criteria)

Platform Data:

Platform Model =	12' Low Profile Platform		
Platform Shape =	Flat	(User Input)	
Platform Area =	$CaA_{plt} := 22.27$	sq ft	(User Input)
Platform Area w/ Ice =	$CaA_{ICE,plt} := 25.88$	sq ft	(User Input)
Platform Weight =	$WT_{plt} := 3062$	lbs	(User Input)
Platform Weight w/ Ice =	$WT_{ICE,plt} := 4163$	lbs	(User Input)

**Wind Load (without ice)**

(per TIA/EIA-222-F-1996 Section 2.3.2)

Total Platform Wind Force =

$$F_{plt} := qz_{plt} \cdot G_H \cdot CaA_{plt} = 1034$$

lbs **BLC 5,7****Wind Load (with ice)**

(per TIA/EIA-222-F-1996 Section 2.3.2)

Total Platform Wind Force w/ Ice =

$$F_{plt} := qz_{ICE,plt} \cdot G_H \cdot CaA_{ICE,plt} = 911$$

lbs **BLC 4,6****Gravity Load (without ice)**

Weight of Platform =

$$WT_{plt} = 3062$$

lbs **BLC 2****Gravity Loads (Ice only)**

Weight of Ice on Platform =

$$WT_{ICE,plt} - WT_{plt} = 1101$$

lbs **BLC 3**

Subject:

Load Analysis of Powermount on CL&P
Tower # 12197

Location:

Glastonbury, CT

Rev. 1: 4/19/12

Prepared by: T.J.L. Checked by: C.F.C.
Job No. 12001.CO16

Development of Wind & Ice Load on Coax Cables

per TIA/EIA-222-F-96 Criteria

Coax Cable Data:

Coax Type =	HELIAX 1-5/8"	
Shape =	Round	(User Input)
Coax Outside Diameter =	$D_{coax} := 1.98$	in (User Input)
Coax Cable Length =	$L_{coax} := 132$	ft (User Input)
Weight of Coax per foot =	$Wt_{coax} := 1.04$	plf (User Input)
Total Number of Coax =	$N_{coax} := 12$	(User Input)
No. of Coax Projecting Outside Face of PCS Mast =	$NP_{coax} := 0$	(User Input) (Coax within Powermount)
Coax aspect ratio,	$Ar_{coax} := \frac{(L_{coax} \cdot 12)}{D_{coax}} = 800$	
Coax Cable Force Factor Coefficient =	$Ca_{coax} = 1.2$	TIA/EIA-222-F-96 Table 3

Wind Load (without ice)

per TIA/EIA-222-F-96 Section 2.3.2

Coax projected surface area =	$A_{coax} := 0$	ft
Total Coax Wind Force =	$F_{coax} := 0$	plf BLC 5,7

Wind Load (with ice)

per TIA/EIA-222-F-96 Section 2.3.2

Coax projected surface area w/ ice =	$AICE_{coax} := 0$	ft
Total Coax Wind Force w/ ice =	$Fi_{coax} := 0$	plf BLC 4,6

Gravity Loads (without ice)

Weight of all cables w/o ice	$WT_{coax} := Wt_{coax} \cdot N_{coax} = 12$	plf BLC 2
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Gravity Loads (Ice only)

Ice Area per Linear Foot =	$AI_{coax} := 0$	sq in
Ice Weight All Coax per foot =	$WTi_{coax} := Id \cdot \left(N_{coax} \cdot \frac{AI_{coax}}{144} \right) = 0$	plf BLC 3

Subject:

 Load Analysis of Powermount on CL&P
 Tower # 12197

Location:

Glastonbury, CT

Rev. 1: 4/19/12

 Prepared by: T.J.L. Checked by: C.F.C.
 Job No. 12001.CO16

Development of Wind & Ice Load on Brace Member

(per TIA/EIA-222-F-1996 Criteria)

Member Data:

L5x5x3/8

Antenna Shape =

Flat

(User Input)

Height =

 $H_{mem} := 5$ in

(User Input)

Width =

 $W_{mem} := 5$ in

(User Input)

Length =

 $L_{mem} := 156$ in

(User Input)

Member Aspect Ratio =

 $Ar_{mem} := \frac{L_{mem}}{W_{mem}} = 31.2$

Member Force Coefficient =

 $Ca_{mem} = 2$ (per TIA/EIA-222-F-1996 Table 3)

Wind Load (without ice)

(per TIA/EIA-222-F-1996 Section 2.3.2)

Member Projected Surface Area =

 $A_{mem} := \frac{H_{mem}}{12} = 0.4$ plf

Total Member Wind Force =

 $F_{mem} := qz_{mem} \cdot G_H \cdot Ca_{mem} \cdot A_{mem} = 37$ lbs **BLC 5,7**
Wind Load (with ice)

(per TIA/EIA-222-F-1996 Section 2.3.2)

Member Projected Surface Area w/ Ice =

 $A_{ICE_{mem}} := \frac{(H_{mem} + 2 \cdot Ir)}{12} = 0.5$ plf

Total Member Wind Force w/ Ice =

 $F_{I_{mem}} := qz_{ICE_{mem}} \cdot G_H \cdot Ca_{mem} \cdot A_{ICE_{mem}} = 34$ lbs **BLC 4,6**
Gravity Load (without ice)

Weight of Member =

 Self Weight lbs **BLC 1**
Gravity Loads (ice only)

Ice Area per Linear foot =

 $Ai_{mem} := (W_{mem} + 2 \cdot Ir) \cdot (H_{mem} + 2 \cdot Ir) - W_{mem} \cdot H_{mem} = 11$ sq in

Weight of Ice on Member =

 $W_{ICE_{mem}} := Id \cdot \frac{Ai_{mem}}{144} = 4$ plf **BLC 3**

CENTEK engineering, INC. Consulting Engineers 63-2 North Branford Road Branford, CT 06405 Ph. 203-488-0580 / Fax. 203-488-8587	Subject: Analysis of TIA/EIA Wind and Ice Loads for Analysis of Powermount Tabulated Load Cases Location: Glastonbury, CT Date: 2/27/12 Prepared by: T.J.L. Checked by: C.F.C. Job No. 12001.CO16
Load Case	Description
1	Self Weight (Powermountt)
2	Weight of Appurtenances
3	Weight of Ice Only on PCS Structure
4	(x) TIA/EIA Wind with Ice on PCS Structure
5	(x) TIA/EIA Wind on PCS Structure
6	(z) TIA/EIA Wind with Ice on PCS Structure
7	(z) TIA/EIA Wind on PCS Structure
Footnotes: (1) PCS Structure includes: Powermount and Appurtenances	

CENTEK engineering, INC.
Consulting Engineers
 63-2 North Branford Road
 Branford, CT 06405
 Ph. 203-488-0580 / Fax. 203-488-8587

Subject: Analysis of TIA/EIA Wind and Ice Loads for Analysis of Powermount Only
Load Combinations Table

Location: Glastonbury, CT

Date: 2/27/12 **Prepared by:** T.J.L.

Checked by: C.F.C.

Job No. 12001.CO16

Load Combination	Description	Envelope Wind											
		Soulltion	Factor	1	BLC	Factor	P-Delta	BLC	Factor	1	2	3	4
1	(x) TIA/EIA Wind + Ice on PCS Structure	1		1	1	1		1	2	1	3	1	4
2	(x) TIA/EIA Wind on PCS Structure	1		1	1	1		1	2	1	5	1	
3	(z) TIA/EIA Wind + Ice on PCS Structure	1		1	1	1		1	2	1	3	1	6
4	(z) TIA/EIA Wind on PCS Structure	1		1	1	1		1	2	1	7	1	

Footnotes:

(1) BLC = Basic Load Case

(2) PCS Structure includes: Powermount and Appurtenances

Global

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation	Yes
Include Warping	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Vertical Axis	Y
Global Member Orientation Plane	XZ

Hot Rolled Steel Code	AISC 9th: ASD
Cold Formed Steel Code	AISI 1999: ASD
Wood Code	AF&PA NDS-97: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-02
Masonry Code	ACI 530-05/08: ASD
Aluminum Code	AA ADM1-05: ASD

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	PCA Load Contour
Parame Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections	Yes
Bad Framing Warnings	No
Unused Force Warnings	Yes

Seismic Code	UBC 1997
Seismic Base Elevation (ft)	Not Entered
Ct X	.035
Ct Z	.035
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	8.5
R Z	8.5
Ct Exp. X	.75
Ct Exp. Z	.75
Ca	.36
Cv	.54
Nv	1
SD1	1
SDS	1
S1	1
Occupancy Code	4
Seismic Zone	3
Use Group	I
Use Gravity Self Wt in Diaphragm Mass	Yes
Use Deck Self Wt in Diaphragm Mass	Yes
Use Lateral Self Wt in Diaphragm Mass	Yes
Seismic Detailing Code	None
Om X	1
Om Z	1
Rho X	1
Rho Z	1

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (1/E...Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt	
1	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	58	1.2
3	A992	29000	11154	.3	.65	.49	50	1.1	58	1.2
4	A500 Gr.42	29000	11154	.3	.65	.49	42	1.3	58	1.1
5	A500 Gr.46	29000	11154	.3	.65	.49	46	1.2	58	1.1
6	A53 Gr. B	29000	11154	.3	.65	.49	35	1.5	58	1.2
7	A500 Gr. C 50	29000	11154	.3	.65	.49	50	1.1	58	1.2

Hot Rolled Steel Design Parameters

	Label	Shape	Lengt...	Lbby[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	Kyy	Kzz	Cm-...	Cm-...	Cb	y sw...	z sw...	Function
1	M1	Powerm...	5.17												Lateral
2	M2	Powerm...	6												Lateral
3	M3	Powerm...	20												Lateral
4	M4	Powerm...	20												Lateral
5	M5	Powerm...	20												Lateral
6	M6	Powerm...	20												Lateral
7	M7	Powerm...	20												Lateral
8	M8	Powerm...	20.83												Lateral
9	M9	L2.5x2.5...	4.182												Lateral
10	M10	L2.5x2.5...	4.182												Lateral
11	M11	L3x3x3/16	7.227												Lateral
12	M12	L3x3x3/16	7.227												Lateral
13	M13	L2.5x2.5...	4.182												Lateral
14	M14	L2.5x2.5...	4.182												Lateral
15	M15	L3x3x3/16	7.227												Lateral
16	M16	L3x3x3/16	7.227												Lateral
17	M17	L2.5x2.5...	4.182												Lateral
18	M18	L2.5x2.5...	4.182												Lateral
19	M19	L3x3x3/16	7.227												Lateral
20	M20	L3x3x3/16	7.227												Lateral
21	M21	L3.5x3.5...	10.732												Lateral
22	M22	L3.5x3.5...	10.732												Lateral
23	M23	L5x5x3/8	13.887												Lateral
24	M24	L5x5x3/8	13.887												Lateral

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rul...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Powermount	HSS18X0.375	Beam	Pipe	A53 Gr. B	Typical	19.4	754	754	1510
2	L5x5x3/8	L5X5X6	Beam	Single Angle	A36 Gr.36	Typical	3.61	8.74	8.74	.183
3	L3.5x3.5x1/4	L3.5X3.5X4	Beam	Single Angle	A36 Gr.36	Typical	1.69	2.01	2.01	.039
4	L3x3x3/16	L3X3X3	Beam	Single Angle	A36 Gr.36	Typical	1.09	.962	.962	.014
5	L2.5x2.5x3/16	L2.5X2.5X3	Beam	Single Angle	A36 Gr.36	Typical	.902	.547	.547	.011

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N1	N2			Powermount	Beam	Pipe	A53 Gr. B	Typical
2	M2	N2	N3			Powermount	Beam	Pipe	A53 Gr. B	Typical

Company : CENTEK Engineering, INC.
 Designer : tjf, cfc
 Job Number : 12001.CO16 - East Glastonbury, CT # 12197 - Powermount

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Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
3	M3	N3	N4			Powermount	Beam	Pipe	A53 Gr. B	Typical
4	M4	N4	N5			Powermount	Beam	Pipe	A53 Gr. B	Typical
5	M5	N5	N6			Powermount	Beam	Pipe	A53 Gr. B	Typical
6	M6	N6	N7			Powermount	Beam	Pipe	A53 Gr. B	Typical
7	M7	N7	N8			Powermount	Beam	Pipe	A53 Gr. B	Typical
8	M8	N8	N9			Powermount	Beam	Pipe	A53 Gr. B	Typical
9	M9	N27	N25			L2.5x2.5x3/16	Beam	Single Angle	A36 Gr.36	Typical
10	M10	N29	N25			L2.5x2.5x3/16	Beam	Single Angle	A36 Gr.36	Typical
11	M11	N26	N25			L3x3x3/16	Beam	Single Angle	A36 Gr.36	Typical
12	M12	N28	N25			L3x3x3/16	Beam	Single Angle	A36 Gr.36	Typical
13	M13	N22	N20			L2.5x2.5x3/16	Beam	Single Angle	A36 Gr.36	Typical
14	M14	N24	N20			L2.5x2.5x3/16	Beam	Single Angle	A36 Gr.36	Typical
15	M15	N21	N20			L3x3x3/16	Beam	Single Angle	A36 Gr.36	Typical
16	M16	N23	N20			L3x3x3/16	Beam	Single Angle	A36 Gr.36	Typical
17	M17	N17	N15			L2.5x2.5x3/16	Beam	Single Angle	A36 Gr.36	Typical
18	M18	N19	N15			L2.5x2.5x3/16	Beam	Single Angle	A36 Gr.36	Typical
19	M19	N16	N15			L3x3x3/16	Beam	Single Angle	A36 Gr.36	Typical
20	M20	N18	N15			L3x3x3/16	Beam	Single Angle	A36 Gr.36	Typical
21	M21	N12	N10			L3.5x3.5x1/4	Beam	Single Angle	A36 Gr.36	Typical
22	M22	N14	N10			L3.5x3.5x1/4	Beam	Single Angle	A36 Gr.36	Typical
23	M23	N11	N10			L5x5x3/8	Beam	Single Angle	A36 Gr.36	Typical
24	M24	N13	N10			L5x5x3/8	Beam	Single Angle	A36 Gr.36	Typical

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	N1	0	0	0	0	
2	N2	0	5.17	0	0	
3	N3	0	11.17	0	0	
4	N4	0	31.17	0	0	
5	N5	0	51.17	0	0	
6	N6	0	71.17	0	0	
7	N7	0	91.17	0	0	
8	N8	0	111.17	0	0	
9	N9	0	132	0	0	
10	N10	0	33.25	0	0	
11	N11	-8.63	33.25	10.88	0	
12	N12	-8.63	33.25	-6.38	0	
13	N13	8.63	33.25	10.88	0	
14	N14	8.63	33.25	-6.38	0	
15	N15	0	64.57	0	0	
16	N16	-3.86	64.57	6.11	0	
17	N17	-3.86	64.57	-1.61	0	
18	N18	3.86	64.57	6.11	0	
19	N19	3.86	64.57	-1.61	0	
20	N20	0	88.29	0	0	
21	N21	-3.86	88.29	6.11	0	
22	N22	-3.86	88.29	-1.61	0	
23	N23	3.86	88.29	6.11	0	
24	N24	3.86	88.29	-1.61	0	
25	N25	0	111.5	0	0	
26	N26	-3.86	111.5	6.11	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
27	N27	-3.86	111.5	-1.61	0	
28	N28	3.86	111.5	6.11	0	
29	N29	3.86	111.5	-1.61	0	

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]	Footing
1	N11	Reaction	Reaction	Reaction				
2	N13	Reaction	Reaction	Reaction				
3	N12	Reaction	Reaction	Reaction				
4	N14	Reaction	Reaction	Reaction				
5	N16	Reaction	Reaction	Reaction				
6	N18	Reaction	Reaction	Reaction				
7	N17	Reaction	Reaction	Reaction				
8	N19	Reaction	Reaction	Reaction				
9	N21	Reaction	Reaction	Reaction				
10	N23	Reaction	Reaction	Reaction				
11	N22	Reaction	Reaction	Reaction				
12	N24	Reaction	Reaction	Reaction				
13	N29	Reaction	Reaction	Reaction				
14	N27	Reaction	Reaction	Reaction				
15	N28	Reaction	Reaction	Reaction				
16	N26	Reaction	Reaction	Reaction				
17	N1	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction	

Joint Loads and Enforced Displacements (BLC 2 : Weight of Appurtenances)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...]
1	N9	L	Y	-.04
2	N9	L	Y	-.01
3	N9	L	Y	-.112
4	N9	L	Y	-.04
5	N9	L	Y	-.045
6	N9	L	Y	-.018
7	N9	L	Y	-3.062

Joint Loads and Enforced Displacements (BLC 3 : Weight of Ice Only on PCS Struct)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...]
1	N9	L	Y	-.101
2	N9	L	Y	-.029
3	N9	L	Y	-.184
4	N9	L	Y	-.105
5	N9	L	Y	-.082
6	N9	L	Y	-.014
7	N9	L	Y	-1.101

Joint Loads and Enforced Displacements (BLC 4 : (x) TIA/EIA Wind with Ice on P)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...]
1	N9	L	X	.554
2	N9	L	X	.202
3	N9	L	X	.989

Joint Loads and Enforced Displacements (BLC 4 : (x) TIA/EIA Wind with Ice on P) (Continued)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
4	N9	L	X	.537
5	N9	L	X	.59
6	N9	L	X	.105
7	N9	L	X	.911

Joint Loads and Enforced Displacements (BLC 5 : (x) TIA/EIA Wind on PCS Struct)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	N9	L	X	.67
2	N9	L	X	.24
3	N9	L	X	1.192
4	N9	L	X	.651
5	N9	L	X	.66
6	N9	L	X	.102
7	N9	L	X	1.034

Joint Loads and Enforced Displacements (BLC 6 : (z) TIA/EIA Wind with Ice on P)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	N9	L	Z	.554
2	N9	L	Z	.202
3	N9	L	Z	.989
4	N9	L	Z	.537
5	N9	L	Z	.59
6	N9	L	Z	.105
7	N9	L	Z	.911

Joint Loads and Enforced Displacements (BLC 7 : (z) TIA/EIA Wind on PCS Struct)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	N9	L	Z	.67
2	N9	L	Z	.24
3	N9	L	Z	1.192
4	N9	L	Z	.651
5	N9	L	Z	.66
6	N9	L	Z	.102
7	N9	L	Z	1.034

Member Point Loads

Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
No Data to Print ...			

Member Distributed Loads (BLC 2 : Weight of Appurtenances)

	Member Label	Direction	Start Magnitude[k/ft,deg]	End Magnitude[k/f...	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-.012	-.012	0	0
2	M2	Y	-.012	-.012	0	0
3	M3	Y	-.012	-.012	0	0
4	M4	Y	-.012	-.012	0	0
5	M5	Y	-.012	-.012	0	0
6	M6	Y	-.012	-.012	0	0
7	M7	Y	-.012	-.012	0	0

Member Distributed Loads (BLC 2 : Weight of Appurtenances) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,deg]	End Magnitude[k/f...	Start Location[ft,%]	End Location[ft,%]
8	M8	Y	-.012	-.012	0	0

Member Distributed Loads (BLC 3 : Weight of Ice Only on PCS Struct)

	Member Label	Direction	Start Magnitude[k/ft,deg]	End Magnitude[k/f...	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-.011	-.011	0	0
2	M2	Y	-.011	-.011	0	0
3	M3	Y	-.011	-.011	0	0
4	M4	Y	-.011	-.011	0	0
5	M5	Y	-.011	-.011	0	0
6	M6	Y	-.011	-.011	0	0
7	M7	Y	-.011	-.011	0	0
8	M8	Y	-.011	-.011	0	0
9	M9	Y	-.004	-.004	0	0
10	M10	Y	-.004	-.004	0	0
11	M11	Y	-.004	-.004	0	0
12	M12	Y	-.004	-.004	0	0
13	M13	Y	-.004	-.004	0	0
14	M14	Y	-.004	-.004	0	0
15	M15	Y	-.004	-.004	0	0
16	M16	Y	-.004	-.004	0	0
17	M17	Y	-.004	-.004	0	0
18	M18	Y	-.004	-.004	0	0
19	M19	Y	-.004	-.004	0	0
20	M20	Y	-.004	-.004	0	0
21	M21	Y	-.004	-.004	0	0
22	M22	Y	-.004	-.004	0	0
23	M23	Y	-.004	-.004	0	0
24	M24	Y	-.004	-.004	0	0

Member Distributed Loads (BLC 4 : (x) TIA/EIA Wind with Ice on P)

	Member Label	Direction	Start Magnitude[k/ft,deg]	End Magnitude[k/f...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	.018	.018	0	0
2	M2	X	.018	.018	0	0
3	M3	X	.018	.018	0	18.83
4	M3	X	.024	.024	18.83	0
5	M4	X	.024	.024	0	0
6	M5	X	.024	.024	0	8.83
7	M5	X	.028	.028	8.83	0
8	M6	X	.028	.028	0	18.83
9	M6	X	.031	.031	18.83	0
10	M7	X	.031	.031	0	0
11	M8	X	.031	.031	0	8.83
12	M8	X	.032	.032	8.83	0
13	M9	X	.034	.034	0	0
14	M10	X	.034	.034	0	0
15	M11	X	.034	.034	0	0
16	M12	X	.034	.034	0	0
17	M13	X	.034	.034	0	0
18	M14	X	.034	.034	0	0
19	M15	X	.034	.034	0	0
20	M16	X	.034	.034	0	0
21	M17	X	.034	.034	0	0

Company : CENTEK Engineering, INC.
 Designer : tjf, cfc
 Job Number : 12001.CO16 - East Glastonbury, CT # 12197 - Powermount

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Member Distributed Loads (BLC 4 : (x) TIA/EIA Wind with Ice on P) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,deg]	End Magnitude[k/f...	Start Location[ft,%]	End Location[ft,%]
22	M18	X	.034	.034	0	0
23	M19	X	.034	.034	0	0
24	M20	X	.034	.034	0	0
25	M21	X	.034	.034	0	0
26	M22	X	.034	.034	0	0
27	M23	X	.034	.034	0	0
28	M24	X	.034	.034	0	0

Member Distributed Loads (BLC 5 : (x) TIA/EIA Wind on PCS Struct)

	Member Label	Direction	Start Magnitude[k/ft,deg]	End Magnitude[k/f...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	.022	.022	0	0
2	M2	X	.022	.022	0	0
3	M3	X	.022	.022	0	18.83
4	M3	X	.03	.03	18.83	0
5	M4	X	.03	.03	0	0
6	M5	X	.03	.03	0	8.83
7	M5	X	.035	.035	8.83	0
8	M6	X	.035	.035	0	18.83
9	M6	X	.039	.039	18.83	0
10	M7	X	.039	.039	0	0
11	M8	X	.039	.039	0	8.83
12	M8	X	.041	.041	8.83	0
13	M9	X	.037	.037	0	0
14	M10	X	.037	.037	0	0
15	M11	X	.037	.037	0	0
16	M12	X	.037	.037	0	0
17	M13	X	.037	.037	0	0
18	M14	X	.037	.037	0	0
19	M15	X	.037	.037	0	0
20	M16	X	.037	.037	0	0
21	M17	X	.037	.037	0	0
22	M18	X	.037	.037	0	0
23	M19	X	.037	.037	0	0
24	M20	X	.037	.037	0	0
25	M21	X	.037	.037	0	0
26	M22	X	.037	.037	0	0
27	M23	X	.037	.037	0	0
28	M24	X	.037	.037	0	0

Member Distributed Loads (BLC 6 : (z) TIA/EIA Wind with Ice on P)

	Member Label	Direction	Start Magnitude[k/ft,deg]	End Magnitude[k/f...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	.018	.018	0	0
2	M2	Z	.018	.018	0	0
3	M3	Z	.018	.018	0	18.83
4	M3	Z	.024	.024	18.83	0
5	M4	Z	.024	.024	0	0
6	M5	Z	.024	.024	0	8.83
7	M5	Z	.028	.028	8.83	0
8	M6	Z	.028	.028	0	18.83
9	M6	Z	.031	.031	18.83	0
10	M7	Z	.031	.031	0	0
11	M8	Z	.031	.031	0	8.83

Member Distributed Loads (BLC 6 : (z) TIA/EIA Wind with Ice on P) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,deg]	End Magnitude[k/f...	Start Location[ft,%]	End Location[ft,%]
12	M8	Z	.032	.032	8.83	0
13	M9	Z	.034	.034	0	0
14	M10	Z	.034	.034	0	0
15	M11	Z	.034	.034	0	0
16	M12	Z	.034	.034	0	0
17	M13	Z	.034	.034	0	0
18	M14	Z	.034	.034	0	0
19	M15	Z	.034	.034	0	0
20	M16	Z	.034	.034	0	0
21	M17	Z	.034	.034	0	0
22	M18	Z	.034	.034	0	0
23	M19	Z	.034	.034	0	0
24	M20	Z	.034	.034	0	0
25	M21	Z	.034	.034	0	0
26	M22	Z	.034	.034	0	0
27	M23	Z	.034	.034	0	0
28	M24	Z	.034	.034	0	0

Member Distributed Loads (BLC 7 : (z) TIA/EIA Wind on PCS Struct)

	Member Label	Direction	Start Magnitude[k/ft,deg]	End Magnitude[k/f...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	.022	.022	0	0
2	M2	Z	.022	.022	0	0
3	M3	Z	.022	.022	0	18.83
4	M3	Z	.03	.03	18.83	0
5	M4	Z	.03	.03	0	0
6	M5	Z	.03	.03	0	8.83
7	M5	Z	.035	.035	8.83	0
8	M6	Z	.035	.035	0	18.83
9	M6	Z	.039	.039	18.83	0
10	M7	Z	.039	.039	0	0
11	M8	Z	.039	.039	0	8.83
12	M8	Z	.041	.041	8.83	0
13	M9	Z	.037	.037	0	0
14	M10	Z	.037	.037	0	0
15	M11	Z	.037	.037	0	0
16	M12	Z	.037	.037	0	0
17	M13	Z	.037	.037	0	0
18	M14	Z	.037	.037	0	0
19	M15	Z	.037	.037	0	0
20	M16	Z	.037	.037	0	0
21	M17	Z	.037	.037	0	0
22	M18	Z	.037	.037	0	0
23	M19	Z	.037	.037	0	0
24	M20	Z	.037	.037	0	0
25	M21	Z	.037	.037	0	0
26	M22	Z	.037	.037	0	0
27	M23	Z	.037	.037	0	0
28	M24	Z	.037	.037	0	0

Basic Load Cases

	BLC Description	Category	X Gravi...	Y Gravi...	Z Gravity	Joint	Point	Distrib...	Area(M...Surfac...
1	Self Weight (Powermount)	None		-1					
2	Weight of Appurtenances	None				7		8	
3	Weight of Ice Only on PCS Struct	None				7		24	
4	(x) TIA/EIA Wind with Ice on P	None				7		28	
5	(x) TIA/EIA Wind on PCS Struct	None				7		28	
6	(z) TIA/EIA Wind with Ice on P	None				7		28	
7	(z) TIA/EIA Wind on PCS Struct	None				7		28	

Load Combinations

	Description	So... PDelta	SRSS	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..
1	(x) TIA/EIA Wind + Ice on PC...	Yes		1	1	2	1	3	1	4	1		
2	(x) TIA/EIA Wind on PCS Str...	Yes		1	1	2	1	5	1				
3	(z) TIA/EIA Wind + Ice on PC...	Yes		1	1	2	1	3	1	6	1		
4	(z) TIA/EIA Wind on PCS Str...	Yes		1	1	2	1	7	1				

Envelope Member Section Forces

	Member	Sec		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-ft]	LC	y-y Momen...	LC	z-z Momen...	LC
1	M1	1	max	17.353	3	.42	2	.008	1	.195	3	2.514	4	2.663	2
2			min	13.944	2	0	3	-.407	4	-.92	2	-.087	1	0	3
3		2	max	17.238	3	.392	2	.008	1	.195	3	2.006	4	2.139	2
4			min	13.843	2	0	3	-.378	4	-.92	2	-.077	1	0	3
5		3	max	17.123	3	.363	2	.008	1	.195	3	1.536	4	1.651	2
6			min	13.742	2	0	3	-.35	4	-.92	2	-.067	1	0	3
7		4	max	17.008	3	.335	2	.008	1	.195	3	1.102	4	1.2	2
8			min	13.641	2	0	3	-.321	4	-.92	2	-.056	1	0	3
9	5	max	16.893	3	.306	2	.008	1	.195	3	.705	4	.785	2	
10		min	13.541	2	0	3	-.293	4	-.92	2	-.046	1	0	3	
11	M2	1	max	16.893	3	.306	2	.008	1	.195	3	.705	4	.785	2
12			min	13.541	2	0	3	-.293	4	-.92	2	-.046	1	0	3
13		2	max	16.759	3	.273	2	.008	1	.195	3	.29	4	.35	2
14			min	13.424	2	0	3	-.26	4	-.92	2	-.034	1	0	3
15		3	max	16.626	3	.24	2	.008	1	.195	3	-.017	2	0	4
16			min	13.307	2	0	3	-.227	4	-.92	2	-.075	4	-.035	2
17		4	max	16.492	3	.207	2	.008	1	.195	3	-.008	2	0	4
18			min	13.19	2	0	3	-.194	4	-.92	2	-.391	4	-.371	2
19		5	max	16.359	3	.174	2	.008	1	.195	3	.001	1	0	4
20			min	13.073	2	0	3	-.161	4	-.92	2	-.657	4	-.657	2
21	M3	1	max	16.359	3	.174	2	.008	1	.195	3	.001	1	0	4
22			min	13.073	2	0	3	-.161	4	-.92	2	-.657	4	-.657	2
23		2	max	15.914	3	.064	2	.008	1	.195	3	.041	1	0	3
24			min	12.682	2	0	3	-.051	4	-.92	2	-1.187	4	-1.254	2
25		3	max	15.469	3	0	4	.059	4	.195	3	.08	1	0	3
26			min	12.292	2	-.046	2	.006	2	-.92	2	-1.166	4	-1.302	2
27		4	max	15.023	3	0	4	.169	4	.195	3	.12	1	0	3
28			min	11.902	2	-.156	2	.006	2	-.92	2	-.596	4	-.799	2
29		5	max	14.578	3	0	4	.288	4	.195	3	.529	4	.26	2
30			min	11.512	2	-.275	2	.006	2	-.92	2	.123	2	0	4
31	M4	1	max	14.578	3	0	4	.288	4	.195	3	.529	4	.26	2
32			min	11.512	2	-.275	2	.006	2	-.92	2	.123	2	0	4

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-ft]	LC	y-y Momen...	LC	z-z Momen...	LC
33		2	max	13.722	3	.172	2	.007	1	.215	3	.167	4	.24	2
34			min	10.849	2	0	4	-.178	4	-.455	2	-.149	1	-.003	4
35		3	max	13.277	3	.022	2	.007	1	.215	3	-.085	2	0	3
36			min	10.458	2	0	4	-.028	4	-.455	2	-.348	4	-.247	2
37		4	max	12.832	3	0	3	.122	4	.215	3	-.05	3	.085	1
38			min	10.068	2	-.128	2	.005	2	-.455	2	-.113	4	0	3
39		5	max	12.387	3	0	3	.272	4	.215	3	.871	4	1.029	2
40			min	9.678	2	-.278	2	.005	2	-.455	2	-.037	1	.003	3
41	M5	1	max	12.387	3	0	3	.272	4	.215	3	.871	4	1.029	2
42			min	9.678	2	-.278	2	.005	2	-.455	2	-.037	1	.003	3
43		2	max	11.942	3	0	3	.422	4	.215	3	2.606	4	2.792	2
44			min	9.288	2	-.428	2	.005	2	-.455	2	-.008	2	.005	3
45		3	max	11.497	3	0	3	.578	4	.215	3	5.094	4	5.308	2
46			min	8.898	2	-.583	2	.005	2	-.455	2	.018	2	.006	3
47		4	max	10.962	3	1.642	2	0	1	.182	3	4.645	4	4.875	2
48			min	8.488	2	0	3	-1.609	4	-.278	2	.014	1	0	4
49		5	max	10.517	3	1.467	2	0	1	.182	3	.021	2	-.004	3
50			min	8.098	2	0	3	-1.434	4	-.278	2	-2.964	4	-2.897	2
51	M6	1	max	10.517	3	1.467	2	0	1	.182	3	.021	2	-.004	3
52			min	8.098	2	0	3	-1.434	4	-.278	2	-2.964	4	-2.897	2
53		2	max	10.072	3	1.292	2	0	1	.182	3	.018	2	-.007	3
54			min	7.708	2	0	3	-1.259	4	-.278	2	-9.698	4	-9.795	2
55		3	max	9.627	3	1.117	2	0	1	.182	3	.019	1	-.01	3
56			min	7.318	2	0	3	-1.084	4	-.278	2	-15.557	4	-15.817	2
57		4	max	9.182	3	.942	2	0	1	.182	3	.021	1	-.014	3
58			min	6.927	2	0	3	-.909	4	-.278	2	-20.542	4	-20.965	2
59		5	max	8.645	3	-.001	3	4.993	4	.215	4	-.003	2	0	4
60			min	6.523	2	-5.005	2	0	2	-.128	2	-8.362	4	-8.832	2
61	M7	1	max	8.645	3	-.001	3	4.993	4	.215	4	-.003	2	0	4
62			min	6.523	2	-5.005	2	0	2	-.128	2	-8.362	4	-8.832	2
63		2	max	8.2	3	-.001	3	5.188	4	.215	4	17.09	4	16.682	2
64			min	6.133	2	-5.2	2	0	2	-.128	2	-.008	1	.007	3
65		3	max	7.755	3	-.001	3	5.383	4	.215	4	43.516	4	43.171	2
66			min	5.743	2	-5.395	2	0	2	-.128	2	-.004	2	.014	3
67		4	max	7.31	3	-.001	3	5.578	4	.215	4	70.918	4	70.635	2
68			min	5.353	2	-5.59	2	0	2	-.128	2	-.005	2	.021	3
69		5	max	6.865	3	-.001	3	5.773	4	.215	4	99.294	4	99.074	2
70			min	4.963	2	-5.785	2	0	2	-.128	2	-.005	2	.028	3
71	M8	1	max	6.865	3	-.001	3	5.773	4	.215	4	99.294	4	99.074	2
72			min	4.963	2	-5.785	2	0	2	-.128	2	-.005	2	.028	3
73		2	max	6.334	1	5.182	2	0	1	0	1	76.057	4	76.057	2
74			min	4.546	4	0	3	-5.182	4	0	1	0	1	0	3
75		3	max	5.87	1	4.976	2	0	1	0	1	49.602	4	49.602	2
76			min	4.14	4	0	3	-4.976	4	0	1	0	1	0	3
77		4	max	5.407	1	4.763	2	0	1	0	1	24.245	4	24.245	2
78			min	3.733	4	0	3	-4.763	4	0	1	0	1	0	3
79		5	max	4.943	1	4.549	2	0	1	0	1	0	1	0	1
80			min	3.327	4	0	3	-4.549	4	0	1	0	1	0	1
81	M9	1	max	-2.934	3	-.005	3	.057	2	0	1	0	1	0	1
82			min	-5.212	2	-.061	2	-.041	4	0	1	0	1	0	1
83		2	max	-2.92	3	-.013	3	.042	2	0	1	-.003	1	.083	2
84			min	-5.177	2	-.064	2	-.008	3	0	1	-.032	4	-.011	3
85		3	max	-2.907	3	-.02	3	.03	4	0	1	-.022	1	.157	2

Envelope Member Section Forces (Continued)

Member	Sec		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-ft]	LC	y-y Momen...	LC	z-z Momen...	LC
86		min	-5.141	2	-.067	2	.02	1	0	1	-.04	4	.008	3
87	4	max	-2.893	3	-.028	3	.066	4	0	1	-.017	3	.222	2
88		min	-5.105	2	-.071	2	.007	1	0	1	-.07	2	.056	3
89	5	max	-2.879	3	-.031	4	.101	4	0	1	.015	4	.279	2
90		min	-5.069	2	-.074	2	-.007	1	0	1	-.12	2	.134	3
91	M10	1	max	5.151	2	.096	2	.078	4	0	0	1	0	1
92		min	-3.505	4	-.026	4	-.036	2	0	1	0	1	0	1
93	2	max	5.115	2	.093	2	.042	4	0	1	.037	2	.064	4
94		min	-3.491	4	-.029	4	-.051	2	0	1	.024	4	-.102	2
95	3	max	5.08	2	.089	2	.006	4	0	1	.061	2	.105	4
96		min	-3.476	4	-.032	4	-.066	2	0	1	.02	4	-.213	2
97	4	max	5.044	2	.086	2	-.029	4	0	1	.072	2	.121	4
98		min	-3.461	4	-.035	4	-.081	2	0	1	-.014	4	-.332	2
99	5	max	5.008	2	.083	2	-.063	3	0	1	.069	2	.113	4
100		min	-3.446	4	-.041	3	-.096	2	0	1	-.076	4	-.46	2
101	M11	1	max	5.424	4	.06	3	-.072	1	0	0	1	0	1
102		min	-2.092	2	-.01	2	-.08	4	0	1	0	1	0	1
103	2	max	5.367	4	.049	4	-.02	1	0	1	-.003	3	-.045	2
104		min	-2.057	2	-.017	2	-.044	4	0	1	-.079	2	-.146	4
105	3	max	5.311	4	.042	4	.036	2	0	1	.018	3	-.009	2
106		min	-2.021	2	-.023	2	-.009	4	0	1	-.095	2	-.238	4
107	4	max	5.254	4	.035	4	.093	2	0	1	.072	4	.108	2
108		min	-1.985	2	-.037	1	.026	3	0	1	-.047	2	-.276	4
109	5	max	5.197	4	.029	4	.149	2	0	1	.17	4	.305	2
110		min	-1.95	2	-.051	1	.059	3	0	1	.046	1	-.259	4
111	M12	1	max	5.404	4	.059	3	.029	4	0	0	1	0	1
112		min	1.86	1	.044	2	-.109	2	0	1	0	1	0	1
113	2	max	5.347	4	.047	4	-.004	3	0	1	.082	3	-.05	4
114		min	1.827	1	.037	1	-.052	2	0	1	-.052	2	-.154	2
115	3	max	5.291	4	.041	4	.005	1	0	1	.105	4	-.127	3
116		min	1.795	1	.023	1	-.042	4	0	1	-.04	2	-.228	2
117	4	max	5.234	4	.034	4	.061	2	0	1	.076	4	-.195	1
118		min	1.762	1	.009	1	-.078	4	0	1	.033	1	-.261	4
119	5	max	5.178	4	.027	4	.117	2	0	1	.175	2	-.092	1
120		min	1.729	1	-.005	1	-.113	4	0	1	-.03	3	-.422	4
121	M13	1	max	2.259	2	.042	1	-.003	1	0	0	1	0	1
122		min	1.294	3	.017	4	-.058	4	0	1	0	1	0	1
123	2	max	2.295	2	.035	1	-.016	1	0	1	.021	1	-.034	2
124		min	1.308	3	.014	4	-.022	4	0	1	-.018	4	-.043	3
125	3	max	2.331	2	.031	2	.014	4	0	1	.027	1	-.053	4
126		min	1.321	3	.01	3	-.033	2	0	1	-.011	4	-.077	2
127	4	max	2.367	2	.028	2	.049	4	0	1	.019	3	-.037	4
128		min	1.335	3	.002	3	-.048	2	0	1	.017	2	-.128	2
129	5	max	2.402	2	.025	2	.085	4	0	1	.073	4	.008	4
130		min	1.349	3	-.005	3	-.062	2	0	1	-.009	1	-.188	2
131	M14	1	max	1.534	4	.027	3	.044	4	0	0	1	0	1
132		min	-2.243	2	-.003	2	.018	1	0	1	0	1	0	1
133	2	max	1.548	4	.02	3	.009	4	0	1	.035	3	.013	2
134		min	-2.279	2	-.006	2	.004	1	0	1	.007	2	0	3
135	3	max	1.563	4	.014	4	-.009	2	0	1	.04	3	.018	2
136		min	-2.315	2	-.009	2	-.027	4	0	1	0	2	-.018	3
137	4	max	1.578	4	.011	4	-.024	1	0	1	.015	3	.014	2
138		min	-2.351	2	-.014	1	-.063	4	0	1	-.02	2	-.056	3

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-ft]	LC	y-y Momen...	LC	z-z Momen...	LC
139		5	max	1.593	4	.008	4	-.037	1	0	1	-.039	4	.001	2
140			min	-2.386	2	-.022	1	-.099	4	0	1	-.053	2	-.122	4
141	M15	1	max	.856	2	.032	1	-.044	3	0	1	0	1	0	1
142			min	-2.281	4	0	4	-.095	2	0	1	0	1	0	1
143		2	max	.892	2	.018	1	-.011	3	0	1	-.026	3	-.033	4
144			min	-2.338	4	-.006	4	-.038	2	0	1	-.061	2	-.11	1
145		3	max	.928	2	.009	2	.025	4	0	1	-.028	3	-.012	4
146			min	-2.394	4	-.014	3	.017	1	0	1	-.059	2	-.137	2
147		4	max	.963	2	.002	2	.075	2	0	1	.008	1	.064	4
148			min	-2.451	4	-.028	3	.055	3	0	1	-.01	4	-.084	2
149		5	max	.999	2	-.005	2	.131	2	0	1	.138	2	.193	4
150			min	-2.507	4	-.042	3	.088	3	0	1	.04	3	.049	2
151	M16	1	max	-.746	1	.021	1	.06	4	0	1	0	1	0	1
152			min	-2.276	4	.001	4	-.087	2	0	1	0	1	0	1
153		2	max	-.779	1	.007	1	.024	4	0	1	.057	3	.056	4
154			min	-2.333	4	-.006	4	-.03	2	0	1	-.068	2	-.086	1
155		3	max	-.812	1	-.005	2	.026	2	0	1	.055	3	.075	4
156			min	-2.389	4	-.014	3	-.012	4	0	1	-.073	2	-.089	1
157		4	max	-.845	1	-.012	2	.083	2	0	1	-.007	3	.058	4
158			min	-2.446	4	-.028	3	-.048	4	0	1	-.014	2	-.007	1
159		5	max	-.877	1	-.018	2	.139	2	0	1	.109	2	.161	2
160			min	-2.502	4	-.042	3	-.083	4	0	1	-.129	3	.003	4
161	M17	1	max	-.739	3	.018	1	.015	2	0	1	0	1	0	1
162			min	-1.337	2	.008	4	-.055	4	0	1	0	1	0	1
163		2	max	-.725	3	.01	1	0	2	0	1	.015	1	0	2
164			min	-1.301	2	.005	4	-.02	4	0	1	-.023	4	-.035	3
165		3	max	-.711	3	.003	2	.016	4	0	1	.014	1	-.009	2
166			min	-1.265	2	.001	3	-.015	2	0	1	-.021	4	-.041	3
167		4	max	-.698	3	0	2	.052	4	0	1	.006	3	-.012	4
168			min	-1.23	2	-.006	3	-.03	2	0	1	-.005	2	-.031	1
169		5	max	-.684	3	-.003	2	.087	4	0	1	.053	4	.042	4
170			min	-1.194	2	-.013	3	-.044	2	0	1	-.035	1	-.053	2
171	M18	1	max	1.329	2	.026	1	.055	4	0	1	0	1	0	1
172			min	-.872	4	.007	4	.008	1	0	1	0	1	0	1
173		2	max	1.294	2	.019	1	.019	4	0	1	.032	3	.024	4
174			min	-.857	4	.003	4	-.006	1	0	1	.015	2	-.016	1
175		3	max	1.258	2	.013	2	-.016	3	0	1	.035	3	.023	4
176			min	-.842	4	0	3	-.021	2	0	1	.016	2	-.037	1
177		4	max	1.222	2	.01	2	-.033	1	0	1	.008	3	-.001	4
178			min	-.827	4	-.007	3	-.052	4	0	1	.004	2	-.063	2
179		5	max	1.187	2	.007	2	-.047	1	0	1	-.022	2	-.048	3
180			min	-.812	4	-.015	3	-.088	4	0	1	-.049	4	-.101	2
181	M19	1	max	1.406	4	.025	3	-.051	3	0	1	0	1	0	1
182			min	-.576	2	.013	2	-.09	2	0	1	0	1	0	1
183		2	max	1.349	4	.011	3	-.018	3	0	1	-.021	3	-.062	4
184			min	-.541	2	.006	2	-.033	2	0	1	-.066	2	-.094	1
185		3	max	1.293	4	0	4	.024	2	0	1	-.018	3	-.07	4
186			min	-.505	2	-.004	1	.015	3	0	1	-.068	2	-.105	1
187		4	max	1.236	4	-.006	4	.08	2	0	1	.009	3	-.023	3
188			min	-.469	2	-.017	1	.047	3	0	1	-.007	2	-.031	1
189		5	max	1.18	4	-.013	4	.137	2	0	1	.118	2	.128	1
190			min	-.433	2	-.031	1	.08	3	0	1	.06	3	.077	4
191	M20	1	max	1.405	4	.027	1	.052	4	0	1	0	1	0	1

Envelope Member Section Forces (Continued)

Member	Sec		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torque[k-ft]	LC	y-y Momen...	LC	z-z Momen...	LC
192		min	.503	1	.014	4	-.092	2	0	1	0	1	0	1
193	2	max	1.349	4	.013	1	.017	4	0	1	.063	3	.031	4
194		min	.47	1	.007	4	-.035	2	0	1	-.064	2	-.1	1
195	3	max	1.292	4	.003	2	.021	2	0	1	.066	3	.024	4
196		min	.437	1	-.003	3	-.019	4	0	1	-.065	2	-.117	1
197	4	max	1.236	4	-.004	2	.078	2	0	1	.01	3	-.019	4
198		min	.405	1	-.017	3	-.055	4	0	1	-.001	2	-.051	2
199	5	max	1.179	4	-.01	2	.134	2	0	1	.125	2	.103	1
200		min	.372	1	-.031	3	-.091	4	0	1	-.106	3	-.1	4
201	M21	1	max	-.419	3	.042	1	.085	2	0	1	0	1	0
202		min	-.665	2	.024	4	-.12	4	0	1	0	1	0	1
203	2	max	-.365	3	.016	1	.026	2	0	1	.152	1	.071	2
204		min	-.585	2	.009	4	-.04	4	0	1	-.121	4	-.191	3
205	3	max	-.31	3	-.005	2	.04	4	0	1	.151	1	.06	2
206		min	-.505	2	-.012	3	-.033	2	0	1	-.12	4	-.193	3
207	4	max	-.256	3	-.02	2	.12	4	0	1	.004	3	-.006	4
208		min	-.425	2	-.038	3	-.092	2	0	1	-.003	2	-.035	2
209	5	max	-.202	3	-.036	2	.199	4	0	1	.249	4	.369	3
210		min	-.345	2	-.065	3	-.151	2	0	1	-.308	1	-.212	2
211	M22	1	max	.665	2	.041	1	.12	4	0	1	0	1	0
212		min	-.474	4	.024	4	.079	1	0	1	0	1	0	1
213	2	max	.585	2	.015	1	.04	4	0	1	.19	3	.121	4
214		min	-.415	4	.008	4	.025	1	0	1	.139	2	.045	1
215	3	max	.505	2	-.006	2	-.03	1	0	1	.192	3	.12	4
216		min	-.356	4	-.012	3	-.04	4	0	1	.137	2	.037	1
217	4	max	.425	2	-.021	2	-.084	1	0	1	.004	3	-.003	4
218		min	-.297	4	-.039	3	-.12	4	0	1	-.006	2	-.026	2
219	5	max	.345	2	-.037	2	-.138	1	0	1	-.29	2	-.14	1
220		min	-.238	4	-.065	3	-.199	4	0	1	-.372	3	-.248	4
221	M23	1	max	.977	4	.092	1	-.109	3	0	1	0	1	0
222		min	-.804	2	.064	4	-.16	2	0	1	0	1	0	1
223	2	max	.876	4	.035	1	-.036	3	0	1	-.039	3	-.299	4
224		min	-.724	2	.021	4	-.059	2	0	1	-.147	2	-.403	1
225	3	max	.776	4	-.014	2	.041	2	0	1	-.036	3	-.296	4
226		min	-.644	2	-.028	3	.037	3	0	1	-.152	2	-.44	1
227	4	max	.675	4	-.057	2	.142	2	0	1	.007	3	.006	4
228		min	-.564	2	-.084	3	.111	3	0	1	-.014	2	-.118	2
229	5	max	.575	4	-.1	2	.243	2	0	1	.266	2	.64	3
230		min	-.485	2	-.141	3	.184	3	0	1	.092	3	.546	2
231	M24	1	max	.978	4	.09	1	.121	4	0	1	0	1	0
232		min	.706	1	.064	4	-.159	2	0	1	0	1	0	1
233	2	max	.877	4	.033	1	.041	4	0	1	.322	3	.095	4
234		min	.633	1	.021	4	-.058	2	0	1	-.149	2	-.396	1
235	3	max	.777	4	-.016	2	.042	2	0	1	.325	3	.099	4
236		min	.56	1	-.028	3	-.039	4	0	1	-.156	2	-.426	1
237	4	max	.676	4	-.059	2	.143	2	0	1	.009	3	.012	4
238		min	.486	1	-.085	3	-.119	4	0	1	-.02	2	-.095	2
239	5	max	.576	4	-.102	2	.244	2	0	1	.258	2	.61	1
240		min	.413	1	-.141	3	-.198	4	0	1	-.626	3	-.167	4

Envelope Member Section Stresses

	Member	Sec		Axial[ksi]	LC y	Shear[...]	LC z	Shear[...]	LC y-Top[ksi]	LC y-Bot[ksi]	LC z-Top[ksi]	LC z-Bot[ksi]	LC				
1	M1	1	max	.894	3	.043	2	0	1	0	3	.381	2	.36	4	.012	1
2			min	.719	2	0	3	-.042	4	-.381	2	0	3	-.012	1	-.36	4
3		2	max	.889	3	.04	2	0	1	0	3	.306	2	.287	4	.011	1
4			min	.714	2	0	3	-.039	4	-.306	2	0	3	-.011	1	-.287	4
5		3	max	.883	3	.037	2	0	1	0	3	.236	2	.22	4	.01	1
6			min	.708	2	0	3	-.036	4	-.236	2	0	3	-.01	1	-.22	4
7		4	max	.877	3	.035	2	0	1	0	3	.172	2	.158	4	.008	1
8			min	.703	2	0	3	-.033	4	-.172	2	0	3	-.008	1	-.158	4
9	M2	5	max	.871	3	.032	2	0	1	0	3	.112	2	.101	4	.007	1
10			min	.698	2	0	3	-.03	4	-.112	2	0	3	-.007	1	-.101	4
11		1	max	.871	3	.032	2	0	1	0	3	.112	2	.101	4	.007	1
12			min	.698	2	0	3	-.03	4	-.112	2	0	3	-.007	1	-.101	4
13		2	max	.864	3	.028	2	0	1	0	3	.05	2	.042	4	.005	1
14			min	.692	2	0	3	-.027	4	-.05	2	0	3	-.005	1	-.042	4
15		3	max	.857	3	.025	2	0	1	.005	2	0	4	-.002	2	.011	4
16			min	.686	2	0	3	-.023	4	0	4	-.005	2	-.011	4	.002	2
17	M3	4	max	.85	3	.021	2	0	1	.053	2	0	4	-.001	2	.056	4
18			min	.68	2	0	3	-.02	4	0	4	-.053	2	-.056	4	.001	2
19		5	max	.843	3	.018	2	0	1	.094	2	0	4	0	1	.094	4
20			min	.674	2	0	3	-.017	4	0	4	-.094	2	-.094	4	0	1
21		1	max	.843	3	.018	2	0	1	.094	2	0	4	0	1	.094	4
22			min	.674	2	0	3	-.017	4	0	4	-.094	2	-.094	4	0	1
23		2	max	.82	3	.007	2	0	1	.18	2	0	3	.006	1	.17	4
24			min	.654	2	0	3	-.005	4	0	3	-.18	2	-.17	4	-.006	1
25	M4	3	max	.797	3	0	4	.006	4	.186	2	0	3	.012	1	.167	4
26			min	.634	2	-.005	2	0	2	0	3	-.186	2	-.167	4	-.012	1
27		4	max	.774	3	0	4	.017	4	.114	2	0	3	.017	1	.085	4
28			min	.614	2	-.016	2	0	2	0	3	-.114	2	-.085	4	-.017	1
29		5	max	.751	3	0	4	.03	4	0	4	.037	2	.076	4	-.018	2
30			min	.593	2	-.028	2	0	2	-.037	2	0	4	.018	2	-.076	4
31		1	max	.751	3	0	4	.03	4	0	4	.037	2	.076	4	-.018	2
32			min	.593	2	-.028	2	0	2	-.037	2	0	4	.018	2	-.076	4
33	M5	2	max	.707	3	.018	2	0	1	0	4	.034	2	.024	4	.021	1
34			min	.559	2	0	4	-.018	4	-.034	2	0	4	-.021	1	-.024	4
35		3	max	.684	3	.002	2	0	1	.035	2	0	3	-.012	2	.05	4
36			min	.539	2	0	4	-.003	4	0	3	-.035	2	-.05	4	.012	2
37		4	max	.661	3	0	3	.013	4	0	3	.012	1	-.007	3	.016	4
38			min	.519	2	-.013	2	0	2	-.012	1	0	3	-.016	4	.007	3
39		5	max	.638	3	0	3	.028	4	0	3	.147	2	.125	4	.005	1
40			min	.499	2	-.029	2	0	2	-.147	2	0	3	-.005	1	-.125	4
41	M6	1	max	.638	3	0	3	.028	4	0	3	.147	2	.125	4	.005	1
42			min	.499	2	-.029	2	0	2	-.147	2	0	3	-.005	1	-.125	4
43		2	max	.616	3	0	3	.043	4	0	3	.4	2	.373	4	.001	2
44			min	.479	2	-.044	2	0	2	-.4	2	0	3	-.001	2	-.373	4
45		3	max	.593	3	0	3	.06	4	0	3	.76	2	.73	4	-.003	2
46			min	.459	2	-.06	2	0	2	-.76	2	0	3	.003	2	-.73	4
47		4	max	.565	3	.169	2	0	1	0	4	.698	2	.665	4	-.002	1
48			min	.438	2	0	3	-.166	4	-.698	2	0	4	.002	1	-.665	4
49		5	max	.542	3	.151	2	0	1	.415	2	0	3	.003	2	.425	4
50			min	.417	2	0	3	-.148	4	0	3	-.415	2	-.425	4	-.003	2
51		1	max	.542	3	.151	2	0	1	.415	2	0	3	.003	2	.425	4
52			min	.417	2	0	3	-.148	4	0	3	-.415	2	-.425	4	-.003	2

Envelope Member Section Stresses (Continued)

	Member	Sec		Axial[ksi]	LC y Shear[...]	LC z Shear[...]	LC y-Top[ksi]	LC y-Bot[ksi]	LC z-Top[ksi]	LC z-Bot[ksi]	LC
53		2	max	.519	3 .133	2 0	1 1.403	2 -.001	3 .003	2 1.389	4
54			min	.397	2 0	3 -.13	4 .001	3 -1.403	2 -1.389	4 -.003	2
55		3	max	.496	3 .115	2 0	1 2.266	2 -.001	3 .003	1 2.228	4
56			min	.377	2 0	3 -.112	4 .001	3 -2.266	2 -2.228	4 -.003	1
57		4	max	.473	3 .097	2 0	1 3.003	2 -.002	3 .003	1 2.942	4
58			min	.357	2 0	3 -.094	4 .002	3 -3.003	2 -2.942	4 -.003	1
59		5	max	.446	3 0	3 .515	4 1.265	2 0	4 0	2 1.198	4
60			min	.336	2 -.516	2 0	2 0	4 -1.265	2 -1.198	4 0	2
61	M7	1	max	.446	3 0	3 .515	4 1.265	2 0	4 0	2 1.198	4
62			min	.336	2 -.516	2 0	2 0	4 -1.265	2 -1.198	4 0	2
63		2	max	.423	3 0	3 .535	4 -.001	3 2.389	2 2.448	4 .001	1
64			min	.316	2 -.536	2 0	2 -2.389	2 .001	3 -.001	1 -2.448	4
65		3	max	.4	3 0	3 .555	4 -.002	3 6.184	2 6.233	4 0	2
66			min	.296	2 -.556	2 0	2 -6.184	2 .002	3 0	2 -6.233	4
67		4	max	.377	3 0	3 .575	4 -.003	3 10.117	2 10.158	4 0	2
68			min	.276	2 -.576	2 0	2 -10.117	2 .003	3 0	2 -10.158	4
69		5	max	.354	3 0	3 .595	4 -.004	3 14.191	2 14.222	4 0	2
70			min	.256	2 -.596	2 0	2 -14.191	2 .004	3 0	2 -14.222	4
71	M8	1	max	.354	3 0	3 .595	4 -.004	3 14.191	2 14.222	4 0	2
72			min	.256	2 -.596	2 0	2 -14.191	2 .004	3 0	2 -14.222	4
73		2	max	.326	1 .534	2 0	1 0	3 10.894	2 10.894	4 0	1
74			min	.234	4 0	3 -.534	4 -10.894	2 0	3 0	1 -10.894	4
75		3	max	.303	1 .513	2 0	1 0	3 7.105	2 7.105	4 0	1
76			min	.213	4 0	3 -.513	4 -7.105	2 0	3 0	1 -7.105	4
77		4	max	.279	1 .491	2 0	1 0	3 3.473	2 3.473	4 0	1
78			min	.192	4 0	3 -.491	4 -3.473	2 0	3 0	1 -3.473	4
79		5	max	.255	1 .469	2 0	1 0	1 0	1 0	1 0	1
80			min	.171	4 0	3 -.469	4 0	1 0	1 0	1 0	1
81	M9	1	max	-3.253	3 -.014	3 .145	2 0	1 0	1 0	1 0	1
82			min	-5.779	2 -.156	2 -.106	4 0	1 0	1 0	1 0	1
83		2	max	-3.237	3 -.033	3 .107	2 .257	3 1.935	2 -.142	1 1.719	4
84			min	-5.739	2 -.164	2 -.019	3 -1.935	2 -.257	3 -1.491	4 .163	1
85		3	max	-3.222	3 -.052	3 .077	4 -.181	3 3.668	2 -1.004	1 2.156	4
86			min	-5.699	2 -.173	2 .052	1 -3.668	2 .181	3 -1.871	4 1.158	1
87		4	max	-3.207	3 -.071	3 .168	4 -1.315	3 5.199	2 -.791	3 3.709	2
88			min	-5.66	2 -.181	2 .017	1 -5.199	2 1.315	3 -3.218	2 .912	3
89		5	max	-3.192	3 -.08	4 .26	4 -3.143	3 6.528	2 .704	4 6.373	2
90			min	-5.62	2 -.189	2 -.018	1 -6.528	2 3.143	3 -5.529	2 -.811	4
91	M10	1	max	5.711	2 .245	2 .199	4 0	1 0	1 0	1 0	1
92			min	-3.886	4 -.065	4 -.093	2 0	1 0	1 0	1 0	1
93		2	max	5.671	2 .237	2 .107	4 2.387	2 1.504	4 1.725	2 -1.29	4
94			min	-3.87	4 -.074	4 -.131	2 -1.504	4 -2.387	2 1.119	4 -1.988	2
95		3	max	5.632	2 .229	2 .016	4 4.977	2 2.445	4 2.831	2 -1.045	4
96			min	-3.853	4 -.082	4 -.169	2 -2.445	4 -4.977	2 .907	4 -3.263	2
97		4	max	5.592	2 .221	2 -.075	4 7.768	2 2.825	4 3.318	2 .733	4
98			min	-3.837	4 -.09	4 -.207	2 -2.825	4 -7.768	2 -.636	4 -3.824	2
99		5	max	5.552	2 .213	2 -.161	3 10.762	2 2.643	4 3.185	2 4.046	4
100			min	-3.82	4 -.105	3 -.246	2 -2.643	4 -10.762	2 -3.51	4 -3.671	2
101	M11	1	max	4.976	4 .129	3 -.154	1 0	1 0	1 0	1 0	1
102			min	-1.92	2 -.022	2 -.171	4 0	1 0	1 0	1 0	1
103		2	max	4.924	4 .104	4 -.043	1 2.344	4 -.721	2 -.091	3 2.848	2
104			min	-1.887	2 -.036	2 -.095	4 .721	2 -2.344	4 -2.527	2 .102	3
105		3	max	4.872	4 .09	4 .077	2 3.818	4 -.146	2 .587	3 3.409	2

Envelope Member Section Stresses (Continued)

Member	Sec		Axial[ksi]	LC	y Shear[...]	LC	z Shear[...]	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC
106		min	-1.854	2	-.05	2	-.019	4	.146	2	-3.818	4	-3.025	2	-.662	3
107	4	max	4.82	4	.075	4	.198	2	4.423	4	1.726	2	2.3	4	1.684	2
108		min	-1.821	2	-.078	1	.056	3	-1.726	2	-4.423	4	-1.494	2	-2.592	4
109	5	max	4.768	4	.061	4	.318	2	4.159	4	4.893	2	5.429	4	-1.67	1
110		min	-1.789	2	-.108	1	.126	3	-4.893	2	-4.159	4	1.482	1	-6.118	4
111	M12	1	max	4.958	4	.126	3	.063	4	0	1	0	1	0	1	0
112		min	1.707	1	.093	2	-.232	2	0	1	0	1	0	1	0	1
113	2	max	4.906	4	.101	4	-.01	3	2.476	2	-.801	4	2.616	3	1.854	2
114		min	1.676	1	.078	1	-.112	2	.801	4	-2.476	2	-1.646	2	-2.948	3
115	3	max	4.854	4	.087	4	.01	1	3.656	2	-2.041	3	3.341	4	1.423	2
116		min	1.646	1	.049	1	-.09	4	2.041	3	-3.656	2	-1.263	2	-3.764	4
117	4	max	4.802	4	.072	4	.13	2	4.187	4	-3.134	1	2.42	4	-1.168	1
118		min	1.616	1	.019	1	-.166	4	3.134	1	-4.187	4	1.036	1	-2.727	4
119	5	max	4.75	4	.058	4	.25	2	6.771	4	-1.478	1	5.591	2	1.079	3
120		min	1.586	1	-.011	1	-.242	4	1.478	1	-6.771	4	-.958	3	-6.3	2
121	M13	1	max	2.505	2	.107	1	-.007	1	0	1	0	1	0	1	0
122		min	1.435	3	.045	4	-.148	4	0	1	0	1	0	1	0	1
123	2	max	2.544	2	.089	1	-.042	1	1.009	3	-.799	2	.98	1	.946	4
124		min	1.45	3	.036	4	-.056	4	.799	2	-1.009	3	-.821	4	-1.13	1
125	3	max	2.584	2	.08	2	.035	4	1.799	2	-1.25	4	1.24	1	.611	4
126		min	1.465	3	.025	3	-.084	2	1.25	4	-1.799	2	-.53	4	-1.429	1
127	4	max	2.624	2	.071	2	.127	4	3.002	2	-.866	4	.892	3	-.887	2
128		min	1.48	3	.006	3	-.122	2	.866	4	-3.002	2	.77	2	-1.028	3
129	5	max	2.663	2	.063	2	.218	4	4.407	2	.191	4	3.385	4	.466	1
130		min	1.495	3	-.013	3	-.16	2	-.191	4	-4.407	2	-.404	1	-3.901	4
131	M14	1	max	1.7	4	.069	3	.113	4	0	1	0	1	0	1	0
132		min	-2.487	2	-.007	2	.045	1	0	1	0	1	0	1	0	1
133	2	max	1.717	4	.05	3	.022	4	-.005	3	.31	2	1.611	3	-.365	2
134		min	-2.527	2	-.015	2	.01	1	-.31	2	.005	3	.317	2	-1.856	3
135	3	max	1.733	4	.036	4	-.022	2	.43	3	.418	2	1.846	3	-.017	2
136		min	-2.566	2	-.023	2	-.069	4	-.418	2	-.43	3	.015	2	-2.128	3
137	4	max	1.75	4	.028	4	-.06	1	1.305	3	.323	2	.707	3	1.045	2
138		min	-2.606	2	-.037	1	-.161	4	-.323	2	-1.305	3	-.907	2	-.815	3
139	5	max	1.766	4	.02	4	-.095	1	2.849	4	.027	2	-1.791	4	2.82	2
140		min	-2.645	2	-.056	1	-.252	4	-.027	2	-2.849	4	-2.447	2	2.064	4
141	M15	1	max	.786	2	.069	1	-.093	3	0	1	0	1	0	1	0
142		min	-2.093	4	.001	4	-.202	2	0	1	0	1	0	1	0	1
143	2	max	.818	2	.039	1	-.023	3	1.77	1	-.529	4	-.834	3	2.194	2
144		min	-2.145	4	-.013	4	-.082	2	.529	4	-1.77	1	-1.947	2	.94	3
145	3	max	.851	2	.018	2	.053	4	2.199	2	-.189	4	-.899	3	2.102	2
146		min	-2.196	4	-.03	3	.036	1	.189	4	-2.199	2	-1.866	2	1.013	3
147	4	max	.884	2	.004	2	.16	2	1.354	2	1.021	4	.258	1	.35	4
148		min	-2.248	4	-.06	3	.117	3	-1.021	4	-1.354	2	-.311	4	-.29	1
149	5	max	.917	2	-.01	2	.28	2	-.786	2	3.1	4	4.384	2	-1.439	3
150		min	-2.3	4	-.09	3	.187	3	-3.099	4	.786	2	1.277	3	-4.94	2
151	M16	1	max	-.685	1	.044	1	.127	4	0	1	0	1	0	1	0
152		min	-2.088	4	.002	4	-.185	2	0	1	0	1	0	1	0	1
153	2	max	-.715	1	.014	1	.051	4	1.388	1	.903	4	1.825	3	2.449	2
154		min	-2.14	4	-.012	4	-.064	2	-.903	4	-1.388	1	-2.173	2	-2.056	3
155	3	max	-.745	1	-.011	2	.056	2	1.425	1	1.211	4	1.746	3	2.612	2
156		min	-2.192	4	-.029	3	-.025	4	-1.211	4	-1.425	1	-2.318	2	-1.967	3
157	4	max	-.775	1	-.025	2	.177	2	.112	1	.925	4	-.237	3	.488	2
158		min	-2.244	4	-.059	3	-.101	4	-.925	4	-.112	1	-.433	2	.267	3

Envelope Member Section Stresses (Continued)

	Member	Sec		Axial[ksi]	LC y	Shear[...]	LC z	Shear[...]	LC y-Top[ksi]	LC y-Bot[ksi]	LC z-Top[ksi]	LC z-Bot[ksi]	LC				
159		5	max	-.805	1	-.039	2	.298	2	-.044	4	2.586	2	3.48	2	4.646	3
160			min	-2.296	4	-.089	3	-.178	4	-2.586	2	.044	4	-4.123	3	-3.922	2
161	M17	1	max	-.819	3	.045	1	.039	2	0	1	0	1	0	1	0	1
162			min	-1.482	2	.021	4	-.142	4	0	1	0	1	0	1	0	1
163		2	max	-.804	3	.026	1	0	2	.828	3	-.006	2	.681	1	1.213	4
164			min	-1.442	2	.013	4	-.05	4	.006	2	-.828	3	-1.052	4	-.785	1
165		3	max	-.789	3	.008	2	.041	4	.961	3	-.214	2	.641	1	1.145	4
166			min	-1.403	2	.004	3	-.038	2	.214	2	-.961	3	-.993	4	-.739	1
167		4	max	-.773	3	0	2	.132	4	.736	1	-.281	4	.269	3	.29	2
168			min	-1.363	2	-.015	3	-.076	2	.281	4	-.736	1	-.252	2	-.31	3
169		5	max	-.758	3	-.008	2	.224	4	1.236	2	.972	4	2.459	4	1.846	1
170			min	-1.324	2	-.034	3	-.114	2	-.972	4	-1.236	2	-1.601	1	-2.834	4
171	M18	1	max	1.474	2	.067	1	.14	4	0	1	0	1	0	1	0	1
172			min	-.967	4	.017	4	.02	1	0	1	0	1	0	1	0	1
173		2	max	1.434	2	.048	1	.049	4	.376	1	.552	4	1.501	3	-.78	2
174			min	-.95	4	.009	4	-.015	1	-.552	4	-.376	1	.677	2	-1.73	3
175		3	max	1.395	2	.034	2	-.042	3	.861	1	.542	4	1.627	3	-.846	2
176			min	-.934	4	0	3	-.053	2	-.542	4	-.861	1	.734	2	-1.875	3
177		4	max	1.355	2	.026	2	-.085	1	1.465	2	-.03	4	.378	3	-.199	2
178			min	-.917	4	-.019	3	-.134	4	.03	4	-1.465	2	.173	2	-.435	3
179		5	max	1.315	2	.018	2	-.12	1	2.357	2	-1.126	3	-1.008	2	2.6	4
180			min	-.901	4	-.038	3	-.225	4	1.126	3	-2.357	2	-2.256	4	1.162	2
181	M19	1	max	1.29	4	.054	3	-.109	3	0	1	0	1	0	1	0	1
182			min	-.529	2	.028	2	-.191	2	0	1	0	1	0	1	0	1
183		2	max	1.238	4	.024	3	-.039	3	1.514	1	-.994	4	-.675	3	2.367	2
184			min	-.496	2	.014	2	-.07	2	.994	4	-1.514	1	-2.1	2	.76	3
185		3	max	1.186	4	.002	4	.05	2	1.677	1	-1.118	4	-.58	3	2.447	2
186			min	-.463	2	-.008	1	.031	3	1.118	4	-1.677	1	-2.172	2	.654	3
187		4	max	1.134	4	-.013	4	.171	2	.491	1	-.373	3	.283	3	.242	2
188			min	-.43	2	-.037	1	.101	3	.373	3	-.491	1	-.215	2	-.319	3
189		5	max	1.082	4	-.027	4	.291	2	-1.241	4	2.046	1	3.772	2	-2.159	3
190			min	-.398	2	-.067	1	.171	3	-2.046	1	1.241	4	1.916	3	-4.25	2
191	M20	1	max	1.289	4	.058	1	.112	4	0	1	0	1	0	1	0	1
192			min	.461	1	.029	4	-.195	2	0	1	0	1	0	1	0	1
193		2	max	1.237	4	.028	1	.035	4	1.611	1	.491	4	2.007	3	2.302	2
194			min	.431	1	.015	4	-.075	2	-.491	4	-1.611	1	-2.043	2	-2.262	3
195		3	max	1.185	4	.007	2	.046	2	1.872	1	.388	4	2.111	3	2.319	2
196			min	.401	1	-.007	3	-.041	4	-.388	4	-1.872	1	-2.058	2	-2.379	3
197		4	max	1.134	4	-.008	2	.166	2	.816	2	-.31	4	.311	3	.049	2
198			min	.371	1	-.036	3	-.117	4	.31	4	-.816	2	-.043	2	-.35	3
199		5	max	1.082	4	-.022	2	.287	2	1.602	4	1.657	1	4	2	3.823	3
200			min	.341	1	-.066	3	-.193	4	-1.657	1	-1.602	4	-3.393	3	-4.508	2
201	M21	1	max	-.248	3	.057	1	.117	2	0	1	0	1	0	1	0	1
202			min	-.393	2	.033	4	-.165	4	0	1	0	1	0	1	0	1
203		2	max	-.216	3	.022	1	.036	2	1.706	3	.635	2	2.673	1	2.443	4
204			min	-.346	2	.012	4	-.055	4	-.635	2	-1.706	3	-2.133	4	-3.061	1
205		3	max	-.184	3	-.007	2	.054	4	1.725	3	.532	2	2.66	1	2.422	4
206			min	-.299	2	-.017	3	-.045	2	-.532	2	-1.725	3	-2.115	4	-3.046	1
207		4	max	-.152	3	-.028	2	.164	4	.31	2	-.052	4	.065	3	.067	2
208			min	-.251	2	-.053	3	-.126	2	.052	4	-.31	2	-.059	2	-.074	3
209		5	max	-.119	3	-.049	2	.273	4	1.891	2	3.297	3	4.379	4	6.216	1
210			min	-.204	2	-.088	3	-.207	2	-3.297	3	-1.891	2	-5.428	1	-5.015	4
211	M22	1	max	.393	2	.056	1	.164	4	0	1	0	1	0	1	0	1

Envelope Member Section Stresses (Continued)

Member	Sec		Axial[ksi]	LC	y Shear[...]	LC	z Shear[...]	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC
212		min	-.281	4	.033	4	.108	1	0	1	0	1	0	1	0	1
213	2	max	.346	2	.02	1	.055	4	-.401	1	1.082	4	3.351	3	-2.812	2
214		min	-.246	4	.011	4	.034	1	-1.082	4	.401	1	2.455	2	-3.838	3
215	3	max	.299	2	-.008	2	-.041	1	-.327	1	1.074	4	3.377	3	-2.774	2
216		min	-.211	4	-.017	3	-.055	4	-1.074	4	.327	1	2.422	2	-3.867	3
217	4	max	.252	2	-.029	2	-.115	1	.23	2	-.027	4	.076	3	.113	2
218		min	-.176	4	-.053	3	-.164	4	.027	4	-.23	2	-.099	2	-.087	3
219	5	max	.204	2	-.05	2	-.189	1	2.218	4	-1.248	1	-5.108	2	7.502	3
220		min	-.141	4	-.089	3	-.274	4	1.248	1	-2.218	4	-6.55	3	5.849	2
221	M23	1	max	.271	4	.059	1	-.07	3	0	1	0	1	0	1	0
222		min	-.223	2	.041	4	-.102	2	0	1	0	1	0	1	0	1
223	2	max	.243	4	.022	1	-.023	3	1.18	1	-.875	4	-.224	3	.98	2
224		min	-.201	2	.014	4	-.038	2	.875	4	-1.18	1	-.85	2	.259	3
225	3	max	.215	4	-.009	2	.026	2	1.289	1	-.868	4	-.21	3	1.012	2
226		min	-.178	2	-.018	3	.024	3	.868	4	-1.289	1	-.878	2	.242	3
227	4	max	.187	4	-.036	2	.091	2	.347	2	.018	4	.043	3	.095	2
228		min	-.156	2	-.054	3	.071	3	-.018	4	-.347	2	-.082	2	-.049	3
229	5	max	.159	4	-.064	2	.155	2	-1.598	2	1.875	3	1.536	2	-.616	3
230		min	-.134	2	-.09	3	.118	3	-1.875	3	1.598	2	.534	3	-1.77	2
231	M24	1	max	.271	4	.058	1	.077	4	0	1	0	1	0	1	0
232		min	.196	1	.041	4	-.102	2	0	1	0	1	0	1	0	1
233	2	max	.243	4	.021	1	.026	4	1.16	1	.279	4	1.859	3	.993	2
234		min	.175	1	.013	4	-.037	2	-.279	4	-1.16	1	-.862	2	-2.143	3
235	3	max	.215	4	-.01	2	.027	2	1.249	1	.29	4	1.876	3	1.038	2
236		min	.155	1	-.018	3	-.025	4	-.29	4	-1.249	1	-.901	2	-2.162	3
237	4	max	.187	4	-.038	2	.092	2	.279	2	.034	4	.049	3	.134	2
238		min	.135	1	-.054	3	-.076	4	-.034	4	-.279	2	-.117	2	-.057	3
239	5	max	.159	4	-.065	2	.156	2	.49	4	1.788	1	1.49	2	4.172	3
240		min	.114	1	-.09	3	-.127	4	-1.788	1	-.49	4	-3.62	3	-1.717	2

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N11	max	.514	4	.092	1	.53	2	0	1	0	1	0	1
2		min	-.625	2	.064	4	-.839	4	0	1	0	1	0	1
3	N13	max	-.447	3	.09	1	-.463	1	0	1	0	1	0	1
4		min	-.624	2	.064	4	-.841	4	0	1	0	1	0	1
5	N12	max	-.271	3	.042	1	-.285	1	0	1	0	1	0	1
6		min	-.585	2	.024	4	-.379	4	0	1	0	1	0	1
7	N14	max	.31	4	.041	1	.326	2	0	1	0	1	0	1
8		min	-.585	2	.024	4	-.378	4	0	1	0	1	0	1
9	N16	max	.704	4	.025	3	.439	2	0	1	0	1	0	1
10		min	-.383	2	.013	2	-1.218	4	0	1	0	1	0	1
11	N18	max	-.34	1	.027	1	-.38	1	0	1	0	1	0	1
12		min	-.706	4	.014	4	-1.216	4	0	1	0	1	0	1
13	N17	max	-.662	3	.018	1	-.332	3	0	1	0	1	0	1
14		min	-1.24	2	.008	4	-.501	2	0	1	0	1	0	1
15	N19	max	.784	4	.026	1	.503	2	0	1	0	1	0	1
16		min	-1.23	2	.007	4	-.386	4	0	1	0	1	0	1
17	N21	max	.377	2	.032	1	1.904	4	0	1	0	1	0	1
18		min	-1.258	4	0	4	-.775	2	0	1	0	1	0	1
19	N23	max	1.266	4	.021	1	1.893	4	0	1	0	1	0	1

Envelope Joint Reactions (Continued)

Joint			X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
20		min	.331	1	.001	4	.674	1	0	1	0	1	0	1
21	N22	max	2.086	2	.042	1	.867	2	0	1	0	1	0	1
22		min	1.215	3	.017	4	.448	3	0	1	0	1	0	1
23	N24	max	2.062	2	.027	3	.55	4	0	1	0	1	0	1
24		min	-1.432	4	-.003	2	-.883	2	0	1	0	1	0	1
25	N29	max	3.205	4	.096	2	2.017	2	0	1	0	1	0	1
26		min	-4.74	2	-.026	4	-1.421	4	0	1	0	1	0	1
27	N27	max	-2.692	3	-.005	3	-1.167	3	0	1	0	1	0	1
28		min	-4.832	2	-.061	2	-1.954	2	0	1	0	1	0	1
29	N28	max	-1.077	1	.059	3	-1.52	1	0	1	0	1	0	1
30		min	-2.861	4	.044	2	-4.584	4	0	1	0	1	0	1
31	N26	max	2.829	4	.06	3	1.728	2	0	1	0	1	0	1
32		min	-1.183	2	-.01	2	-4.628	4	0	1	0	1	0	1
33	N1	max	0	3	17.353	3	.008	1	.087	1	.195	3	2.663	2
34		min	-.42	2	13.944	2	-.407	4	-2.514	4	-.92	2	0	3
35	Totals:	max	0	3	17.866	3	0	1						
36		min	-13.176	2	14.327	4	-13.176	4						

Envelope Joint Displacements

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...]	LC	Y Rotation [...]	LC	Z Rotation [...]	LC
1	N1	max	0	2	0	2	0	4	0	4	0	2	0	3
2		min	0	3	0	3	0	1	0	1	0	3	0	2
3	N2	max	.002	2	-.002	2	.002	4	5.313e-5	4	4.065e-5	2	0	3
4		min	0	3	-.002	3	0	1	-2.267e-6	1	-8.6e-6	3	-5.704e-5	2
5	N3	max	.007	2	-.003	2	.006	4	5.147e-5	4	8.782e-5	2	0	3
6		min	0	3	-.004	3	0	1	-3.152e-6	1	-1.858e-5	3	-5.696e-5	2
7	N4	max	.003	2	-.008	2	.003	4	7.432e-6	1	2.451e-4	2	6.616e-5	2
8		min	0	3	-.011	3	0	1	-5.386e-5	4	-5.185e-5	3	0	3
9	N5	max	0	3	-.013	2	0	1	-1.878e-6	2	3.311e-4	2	4.105e-5	2
10		min	-.009	2	-.016	3	-.007	4	-3.744e-5	4	-8.829e-5	3	6.362e-8	3
11	N6	max	.034	2	-.017	2	.034	4	3.679e-4	4	3.989e-4	2	-3.29e-7	3
12		min	0	3	-.021	3	0	2	-8.212e-7	1	-1.232e-4	3	-3.891e-4	2
13	N7	max	0	3	-.02	2	0	1	9.208e-7	2	4.427e-4	2	1.464e-3	2
14		min	-.052	2	-.025	3	-.055	4	-1.452e-3	4	-1.548e-4	3	7.57e-7	3
15	N8	max	0	3	-.022	2	0	2	4.365e-3	4	4.645e-4	2	-1.106e-6	3
16		min	-.007	2	-.029	3	0	4	3.609e-7	2	-1.89e-4	3	-4.308e-3	2
17	N9	max	2.238	2	-.024	2	2.259	4	1.126e-2	4	4.649e-4	2	-1.166e-6	3
18		min	0	3	-.031	3	0	2	3.5e-7	2	-1.895e-4	3	-1.121e-2	2
19	N10	max	.002	2	-.009	2	.002	4	9.728e-6	1	2.614e-4	2	5.839e-5	2
20		min	0	3	-.011	3	0	1	-4.22e-5	4	-5.531e-5	3	1.089e-8	3
21	N11	max	0	2	0	4	0	4	8.484e-5	2	-5.446e-4	3	1.197e-4	2
22		min	0	4	0	1	0	2	-2.266e-4	3	-1.21e-3	2	-1.526e-4	3
23	N12	max	0	2	0	4	0	4	1.395e-3	1	2.463e-3	1	8.31e-4	4
24		min	0	3	0	1	0	1	-6.566e-4	4	-2.591e-3	4	-1.823e-3	1
25	N13	max	0	2	0	4	0	4	1.7e-4	2	1.551e-3	3	9.198e-4	3
26		min	0	3	0	1	0	1	-1.194e-3	3	-1.21e-3	2	-7.047e-5	2
27	N14	max	0	2	0	4	0	4	1.587e-3	3	3.315e-3	4	2.193e-3	3
28		min	0	4	0	1	0	2	1.127e-3	2	2.39e-3	2	1.573e-3	2
29	N15	max	.003	2	-.016	2	.004	4	2.8e-4	4	3.832e-4	2	-3.999e-7	3
30		min	0	4	-.02	3	0	2	-1.803e-6	2	-1.129e-4	3	-2.936e-4	2
31	N16	max	0	2	0	2	0	4	7.711e-4	2	-8.361e-4	3	1.947e-4	2

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...]	LC	Y Rotation [...]	LC	Z Rotation [...]	LC
32		min	0	4	0	3	0	2	-1.376e-4	3	-2.072e-3	2	-2.385e-4	3
33	N17	max	0	2	0	4	0	2	3.16e-4	3	2.353e-4	1	6.116e-5	4
34		min	0	3	0	1	0	3	1.161e-4	2	-7.626e-4	4	-7.653e-4	1
35	N18	max	0	4	0	4	0	4	3.742e-4	2	1.532e-3	3	9.699e-4	3
36		min	0	1	0	1	0	1	-1.296e-3	3	-2.071e-3	2	-5.312e-4	2
37	N19	max	0	2	0	4	0	4	6.255e-4	3	9.454e-4	4	9.253e-4	3
38		min	0	4	0	1	0	2	4.277e-4	2	1.911e-4	2	7.361e-4	2
39	N20	max	0	4	-.019	2	0	1	1.272e-6	1	4.395e-4	2	1.161e-3	2
40		min	-.005	2	-.025	3	-.008	4	-1.158e-3	4	-1.498e-4	3	7.344e-7	3
41	N21	max	0	4	0	4	0	2	2.265e-4	4	-7.261e-4	3	9.902e-4	2
42		min	0	2	0	1	0	4	-5.228e-4	1	-1.989e-3	2	5.42e-4	3
43	N22	max	0	3	0	4	0	3	9.343e-4	2	1.463e-4	1	-8.103e-4	4
44		min	0	2	0	1	0	2	-8.195e-4	4	-4.14e-4	4	-1.24e-3	1
45	N23	max	0	1	0	4	0	1	1.3e-3	2	1.454e-3	3	4.752e-4	1
46		min	0	4	0	1	0	4	-1.284e-3	3	-1.992e-3	2	-7.818e-5	4
47	N24	max	0	4	0	2	0	2	-1.173e-4	1	6.651e-4	3	1.713e-3	3
48		min	0	2	0	3	0	4	-4.846e-4	4	7.142e-5	2	4.452e-4	2
49	N25	max	.011	2	-.022	2	.017	4	4.583e-3	4	4.649e-4	2	-1.166e-6	3
50		min	0	4	-.029	3	0	1	3.5e-7	2	-1.895e-4	3	-4.525e-3	2
51	N26	max	0	2	0	2	0	4	3.532e-3	2	-8.931e-4	3	-2.149e-3	1
52		min	0	4	0	3	0	2	-5.234e-4	3	-2.235e-3	2	-3.033e-3	4
53	N27	max	0	2	0	2	0	2	3.682e-3	4	2.649e-4	1	2.159e-3	4
54		min	0	3	0	3	0	3	-2.05e-3	2	-1.088e-3	4	-3.143e-5	1
55	N28	max	0	4	0	2	0	4	-1.478e-3	4	1.678e-3	3	3.828e-3	4
56		min	0	1	0	3	0	1	-2.585e-3	2	-2.223e-3	2	-2.892e-3	2
57	N29	max	0	2	0	4	0	4	4.021e-3	4	1.335e-3	4	2.125e-3	1
58		min	0	4	0	2	0	2	2.492e-3	1	2.616e-4	2	-1.35e-3	4

Envelope AISC ASD Steel Code Checks

Mem...	Shape	Code Check	Loc[ft]	LC	She...	Loc[ft]	...	Fa [...]	Ft [...]	Fb y-y [ksi]	Fb z-z [...]	C...	C...	AS...
1	M1	HSS18X0....	.056	0	1	.008	0	2	20.5...	21	23.1	23.1	...	8...85 H1-2
2	M2	HSS18X0....	.046	0	1	.007	0	2	20.4...	21	23.1	23.1	...	5...85 H1-1
3	M3	HSS18X0....	.049	5.625	1	.007	20	2	18.8...	21	23.1	23.1	1	6...85 H1-1
4	M4	HSS18X0....	.043	1.875	3	.007	1.875	2	18.8...	21	23.1	23.1	1	85...5...H1-1
5	M5	HSS18X0....	.067	13.333	2	.014	13.542	2	18.8...	21	23.1	23.1	1	3...85 H1-2
6	M6	HSS18X0....	.158	17.083	2	.038	20	4	18.8...	21	23.1	23.1	1	5...85 H1-2
7	M7	HSS18X0....	.628	20	4	.044	20	4	18.8...	21	23.1	23.1	...	85...6...H1-2
8	M8	HSS18X0....	.640	.434	2	.044	.217	4	18.6...	21	23.1	23.1	1	6...85 H1-2
9	M9	L2.5X2.5X3	.268	0	2	.018	4.182	z	4	12.6...	21.6	-	-	H2-1
10	M10	L2.5X2.5X3	.450	0	2	.017	4.182	z	2	12.6...	21.6	-	-	H1-1
11	M11	L3X3X3	.706	0	4	.022	7.227	z	2	7.053	21.6	-	-	H1-1
12	M12	L3X3X3	.703	0	4	.017	7.227	z	2	7.053	21.6	-	-	H1-1
13	M13	L2.5X2.5X3	.210	4.182	2	.015	4.182	z	4	12.6...	21.6	-	-	H1-1
14	M14	L2.5X2.5X3	.139	4.182	4	.018	4.182	z	4	12.6...	21.6	-	-	H1-1
15	M15	L3X3X3	.130	7.227	2	.019	7.227	z	2	7.053	21.6	-	-	H1-1
16	M16	L3X3X3	.106	7.227	4	.021	7.227	z	2	7.053	21.6	-	-	H2-1
17	M17	L2.5X2.5X3	.069	0	2	.016	4.182	z	4	12.6...	21.6	-	-	H2-1
18	M18	L2.5X2.5X3	.116	0	2	.016	4.182	z	4	12.6...	21.6	-	-	H1-1
19	M19	L3X3X3	.183	0	4	.020	7.227	z	2	7.053	21.6	-	-	H1-1
20	M20	L3X3X3	.183	0	4	.020	7.227	z	2	7.053	21.6	-	-	H1-1
21	M21	L3.5X3.5X4	.018	0	2	.019	10.732	z	4	4.336	21.6	-	-	H2-1

Company : CENTEK Engineering, INC.
 Designer : tjf, cfc
 Job Number : 12001.CO16 - East Glastonbury, CT # 12197 - Powermount

Apr 19, 2012

10:55 AM

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Envelope AISC ASD Steel Code Checks (Continued)

Mem...	Shape	Code Check	Loc[ft]	LC	She...	Loc[ft]	...	Fa [...]	Ft [...]	Fb y-y [ksi]	Fb z-...	C...	C...	AS...
22	M22	L3.5X3.5X4	.091	0	2	.019	10.732	z 4	4.336	21.6	- Code check based on...			H1-1
23	M23	L5X5X6	.051	0	4	.011	13.887	z 2	5.27	21.6	- Code check based on...			H1-1
24	M24	L5X5X6	.051	0	4	.011	13.887	z 2	5.27	21.6	- Code check based on...			H1-1

Company : CENTEK Engineering, INC.
 Designer : tjf, cfc
 Job Number : 12001.CO16 - East Glastonbury, CT # 12197 - Powermount

Apr 19, 2012
 10:58 AM

Checked By: _____

Joint Reactions

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	1	N11	-.554	.092	.462	0	0	0
2	1	N13	-.553	.09	-.463	0	0	0
3	1	N12	-.517	.042	-.285	0	0	0
4	1	N14	-.518	.041	.285	0	0	0
5	1	N16	-.332	.024	.371	0	0	0
6	1	N18	-.34	.027	-.38	0	0	0
7	1	N17	-1.053	.018	-.425	0	0	0
8	1	N19	-1.044	.026	.427	0	0	0
9	1	N21	.313	.032	-.658	0	0	0
10	1	N23	.331	.021	.674	0	0	0
11	1	N22	1.773	.042	.736	0	0	0
12	1	N24	1.751	.008	-.749	0	0	0
13	1	N29	-4.022	.092	1.712	0	0	0
14	1	N27	-4.102	-.041	-1.659	0	0	0
15	1	N28	-1.077	.051	-1.52	0	0	0
16	1	N26	-1.01	.005	1.464	0	0	0
17	1	N1	-.347	17.297	.008	.087	-.807	2.218
18	1	Totals:	-11.304	17.866	0			
19	1	COG (ft):	X: 0	Y: 83.681	Z: .15			

Joint Reactions

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	2	N11	-.625	.071	.53	0	0	0
2	2	N13	-.624	.069	-.531	0	0	0
3	2	N12	-.585	.026	-.327	0	0	0
4	2	N14	-.585	.025	.326	0	0	0
5	2	N16	-.383	.013	.439	0	0	0
6	2	N18	-.391	.017	-.448	0	0	0
7	2	N17	-1.24	.01	-.501	0	0	0
8	2	N19	-1.23	.02	.503	0	0	0
9	2	N21	.377	.022	-.775	0	0	0
10	2	N23	.397	.008	.791	0	0	0
11	2	N22	2.086	.038	.867	0	0	0
12	2	N24	2.062	-.003	-.883	0	0	0
13	2	N29	-4.74	.096	2.017	0	0	0
14	2	N27	-4.832	-.061	-1.954	0	0	0
15	2	N28	-1.26	.044	-1.79	0	0	0
16	2	N26	-1.183	-.01	1.728	0	0	0
17	2	N1	-.42	13.944	.006	.067	-.92	2.663
18	2	Totals:	-13.176	14.327	0			
19	2	COG (ft):	X: 0	Y: 80.631	Z: .132			

Company : CENTEK Engineering, INC.
 Designer : tjf, cfc
 Job Number : 12001.CO16 - East Glastonbury, CT # 12197 - Powermount

Apr 19, 2012
 11:00 AM
 Checked By: _____

Joint Reactions

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	3	N11	.448	.085	-.741	0	0	0
2	3	N13	-.447	.085	-.743	0	0	0
3	3	N12	-.271	.04	-.338	0	0	0
4	3	N14	.271	.04	-.337	0	0	0
5	3	N16	.596	.025	-1.039	0	0	0
6	3	N18	-.599	.025	-1.037	0	0	0
7	3	N17	-.662	.016	-.332	0	0	0
8	3	N19	.663	.015	-.33	0	0	0
9	3	N21	-1.071	.014	1.613	0	0	0
10	3	N23	1.077	.014	1.604	0	0	0
11	3	N22	1.215	.025	.448	0	0	0
12	3	N24	-1.22	.027	.465	0	0	0
13	3	N29	2.719	-.011	-1.208	0	0	0
14	3	N27	-2.692	-.005	-1.167	0	0	0
15	3	N28	-2.428	.059	-3.896	0	0	0
16	3	N26	2.4	.06	-3.934	0	0	0
17	3	N1	0	17.353	-.333	-2.059	.195	0
18	3	Totals:	0	17.866	-11.304			
19	3	COG (ft):	X: 0	Y: 83.681	Z: .15			

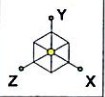
Company : CENTEK Engineering, INC.
 Designer : tjf, cfc
 Job Number : 12001.CO16 - East Glastonbury, CT # 12197 - Powermount

Apr 19, 2012
 11:01 AM

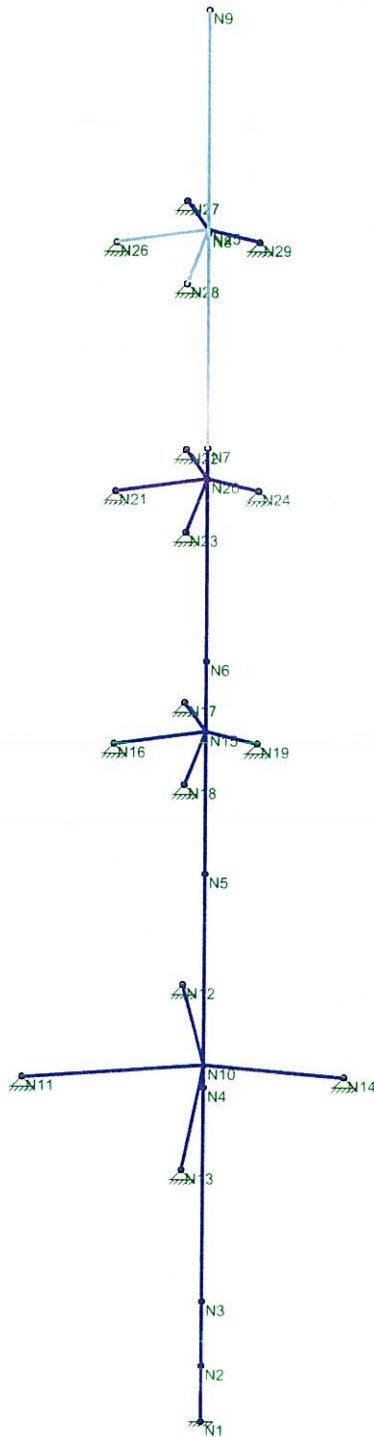
Checked By: _____

Joint Reactions

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	4	N11	.514	.064	-.839	0	0	0
2	4	N13	-.513	.064	-.841	0	0	0
3	4	N12	-.311	.024	-.379	0	0	0
4	4	N14	.31	.024	-.378	0	0	0
5	4	N16	.704	.014	-1.218	0	0	0
6	4	N18	-.706	.014	-1.216	0	0	0
7	4	N17	-.782	.008	-.386	0	0	0
8	4	N19	.784	.007	-.386	0	0	0
9	4	N21	-1.258	0	1.904	0	0	0
10	4	N23	1.266	.001	1.893	0	0	0
11	4	N22	1.426	.017	.532	0	0	0
12	4	N24	-1.432	.02	.55	0	0	0
13	4	N29	3.205	-.026	-1.421	0	0	0
14	4	N27	-3.175	-.018	-1.369	0	0	0
15	4	N28	-2.861	.054	-4.584	0	0	0
16	4	N26	2.829	.055	-4.628	0	0	0
17	4	N1	0	14.004	-.407	-2.514	.176	0
18	4	Totals:	0	14.327	-13.176			
19	4	COG (ft):	X: 0	Y: 80.631	Z: .132			



Code Check	
No Calc	
> 1.0	
.90-1.0	
.75-.90	
.50-.75	
0-.50	



Solution: Envelope

CENTEK Engineering, INC.

tjl, cfc

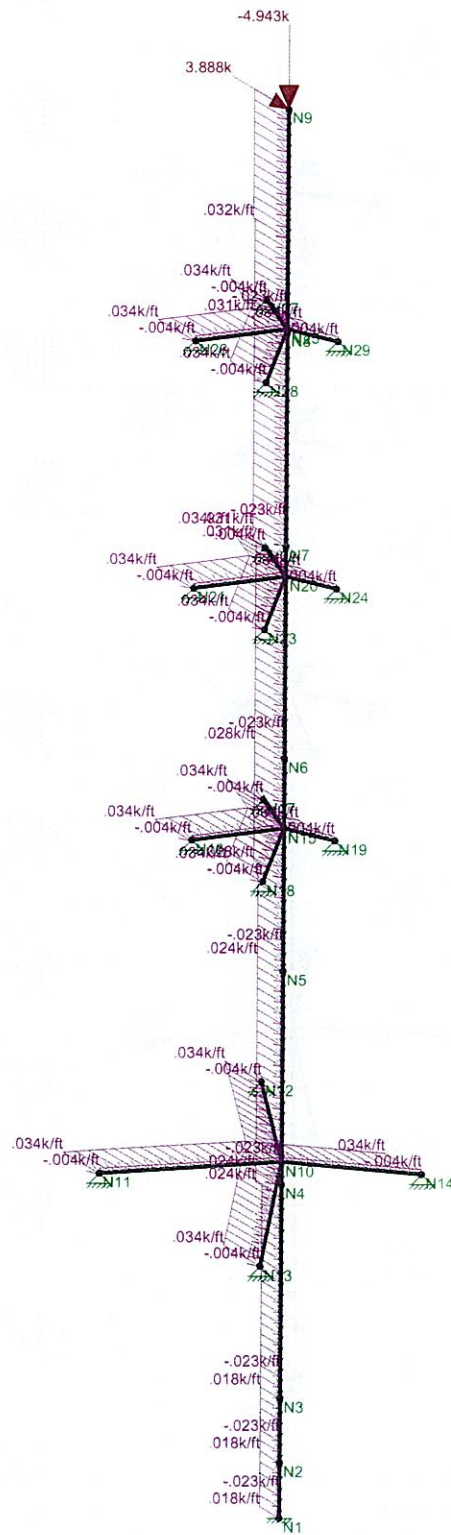
12001.CO16 - East Glasto...

CL&P # 12197 - Powermount

Unity Check

Apr 19, 2012 at 10:56 AM

EIA-TIA - Powermount.r3d



Loads: LC 1, (x) TIA/EIA Wind + Ice on PCS Structure

CENTEK Engineering, INC.

tjl, cfc

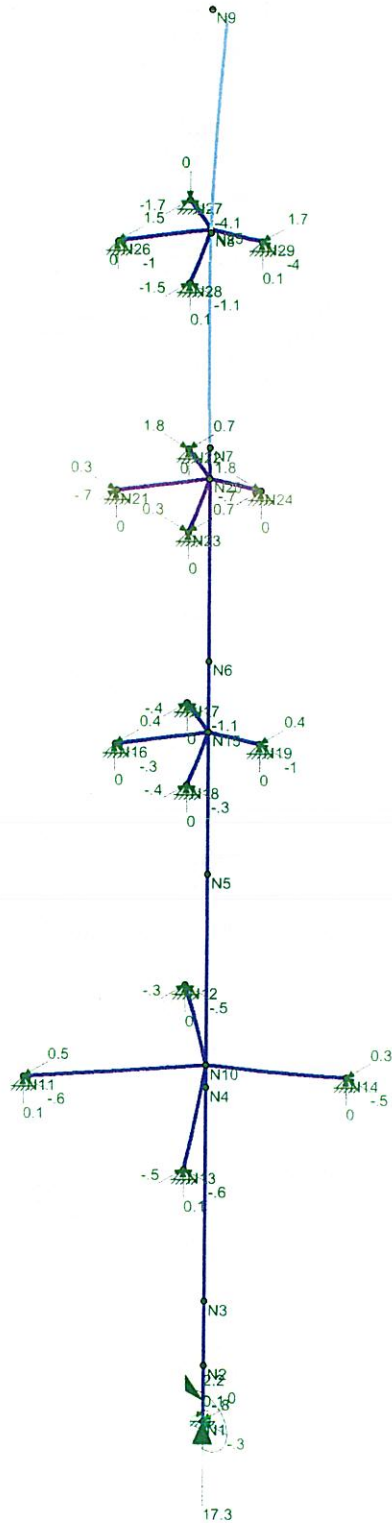
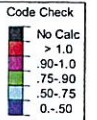
12001.CO16 - East Glasto...

CL&P # 12197 - Powermount

LC # 1 Loads

Apr 19, 2012 at 10:56 AM

EIA-TIA - Powermount.r3d



Results for LC 1, (x) TIA/EIA Wind + Ice on PCS Structure
Z-moment Reaction units are k and k-ft

CEN TEK Engineering, INC.

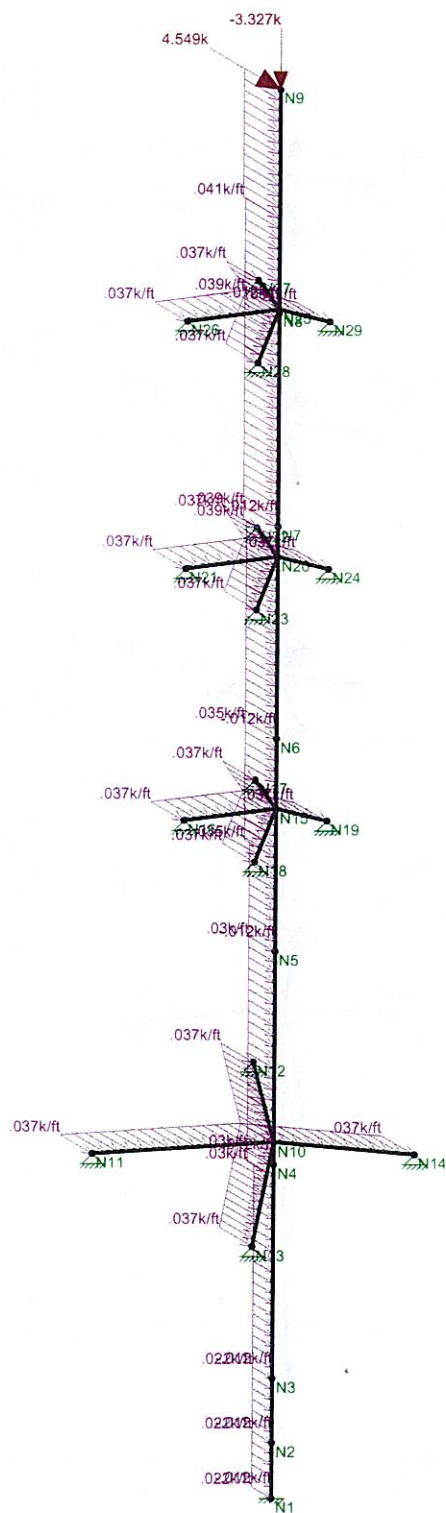
tjl, cfc

12001.CO16 - East Glasto...

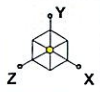
CL&P # 12197 - Powermount
LC # 1 Reactions and Deflected Shape

Apr 19, 2012 at 10:59 AM

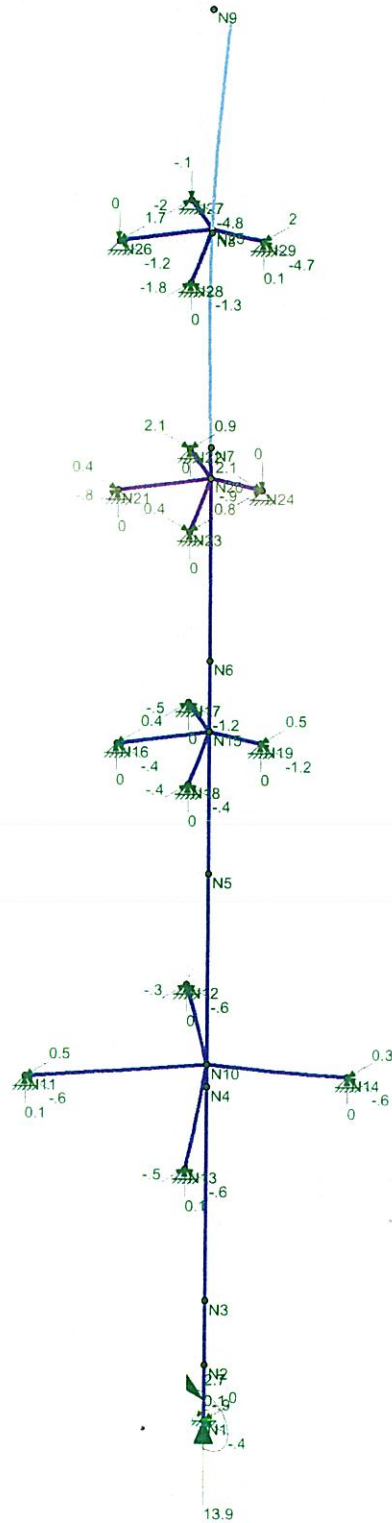
EIA-TIA - Powermount.r3d



EIA-TIA - Powermount.r3d



Code Check	
No Calc	
> 1.0	
.90-1.0	
.75-.90	
.50-.75	
0-.50	



Results for LC 2, (x) TIA/EIA Wind on PCS Structure
Z-moment Reaction units are k and k-ft

CENTEK Engineering, INC.

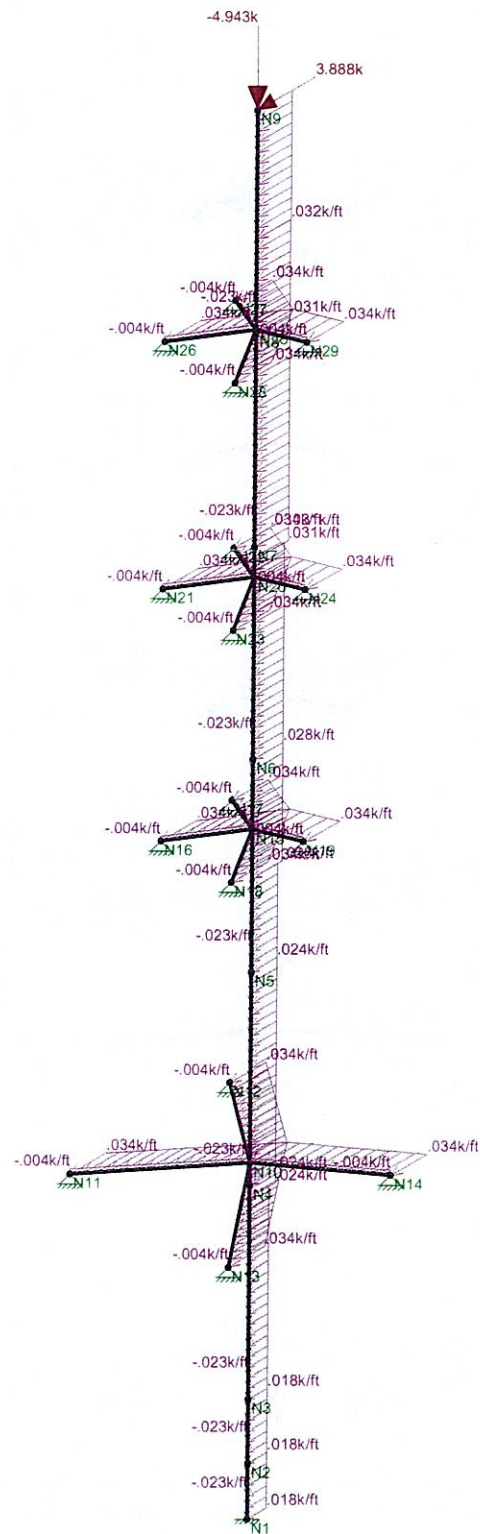
tjl, cfc

12001.CO16 - East Glasto...

CL&P # 12197 - Powermount
LC # 2 Reactions and Deflected Shape

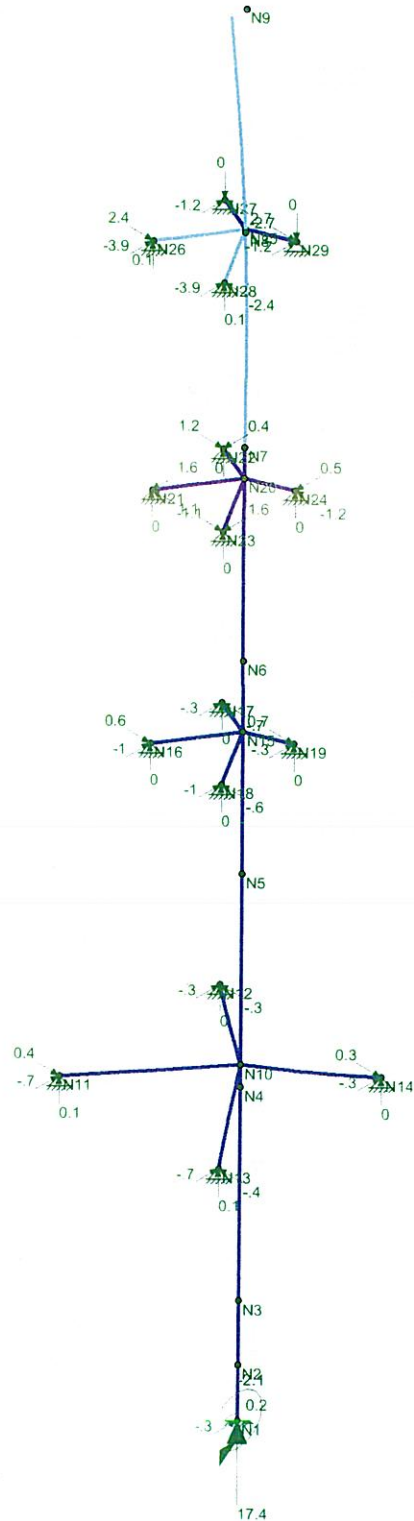
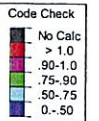
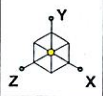
Apr 19, 2012 at 10:59 AM

EIA-TIA - Powermount.r3d



Loads: LC 3, (z) TIA/EIA Wind + Ice on PCS Structur

CEN TEK Engineering, INC.	
tjl, cfc	CL&P # 12197 - Powermount
12001.CO16 - East Glasto...	LC # 3 Loads
	Apr 19, 2012 at 10:57 AM
	EIA-TIA - Powermount.r3d



Results for LC 3, (z) TIA/EIA Wind + Ice on PCS Structure
Z-moment Reaction units are k and k-ft

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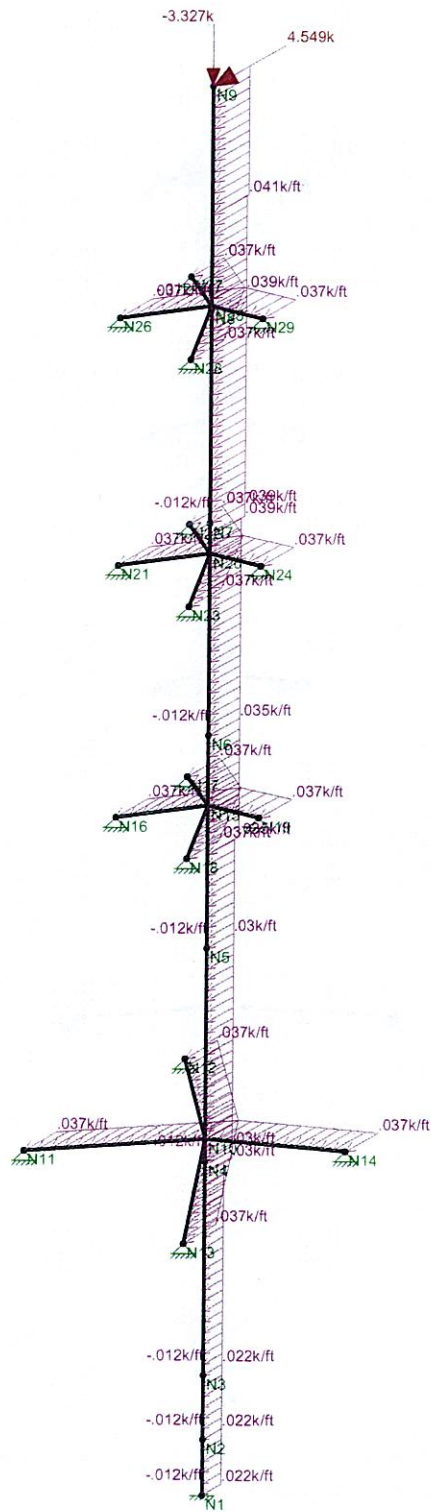
tjl, cfc

12001.CO16 - East Glasto...

CL&P # 12197 - Powermount
LC # 3 Reactions and Deflected Shape

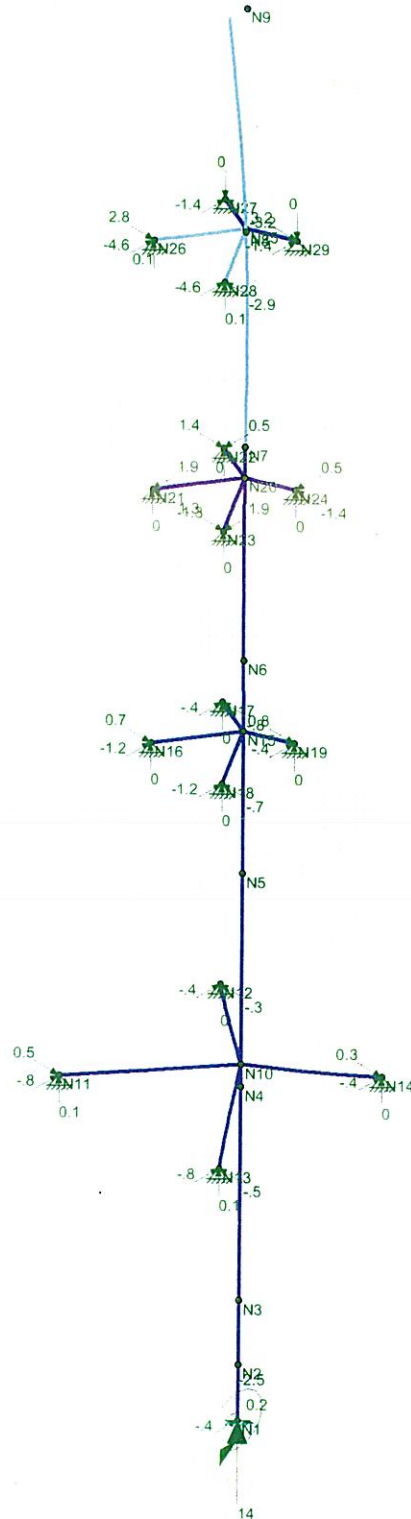
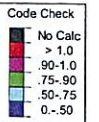
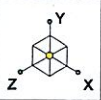
Apr 19, 2012 at 11:00 AM

EIA-TIA - Powermount.r3d



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tjl, cfc
12001.CO16 - East Glasto...

EIA-TIA - Powermount.r3d



Results for LC 4, (z) TIA/EIA Wind on PCS Structure
Z-moment Reaction units are k and k-ft

CEN TEK Engineering, INC.

tjl, cfc

12001.CO16 - East Glasto...

CL&P # 12197 - Powermount
LC # 4 Reactions and Deflected Shape

Apr 19, 2012 at 11:00 AM

EIA-TIA - Powermount.r3d

Powermount Connection to CL&P Tower:Check Pipe Collar Bolts:Reactions:

Tension =

$$\text{Tension} := 4.74\text{-k} + 4.83\text{-k} + 1.26\text{-k} + 1.18\text{-k} = 12.01\text{-kips}$$

(Input From Risa-3D LC #2) (Sum of the forces in brace members)

Shear =

$$\text{Shear} := 1.42\text{-k} + 1.37\text{-k} + 4.58\text{-k} + 4.63\text{-k} = 12\text{-kips}$$

(Input From Risa-3D LC #4) (Sum of the forces in brace members)

Bolt Data:

Bolt Type =

$$\text{ASTMA325} \quad (\text{User Input})$$

Bolt Diameter =

$$D := 0.625\text{-in} \quad (\text{User Input})$$

Number of Bolts =

$$N_b := 4 \quad (\text{User Input})$$

Allowable Tensile Strength =

$$F_t := 13.8\text{-kips} \quad (\text{User Input})$$

Allowable Shear Strength =

$$F_v := 8.3\text{-kips} \quad (\text{User Input})$$

Shear Force =

$$f_v := \frac{\text{Shear}}{N_b} = 3\text{-kips}$$

Bolt Shear % of Capacity =

$$\frac{f_v}{F_v} = 36.14\%$$

Check Bolt Shear =

$$\text{Bolt_Shear} := \text{if} \left(\frac{f_v}{F_v} \leq 1.00, \text{"OK"}, \text{"Overstressed"} \right)$$

$$\text{Bolt_Shear} = \text{"OK"}$$

Tension Force =

$$f_t := \frac{\text{Tension}}{N_b} = 3\text{-kips}$$

Bolt Tension % of Capacity =

$$\frac{f_t}{F_t} = 21.76\%$$

Check Bolt Tension =

$$\text{Bolt_Tension} := \text{if} \left(\frac{f_t}{F_t} \leq 1.00, \text{"OK"}, \text{"Overstressed"} \right)$$

$$\text{Bolt_Tension} = \text{"OK"}$$

Check Pipe Collar:Plate Data:

Plate Yield Strength =

$$F_{ybp} := 36\text{-ksi} \quad (\text{User Input})$$

Plate Thickness =

$$t_p := 0.625\text{-in} \quad (\text{User Input})$$

Plate Width =

$$t_w := 5\text{-in} \quad (\text{User Input})$$

Distance From Bolt To Pipe =

$$d_p := 1.25\text{-in} \quad (\text{User Input})$$

Maximum Moment in Plate =

$$M := 2 \cdot f_v \cdot d_p = 7.5\text{-k-in}$$

Maximum Bending Stress in Plate =

$$f_{bp} := \frac{6 \cdot M}{(t_w \cdot t_p^2)} = 23\text{-ksi}$$

Allowable Bending Stress in Plate =

$$F_{bp} := 0.75 \cdot F_y = 27 \text{ ksi}$$

Plate Bending Stress % of Capacity =

$$\frac{f_{bp}}{F_{bp}} = 85.3\%$$

Plate Bending =

$$\text{Plate_Bending} := \text{if} \left(\frac{f_{bp}}{F_{bp}} < 1.00, \text{"Ok"}, \text{"Overstressed"} \right)$$

Plate_Bending = "Ok"

Check Angle Brace Bolts:

Reactions:

Vertical =

$$\text{Vertical} := 0.6 \text{ kips} \quad (\text{Input From Risa-3D LC \#2})$$

Horizontal x-dir =

$$\text{Horizontal}_x := 2.83 \text{ kips} \quad (\text{Input From Risa-3D LC \#2})$$

Horizontal z-dir =

$$\text{Horizontal}_z := 4.63 \text{ kips} \quad (\text{Input From Risa-3D LC \#2})$$

Bolt Data:

Bolt Type =

$$\text{ASTMA325} \quad (\text{User Input})$$

Bolt Diameter =

$$D := 0.625 \text{ in} \quad (\text{User Input})$$

Number of Bolts =

$$N_b := 1 \quad (\text{User Input})$$

Allowable Tensile Strength =

$$F_t := 13.8 \text{ kips} \quad (\text{User Input})$$

Allowable Shear Strength =

$$F_v := 8.3 \text{ kips} \quad (\text{User Input})$$

Shear Force =

$$f_v := \frac{\sqrt{\text{Horizontal}_z^2 + \text{Vertical}^2}}{N_b} = 4.7 \text{ kips}$$

Bolt Shear % of Capacity =

$$\frac{f_v}{F_v} = 56.25\%$$

Check Bolt Shear =

$$\text{Bolt_Shear} := \text{if} \left(\frac{f_v}{F_v} \leq 1.00, \text{"OK"}, \text{"Overstressed"} \right)$$

Bolt_Shear = "OK"

Tension Force =

$$f_t := \frac{\text{Horizontal}_x}{N_b} = 2.8 \text{ kips}$$

Bolt Tension % of Capacity =

$$\frac{f_t}{F_t} = 20.51\%$$

Check Bolt Tension =

$$\text{Bolt_Tension} := \text{if} \left(\frac{f_t}{F_t} \leq 1.00, \text{"OK"}, \text{"Overstressed"} \right)$$

Bolt_Tension = "OK"

Basic ComponentsHeavy Wind Pressure =
Basic Windspeed =
Radial Ice Thickness =
Radial Ice Density =p := 4.00 psf (User Input NESC 2007 Figure 250-1 & Table 250-1)
V := 110 mph (User Input NESC 2007 Figure 250-2(e))
Ir := 0.50 in (User Input)
Id := 56.0 pcf (User Input)**Factors for Extreme Wind Calculation**

Elevation of Top of PCS Mast Above Grade =

TME := 132 ft (User Input)

Multiplier Gust Response Factor =

m := 1.25 (User Input - Only for NESC Extreme wind case)

NESC Factor =

kv := 1.43 (User Input from NESC 2007 Table 250-3 equation)

Importance Factor =

I := 1.0 (User Input from NESC 2007 Section 250.C.2)

Velocity Pressure Coefficient =

$$K_z := 2.01 \cdot \left(\frac{TME}{900} \right)^{\frac{2}{9.5}} = 1.342 \quad (\text{NESC 2007 Table 250-2})$$

Exposure Factor =

$$E_s := 0.346 \left[\frac{33}{(0.67 \cdot TME)} \right]^{\frac{1}{7}} = 0.301 \quad (\text{NESC 2007 Table 250-3})$$

Response Term =

$$B_s := \frac{1}{\left(1 + 0.375 \cdot \frac{TME}{220} \right)} = 0.816 \quad (\text{NESC 2007 Table 250-3})$$

Gust Response Factor =

$$Grf := \frac{\left[1 + \left(2.7 \cdot E_s \cdot B_s^{\frac{1}{2}} \right) \right]}{kv^2} = 0.848 \quad (\text{NESC 2007 Table 250-3})$$

Wind Pressure =

$$q_z := 0.00256 \cdot K_z \cdot V^2 \cdot Grf \cdot I = 35.2 \quad \text{psf} \quad (\text{NESC 2007 Section 250.C.2})$$

Shape Factors

Shape Factor for Round Members =

Cd_R := 1.3 (User Input)

Shape Factor for Flat Members =

Cd_F := 1.6 (User Input)

Shape Factor for Coax Cables Attached to Outside of P de =

Cd_{coax} := 1.45 (User Input)**Overload Factors**

NU Design Criteria Table

Overload Factors for Wind Loads:

NESC Heavy Loading =

2.5 (User Input) Apply in Risa-3D Analysis

NESC Extreme Loading =

1.0 (User Input) Apply in Risa-3D Analysis

Overload Factors for Vertical Loads:

NESC Heavy Loading =

1.5 (User Input) Apply in Risa-3D Analysis

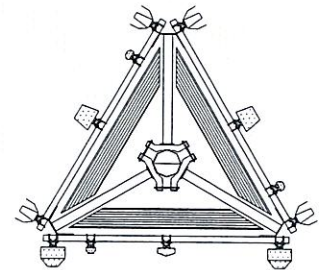
NESC Extreme Loading =

1.0 (User Input) Apply in Risa-3D Analysis

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	Swdcom SLCP 2x6014
Antenna Shape =	Flat (User Input)
Antenna Height =	$L_{ant} := 53$ in (User Input)
Antenna Width =	$W_{ant} := 14$ in (User Input)
Antenna Thickness =	$T_{ant} := 11$ in (User Input)
Antenna Weight =	$WT_{ant} := 20$ lbs (User Input)
Number of Antennas =	$N_{ant} := 2$ (User Input)



Wind Load (NESC Extreme)

*Assumes Maximum Possible Wind Pressure
Applied to all Antennas Simultaneously*

Surface Area for One Antenna = $SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 5.2$ sf

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 10.3$ sf

Total Antenna Wind Force = $F_{ant} := qz \cdot C_d \cdot F \cdot A_{ant} = 726$ lbs **BLC 5**

Wind Load (NESC Heavy)

*Assumes Maximum Possible Wind Pressure
Applied to all Antennas Simultaneously*

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := \frac{(L_{ant} + 1) \cdot (W_{ant} + 1)}{144} = 5.6$ sf

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 11.3$ sf

Total Antenna Wind Force w/ Ice = $F_{ICEant} := p \cdot C_d \cdot F \cdot A_{ICEant} = 72$ lbs **BLC 4**

Gravity Load (without ice)

Weight of All Antennas = $WT_{ant} \cdot N_{ant} = 40$ lbs **BLC 2**

Gravity Load (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 8162$ cu in

Volume of Ice on Each Antenna = $V_{ice} := (L_{ant} + 1) \cdot (W_{ant} + 1) \cdot (T_{ant} + 1) - V_{ant} = 1558$ cu in

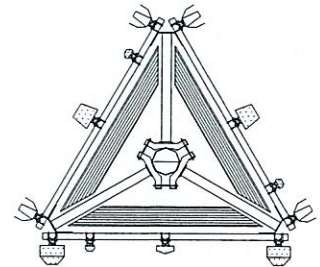
Weight of Ice on Each Antenna = $W_{ICEant} := \frac{V_{ice}}{1728} \cdot \rho_{ice} = 50$ lbs

Weight of Ice on All Antennas = $W_{ICEant} \cdot N_{ant} = 101$ lbs **BLC 3**

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	Antel BXA-70063-4CF	
Antenna Shape =	Flat	(User Input)
Antenna Height =	$L_{ant} := 47.4$	in (User Input)
Antenna Width =	$W_{ant} := 11.2$	in (User Input)
Antenna Thickness =	$T_{ant} := 5.2$	in (User Input)
Antenna Weight =	$WT_{ant} := 10$	lbs (User Input)
Number of Antennas =	$N_{ant} := 1$	(User Input)



Wind Load (NESC Extreme)

*Assumes Maximum Possible Wind Pressure
Applied to all Antennas Simultaneously*

$$\text{Surface Area for One Antenna} = SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 3.7 \quad \text{sf}$$

$$\text{Antenna Projected Surface Area} = A_{ant} := SA_{ant} \cdot N_{ant} = 3.7 \quad \text{sf}$$

Total Antenna Wind Force =

$$F_{ant} := qz \cdot C_d \cdot F \cdot A_{ant} \cdot m = 260 \quad \text{lbs} \quad \text{BLC 5}$$

Wind Load (NESC Heavy)

*Assumes Maximum Possible Wind Pressure
Applied to all Antennas Simultaneously*

$$\text{Surface Area for One Antenna w/ Ice} = SA_{ICEant} := \frac{(L_{ant} + 1)(W_{ant} + 1)}{144} = 4.1 \quad \text{sf}$$

$$\text{Antenna Projected Surface Area w/ Ice} = A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 4.1 \quad \text{sf}$$

Total Antenna Wind Force w/ Ice =

$$F_{ant} := p \cdot C_d \cdot F \cdot A_{ICEant} = 26 \quad \text{lbs} \quad \text{BLC 4}$$

Gravity Load (without ice)

Weight of All Antennas =

$$WT_{ant} \cdot N_{ant} = 10 \quad \text{lbs} \quad \text{BLC 2}$$

Gravity Load (ice only)

$$\text{Volume of Each Antenna} = V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 2761 \quad \text{cu in}$$

$$\text{Volume of Ice on Each Antenna} = V_{ice} := (L_{ant} + 1)(W_{ant} + 1)(T_{ant} + 1) - V_{ant} = 900 \quad \text{cu in}$$

$$\text{Weight of Ice on Each Antenna} = W_{ICEant} := \frac{V_{ice}}{1728} \cdot \rho_{ice} = 29 \quad \text{lbs}$$

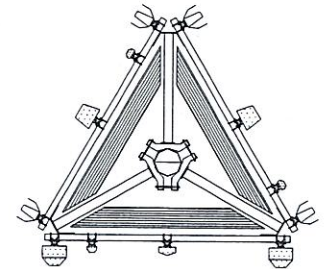
Weight of Ice on All Antennas =

$$W_{ICEant} \cdot N_{ant} = 29 \quad \text{lbs} \quad \text{BLC 3}$$

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	LPD-6513	
Antenna Shape =	Flat	(User Input)
Antenna Height =	$L_{ant} := 47.2$	in (User Input)
Antenna Width =	$W_{ant} := 13.98$	in (User Input)
Antenna Thickness =	$T_{ant} := 11.22$	in (User Input)
Antenna Weight =	$WT_{ant} := 28$	lbs (User Input)
Number of Antennas =	$N_{ant} := 4$	(User Input)



Wind Load (NESC Extreme)

*Assumes Maximum Possible Wind Pressure
Applied to all Antennas Simultaneously*

Surface Area for One Antenna = $SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 4.6$ sf

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 18.3$ sf

Total Antenna Wind Force = $F_{ant} := qz \cdot C_d \cdot F \cdot A_{ant} \cdot m = 1291$ lbs **BLC 5**

Wind Load (NESC Heavy)

*Assumes Maximum Possible Wind Pressure
Applied to all Antennas Simultaneously*

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := \frac{(L_{ant} + 1) \cdot (W_{ant} + 1)}{144} = 5$ sf

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 20.1$ sf

Total Antenna Wind Force w/ Ice = $F_{ant} := p \cdot C_d \cdot F \cdot A_{ICEant} = 128$ lbs **BLC 4**

Gravity Load (without ice)

Weight of All Antennas = $WT_{ant} \cdot N_{ant} = 112$ lbs **BLC 2**

Gravity Load (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 7404$ cu in

Volume of Ice on Each Antenna = $V_{ice} := (L_{ant} + 1) \cdot (W_{ant} + 1) \cdot (T_{ant} + 1) - V_{ant} = 1420$ cu in

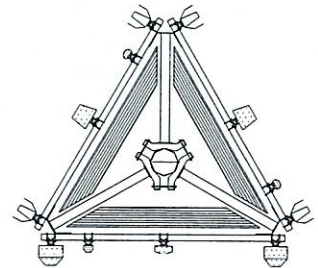
Weight of Ice on Each Antenna = $W_{ICEant} := \frac{V_{ice}}{1728} \cdot \rho = 46$ lbs

Weight of Ice on All Antennas = $W_{ICEant} \cdot N_{ant} = 184$ lbs **BLC 3**

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	Antel LPA-80063-4CF
Antenna Shape =	Flat (User Input)
Antenna Height =	$L_{ant} := 47.4$ in (User Input)
Antenna Width =	$W_{ant} := 15.2$ in (User Input)
Antenna Thickness =	$T_{ant} := 13.1$ in (User Input)
Antenna Weight =	$WT_{ant} := 20$ lbs (User Input)
Number of Antennas =	$N_{ant} := 2$ (User Input)



Wind Load (NESC Extreme)

*Assumes Maximum Possible Wind Pressure
 Applied to all Antennas Simultaneously*

Surface Area for One Antenna =

$$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 5 \quad sf$$

Antenna Projected Surface Area =

$$A_{ant} := SA_{ant} \cdot N_{ant} = 10 \quad sf$$

Total Antenna Wind Force =

$$F_{ant} := qz \cdot C_d \cdot F \cdot A_{ant} m = 705 \quad lbs \quad \text{BLC 5}$$

Wind Load (NESC Heavy)

*Assumes Maximum Possible Wind Pressure
 Applied to all Antennas Simultaneously*

Surface Area for One Antenna w/ Ice =

$$SA_{ICEant} := \frac{(L_{ant} + 1) \cdot (W_{ant} + 1)}{144} = 5.4 \quad sf$$

Antenna Projected Surface Area w/ Ice =

$$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 10.9 \quad sf$$

Total Antenna Wind Force w/ Ice =

$$F_{ant} := p \cdot C_d \cdot F \cdot A_{ICEant} = 70 \quad lbs \quad \text{BLC 4}$$

Gravity Load (without ice)

Weight of All Antennas =

$$WT_{ant} \cdot N_{ant} = 40 \quad lbs \quad \text{BLC 2}$$

Gravity Load (ice only)

Volume of Each Antenna =

$$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 9438 \quad cu \text{ in}$$

Volume of Ice on Each Antenna =

$$V_{ice} := (L_{ant} + 1) \cdot (W_{ant} + 1) \cdot (T_{ant} + 1) - V_{ant} = 1617 \quad cu \text{ in}$$

Weight of Ice on Each Antenna =

$$W_{ICEant} := \frac{V_{ice}}{1728} \cdot \rho_d = 52 \quad lbs$$

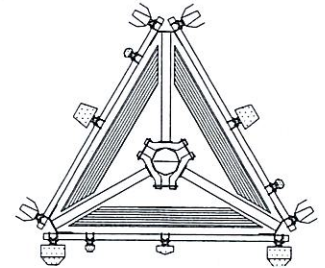
Weight of Ice on All Antennas =

$$W_{ICEant} \cdot N_{ant} = 105 \quad lbs \quad \text{BLC 3}$$

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	Antel BXA-171063-12BF
Antenna Shape =	Flat (User Input)
Antenna Height =	$L_{ant} := 71.7$ in (User Input)
Antenna Width =	$W_{ant} := 6.1$ in (User Input)
Antenna Thickness =	$T_{ant} := 4.1$ in (User Input)
Antenna Weight =	$WT_{ant} := 15$ lbs (User Input)
Number of Antennas =	$N_{ant} := 3$ (User Input)



Wind Load (NESC Extreme)

*Assumes Maximum Possible Wind Pressure
Applied to all Antennas Simultaneously*

Surface Area for One Antenna = $SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 3$ sf

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 9.1$ sf

Total Antenna Wind Force = $F_{ant} := qz \cdot C_d \cdot A_{ant} \cdot m = 642$ lbs **BLC 5**

Wind Load (NESC Heavy)

*Assumes Maximum Possible Wind Pressure
Applied to all Antennas Simultaneously*

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := \frac{(L_{ant} + 1) \cdot (W_{ant} + 1)}{144} = 3.6$ sf

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 10.8$ sf

Total Antenna Wind Force w/ Ice = $F_{ant} := p \cdot C_d \cdot A_{ICEant} = 69$ lbs **BLC 4**

Gravity Load (without ice)

Weight of All Antennas = $WT_{ant} \cdot N_{ant} = 45$ lbs **BLC 2**

Gravity Load (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 1793$ cu in

Volume of Ice on Each Antenna = $V_{ice} := (L_{ant} + 1) \cdot (W_{ant} + 1) \cdot (T_{ant} + 1) - V_{ant} = 839$ cu in

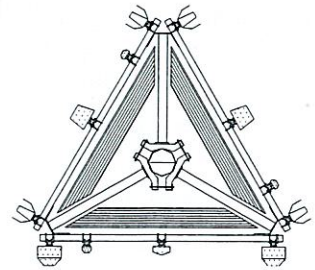
Weight of Ice on Each Antenna = $W_{ICEant} := \frac{V_{ice}}{1728} \cdot \rho_d = 27$ lbs

Weight of Ice on All Antennas = $W_{ICEant} \cdot N_{ant} = 82$ lbs **BLC 3**

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	RFS FD9R6004/2C-3L
Antenna Shape =	Flat (User Input)
Antenna Height =	$L_{ant} := 5.8$ in (User Input)
Antenna Width =	$W_{ant} := 6.5$ in (User Input)
Antenna Thickness =	$T_{ant} := 1.5$ in (User Input)
Antenna Weight =	$WT_{ant} := 3$ lbs (User Input)
Number of Antennas =	$N_{ant} := 6$ (User Input)



Wind Load (NESC Extreme)

*Assumes Maximum Possible Wind Pressure
Applied to all Antennas Simultaneously*

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 0.3$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 1.6$	sf
Total Antenna Wind Force =	$F_{ant} := qz \cdot C_d \cdot F \cdot A_{ant} \cdot m = 111$	lbs BLC 5

Wind Load (NESC Heavy)

*Assumes Maximum Possible Wind Pressure
Applied to all Antennas Simultaneously*

Surface Area for One Antenna w/ Ice =	$SA_{ICEant} := \frac{(L_{ant} + 1) \cdot (W_{ant} + 1)}{144} = 0.4$	sf
Antenna Projected Surface Area w/ Ice =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 2.1$	sf
Total Antenna Wind Force w/ Ice =	$F_{ant} := p \cdot C_d \cdot F \cdot A_{ICEant} = 14$	lbs BLC 4

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 18$	lbs BLC 2
--------------------------	-------------------------------	------------------

Gravity Load (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 57$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 1) \cdot (W_{ant} + 1) \cdot (T_{ant} + 1) - V_{ant} = 71$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot \rho_d = 2$	lbs
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 14$	lbs BLC 3

Development of Wind & Ice Load on Platform

Platform Data:

Platform Model =

12' Low Profile Platform

Platform Shape =

Flat

Platform Area (Flat) =

$$A_{f,plt} := 11.8$$

sf (User Input)

Platform Area (Round) =

$$A_{r,plt} := 4.75$$

sf (User Input)

Platform Area Total =

$$CdA_{plt} := A_{f,plt} \cdot Cd_F + A_{r,plt} \cdot Cd_R = 25.055$$

sf (User Input)

Platform Area w/ Ice (Flat) =

$$A_{f,ICEplt} := 14.84$$

sf (User Input)

Platform Area w/ Ice (Round) =

$$A_{r,ICEplt} := 6.75$$

sf (User Input)

Platform Area w/ Ice =

$$CdA_{ICEplt} := A_{f,ICEplt} \cdot Cd_F + A_{r,ICEplt} \cdot Cd_R = 32.519$$

sf (User Input)

Platform Weight =

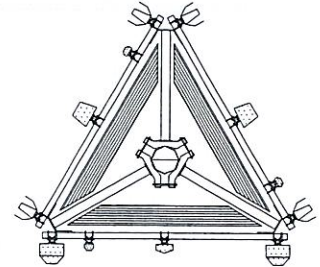
$$WT_{plt} := 3062$$

lbs (User Input)

Platform Weight w/ Ice =

$$WT_{ICEplt} := 4163$$

lbs (User Input)



Wind Load (NESC Extreme)

Total Platform Wind Force =

$$F_{plt} := qz \cdot CdA_{plt} \cdot m = 1103$$

lbs BLC 5

Wind Load (NESC Heavy)

Total Platform Wind Force w/ Ice =

$$F_{iplt} := p \cdot CdA_{ICEplt} = 130$$

lbs BLC 4

Gravity Load (without ice)

Weight of Platform =

$$WT_{plt} = 3062$$

lbs BLC 2

Gravity Load (ice only)

Weight of Ice on Platform =

$$WT_{ICEplt} - WT_{plt} = 1101$$

lbs BLC 3

Subject:

Load Analysis of Powermount on CL&P
 Structure #12197

Location:

Glastonbury, CT

Rev. 1: 4/19/12

Prepared by: T.J.L Checked by: C.F.C.
 Job No. 12001.CO16

Development of Wind & Ice Load on Coax Cables

Coax Cable Data:

Coax Type =	HELIAX 1-5/8"	
Shape =	Round	(User Input)
Coax Outside Diameter =	$D_{\text{coax}} := 1.98$	in (User Input)
Coax Cable Length =	$L_{\text{coax}} := 132$	ft (User Input)
Weight of Coax per foot =	$Wt_{\text{coax}} := 1.04$	plf (User Input)
Total Number of Coax =	$N_{\text{coax}} := 12$	(User Input)
No. of Coax Projecting Outside Face of PCS Mast =	$NP_{\text{coax}} := 0$	(User Input) (Coax within Powermount)

Wind Load (NESC Extreme)

Coax projected surface area = $A_{\text{coax}} := 0$ ft

Total Coax Wind Force = $F_{\text{coax}} := 0$ plf **BLC 5**

Wind Load (NESC Heavy)

Coax projected surface area w/ Ice = $AICE_{\text{coax}} := 0$ ft

Total Coax Wind Force w/ Ice = $F_{\text{ice}} := 0$ plf **BLC 4**

Gravity Load (without ice)

Weight of all cables w/o ice $WT_{\text{coax}} := Wt_{\text{coax}} N_{\text{coax}} = 12$ plf **BLC 2**

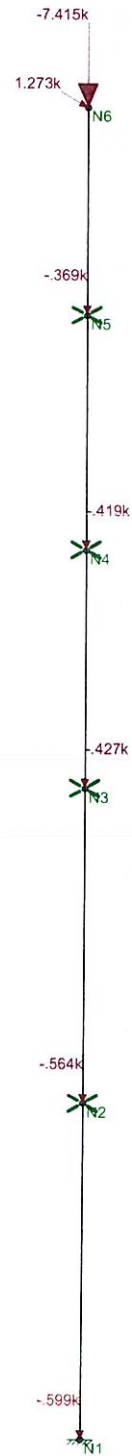
Gravity Load (ice only)

Ice Area per Linear Foot = $Ai_{\text{coax}} := 0$ sq in

Ice Weight All Coax per foot = $WTi_{\text{coax}} := Id \left(N_{\text{coax}} \cdot \frac{Ai_{\text{coax}}}{144} \right) = 0$ plf **BLC 3**

CEN TEK engineering, INC. Consulting Engineers 63-2 North Branford Road Branford, CT 06405 Ph. 203-488-0580 / Fax. 203-488-8587	Subject: Analysis of NESC Heavy Wind and NESC Extreme Wind for Obtaining PCS Structure Reactions Applied to CL&P Tower Tabulated Load Cases Location: Glastonbury, CT Date:2/27/12	Prepared by: T.J.L.	Checked by: C.F.C.	Job No. 12001.CO16
Load Case	Description			
1	Self Weight (PCS Mast)			
2	Weight of Appurtenances			
3	Weight of Ice Only on PCS Structure ⁽¹⁾			
4	NESC Heavy Wind on PCS Structure ⁽¹⁾			
5	NESC Extreme Wind on PCS Structure ⁽¹⁾			
Footnotes: (1) PCS Structure includes: Powermount and Appurtenances				

CENTEK engineering, INC. Consulting Engineers 63-2 North Branford Road Branford, CT 06405 Ph. 203-488-0580 / Fax. 203-488-8587															Subject: Analysis of NESC Heavy Wind and NESC Extreme Wind for Obtaining PCS Structure Reactions Applied to CL&P Tower Load Combinations Table Location: Glastonbury, CT Date: 2/27/12 Prepared by: T.J.L. Checked by: C.F.C. Job No. 12001.CO16																			
Load Combination		Description										Envelope		Wind																				
1		NESC Heavy Wind on PCS Structure										Solution		Factor		P-Delta		BLC		Factor		BLC		Factor		BLC		Factor		BLC		Factor		
												1		1		1.5		2		1.5		3		1.5		4		2.5						
2		NESC Extreme Wind on PCS Structure										1		1		1		2		1		5		1										
Footnotes: (1) BLC = Basic Load Case (2) PCS Structure includes: Powermount and Appurtenances																																		



Loads: LC 1, NESC Heavy Wind on Powermount

CEN TEK Engineering, Inc.

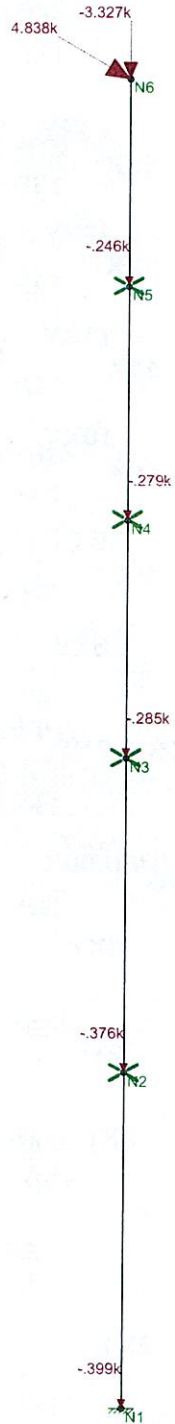
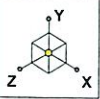
tjl, cfc

12001.CO16 - East Glasto...

CL&P Tower # 12197 - Powermount
LC # 1 Loads

Apr 19, 2012 at 2:17 PM

NESC - Powermount.r3d



Loads: LC 2, NESC Extreme Wind on Powermount

CEN TEK Engineering, Inc.

tjl, cfc

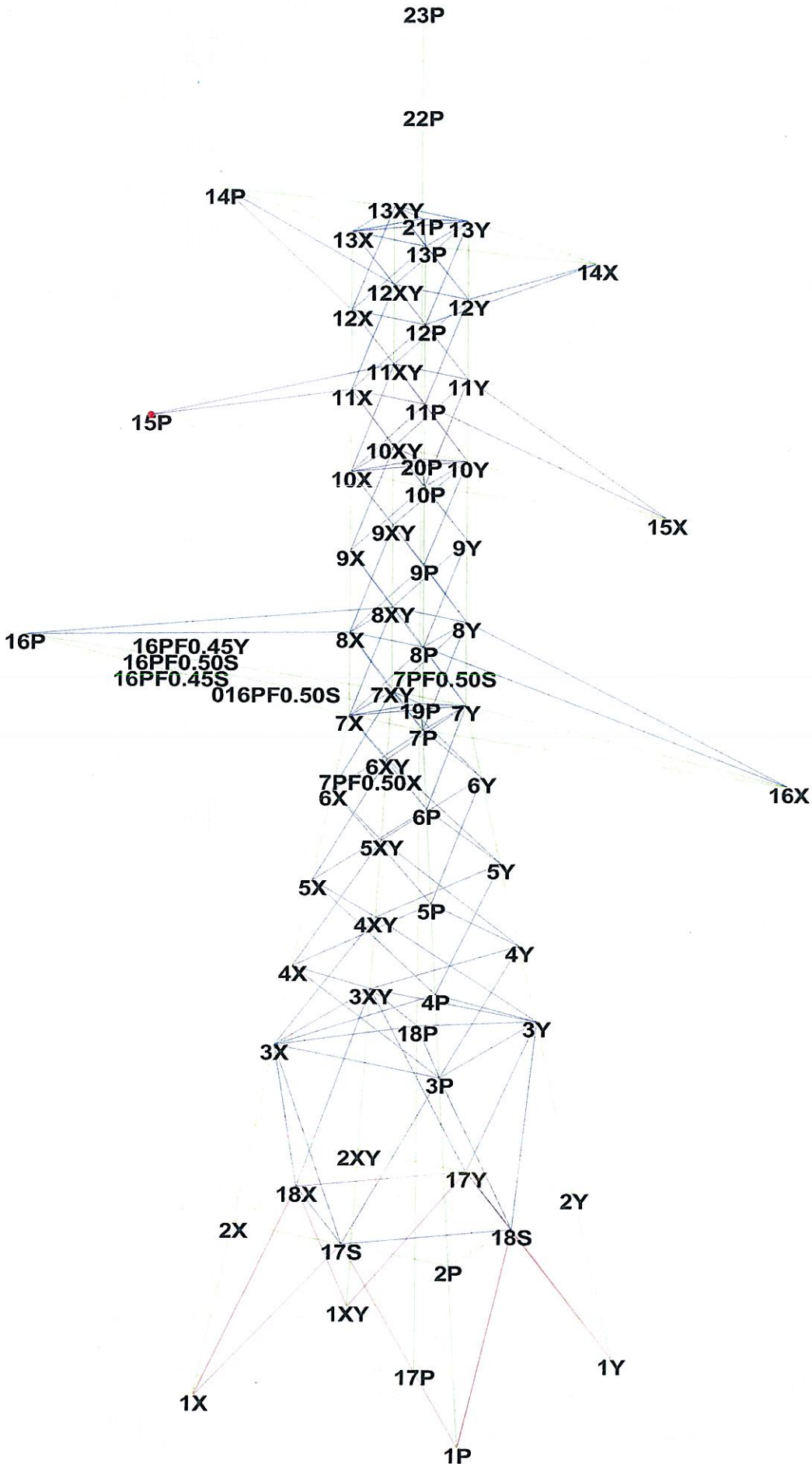
12001.CO16 - East Glasto...

CL&P Tower # 12197 - Powermount

LC # 2 Loads

Apr 19, 2012 at 2:18 PM

NESC - Powermount.r3d



Project Name : 12001.C016 - Glastonbury, CT
Project Notes: CLAP Structure # 12197/ Verizon East Glastonbury 3
Project File : J:\Jobs\1200100.W\12016 - East Glastonbury 3\Rev (C
Date run : 11:12:10 AM Wednesday, April 25, 2012
by : Tower Version 11.11
Licensed to : Centek Engineering Inc

Successfully performed nonlinear analysis

[illegible]

[illegible]

Member "g62p" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero) ; however, end, edge and spacing distances will be checked. ??

Member "Fg6262p" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero) ; however, end, edge and spacing distances will be checked. ??

Member "g78p" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero) ; however, end, edge and spacing distances will be checked. ??

Member "g78y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero) ; however, end, edge and spacing distances will be checked. ??

Unusual number of fixed joints found: 5. Towers normally have from between 1 and 4 fixed joints. ??

Clamp insulator "8" has a structure attach joint "17p" that is fixed with respect to translation ??

The model has 166 warnings. ??

```
Member check option: ASCE 10
Connection rupture check: ASCE 10
Crossing diagonal check: ASCE 10 [Alternate Unsupported RLOUT = 1]
Included angle check: None
```

Loads from file: j:\jobs\1200100.wi\col6 - east glastonbury 3\rev (1)\calcs\pls tower\cl&p # 12197.1ca

*** Analysis Results:

Maximum element usage is 94.84% for Angle "g36p" in load case "NESC Heavy"
Maximum insulator usage is 16.23% for Clamp "13" in load case "NESC Heavy"

Summary of Joint Support Reactions For All Load Cases:

Load Case	Joint Label	Long. Force (kips)	Trans. Force (kips)	Vert. Force (kips)	Shear Force (kips)	Trans. Moment (ft-k)	Long. Moment (ft-k)	Vert. Bending Moment (ft-k)	Found. Usage %
NESC Heavy	1P	-8.74	-7.29	33.96	11.38	0.00	0.00	0.00	0.00
	17P	-0.01	-0.91	25.02	0.91	5.28	0.16	0.00	5.28
	NESC Heavy	1X	4.62	-2.78	-14.70	5.39	0.00	0.00	0.00
	NESC Heavy	1YX	-4.38	-3.11	-14.99	5.37	0.00	0.00	0.00
NESC Heavy	1Y	8.51	-7.59	34.13	11.41	0.00	0.00	0.00	0.00
	NESC Extreme	1P	-10.46	-14.46	67.95	17.85	0.00	0.00	0.00
	NESC Extreme	17P	-0.21	-1.00	7.78	1.02	16.10	-3.36	-0.00
	NESC Extreme	1X	14.52	-9.35	-52.84	17.28	0.00	0.00	0.00
NESC Extreme	1Y	-14.60	-14.22	-53.76	20.38	0.00	0.00	0.00	0.00
	NESC Extreme	1Y	10.74	11.15	69.14	15.48	0.00	0.00	0.00

Summary of Joint Support Reactions For All Load Cases in Direction of Leg:

Load Case	Support	Origin Joint	Member	Leg Dir.	Leg Force (kips)	Residual Shear		Residual Shear		Residual Shear		Total Long. Force (kips)	Total Tran. Force (kips)	Total Vert. Force (kips)
						Perpendicular To Leg (kips)	Parallel To Leg (kips)	Horizontal To Leg (kips)	Vertical To Leg (kips)	Horizontal To Leg (kips)	Vertical To Leg (kips)			
NESC Heavy	1P	2P	g12P	35.599	3.919	4.007	3.461	2.018	-8.74	-7.29	33.96			
	1X	2X	g12X	-15.484	2.345	2.384	-2.333	0.492	4.62	-2.78	-14.70			
	1XY	2XY	g12XY	-15.776	2.152	2.195	2.050	0.783	-4.38	-3.11	-14.99			
	1Y	2Y	g12Y	35.781	3.854	3.193	-3.211	2.289	8.51	-7.59	34.13			
	1P	2P	g12P	70.151	3.863	3.906	-0.098	3.905	-10.46	-14.46	67.95			
	1X	2X	g12X	-55.234	6.317	6.418	-6.315	1.145	14.52	-9.35	-52.84			
NESC Extreme	1XY	2XY	g12XY	-56.879	8.371	8.570	6.244	5.871	-14.60	-14.22	-53.76			
	1Y	2Y	g12Y	56.853	0.406	0.411	0.004	0.411	-10.74	-11.15	69.14			

Sections Information:

Section Label	Top Z (ft)	Bottom Z (ft)	Joint Z (ft)	Member Count	Tran. Top Width (ft)	Face Tran. Bot Width (ft)	Face Tran. Top Width (ft)	Face Tran. Bot Width (ft)	Face Long. Top Width (ft)	Face Long. Bot Width (ft)	Face Long. Gross Area (ft ²)
1	132.000	64.570	45	146	0.00	7.74	403.873	0.00	80.00	1164.752	1164.752
2	64.570	0.000	35	94	7.74	27.56	1135.944	7.74	27.56	1135.944	1135.944

*** Overall summary for all load cases - Usage = Maximum Stress / Allowable Stress
 Printed capacities do not include the strength factor entered for each load case.
 The Group Summary reports on the member and load case that resulted in maximum usage
 which may not necessarily be the same as that which produces maximum force.

Group Summary (Compression Portion):

Group Label	Group Desc.	Angle Type	Angle Size	Steel Strength	Max Usage	Max In Comp.	Comp. Force Control	Comp. Load Case	L/R Capacity	Comp. Shear	Comp. Bearing	RLX	RLY	RLZ	L/R	KL/R	Length	Curve	No. Bolts	Of Comp.
				(ksi)	%	%	(kips)		(kips)	(kips)	(kips)						(ft)			
Leg1	L4x4x1/4	SAE	4X4X0.25	36.0	66.10	66.10	94Y	-27.042NESC Ext	40.910	66.900	81.562	1.000	1.000	1.000	1.000	114.57	114.57	7.590	1	6
Leg2	L5x5x3/8	SAE	5X5X0.375	46.0	43.80	43.80	97Y	-49.701NESC Ext	113.461	133.800	244.687	1.000	1.000	1.000	1.000	88.79	88.79	7.325	1	12
Leg3	L5x5x3/8	SAE	5X5X0.375	46.0	60.84	60.84	g8P	-55.544NESC Ext	91.303	0.000	0.000	1.000	1.000	1.000	1.000	105.85	105.85	8.733	1	0
Leg4	L5x5x3/8	SAE	5X5X0.375	36.0	94.83	94.83	g11Y	-69.867NESC Ext	73.676	156.100	285.468	0.560	0.560	0.560	0.560	117.36	117.36	17.289	1	14
Leg5	L5x5x3/8	SAE	5X5X0.375	36.0	89.01	89.01	g12Y	-70.375NESC Ext	79.064	156.100	285.468	0.550	0.550	0.550	0.550	111.60	111.60	16.740	1	14
Diag1	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	36.0	45.35	45.35	g15XY	-7.010NESC Ext	15.455	22.300	20.391	0.750	0.500	0.500	0.500	132.08	129.25	10.897	5	2
Diag2	L2.5x2.5x1/4	SAE	2.5X2.5X0.25	36.0	31.44	31.44	g17XY	-6.611NESC Ext	19.533	22.300	27.187	0.750	0.500	0.500	0.500	135.76	132.05	11.110	5	2
Diag3	L3x3x1/4	SAE	3X3X0.25	36.0	26.99	21.71	g21XY	-9.884NESC Ext	30.447	44.600	54.375	0.750	0.500	0.500	0.500	132.75	114.56	11.124	2	4
Diag4	L4X4X1/4	SAE	4X4X0.25	36.0	12.23	12.23	g24Y	-4.092NESC Ext	32.248	44.600	54.375	1.000	0.500	0.500	0.500	123.66	122.25	11.232	6	4
Diag5	L3.5X3X1/4	SAU	3.5X3X0.25	36.0	18.22	18.22	g31XY	-2.905NESC Ext	40.833	33.450	40.781	1.000	0.568	0.568	0.568	109.45	114.72	11.401	3	3
Diag6	L3.5X3X1/4	SAU	3.5X3X0.25	36.0	45.18	45.18	g33P	-5.801NESC Ext	15.940	22.300	27.187	0.769	0.537	0.537	0.537	182.11	167.37	17.832	5	2
Diag7	L3.5X3X1/4	SAU	3.5X3X0.25	36.0	94.84	94.84	g36P	-6.769NESC Ext	12.841	44.600	54.375	1.000	0.500	0.500	0.500	207.18	186.47	19.164	5	4
Diag8	L3.5X3X1/4	SAU	3.5X3X0.25	36.0	14.44	14.44	g38Y	-2.604NESC Ext	7.137	55.750	67.969	1.000	0.500	0.500	0.500	277.84	240.32	21.533	5	5
Horz1	L3.5x2.5x1/4	SAU	3.5X2.5X0.25	36.0	14.44	14.44	g38Y	-2.604NESC Ext	18.028	22.300	27.187	1.000	1.000	1.000	1.000	170.74	151.20	7.740	6	2
Horz2	L4x4x1/4	SAE	4X4X0.25	36.0	2.05	0.00	g37Y	0.000	38.974	44.600	54.375	1.000	1.000	1.000	1.000	116.83	118.42	7.740	3	4
Horz3	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	36.0	33.27	10.33	g43X	-1.022NESC Ext	9.886	22.300	20.391	1.000	1.000	1.000	1.000	187.64	161.60	7.740	6	2
Horz4	L5x3x1/4	SAU	5X3X0.25	36.0	69.10	0.00	Fg4478X	0.000	49.701	22.300	27.187	1.000	1.000	1.000	1.000	70.05	70.05	3.870	1	2
Horz5	L3.5x3x1/4	SAU	3.5X3X0.25	36.0	32.65	32.65	g46X	-5.599NESC Ext	17.150	22.300	27.187	1.000	0.500	0.500	0.500	187.24	161.35	17.320	6	2
Horz6	L3x3x1/4	SAU	3X3X0.1875	36.0	6.43	6.43	g47P	-0.583NESC Ext	9.078	22.300	20.391	1.000	1.000	1.000	1.000	226.31	185.38	11.240	6	2
Inner1	L2x2x3/16	SAE	2X2X0.1875	36.0	7.97	7.97	g49P	-0.669NESC Ext	8.391	22.300	20.391	0.750	0.500	0.500	0.500	166.69	155.62	10.946	5	2
Inner2	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	36.0	2.00	2.00	g50X	-0.306NESC Ext	15.347	22.300	20.391	0.750	0.500	0.500	0.500	132.68	129.70	10.946	5	2
Inner3	L3x3x1/4	SAE	3X3X0.25	36.0	39.24	39.24	g51P	-9.134NESC Ext	23.278	33.450	40.781	1.000	0.500	0.500	0.500	141.24	133.06	10.946	6	3
Inner4	L3x2x3/16	SAU	3X2X0.1875	36.0	8.86	8.86	g52Y	-0.605NESC Ext	6.834	22.300	20.391	1.000	0.500	0.500	0.500	217.25	194.15	15.896	5	2
TopArm	3.5x3.5x1/4	SAE	3.5X3.5X0.25	36.0	4.91	2.13	g53P	-0.592NESC Ext	27.839	33.450	40.781	0.500	0.500	0.500	0.500	139.21	131.81	16.102	6	3
TopArmBr	3.5x2.5x1/4	SAU	3.5X2.5X0.25	36.0	8.24	8.24	g54Y	-1.219NESC Ext	14.798	22.300	27.187	0.500	0.500	0.500	0.500	196.24	166.89	17.793	6	2
MidArm	5x3.5x3/8	SAU	5X3.5X0.375	36.0	17.09	17.09	g55Y	-5.717NESC Ext	59.123	33.450	61.172	0.330	0.330	0.330	0.330	121.87	121.15	23.452	6	3
MidArmBr	2.5x2.5x3/16	SAE	2.5X2.5X0.1875	36.0	19.97	0.00	g57Y	0.000	4.845	33.450	30.585	0.500	0.500	0.500	0.500	230.84	24.769	6	3	3
BotArm	6x6x5/16	SAE	6X6X0.3125	36.0	29.89	29.89	g58Y	-9.999NESC Ext	80.349	33.450	50.976	0.500	0.500	0.500	0.500	81.76	100.88	16.352	3	3
potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize moments): g58P g58Y g58X g58Y g58Z g58W g58V g58U g58T g58S g58R g58Q g58P g58O g58N g58M g58L g58K g58J g58I g58H g58G g58F g58E g58D g58C g58B g58A g58Z g58Y g58X g58W g58V g58U g58T g58S g58R g58Q g58P g58O g58N g58M g58L g58K g58J g58I g58H g58G g58F g58E g58D g58C g58B g58A																				
BotArmBr	3.5x3x1/4	SAU	3.5X3X0.25	36.0	22.30	0.00	g60Y	0.000	12.379	55.750	67.969	0.330	0.330	0.330	0.330	233.69	189.92	37.237	6	5
M1	5x3.5x5/8	DAS	5X3.5X0.625	36.0	1.05	1.05	Fg6262P	-0.233NESC Ext	334.426	22.300	135.937	2.000	2.000	2.000	2.000	42.18	42.18	1.742	1	2
Pwmt 18"	Std. Pipe Pwmt		Pipe 18" Std.	35.0	3.80	3.80	g64P	-22.570NESC Ext	594.129	0.000	0.000	1.000	1.000	1.000	1.000	63.94	63.94	33.250	1	0
PwmtBR1	L3x3x3/16	SAE	3X3X0.1875	36.0	38.18	38.18	g72P	-3.892NESC Ext	14.678	16.800	10.195	1.000	1.000	1.000	1.000	145.79	145.79	7.241	4	1
PwmtBR2	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	36.0	68.46	68.46	g73X	-6.980NESC Ext	19.925	16.800	10.195	1.000	1.000	1.000	1.000	101.71	110.85	4.195	3	1
PwmtBR3	L5x5x3/8	SAE	5X5X0.375	36.0	9.25	9.25	g70P	-1.555NESC Ext	36.246	16.800	20.391	1.000	1.000	1.000	1.000	168.84	168.84	13.929	4	1
PwmtBR4	L3.5x3.5x1/4	SAE	3.5X3.5X0.25	36.0	15.32	15.32	g71P	-2.082NESC Ext	13.937	16.800	13.594	1.000	1.000	1.000	1.000	186.30	186.30	10.774	4	1
NewBR	L2.5x2.5x1/4	SAE	2.5X2.5X0.25	36.0	0.00	0.00		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00	0.00	0.000	0	0	0
Plate	6"x3/4"	Bar	6x3/4	36.0	0.00	0.00		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00	0.00	0.000	0	0	0
Dummy	Dummy	DUM	0.1X0.1X1	36.0	0.00	0.00	Fg8080P	-0.374NESC Ext	0.318	0.000	0.000	1.000	1.000	1.000	1.000	60.60	9.936	3	0	0

Group Summary (Tension Portion):

Group Label	Group Desc.	Angle Type	Angle Size	Steel Strength	Max Usage	Max In Tens.	Max Tension Control	Tension Force Control	Net Section Capacity	Tension Connect.	Tension Bearing	Tension Connect.	Tension Rupture	Length	No. Of	Hole Diameter
				(ksi)	%	%	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(ft)		(in)
Leg1	L4x4x1/4	SAE	4X4X0.25	36.0	66.10	41.45	g4XY	23.819NESC Ext	57.465	66.900	81.562	90.625	7.590	6	2.000	0.6875
Leg2	L5x5x3/8	SAE	5X5X0.375	46.0	43.80	32.35	g7X	43.286NESC Ext	139.851	133.800	244.687	255.882	7.325	12	2.210	0.6875
Leg3	L5x5x3/8	SAE	5X5X0.375	46.0	60.84	35.85	g10XY	47.961NESC Ext	139.851	133.800	244.687	239.889	7.651	12	2.210	0.6875

Leg4	L5x5x3/8	SAE	5X5X0.375	36.0	94.83	42.01	g11X	44.775NESC Ext	106.571	156.100	285.468	298.529	17.289	14	2.520	0.6875
Leg5	L5x5x3/8	SAE	5X5X0.375	36.0	89.01	44.31	g12X	44.380NESC Ext	100.167	156.100	285.468	298.529	16.740	14	3.210	0.6875
Diag1	L2.5x2.5x1/16	SAE	2.5X2.5X0.1875	36.0	45.35	36.65	g15Y	7.050NESC Ext	25.048	22.300	20.391	19.258	10.897	2	1.000	0.6875
Diag2	L2.5x2.5x1/16	SAE	2.5X2.5X0.25	36.0	31.44	26.29	g17Y	5.862NESC Ext	32.987	22.300	27.187	25.677	11.110	2	1.000	0.6875
Diag3	L3x3x1/4	SAE	3X3X0.25	36.0	26.99	26.99	g21Y	7.151NESC Ext	26.497	44.600	54.375	51.354	11.124	4	3.620	0.6875
Diag4	L3.5x3.5x1/4	SAE	3.5X3.5X0.25	36.0	30.65	14.88	g23Y	5.114NESC Ext	34.374	44.600	54.375	48.333	11.232	4	3.660	0.6875
Diag5	L4x4x1/4	SAE	4X4X0.25	36.0	12.23	9.50	g25Y	3.177NESC Ext	57.287	33.450	40.781	36.250	11.401	3	1.000	0.6875
Diag6	L3.5x3x1/4	SAU	3.5X3X0.25	36.0	18.22	12.84	g28XY	2.864NESC Hea	40.925	44.600	54.375	35.539	19.164	4	1.313	0.6875
Diag7	L3.5x3x1/4	SAU	3.5X3X0.25	36.0	45.18	30.69	g34XY	10.906NESC Ext	39.182	44.600	54.375	35.539	19.164	4	1.313	0.6875
Diag8	L3x3x1/4	SAE	3X3X0.25	36.0	94.84	33.45	g36X	11.993NESC Ext	35.853	55.750	67.969	60.417	21.533	5	1.940	0.6875
Hor1	L3.5x2.5x1/4	SAU	3.5X2.5X0.25	36.0	14.44	9.75	g38P	2.070NESC Ext	37.635	22.300	27.187	24.167	14.104	2	1.000	0.6875
Hor2	L4x4x1/4	SAE	4X4X0.25	36.0	2.05	2.05	g37P	0.866NESC Hea	51.718	44.600	54.375	42.292	7.740	2	1.000	0.6875
Hor3	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	36.0	33.27	33.10	g43P	5.224NESC Ext	25.048	22.300	20.391	15.701	7.740	2	1.000	0.6875
Hor4	L5x3x1/4	SAU	5X3X0.25	36.0	69.10	69.10	Fg4478X	15.409NESC Hea	56.285	22.300	27.187	35.539	3.870	2	1.180	0.6875
Hor5	L3.5x3x1/4	SAU	3.5X3X0.25	36.0	32.65	14.47	g46P	3.228NESC Hea	40.925	22.300	27.187	24.167	17.320	2	1.000	0.6875
Hor6	L3x3x3/16	SAE	3X3X0.1875	36.0	6.43	1.47	g47XY	0.267NESC Ext	31.139	22.300	20.391	18.125	11.240	2	1.000	0.6875
Inner1	L2x2x3/16	SAE	2X2X0.1875	36.0	2.00	1.31	g50P	0.713NESC Ext	18.827	22.300	20.391	15.237	10.946	2	1.000	0.6875
Inner2	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	36.0	2.00	1.31	g50P	0.216NESC Ext	25.048	22.300	20.391	16.545	10.946	3	1.000	0.6875
Inner3	L3x3x1/4	SAE	3X3X0.25	36.0	39.24	0.00	g51X	0.000	41.087	33.450	40.781	30.253	10.946	3	1.000	0.6875
Inner4	L3x2x3/16	SAU	3X2X0.1875	36.0	8.86	3.38	g52XY	0.556NESC Ext	18.908	22.300	20.391	16.432	15.896	2	1.000	0.6875
TopCrArm	3.5x3.5x1/4	SAE	3.5X3.5X0.25	36.0	4.91	4.91	g53X	1.570NESC Hea	43.618	33.450	40.781	31.985	16.102	3	2.000	0.6875
TopArmBr	3.5x2.5x1/4	SAU	3.5X2.5X0.25	36.0	8.24	0.32	g54P	0.072NESC Ext	27.418	22.300	27.187	24.167	17.793	2	2.000	0.6875
MidCrArm	5x3.5x3/8	SAU	5X3.5X0.375	36.0	17.09	0.17	g55XY	0.058NESC Ext	82.114	33.450	61.172	54.375	23.452	3	2.000	0.6875
MidArmBr	2.5x2.5x3/16	SAE	2.5X2.5X0.1875	36.0	19.97	19.97	g57Y	5.001NESC Hea	25.048	33.450	30.586	25.840	24.769	3	1.000	0.6875
BotCrArm	6x6x5/16	SAE	6X6X0.3125	36.0	29.89	6.41	g59Y	4.285NESC Ext	97.377	66.900	101.953	106.617	7.740	6	3.000	0.6875 A potentially damaging
moment exists in the following members (make sure your system is well triangulated to minimize moments): g58P g58Y Fg5860P Fg5860Y ??																
BotArmBr	3.5x3x1/4	SAU	3.5X3X0.25	36.0	22.30	22.30	g60Y	9.259NESC Hea	41.523	55.750	67.969	53.309	37.237	5	1.620	0.6875
M1	5x3.5x5/8	DAS	5X3.5X0.625	36.0	1.05	0.00	Fg6262P	0.000	304.894	22.300	135.937	120.833	1.742	2	1.000	0.6875
Pwmt 18"	Std. Pipe	Pwmt	Pipe 18" Std.	35.0	3.80	0.00	g69P	0.000	678.999	0.000	0.000	0.000	10.000	0	0.000	0
PwmtBR1	L3x3x3/16	SAE	3X3X0.1875	36.0	38.18	24.97	g76P	2.545NESC Ext	31.139	16.800	10.195	11.328	7.241	1	1.000	0.6875
PwmtBR2	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	36.0	68.46	46.56	g77P	4.747NESC Ext	25.048	16.800	10.195	11.328	4.195	1	1.000	0.6875
PwmtBR3	L5x5x3/8	SAE	5X5X0.375	36.0	9.25	3.55	g70P	0.596NESC Hea	108.611	16.800	20.391	22.656	13.929	1	1.000	0.6875
PwmtBR4	L3.5x3.5x1/4	SAE	3.5X3.5X0.25	36.0	15.32	4.72	g71P	0.642NESC Hea	49.187	16.800	13.594	15.104	10.774	1	1.000	0.6875
NewBR	L2.5x2.5x1/4	SAE	2.5X2.5X0.25	36.0	0.00	0.00		0.000	0.000	0.000	0.000	0.000	0.000	0	0.000	0
Plate	6"x3/4"	Bar	6x3/4	36.0	0.00	0.00		0.000	0.000	0.000	0.000	0.000	0.000	0	0.000	0
Dummy	Dummy	DUM	0.1X0.1X1	36.0	0.00	0.00	g80P	3.042NESC Ext	0.360	0.000	0.000	0.000	9.936	0	0.000	0

*** Maximum Stress Summary for Each Load Case

Summary of Maximum Usages by Load Case:

Load Case	Maximum Element Usage %	Element Label	Type
NESC Heavy	94.84	g36P	Angle
NESC Extreme	94.83	g11Y	Angle

Summary of Insulator Usages:

Insulator Label	Insulator Type	Maximum Usage %	Load Case	Weight (lbs)
1	Clamp	2.64	NESC Heavy	0.0
2	Clamp	2.47	NESC Heavy	0.0
3	Clamp	7.44	NESC Extreme	0.0
4	Clamp	1.01	NESC Heavy	0.0
5	Clamp	7.59	NESC Heavy	0.0
6	Clamp	2.06	NESC Heavy	0.0
7	Clamp	7.44	NESC Extreme	0.0
8	Clamp	5.15	NESC Heavy	0.0
9	Clamp	9.57	NESC Heavy	0.0

10	Clamp	7.58	NESC Heavy	0.0
11	Clamp	6.58	NESC Heavy	0.0
12	Clamp	4.89	NESC Heavy	0.0
13	Clamp	16.23	NESC Heavy	0.0

*** Weight of structure (lbs):

Weight of Angles*Section DLF: 29767.0

Total: 29767.0

*** End of Report

* TOWER - Analysis and Design - Copyright Power Line Systems, Inc. 1986-2011 *

Project Name : 12001.C016 - Glastonbury, CT
Project Notes: C&P Structure # 12197/ Verizon East Glastonbury 3
Project File : J:\Jobs\1200100.WI\C016 - East Glastonbury 3\Rev (1)\Calcs\PLS Tower\cl&p tower #12197 w_pwm.tow
Date run : 11:12:09 AM Wednesday, April 25, 2012
by : Tower Version 11.11
Licensed to : Centek Engineering Inc

Successfully performed nonlinear analysis

Member "g4p" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g4x" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g4xy" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g4y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g7p" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g7x" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g7xy" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g7y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g10p" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g10x" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g10xy" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g10y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g11p" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g11x" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g11xy" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g11y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g12p" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g12x" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g12xy" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g12y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g13p" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g13x" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g13xy" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g13y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g14p" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

Member "g60X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

Member "g60XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

Member "g60Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

Member "g62P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

Member "Fg6262P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

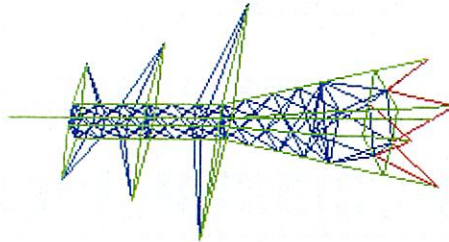
Member "g78P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

Member "g78Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

Unusual number of fixed joints found: 5. Towers normally have from between 1 and 4 fixed joints. ??

Clamp insulator "8" has a structure attach joint "17P" that is fixed with respect to translation ??

The model has 166 warnings. ??



Nonlinear convergence parameters: Use Standard Parameters

Member check option: ASCE 10

Connection rupture check: ASCE 10

Crossing diagonal check: ASCE 10 [Alternate Unsupported RLOUT = 1]

Included angle check: None

Joints Geometry:

Joint Label	Symmetry Code	X Coord. (ft)	Y Coord. (ft)	Z Coord. (ft)	X Disp. Rest.	Y Disp. Rest.	Z Disp. Rest.	X Rot. Rest.	Y Rot. Rest.	Z Rot. Rest.
1P	XY-Symmetry	13.78	13.78	0	Fixed	Fixed	Fixed	Free	Free	Free
2P	XY-Symmetry	11.24	11.24	16.35	Free	Free	Free	Free	Free	Free
3P	XY-Symmetry	8.66	8.66	33.25	Free	Free	Free	Free	Free	Free
4P	XY-Symmetry	7.49	7.49	40.72	Free	Free	Free	Free	Free	Free
5P	XY-Symmetry	6.22	6.22	48.86	Free	Free	Free	Free	Free	Free
6P	XY-Symmetry	4.93	4.93	57.4	Free	Free	Free	Free	Free	Free
7P	XY-Symmetry	3.87	3.87	64.57	Free	Free	Free	Free	Free	Free
8P	XY-Symmetry	3.87	3.87	72.71	Free	Free	Free	Free	Free	Free
9P	XY-Symmetry	3.87	3.87	80.7	Free	Free	Free	Free	Free	Free
10P	XY-Symmetry	3.87	3.87	88.29	Free	Free	Free	Free	Free	Free
11P	XY-Symmetry	3.87	3.87	96.26	Free	Free	Free	Free	Free	Free

Joint Label	Symmetry Code	Origin Joint	End Fraction	Elevation Joint	X Disp.		Y Disp.		Z Disp.		X Rot.		Y Rot.		Z Rot.	
					Rest.	(ft)	Rest.	(ft)	Rest.	(ft)	Rest.	(ft)	Rest.	(ft)	Rest.	(ft)
12P XY-Symmetry	3.87	3.87	103.9	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
13P XY-Symmetry	3.87	3.87	111.5	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
14P X-Symmetry	0	-19.5	111.5	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
15P X-Symmetry	0	-27	88.29	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
16P X-Symmetry	0	-40	64.57	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
17P None	-2.25	0	0	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
18P None	-2.25	0	33.25	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
19P None	-2.25	0	64.57	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
20P None	-2.25	0	88.29	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
21P None	-2.25	0	111.5	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
22P None	-2.25	0	122	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
23P None	-2.25	0	132	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
1X X-GenXY	13.78	-13.78	0	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
1XY XY-GenXY	-13.78	-13.78	0	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
1Y Y-GenXY	-13.78	13.78	0	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
2X X-GenXY	11.24	-11.24	16.35	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
2XY XY-GenXY	-11.24	-11.24	16.35	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
2Y Y-GenXY	-11.24	11.24	16.35	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
3X X-GenXY	8.66	-8.66	33.25	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
3XY XY-GenXY	-8.66	-8.66	33.25	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
3Y Y-GenXY	-8.66	8.66	33.25	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
4X X-GenXY	7.49	-7.49	40.72	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
4XY XY-GenXY	-7.49	-7.49	40.72	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
4Y Y-GenXY	-7.49	7.49	40.72	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
5X X-GenXY	6.22	-6.22	48.86	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
5XY XY-GenXY	-6.22	-6.22	48.86	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
5Y Y-GenXY	-6.22	6.22	48.86	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
6X X-GenXY	4.93	-4.93	57.4	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
6XY XY-GenXY	-4.93	-4.93	57.4	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
6Y Y-GenXY	-4.93	4.93	57.4	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
7X X-GenXY	3.87	-3.87	64.57	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
7XY XY-GenXY	-3.87	-3.87	64.57	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
7Y Y-GenXY	-3.87	3.87	64.57	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
8X X-GenXY	3.87	-3.87	72.71	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
8XY XY-GenXY	-3.87	-3.87	72.71	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
8Y Y-GenXY	-3.87	3.87	72.71	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
9X X-GenXY	3.87	-3.87	80.7	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
9XY XY-GenXY	-3.87	-3.87	80.7	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
9Y Y-GenXY	-3.87	3.87	80.7	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
10X X-GenXY	3.87	-3.87	88.29	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
10XY XY-GenXY	-3.87	-3.87	88.29	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
10Y Y-GenXY	-3.87	3.87	88.29	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
11X X-GenXY	3.87	-3.87	96.26	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
11XY XY-GenXY	-3.87	-3.87	96.26	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
11Y Y-GenXY	-3.87	3.87	96.26	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
12X X-GenXY	3.87	-3.87	103.9	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
12XY XY-GenXY	-3.87	-3.87	103.9	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
12Y Y-GenXY	-3.87	3.87	103.9	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
13X X-GenXY	3.87	-3.87	111.5	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
13XY XY-GenXY	-3.87	-3.87	111.5	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
13Y Y-GenXY	-3.87	3.87	111.5	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
14X X-Gen	0	19.5	111.5	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
15X X-Gen	0	27	88.29	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
16X X-Gen	0	40	64.57	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free

Secondary Joints:

Joint Label	Symmetry Code	Origin Joint	End Fraction	Elevation Joint	X Disp. Rest.	Y Disp. Rest.	Z Disp. Rest.	X Rot. Rest.	Y Rot. Rest.	Z Rot. Rest.
17S Y-Symmetry	2P	2P	2X	0.5	0	Free	Free	Free	Free	Free
18S X-Symmetry	2P	2P	2Y	0.5	0	Free	Free	Free	Free	Free
16PF0.45S Y-Symmetry	16P	7X	7X	0.45	0	Free	Free	Free	Free	Free
16PF0.50S None	16PF0.45S	16PF0.45Y	0	0.5	0	Free	Free	Free	Free	Free
17PF0.50S X-Symmetry	7P	7Y	7Y	0.5	0	Free	Free	Free	Free	Free
016PF0.50S None	16PF0.50S	7PF0.50X	0	0.5	0	Free	Free	Free	Free	Free

For Optimize
(in)

Leg1	L4x4x1/4	SAE	4X4X0.25	A 36	Beam	Leg	None	0.000
Leg2	L5x5x3/8	SAE	5X5X0.375	A440	Beam	Leg	None	0.000
Leg3	L5x5x3/8	SAE	5X5X0.375	A440	Beam	Leg	None	0.000
Leg4	L5x5x3/8	SAE	5X5X0.375	A 36	Beam	Leg	None	0.000
Leg5	L5x5x3/8	SAE	5X5X0.375	A 36	Beam	Leg	None	0.000
Diag1	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	A 36	Truss	Crossing Diagonal	None	0.000
Diag2	L2.5x2.5x1/4	SAE	2.5X2.5X0.25	A 36	Truss	Crossing Diagonal	None	0.000
Diag3	L3x3x1/4	SAE	3X3X0.25	A 36	Truss	Crossing Diagonal	None	0.000
Diag4	L3.5x3.5x1/4	SAE	3.5X3.5X0.25	A 36	Truss	Crossing Diagonal	None	0.000
Diag5	L4x4x1/4	SAE	4X4X0.25	A 36	Truss	Crossing Diagonal	None	0.000
Diag6	L3.5x3x1/4	SAU	3.5X3X0.25	A 36	Truss	Crossing Diagonal	None	0.000
Diag7	L3.5x3x1/4	SAU	3.5X3X0.25	A 36	Truss	Crossing Diagonal	None	0.000
Diag8	L3x3x1/4	SAE	3X3X0.25	A 36	Truss	Crossing Diagonal	None	0.000
Horz1	L3.5x2.5x1/4	SAU	3.5X2.5X0.25	A 36	T-Only	Other	None	0.000
Horz2	L4x4x1/4	SAE	4X4X0.25	A 36	Truss	Other	None	0.000
Horz3	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	A 36	Truss	Other	None	0.000
Horz4	L5x3x1/4	SAU	5X3X0.25	A 36	Truss	Other	None	0.000
Horz5	L3.5x3x1/4	SAU	3.5X3X0.25	A 36	Truss	Other	None	0.000
Horz6	L3x3x3/16	SAE	3X3X0.1875	A 36	Truss	Other	None	0.000
Inner1	L2x2x3/16	SAE	2X2X0.1875	A 36	Truss	Other	None	0.000
Inner2	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	A 36	Truss	Crossing Diagonal	None	0.000
Inner3	L3x3x1/4	SAE	3X3X0.25	A 36	Truss	Crossing Diagonal	None	0.000
Inner4	L3x2x3/16	SAU	3X2X0.1875	A 36	Truss	Crossing Diagonal	None	0.000
TopCrArm	3.5x3.5x1.4	SAU	3.5X3.5X0.25	A 36	Truss	Redundant	None	0.000
TopArmBr	3.5x2.5x1/4	SAU	3.5X2.5X0.25	A 36	Truss	Other	None	0.000
MidCrArm	5x3.5x3/8	SAU	5X3.5X0.375	A 36	Truss	Other	None	0.000
MidArmBr	2.5x2.5x3/16	SAE	2.5X2.5X0.1875	A 36	Truss	Other	None	0.000
BotCrArm	6x6x5/16	SAE	6X6X0.3125	A 36	Beam	Other	None	0.000
BotArmBr	3.5x3x1/4	SAU	3.5X3X0.25	A 36	Truss	Other	None	0.000
M1	5x3.5x5/8	DAS	5X3.5X0.625	A 36	Beam	Other	None	0.000
Pwmt 18"	Std. Pipe	Pwmt	Pipe 18" Std.	A53-GrB	Beam	Other	None	0.000
PwmtBR1	L3x3x3/16	SAE	3X3X0.1875	A 36	Truss	Other	None	0.000
PwmtBR2	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	A 36	Truss	Other	None	0.000
PwmtBR3	L5x5x3/8	SAE	5X5X0.375	A 36	Truss	Other	None	0.000
PwmtBR4	L3.5x3.5x1/4	SAE	3.5X3.5X0.25	A 36	Truss	Other	None	0.000
NewBR	L2.5x2.5x1/4	SAE	2.5X2.5X0.25	A 36	Beam	Other	None	0.000
Plate	6"x3/4"	Bar	6x3/4	A 36	Beam	Other	None	0.000
Dummy	Dummy	DUM	0.1X0.1X1	A 36	Beam	Other	None	0.000
						Fictitious	None	0.000

Aggregate Angle Information:

Note: Estimate of surface area reported for painting purposes, not wind loading.

Angle Type	Angle Size	Material Type	Total Length (ft)	Surface Area (ft^2)	Total Weight (lbs)
SAE	4X4X0.25	A 36	229.88	306.51	1517.24
SAE	5X5X0.375	A440	192.70	321.16	2370.19
SAE	5X5X0.375	A 36	163.98	273.29	2016.90
SAE	2.5X2.5X0.1875	A 36	366.36	305.30	1124.74
SAE	2.5X2.5X0.25	A 36	88.88	74.07	364.40
SAE	3X3X0.25	A 36	369.87	369.87	1812.37
SAE	3.5X3.5X0.25	A 36	175.82	205.12	1019.73
SAU	3.5X3X0.25	A 36	770.47	834.68	4160.54
SAU	5X3X0.25	A 36	86.65	86.65	424.59
SAE	3X3X0.1875	A 36	30.96	41.28	204.34
SAE	2X2X0.1875	A 36	133.37	133.37	494.79
SAU	3X2X0.1875	A 36	21.89	14.59	53.42
SAU	5X3.5X0.375	A 36	63.58	52.99	195.20
SAE	6X6X0.3125	A 36	109.29	154.82	1136.58
			160.83	321.65	2010.33

DAS 5X3 5X0.625 A 36 3.48 4.93 117.03
Pwmt Pipe 18" Std. A53-GrB 132.00 775.50 9327.12
DOM 0.1X0.1X1 A 36 19.87 0.66 0.00

Sections:

The adjustment factors below only apply to dead load and wind areas that are calculated for members in the model.
They do not apply to equipment or to manually input dead load and drag areas.

Section Label	Joint Defining Section Adjust. Bottom Factor	Dead Load Drag x Area Factor For Face	Transverse Longitudinal Drag x Area Factor (CD From Code)	Area Factor (CD From Code)	Af Flat Ar Round Factor EIA Only For All	Transverse Longitudinal Drag x Area Factor For Face	SAPS Angle Drag x Area Factor For All	SAPS Round Force Solid Face
1	7P	1.050	3.200	1.000	0.000	0.000	0.000	0.000 None
2	1P	1.050	3.200	1.000	0.000	0.000	0.000	0.000 None

Angle Member Connectivity:

Member Label	Group Section Label	Symmetry Code	Origin Joint	End Ecc. Joint Code	Rest. Code	Ratio RLX	Ratio RLY	Ratio RLZ	Bolt Type	# Bolts	# Shear Holes	Connect Leg	Short Edge Dist. (in)	Long Edge Dist. (in)	End Dist. (in)	Bolt Rest. Spacing Coef.
g1P	Leg1	XY-Symmetry	13P	12P	1	4	1	1	1	5/8 A394	TYPE0 N	0	0	0	0	0
g1X	Leg1	X-GenXY	13X	12X	1	4	1	1	1	1	5/8 A394	TYPE0 N	0	0	0	0
g1Y	Leg1	XY-GenXY	13Y	12Y	1	4	1	1	1	1	5/8 A394	TYPE0 N	0	0	0	0
g2P	Leg1	XY-Symmetry	12P	11P	1	4	1	1	1	1	5/8 A394	TYPE0 N	0	0	0	0
g2X	Leg1	X-GenXY	12X	11X	1	4	1	1	1	1	5/8 A394	TYPE0 N	0	0	0	0
g2Y	Leg1	XY-GenXY	12Y	11Y	1	4	1	1	1	1	5/8 A394	TYPE0 N	0	0	0	0
g3P	Leg1	XY-Symmetry	11P	10P	1	4	1	1	1	1	5/8 A394	TYPE0 N	0	0	0	0
g3X	Leg1	X-GenXY	11X	10X	1	4	1	1	1	1	5/8 A394	TYPE0 N	0	0	0	0
g3Y	Leg1	XY-GenXY	11Y	10Y	1	4	1	1	1	1	5/8 A394	TYPE0 N	0	0	0	0
g4P	Leg1	XY-Symmetry	10P	9P	1	4	1	1	1	1	5/8 A394	TYPE0 N	0	0	0	0
g4X	Leg1	X-GenXY	10X	9X	1	4	1	1	1	1	5/8 A394	TYPE0 N	0	0	0	0
g4Y	Leg1	XY-GenXY	10Y	9Y	1	4	1	1	1	1	5/8 A394	TYPE0 N	0	0	0	0
g5P	Leg2	XY-Symmetry	9P	8P	1	4	1	1	1	1	5/8 A394	TYPE0 N	0	0	0	0
g5X	Leg2	X-GenXY	9X	8X	1	4	1	1	1	1	5/8 A394	TYPE0 N	0	0	0	0
g5Y	Leg2	XY-GenXY	9Y	8Y	1	4	1	1	1	1	5/8 A394	TYPE0 N	0	0	0	0
g6P	Leg2	XY-Symmetry	8P	7P	1	4	1	1	1	1	5/8 A394	TYPE0 N	0	0	0	0
g6X	Leg2	X-GenXY	8X	7X	1	4	1	1	1	1	5/8 A394	TYPE0 N	0	0	0	0
g6Y	Leg2	XY-GenXY	8Y	7Y	1	4	1	1	1	1	5/8 A394	TYPE0 N	0	0	0	0
g7P	Leg2	XY-Symmetry	7P	6P	1	4	1	1	1	1	5/8 A394	TYPE0 N	0	0	0	0
g7X	Leg2	X-GenXY	7X	6X	1	4	1	1	1	1	5/8 A394	TYPE0 N	0	0	0	0
g7Y	Leg2	XY-GenXY	7Y	6Y	1	4	1	1	1	1	5/8 A394	TYPE0 N	0	0	0	0
g8P	Leg3	XY-Symmetry	6P	5P	1	4	1	1	1	1	5/8 A394	TYPE0 N	0	0	0	0
g8X	Leg3	X-GenXY	6X	5X	1	4	1	1	1	1	5/8 A394	TYPE0 N	0	0	0	0
g8Y	Leg3	XY-GenXY	6Y	5Y	1	4	1	1	1	1	5/8 A394	TYPE0 N	0	0	0	0
g9P	Leg3	XY-Symmetry	5P	4P	1	4	1	1	1	1	5/8 A394	TYPE0 N	0	0	0	0
g9X	Leg3	X-GenXY	5X	4X	1	4	1	1	1	1	5/8 A394	TYPE0 N	0	0	0	0
g9Y	Leg3	XY-GenXY	5Y	4Y	1	4	1	1	1	1	5/8 A394	TYPE0 N	0	0	0	0
g10P	Leg3	XY-Symmetry	4P	3P	1	4	1	1	1	1	5/8 A394	TYPE0 N	0	0	0	0
g10X	Leg3	X-GenXY	4X	3X	1	4	1	1	1	1	5/8 A394	TYPE0 N	0	0	0	0
g10Y	Leg3	XY-GenXY	4Y	3Y	1	4	1	1	1	1	5/8 A394	TYPE0 N	0	0	0	0
g11P	Leg4	XY-Symmetry	3P	2P	1	4	0.56	0.56	0.56	0.56	5/8 A394	TYPE0 N	14	2.52	1	1.25
g11X	Leg4	X-GenXY	3X	2X	1	4	0.56	0.56	0.56	0.56	5/8 A394	TYPE0 N	14	2.52	1	1.25
g11Y	Leg4	XY-GenXY	3Y	2Y	1	4	0.56	0.56	0.56	0.56	5/8 A394	TYPE0 N	14	2.52	1	1.25

g28XY	Diag6	XY-GenXY	6XY	5X	2	5	0.778	0.556	5/8	A394	TYPE0	N	2	1	1	Short only	1.75	0.875	1	7.125	0	
g28Y	Diag6	Y-GenXY	6Y	5P	2	5	0.778	0.556	5/8	A394	TYPE0	N	2	1	1	Short only	1.75	0.875	1	7.125	0	
g29P	Diag6	XY-Symmetry	5P	4X	2	5	0.772	0.544	5/8	A394	TYPE0	N	2	1	1	Short only	1.75	0.875	1	6.5	0	
g29X	Diag6	X-GenXY	5X	4P	2	5	0.772	0.544	5/8	A394	TYPE0	N	2	1	1	Short only	1.75	0.875	1	6.5	0	
g29XY	Diag6	XY-GenXY	5XY	4Y	2	5	0.772	0.544	5/8	A394	TYPE0	N	2	1	1	Short only	1.75	0.875	1	6.5	0	
g29Y	Diag6	Y-GenXY	5Y	4XY	2	5	0.772	0.544	5/8	A394	TYPE0	N	2	1	1	Short only	1.75	0.875	1	6.5	0	
g30P	Diag6	XY-Symmetry	5P	4Y	2	5	0.772	0.544	5/8	A394	TYPE0	N	2	1	1	Short only	1.75	0.875	1	6.5	0	
g30X	Diag6	X-GenXY	5X	4XY	2	5	0.772	0.544	5/8	A394	TYPE0	N	2	1	1	Short only	1.75	0.875	1	6.5	0	
g30XY	Diag6	XY-GenXY	5XY	4Y	2	5	0.772	0.544	5/8	A394	TYPE0	N	2	1	1	Short only	1.75	0.875	1	6.5	0	
g30Y	Diag6	Y-GenXY	5Y	4XY	2	5	0.772	0.544	5/8	A394	TYPE0	N	2	1	1	Short only	1.75	0.875	1	6.5	0	
g31P	Diag6	XY-Symmetry	4P	3X	2	5	0.769	0.537	5/8	A394	TYPE0	N	2	1	1	Short only	1.75	0.875	1	6.125	0	
g31X	Diag6	X-GenXY	4X	3P	2	5	0.769	0.537	5/8	A394	TYPE0	N	2	1	1	Short only	1.75	0.875	1	6.125	0	
g31XY	Diag6	XY-GenXY	4XY	3Y	2	5	0.769	0.537	5/8	A394	TYPE0	N	2	1	1	Short only	1.75	0.875	1	6.125	0	
g31Y	Diag6	Y-GenXY	4Y	3XY	2	5	0.769	0.537	5/8	A394	TYPE0	N	2	1	1	Short only	1.75	0.875	1	6.125	0	
g32P	Diag6	XY-Symmetry	4P	3X	2	5	0.769	0.537	5/8	A394	TYPE0	N	2	1	1	Short only	1.75	0.875	1	6.125	0	
g32X	Diag6	X-GenXY	4X	3XY	2	5	0.769	0.537	5/8	A394	TYPE0	N	2	1	1	Short only	1.75	0.875	1	6.125	0	
g32XY	Diag6	XY-GenXY	4XY	3Y	2	5	0.769	0.537	5/8	A394	TYPE0	N	2	1	1	Short only	1.75	0.875	1	6.125	0	
g32Y	Diag6	Y-GenXY	4Y	3XY	2	5	0.769	0.537	5/8	A394	TYPE0	N	2	1	1	Short only	1.75	0.875	1	6.125	0	
g33P	Diag7	XY-Symmetry	3X	17S	2	5	1	0.5	0.5	5/8	A394	TYPE0	N	4	1.313	1	Short only	0.625	1.625	1	6.125	0
g33X	Diag7	X-GenXY	3P	17S	2	5	1	0.5	0.5	5/8	A394	TYPE0	N	4	1.313	1	Short only	0.625	1.625	1	6.125	0
g33XY	Diag7	XY-GenXY	3Y	17Y	2	5	1	0.5	0.5	5/8	A394	TYPE0	N	4	1.313	1	Short only	0.625	1.625	1	6.125	0
g33Y	Diag7	Y-GenXY	3Y	17Y	2	5	1	0.5	0.5	5/8	A394	TYPE0	N	4	1.313	1	Short only	0.625	1.625	1	6.125	0
g34P	Diag7	XY-Symmetry	3P	18S	2	5	1	0.5	0.5	5/8	A394	TYPE0	N	4	1.313	1	Short only	0.625	1.625	1	6.125	0
g34X	Diag7	X-GenXY	3X	18X	2	5	1	0.5	0.5	5/8	A394	TYPE0	N	4	1.313	1	Short only	0.625	1.625	1	6.125	0
g34XY	Diag7	XY-GenXY	3XY	18Y	2	5	1	0.5	0.5	5/8	A394	TYPE0	N	4	1.313	1	Short only	0.625	1.625	1	6.125	0
g34Y	Diag7	Y-GenXY	3Y	18Y	2	5	1	0.5	0.5	5/8	A394	TYPE0	N	4	1.313	1	Short only	0.625	1.625	1	6.125	0
g35P	Diag8	XY-Symmetry	1X	17S	2	5	1	0.5	0.5	5/8	A394	TYPE0	N	5	1.94	1	Short only	2.125	0.6875	1	1.75	0
g35X	Diag8	X-GenXY	1P	17S	2	5	1	0.5	0.5	5/8	A394	TYPE0	N	5	1.94	1	Short only	2.125	0.6875	1	1.75	0
g35XY	Diag8	XY-GenXY	1Y	17Y	2	5	1	0.5	0.5	5/8	A394	TYPE0	N	5	1.94	1	Short only	2.125	0.6875	1	1.75	0
g35Y	Diag8	Y-GenXY	1Y	17Y	2	5	1	0.5	0.5	5/8	A394	TYPE0	N	5	1.94	1	Short only	2.125	0.6875	1	1.75	0
g36P	Diag8	XY-Symmetry	1P	18S	2	5	1	0.5	0.5	5/8	A394	TYPE0	N	5	1.94	1	Short only	2.125	0.6875	1	1.75	0
g36X	Diag8	X-GenXY	1X	18X	2	5	1	0.5	0.5	5/8	A394	TYPE0	N	5	1.94	1	Short only	2.125	0.6875	1	1.75	0
g36XY	Diag8	XY-GenXY	1XY	18Y	2	5	1	0.5	0.5	5/8	A394	TYPE0	N	5	1.94	1	Short only	2.125	0.6875	1	1.75	0
g36Y	Diag8	Y-GenXY	1Y	18Y	2	5	1	0.5	0.5	5/8	A394	TYPE0	N	5	1.94	1	Short only	2.125	0.6875	1	1.75	0
g37P	Hor22	Y-Symmetry	13X	13P	3	6	1	1	1	5/8	A394	TYPE0	N	4	2	Short only	1.25	2.75	0.875	1.5	0	
g37Y	Hor22	Y-Gen	13XY	13Y	3	6	1	1	1	5/8	A394	TYPE0	N	4	2	Short only	1.25	2.75	0.875	1.5	0	
g38P	Hor21	X-Symmetry	13P	13P	3	6	1	1	1	5/8	A394	TYPE0	N	2	1.62	Long only	0.75	2.25	3.9375	2.75	0	
g38X	Hor21	X-Gen	13X	13X	3	6	1	1	1	5/8	A394	TYPE0	N	2	1.62	Long only	0.75	2.25	3.9375	2.75	0	
g39P	Hor23	Y-Symmetry	12X	12P	3	6	1	1	1	5/8	A394	TYPE0	N	2	1	Long only	1.375	2	1	3.5	0	
g39Y	Hor23	Y-Gen	12XY	12Y	3	6	1	1	1	5/8	A394	TYPE0	N	2	1	Long only	1.375	2	1	3.5	0	
g40P	Hor23	Y-Symmetry	11X	11P	3	6	1	1	1	5/8	A394	TYPE0	N	3	1	Short only	1	0	1	2	0	
g40Y	Hor23	Y-Gen	11XY	11Y	3	6	1	1	1	5/8	A394	TYPE0	N	3	1	Short only	1	0	1	2	0	
g41P	Hor24	X-Symmetry	10P	10Y	3	6	1	1	1	5/8	A394	TYPE0	N	3	1	Short only	1	0	1	2	0	
g41X	Hor24	X-Gen	10X	10X	3	6	1	1	1	5/8	A394	TYPE0	N	3	1	Short only	1	0	1	2	0	
g42P	Hor25	Y-Symmetry	8X	8P	3	6	1	1	1	5/8	A394	TYPE0	N	2	1.66	Long only	1.25	3.25	3.9375	2.75	0	
g42Y	Hor25	Y-Gen	8XY	8Y	3	6	1	1	1	5/8	A394	TYPE0	N	2	1.66	Long only	1.25	3.25	3.9375	2.75	0	
g43P	Hor23	X-Symmetry	8P	8P	3	6	1	1	1	5/8	A394	TYPE0	N	5	1	Long only	1.375	2	1	3.5	0	
g43X	Hor23	X-Gen	8X	8X	3	6	1	1	1	5/8	A394	TYPE0	N	5	1	Long only	1.375	2	1	3.5	0	
g44P	Hor24	X-Symmetry	7P	7P	3	6	1	1	1	5/8	A394	TYPE0	N	2	1	Short only	1.25	0	1	1.5	0	
g44X	Hor24	X-Gen	7X	7X	3	6	1	1	1	5/8	A394	TYPE0	N	2	1	Short only	1.25	0	1	1.5	0	
g4478P	Hor24	X-Symmetry	7P	7P	3	6	1	1	1	5/8	A394	TYPE0	N	2	1.18	Long only	1.25	3.25	4.5	4.25	0	
g4478X	Hor24	X-Gen	7X	7X	3	6	1	1	1	5/8	A394	TYPE0	N	2	1.18	Long only	1.25	3.25	4.5	4.25	0	
g45P	Hor25	Y-Symmetry	3X	3P	3	6	1	0.5	0.5	5/8	A394	TYPE0	N	2	1	Long only	1.5	0	1	2	0	
g45Y	Hor25	Y-Gen	3XY	3Y	3	6	1	0.5	0.5	5/8	A394	TYPE0	N	2	1	Long only	1.5	0	1	2	0	
g46P	Hor25	X-Symmetry	3P	3P	3	6	1	0.5	0.5	5/8	A394	TYPE0	N	2	1	Long only	1.5	0	1	2	0	
g46X	Hor25	X-Gen	3X	3X	3	6	1	0.5	0.5	5/8	A394	TYPE0	N	2	1	Long only	1.5	0	1	2	0	
g47P	Hor26	XY-Symmetry	2X	17S	3	6	1	1	1	5/8	A394	TYPE0	N	2	1	Short only	1.5	0	1	2	0	
g47X	Hor26	X-GenXY	2P	17S	3	6	1	1	1	5/8	A394	TYPE0	N	2	1	Short only	1.5	0	1	2	0	
g47XY	Hor26	XY-GenXY	2Y	17Y	3	6	1	1	1	5/8	A394	TYPE0	N	2	1	Short only	1.75	1.25	1	4.125	0	
g47Y	Hor26	Y-GenXY	2Y	17Y	3	6	1	1	1	5/8	A394	TYPE0	N	2	1	Short only	1.75	1.25	1	4.125	0	
g48P	Hor26	XY-Symmetry	2P	18S	3	6	1	1	1	5/8	A394	TYPE0	N	2	1	Short only	1.75	1.25	1	4.125	0	
g48X	Hor26	X-GenXY	2X	18X	3	6	1	1	1	5/8	A394	TYPE0	N	2	1	Short only	1.75	1.25	1	4.125	0	
g48XY	Hor26	XY-GenXY	2XY	18X	3	6	1	1	1	5/8	A394	TYPE0	N	2	1	Short only	1.75	1.25	1	4.125	0	
g48Y	Hor26	Y-GenXY	2Y	18Y	3	6																

g50X	Inner2	X-Gen	10X	10Y	2	5	0.75	0.5	0.5	5/8 A394 TYPE0 N	2	1	1 Short only	1.375	0	1	1.5	0
g51P	Inner3	X-Symmetry	7P	7X	2	5	0.75	0.5	0.5	5/8 A394 TYPE0 N	3	1	1 Short only	1.5	0	1	1.5	0
g51X	Inner3	X-Gen	7X	7Y	2	5	0.75	0.5	0.5	5/8 A394 TYPE0 N	3	1	1 Short only	1.5	0	1	1.5	0
g52P	Inner4	XY-Symmetry	18X	17S	2	5	1	0.5	0.5	5/8 A394 TYPE0 N	2	1	1 Short only	0.875	0	1	2	0
g52X	Inner4	X-GenXY	18S	17S	2	5	1	0.5	0.5	5/8 A394 TYPE0 N	2	1	1 Short only	0.875	0	1	2	0
g52Y	Inner4	Y-GenXY	18X	17Y	2	5	1	0.5	0.5	5/8 A394 TYPE0 N	2	1	1 Short only	0.875	0	1	2	0
g53P	TopCrArm	XY-Symmetry	13X	14P	3	6	0.5	0.5	0.5	5/8 A394 TYPE0 N	3	2	1 Short only	0.875	0	1	2	0
g53X	TopCrArm	X-GenXY	13P	14X	3	6	0.5	0.5	0.5	5/8 A394 TYPE0 N	3	2	1 Short only	0.75	2.25	1	1.5	0
g53Y	TopCrArm	Y-GenXY	13Y	14X	3	6	0.5	0.5	0.5	5/8 A394 TYPE0 N	3	2	1 Short only	0.75	2.25	1	1.5	0
g54P	TopArmBr	XY-Symmetry	14P	12X	2	6	0.5	0.5	0.5	5/8 A394 TYPE0 N	3	2	1 Short only	0.75	2.25	1	1.5	0
g54X	TopArmBr	X-GenXY	14X	12Y	2	6	0.5	0.5	0.5	5/8 A394 TYPE0 N	2	2	1 Short only	1.25	0	1	2	0
g54Y	TopArmBr	Y-GenXY	14P	12X	2	6	0.5	0.5	0.5	5/8 A394 TYPE0 N	2	2	1 Short only	1.25	0	1	2	0
g55P	MidCrArm	XY-Symmetry	14P	12X	2	6	0.5	0.5	0.5	5/8 A394 TYPE0 N	2	2	1 Short only	1.25	0	1	2	0
g55X	MidCrArm	X-GenXY	15X	10P	3	6	0.33	0.33	0.33	5/8 A394 TYPE0 N	3	2	1 Long only	3	1.5	1	4	0
g55Y	MidCrArm	Y-GenXY	15X	10Y	3	6	0.33	0.33	0.33	5/8 A394 TYPE0 N	3	2	1 Long only	3	1.5	1	4	0
g56P	MidCrArm	XY-Symmetry	15P	10X	3	6	0.33	0.33	0.33	5/8 A394 TYPE0 N	3	2	1 Long only	3	1.5	1	4	0
g56X	MidCrArm	Y-Gen	10XY	10Y	3	6	1	1	1	5/8 A394 TYPE0 N	4	2	1 Long only	1	3	1.125	1.5	0
g57P	MidArmBr	XY-Symmetry	15P	11X	3	6	0.5	0.5	0.5	5/8 A394 TYPE0 N	4	2	1 Long only	1	3	1.125	1.5	0
g57X	MidArmBr	X-GenXY	15X	11P	3	6	0.5	0.5	0.5	5/8 A394 TYPE0 N	3	1	1 Short only	1	0	1	2	0
g57Y	MidArmBr	Y-GenXY	15X	11Y	3	6	0.5	0.5	0.5	5/8 A394 TYPE0 N	3	1	1 Short only	1	0	1	2	0
g58P	BotCrArm	XY-Symmetry	16P	16P0.45S	3	6	0.5	0.5	0.5	5/8 A394 TYPE0 N	3	1	1 Short only	1	0	1	2	0
g58X	BotCrArm	Y-Gen	16P	16P0.45S	3	6	0.5	0.5	0.5	5/8 A394 TYPE0 N	3	1	1 Long only	1.75	3.75	1	5	0
Fg5860P	BotCrArm	XY-Symmetry	16P0.45S	7X	3	6	0.5	0.5	0.5	5/8 A394 TYPE0 N	5	3	1 Long only	1.75	3.75	1	5	0
Fg5860Y	BotCrArm	Y-Gen	16P0.45Y	7X	3	6	0.5	0.5	0.5	5/8 A394 TYPE0 N	5	3	1 Long only	1.75	3.75	1	5	0
g59P	BotCrArm	XY-Symmetry	7X	7P	3	6	1	1	1	5/8 A394 TYPE0 N	6	3	1 Long only	1	4.5	2.375	2.125	0
g59X	BotCrArm	Y-Gen	7XY	7Y	3	6	1	1	1	5/8 A394 TYPE0 N	6	3	1 Long only	1	4.5	2.375	2.125	0
g60P	BotArmBr	XY-Symmetry	16P	8X	3	6	0.33	0.33	0.33	5/8 A394 TYPE0 N	5	1.62	1 Long only	0.75	2.25	1	2.5	0
g60X	BotArmBr	X-GenXY	16X	8P	3	6	0.33	0.33	0.33	5/8 A394 TYPE0 N	5	1.62	1 Long only	0.75	2.25	1	2.5	0
g60Y	BotArmBr	Y-GenXY	16X	8Y	3	6	0.33	0.33	0.33	5/8 A394 TYPE0 N	5	1.62	1 Long only	0.75	2.25	1	2.5	0
g61P	BotArmBr	XY-Symmetry	16P	8X	3	6	0.33	0.33	0.33	5/8 A394 TYPE0 N	5	1.62	1 Long only	0.75	2.25	1	2.5	0
g62P	M1	None	16P0.45S	16P0.50S	1	4	2	2	2	5/8 A394 TYPE0 N	2	1	1 Long only	1	3.25	1	0	0
Fg6262P	M1	None	16P0.50S	16P0.45Y	1	4	2	2	2	5/8 A394 TYPE0 N	2	1	1 Long only	1	3.25	1	0	0
g64P	Pwmt	None	17P	18P	1	4	1	1	1	1	0	0	0	0	0	0	0	0
g65P	Pwmt	None	18P	19P	1	4	1	1	1	1	0	0	0	0	0	0	0	0
g66P	Pwmt	None	19P	20P	1	4	1	1	1	1	0	0	0	0	0	0	0	0
g67P	Pwmt	None	20P	21P	1	4	1	1	1	1	0	0	0	0	0	0	0	0
g68P	Pwmt	None	21P	22P	1	4	1	1	1	1	0	0	0	0	0	0	0	0
g69P	Pwmt	None	22P	23P	1	4	1	1	1	1	0	0	0	0	0	0	0	0
g70P	PwmtBR3	X-Symmetry	18P	3X	3	4	1	1	1	1	1	1	1 Short only	0	0	0	0	0
g70X	PwmtBR3	X-Gen	18P	3P	3	4	1	1	1	1	1	1	1 Short only	0	0	0	0	0
g71P	PwmtBR4	X-Symmetry	18P	3XY	3	4	1	1	1	1	1	1	1 Short only	0	0	0	0	0
g71X	PwmtBR4	X-Gen	18P	3Y	3	4	1	1	1	1	1	1	1 Short only	0	0	0	0	0
g72P	PwmtBR1	X-Symmetry	19P	7X	3	4	1	1	1	1	1	1	1 Short only	0	0	0	0	0
g72X	PwmtBR1	X-Gen	19P	7P	3	4	1	1	1	1	1	1	1 Short only	0	0	0	0	0
g73P	PwmtBR2	X-Symmetry	19P	7X	3	4	1	1	1	1	1	1	1 Short only	0	0	0	0	0
g73X	PwmtBR2	X-Gen	19P	7Y	3	4	1	1	1	1	1	1	1 Short only	0	0	0	0	0
g74P	PwmtBR1	X-Symmetry	20P	10X	3	4	1	1	1	1	1	1	1 Short only	0	0	0	0	0
g74X	PwmtBR1	X-Gen	20P	10P	3	4	1	1	1	1	1	1	1 Short only	0	0	0	0	0
g75P	PwmtBR2	X-Symmetry	20P	10X	3	4	1	1	1	1	1	1	1 Short only	0	0	0	0	0
g75X	PwmtBR2	X-Gen	20P	10Y	3	4	1	1	1	1	1	1	1 Short only	0	0	0	0	0
g76P	PwmtBR1	X-Symmetry	21P	13X	3	4	1	1	1	1	1	1	1 Short only	0	0	0	0	0
g76X	PwmtBR1	X-Gen	21P	13P	3	4	1	1	1	1	1	1	1 Short only	0	0	0	0	0
g77P	PwmtBR2	X-Symmetry	21P	13XY	3	4	1	1	1	1	1	1	1 Short only	0	0	0	0	0
g77X	PwmtBR2	X-Gen	21P	13Y	3	4	1	1	1	1	1	1	1 Short only	0	0	0	0	0
g78P	BotCrArm	XY-Symmetry	7P	16X	3	5	0.25	0.25	0.25	5/8 A394 TYPE0 N	5	3	1 Long only	1.75	3.75	1	3	0
g78Y	BotCrArm	Y-Gen	7Y	16X	3	5	0.25	0.25	0.25	5/8 A394 TYPE0 N	5	3	1 Long only	1.75	3.75	1	3	0
g80P	Dummy	None	16P0.50S	016P0.50S	3	5	1	1	1	1	0	0	1	0	0	0	0	0
Fg8080P	Dummy	None	016P0.50S	7P0.50X	3	6	1	1	1	1	0	0	1	0	0	0	0	0

Member Capacities and Overrides:

Override		Warnings		Label		Control		Control		Comp.		Shear		Bearing		Section		Tension		Dist.		Comp.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		Tension		Dist.		Comp.		T	
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Centek Engineering Inc - cisp tower #12197 w.pwmt

g44X	Horz4	22.300	Shear	22.300	Shear	70	3.87	49.701	22.300	27.187	56.285	35.539	0.000	0.000	0.000	0.000
Automatic	Member "g44X"	will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
Fg4478P	Horz4	22.300	Shear	22.300	Shear	70	3.87	49.701	22.300	27.187	56.285	35.539	0.000	0.000	0.000	0.000
Automatic	Member "Fg4478P"	will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
Fg4478X	Horz4	22.300	Shear	22.300	Shear	70	3.87	49.701	22.300	27.187	56.285	35.539	0.000	0.000	0.000	0.000
Automatic	Member "Fg4478X"	will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g45P	Horz5	17.150	L/r	22.300	Shear	187	17.32	17.150	22.300	27.187	40.925	24.167	0.000	0.000	0.000	0.000
Automatic																
g45Y	Horz5	17.150	L/r	22.300	Shear	187	17.32	17.150	22.300	27.187	40.925	24.167	0.000	0.000	0.000	0.000
Automatic																
g46P	Horz5	17.150	L/r	22.300	Shear	187	17.32	17.150	22.300	27.187	40.925	24.167	0.000	0.000	0.000	0.000
Automatic																
g46X	Horz5	17.150	L/r	22.300	Shear	187	17.32	17.150	22.300	27.187	40.925	24.167	0.000	0.000	0.000	0.000
Automatic																
g47P	Horz6	9.078	L/r	18.125	Rupture	226	11.24	9.078	22.300	20.391	31.139	18.125	0.000	0.000	0.000	0.000
Automatic	Member "g47P"	will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g47X	Horz6	9.078	L/r	18.125	Rupture	226	11.24	9.078	22.300	20.391	31.139	18.125	0.000	0.000	0.000	0.000
Automatic	Member "g47X"	will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g47Y	Horz6	9.078	L/r	18.125	Rupture	226	11.24	9.078	22.300	20.391	31.139	18.125	0.000	0.000	0.000	0.000
Automatic	Member "g47Y"	will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g48P	Horz6	9.078	L/r	18.125	Rupture	226	11.24	9.078	22.300	20.391	31.139	18.125	0.000	0.000	0.000	0.000
Automatic	Member "g48P"	will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g48X	Horz6	9.078	L/r	18.125	Rupture	226	11.24	9.078	22.300	20.391	31.139	18.125	0.000	0.000	0.000	0.000
Automatic	Member "g48X"	will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g48Y	Horz6	9.078	L/r	18.125	Rupture	226	11.24	9.078	22.300	20.391	31.139	18.125	0.000	0.000	0.000	0.000
Automatic	Member "g48Y"	will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g49P	Inner1	8.391	L/r	15.237	Rupture	167	10.95	8.391	22.300	20.391	18.827	15.237	0.000	0.000	0.000	0.000
Automatic																
g49X	Inner1	8.391	L/r	15.237	Rupture	167	10.95	8.391	22.300	20.391	18.827	15.237	0.000	0.000	0.000	0.000
Automatic																
g50P	Inner2	15.347	L/r	16.545	Rupture	133	10.95	15.347	22.300	20.391	25.048	16.545	0.000	0.000	0.000	0.000
Automatic																
g50X	Inner2	15.347	L/r	16.545	Rupture	133	10.95	15.347	22.300	20.391	25.048	16.545	0.000	0.000	0.000	0.000
Automatic																
g51P	Inner3	30.950	L/r	30.253	Rupture	111	10.95	30.950	33.450	40.781	41.087	30.253	0.000	0.000	0.000	0.000
Automatic																
g51X	Inner3	30.950	L/r	30.253	Rupture	111	10.95	30.950	33.450	40.781	41.087	30.253	0.000	0.000	0.000	0.000
Automatic																
g52P	Inner4	6.834	L/r	16.432	Rupture	217	15.90	6.834	22.300	20.391	18.908	16.432	0.000	0.000	0.000	0.000
Automatic																
g52X	Inner4	6.834	L/r	16.432	Rupture	217	15.90	6.834	22.300	20.391	18.908	16.432	0.000	0.000	0.000	0.000
Automatic																
g52Y	Inner4	6.834	L/r	16.432	Rupture	217	15.90	6.834	22.300	20.391	18.908	16.432	0.000	0.000	0.000	0.000
Automatic																
g53P	TopCrArm	27.839	L/r	31.985	Rupture	139	16.10	27.839	33.450	40.781	43.618	31.985	0.000	0.000	0.000	0.000
Automatic	Member "g53P"	will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g53X	TopCrArm	27.839	L/r	31.985	Rupture	139	16.10	27.839	33.450	40.781	43.618	31.985	0.000	0.000	0.000	0.000
Automatic	Member "g53X"	will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														

g80P	Dummy	0.318	L/r	0.360	Net Sect	1	9.94	0.318	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Automatic																			
Fg8080P	Dummy	0.318	L/r	0.360	Net Sect	1	9.94	0.318	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Automatic																			

The model contains 240 angle members.

Sum of Unfactored Dead Load and Drag Areas From Equipment, Input and Calculated:

Joint Label	Dead Load (kips)	X-Drag Area (ft^2)	Y-Drag Area (ft^2)
1P	0.208	8.188	8.188
2P	0.251	8.414	8.414
3P	0.532	18.427	18.896
4P	0.281	10.516	10.516
5P	0.268	10.350	10.350
6P	0.25	9.717	9.717
7P	0.564	21.550	12.637
8P	0.352	15.105	10.695
9P	0.182	7.623	7.623
10P	0.368	14.606	10.875
11P	0.181	9.883	7.451
12P	0.172	9.729	7.630
13P	0.176	7.876	6.281
14P	0.181	9.624	3.608
15P	0.32	14.734	3.458
16P	0.405	18.931	3.500
17P	1.17	24.938	24.938
18P	2.52	54.562	54.843
19P	1.98	43.054	43.148
20P	1.7	36.971	37.065
21P	1.23	27.056	27.150
22P	0.724	15.375	15.375
23P	0.353	7.500	7.500
1X	0.208	8.188	8.188
1Y	0.208	8.188	8.188
2X	0.251	8.414	8.414
2Y	0.251	8.414	8.414
3X	0.532	18.427	18.896
3Y	0.478	17.886	17.558
4X	0.281	10.516	10.516
4Y	0.281	10.516	10.516
5X	0.268	10.350	10.350
5Y	0.268	10.350	10.350
6X	0.25	9.717	9.717
6Y	0.25	9.717	9.717
7X	0.462	17.485	12.202
7Y	0.455	17.404	11.605
8X	0.352	15.105	10.695
8Y	0.352	15.105	10.695
9X	0.182	7.623	7.623
9Y	0.182	7.623	7.623
10X	0.368	14.606	10.875
10Y	0.361	14.525	10.278
11X	0.181	9.883	7.451

11XY	0.181	9.883	7.451
11Y	0.181	9.883	7.451
12X	0.172	9.729	7.630
12XY	0.172	9.729	7.630
12Y	0.172	9.729	7.630
13X	0.176	7.876	6.281
13XY	0.169	7.795	5.685
13Y	0.169	7.795	5.685
14X	0.181	9.624	3.608
15X	0.32	14.734	3.458
16X	0.655	28.867	4.564
17S	0.299	16.504	11.933
18S	0.299	11.933	16.504
16PF0.45S	0.256	9.033	1.330
16PF0.50S	0.0585	0.041	0.726
7PF0.50S	0.0255	0.000	1.613
016PF0.50S	0	0.083	0.000
17Y	0.299	16.504	11.933
18X	0.299	11.933	16.504
16PF0.45Y	0.256	9.033	1.330
7PF0.50X	0.0255	0.041	1.613
Total	28.3	979.310	805.666

Unadjusted Dead Load and Drag Areas by Section:

Section Label	Unfactored Dead Load Area (kips)	X-Drag Area (ft^2)	Y-Drag Area (ft^2)	X-Drag Y-Drag Area Face (ft^2)
1	14.821	539.643	365.437	287.943
2	13.528	439.667	440.229	219.175
Total	28.349	979.310	805.666	507.118

Angle Member Weights and Surface Areas by Section:

Section Label	Unfactored Weight (kips)	Unfactored Surface Area (ft^2)	Factored Weight (kips)	Factored Surface Area (ft^2)
1	14.821	15.562	2213.328	2323.994
2	13.528	14.205	1909.661	2005.144
Total	28.349	29.767	4122.989	4329.138

Section Joint Information:

Section Label	Joint Label	Joint Elevation (ft)
1	13P	111.500
1	12P	103.930
1	13X	111.500
1	12X	103.930
1	13XY	111.500
1	12XY	103.930
1	13Y	111.500
1	12Y	103.930
1	11P	96.260
1	11X	96.260
1	11XY	96.260
1	11Y	96.260
1	10P	88.290
1	10X	88.290
1	10XY	88.290
1	10Y	88.290
1	9P	80.700

1	9X	80.700
1	9XY	80.700
1	9Y	80.700
1	8P	72.710
1	8X	72.710
1	8XY	72.710
1	8Y	72.710
1	7P	64.570
1	7X	64.570
1	7XY	64.570
1	7Y	64.570
1	7PF0.50S	64.570
1	7PF0.50X	64.570
1	14P	111.500
1	14X	111.500
1	15P	88.290
1	15X	88.290
1	16P	64.570
1	16PF0.45S	64.570
1	16PF0.45Y	64.570
1	16X	64.570
1	16PF0.50S	64.570
1	19P	64.570
1	20P	88.290
1	21P	111.500
1	22P	122.000
1	23P	132.000
1	016PF0.50S	64.570
2	7P	64.570
2	6P	57.400
2	7X	64.570
2	6X	57.400
2	7XY	64.570
2	6XY	57.400
2	7Y	64.570
2	6Y	57.400
2	5P	48.860
2	5X	48.860
2	5XY	48.860
2	5Y	48.860
2	4P	40.720
2	4X	40.720
2	4XY	40.720
2	4Y	40.720
2	3P	33.250
2	3X	33.250
2	3XY	33.250
2	3Y	33.250
2	2P	16.350
2	2X	16.350
2	2XY	16.350
2	2Y	16.350
2	1P	0.000
2	1X	0.000
2	1XY	0.000
2	1Y	0.000
2	17S	16.350
2	17Y	16.350
2	18S	16.350
2	18X	16.350
2	17P	0.000
2	18P	33.250
2	19P	64.570

Sections Information:

Section	Top Bottom Joint Member Tran.	Face Tran.	Face Tran.	Face Tran.	Face Long.	Face Long.	Face Long.	Face
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Label	Z (ft)	Z Count	Count	Top Width (ft)	Bot Width (ft)	Gross Area (ft^2)	Top Width (ft)	Bot Width (ft)	Gross Area (ft^2)	
1	132.000	64.570	45	146	0.00	7.74	403.873	0.00	80.00	1164.752
2	64.570	0.000	35	94	7.74	27.56	1135.944	7.74	27.56	1135.944

*** Insulator Data

Clamp Properties:

Label Stock Holding
Number Capacity
(lbs)

C-EX1 5e+004

Clamp Insulator Connectivity:

Clamp Structure Property Min. Required
Label And Tip Set Vertical Load
Attach (uplift)
(lbs)

1	14P	C-EX1	No Limit
2	14X	C-EX1	No Limit
3	15P	C-EX1	No Limit
4	15X	C-EX1	No Limit
5	16P	C-EX1	No Limit
6	16X	C-EX1	No Limit
7	016PF0.50S	C-EX1	No Limit
8	17P	C-EX1	No Limit
9	18P	C-EX1	No Limit
10	19P	C-EX1	No Limit
11	20P	C-EX1	No Limit
12	21P	C-EX1	No Limit
13	23P	C-EX1	No Limit

*** Loads Data

Loads from file: j:\jobs\1200100.wi\col6 - east glastonbury 3\rev (1)\calcs\pls tower\cl6p # 12197.lca

Insulator dead and wind loads are already included in the point loads printed below.

Loading Method Parameters:

Structure Height Summary (used for calculating wind/ice adjust with height):

Z of ground for wind height adjust 0.00 (ft) and structure Z coordinate that will be put on the centerline ground profile in PLS-CADD.
 Ground elevation shift 0.00 (ft)
 Z of ground with shift 0.00 (ft)
 Z of structure top (highest joint) 132.00 (ft)
 Structure height 132.00 (ft)
 Structure height above ground 132.00 (ft)
 Tower Shape Rectangular

Vector Load Cases:

Load Case Description	Dead Load	Wind Area Factor	SF for SF for Steel Poles	SF for SF for Guys	SF for SF for Insuls.	Found.	Point Loads	Wind/Ice Model	Trans. Wind Pressure (psf)	Longit. Wind Pressure (psf)	Ice Thick. (in)	Ice Density	Ice Temperature (deg F)	Joint Displ.
NESC Heavy	1.5000	2.5000	1.000000	1.0000	1.0000	1.0000	11 loads	Wind on Face	4	0	0.000	56.000	0.0	
NESC Extreme	1.0000	1.0000	1.000000	1.0000	1.0000	1.0000	11 loads	NESC 2007	31	0	0.000	0.000	0.0	

Point Loads for Load Case "NESC Heavy":

Joint Label	Vertical Load (lbs)	Transverse Load (lbs)	Longitudinal Load (lbs)	Comment
14P	545	912	0	Shield Wire
14X	545	912	0	Shield Wire
15P	2628	1819	0	Conductor
16P	2628	1819	0	Conductor
016PFO.50S	2628	1819	0	Conductor
17P	599	0	0	Coax Cables
18P	564	0	0	Coax Cables
19P	427	0	0	Coax Cables
20P	418	0	0	Coax Cables
21P	369	0	0	Coax Cables
23P	7415	1273	0	Antennas

Section Load Case Information (Standard) for "NESC Heavy":

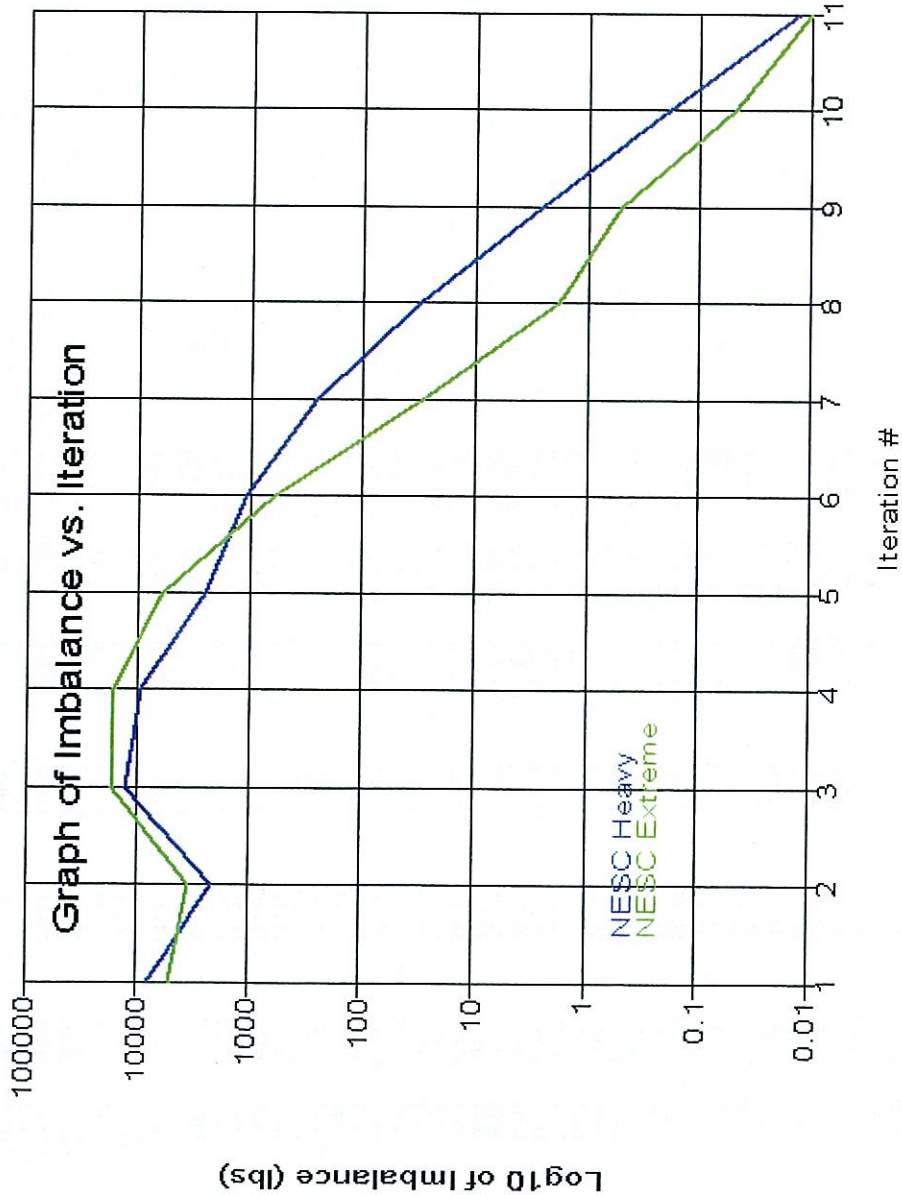
Section Label	Z of Top of Bottom (ft)	Ave. Elev. Above (ft)	Res. Adj. Pres. (psf)	Tran. Wind Load (lbs)	Tran. Drag Wind Load (lbs)	Long. Wind Pres. (psf)	Long. Drag Wind Coef Load (lbs)	Ice Total Weight (lbs)		
1	132.00	64.57	98.28	10.00	3.200	6118.7	0.00	3.200	0	23343
2	64.57	0.00	32.28	10.00	3.200	7013.6	0.00	3.200	0	21307

Point Loads for Load Case "NESC Extreme":

Joint Label	Vertical Load (lbs)	Transverse Load (lbs)	Longitudinal Load (lbs)	Comment
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*** Analysis Results:

Maximum element usage is 94.84% for Angle "g36p" in load case "NESC Heavy"
 Maximum insulator usage is 16.23% for Clamp "13" in load case "NESC Heavy"



Angle Forces For All Load Cases:
 Positive for tension - negative for compression

Group Label	Angle Label	Max. Usage For All IC	Max. Tens. For All IC	Max. Comp. For All IC	LC 1 (kips)	LC 2 (kips)
Leg1	g1P	8.52	0.000	-3.500	-1.792	-3.500
Leg1	g1X	4.00	2.795	0.000	1.106	2.795
Leg1	g1Y	3.82	2.668	0.000	1.088	2.668
Leg1	g1	8.15	0.000	-3.346	-1.724	-3.346
Leg1	g2P	31.67	0.000	-12.768	-6.331	-12.768
Leg1	g2X	15.54	10.852	0.000	4.191	10.852

Leg1	g2XY	15.34	10.714	0.000	4.205	10.714
Leg1	g2Y	31.23	0.000	-12.588	-6.277	-12.588
Leg1	g3P	50.75	0.000	-19.288	-7.774	-19.288
Leg1	g3X	23.65	16.519	0.000	4.315	16.519
Leg1	g3XY	24.08	16.815	0.000	4.553	16.815
Leg1	g3Y	51.41	0.000	-19.538	-7.939	-19.538
Leg1	g4P	65.35	0.000	-26.734	-10.087	-26.734
Leg1	g4X	41.01	23.566	0.000	5.939	23.566
Leg1	g4XY	41.45	23.819	0.000	6.179	23.819
Leg1	g4Y	66.10	0.000	-27.042	-10.250	-27.042
Leg2	g5P	37.15	0.000	-38.440	-16.311	-38.440
Leg2	g5X	19.76	32.822	0.000	9.105	32.822
Leg2	g5XY	19.82	32.907	0.000	9.235	32.907
Leg2	g5Y	37.46	0.000	-38.761	-16.396	-38.761
Leg2	g6P	38.28	0.000	-38.701	-16.739	-38.701
Leg2	g6X	22.45	37.272	0.000	11.649	37.272
Leg2	g6XY	22.18	36.826	0.000	11.343	36.826
Leg2	g6Y	38.62	0.000	-39.049	-16.850	-39.049
Leg2	g7P	43.55	0.000	-49.411	-18.929	-49.411
Leg2	g7X	32.35	43.286	0.000	9.306	43.286
Leg2	g7XY	31.81	42.568	0.000	9.007	42.568
Leg2	g7Y	43.80	0.000	-49.701	-18.888	-49.701
Leg3	g8P	60.84	0.000	-55.544	-22.685	-55.544
Leg3	g8X	26.14	43.408	0.000	7.513	43.408
Leg3	g8XY	26.09	43.328	0.000	7.495	43.328
Leg3	g8Y	60.49	0.000	-55.232	-22.568	-55.232
Leg3	g9P	58.53	0.000	-57.331	-25.353	-57.331
Leg3	g9X	28.30	46.998	0.000	11.722	46.998
Leg3	g9XY	28.12	46.693	0.000	11.706	46.693
Leg3	g9Y	58.48	0.000	-57.276	-25.384	-57.276
Leg3	g10P	55.93	0.000	-60.777	-27.374	-60.777
Leg3	g10X	35.83	47.942	0.000	11.405	47.942
Leg3	g10XY	35.85	47.961	0.000	11.504	47.961
Leg3	g10Y	55.60	0.000	-60.419	-27.385	-60.419
Leg4	g11P	86.22	0.000	-63.523	-25.708	-63.523
Leg4	g11X	42.01	44.775	0.000	12.058	44.775
Leg4	g11XY	36.48	38.875	0.000	12.325	38.875
Leg4	g11Y	94.83	0.000	-69.867	-25.848	-69.867
Leg5	g12P	80.96	0.000	-64.012	-26.136	-64.012
Leg5	g12X	44.31	44.380	0.000	11.560	44.380
Leg5	g12XY	38.42	38.483	0.000	11.926	38.483
Leg5	g12Y	89.01	0.000	-70.375	-26.275	-70.375
Diag1	g13P	22.78	4.388	0.000	1.877	4.388
Diag1	g13X	29.65	0.000	-4.628	-2.284	-4.628
Diag1	g13XY	37.70	0.000	-5.886	-2.810	-5.886
Diag1	g13Y	29.25	5.633	0.000	2.390	5.633
Diag1	g14P	1.49	0.287	0.000	0.287	0.123
Diag1	g14X	1.59	0.307	0.000	0.307	0.143
Diag1	g14XY	8.25	1.590	0.000	0.874	1.590
Diag1	g14Y	11.56	0.000	-1.347	-0.308	-1.347
Diag1	g15P	22.40	4.313	0.000	2.060	4.313
Diag1	g15X	27.60	0.000	-4.266	-1.782	-4.266
Diag1	g15XY	45.35	0.000	-7.010	-2.904	-7.010
Diag1	g15Y	36.65	7.058	0.000	3.190	7.058
Diag1	g16P	9.06	1.746	0.000	0.695	1.746
Diag1	g16X	14.61	0.000	-1.687	-0.690	-1.687
Diag1	g16XY	0.71	0.138	0.000	0.032	0.138
Diag1	g16Y	0.66	0.000	-0.101	-0.053	-0.101
Diag2	g17P	18.33	4.089	-0.420	-0.420	4.089
Diag2	g17X	22.53	0.407	-4.401	0.407	-4.401
Diag2	g17XY	31.44	0.000	-6.142	-0.311	-6.142
Diag2	g17Y	26.29	5.862	0.000	0.347	5.862
Diag2	g18P	1.24	0.000	-0.181	-0.181	-0.173
Diag2	g18X	7.08	0.000	-1.033	-1.033	-0.447
Diag2	g18XY	5.55	1.237	-0.366	-0.366	1.237
Diag2	g18Y	12.90	0.000	-1.881	-0.876	-1.881
Diag3	g19P	18.21	4.825	0.000	1.912	4.825

Diag3	g19X	17.93	0.000	-5.602	-3.528	-5.602
Diag3	g19Y	20.93	0.000	-6.541	-4.208	-6.541
Diag3	g19Y	21.89	5.800	0.000	2.631	5.800
Diag3	g20P	5.00	0.084	-1.180	0.084	-1.180
Diag3	g20X	2.09	0.553	-0.430	-0.430	0.553
Diag3	g20XY	6.21	1.645	0.000	0.368	1.645
Diag3	g20Y	8.95	0.000	-2.110	-0.650	-2.110
Diag3	g21P	23.35	6.186	0.000	3.566	6.186
Diag3	g21X	18.42	0.000	-5.608	-2.371	-5.608
Diag3	g21XY	21.71	0.000	-6.611	-3.112	-6.611
Diag3	g21Y	26.99	7.151	0.000	4.264	7.151
Diag3	g22P	7.97	2.112	0.000	0.627	2.112
Diag3	g22X	6.38	0.000	-1.454	-0.215	-1.454
Diag3	g22XY	2.28	0.605	-0.334	0.605	-0.334
Diag3	g22Y	4.36	1.156	-0.128	-0.128	1.156
Diag4	g23P	12.08	4.152	-1.257	-1.257	4.152
Diag4	g23X	7.39	2.206	-3.001	2.206	-3.001
Diag4	g23XY	8.84	1.832	-3.588	1.832	-3.588
Diag4	g23Y	14.86	5.114	-0.446	-0.446	5.114
Diag4	g24P	27.70	0.000	-8.932	-2.112	-8.932
Diag4	g24X	15.85	0.760	-5.111	-5.111	0.760
Diag4	g24XY	13.37	1.855	-4.311	-4.311	1.855
Diag4	g24Y	30.65	0.000	-9.884	-2.869	-9.884
Diag5	g25P	4.26	1.424	0.000	1.424	1.414
Diag5	g25X	7.71	0.000	-2.579	-2.579	-2.099
Diag5	g25XY	10.16	0.000	-3.398	-3.398	-3.032
Diag5	g25Y	9.50	3.177	0.000	2.519	3.177
Diag5	g26P	4.78	0.282	-1.600	0.282	-1.600
Diag5	g26X	12.23	0.000	-4.092	-4.092	-2.667
Diag5	g26XY	9.72	0.000	-3.250	-3.250	-1.466
Diag5	g26Y	9.18	0.000	-3.071	-0.613	-3.071
Diag6	g27P	8.19	1.827	0.000	1.700	1.827
Diag6	g27X	9.37	0.000	-2.069	-2.040	-2.069
Diag6	g27XY	15.62	0.000	-3.447	-2.878	-3.447
Diag6	g27Y	11.39	2.540	0.000	2.346	2.540
Diag6	g28P	8.50	1.896	0.000	0.347	1.896
Diag6	g28X	9.94	2.217	0.000	2.217	1.092
Diag6	g28XY	12.84	2.864	0.000	2.864	2.015
Diag6	g28Y	3.43	0.764	-0.341	-0.341	0.764
Diag6	g29P	7.72	1.721	0.000	1.347	1.721
Diag6	g29X	9.31	0.000	-1.737	-1.422	-1.737
Diag6	g29XY	11.99	0.000	-2.238	-1.910	-2.238
Diag6	g29Y	12.45	2.776	0.000	1.966	2.776
Diag6	g30P	4.10	0.049	-0.764	0.049	-0.764
Diag6	g30X	10.38	0.000	-1.938	-1.938	-1.210
Diag6	g30XY	7.80	0.000	-1.455	-1.455	-0.520
Diag6	g30Y	8.55	0.000	-1.614	-0.465	-1.614
Diag6	g31P	8.36	1.864	0.000	1.059	1.864
Diag6	g31X	12.70	0.000	-2.024	-1.465	-2.024
Diag6	g31XY	18.22	0.000	-2.905	-1.957	-2.905
Diag6	g31Y	10.00	2.231	0.000	1.455	2.231
Diag6	g32P	4.79	1.069	0.000	0.303	1.069
Diag6	g32X	4.27	0.952	0.000	0.952	0.280
Diag6	g32XY	6.01	1.340	0.000	1.340	0.835
Diag6	g32Y	1.87	0.416	-0.109	-0.109	0.416
Diag7	g33P	45.18	0.000	-5.801	-3.973	-5.801
Diag7	g33X	4.32	1.534	0.000	1.534	1.474
Diag7	g33XY	25.92	9.213	0.000	2.364	9.213
Diag7	g33Y	37.14	0.000	-4.770	-4.770	-0.152
Diag7	g34P	39.27	0.424	-5.043	-5.043	0.424
Diag7	g34X	28.38	10.085	0.000	3.429	10.085
Diag7	g34XY	30.69	10.906	0.000	4.141	10.906
Diag7	g34Y	44.16	0.001	-5.671	-5.671	0.001
Diag8	g35P	2.91	1.044	0.000	0.430	1.044
Diag8	g35X	92.60	0.000	-6.609	-3.904	-6.609
Diag8	g35XY	62.08	0.000	-4.430	-4.430	0.000
Diag8	g35Y	27.91	10.005	0.000	0.994	10.005

Diag8	g36P	94.84	0.000	-6.769	-6.769	0.000
Diag8	g36X	33.45	11.993	0.000	4.374	11.993
Diag8	g36XY	33.02	11.840	0.000	3.840	11.840
Diag8	g36Y	88.18	0.000	-6.293	-6.293	0.000
Horz2	g37P	2.05	0.868	0.000	0.868	0.516
Horz2	g37Y	1.82	0.770	0.000	0.770	0.435
Horz1	g38P	9.75	2.079	0.000	0.400	2.079
Horz1	g38X	14.44	0.000	-2.604	-1.367	-2.604
Horz3	g39P	9.05	0.000	-0.895	-0.895	-0.395
Horz3	g39Y	9.08	0.000	-0.897	-0.897	-0.395
Horz3	g40P	9.63	2.425	0.000	2.425	1.369
Horz3	g40Y	9.63	2.411	0.000	2.411	1.359
Horz4	g41P	4.26	0.951	0.000	0.733	0.951
Horz4	g41X	7.45	1.661	0.000	1.661	0.659
Horz5	g42P	11.00	4.945	0.000	4.945	2.244
Horz5	g42Y	10.87	4.691	0.000	4.891	2.205
Horz3	g43P	33.27	5.224	0.000	1.298	5.224
Horz3	g43X	12.03	1.888	-1.022	1.888	-1.022
Horz4	g44P	41.74	9.309	0.000	5.506	9.309
Horz4	g44X	69.09	15.408	0.000	15.408	15.269
Horz4	Fg4478P	41.74	9.308	0.000	5.506	9.308
Horz4	Fg4478X	69.10	15.409	0.000	15.409	15.268
Horz5	g45P	9.15	2.039	0.000	0.479	2.039
Horz5	g45Y	5.04	0.478	-0.865	0.478	-0.865
Horz5	g46P	14.47	3.228	0.000	3.228	0.338
Horz5	g46X	32.65	0.000	-5.599	-3.745	-5.599
Horz6	g47P	6.43	0.000	-0.583	-0.386	-0.583
Horz6	g47X	2.20	0.252	-0.200	-0.200	0.252
Horz6	g47XY	2.20	0.267	-0.200	-0.200	0.267
Horz6	g47Y	5.91	0.000	-0.537	-0.386	-0.537
Horz6	g48P	2.20	0.000	-0.200	-0.055	-0.200
Horz6	g48X	0.18	0.033	0.000	0.031	0.033
Horz6	g48XY	0.19	0.034	0.000	0.032	0.034
Horz6	g48Y	3.48	0.000	-0.315	-0.056	-0.315
Inner1	g49P	7.97	0.000	-0.669	-0.243	-0.669
Inner1	g49X	4.68	0.713	0.000	0.304	0.713
Inner2	g50P	1.31	0.216	-0.052	-0.052	0.216
Inner2	g50X	2.00	0.000	-0.306	-0.103	-0.306
Inner3	g51P	39.24	0.000	-9.134	-8.442	-9.134
Inner3	g51X	29.18	0.000	-6.792	-4.792	-6.792
Inner4	g52P	3.15	0.000	-0.215	-0.200	-0.215
Inner4	g52X	0.83	0.123	-0.057	-0.057	0.123
Inner4	g52XY	3.38	0.556	-0.084	-0.084	0.556
Inner4	g52Y	8.86	0.000	-0.605	-0.173	-0.605
TopCrArm	g53P	2.13	0.125	-0.592	0.125	-0.592
TopCrArm	g53X	4.91	1.570	0.000	1.570	1.558
TopCrArm	g53XY	3.53	1.129	0.000	1.129	0.465
TopCrArm	g53Y	1.79	0.572	0.000	0.572	0.502
TopArmBr	g54P	4.89	0.072	-0.723	-0.723	0.072
TopArmBr	g54X	8.20	0.000	-1.214	-1.214	-1.134
TopArmBr	g54XY	4.92	0.065	-0.729	-0.729	0.065
TopArmBr	g54Y	8.24	0.000	-1.219	-1.219	-1.140
MidCrArm	g55P	16.20	0.000	-5.420	-5.420	-3.485
MidCrArm	g55X	2.62	0.000	-0.875	-0.875	-0.676
MidCrArm	g55XY	1.78	0.058	-0.595	-0.595	0.058
MidCrArm	g55Y	17.09	0.000	-5.717	-5.717	-4.246
MidCrArm	g56P	5.59	0.000	-2.454	-2.454	-1.631
MidCrArm	g56Y	5.20	0.000	-2.319	-2.319	-1.507
MidArmBr	g57P	18.72	4.690	0.000	4.690	1.858
MidArmBr	g57X	3.69	0.925	0.000	0.925	0.905
MidArmBr	g57XY	2.51	0.628	0.000	0.628	0.128
MidArmBr	g57Y	19.97	5.001	0.000	5.001	2.640
BotCrArm	g58P	29.38	0.000	-9.826	-9.826	-6.274
BotCrArm	g58Y	29.89	0.000	-9.999	-9.999	-6.526
BotCrArm	Fg5860P	19.03	0.000	-10.609	-10.609	-8.333
BotCrArm	Fg5860Y	19.32	0.000	-10.772	-10.772	-8.591
BotCrArm	g59P	2.39	1.600	-1.554	-1.554	1.600

BotCrArm	g59Y	6.41	4.285	0.000	1.031	4.285
BotArmBr	g60P	21.88	9.085	0.000	9.085	4.683
BotArmBr	g60X	5.72	2.376	0.000	2.376	0.822
BotArmBr	g60Y	5.69	2.361	0.000	2.361	0.746
BotArmBr	g60Z	22.30	9.259	0.000	9.259	4.915
M1	g62P	1.04	0.000	-0.231	-0.121	-0.231
M1	Fg6262P	1.05	0.000	-0.233	-0.123	-0.233
Pwmt	g64P	3.80	0.000	-22.570	-22.570	-6.978
Pwmt	g65P	2.99	0.000	-18.046	-18.046	-6.200
Pwmt	g66P	2.28	0.000	-14.501	-14.501	-5.184
Pwmt	g67P	1.79	0.000	-11.413	-11.413	-4.567
Pwmt	g68P	1.36	0.000	-9.101	-9.101	-3.929
Pwmt	g69P	1.19	0.000	-7.961	-7.961	-3.569
PwmtBR3	g70P	9.25	0.596	-1.555	0.596	-1.555
PwmtBR3	g70X	5.31	0.000	-0.892	-0.257	-0.892
PwmtBR4	g71P	15.32	0.642	-2.082	0.642	-2.082
PwmtBR4	g71X	12.98	0.000	-1.765	-0.269	-1.765
PwmtBR1	g72P	38.18	0.000	-3.892	-3.892	-2.964
PwmtBR1	g72X	18.83	0.000	-1.919	-0.200	-1.919
PwmtBR2	g73P	29.74	0.000	-3.032	-2.323	-3.032
PwmtBR2	g73X	68.46	0.000	-6.980	-6.445	-6.980
PwmtBR1	g74P	14.34	0.000	-1.462	-0.221	-1.462
PwmtBR1	g74X	14.19	1.446	0.000	0.035	1.446
PwmtBR2	g75P	27.55	0.000	-2.809	-0.728	-2.809
PwmtBR2	g75X	23.99	2.446	0.000	0.155	2.446
PwmtBR1	g76P	24.97	2.545	0.000	1.076	2.545
PwmtBR1	g76X	24.11	0.000	-2.458	-0.962	-2.458
PwmtBR2	g77P	46.56	4.747	0.000	2.027	4.747
PwmtBR2	g77X	44.25	0.000	-4.511	-1.731	-4.511
BotCrArm	g78P	4.15	0.000	-2.313	-2.313	-0.619
BotCrArm	g78Y	4.14	0.000	-2.308	-2.308	-0.554
Dummy	g80P	0.00	3.042	0.000	1.495	3.042
Dummy	Fg8080P	0.00	0.000	-0.374	-0.310	-0.374

3.042 Axial force too large for fictitious member ??
 0.374 Axial force too large for fictitious member ??

Moments for Angles Modeled as Beams For All Load Cases

Load Case	Angle Label	Torsion (ft-lbs)	Origin X Moment (ft-lbs)	Origin Y Moment (ft-lbs)	End X Moment (ft-lbs)	End Y Moment (ft-lbs)	X Shear (lbs)	Y Shear (lbs)
NESC Heavy	g1P	-3.16	5.81	1.44	-18.94	17.70	-1.73	2.53
NESC Heavy	g1X	-1.07	-1.68	-2.95	10.10	-46.55	1.11	-6.54
NESC Heavy	g1Y	-3.76	-4.29	1.89	16.29	47.98	1.59	6.59
NESC Heavy	g2P	-1.67	3.46	-0.49	-12.23	-18.98	-1.16	-2.57
NESC Heavy	g2X	-3.17	18.94	-17.70	-23.81	-39.81	-0.63	-7.50
NESC Heavy	g2Y	-1.07	-10.10	46.55	-61.44	69.18	-9.33	15.09
NESC Heavy	g3P	-1.64	-16.29	-47.98	-66.56	-70.55	-10.80	-15.45
NESC Heavy	g3X	-3.16	12.23	18.98	-29.63	41.09	-2.27	7.83
NESC Heavy	g3Y	-1.08	23.81	39.81	-3.79	56.96	2.51	12.14
NESC Heavy	g4P	-3.75	61.44	-69.18	3.43	-76.81	8.14	-18.32
NESC Heavy	g4X	-1.64	66.55	70.55	-3.01	75.02	7.97	18.26
NESC Heavy	g4Y	-3.17	29.63	-41.09	-9.39	-54.20	2.54	-11.96
NESC Heavy	g5P	-2.52	25.22	-59.02	-3.90	-75.47	2.81	-17.72
NESC Heavy	g5X	20.42	-92.31	99.60	-133.42	150.69	-29.73	32.98
NESC Heavy	g5Y	-29.55	-98.71	-104.75	-136.98	-151.70	-31.04	-33.79
NESC Heavy	g6P	-2.87	18.54	63.08	-6.06	76.27	1.64	18.36
NESC Heavy	g6X	-6.76	3.90	75.47	-259.29	35.08	-31.97	13.84
NESC Heavy	g6Y	20.43	133.42	-150.69	435.52	-470.86	71.19	-77.79
NESC Heavy	g7P	-29.55	136.98	151.71	-442.63	471.21	72.53	77.96
NESC Heavy	g7X	-2.89	6.06	-76.27	-268.76	-38.11	-32.88	-14.32
NESC Heavy	g7Y	-6.74	259.29	-35.08	539.89	125.95	98.20	11.17
NESC Heavy	g8P	20.93	-435.51	470.84	-2365.86	1032.68	-344.09	184.72
NESC Heavy	g8X	-30.06	-442.62	-471.19	-2388.65	-1044.37	-347.76	-186.22
NESC Heavy	g8Y	-2.92	268.76	38.11	550.45	-110.65	100.66	-8.91
NESC Heavy	g7P	-357.11	-381.86	-505.56	-72.63	-83.33	-62.04	-80.43

NESC Heavy	g7X	333.68	-2007.00	1741.56	-861.37	152.27	-391.51	258.73
NESC Heavy	g7XY	-337.20	-2012.68	-1741.78	-850.76	-138.83	-390.84	-256.93
NESC Heavy	g7Y	353.94	-350.14	474.24	-55.04	68.65	-55.31	74.14
NESC Heavy	g8P	-357.47	72.68	81.75	41.49	61.71	13.06	16.44
NESC Heavy	g8X	333.72	861.57	-151.12	389.11	215.18	143.26	7.24
NESC Heavy	g8XY	-337.17	830.97	137.66	380.91	-224.00	141.11	-9.79
NESC Heavy	g8Y	354.23	55.09	-67.08	30.62	-52.09	9.80	-13.66
NESC Heavy	g9P	-357.05	-41.45	-64.15	70.36	10.32	3.47	-6.44
NESC Heavy	g9X	334.96	-399.34	-212.83	-276.13	-137.60	-79.86	-41.97
NESC Heavy	g9XY	-338.47	-381.15	221.63	-271.60	141.85	-78.33	43.53
NESC Heavy	g9Y	353.87	-30.58	54.51	76.53	-15.98	5.51	4.60
NESC Heavy	g10P	-357.04	-70.33	-10.68	-73.62	-1.93	-18.82	-1.67
NESC Heavy	g10X	334.85	276.20	137.72	91.35	36.92	48.04	22.80
NESC Heavy	g10XY	-338.35	271.68	-141.97	91.13	-31.26	47.42	-22.62
NESC Heavy	g10Y	353.86	-76.50	16.34	-77.03	9.22	-20.07	3.36
NESC Heavy	g11P	-357.02	73.66	3.88	109.25	64.23	10.56	3.97
NESC Heavy	g11X	334.64	-91.40	-38.67	-73.75	31.99	-9.54	-0.37
NESC Heavy	g11XY	-338.18	-91.16	33.03	-75.64	-34.51	-9.64	-0.10
NESC Heavy	g11Y	353.80	77.06	-11.16	111.82	-67.55	10.91	-4.58
NESC Heavy	g12P	0.00	-94.87	-31.46	-0.00	0.00	-5.67	-1.88
NESC Heavy	g12X	0.00	66.16	-66.97	-0.00	-0.00	3.95	-4.00
NESC Heavy	g12XY	0.00	67.91	66.80	-0.00	0.00	4.06	3.99
NESC Heavy	g12Y	0.00	-97.00	32.09	-0.00	-0.00	-5.80	1.92
NESC Heavy	g47P	0.85	-31.43	168.09	-92.51	621.88	-11.02	70.28
NESC Heavy	g47X	0.83	-20.16	-177.66	-92.49	-621.88	-10.03	-71.13
NESC Heavy	g47XY	-0.42	-18.09	176.32	-92.47	621.92	-9.84	71.02
NESC Heavy	g47Y	-0.45	-33.37	-169.60	-92.48	-621.92	-11.20	-70.42
NESC Heavy	g48P	0.22	39.80	-178.16	107.27	-623.57	13.08	-71.33
NESC Heavy	g48X	0.26	21.59	166.64	93.68	618.72	10.24	69.87
NESC Heavy	g48XY	0.28	23.28	-168.01	93.68	-618.72	10.40	-69.99
NESC Heavy	g48Y	0.35	38.17	176.92	107.27	623.57	12.94	71.22
NESC Heavy	g53P	-3.27	0.93	1.07	-0.05	-1.47	0.05	-0.02
NESC Heavy	g53X	-0.01	5.98	3.16	0.77	0.79	0.42	0.25
NESC Heavy	g53XY	-0.36	3.48	1.64	-0.69	-0.79	0.17	0.05
NESC Heavy	g53Y	2.86	3.71	3.76	1.57	1.47	0.33	0.32
NESC Heavy	g55P	-5.06	0.04	-0.98	-131.98	-3.69	-5.63	-0.20
NESC Heavy	g55X	3.94	-1.39	1.54	-47.44	4.53	-2.08	0.26
NESC Heavy	g55XY	-4.18	0.03	-1.54	-45.49	-2.62	-1.94	-0.18
NESC Heavy	g55Y	4.77	-1.69	0.98	-134.33	5.25	-5.80	0.27
NESC Heavy	g56P	-6.00	42.12	-17.81	-26.01	-0.92	2.08	-2.42
NESC Heavy	g56X	12.27	31.55	20.54	-36.41	3.86	-0.63	3.15
NESC Heavy	g56P	253.23	27.20	12.08	8620.36	-10.81	528.90	-1.00
NESC Heavy	g58Y	-253.24	27.08	-12.08	8620.69	17.19	528.91	1.39
NESC Heavy	Fg5860P	-6.48	-8814.28	-307.16	-8905.14	-475.83	-886.72	-39.21
NESC Heavy	Fg5860Y	12.93	-8822.06	312.04	-8909.95	521.10	-887.35	41.75
NESC Heavy	g59P	171.19	3913.05	-186.25	1164.75	404.69	656.09	28.12
NESC Heavy	g59Y	-157.55	3892.13	135.24	1134.03	-444.90	649.40	-39.92
NESC Heavy	g62P	164.88	-280.66	322.51	1831.55	975.50	718.31	745.29
NESC Heavy	Fg6262P	-171.84	-1831.53	-947.08	288.56	-333.61	-713.84	-735.39
NESC Heavy	g64P	0.07	5281.94	158.07	-1108.09	329.07	125.53	14.65
NESC Heavy	g65P	-0.09	1108.09	-329.07	-5923.80	-615.76	-153.76	-30.17
NESC Heavy	g66P	0.03	5923.80	615.76	2582.49	454.85	358.62	45.14
NESC Heavy	g67P	-0.43	-2582.49	-454.85	-37213.14	2.03	-1714.62	-19.51
NESC Heavy	g68P	0.00	37213.14	-2.03	-15647.50	0.93	2053.90	-0.11
NESC Heavy	g69P	0.00	15647.50	-0.93	0.00	-0.00	1564.77	-0.09
NESC Heavy	g78P	10.28	-58.06	41.38	1.76	8.09	-1.55	1.36
NESC Heavy	g78Y	-10.42	-60.45	-1.32	0.46	-8.09	-1.65	-0.26
NESC Heavy	g80P	-0.29	337.28	-28.42	12881.23	12.15	1323.57	-1.63
NESC Heavy	Fg8080P	0.00	-12881.23	-12.10	-0.00	0.00	-1297.84	-1.22
NESC Extreme	g1P	-5.48	4.11	4.71	-29.34	72.13	-3.33	10.15
NESC Extreme	g1X	-4.88	0.42	-5.73	-13.27	-86.07	-1.70	-12.13
NESC Extreme	g1XY	-6.88	-6.26	2.94	2.29	88.73	-0.52	12.11
NESC Extreme	g1Y	-5.86	-1.29	-2.58	-12.73	-75.40	-1.85	-10.30
NESC Extreme	g2P	-5.49	29.34	-72.12	-35.03	-122.13	-0.74	-25.33
NESC Extreme	g2X	-4.87	13.27	86.07	-58.07	136.29	-5.84	28.99
NESC Extreme	g2XY	-6.49	-2.29	-88.73	-70.54	-139.60	-9.49	-29.77
NESC Extreme	g2Y	-5.85	12.73	75.40	-48.66	124.67	-4.69	26.09

NESC Extreme	g3P	-5.44	35.03	122.13	-86.55	148.16	-6.47	33.92
NESC Extreme	g3X	-4.92	58.07	-136.29	-74.68	-167.99	-2.08	-38.17
NESC Extreme	g3XY	-5.40	70.54	139.61	-90.13	158.63	-2.46	37.41
NESC Extreme	g3Y	-5.90	48.66	-124.67	-100.62	-138.08	-6.52	-32.98
NESC Extreme	g4P	-0.41	54.82	-151.60	-69.97	-164.35	-2.00	-41.65
NESC Extreme	g4XY	-30.44	-30.44	185.06	-181.16	249.93	-27.87	57.29
NESC Extreme	g4Y	-13.35	-38.97	-187.50	-185.69	-250.57	-29.58	-57.70
NESC Extreme	g5P	-0.33	69.97	164.36	-72.55	162.16	-3.37	41.49
NESC Extreme	g5XY	1.78	181.16	-249.93	-300.81	-36.06	-28.90	16.06
NESC Extreme	g5Y	-13.28	185.68	250.58	244.45	-436.96	53.25	-85.94
NESC Extreme	g6P	-0.28	300.81	36.06	-310.21	34.21	-29.76	16.02
NESC Extreme	g6XY	2.32	-244.45	436.96	159.47	410.90	56.57	54.93
NESC Extreme	g6Y	-13.82	-248.19	-435.90	-1364.05	687.95	-271.22	138.15
NESC Extreme	g7P	8.74	-758.98	-177.93	159.73	-403.63	57.76	-53.81
NESC Extreme	g7XY	-13.96	-1155.70	1165.87	-565.47	412.26	-146.48	32.01
NESC Extreme	g7Y	-13.94	-746.70	145.54	-583.63	-269.61	-234.88	193.53
NESC Extreme	g8P	10.85	313.48	-412.22	-325.13	-397.34	-146.39	-34.40
NESC Extreme	g8XY	7.99	583.64	269.64	112.03	197.45	77.55	-62.29
NESC Extreme	g8Y	-15.99	325.11	397.27	152.40	-158.80	84.25	12.69
NESC Extreme	g9P	9.30	-357.82	207.34	-68.40	369.53	-51.16	68.24
NESC Extreme	g9XY	-11.82	-112.02	-197.53	-209.49	-38.02	-38.55	-28.25
NESC Extreme	g9Y	7.07	-152.39	158.85	-262.15	-17.77	-17.77	-49.71
NESC Extreme	g10P	9.70	-393.31	-160.27	-118.47	-273.72	-61.43	-52.09
NESC Extreme	g10XY	-11.82	209.49	38.01	34.21	-196.53	13.42	-74.03
NESC Extreme	g10Y	7.02	262.15	17.77	93.72	20.23	39.61	7.61
NESC Extreme	g11P	-15.05	118.46	273.71	10.05	35.83	16.80	40.48
NESC Extreme	g11XY	10.71	-34.21	196.47	77.02	304.08	2.48	28.97
NESC Extreme	g11Y	-11.96	-93.71	-20.17	-210.57	132.41	-17.59	6.49
NESC Extreme	g12P	0.00	199.76	-140.27	0.00	0.00	0.36	-22.32
NESC Extreme	g12XY	0.00	72.98	60.57	0.00	-0.00	11.93	-8.38
NESC Extreme	g12Y	-0.00	-138.10	-67.25	0.00	-0.00	4.36	3.62
NESC Extreme	g47P	0.93	-4.41	-5.65	4.98	-11.91	0.05	-1.56
NESC Extreme	g47X	0.93	14.78	12.45	4.98	11.91	1.76	2.17
NESC Extreme	g47XY	5.00	71.63	-3.67	42.91	-9.07	10.19	-1.14
NESC Extreme	g47Y	5.00	5.69	3.79	42.91	9.08	4.32	1.14
NESC Extreme	g48P	2.20	103.92	14.02	91.12	14.10	17.35	2.50
NESC Extreme	g48X	3.91	-13.86	-3.85	-13.67	-8.21	-2.45	-1.07
NESC Extreme	g48XY	3.91	-12.67	1.78	-13.67	8.21	-2.34	0.89
NESC Extreme	g48Y	2.20	58.00	-8.49	91.12	-14.09	13.27	-2.01
NESC Extreme	g53P	-5.46	-1.78	4.88	-1.01	-2.04	-0.17	0.18
NESC Extreme	g53X	-3.59	5.12	5.48	0.77	-0.12	0.37	0.33
NESC Extreme	g53XY	2.81	-0.63	5.86	-2.36	0.12	-0.19	0.37
NESC Extreme	g53Y	4.36	5.37	6.48	3.44	2.04	0.55	0.53
NESC Extreme	g55P	4.99	3.43	0.01	27.20	-0.58	1.31	-0.02
NESC Extreme	g55X	8.22	-2.86	-0.31	-129.03	-0.33	5.62	-0.03
NESC Extreme	g55XY	-8.70	0.03	0.31	-123.88	1.23	-5.28	0.06
NESC Extreme	g55Y	-5.83	-1.62	-0.01	19.67	1.25	0.77	0.05
NESC Extreme	g56P	-16.64	-132.77	-6.09	-160.36	-4.78	-37.87	-1.41
NESC Extreme	g56X	26.37	-149.47	5.57	-177.21	4.52	-42.21	1.31
NESC Extreme	g58P	194.82	22.26	-52.14	6495.66	-110.25	398.62	-10.56
NESC Extreme	g58Y	-195.12	19.44	52.14	6493.41	117.06	398.32	10.98
NESC Extreme	Fg5860P	21.00	-6501.73	-218.47	-6374.45	-225.25	-644.34	-22.14
NESC Extreme	Fg5860Y	-14.97	-6514.30	234.19	-6388.90	262.98	-645.69	24.83
NESC Extreme	g59P	19.94	2745.73	2.21	792.14	51.74	457.08	6.96
NESC Extreme	g59Y	0.19	2709.71	-41.06	762.38	-80.91	448.57	-15.76
NESC Extreme	g62P	-12.48	-172.98	331.64	1118.83	2615.98	543.12	1692.58
NESC Extreme	Fg6262P	-1.56	-1118.80	-2605.38	181.10	-353.89	-538.44	-1699.27
NESC Extreme	g64P	2.16	16103.53	3356.10	-622.53	3570.57	485.60	208.32

NESC Extreme	965P	-2.92	622.53	-3570.57	-23627.35	-1650.34	-734.52	-166.70
NESC Extreme	966P	-0.01	23627.35	1650.33	11107.95	754.72	1464.40	101.39
NESC Extreme	967P	-2.13	-11107.95	-754.71	-111508.76	16.73	-5282.97	-31.80
NESC Extreme	968P	0.00	111508.76	-16.92	-52625.53	7.89	5607.97	-0.86
NESC Extreme	969P	0.00	52625.53	-7.93	0.00	-0.00	5262.59	-0.79
NESC Extreme	978P	24.10	26.05	-24.50	2.85	-14.95	0.80	-1.09
NESC Extreme	978Y	-24.16	25.71	53.40	2.32	14.95	0.77	1.88
NESC Extreme	980P	-0.04	-9.31	-10.60	7221.60	-9.91	718.36	-2.04
NESC Extreme	Fg8080P	0.00	-7221.60	10.00	0.00	-0.00	-727.77	1.01

*** Analysis Results for Load Case No. 1 "NESC Heavy" - Number of iterations in SAPS 11

Equilibrium Joint Positions and Rotations for Load Case "NESC Heavy":

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
1P	0	0	0	-0.1087	-0.1230	0.7424	13.78	13.78	0
2P	-0.0004451	0.001054	-0.004184	-0.1329	-0.1110	0.7405	11.24	11.24	16.35
3P	0.000963	0.01287	-0.006513	-0.1128	-0.0771	0.4829	8.661	8.673	33.24
4P	0.0007501	0.01775	-0.007833	-0.0957	-0.0606	0.3704	7.491	7.508	40.71
5P	0.001093	0.02466	-0.008771	-0.0942	-0.0378	0.2459	6.221	6.245	48.85
6P	0.001139	0.03371	-0.009336	-0.0697	-0.0196	0.1179	4.931	4.964	57.39
7P	0.0007359	0.04247	-0.009459	-0.1144	-0.0124	-0.0001	3.871	3.912	64.56
8P	0.000767	0.05358	-0.01077	-0.0774	0.0088	-0.0025	3.871	3.924	72.7
9P	0.001969	0.06752	-0.01203	-0.1115	0.0036	-0.0047	3.872	3.938	80.69
10P	0.001002	0.0828	-0.0134	-0.1218	-0.0023	-0.0110	3.871	3.953	88.28
11P	0.001984	0.1003	-0.01452	-0.1321	0.0041	-0.0141	3.872	3.97	96.25
12P	0.001551	0.119	-0.01541	-0.1475	-0.0038	-0.0170	3.872	3.989	103.9
13P	0.001593	0.1392	-0.01568	-0.1563	0.0020	-0.0200	3.872	4.009	111.5
14P	-0.007263	0.1406	0.04332	-0.1448	-0.0002	-0.0228	-0.007263	-19.36	111.5
15P	-0.006386	0.08546	0.03242	-0.0553	-0.0006	-0.0140	-0.006386	-26.91	88.32
16P	-0.006414	0.05029	-0.01935	-1.3991	-0.0023	-0.0109	-0.006414	-39.95	64.55
17P	0	0	0	0.0000	0.0000	0.0000	-2.25	0	0
18P	-1.34e-005	0.01416	-0.001337	-0.0400	-0.0011	0.0000	-2.25	0.01416	33.25
19P	-0.0006485	0.04475	-0.002357	-0.0815	0.0006	-0.0000	-2.251	0.04475	64.57
20P	9.192e-005	0.08424	-0.003001	-0.0964	0.0013	0.0000	-2.25	0.08424	88.29
21P	9.418e-005	0.142	-0.003544	-0.2478	-0.0007	-0.0000	-2.25	0.142	111.5
22P	-2.699e-005	0.1984	-0.003865	-0.3523	-0.0007	-0.0000	-2.25	0.1984	122
23P	-0.000143	0.2634	-0.004217	-0.3818	-0.0007	-0.0000	-2.25	0.2634	132
1X	0	0	0	0.1172	-0.1186	0.7491	13.78	13.78	0
1XY	0	0	0	0.1152	0.1164	0.7453	-13.78	-13.78	0
1Y	0	0	0	-0.1106	0.1250	-0.7461	-13.78	13.78	0
2X	-0.0008244	0.002499	0.001392	-0.0920	-0.1184	-0.7530	11.24	-11.24	16.35
2XY	0.0003894	0.002934	0.001436	0.0897	0.1166	0.7493	-11.24	-11.24	16.35
2Y	0.0008331	0.001489	-0.0042	-0.1354	0.1127	-0.7441	11.24	11.24	16.35
3X	-0.001078	0.01269	0.001833	-0.0457	-0.0648	-0.5191	8.659	-8.647	33.25
3XY	0.0003556	0.01371	0.001875	0.0431	0.0636	0.5127	-8.66	-8.646	33.25
3Y	-0.0002727	0.01389	0.006509	-0.1147	0.0786	-0.4890	-8.66	8.674	33.24
4X	0.0003647	0.01756	0.002148	0.0214	-0.0731	-0.4111	7.49	-7.472	40.72
4XY	-0.001066	0.0187	0.002175	0.0199	0.0721	0.4033	-7.491	7.471	40.72
4Y	-2.709e-005	0.01885	-0.007822	-0.0978	0.0618	-0.3776	-7.49	7.509	40.71
5X	-0.002083	0.02425	0.001675	0.0074	-0.0373	-0.2985	6.218	-6.196	48.86
5XY	0.001424	0.02542	0.001689	0.0049	0.0362	0.2896	-6.219	6.195	48.86
5Y	-0.0003521	0.02592	-0.008741	-0.0957	0.0393	0.2542	-6.22	6.246	48.85
6X	0.001537	0.03328	0.001493	-0.0938	-0.0303	-0.1894	4.932	-4.897	57.4
6XY	-0.00216	0.03467	0.001467	-0.0957	0.0292	0.1791	-4.932	4.895	57.4
6Y	-0.0003668	0.03497	-0.009302	-0.0726	0.0211	-0.1273	-4.93	4.965	57.39
7X	-0.003072	0.04259	9.256e-005	0.1177	-0.0502	-0.0498	3.867	-3.827	64.57
7XY	0.0025	0.04384	5.923e-005	0.1181	0.0486	0.0382	-3.867	3.826	64.57
7Y	3.027e-005	0.04391	-0.009394	-0.1148	0.0139	-0.0106	-3.87	3.914	64.56
8X	-0.0001856	0.05274	0.0009915	-0.1366	0.0241	-0.0427	3.87	-3.817	72.71
8XY	-0.0007441	0.05418	0.000934	-0.1383	-0.0271	0.0279	-3.871	3.816	72.71
8Y	0.0003829	0.055	-0.01071	-0.0777	-0.0057	-0.0116	-3.87	3.925	72.7
9X	-0.00016	0.06735	0.001673	-0.0976	-0.0174	-0.0357	3.868	-3.803	80.7
9XY	0.0002541	0.06895	0.001625	-0.0988	0.0143	0.0179	-3.87	3.801	80.7
9Y	-0.0004146	0.06911	-0.01198	-0.1132	-0.0008	-0.0126	-3.87	3.939	80.69
10X	-0.0007316	0.08303	0.002458	-0.1122	0.0008	-0.0168	3.869	-3.787	88.29
10XY	-0.00096	0.08481	0.002442	-0.1124	0.0025	-0.0095	-3.871	3.785	88.29
10Y	0.0009012	0.08459	-0.01337	-0.1220	0.0039	-0.0153	-3.869	3.955	88.28
11X	-0.002079	0.09959	0.003052	-0.1339	-0.0020	-0.0179	3.868	-3.77	96.26
11XY	8.944e-005	0.1017	0.003069	-0.1384	-0.0008	-0.0131	-3.87	3.768	96.26
11Y	0.000281	0.1024	-0.01452	-0.1366	-0.0010	-0.0168	-3.87	3.972	96.25
12X	-0.0008592	0.1193	0.003598	-0.1524	0.0061	-0.0189	3.869	-3.751	103.9
12XY	-0.001507	0.1221	0.003615	-0.1565	-0.0089	-0.0166	-3.872	3.748	103.9

Joint	X	X	Y	Y	Z	Comp.	Uplift	Result.	X	X-M.	Y	Y-M.	Z	Z-M.	Max.
Label	Force Usage	Force Usage	Force Usage	Force Usage	Force Usage	Force Usage	Force Usage	Force Usage	Force Usage	Force Usage	Force Usage	Force Usage	Force Usage	Force Usage	Force Usage
(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(ft-k)	(ft-k)	(ft-k)	(ft-k)	(ft-k)	(ft-k)
12Y	0.001175	0.1218	-0.0154	-0.1516	0.0070	-0.0184	-3.869	3.992	103.9						
13X	-0.001451	0.1391	0.00372	-0.1482	-0.0093	-0.0199	-3.869	-3.731	111.5						
13XY	-0.001197	0.1422	0.003735	-0.1492	0.0074	-0.0201	-3.871	-3.728	111.5						
13Y	0.001519	0.1423	-0.01566	-0.1572	0.0004	-0.0199	-3.868	4.012	111.5						
14X	0.007472	0.1411	-0.05939	-0.1621	0.0005	-0.0227	0.007472	19.64	111.4						
15X	0.006525	0.08342	-0.06819	-0.1423	0.0006	-0.0141	0.006525	27.08	88.22						
16X	0.00711	0.0423	-0.07255	-0.0919	0.0006	-0.0133	0.00711	40.04	64.5						
17S	0.1159	0.001746	0.0164	-0.0111	-0.1147	0.0017	11.36	0.001746	16.37						
18S	0.0001916	-0.1152	-0.02276	-0.1338	-0.0005	-0.0008	0.0001916	11.12	16.33						
16PF0.45S	-0.003374	0.04649	-0.2711	0.1377	-0.0491	-0.0130	1.738	-23.7	64.3						
16PF0.50S	-0.003373	0.04687	-0.272	0.1347	-0.0027	-0.0102	-0.003373	-23.69	64.3						
7PF0.50S	0.000383	0.04319	-0.02357	0.0000	0.0000	0.0000	0.000383	3.913	64.55						
016PF0.50S	-0.001795	0.09774	-0.3576	0.3119	-0.0027	-0.0096	-0.001795	-13.71	64.21						
17Y	-0.1159	0.002185	0.01642	-0.0101	0.1146	-0.0030	-11.36	0.002185	16.37						
18X	-0.0002151	0.1193	-0.01618	0.0909	0.0006	-0.0007	-0.0002151	-11.12	16.33						
16PF0.45Y	-0.003372	0.04711	-0.2712	0.1379	0.0440	-0.0075	-1.745	-23.69	64.3						
7PF0.50X	-0.0002783	0.08529	-0.1672	0.4340	-0.0027	-0.0094	-0.0002783	-3.785	64.4						

Joint Support Reactions for Load Case "NESC Heavy":

Joint Displacements, Loads and Member Forces on Joints for Load Case "NESC Heavy":

Joint Label	X External Load (kips)	Y External Load (kips)	Z External Load (kips)	X Member Force (kips)	Y Member Force (kips)	Z Member Force (kips)	X Member Displacement (ft)	Y Member Displacement (ft)	Z Member Displacement (ft)
1P	0.0000	0.0000	-0.3283	8.7367	7.2931	-33.6293	0.0000	0.0000	0.0000
2P	0.0000	0.0000	-0.3953	0.0000	0.0000	0.3953	-0.0004	0.0011	-0.0042
3P	0.0000	0.0000	-0.8385	-0.0000	-0.0000	0.8385	0.0010	0.0129	-0.0065
4P	0.0000	0.0000	-0.4426	-0.0000	-0.0000	0.4426	0.0008	0.0177	-0.0078
5P	0.0000	0.0000	-0.4213	-0.0000	-0.0000	0.4213	0.0011	0.0247	-0.0088
6P	0.0000	0.0000	-0.3940	-0.0000	-0.0000	0.3940	0.0011	0.0337	-0.0093
7P	0.0000	0.0000	-0.8883	0.0000	0.0000	0.8883	0.0007	0.0425	-0.0095
8P	0.0000	0.0000	-0.5547	-0.0000	0.0000	0.5547	0.0008	0.0536	-0.0108
9P	0.0000	0.0000	-0.2864	-0.0000	0.0000	0.2864	0.0020	0.0675	-0.0120
10P	0.0000	0.0000	-0.5796	0.0000	0.0000	0.5796	0.0010	0.0828	-0.0134
11P	0.0000	0.0000	-0.2843	-0.0000	0.0000	0.2843	0.0020	0.1003	-0.0145
12P	0.0000	0.0000	-0.2716	-0.0000	0.0000	0.2716	0.0016	0.1190	-0.0154
13P	0.0000	0.0000	-0.2775	0.0000	0.0000	0.2775	0.0016	0.1392	-0.0157
14P	0.0000	1.0275	-0.8294	-0.0000	-1.0275	0.8294	-0.0073	0.1406	0.0433
15P	0.0000	1.9297	-3.1319	-0.0000	-1.9297	3.1319	-0.0064	0.0855	0.0324
16P	0.0000	1.9310	-3.2666	-0.0000	-1.9310	3.2666	-0.0064	0.0503	-0.0193
17P	0.0000	0.7980	-2.4492	0.0147	0.1159	-22.5705	0.0000	0.0000	0.0000
18P	0.0000	1.5497	-4.5252	-0.0000	-1.5497	4.5252	-0.0000	0.0142	-0.0013
19P	0.0000	1.3210	-3.5523	-0.0000	-1.3210	3.5523	-0.0006	0.0448	-0.0024
20P	0.0000	1.1263	-3.0920	-0.0000	-1.1263	3.0920	0.0001	0.0842	-0.0030
21P	0.0000	0.4920	-2.3074	-0.0000	-2.3074	2.3074	0.0001	0.1420	-0.0035
22P	0.0000	0.4920	-1.1407	-0.0000	-0.4920	1.1407	-0.0000	0.1984	-0.0039
23P	0.0000	1.5130	-7.9714	-0.0000	-1.5130	7.9714	-0.0001	0.2634	-0.0042
1X	0.0000	0.1958	-0.3283	-4.6171	2.5803	15.0331	0.0000	0.0000	0.0000
1XY	0.0000	0.1958	-0.3283	4.3789	2.9161	15.3170	0.0000	0.0000	0.0000
1Y	0.0000	0.0000	-0.3283	-8.5132	7.5912	-33.8043	0.0000	0.0000	0.0000
2X	0.0000	0.2692	-0.3953	-0.0000	-0.2692	0.3953	-0.0008	0.0025	0.0014
2XY	0.0000	0.2692	-0.3953	-0.0000	-0.2692	0.3953	0.0004	0.0029	0.0014
2Y	0.0000	0.0000	-0.3953	-0.0000	0.0000	0.3953	0.0008	0.0015	-0.0042

Crossing Diagonal Check for Load Case "NESC Heavy" (RLOUT controls) :

Crossing Diagonal Check for Load Case "NESC Heavy" (RLOUT controls):																
Comp. Member Label	Tens. Member Label	Connect Leg for Member	Force		Original			Supported			Alternate-Unsupported					
			In	Out	L/R	RLX	RLY	RLZ	L/R	KL/R	Curve No.	L/R	RLOUT	L/R	KL/R	Curve No.
			Cap. (kips)	Member (kips)	Cap. (kips)	Cap. (kips)	Cap. (kips)	Cap. (kips)	Cap. (kips)	Cap. (kips)	Cap. (kips)	Cap. (kips)	Cap. (kips)	Cap. (kips)	Cap. (kips)	Cap. (kips)
3X	0.0000	0.4169	-0.8385	0.0000	-0.4169	0.8385	-0.0011	0.0127	0.0018							
3XY	0.0000	0.4169	-0.7528	0.0000	-0.4169	0.7528	0.0004	0.0137	0.0019							
3Y	0.0000	0.0000	-0.7528	0.0000	-0.7528	0.0000	0.0003	0.0139	0.0065							
4X	0.0000	0.2628	-0.4426	0.0000	-0.2628	0.4426	0.0004	0.0176	0.0021							
4XY	0.0000	0.2628	-0.4426	0.0000	-0.2628	0.4426	-0.0011	0.0187	0.0022							
4Y	0.0000	0.0000	-0.4426	0.0000	-0.4426	0.0000	0.0000	0.0189	-0.0078							
5X	0.0000	0.2525	-0.4213	0.0000	-0.2525	0.4213	-0.0021	0.0242	0.0017							
5XY	0.0000	0.2525	-0.4213	0.0000	-0.2525	0.4213	0.0014	0.0254	0.0017							
5Y	0.0000	0.0000	-0.4213	0.0000	-0.4213	0.0000	0.0004	0.0259	-0.0087							
6X	0.0000	0.2320	-0.3940	0.0000	-0.2320	0.3940	0.0015	0.0333	0.0015							
6XY	0.0000	0.2320	-0.3940	0.0000	-0.2320	0.3940	-0.0022	0.0347	0.0015							
6Y	0.0000	0.0000	-0.3940	0.0000	-0.3940	0.0000	0.0004	0.0350	-0.0093							
7X	0.0000	0.2326	-0.7273	0.0000	-0.2326	0.7273	-0.0031	0.0426	0.0001							
7XY	0.0000	0.2326	-0.7163	0.0000	-0.2326	0.7163	0.0025	0.0438	0.0001							
7Y	0.0000	0.0000	-0.7163	0.0000	-0.7163	0.0000	0.0000	0.0439	-0.0094							
8X	0.0000	0.2723	-0.5547	0.0000	-0.2723	0.5547	-0.0002	0.0527	0.0010							
8XY	0.0000	0.2723	-0.5547	0.0000	-0.2723	0.5547	0.0007	0.0542	0.0009							
8Y	0.0000	0.0000	-0.5547	0.0000	-0.5547	0.0000	0.0004	0.0550	-0.0107							
9X	0.0000	0.1816	-0.2864	0.0000	-0.1816	0.2864	-0.0016	0.0674	0.0017							
9XY	0.0000	0.1816	-0.2864	0.0000	-0.1816	0.2864	0.0003	0.0690	0.0016							
9Y	0.0000	0.0000	-0.2864	0.0000	-0.2864	0.0000	0.0004	0.0691	-0.0120							
10X	0.0000	0.1892	-0.5796	0.0000	-0.1892	0.5796	-0.0007	0.0830	0.0023							
10XY	0.0000	0.1892	-0.5686	0.0000	-0.1892	0.5686	-0.0010	0.0848	0.0024							
10Y	0.0000	0.0000	-0.5686	0.0000	-0.5686	0.0000	0.0009	0.0846	-0.0134							
11X	0.0000	0.1863	-0.2843	0.0000	-0.1863	0.2843	-0.0021	0.0996	0.0031							
11XY	0.0000	0.1863	-0.2843	0.0000	-0.1863	0.2843	0.0001	0.1017	0.0031							
11Y	0.0000	0.0000	-0.2843	0.0000	-0.2843	0.0000	0.0003	0.1024	-0.0145							
12X	0.0000	0.1934	-0.2716	0.0000	-0.1934	0.2716	-0.0009	0.1193	0.0036							
12XY	0.0000	0.1934	-0.2716	0.0000	-0.1934	0.2716	-0.0015	0.1221	0.0036							
12Y	0.0000	0.0000	-0.2716	0.0000	-0.2716	0.0000	0.0012	0.1218	-0.0154							
13X	0.0000	0.0945	-0.2775	0.0000	-0.0945	0.2775	-0.0015	0.1391	0.0037							
13XY	0.0000	0.0945	-0.2665	0.0000	-0.0945	0.2665	-0.0012	0.1422	0.0037							
13Y	0.0000	0.0000	-0.2665	0.0000	-0.2665	0.0000	0.0015	0.1423	-0.0157							
14X	0.0000	0.9120	-0.8294	0.0000	-0.9120	0.8294	0.0075	0.1411	-0.0594							
14XY	0.0000	0.9120	-0.8294	0.0000	-0.9120	0.8294	0.0065	0.0834	-0.0682							
14Y	0.0000	0.0000	-0.8294	0.0000	-0.8294	0.0000	0.0071	0.0423	-0.0726							
15X	0.0000	0.0000	-1.0321	0.0000	-1.0321	0.0000	0.0071	0.0017	0.0164							
15XY	0.0000	0.0000	-0.4717	0.0000	-0.4717	0.0000	0.0002	0.1152	-0.0228							
15Y	0.0000	0.0000	-0.4717	0.0000	-0.4717	0.0000	0.0000	0.1159	0.0164							
16PF0.45S	0.0000	0.0310	-0.4038	0.0000	-0.0310	0.4038	-0.0034	0.0465	-0.2711							
16PF0.50S	0.0000	0.0000	-0.0922	0.0000	0.0000	0.0922	-0.0034	0.0469	-0.2720							
7PF0.50S	0.0000	0.0000	-0.0402	0.0000	0.0000	0.0402	0.0004	0.0432	-0.0236							
016PF0.50S	0.0000	1.8190	-2.6280	0.0000	-1.8190	2.6280	-0.0018	0.0977	-0.3576							
17X	0.0000	0.0000	-0.4717	0.0000	-0.4717	0.0000	0.0000	0.0977	-0.3576							
17Y	0.0000	0.0000	-0.4717	0.0000	-0.4717	0.0000	0.0000	0.0977	-0.3576							
18X	0.0000	0.4382	-0.4717	0.0000	-0.4382	0.4717	-0.0002	0.1193	-0.0162							
16PF0.45Y	0.0000	0.0310	-0.4038	0.0000	-0.0310	0.4038	-0.0034	0.0471	-0.2712							
7PF0.50X	0.0000	0.0000	-0.0402	0.0000	0.0000	0.0402	-0.0003	0.0853	-0.1672							

g26XY	g26X	Short only	-3.25	-4.09	46.21	0.784	0.568	0.568	97.74	103.31	2	40.83	1.000	109.45	114.72	3
g50P	g50X	Short only	-0.05	-0.10	15.35	0.750	0.500	0.500	132.68	129.70	5	11.47	1.000	168.83	150.03	6
g50X	g50P	Short only	-0.10	-0.05	15.35	0.750	0.500	0.500	132.68	129.70	5	11.47	1.000	168.83	150.03	6
g51P	g51X	Short only	-8.44	-4.79	30.95	0.750	0.500	0.500	110.94	113.20	2	23.28	1.000	141.24	133.06	6
g51X	g51P	Short only	-4.79	-8.44	30.95	0.750	0.500	0.500	110.94	113.20	2	23.28	1.000	141.24	133.06	6

Summary of Clamp Capacities and Usages for Load Case "NESC Heavy":

Clamp Force Label	Input Holding Capacity (kips)	Factored Holding Capacity (kips)	Usage %
1	1.320	50.00	2.64
2	1.233	50.00	2.47
3	3.679	50.00	7.36
4	0.504	50.00	1.01
5	3.795	50.00	7.59
6	1.032	50.00	2.06
7	3.196	50.00	6.39
8	2.576	50.00	5.15
9	4.783	50.00	9.57
10	3.790	50.00	7.58
11	3.291	50.00	6.58
12	2.445	50.00	4.89
13	8.114	50.00	16.23

Equilibrium Joint Positions and Rotations for Load Case "NESC Extreme":

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
1P	0	0	0	0.0208	0.0712	-0.0154	13.78	13.78	0
2P	0.01411	0.003167	-0.0078	-0.0481	0.0002	-0.0371	11.25	11.24	16.34
3P	0.009543	0.03244	-0.01479	-0.0921	0.0002	-0.0358	8.67	8.692	33.24
4P	0.009628	0.04575	-0.01725	-0.1043	-0.0180	-0.0374	7.5	7.536	40.7
5P	0.005463	0.06555	-0.01951	-0.1476	-0.0060	-0.0390	6.225	6.286	48.84
6P	0.006413	0.09109	-0.02028	-0.1726	-0.0222	-0.0411	4.936	5.021	57.38
7P	0.0002432	0.118	-0.0208	-0.2588	-0.0337	-0.0528	3.87	3.988	64.55
8P	0.0004107	0.1546	-0.02389	-0.2774	0.0158	-0.0531	3.87	4.025	72.69
9P	0.001233	0.1973	-0.02694	-0.3254	-0.0101	-0.0531	3.871	4.067	80.67
10P	0.002859	0.2435	-0.03069	-0.3699	-0.0146	-0.0535	3.867	4.113	88.26
11P	0.001777	0.2985	-0.03361	-0.4153	-0.0048	-0.0538	3.868	4.169	96.23
12P	0.005106	0.3557	-0.03557	-0.4385	-0.0228	-0.0638	3.865	4.226	103.9
13P	0.00583	0.4146	-0.03627	-0.4504	0.0011	-0.0691	3.864	4.285	111.5
14P	0.03576	0.4203	0.1417	-0.4432	-0.0123	-0.0755	-0.03576	-19.08	111.6
15P	-0.0316	0.2488	0.1683	-0.3773	-0.0120	-0.0533	-0.0316	-26.75	88.46
16P	-0.03399	0.1257	0.1358	-1.2805	-0.0129	-0.0470	-0.03399	-39.87	64.71
17P	0	0	0	0.0000	0.0000	0.0000	-2.25	0	0
18P	0.003837	0.03984	-0.0004365	-0.1047	-0.0013	0.0000	-2.246	0.03984	33.25
19P	-0.002822	0.1237	-0.0008947	-0.2478	-0.0127	0.0000	-2.253	0.1237	64.57
20P	-0.006486	0.2487	-0.001443	-0.3037	-0.0087	0.0000	-2.256	0.2487	88.29
21P	-0.0109	0.4239	-0.002293	-0.7425	-0.0120	-0.0001	-2.261	0.4239	111.5
22P	-0.01311	0.5935	-0.003737	-1.0671	-0.0121	-0.0002	-2.263	0.5935	122
23P	-0.01522	0.7915	-0.005761	-1.1662	-0.0121	-0.0002	-2.265	0.7915	132
1X	0	0	0	0.0172	0.0042	0.0094	13.78	-13.78	0
1XY	0	0	0	-0.0559	-0.0119	-0.0490	-13.78	-13.78	0
1Y	0	0	0	-0.0532	0.0731	-0.0238	-13.78	13.78	0
2X	-5.102e-005	0.003294	0.006746	-0.0474	-0.0079	-0.0276	11.24	-11.24	16.36
2XY	-6.998e-005	0.01717	0.003635	-0.0812	-0.0092	-0.0455	11.24	-11.22	16.35
2Y	0.01431	0.01706	-0.01111	-0.0671	0.0340	-0.0277	-11.23	11.26	16.34
3X	-0.00291	0.03168	0.009518	-0.0987	-0.0027	-0.0451	8.657	-8.628	33.26
3XY	-0.0007617	0.04381	0.006222	-0.0917	-0.0221	-0.0366	-8.661	-8.616	33.23
3Y	0.009417	0.04346	-0.01815	-0.0982	-0.0291	-0.0438	-8.651	8.703	33.23
4X	-0.002938	0.0461	0.01083	-0.1068	-0.0150	-0.0483	7.487	-7.444	40.73
4XY	-0.002144	0.05606	0.0081	-0.1093	-0.0085	-0.0337	-7.492	-7.434	40.73
4Y	0.00523	0.05645	-0.02	-0.1098	0.0015	-0.0422	-7.485	7.546	40.7
5X	-0.005381	0.06487	0.01133	-0.1303	-0.0100	-0.0570	6.215	-6.155	48.87
5XY	-0.001229	0.074	0.008946	-0.1359	-0.0140	-0.0261	-6.221	-6.146	48.87
5Y	0.004944	0.07429	-0.02186	-0.1474	-0.0133	-0.0439	-6.215	6.294	48.84
6X	-0.004491	0.09109	0.01117	-0.2189	-0.0120	-0.0750	4.926	-4.839	57.41
6XY	-0.003794	0.09857	0.009284	-0.2205	-0.0123	-0.0107	-4.934	-4.831	57.41
6Y	-0.0005945	0.09864	-0.02209	-0.1782	0.0040	-0.0428	-4.931	5.029	57.38
7X	-0.007293	0.1179	0.00983	-0.0939	-0.0382	-0.0569	-3.863	-3.752	64.58
7XY	-0.002403	0.1241	0.008306	-0.0943	0.0138	-0.0305	-3.872	-3.746	64.58
7Y	0.001692	0.1243	-0.02223	-0.2588	0.0139	-0.0338	3.868	3.994	64.55
8X	-0.006777	0.1543	0.01265	-0.3205	-0.0049	-0.0562	3.863	-3.716	72.72
8XY	-0.006471	0.1607	0.01109	-0.3226	-0.0212	-0.0351	-3.876	-3.709	72.72
8Y	-0.001132	0.161	-0.02535	-0.2786	-0.0348	-0.0376	-3.871	4.031	72.68
9X	-0.01119	0.1972	0.01504	-0.3123	-0.0291	-0.0555	3.859	-3.673	80.72
9XY	-0.005629	0.2038	0.01348	-0.3145	0.0028	-0.0397	-3.876	-3.666	80.71
9Y	-0.004549	0.204	-0.02842	-0.3281	-0.0093	-0.0416	-3.875	4.074	80.67
10X	-0.01004	0.2438	0.01807	-0.3660	-0.0060	-0.0539	3.86	-3.626	88.31
10XY	-0.001012	0.2508	0.01655	-0.3668	-0.0196	-0.0520	-3.88	-3.619	88.31
10Y	-0.002986	0.2505	-0.03222	-0.3707	-0.0059	-0.0524	-3.873	4.12	88.26
11X	-0.01426	0.2983	0.02022	-0.4156	-0.0178	-0.0587	3.856	-3.572	96.28
11XY	-0.00967	0.3062	0.01874	-0.4289	-0.0125	-0.0583	-3.88	-3.564	96.28
11Y	-0.006356	0.3064	-0.03518	-0.4266	-0.0108	-0.0581	-3.876	4.176	96.22
12X	-0.01355	0.356	0.02149	-0.4413	0.0003	-0.0633	3.856	-3.514	104
12XY	-0.01431	0.3656	0.01997	-0.4515	-0.0307	-0.0642	-3.884	-3.504	103.9

Joint Label	X Force Usage (kips)	X X %	Y Force Usage (kips)	Y Y %	Z Comp. Force Usage (kips)	Z Z %	Uplift Result. Force Usage (kips)	Result. Force Usage (kips)	X X-Moment Usage (ft-k)	X X-M. %	Y Y-Moment Usage (ft-k)	Y Y-M. %	Z Z-Moment Usage (ft-k)	Z Z-M. %	Max. Usage %
12Y	-0.004907	0.3652	-0.03712	-0.4486	0.0069	-0.0637	-3.875	4.235	103.9						
13X	-0.01601	0.4148	0.02163	-0.4462	-0.0282	-0.0676	3.854	-3.455	111.5						
13XY	-0.01552	0.425	0.02009	-0.4484	-0.0003	-0.0705	-3.886	-3.445	111.5						
13Y	-0.006209	0.4249	-0.03781	-0.4527	-0.0189	-0.0689	-3.876	4.295	111.5						
14X	0.01395	0.4196	-0.1601	-0.4526	-0.0104	-0.0755	0.01395	19.92	111.3						
15X	0.01861	0.2463	-0.1959	-0.4252	-0.0107	-0.0534	0.01861	27.25	88.09						
16X	0.03071	0.1206	-0.1904	-0.2706	-0.0099	-0.0490	0.03071	40.12	64.38						
17S	0.005422	0.003083	-0.001048	-0.0318	-0.0039	-0.0380	11.25	0.003083	16.35						
18S	0.0142	0.01194	-0.02049	-0.0376	-0.0211	-0.0370	0.0142	11.25	16.33						
16PF0.45S	-0.02068	0.1214	-0.1177	-0.1227	-0.0471	-0.0555	1.721	-23.62	64.45						
16PF0.50S	-0.02068	0.123	-0.1188	-0.1225	-0.0139	-0.0460	-0.02068	-23.62	64.45						
7PF0.50S	0.001041	0.1945	-0.09342	0.0000	0.0000	0.0000	0.001041	4.065	64.48						
016PF0.50S	-0.01278	0.2269	-0.1996	-0.0203	-0.0140	-0.0460	0.001041	-13.58	64.37						
17Y	0.008691	0.01697	-0.008872	-0.0193	0.0124	-0.0367	-11.23	0.01697	16.34						
18X	-6.157e-005	0.008757	0.006729	-0.0643	-0.0075	-0.0348	-6.157e-005	-11.23	16.36						
16PF0.45Y	-0.02068	0.1242	-0.1186	-0.1224	0.0194	-0.0366	-1.762	-23.62	64.45						
7PF0.50X	-0.004748	0.2138	-0.1267	0.0818	-0.0141	-0.0461	-0.004748	-3.656	64.44						

Joint Support Reactions for Load Case "NESC Extreme":

Joint Displacements, Loads and Member Forces on Joints for Load Case "NESC Extreme":

Joint Label	X External Load (kips)	Y External Load (kips)	Z External Load (kips)	X Member Force (kips)	Y Member Force (kips)	Z Member Force (kips)	X Disp. (ft)	Y Disp. (ft)	Z Disp. (ft)
1P	0.0000	0.5412	-0.4059	10.4586	13.9199	-67.5473	0.0000	0.0000	0.0000
2P	0.0000	0.5412	-0.4059	0.0000	-0.5412	0.4059	0.0141	0.0032	-0.0078
3P	0.0000	0.5412	-0.4059	-0.0000	-0.5412	0.4059	0.0095	0.0324	-0.0148
4P	0.0000	0.5412	-0.4059	-0.0000	-0.5412	0.4059	0.0096	0.0457	-0.0172
5P	0.0000	0.5412	-0.4059	-0.0000	-0.5412	0.4059	0.0055	0.0656	-0.0195
6P	0.0000	0.5412	-0.4059	-0.0000	-0.5412	0.4059	0.0064	0.0911	-0.0203
7P	0.0000	0.8941	-0.7517	0.0000	-0.8941	0.7517	0.0002	0.1180	-0.0208
8P	0.0000	0.3529	-0.3458	-0.0000	-0.3529	0.3458	0.0004	0.1546	-0.0239
9P	0.0000	0.3529	-0.3458	-0.0000	-0.3529	0.3458	0.0012	0.1973	-0.0269
10P	0.0000	0.3529	-0.3458	-0.0000	-0.3529	0.3458	-0.0029	0.2435	-0.0307
11P	0.0000	0.3529	-0.3458	-0.0000	-0.3529	0.3458	-0.0018	0.2985	-0.0336
12P	0.0000	0.3529	-0.3458	-0.0000	-0.3529	0.3458	-0.0051	0.3557	-0.0356
13P	0.0000	0.3529	-0.3458	-0.0000	-0.3529	0.3458	-0.0058	0.4146	-0.0363
14P	0.0000	1.0219	-0.4628	-0.0000	-1.0219	0.4628	-0.0358	0.4203	0.1417
15P	0.0000	3.4159	-1.4678	-0.0000	-3.4159	1.4678	-0.0316	0.2488	0.1683
16P	0.0000	3.4159	-1.4678	-0.0000	-3.4159	1.4678	-0.0340	0.1257	0.1358
17P	0.0000	0.5412	-0.8049	0.2075	0.4572	-6.9790	0.0000	0.0000	0.0000
18P	0.0000	0.5412	-0.7819	-0.0000	-0.5412	0.7819	0.0038	0.0398	-0.0004
19P	0.0000	0.8941	-1.0367	-0.0000	-0.8941	1.0367	-0.0028	0.1237	-0.0009
20P	0.0000	0.3529	-0.6248	-0.0000	-0.3529	0.6248	-0.0065	0.2487	-0.0014
21P	0.0000	0.3529	-0.5918	-0.0000	-0.3529	0.5918	-0.0109	0.4239	-0.0023
22P	0.0000	0.3529	-0.3458	-0.0000	-0.3529	0.3458	-0.0131	0.5935	-0.0037
23P	0.0000	5.1909	-3.6728	0.0000	-5.1909	3.6728	-0.0152	0.7915	-0.0058
1X	0.0000	0.5412	-0.4059	-14.5242	8.8130	53.2478	0.0000	0.0000	0.0000
1XY	0.0000	0.5412	-0.4059	14.5951	13.6813	54.1647	0.0000	0.0000	0.0000
1Y	0.0000	0.5412	-0.4059	-10.7371	10.6107	-68.7369	0.0000	0.0000	0.0000
2X	0.0000	0.5412	-0.4059	0.0000	-0.5412	0.4059	-0.0001	0.0033	0.0067
2XY	0.0000	0.5412	-0.4059	-0.0000	-0.5412	0.4059	-0.0001	0.0172	0.0036
2Y	0.0000	0.5412	-0.4059	0.0000	-0.5412	0.4059	0.0143	0.0171	-0.0111

Crossing Diagonal Check for Load Case "NESC Extreme" (RLOUT controls):

Crossing Diagonal Check for Load Case "NESC Extreme" (RLOUT controls) :															
Comp. Member Label	Tens. Member Label	Connect Leg for Member	Force In	In Tens. Member (kips)	Original			Supported			Alternate				
					L/R	RLX	RLY	RLZ	L/R	KL/R	Curve No.	L/R	RLOUT	L/R	KL/R
3X	0.0000	0.5412	-0.4059	0.0000	-0.5412	0.4059	-0.0029	0.0317	0.0095						
3XY	0.0000	0.5412	-0.4059	-0.0000	-0.5412	0.4059	-0.0008	0.0438	0.0062						
3Y	0.0000	0.5412	-0.4059	0.0000	-0.5412	0.4059	0.0094	0.0435	-0.0182						
4X	0.0000	0.5412	-0.4059	0.0000	-0.5412	0.4059	-0.0029	0.0461	0.0108						
4XY	0.0000	0.5412	-0.4059	-0.0000	-0.5412	0.4059	-0.0021	0.0561	0.0081						
4Y	0.0000	0.5412	-0.4059	0.0000	-0.5412	0.4059	0.0052	0.0565	-0.0200						
5X	0.0000	0.5412	-0.4059	0.0000	-0.5412	0.4059	-0.0054	0.0649	0.0113						
5XY	0.0000	0.5412	-0.4059	-0.0000	-0.5412	0.4059	-0.0012	0.0740	0.0089						
5Y	0.0000	0.5412	-0.4059	0.0000	-0.5412	0.4059	0.0049	0.0743	-0.0219						
6X	0.0000	0.5412	-0.4059	0.0000	-0.5412	0.4059	-0.0045	0.0911	0.0112						
6XY	0.0000	0.5412	-0.4059	-0.0000	-0.5412	0.4059	-0.0038	0.0986	0.0093						
6Y	0.0000	0.5412	-0.4059	0.0000	-0.5412	0.4059	-0.0006	0.0986	-0.0221						
7X	0.0000	0.8941	-0.7517	0.0000	-0.8941	0.7517	-0.0073	0.1179	0.0098						
7XY	0.0000	0.8941	-0.7517	0.0000	-0.8941	0.7517	-0.0024	0.1241	0.0083						
7Y	0.0000	0.8941	-0.7517	0.0000	-0.8941	0.7517	0.0017	0.1243	-0.0222						
8X	0.0000	0.3529	-0.3458	0.0000	-0.3529	0.3458	-0.0068	0.1543	0.0126						
8XY	0.0000	0.3529	-0.3458	0.0000	-0.3529	0.3458	-0.0065	0.1543	0.0126						
8Y	0.0000	0.3529	-0.3458	0.0000	-0.3529	0.3458	-0.0011	0.1607	0.0111						
9X	0.0000	0.3529	-0.3458	0.0000	-0.3529	0.3458	-0.0011	0.1610	-0.0254						
9XY	0.0000	0.3529	-0.3458	0.0000	-0.3529	0.3458	-0.0112	0.1972	0.0150						
9Y	0.0000	0.3529	-0.3458	0.0000	-0.3529	0.3458	-0.0056	0.2038	0.0135						
10X	0.0000	0.3529	-0.3458	0.0000	-0.3529	0.3458	-0.0045	0.2040	-0.0284						
10XY	0.0000	0.3529	-0.3458	0.0000	-0.3529	0.3458	-0.0100	0.2438	0.0181						
10Y	0.0000	0.3529	-0.3458	0.0000	-0.3529	0.3458	-0.0101	0.2508	0.0165						
11X	0.0000	0.3529	-0.3458	0.0000	-0.3529	0.3458	-0.0030	0.2505	-0.0322						
11XY	0.0000	0.3529	-0.3458	0.0000	-0.3529	0.3458	-0.0143	0.2983	0.0202						
11Y	0.0000	0.3529	-0.3458	0.0000	-0.3529	0.3458	-0.0097	0.3062	0.0187						
12X	0.0000	0.3529	-0.3458	0.0000	-0.3529	0.3458	-0.0064	0.3064	-0.0352						
12XY	0.0000	0.3529	-0.3458	0.0000	-0.3529	0.3458	-0.0135	0.3560	0.0215						
12Y	0.0000	0.3529	-0.3458	0.0000	-0.3529	0.3458	-0.0143	0.3656	0.0200						
13X	0.0000	0.3529	-0.3458	0.0000	-0.3529	0.3458	-0.0049	0.3652	-0.0371						
13XY	0.0000	0.3529	-0.3458	0.0000	-0.3529	0.3458	-0.0160	0.4148	0.0216						
13Y	0.0000	0.3529	-0.3458	0.0000	-0.3529	0.3458	-0.0155	0.4250	0.0201						
14X	0.0000	0.3529	-0.3458	0.0000	-0.3529	0.3458	-0.0062	0.4249	-0.0378						
15X	0.0000	0.3529	-0.3458	0.0000	-0.3529	0.3458	0.0140	0.4196	-0.1601						
16X	0.0000	0.3529	-0.3458	0.0000	-0.3529	0.3458	0.0186	0.2463	-0.1959						
17S	0.0000	0.5412	-0.4059	0.0000	-0.5412	0.4059	0.0307	0.1206	-0.1904						
18S	0.0000	0.5412	-0.4059	0.0000	-0.5412	0.4059	0.0054	0.0031	-0.0010						
16PF0.45S	0.0000	0.3529	-0.3458	0.0000	-0.3529	0.3458	-0.0142	0.0119	-0.0205						
16PF0.50S	0.0000	0.3529	-0.3458	0.0000	-0.3529	0.3458	-0.0207	0.1214	-0.1177						
7PF0.50S	0.0000	0.3529	-0.3458	0.0000	-0.3529	0.3458	-0.0207	0.1230	-0.1188						
016PF0.50S	0.0000	3.4159	-1.4678	0.0000	-3.4159	1.4678	-0.0010	0.1945	-0.0934						
17Y	0.0000	0.5412	-0.4059	0.0000	-0.5412	0.4059	0.0010	0.1945	-0.0934						
18X	0.0000	0.5412	-0.4059	0.0000	-0.5412	0.4059	-0.0128	0.2269	-0.1996						
18Y	0.0000	0.5412	-0.4059	0.0000	-0.5412	0.4059	0.0087	0.0170	-0.0089						
16PF0.45Y	0.0000	0.3529	-0.3458	0.0000	-0.3529	0.4059	-0.0001	0.0088	0.0067						
7PF0.50X	0.0000	0.3529	-0.3458	0.0000	-0.3529	0.3458	-0.0207	0.1242	-0.1186						
			-0.3458	-0.0000	-0.3529	0.3458	-0.0047	0.2138	-0.1267						

g26X	g26XY	Short only	-2.67	-1.47	46.21	0.784	0.568	0.568	97.74	103.31	2	40.83	1.000	109.45	114.72	3
g26XY	g26X	Short only	-1.47	-2.67	46.21	0.784	0.568	0.568	97.74	103.31	2	40.83	1.000	109.45	114.72	3
g26Y	g26P	Short only	-3.07	-1.60	46.21	0.784	0.568	0.568	97.74	103.31	2	40.83	1.000	109.45	114.72	3
g51P	g51X	Short only	-9.13	-6.79	30.95	0.750	0.500	0.500	110.94	113.20	2	23.28	1.000	141.24	133.06	6
g51X	g51P	Short only	-6.79	-9.13	30.95	0.750	0.500	0.500	110.94	113.20	2	23.28	1.000	141.24	133.06	6

Summary of Clamp Capacities and Usages for Load Case "NESC Extreme":

Clamp Force Label	Input Holding Capacity (kips)	Factored Holding Capacity (kips)	Usage %
1 1.122	50.00	50.00	2.24
2 1.122	50.00	50.00	2.24
3 3.718	50.00	50.00	7.44
4 0.494	50.00	50.00	0.99
5 3.718	50.00	50.00	7.44
6 0.494	50.00	50.00	0.99
7 3.718	50.00	50.00	7.44
8 0.970	50.00	50.00	1.94
9 0.951	50.00	50.00	1.90
10 1.369	50.00	50.00	2.74
11 0.718	50.00	50.00	1.44
12 0.689	50.00	50.00	1.38
13 6.359	50.00	50.00	12.72

*** Overall summary for all load cases - Usage = Maximum Stress / Allowable Stress
 Printed capacities do not include the strength factor entered for each load case.
 The Group Summary reports on the member and load case that resulted in maximum usage
 which may not necessarily be the same as that which produces maximum force.

Group Summary (Compression Portion):

Group Label	Group Angle Desc. Type	Angle Size	Steel Strength	Max Usage	Max In	Comp. %	Comp. Force Control	Comp. Control	Comp. Load Case	L/R Capacity (kips)	Comp. Shear Capacity (kips)	Comp. Bearing Connect.	RLX	RLY	RLZ	L/R	KL/R	Length	Curve	No. Of Bolts	No. Comp.	
Leg1	L4x4x1/4 SAE	4X4X0.25	36.0	66.10	66.10	100	94Y	-27.042NESC	Ext	40.910	66.900	81.562	1.000	1.000	1.000	114.57	114.57	7.590	1	6		
Leg2	L5x5x3/8 SAE	5X5X0.375	46.0	43.80	43.80	95	97Y	-49.701NESC	Ext	113.461	133.800	244.687	1.000	1.000	1.000	88.79	88.79	7.325	1	12		
Leg3	L5x5x3/8 SAE	5X5X0.375	46.0	60.84	60.84	132	g8P	-55.544NESC	Ext	91.303	0.000	0.000	1.000	1.000	1.000	105.85	105.85	8.733	1	0		
Leg4	L5x5x3/8 SAE	5X5X0.375	36.0	94.83	94.83	261	g11Y	-69.867NESC	Ext	73.676	156.100	285.468	0.560	0.560	0.560	117.36	117.36	17.289	1	14		
Leg5	L5x5x3/8 SAE	5X5X0.375	36.0	89.01	89.01	245	g12Y	-70.375NESC	Ext	79.064	156.100	285.468	0.550	0.550	0.550	111.60	111.60	16.740	1	14		
Diag1	L2.5x2.5x3/16 SAE	2.5X2.5X0.1875	36.0	45.35	45.35	125	g15XY	-7.010NESC	Ext	15.455	22.300	20.391	0.750	0.500	0.500	132.08	129.25	10.897	5	2		
Diag2	L2.5x2.5x1/4 SAE	2.5X2.5X0.25	36.0	31.44	31.44	87	g17XY	-6.142NESC	Ext	19.533	22.300	27.187	0.750	0.500	0.500	135.76	132.05	11.110	5	2		
Diag3	L3X3X1/4 SAE	3X3X0.25	36.0	26.99	21.71	59	g21XY	-6.611NESC	Ext	30.447	44.600	54.375	0.750	0.500	0.500	112.75	114.56	11.124	2	4		
Diag4	L3.5X3.5X1/4 SAE	3.5X3.5X0.25	36.0	30.65	30.65	86	g24Y	-9.884NESC	Ext	32.248	44.600	54.375	1.000	0.500	0.500	123.66	122.25	11.232	6	4		
Diag5	L4X4X1/4 SAE	4X4X0.25	36.0	12.23	12.23	33	g26X	-4.092NESC	Hea	40.833	33.450	40.781	1.000	0.568	0.568	109.45	114.72	11.401	3	3		
Diag6	L3.5X3X1/4 SAU	3.5X3X0.25	36.0	18.22	18.22	52	g31XY	-2.905NESC	Ext	15.940	22.300	27.187	0.769	0.537	0.537	182.11	167.37	17.832	5	2		
Diag7	L3.5X3X1/4 SAU	3.5X3X0.25	36.0	45.18	45.18	125	g33P	-5.801NESC	Ext	12.841	44.600	54.375	1.000	0.500	0.500	207.78	186.47	19.164	5	4		
Diag8	L3X3X1/4 SAE	3X3X0.25	36.0	94.84	94.84	261	g36P	-7.695NESC	Hea	7.137	55.750	67.969	1.000	0.500	0.500	277.84	240.32	21.533	5	5		
Horz1	L3.5x2.5x1/4 SAU	3.5X2.5X0.25	36.0	14.44	14.44	40	g38X	-2.604NESC	Ext	18.028	22.300	27.187	1.000	1.000	1.000	170.74	151.20	7.740	6	2		
Horz2	L4x4x1/4 SAE	4X4X0.25	36.0	2.05	0.00	0	g37Y	0.000		38.974	44.600	54.375	1.000	1.000	1.000	116.83	118.42	7.740	3	4		
Horz3	L2.5x2.5x3/16 SAE	2.5X2.5X0.1875	36.0	33.27	10.33	29	g43X	-1.022NESC	Ext	9.886	22.300	20.391	1.000	1.000	1.000	187.64	161.60	7.740	6	2		
Horz4	L5x3x1/4 SAU	5X3X0.25	36.0	69.10	0.00	0	Fg47X8	0.000		49.701	22.300	27.187	1.000	1.000	1.000	70.05	70.05	3.870	1	2		
Horz5	L3.5x3x1/4 SAU	3.5X3X0.25	36.0	32.65	32.65	86	g46X	-5.599NESC	Ext	17.150	22.300	27.187	1.000	0.500	0.500	187.24	161.35	17.320	6	2		
Horz6	L3x3x3/16 SAE	3X3X0.1875	36.0	6.43	6.43	19	g47P	-0.583NESC	Ext	9.078	22.300	20.391	1.000	1.000	1.000	226.31	185.38	11.240	6	2		
Inner1	L2x2x3/16 SAE	2X2X0.1875	36.0	7.97	7.97	24	g49P	-0.669NESC	Ext	8.391	22.300	20.391	0.750	0.500	0.500	166.69	155.62	10.946	5	2		
Inner2	L2.5x2.5x3/16 SAE	2.5X2.5X0.1875	36.0	2.00	2.00	6	g50P	-0.306NESC	Ext	15.347	22.300	20.391	0.750	0.500	0.500	132.68	129.70	10.946	5	2		
Inner3	L3x3x1/4 SAE	3X3X0.25	36.0	39.24	39.24	108	g51P	-9.134NESC	Ext	23.278	33.450	40.781	1.000	0.500	0.500	141.24	133.06	10.946	6	3		
Inner4	L3x2x3/16 SAU	3X2X0.1875	36.0	8.86	8.86	26	g52Y	-0.605NESC	Ext	6.834	22.300	20.391	1.000	0.500	0.500	217.25	194.15	15.896	5	2		
TopCrArm	3.5x3.5x1/4 SAE	3.5X3.5X0.25	36.0	4.91	2.13	6	g53P	-0.592NESC	Ext	27.839	33.450	40.781	0.500	0.500	0.500	139.21	131.81	16.102	6	3		
TopArmBr	3.5x2.5x1/4 SAU	3.5X2.5X0.25	36.0	8.24	8.24	24	g54Y	-1.219NESC	Hea	14.798	22.300	27.187	0.500	0.500	0.500	196.24	166.89	17.793	6	2		
MidCrArm	5x3.5x3/8 SAU	5X3.5X0.375	36.0	17.09	17.09	50	g55Y	-5.717NESC	Hea	59.123	33.450	61.172	0.330	0.330	0.330	121.87	121.15	23.452	6	3		
MidArmBr	2.5x2.5x3/16 SAE	2.5X2.5X0.1875	36.0	19.97	0.00	0	g57Y	0.000		4.845	33.450	30.586	0.500	0.500	0.500	300.23	230.84	24.769	6	3		
BotCrArm	6x6x5/16 SAE	6X6X0.3125	36.0	29.89	29.89	89	g58Y	-9.999NESC	Hea	80.349	33.450	50.976	0.500	0.500	0.500	81.76	100.88	16.352	3	3		
potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize moments): g58P g58Y Fg5860P Fg5860Y ??																						
BotArmBr	3.5x3x1/4 SAU	3.5X3X0.25	36.0	22.30	0.00	0	g60Y	0.000		12.379	55.750	67.969	0.330	0.330	0.330	233.69	189.92	37.237	6	5		
M1	5x3.5x5/8 DAS	5X3.5X0.625	36.0	1.05	1.05	3	Fg6262P	-0.233NESC	Ext	334.426	22.300	135.937	2.000	2.000	2.000	42.18	42.18	1.742	1	2		
Pwnt18"	Std. Pipe Pwnt	Pipe 18" Std.	35.0	3.80	3.80	11	g64P	-22.570NESC	Hea	594.129	0.000	0.000	1.000	1.000	1.000	63.94	63.94	33.250	1	0		
PwntBR1	L3x3x3/16 SAE	3X3X0.1875	36.0	38.18	38.18	118	g72P	-3.892NESC	Hea	14.678	16.800	10.195	1.000	1.000	1.000	145.79	145.79	7.241	4	1		
PwntBR2	L2.5x2.5x3/16 SAE	2.5X2.5X0.1875	36.0	68.46	68.46	204	g73X	-6.980NESC	Ext	19.925	16.800	10.195	1.000	1.000	1.000	101.71	110.85	4.195	3	1		
PwntBR3	L5x5x3/8 SAE	5X5X0.375	36.0	9.25	9.25	28	g70P	-1.555NESC	Ext	36.246	16.800	20.391	1.000	1.000	1.000	168.84	168.84	13.929	4	1		
PwntBR4	L3.5x3.5x1/4 SAE	3.5X3.5X0.25	36.0	15.32	15.32	46	g71P	-2.082NESC	Ext	13.937	16.800	13.594	1.000	1.000	1.000	186.30	186.30	10.774	4	1		
NewBR	L2.5x2.5x1/4 SAE	2.5X2.5X0.25	36.0	0.00	0.00	0		0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.00	0.00	0.000	0	0		
Plate	6"x3/4" Bar	6X3/4	36.0	0.00	0.00	0		0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.00	0.00	0.000	0	0		
Dummy	Dummy	DUM	0.1X0.1X1	36.0	0.00	0.00	Fg8080P	-0.374NESC	Ext	0.318	0.000	0.000	1.000	1.000	1.000	1.19	60.60	9.936	3	0		

Group Summary (Tension Portion):

Group Label	Group Desc.	Angle Type	Angle Size	Steel Strength	Max Usage	Max In	Comp. %	Comp. Force	Comp. Control	Comp. Load	Comp. Case	L/R Capacity	Comp. Shear	Comp. Bearing	RLX	RLY	RLZ	L/R	KL/R	Length	Curve	No. Of Bolts	No. Comp.
Leg1	L4x4x1/4	SAE	4X4X0.25	36.0	66.10	41.45	115	23.819NESC	Ext	94Y	57.465	66.900	81.562	90.625	7.590								

Leg2	L5x5x3/8	SAE	5X5X0.375	46.0	43.80	32.35	g7X	43.286NESC Ext	139.851	133.800	244.637	255.882	7.325	12	2.210	0.6875
Leg3	L5x5x3/8	SAE	5X5X0.375	46.0	60.84	35.85	g10X	47.961NESC Ext	139.851	133.800	244.637	239.889	7.651	12	2.210	0.6875
Leg4	L5x5x3/8	SAE	5X5X0.375	36.0	94.83	42.01	g11X	44.775NESC Ext	106.571	156.100	285.468	298.529	17.289	14	2.520	0.6875
Leg5	L5x5x3/8	SAE	5X5X0.375	36.0	89.01	44.31	g12X	44.380NESC Ext	100.167	156.100	285.468	298.529	16.740	14	3.210	0.6875
Diag1	L2.5x2.5x1/16	SAE	2.5X2.5X0.1875	36.0	45.35	36.65	g15Y	7.058NESC Ext	25.048	22.300	20.391	19.258	10.897	2	1.000	0.6875
Diag2	L2.5x2.5x1/16	SAE	2.5X2.5X0.25	36.0	31.44	26.29	g17Y	5.862NESC Ext	32.987	22.300	27.137	25.677	11.110	2	1.000	0.6875
Diag3	L3x3x1/4	SAE	3X3X0.25	36.0	26.99	26.99	g21Y	7.151NESC Ext	26.497	44.600	54.375	51.354	11.124	4	3.620	0.6875
Diag4	L3.5x3.5x1/4	SAE	3.5X3.5X0.25	36.0	30.65	14.88	g23Y	5.111NESC Ext	34.374	44.600	54.375	48.333	11.232	4	3.660	0.6875
Diag5	L4x4x1/4	SAE	4X4X0.25	36.0	18.22	12.84	g28X	3.177NESC Ext	57.287	33.450	40.781	36.250	11.401	3	1.000	0.6875
Diag6	L3.5x3x1/4	SAU	3.5X3X0.25	36.0	45.18	30.69	g34X	2.864NESC Ext	40.925	22.300	27.137	24.167	14.104	2	1.000	0.6875
Diag7	L3.5x3x1/4	SAU	3.5X3X0.25	36.0	45.18	30.69	g36X	10.906NESC Ext	39.182	44.600	54.375	35.539	19.164	4	1.313	0.6875
Diag8	L3x3x1/4	SAE	3X3X0.25	36.0	94.84	33.45	g38P	11.999NESC Ext	35.853	55.750	67.969	60.417	21.533	5	1.940	0.6875
Horz1	L3.5x2.5x1/4	SAU	3.5X2.5X0.25	36.0	2.05	2.05	g37P	2.079NESC Ext	37.635	22.300	27.137	21.323	7.740	2	1.620	0.6875
Horz2	L4x4x1/4	SAE	4X4X0.25	36.0	33.27	33.27	g43P	0.866NESC Ext	51.718	44.600	54.375	42.292	7.740	4	2.000	0.6875
Horz3	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	36.0	69.10	69.10	g47X	5.224NESC Ext	25.048	22.300	20.391	15.701	7.740	2	1.000	0.6875
Horz4	L5x3x1/4	SAU	5X3X0.25	36.0	32.65	14.47	g46P	15.409NESC Ext	56.285	22.300	27.137	35.539	3.870	2	1.180	0.6875
Horz5	L3.5x3x1/4	SAU	3.5X3X0.25	36.0	6.43	1.47	g47X	3.228NESC Ext	40.925	22.300	27.137	24.167	17.320	2	1.000	0.6875
Horz6	L3x3x3/16	SAE	3X3X0.1875	36.0	7.97	4.68	g49X	0.267NESC Ext	31.139	22.300	20.391	18.125	11.240	2	1.000	0.6875
Inner1	L2x2x3/16	SAE	2X2X0.1875	36.0	2.00	1.31	g50P	0.713NESC Ext	18.827	22.300	20.391	15.237	10.946	2	1.000	0.6875
Inner2	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	36.0	39.24	0.00	g52X	0.216NESC Ext	25.048	22.300	20.391	16.545	10.946	2	1.000	0.6875
Inner3	L3x3x1/4	SAE	3X3X0.25	36.0	8.86	3.38	g52X	0.000	41.087	33.450	40.781	30.253	10.946	3	1.000	0.6875
Inner4	L3x2x3/16	SAU	3X2X0.1875	36.0	4.91	4.91	g53X	1.556NESC Ext	18.908	22.300	20.391	16.432	15.896	2	1.000	0.6875
TopCrArm	3.5x3.5x1.4	SAE	3.5X3.5X0.25	36.0	8.24	0.32	g54P	0.570NESC Ext	43.618	33.450	40.781	31.985	16.102	3	2.000	0.6875
MidCrArm	5x3.5x3/8	SAU	5X3.5X0.375	36.0	17.09	0.17	g55X	0.072NESC Ext	27.418	22.300	27.137	24.167	17.793	2	2.000	0.6875
MidArmBr	2.5x2.5x3/16	SAE	2.5X2.5X0.1875	36.0	19.97	19.97	g57Y	0.058NESC Ext	82.114	33.450	61.172	54.375	23.452	3	2.000	0.6875
BotCrArm	6x6x5/16	SAE	6X6X0.3125	36.0	29.89	6.41	g59Y	5.001NESC Ext	25.048	33.450	30.586	25.840	24.769	3	1.000	0.6875
moment exists in the following members (make sure your system is well triangulated to minimize moments): g58P g58Y Fg5860P Fg5860Y ??																
BotArmBr	3.5x3x1/4	SAU	3.5X3X0.25	36.0	22.30	22.30	g60Y	4.285NESC Ext	97.377	66.900	101.953	106.617	7.740	6	3.000	0.6875 A potentially damaging
M1	5x3.5x5/8	DAS	5X3.5X0.625	36.0	22.30	22.30	g60Y	9.259NESC Ext	41.523	55.750	67.969	53.309	37.237	5	1.620	0.6875
Pwmt 18"	Std. Pipe Pwmt	Pipe 18"	Std.	35.0	1.05	0.00	Fg6262P	0.000	304.894	22.300	135.937	120.833	1.742	2	1.000	0.6875
PwmtBr1	L3x3x3/16	SAE	3X3X0.1875	35.0	3.80	0.00	g69P	0.000	678.999	0.000	0.000	0.000	10.000	0	0.000	0
PwmtBr2	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	36.0	38.18	24.97	g76P	2.545NESC Ext	31.139	16.800	10.195	11.328	7.241	1	1.000	0.6875
PwmtBr3	L5x5x3/8	SAE	5X5X0.375	36.0	68.46	46.56	g77P	4.747NESC Ext	25.048	16.800	10.195	11.328	4.195	1	1.000	0.6875
PwmtBr4	L3.5x3.5x1/4	SAE	3.5X3.5X0.25	36.0	9.25	3.55	g70P	0.596NESC Ext	108.611	16.800	20.391	22.656	13.929	1	1.000	0.6875
NewBr	L2.5x2.5x1/4	SAE	2.5X2.5X0.25	36.0	15.32	4.72	g71P	0.642NESC Ext	49.187	16.800	13.594	15.104	10.774	1	1.000	0.6875
Plate	6"x3/4"	Bar	6x3/4	36.0	0.00	0.00		0.000	0.000	0.000	0.000	0.000	0.000	0	0.000	0
Dummy	Dummy	DUM	0.1X0.1X1	36.0	0.00	0.00	g80P	0.000	0.000	0.000	0.000	0.000	0.000	0	0.000	0
				36.0	0.00	0.00		3.042NESC Ext	0.360	0.000	0.000	0.000	9.936	0	0.000	0

*** Maximum Stress Summary for Each Load Case

Summary of Maximum Usages by Load Case:

Load Case Maximum Element			
Usage %	Label	Type	
94.84	g36P	Angle	
94.83	g11Y	Angle	

Summary of Insulator Usages:

Insulator Label	Insulator Type	Insulator Maximum Usage %	Load Case Weight (lbs)
1	Clamp	2.64	NESC Heavy 0.0
2	Clamp	2.47	NESC Heavy 0.0
3	Clamp	7.44	NESC Extreme 0.0
4	Clamp	1.01	NESC Heavy 0.0
5	Clamp	7.59	NESC Heavy 0.0
6	Clamp	2.06	NESC Heavy 0.0
7	Clamp	7.44	NESC Extreme 0.0

8	Clamp	5.15	NESC Heavy	0.0
9	Clamp	9.57	NESC Heavy	0.0
10	Clamp	7.58	NESC Heavy	0.0
11	Clamp	6.58	NESC Heavy	0.0
12	Clamp	4.89	NESC Heavy	0.0
13	Clamp	16.23	NESC Heavy	0.0

Loads At Insulator Attachments For All Load Cases:

Case	Insulator Label	Insulator Type	Structure Attach Label	Structure Attach (kips)	Structure Attach Load X (kips)	Structure Attach Load Y (kips)	Structure Attach Load Z (kips)	Structure Attach Load Res. (kips)
NESC Heavy	1	Clamp	14P	0.000	1.027	0.829	1.320	
NESC Heavy	2	Clamp	14X	0.000	0.912	0.829	1.233	
NESC Heavy	3	Clamp	15P	0.000	1.930	3.132	3.679	
NESC Heavy	4	Clamp	15X	0.000	0.000	0.504	0.504	
NESC Heavy	5	Clamp	16P	0.000	1.931	3.267	3.795	
NESC Heavy	6	Clamp	16X	0.000	0.000	1.032	1.032	
NESC Heavy	7	Clamp	016PF0.50S	0.000	1.819	2.628	3.196	
NESC Heavy	8	Clamp	17P	0.000	0.798	2.449	2.576	
NESC Heavy	9	Clamp	18P	0.000	1.550	4.525	4.783	
NESC Heavy	10	Clamp	19P	0.000	1.321	3.552	3.790	
NESC Heavy	11	Clamp	20P	0.000	1.126	3.092	3.291	
NESC Heavy	12	Clamp	21P	0.000	0.809	2.307	2.445	
NESC Heavy	13	Clamp	23P	0.000	1.513	7.971	8.114	
NESC Extreme	1	Clamp	14P	0.000	1.022	0.463	1.122	
NESC Extreme	2	Clamp	14X	0.000	1.022	0.463	1.122	
NESC Extreme	3	Clamp	15P	0.000	3.416	1.468	3.718	
NESC Extreme	4	Clamp	15X	0.000	0.353	0.346	0.494	
NESC Extreme	5	Clamp	16P	0.000	3.416	1.468	3.718	
NESC Extreme	6	Clamp	16X	0.000	0.353	0.346	0.494	
NESC Extreme	7	Clamp	016PF0.50S	0.000	3.416	1.468	3.718	
NESC Extreme	8	Clamp	17P	0.000	0.541	0.805	0.970	
NESC Extreme	9	Clamp	18P	0.000	0.541	0.782	0.951	
NESC Extreme	10	Clamp	19P	0.000	0.894	1.037	1.369	
NESC Extreme	11	Clamp	20P	0.000	0.353	0.625	0.718	
NESC Extreme	12	Clamp	21P	0.000	0.353	0.592	0.689	
NESC Extreme	13	Clamp	23P	0.000	5.191	3.673	6.359	

Overturning Moments For User Input Concentrated Loads:

Moments are static equivalents based on central axis of 0,0 (i.e. a single pole).

Load Case	Total Tran. Load (kips)	Total Long. Load (kips)	Total Transverse Overturning Moment (ft-k)	Total Longitudinal Overturning Moment (ft-k)
NESC Heavy	8.554	0.000	554.560	-22.032
NESC Extreme	15.365	0.000	1363.127	-11.052

*** Weight of structure (lbs):
Weight of Angles*Section DLF: 29767.0
Total: 29767.0

*** End of Report

Foundation Analysis

Input Data:

Max. Reactions at Tower Leg:

Uplift =	Uplift := 53.8-1.1-kips = 59.2-kips	(User Input from PLS-Tower LC NESC Extreme Joint 26P)
Compression 1 =	Comp := 70.2-1.1-kips = 77.2-kips	(User Input from PLS-Tower LC NESC Extreme Joint 25P)
Shear =	Shear := 28-1.1-kips = 30.8-kips	(User Input from PLS-Tower LC NESC Heavy Joint 25P)

Tower Properties:

Tower Height =	$H_t := 111\text{-ft}$	(User Input)
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Foundation Properties:

Depth to Steel Grillage =	$D_{sg} := 6.5\text{-ft}$	(User Input)
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Steel Grillage Width =	$W_{sg} := 6\text{-ft}$	(User Input)
------------------------	-------------------------	--------------

Subgrade Properties:

Concrete Unit Weight =	$\gamma_c := 150\text{-pcf}$	(User Input)
------------------------	------------------------------	--------------

Soil Unit Weight =	$\gamma_s := 100\text{-pcf}$	(User Input)
--------------------	------------------------------	--------------

Uplift Angle =	$\Phi_s := 30.0\text{-deg}$	(User Input)
----------------	-----------------------------	--------------

Soil Bearing Capacity =	$BC_{soil} := 4000\text{-psf}$	(User Input)
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Coefficient of Friction =	$\mu := 0.45$	(User Input)
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Calculated Data:

Resisting Pyramid Base 1 =	$B_1 := W_{sg}^2 = 36\text{ft}^2$
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Resisting Pyramid Base 2 =	$B_2 := [2 \cdot \tan(\Phi_s) \cdot (D_{sg}) + W_{sg}]^2 = 182\text{ft}^2$
----------------------------	--

Volume of Soil =	$V_{soil} := \left[\frac{(D_{sg})}{3} \cdot (B_1 + B_2 + \sqrt{B_1 \cdot B_2}) \right] = 648.77\text{-ft}^3$
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Mass of Soil =	$Mass_{soil} := V_{soil} \cdot \gamma_s = 65\text{-kips}$
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Cross Sectional Area of Grillage =	$A_{sg} := W_{sg}^2 = 36\text{ft}^2$
------------------------------------	--------------------------------------

Section Modulus of Grillage =	$S_{sg} := \frac{(W_{sg})^3}{6} = 36\text{-ft}^3$
-------------------------------	---

Check Uplift:

Required Factor of Safety =

$$F_S := 1.0$$

$$\text{ActualFS} := \frac{\text{Mass}_{\text{Soil}}}{\text{Uplift}} = 1.1$$

$$\text{Uplift_Check} := \text{if} \left(\frac{\text{Mass}_{\text{Soil}}}{\text{Uplift}} \geq F_S, \text{"OK"}, \text{"Overstressed"} \right)$$

$$\text{Uplift_Check} = \text{"OK"}$$

Check Sliding:

$$\text{Sliding_Check} := \text{if}(\text{Shear} \leq \mu \cdot \text{Comp}, \text{"OK"}, \text{"No Good"})$$

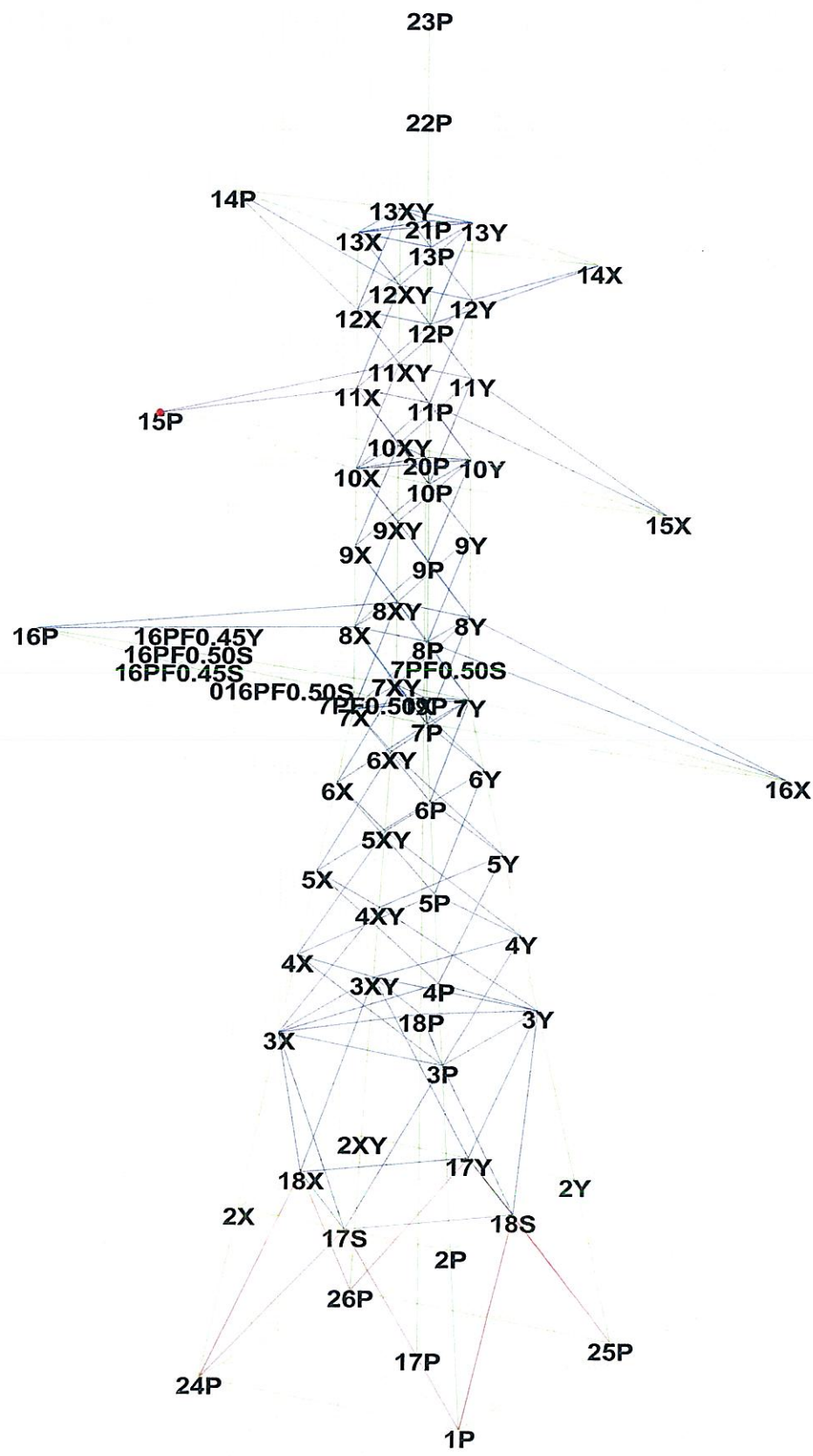
$$\text{Sliding_Check} = \text{"OK"}$$

Check Bearing:

$$\text{Bearing} := \frac{\text{Comp}}{A_{\text{sg}}} = 2.15 \cdot \text{ksf}$$

$$\text{Bearing_Check} := \text{if}(\text{Bearing} \leq \text{BC}_{\text{soil}}, \text{"OK"}, \text{"No Good"})$$

$$\text{Bearing_Check} = \text{"OK"}$$



Project Name : 12001.CO16 - Glastonbury, CT (Used for Foundation Analysis Only)
Project Notes: CL&P Structure # 12197/ Verizon East Glastonbury 3
Project File : J:\Jobs\1200100.W1\CO16 - East Glastonbury 3\Rev (2)\Calcs\Mathcad\Foundation\PLS Tower - Used For Foundation Analysis Only\cl&p tower #12197 w_pwmmt.tow
Date run : 10:07:46 AM Tuesday, July 03, 2012
by : Tower Version 11.11
Licensed to : Centek Engineering Inc

Successfully performed nonlinear analysis

Angle element "g98p" from joint "25p" to joint "1p" is fixed at both ends. ??

Member "g4p" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g4x" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g4xy" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g4y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g7p" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g7x" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g7xy" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g7y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g10p" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g10x" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g10xy" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g11p" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g11x" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g11xy" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g12p" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g13p" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g13x" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g13xy" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g14p" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g14x" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g14xy" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g15p" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g15x" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g15xy" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

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[illegible]

be checked. ??

Member "g93p" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

Member "g94p" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

Member "g95p" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

Member "g96p" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

KL/R value of 218.57 exceeds maximum of 200.00 for member "g97p" ??

KL/R value of 218.57 exceeds maximum of 200.00 for member "g98p" ??

KL/R value of 218.57 exceeds maximum of 200.00 for member "g92p" ??

KL/R value of 218.57 exceeds maximum of 200.00 for member "g83p" ??

Clamp insulator "8" has a structure attach joint "17p" that is fixed with respect to translation ??

The model has 170 warnings. ??

Member check option: ASCE 10

Connection rupture check: ASCE 10

Crossing diagonal check: ASCE 10 [Alternate Unsupported RLOUT = 1]

Included angle check: None

Loads from file: j:\jobs\1200100.wi\col6 - east glastonbury 3\rev (2)\calcs\mathcad\foundation\pls tower - used for foundation analysis only\clip # 12197.lca

*** Analysis Results:

Maximum element usage is 98.71% for Angle "g36p" in load case "NESC Heavy"

Maximum insulator usage is 16.23% for Clamp "13" in load case "NESC Heavy"

Summary of Joint Support Reactions For All Load Cases:

Label	Long. Force (kips)	Trans. Force (kips)	Vert. Force (kips)	Shear Force (kips)	Trans. Moment (ft-k)	Long. Moment (ft-k)	Vert. Bending Moment (ft-k)	Found. Usage %
	(kips)	(kips)	(kips)	(kips)	(ft-k)	(ft-k)	(ft-k)	%
NESC Heavy 1P	-8.84	-10.05	34.51	13.39	0.00	0.00	0.00	0.00
NESC Heavy 17P	-0.01	-0.92	25.02	0.92	5.47	-0.02	0.00	5.47
NESC Heavy 24P	0.00	0.00	-13.55	0.00	0.00	0.00	0.00	0.00
NESC Heavy 25P	8.85	-11.15	35.28	14.24	0.00	0.00	0.00	0.00
NESC Heavy 26P	0.00	0.00	-14.44	0.00	0.00	0.00	0.00	0.00
NESC Extreme 1P	-10.75	-24.56	69.65	26.80	0.00	0.00	0.00	0.00
NESC Extreme 17P	-0.10	-1.24	7.98	1.25	20.09	-1.63	0.00	20.15
NESC Extreme 24P	0.00	0.00	-53.42	0.00	0.00	0.00	0.00	0.00
NESC Extreme 25P	10.84	-25.82	70.15	28.00	0.00	0.00	0.00	0.00
NESC Extreme 26P	0.00	0.00	-53.80	0.00	0.00	0.00	0.00	0.00

Summary of Joint Support Reactions For All Load Cases in Direction of Leg:

Joint	Support	Origin	Leg Joint	Member	Leg Dir.	Leg Force (kips)	In Residual Shear (kips)	Residual Shear (kips)	Horizontal Residual Shear (kips)	Total Horizontal Residual Shear (kips)	Total Long. Force (kips)	Total Trans. Force (kips)	Total Vert. Force (kips)
NESC Heavy	1P	2P	g12P	36.568	5.707	5.840	3.480	4.691	-8.84	-10.05	34.51		
NESC Heavy	24P	2X	g88P	-13.232	2.907	2.976	2.105	-2.105	0.00	0.00	-13.55		
NESC Heavy	25P	2Y	g90P	37.494	6.452	6.597	-3.367	5.673	8.85	-11.15	35.28		
NESC Heavy	26P	2XY	g89P	-14.104	3.099	3.173	-2.243	-2.243	0.00	0.00	-14.44		
NESC Extreme	1P	2P	g12P	73.382	13.579	13.737	-0.073	13.736	-10.75	-24.56	69.65		
NESC Extreme	24P	2X	g88P	-52.178	11.463	11.737	-8.299	-8.299	0.00	0.00	-53.42		
NESC Extreme	25P	2Y	g90P	74.076	14.748	14.919	0.056	14.919	10.84	-25.82	70.15		
NESC Extreme	26P	2XY	g89P	-52.549	11.545	11.820	-8.358	-8.358	0.00	0.00	-53.80		

Sections Information:

Section Label	Top Z (ft)	Bottom Z (ft)	Joint Count	Member Count	Trans. Face Width (ft)	Trans. Face Area (ft^2)	Long. Face Width (ft)	Long. Face Area (ft^2)	Bot Width (ft)	Bot Area (ft^2)	Gross Area (ft^2)

1	132.000	64.570	45	146	0.00	7.74	403.873	0.00	80.00	1164.752
2	64.570	0.000	35	98	7.74	27.56	1135.944	7.74	27.56	1135.944

*** Overall summary for all load cases - Usage = Maximum Stress / Allowable Stress
Printed capacities do not include the strength factor entered for each load case.
The Group Summary reports on the member and load case that resulted in maximum usage
which may not necessarily be the same as that which produces maximum force.

Group Summary (Compression Portion):

Group Label	Group Desc.	Angle Type	Angle Size	Steel Strength Usage	Max Use In Comp.	Comp. Force Control	Comp. Force Control	Comp. Load Case	L/R Capacity (kips)	Comp. Shear Capacity (kips)	Comp. Bearing Capacity (kips)	Comp. Connect.	RLX	RLY	RLZ	L/R	KL/R Length Member	Curve No.	No. Of Bolts	Comp.
Leg1	L4x4x1/4	SAE	4X4X0.25	36.0	66.07	66.07	g4Y	-27.029NESE	Ext	40.910	66.900	81.562	1.000	1.000	1.000	114.57	114.57	7.590	1	6
Leg2	L5x5x3/8	SAE	5X5X0.375	46.0	43.83	43.83	g7P	-49.727NESE	Ext	113.461	133.800	244.687	1.000	1.000	1.000	88.79	88.79	7.325	1	12
Leg3	L5x5x3/8	SAE	5X5X0.375	46.0	61.10	61.10	g8P	-55.783NESE	Ext	91.303	0.000	0.000	1.000	1.000	1.000	105.85	105.85	8.733	1	0
Leg4	L5x5x3/8	SAE	5X5X0.375	36.0	96.02	96.02	g11Y	-70.748NESE	Ext	73.676	156.100	285.468	0.560	0.560	0.560	117.36	117.36	17.289	1	14
Leg5	L5x5x3/8	SAE	5X5X0.375	36.0	90.21	90.21	g90P	-71.322NESE	Ext	79.064	156.100	285.468	0.550	0.550	0.550	111.60	111.60	16.740	1	14
Diag1	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	36.0	45.37	45.37	g15XY	-7.013NESE	Ext	15.455	22.300	20.391	0.750	0.500	0.500	132.08	129.25	10.897	5	2
Diag2	L2.5x2.5x1/4	SAE	2.5X2.5X0.25	36.0	31.45	31.45	g17XY	-6.144NESE	Ext	19.533	22.300	27.187	0.750	0.500	0.500	135.76	132.05	11.110	5	2
Diag3	L3X3X1/4	SAE	3X3X0.25	36.0	26.92	21.65	g21XY	-6.591NESE	Ext	30.447	44.600	54.375	0.750	0.500	0.500	112.75	114.56	11.124	5	2
Diag4	L3.5X3.5X1/4	SAE	3.5X3.5X0.25	36.0	30.61	30.61	g24Y	-9.872NESE	Ext	32.248	44.600	54.375	1.000	0.500	0.500	123.66	122.25	11.232	6	4
Diag5	L4X4X1/4	SAE	4X4X0.25	36.0	12.28	12.28	g26X	-4.109NESE	Hea	40.833	33.450	40.781	1.000	0.568	0.568	109.45	114.72	11.401	3	3
Diag6	L3.5X3X1/4	SAU	3.5X3X0.25	36.0	19.05	19.05	g31XY	-3.037NESE	Ext	15.940	22.300	27.187	0.769	0.537	0.537	182.11	167.37	17.832	5	2
Diag7	L3.5X3X1/4	SAU	3.5X3X0.25	36.0	46.62	46.62	g34Y	-5.986NESE	Hea	12.841	44.600	54.375	1.000	0.500	0.500	207.18	186.47	19.164	5	4
Diag8	L3X3X1/4	SAE	3X3X0.25	36.0	98.71	98.71	g36P	-7.045NESE	Hea	7.137	55.750	67.969	1.000	0.500	0.500	277.84	240.32	21.533	5	5
Horz1	L3.5x2.5x1/4	SAU	3.5X2.5X0.25	36.0	14.45	14.45	g38X	-2.606NESE	Ext	18.028	22.300	27.187	1.000	1.000	1.000	170.74	151.20	7.740	6	2
Horz2	L4x4x1/4	SAE	4X4X0.25	36.0	2.05	0.00	g37Y	0.000		38.974	44.600	54.375	1.000	1.000	1.000	116.83	118.42	7.740	3	4
Horz3	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	36.0	33.18	10.32	g43X	-1.020NESE	Ext	9.886	22.300	20.391	1.000	1.000	1.000	187.64	161.60	7.740	6	2
Horz4	L5x3x1/4	SAU	5X3X0.25	36.0	69.09	0.00	Fg4478X	0.000		49.701	22.300	27.187	1.000	1.000	1.000	70.05	70.05	3.870	1	2
Horz5	L3.5x3x1/4	SAU	3.5X3X0.25	36.0	27.85	27.85	g46X	-4.776NESE	Ext	17.150	22.300	27.187	1.000	0.500	0.500	187.24	161.35	17.320	6	2
Horz6	L3x3x3/16	SAE	3X3X0.1875	36.0	6.36	6.36	g47P	-0.578NESE	Ext	9.078	22.300	20.391	1.000	1.000	1.000	226.31	185.38	11.240	6	2
Inner1	L2x2x3/16	SAE	2X2X0.1875	36.0	7.98	7.98	g49P	-0.670NESE	Ext	8.391	22.300	20.391	0.750	0.500	0.500	166.69	155.62	10.946	5	2
Inner2	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	36.0	2.02	2.02	g50X	-0.310NESE	Ext	15.347	22.300	20.391	0.750	0.500	0.500	132.68	129.70	10.946	5	2
Inner3	L3x3x1/4	SAE	3X3X0.25	36.0	39.39	39.39	g51P	-9.170NESE	Ext	23.278	33.450	40.781	1.000	0.500	0.500	141.24	133.06	10.946	6	3
Inner4	L3x2x3/16	SAU	3X2X0.1875	36.0	9.46	9.46	g52Y	-0.646NESE	Ext	6.834	22.300	20.391	1.000	0.500	0.500	217.25	194.15	15.896	5	2
TopCrArm	3.5x3.5x1/4	SAE	3.5X3.5X0.25	36.0	4.91	2.13	g53P	-0.593NESE	Ext	27.839	33.450	40.781	1.000	0.500	0.500	139.21	131.81	16.102	6	3
TopArmBr	3.5x2.5x1/4	SAU	3.5X2.5X0.25	36.0	8.24	8.24	g54Y	-1.219NESE	Hea	14.798	22.300	27.187	0.500	0.500	0.500	196.24	166.89	17.793	6	2
MidCrArm	5x3.5x3/8	SAU	5X3.5X0.375	36.0	17.09	17.09	g55Y	-5.717NESE	Hea	59.123	33.450	61.172	0.330	0.330	0.330	121.87	121.15	23.452	6	3
MidArmBr	2.5x2.5x3/16	SAE	2.5X2.5X0.1875	36.0	19.97	0.00	g57Y	0.000		4.845	33.450	30.586	0.500	0.500	0.500	300.23	230.84	24.769	6	3
BotCrArm	6x6x5/16	SAE	6X6X0.3125	36.0	29.89	29.89	g58Y	-9.999NESE	Hea	80.349	33.450	50.976	0.500	0.500	0.500	81.76	100.88	16.352	3	3
Potentially Damaging moment exists in the following members (make sure your system is well triangulated to minimize moments): g58P g58Y g58P g58Y g58P g58Y g58P g58Y g58P g58Y g58P g58Y g58P g58Y g58P g58Y g58P g58Y g58P g58Y g58P g58P																				
BotArmBr	3.5x3x1/4	SAU	3.5X3X0.25	36.0	22.30	0.00	g59Y	0.000		12.379	55.750	67.969	0.330	0.330	0.330	233.69	189.92	37.237	6	5
M1	5x3.5x5/8	DAS	5X3.5X0.625	35.0	1.05	1.05	Fg6282P	-0.233NESE	Ext	334.426	22.300	135.937	2.000	2.000	2.000	42.18	42.18	1.742	1	2
Pwmt 18"	Std. Pipe	Pwmt	Pipe 18" Std.	35.0	3.80	3.80	g64P	-22.571NESE	Ext	594.129	0.000	0.000	1.000	1.000	1.000	63.94	63.94	33.250	1	0
PwmtBR1	L3x3x3/16	SAE	3X3X0.1875	36.0	38.16	38.16	g72P	-3.890NESE	Ext	14.678	16.800	10.195	1.000	1.000	1.000	145.79	145.79	7.241	4	1
PwmtBR2	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	36.0	69.39	69.39	g73X	-7.075NESE	Ext	19.925	16.800	10.195	1.000	1.000	1.000	101.71	110.85	4.195	3	1
PwmtBR3	L5x5x3/8	SAE	5X5X0.375	36.0	12.08	12.08	g70P	-2.030NESE	Ext	36.246	16.800	20.391	1.000	1.000	1.000	168.84	168.84	13.929	4	1
PwmtBR4	L3.5x3.5x1/4	SAE	3.5X3.5X0.25	36.0	19.14	19.14	g71P	-2.601NESE	Ext	13.937	16.800	13.594	1.000	1.000	1.000	186.30	186.30	10.774	4	1
NewBR	L2.5x2.5x1/4	SAE	2.5X2.5X0.25	36.0	0.00	0.00		0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.00	0.00	0.000	0	0
Plate	6"x3/4"	Bar	6x3/4"	36.0	0.00	0.00		0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.00	0.00	0.000	0	0
Dummy	Dummy	DUM		36.0	0.00	0.00	Fg8080P	-0.374NESE	Ext	0.318	0.000	0.000	1.000	1.000	1.000	1.19	60.60	9.936	3	0
Rigid	Rigid	SAE	6X6X0.5	36.0	42.01	42.01	g97P	-14.473NESE	Ext	34.451	0.000	0.000	1.000	1.000	1.000	280.27	218.57	27.560	6	0

Group Summary (Tension Portion):

Group Label	Group Angle Desc. Type	Angle Size	Steel Strength Usage	Max Use In Tens.	Max Tension Force Control	Tension Force Control	Net Section Capacity	Tension Connect. Capacity	Tension Connect. Capacity	Tension Connect. Capacity	Tension Connect. Capacity	Tension Connect. Capacity	Tension Connect. Capacity	Tension Connect. Capacity	Tension Connect. Capacity	Tension Connect. Capacity	Tension Connect. Capacity	Tension Connect. Capacity	Tension Connect. Capacity	Tension Connect. Capacity	Tension Connect. Capacity	Tension Connect. Capacity	Tension Connect. Capacity	Tension Connect. Capacity	Tension Connect. Capacity	Tension Connect. Capacity	Tension Connect. Capacity	Tension Connect. Capacity	Tension Connect. Capacity	Tension Connect. Capacity	Tension Connect. Capacity	Tension Connect. Capacity	Tension Connect. Capacity	Tension Connect. Capacity	Tension Connect. Capacity	Tension Connect. Capacity	Tension Connect. Capacity	Tension Connect. Capacity	Tension Connect. 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			(ksi)	%	%	(kips)	(kips)	(kips)	(kips)	(kips)	(ft)	(in)		
Leg1	L4x4x1/4	SAE	36.0	66.07	41.48	94XY	23.837NESC Ext	57.465	66.900	81.562	90.625	7.590	6 2.000	0.6875
Leg2	L5x5x3/8	SAE	46.0	43.83	32.20	g7X	43.085NESC Ext	139.851	133.800	244.687	255.882	7.325	12 2.210	0.6875
Leg3	L5x5x3/8	SAE	46.0	61.10	36.14	g10X	48.350NESC Ext	139.851	133.800	244.687	239.889	7.651	12 2.210	0.6875
Leg4	L5x5x3/8	SAE	36.0	96.02	38.32	g11X	40.839NESC Ext	106.571	156.100	285.468	298.529	17.289	14 2.520	0.6875
Leg5	L5x5x3/8	SAE	36.0	90.21	40.31	g98P	40.381NESC Ext	100.167	156.100	285.468	298.529	16.740	14 3.210	0.6875
Diag1	L2.5x2.5x3/16	SAE	36.0	45.37	36.67	g15Y	7.062NESC Ext	25.048	22.300	20.391	19.257	10.897	2 1.000	0.6875
Diag2	L2.5x2.5x1/4	SAE	36.0	31.45	26.30	g17Y	5.865NESC Ext	32.987	22.300	27.187	25.677	11.110	2 1.000	0.6875
Diag3	L3x3x1/4	SAE	36.0	26.92	26.92	g21Y	7.133NESC Ext	26.497	44.600	54.375	51.353	11.124	4 3.620	0.6875
Diag4	L3.5x3.5x1/4	SAE	36.0	30.61	14.87	g23Y	5.110NESC Ext	34.374	44.600	54.375	48.333	11.232	4 3.660	0.6875
Diag5	L4x4x1/4	SAE	36.0	12.28	9.69	g25Y	3.243NESC Ext	57.287	33.450	40.781	36.250	11.401	3 1.000	0.6875
Diag6	L3.5x3x1/4	SAU	36.0	19.05	12.94	g29Y	2.886NESC Ext	40.925	22.300	27.187	24.167	15.995	2 1.000	0.6875
Diag7	L3.5x3x1/4	SAU	36.0	46.62	28.01	g34XY	9.955NESC Ext	39.182	44.600	54.375	35.539	19.164	4 1.313	0.6875
Diag8	L3x3x1/4	SAU	36.0	98.71	30.23	g91P	10.837NESC Ext	37.635	55.750	67.969	60.417	21.533	5 1.940	0.6875
Horz1	L3.5x2.5x1/4	SAU	36.0	14.45	9.75	g38P	2.079NESC Ext	37.635	22.300	27.187	21.323	7.740	2 1.620	0.6875
Horz2	L4x4x1/4	SAE	36.0	2.05	2.05	g37P	0.868NESC Hea	51.718	44.600	54.375	42.292	7.740	4 2.000	0.6875
Horz3	L2.5x2.5x3/16	SAE	36.0	33.18	33.18	g43P	5.210NESC Ext	25.048	22.300	20.391	15.701	7.740	2 1.000	0.6875
Horz4	L5x3x1/4	SAU	36.0	69.09	69.09	Fg478X	15.406NESC Hea	56.285	22.300	27.187	35.539	3.870	2 1.180	0.6875
Horz5	L3.5x3x1/4	SAU	36.0	27.85	14.93	g46P	3.330NESC Hea	40.925	22.300	27.187	24.167	17.320	2 1.000	0.6875
Horz6	L3x3x3/16	SAE	36.0	6.36	1.51	g47XY	0.274NESC Hea	31.139	22.300	20.391	18.125	11.240	2 1.000	0.6875
Inner1	L2x2x3/16	SAE	36.0	7.98	4.68	g49X	0.713NESC Ext	18.827	22.300	20.391	15.237	10.946	2 1.000	0.6875
Inner2	L2.5x2.5x3/16	SAE	36.0	2.02	1.34	g50P	0.221NESC Ext	25.048	22.300	20.391	16.545	10.946	2 1.000	0.6875
Inner3	L3x3x1/4	SAE	36.0	39.39	0.00	g51X	0.000	41.087	22.300	20.391	16.545	10.946	2 1.000	0.6875
Inner4	L3x2x3/16	SAU	36.0	9.46	3.50	g52XY	0.575NESC Ext	18.908	22.300	20.391	16.432	15.896	2 1.000	0.6875
TopCrArm	3.5x3.5x1.4	SAE	36.0	4.91	4.91	g53X	1.570NESC Hea	43.618	33.450	40.781	31.985	16.102	3 2.000	0.6875
TopArmBr	3.5x2.5x1/4	SAU	36.0	8.24	0.32	g54P	0.072NESC Ext	27.418	22.300	27.187	24.167	17.793	3 2.000	0.6875
MidCrArm	5x3.5x3/8	SAU	36.0	17.09	0.18	g55XY	0.059NESC Ext	82.114	33.450	61.172	54.375	23.452	3 2.000	0.6875
MidArmBr	2.5x2.5x3/16	SAE	36.0	19.97	19.97	g57Y	5.001NESC Hea	25.048	33.450	30.586	25.840	24.769	3 1.000	0.6875
BotCrArm	6x6x5/16	SAE	36.0	29.89	6.44	g59Y	4.308NESC Ext	97.377	66.900	101.953	106.617	7.740	6 3.000	0.6875
moment exists in the following members (make sure your system is well triangulated to minimize moments): g58P g58Y g58Z g5860P g5860Y ??														
BotArmBr	3.5x3x1/4	SAU	36.0	22.30	22.30	g60Y	9.258NESC Hea	41.523	55.750	67.969	53.309	37.237	5 1.620	0.6875
M1	5x3.5x5/8	DAS	35.0	1.05	0.00	Fg6262P	0.000	304.894	22.300	135.937	120.833	1.742	2 1.000	0.6875
Pwmt 18"	Std. Pipe Pwmt	Pipe 18" Std.	36.0	3.80	0.00	g69P	0.000	678.999	0.000	0.000	0.000	10.000	0 0.000	0
PwmtBR1	L3x3x3/16	SAE	36.0	38.16	24.99	g76P	2.547NESC Ext	31.139	16.800	10.195	11.328	7.241	1 1.000	0.6875
PwmtBR2	L2.5x2.5x3/16	SAE	36.0	69.39	46.61	g77P	4.752NESC Ext	25.048	16.800	10.195	11.328	4.195	1 1.000	0.6875
PwmtBR3	L5x5x3/8	SAE	36.0	12.08	3.97	g79P	0.667NESC Hea	108.611	16.800	20.391	22.656	13.929	1 1.000	0.6875
PwmtBR4	L3.5x3.5x1/4	SAE	36.0	19.14	6.07	g71P	0.825NESC Hea	49.187	16.800	13.594	15.104	10.774	1 1.000	0.6875
NewBr	L2.5x2.5x1/4	SAE	36.0	0.00	0.00		0.000	0.000	0.000	0.000	0.000	0.000	0 0.000	0
Plate	6"x3/4"	Bar	36.0	0.00	0.00		0.000	0.000	0.000	0.000	0.000	0.000	0 0.000	0
Dummy	Dummy	DUM	36.0	0.00	0.00	g80P	3.042NESC Ext	0.360	0.000	0.000	0.000	9.936	0 0.000	0
Rigid	Rigid	SAE	36.0	42.01	0.00	g83P	207.000	0.000	0.000	0.000	0.000	0.000	0 0.000	0

*** Maximum Stress Summary for Each Load Case

Summary of Maximum Usages by Load Case:

Load Case Maximum Element Usage			
Usage %	Label	Element Type	
NESC Heavy	98.71	g36P	Angle
NESC Extreme	96.02	g11Y	Angle

Summary of Insulator Usages:

Insulator Insulator Maximum			Load Case Weight (lbs)	
Label	Type	Usage %		
1	Clamp	2.64	NESC Heavy	0.0
2	Clamp	2.47	NESC Heavy	0.0
3	Clamp	7.44	NESC Extreme	0.0

4	Clamp	1.01	NESC Heavy	0.0
5	Clamp	7.59	NESC Heavy	0.0
6	Clamp	2.06	NESC Heavy	0.0
7	Clamp	7.44	NESC Extreme	0.0
8	Clamp	5.15	NESC Heavy	0.0
9	Clamp	9.57	NESC Heavy	0.0
10	Clamp	7.58	NESC Heavy	0.0
11	Clamp	6.58	NESC Heavy	0.0
12	Clamp	4.89	NESC Heavy	0.0
13	Clamp	16.23	NESC Heavy	0.0

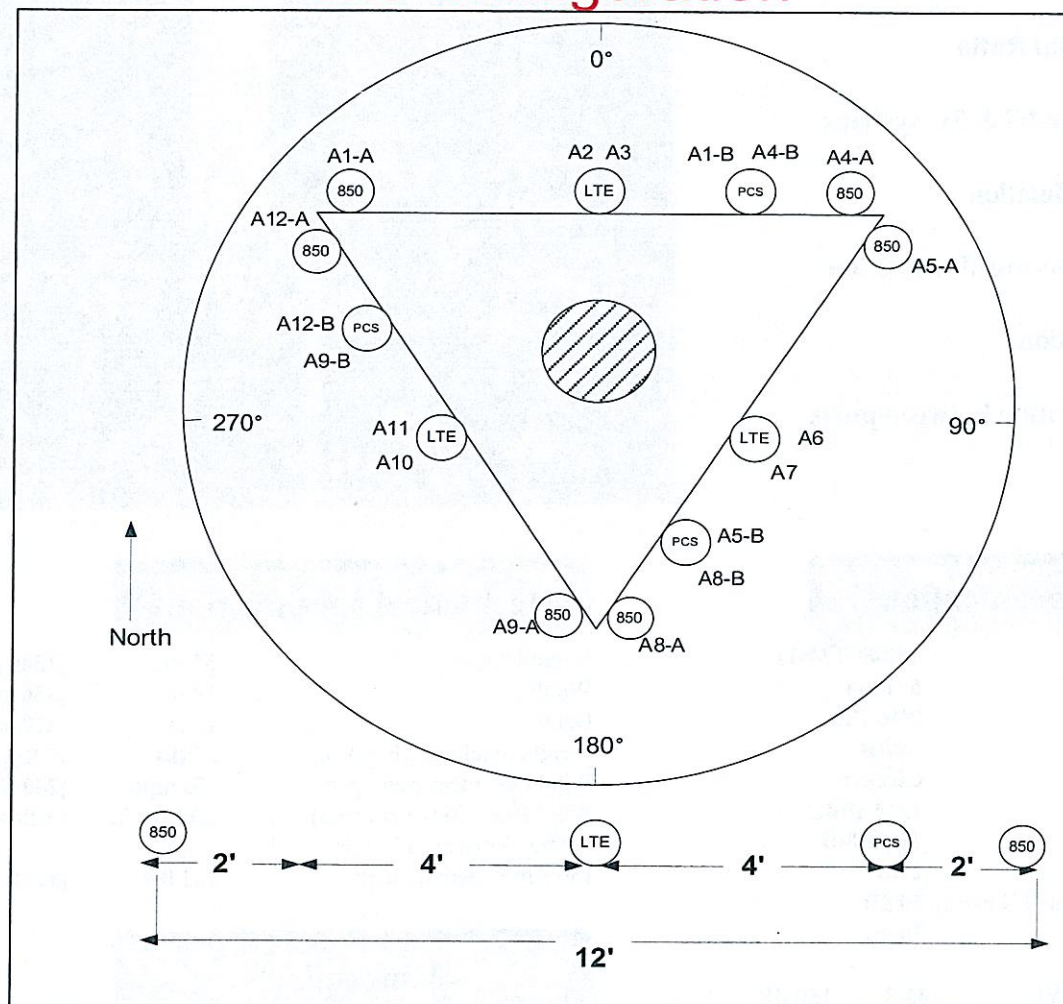
*** Weight of structure (lbs) :
 Weight of Angles*Section DLF: 32035.7
 Total: 32035.7

*** End of Report

SITE NAME		E GLASTONBURY 3 CT		ECP - CELL #		8		19	
LATITUDE		41-43-02.40 N		LONGITUDE		72-33-11.30 W			
Additional Comments:				SAVE BUTTON					
				STRUCTURE TYPE		POWER MOUNT			
700 Mhz - LTE ANTENNA ADD		ALPHA		BETA		GAMMA			
EQUIPMENT TYPE		eNodeB		eNodeB		eNodeB			
ANTENNA TYPE		SLCP 2X6014		SLCP 2X6014		BXA-70063/4CF-5°			
QTY OF ANTENNAS PER FACE		1		1		1			
ORIENTATION (DEG)		30		120		240			
DOWN TILT (MECH/DEG)		0		0		2			
RAD CTR (FT AGL)		132		132		132			
TMA - QTY / MODEL									
DIPLEXER - QTY / MODEL									
850 Cellular - Current Config		ALPHA		BETA		GAMMA			
EQUIPMENT TYPE		Cellular Modcell 4.0		Cellular Modcell 4.0		Cellular Modcell 4.0			
ANTENNA TYPE		LPD-6513		LPD-6513		LPD-6513			
QTY OF ANTENNAS PER FACE		2		2		2			
ORIENTATION (DEG)		30		120		240			
DOWN TILT (MECH/DEG)		0		0		0			
RAD CTR (FT AGL)		132		132		132			
TMA - QTY / MODEL									
DIPLEXER - QTY / MODEL									
850 Cellular - Future Config		ALPHA		BETA		GAMMA			
EQUIPMENT TYPE		Cellular Modcell 4.0		Cellular Modcell 4.0		Cellular Modcell 4.0			
ANTENNA TYPE		LPD-6513		LPD-6513		LPA-80063/4CF-4°			
QTY OF ANTENNAS PER FACE		2		2		2			
ORIENTATION (DEG)		30		120		240			
DOWN TILT (MECH/DEG)		0		0		2			
RAD CTR (FT AGL)		132		132		132			
TMA - QTY / MODEL									
DIPLEXER - QTY / MODEL		2 FD9R6004/2C-3L		2 FD9R6004/2C-3L		2		FD9R6004/2C-3L	
DIPLEX WITH LTE CABLE									
1900 PCS - Current Config		ALPHA		BETA		GAMMA			
EQUIPMENT TYPE		PCS Modcell 4.0		PCS Modcell 4.0		PCS Modcell 4.0			
ANTENNA TYPE		LPA-185063/8CF 2		LPA-185063/8CF 2		LPA-185063/8CF 2			
QTY OF ANTENNAS PER FACE		2		2		2			
ORIENTATION (DEG)		30		120		240			
DOWN TILT (MECH/DEG)		0		0		0			
RAD CTR (FT AGL)		132		132		132			
TMA - QTY / MODEL									
DIPLEXER - QTY / MODEL									
1900 PCS - Future Config		ALPHA		BETA		GAMMA			
EQUIPMENT TYPE		PCS Modcell 4.0		PCS Modcell 4.0		PCS Modcell 4.0			
ANTENNA TYPE		BXA-171063/12BF-2°		BXA-171063/12BF-2°		BXA-171063/8BF-2°			
QTY OF ANTENNAS PER FACE		1		1		1			
ORIENTATION (DEG)		30		120		240			
DOWN TILT (MECH/DEG)		0		0		0			
RAD CTR (FT AGL)		132		132		132			
TMA - QTY / MODEL									
DIPLEX WITH CELLULAR CABLE		DIPLEX with Cellular Cable		DIPLEX with Cellular Cable		DIPLEX with Cellular Cable			
NUMBER OF CABLE'S NEEDED					ESTIMATED CABLE LENGTH				
MAINLINE SIZE		1 5/8"		TOTAL # OF MAINLINES		12		MAINLINE (FT)	
JUMPER SIZE		1/2 "		TOTAL # OF TOP JUMPERS		18		TOP JUMPER (FT)	
Equipment Cable Ordering		MAIN CABLE		12		+		TOP JUMPER #	
								12 + 6	
TX / RX FREQUENCIES					TX POWER OUTPUT				
Cellular A-Band		PCS F / AWS-Band		700 Mhz C - B		Cellular (Watts)		20	
TX - 869-880,890-891.5 MHz		TX - 1970-1975 / 2145-21		TX - 746-757		PCS (Watts)		16	
RX - 824-835,845-846.5 MHz		RX - 1890-1895 / 1745-17		RX - 776-787		LTE (Watts)		40	

ALPHA				BETA				GAMMA			
Ant.	Freq.	Func.	Color Code	Ant.	Freq.	Func.	Color Code	Ant.	Freq.	Func.	Color Code
A1-A	800	Tx1/Rx0	RED	A5-A	800	Tx2/Rx0	BLUE	A9-A	800	Tx3/Rx0	GREEN
A1-B	1900	Tx1/Rx0	RED/WHITE	A5-B	1900	Tx2/Rx0	BLUE/WHITE	A9-B	1900	Tx3/Rx0	GREEN/WHITE
A2	700	Tx1/Rx0	RED/ORANGE	A6	700	Tx2/Rx0	BLUE/ORANGE	A10	700	Tx3/Rx0	GREEN/ORANGE
A3	700	Tx4/Rx1	RED/RED/ORANGE	A7	700	Tx5/Rx1	BLUE/BLUE/ORANGE	A11	700	Tx6/Rx1	GREEN/GREEN/ORANGE
A4-B	1900	Tx4/Rx1	RED/RED/WHITE	A8-B	1900	Tx5/Rx1	BLUE/BLUE/WHITE	A12-B	1900	Tx6/Rx1	GREEN/GREEN/WHITE
A4-A	800	Tx4/Rx1	RED/RED	A8-A	800	Tx5/Rx1	BLUE/BLUE	A12-A	800	Tx6/Rx1	GREEN/GREEN
RF ENGINEER				RF MANAGER				INITIALS		DATE	
Prepared By: Dany Bustamante				Steve Weatherbee				DB		2/27/2012	

Site Configuration

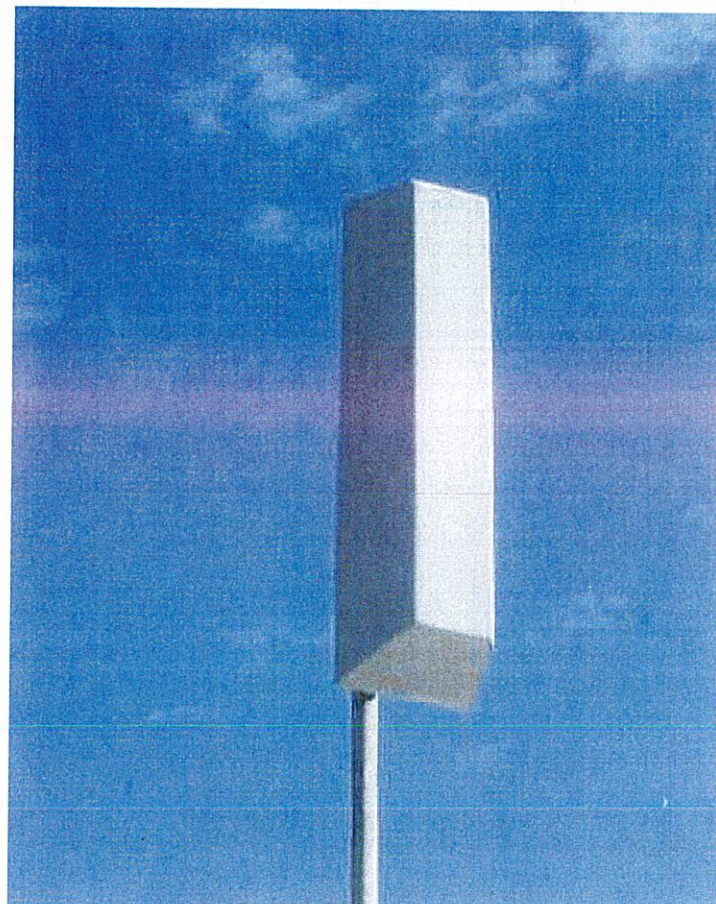


SLCP 2x6014

Dual (2x) Circularly Polarized log-periodic antenna

Features

- ❑ **Transmit Diversity Gain**
- ❑ **Can be configured to combine space & polarization diversity**
- ❑ **Outstanding performance over the entire band (700 - 800 MHz)**
- ❑ **Excellent Axial Ratio**
- ❑ **Optimized for 4G & 3G systems**
- ❑ **Low intermodulation**
- ❑ **Improved Side-to-side rejection**
- ❑ **Fading reduction**
- ❑ **Excellent isolation between ports**



Electrical specifications

Frequency range:	700-800 MHz	
Impedance:	50 ohm	
Connector type:	7/16 Din	
Return loss:	18 dB	
Polarization:	Circular	
Gain ea. port [Circular]:	2x14 dBdC	
Gain ea. port [Linear]:	2x11 dBdL	
Axial Ratio:	2 dB	
Isolation between ports (TX band):	30 dB	
Front-to-back ratio:	30 dB	
Intermodulation (2x20W):	IM3	150 dB
	IM5	160 dB
	IM7/9	170 dB
Power rating:	2x 500 W	
H-plane (-3 dB point):	2x 55°	
V-plane (-3 dB point):	2x 16°	
Lightning protection:	DC grounded	

Mechanical specifications

Overall height:	53 in	[1346 mm]
Width:	14 in	[356 mm]
Depth:	11 in	[279 mm]
Weight (excluding brackets):	20 lbs	[9 Kg]
Wind load measured up to:	150 mph	[240 Km/h]
Wind area (side of antenna):	5.15 sq. ft.	[0.48 sq.m]
Lateral thrust at 113 mph/ 180 Km/h (worst case):	263 lbs	[1171 N]

Materials

Radiating Elements:	Aluminum
Transformer (Power distribution)	Ceramic PCB
Chassis:	Aluminum
Radome:	Grey Fiberglass/PVC
Mounting bolts:	Stainless steel

The SLCP 2x6014 is made in the U.S.A.

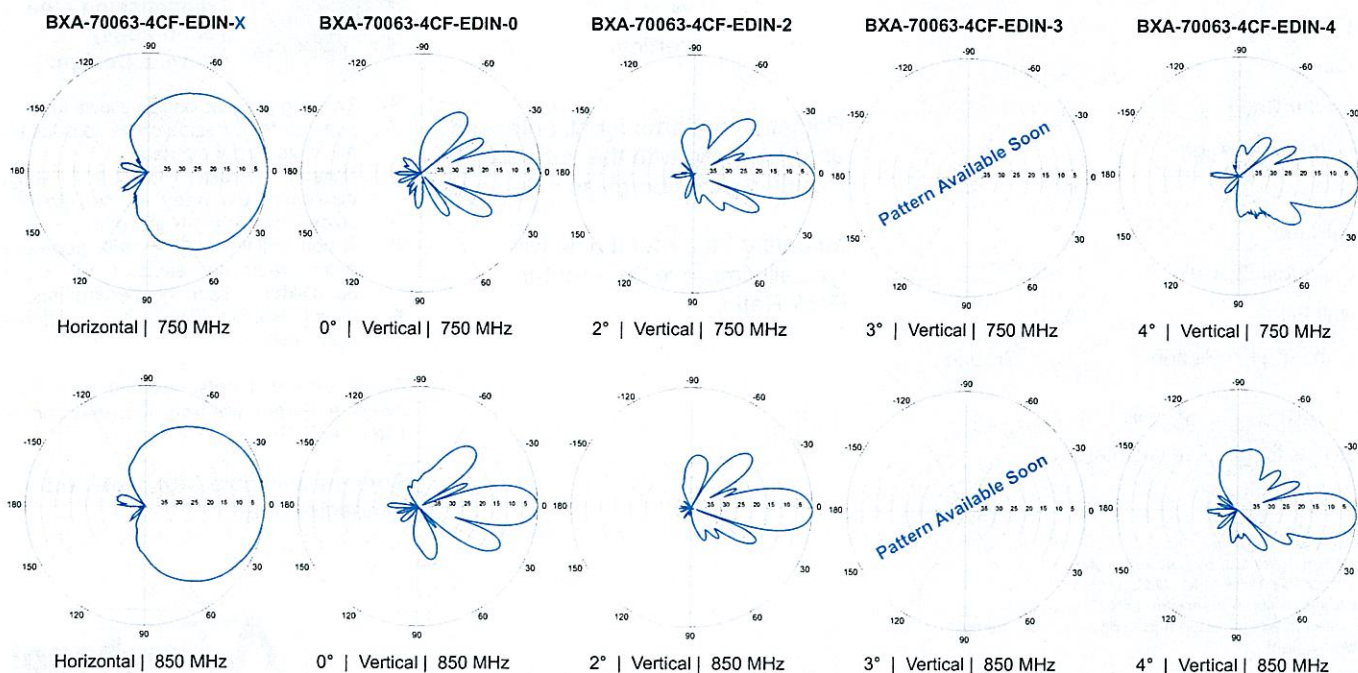
BXA-70063-4CF-EDIN-X

X-Pol | FET Panel | 63° | 13.0 dBd

Replace "X" with desired electrical downtilt.

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

Electrical Characteristics	696-900 MHz			
Frequency bands	696-806 MHz		806-900 MHz	
Polarization	±45°			
Horizontal beamwidth	65°		63°	
Vertical beamwidth	17°		15°	
Gain	12.5 dBd (14.6 dBi)		13.0 dBd (15.1 dBi)	
Electrical downtilt (X)	0, 2, 3, 4, 5, 6, 8, 9, 10, 12, 14			
Impedance	50Ω			
VSWR	≤1.35:1			
Upper sidelobe suppression (0°)	-16.3 dB		-22.1 dB	
Front-to-back ratio (+/-30°)	-36.1 dB		-34.9 dB	
Null fill	5% (-26.02 dB)			
Isolation between ports	< -30 dB			
Input power with EDIN connectors	500 W			
Input power with NE connectors	300 W			
Lightning protection	Direct Ground			
Connector(s)	2 Ports / EDIN or NE / Female / Center (Back)			
Mechanical Characteristics				
Dimensions Length x Width x Depth	1205 x 285 x 133 mm		47.4 x 11.2 x 5.2 in	
Depth with z-brackets	173 mm		6.8 in	
Weight without mounting brackets	4.5 kg		9.9 lbs	
Survival wind speed	> 201 km/hr		> 125 mph	
Wind area	Front: 0.34 m ²	Side: 0.16 m ²	Front: 3.7 ft ²	Side: 1.7 ft ²
Wind load @ 161 km/hr (100 mph)	Front: 498 N	Side: 260 N	Front: 111 lbf	Side: 55 lbf
Mounting Options	Part Number	Fits Pipe Diameter		Weight
2-Point Mounting Bracket Kit	36210002	50-160 mm	2.0-6.3 in	4.5 kg 10 lbs
2-Point Downtilt Bracket Kit (0-20°)	36114003	50-160 mm	2.0-6.3 in	4.9 kg 11 lbs
Downtilt Mounting Applications	A mounting bracket and downtilt bracket kit must be ordered for downtilt applications			
Concealment Configurations	For concealment configurations, order BXA-70063-4CF-EDIN-X-FP			



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.

Vertically Polarized, Log Periodic 65° / 13 dBd

Mechanical specifications

Length	1200 mm	47.2 in
Width	355 mm	13.98 in
Depth	285 mm	11.22 in
⁴⁾ Weight	9.98 kg	28 lbs
Wind Area	0.38 m ²	4.05 ft ²
Wind load at 50 m/s	607 N	136.5 lbs

Antenna consisting of brass and covered by a fiberglass radome.

Mounting & Downtilting:

Mounting brackets attach to a pipe diameter of Ø50-160 mm (2.0-6.3 in).

Mounting bracket kit #36110003

Downtilt bracket kit #36114002

Electrical specifications

Frequency Range	806-941 MHz*
Impedance	50Ω
³⁾ Connector	NE, E-DIN
¹⁾ VSWR	≤1.35:1
Polarization	Vertical
¹⁾ Gain	13 dBd
²⁾ Power Rating	500 W
¹⁾ Half Power Angle	
H-Plane	65°
E-Plane	15°
¹⁾ Electrical Downtilt	1.25°
¹⁾ Null Fill	5%
Lightning Protection	Direct Ground

*Also available up to 960 MHz. Consult your sales director for more information.

¹⁾ Typical Values

²⁾ Power Rating limited by connector only.

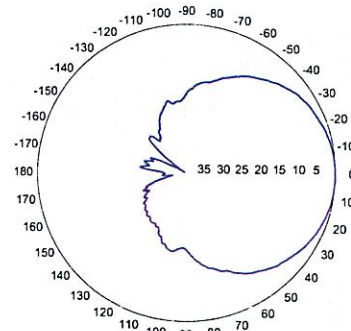
³⁾ NE indicates an elongated N Connector.

E-DIN indicates an elongated DIN Connector.

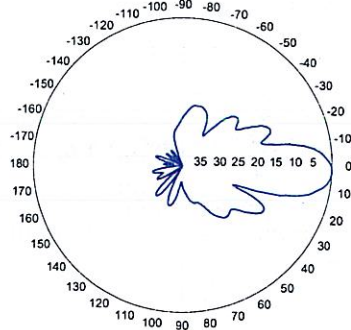
⁴⁾ The antenna weight listed above does not include the bracket weight.

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

Radiation-pattern¹⁾



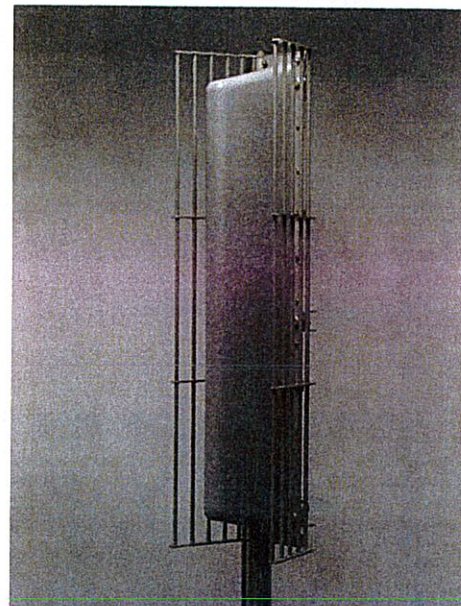
Horizontal



Vertical

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

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



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

- True log-periodic design allows for superior front-to-side characteristics to minimize sector overlap.
- Durable brass feedline design eliminates the need for conventional solder joints in the signal path.
- A non-collinear system with access to every radiating element for broad bandwidth and superior performance.
- Air as insulation for virtually no internal signal loss.

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

Antenna available with center-fed connector only.

806-941 MHz

Amphenol Antel, Inc.
The Antenna Technology Company

Revision Date: 6/3/04

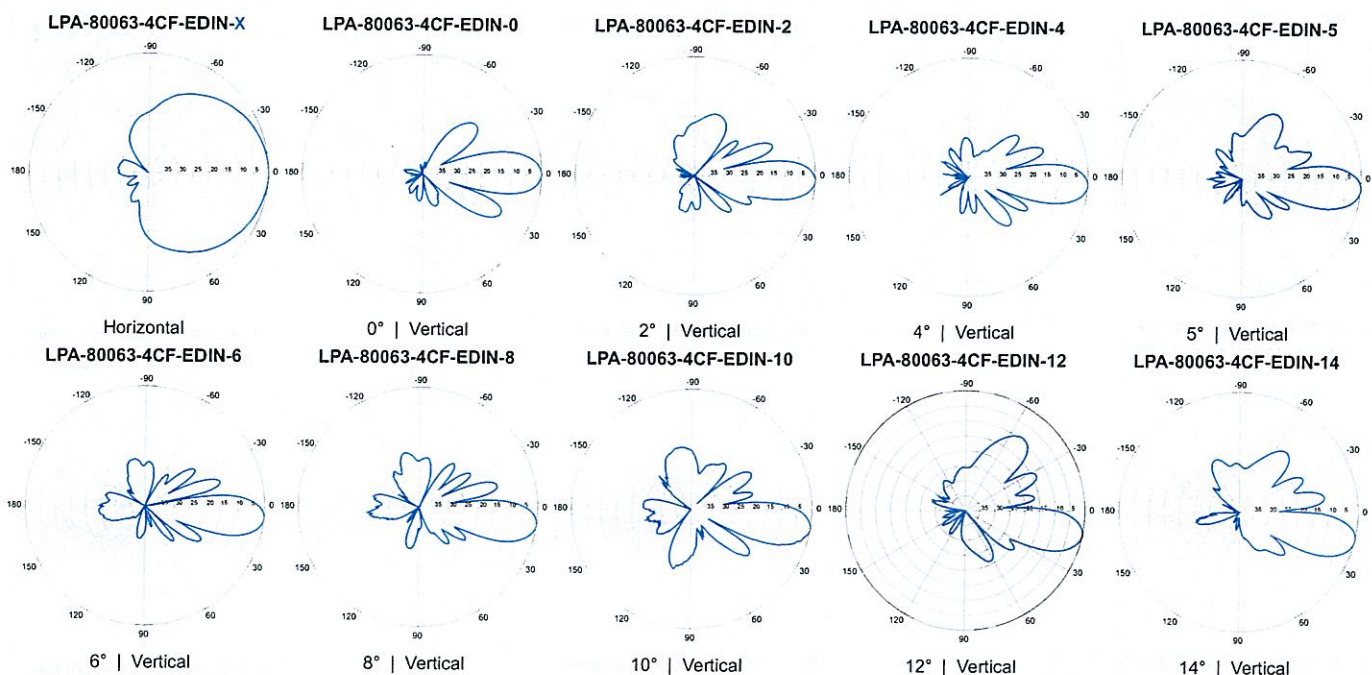
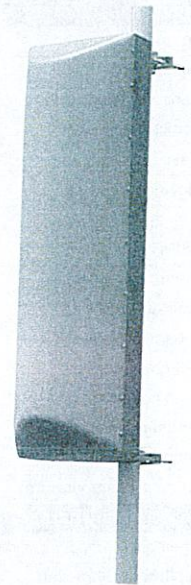
LPA-80063-4CF-EDIN-X

V-Pol | Log Periodic | 63° | 13.0 dBd

Replace "X" with desired electrical downtilt.

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

Electrical Characteristics	
Frequency bands	806-960 MHz
Polarization	Vertical
Horizontal beamwidth	63°
Vertical beamwidth	15°
Gain	13.0 dBd (15.1 dBi)
Electrical downtilt (X)	0, 2, 4, 5, 6, 8, 10, 12, 14
Impedance	50Ω
VSWR	≤1.4:1
Upper sidelobe suppression (0°)	-15.7 dB
Front-to-back ratio (+/-30°)	-31.7 dB
Null fill	5% (-26.02 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	1205 x 385 x 332 mm47.4 x 15.2 x 13.1 in
Depth of antenna with z-bracket	372 mm14.6 in
Weight without mounting brackets	9.1 kg20 lbs
Survival wind speed	> 201 km/hr> 125 mph
Wind area	Front: 0.46 m² Side: 0.39 m²Front: 5.0 ft² Side: 4.2 ft²
Wind load @ 161 km/hr (100 mph)	Front: 660 N Side: 550 NFront: 149 lbf Side: 124 lbf
Mounting Options	
Part Number	Fits Pipe DiameterWeight
2-Point Mounting & Downtilt Bracket Kit (0-20°)	2169999950-102 mm 2.0-4.0 in5.4 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-171063-12BF-EDIN-X

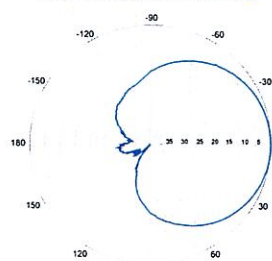
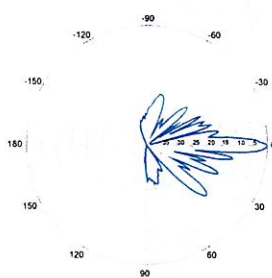
Replace "X" with desired electrical downtilt.

X-Pol | FET Panel | 63° | 19.0 dBi

Electrical Characteristics	1710-2170 MHz		
Frequency bands	1710-1880 MHz	1850-1990 MHz	1920-2170 MHz
Polarization	±45°	±45°	±45°
Horizontal beamwidth	68°	65°	60°
Vertical beamwidth	4.5°	4.5°	4.5°
Gain	16.1 dBd / 18.2 dBi	16.5 dBd / 18.6 dBi	16.9 dBd / 19.0 dBi
Electrical downtilt (X)	0, 2, 5		
Impedance	50Ω		
VSWR	≤1.5:1		
First upper sidelobe	< -17 dB		
Front-to-back ratio	> 30 dB		
In-band isolation	> 28 dB		
IM3 (20W carrier)	< -150 dBc		
Input power	300 W		
Lightning protection	Direct Ground		
Connector(s)	2 Ports / EDIN / Female / Bottom		
Operating temperature	-40° to +60° C / -40° to +140° F		
Mechanical Characteristics			
Dimensions Length x Width x Depth	1820 x 154 x 105 mm	71.7 x 6.1 x 4.1 in	
Depth with z-brackets	133 mm	5.2 in	
Weight without mounting brackets	6.8 kg	15 lbs	
Survival wind speed	> 201 km/hr		> 125 mph
Wind area	Front: 0.28 m² Side: 0.19 m²	Front: 3.1 ft² Side: 2.1 ft²	
Wind load @ 161 km/hr (100 mph)	Front: 460 N Side: 304 N	Front: 103 lbf Side: 68 lbf	
Mounting Options	Part Number	Fits Pipe Diameter	Weight
2-Point Mounting Bracket Kit	26799997	50-102 mm 2.0-4.0 in	2.3 kg 5 lbs
2-Point Mounting & Downtilt Bracket Kit	26799999	50-102 mm 2.0-4.0 in	3.6 kg 8 lbs
Concealment Configurations	For concealment configurations, order BXA-171063-12BF-EDIN-X-FP		

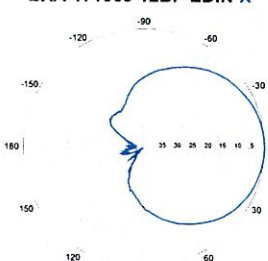
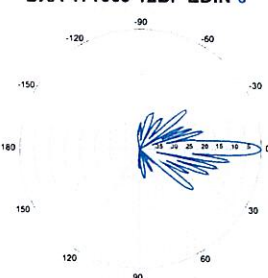


BXA-171063-12BF-EDIN-X

Horizontal | 1710-1880 MHz
BXA-171063-12BF-EDIN-0

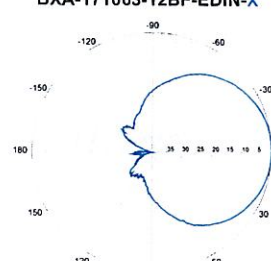
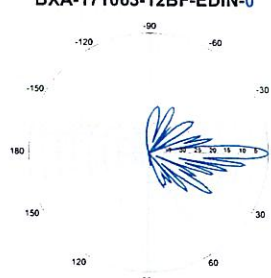
0° | Vertical | 1710-1880 MHz

BXA-171063-12BF-EDIN-X

Horizontal | 1850-1990 MHz
BXA-171063-12BF-EDIN-0

0° | Vertical | 1850-1990 MHz

BXA-171063-12BF-EDIN-X

Horizontal | 1920-2170 MHz
BXA-171063-12BF-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.



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)
- 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 Band, MHz	698-2200
Configuration	Sharelite Single diplexer, outdoor, DC pass in the 1710 - 2170 MHz path, with mounting hardware SEM2-1A
Mounting	Wall, pole
Frequency Range Low Frequency Path, MHz	698-960
Frequency Range High Frequency Path, MHz	1710-2200
Return Loss All Ports, Min, dB	19
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 698-960 MHz Path, Typ, dB	0.07
Insertion Loss 1710-2200MHz path, Typ, dB	0.13
Rejection Between Bands Min/Typ, dB	58/64@698-960MHz; 60/70@1710-2200MHz
Rejection between Bands, Min, dB	60
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
Application	LTE 700MHz, GSM900/3G/UMTS, GSM900/GSM1800, Cellular 800/PCS
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

RFS The Clear Choice®

FD9R6004/2C-3L

Rev: --

Print Date: 17.03.2010

Please visit us on the internet at <http://www.rfsworld.com/>

Radio Frequency Systems