HPC Wireless Services
22 Shelter Rock Lane.
Building C
Danbury, CT, 06810
P.: 203.797.1112

HPC
WIRELESS SERVICES

August 5, 2014

VIA OVERNIGHT COURIER

Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051
Attn: Ms. Melanie Bachman, Acting Executive Director

Re: Sprint Spectrum, L.P. –Exempt Modification
447 Sunnyside Avenue, aka 337 Sunnyside Avenue, aka "0" Sunnyside Avenue, Waterford, Connecticut

Dear Ms. Bachman:

This letter and attachments are submitted on behalf of Sprint Spectrum, L.P. ("Sprint"). Sprint is undertaking modifications to certain existing sites in its Connecticut system in order to implement updated technology. Please accept this letter and attachments as notification, pursuant to R.C.S.A. Section 16-50j-73, of construction that constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2). In compliance with R.C.S.A. Section 16-50j-73, a copy of this letter and attachments is being sent to the Chairman of the Town Council of the Town of Waterford.

Sprint plans to modify the existing wireless communications facility owned by the Connecticut Light and Power Company and located at 447 Sunnyside Avenue, aka 337 Sunnyside Avenue, aka "0" Sunnyside Avenue, Waterford (coordinates 41°-35'-33.98" N, 73°-04'-00.49" W). Attached are plan and elevation drawings depicting the planned changes, and documentation of the structural sufficiency of the structure to accommodate the revised antenna configuration. Also included is a power density report reflecting the modification to Sprint's operations at the site.

The changes to the facility do not constitute a modification as defined in Connecticut General Statutes ("C.G.S.") Section 16-50i(d) because the general physical characteristics of the facility will not be significantly changed. Rather, the planned changes to the facility fall squarely within those activities explicitly provided for in R.C.S.A. Section 16-50j-72(b)(2).

1. Sprint will remove the existing six (6) CDMA antennas and add three (3) dual-band panel LTE antennas to the existing platform on existing pipe masts, at a centerline height of approximately 110', the height of the existing antennas. Combiners shall also be placed behind the new antennas. Sprint will also add six (6) coaxial cables; relocate the existing CDMA Dual Pole; and retain the six (6) existing Coaxial Cables for a limited Interim Period. The Dual Pole and original six (6) Coaxial Cables will be removed as part of the Final Configuration. The proposed modifications will not extend the height of the approximately 95' structure.

2. Sprint will replace and add various pieces of equipment inside the existing Equipment Shelter, including the addition of six (6) RRHs and AAV wiring. These changes will have no effect on the site boundaries.

3. The proposed changes will not increase the noise level at the existing facility by six decibels or more. The incremental effect of the proposed changes will be negligible.

4. The changes to the facility will not increase the calculated "worst case" power density for the combined operations at the site to a level at or above the applicable standard for uncontrolled environments as calculated for a mixed frequency site. As indicated on the attached report prepared by EBI Consulting, Sprint's operations will result in a power density of power density of approximately 38.174% for this location, as Sprint is the only carrier at this facility.

Please contact me by phone at (203) 610-1071 or by e-mail at mjhowlett@optonline.net with questions concerning this matter. Thank you for your consideration.

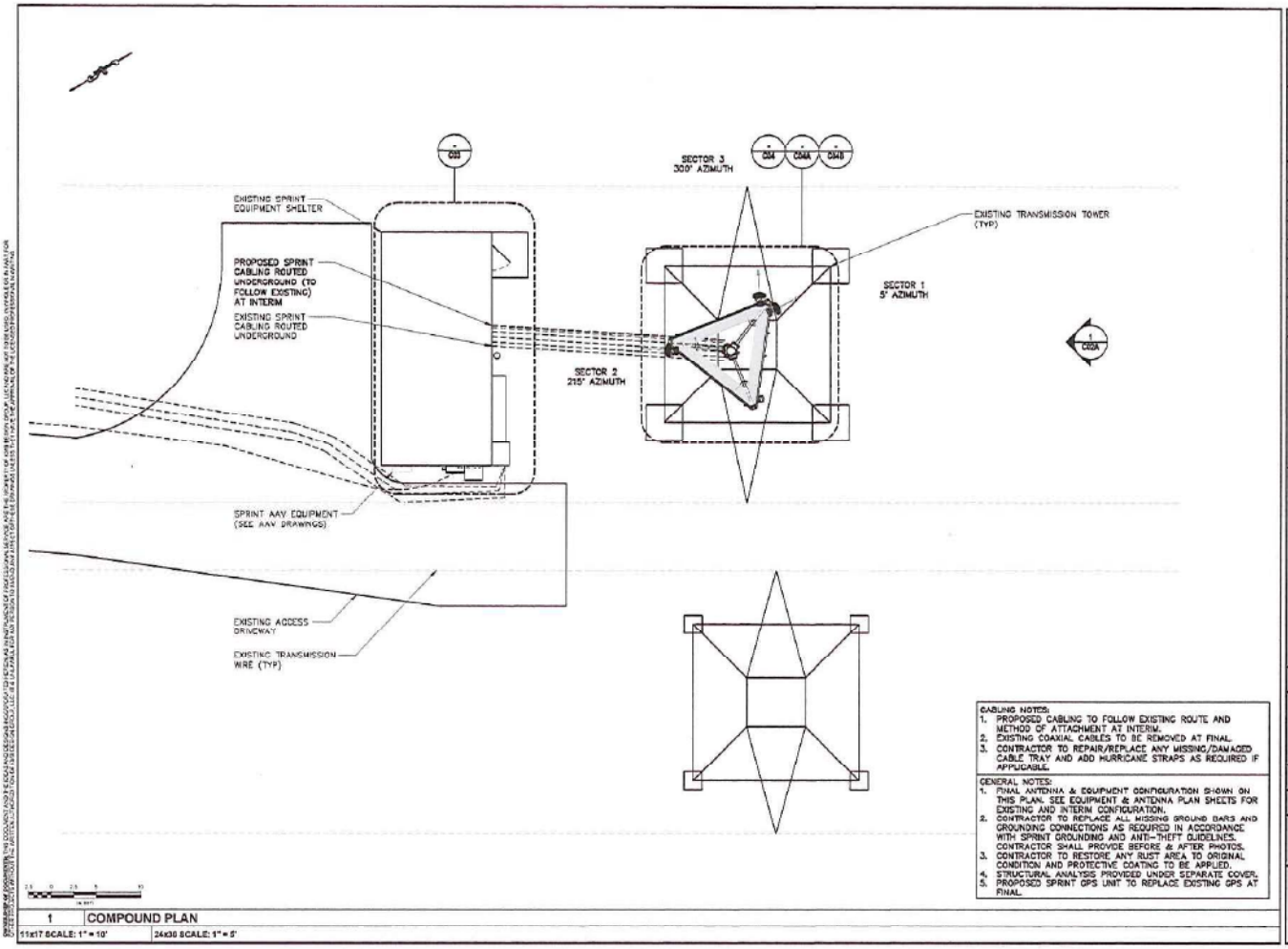
Respectfully yours,

Melanie J. Howlett

Attachments

cc: Honorable Mary Ann Rosa, Chairman of Town Council, Town of Watertown
Charles Frigon, Town Manager, Town of Watertown
The Connecticut Light & Power Company (underlying property owner)

NV - CT33XC516



CABLING NOTES:
1. PROPOSED CABLING TO FOLLOW EXISTING ROUTE AND METHOD OF ATTACHMENT AT INTERIM.
2. EXISTING COAXIAL CABLES TO BE REMOVED AT FINAL.
3. CONTRACTOR TO REPAIR/REPLACE ANY MISSING/DAMAGED CABLE TRAY AND ADD HURRICANE STRAPS AS REQUIRED IF APPLICABLE.

GENERAL NOTES:
1. FINAL ANTENNA & EQUIPMENT CONFIGURATION SHOWN ON THIS PLAN. SEE EQUIPMENT & ANTENNA PLAN SHEETS FOR EXISTING AND INTERIM CONFIGURATION.
2. CONTRACTOR TO REPLACE ALL MISSING GROUND BARS AND GROUNDING CONNECTIONS AS REQUIRED IN ACCORDANCE WITH SPRINT GROUNDING AND ANTI-THEFT GUIDELINES. CONTRACTOR SHALL PROVIDE BEFORE & AFTER PHOTOS.
3. CONTRACTOR TO RESTORE ANY RUST AREA TO ORIGINAL CONDITION AND PROTECTIVE COATING TO BE APPLIED.
4. STRUCTURAL ANALYSIS PROVIDED UNDER SEPARATE COVER.
5. PROPOSED SPRINT GPS UNIT TO REPLACE EXISTING GPS AT FINAL.

1 COMPOUND PLAN

11x17 SCALE: 1" = 10' | 24x36 SCALE: 1" = 5'

Sprint

Alcatel·Lucent

REV.	DATE	REVISION DESCRIPTION	DRAWN BY	CHKD. BY
1	12/20/12	REVISED FOR CLIENT COMMENTS	JAP	AHR
2	12/21/12	REVISED PER CLIENT COMMENTS	RKG	AHR
3	12/21/12	REVISED FOR CLIENT COMMENTS	JAP	RCB
4	12/26/12	ISSUED FOR CONSTRUCTION	AHR	RCB

KMB DESIGN GROUP
kmbdg.com

Stephen A. Bray
PROFESSIONAL ENGINEER

CT LICENSE: 28957 12/24/12

PROJECT NUMBER: 332.1504

SITE INFORMATION:
447 SLUMVSIDE AVENUE
WATERTOWN, CT 06795
LITCHFIELD COUNTY
CL&P STRUCTURE NO 1522
CT33XC516

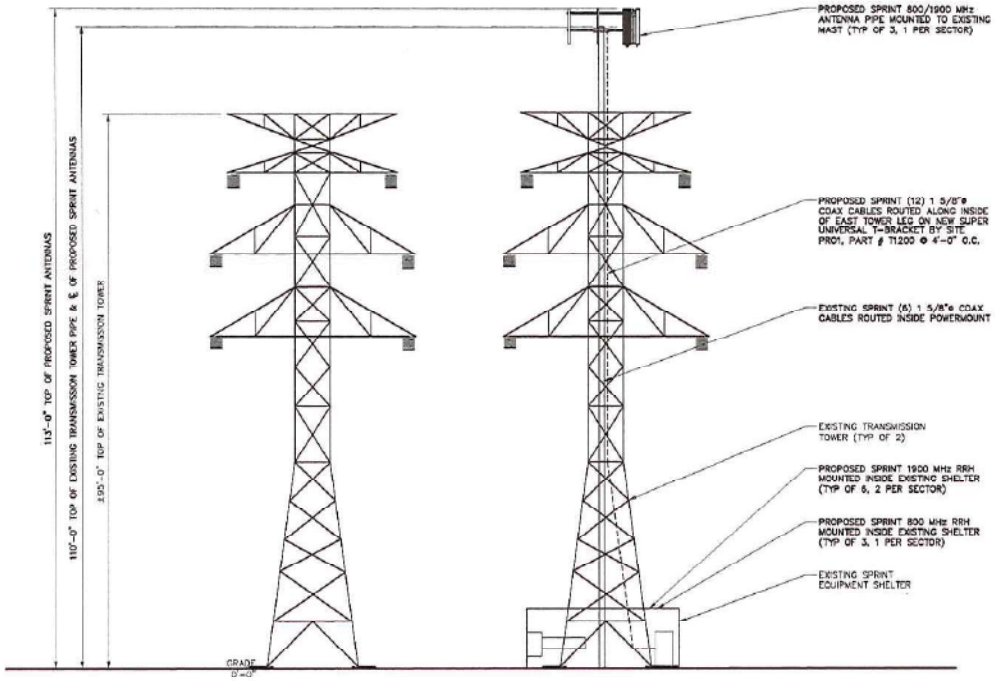
DESIGN TYPE: NETWORK VISION

DRAWN BY:	CHECKED BY:	DATE:
JLS		05-23-12

SHEET TITLE: COMPOUND PLAN

SHEET NUMBER: C02 | REV.: 3

NV - CT33XC516



1 NORTHEAST ELEVATION

11x17 SCALE: 1/16" = 1'-0" | 24x36 SCALE: 1/8" = 1'-0"

Sprint

Alcatel·Lucent

REV.	DATE	REVISION DESCRIPTION	DRAWN BY	CHKD BY
3	12/24/13	REVISED PER CLIENT COMMENTS	JLS	AVR
2	12/20/13	REVISED PER CLIENT COMMENTS	RGD	AVR
1	12/19/13	REVISED PER CLIENT COMMENTS	JLS	RGD
0	12/04/13	ISSUED FOR CONSTRUCTION	AVR	RGD

KMB DESIGN GROUP
kmbdg.com

Stephen A. Bray
PROFESSIONAL ENGINEER

STATE OF CONNECTICUT · STEPHEN A. BRAY · No. 20657 · LICENSED PROFESSIONAL ENGINEER

CT LICENSE: 20657 12/24/13

PROJECT NUMBER: 332.1504

SITE INFORMATION:
447 SUNNYSIDE AVENUE
WATERTOWN, CT 06795
LITCHFIELD COUNTY
CL&P STRUCTURE NO 1522
CT33XC516

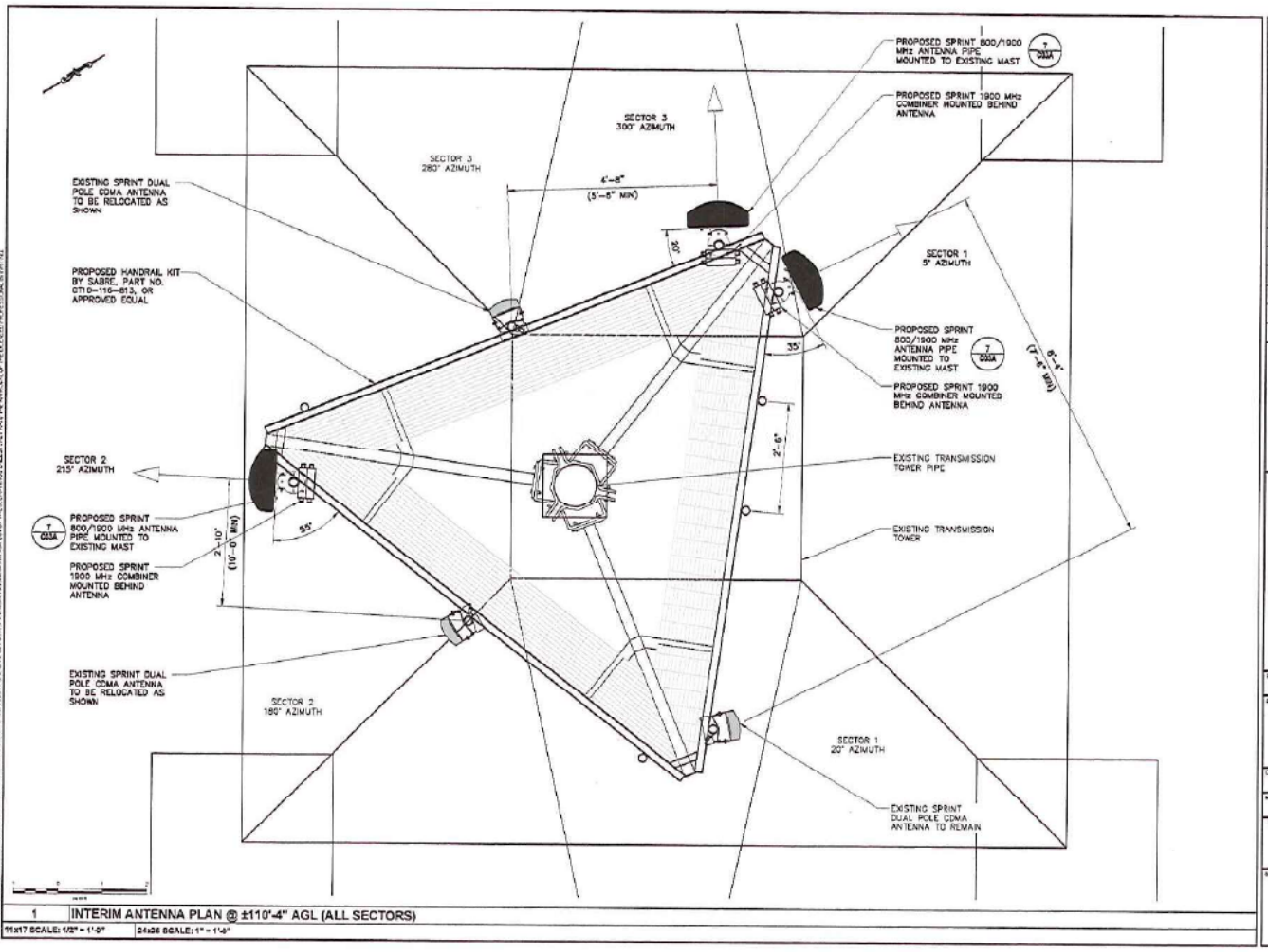
DESIGN TYPE: NETWORK VISION

DRAWN BY:	CHECKED BY:	DATE:
JLS		05-23-12

SHEET TITLE: ELEVATION

SHEET NUMBER: C02A REV: 3

NV - CT33XC516



1 INTERIM ANTENNA PLAN @ ±110'-4" AGL (ALL SECTORS)

11x17 SCALE: 1/2" = 1'-0" | 24x36 SCALE: 1" = 1'-0"

Sprint

Alcatel-Lucent

REV.	DATE	REVISION DESCRIPTION	DRAWN BY	CHKD BY
3	11-04-12	REVISED PER CLIENT COMMENTS	JRT	AAR
2	10-05-12	REVISED PER CLIENT COMMENTS	MJC	AAR
1	10-01-12	REVISED PER CLIENT COMMENTS	JRT	SJS
0	10-09-12	ISSUED FOR CONSTRUCTION	AAR	SJS

KMB DESIGN GROUP kmbdg.com

Stephen A. Bray
PROFESSIONAL ENGINEER

STATE OF CONNECTICUT · STEPHEN A. BRAY · NO. 20657 · LICENSED PROFESSIONAL ENGINEER

CT LICENSE: 20657 12/24/12

PROJECT NUMBER: 332.1504

SITE INFORMATION:
447 SUNNYSIDE AVENUE
WATERTOWN, CT 06795
LITCHFIELD COUNTY
CL&P STRUCTURE NO 1522
CT33XC516

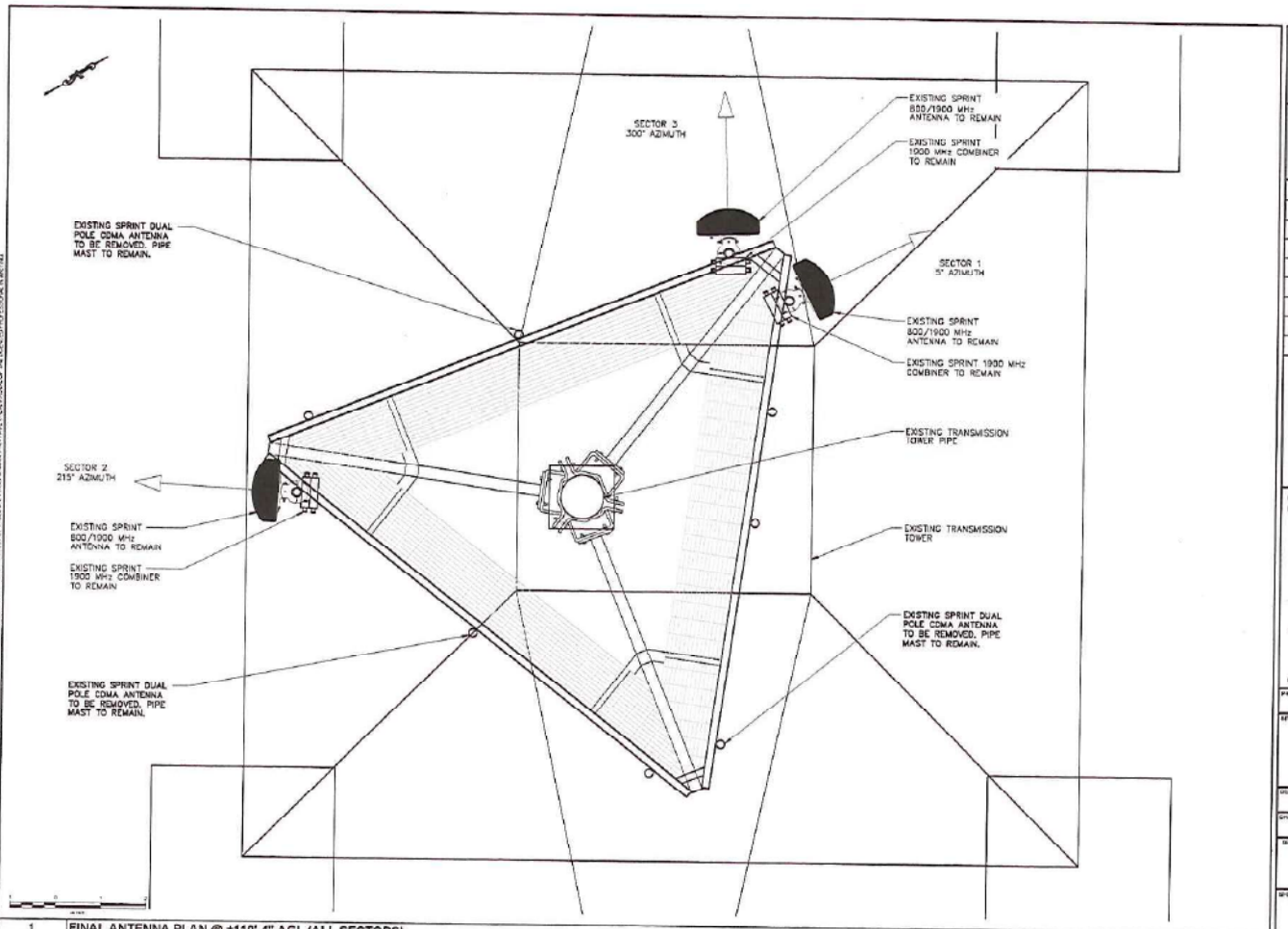
DESIGN TYPE: NETWORK VISION

DRAWN BY: JLS | CHECKED BY: | DATE: 05-23-12

SHEET TITLE: INTERIM ANTENNA PLAN (ALL SECTORS)

SHEET NUMBER: C04A | REV: 3

NV - CT33XC516



1 FINAL ANTENNA PLAN @ ±110'-4" AGL (ALL SECTORS)

11x17 SCALE: 1/2" = 1'-0" 24x36 SCALE: 1" = 1'-0"

Sprint

Alcatel·Lucent

REV.	DATE	REVISION DESCRIPTION	DRAWN BY	CHKD BY
1	10/24/13	ISSUED FOR CLIENT COMMENTS	JRF	AHR
2	11/04/13	REVISED PER CLIENT COMMENTS	NJC	AHR
3	12/11/13	REVISED PER CLIENT COMMENTS	JRF	KSD
4	12/24/13	ISSUED FOR CONSTRUCTION	AHR	KSD

KMB DESIGN GROUP kmbdg.com

Stephen A. Bray
PROFESSIONAL ENGINEER

STATE OF CONNECTICUT · STEPHEN A. BRAY · No. 21857 · LICENSED PROFESSIONAL ENGINEER

CT LICENSE: 21857 12/24/13

PROJECT NUMBER
332.1504

SITE INFORMATION
447 SUNNYSIDE AVENUE
WATERTOWN, CT 06795
LITCHFIELD COUNTY
CL&P STRUCTURE NO 1522
CT33XC516

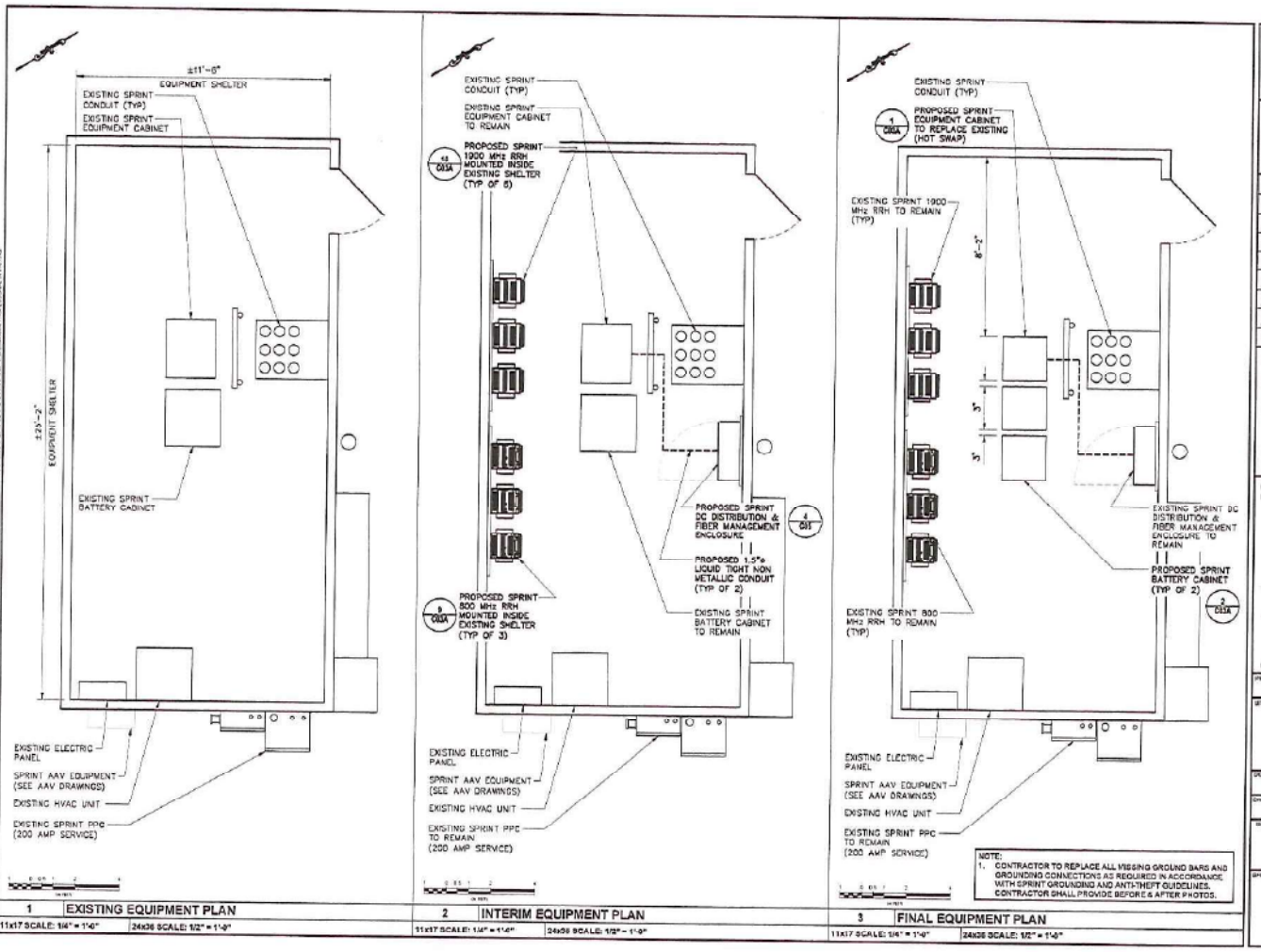
NETWORK VISION

DRAWN BY	CHECKED BY	DATE
JLS		05-23-12

SHEET TITLE
FINAL ANTENNA PLAN
(ALL SECTORS)

SHEET NUMBER C04B REV. 3

NV - CT33XC516



1 EXISTING EQUIPMENT PLAN
11x17 SCALE: 1/4" = 1'-0" 24x36 SCALE: 1/2" = 1'-0"

2 INTERIM EQUIPMENT PLAN
11x17 SCALE: 1/4" = 1'-0" 24x36 SCALE: 1/2" = 1'-0"

3 FINAL EQUIPMENT PLAN
11x17 SCALE: 1/4" = 1'-0" 24x36 SCALE: 1/2" = 1'-0"

Sprint

Alcatel·Lucent

REV.	DATE	REVISION DESCRIPTION	DRAWN BY	CHKD BY
1	12/4/13	REVISED PER CLIENT COMMENTS	JLS	MAB
2	12/5/13	REVISED PER CLIENT COMMENTS	MAB	MAB
3	12/9/13	REVISED PER CLIENT COMMENTS	JLS	MAB
4	12/20/13	ISSUED FOR CONSTRUCTION	MAB	MAB

KMB DESIGN GROUP
kmbdg.com

Stephen A. Bray
PROFESSIONAL ENGINEER
STATE OF CONNECTICUT
CT LICENSE: 21607 12/24/13

PROJECT NUMBER
332.1504

SITE INFORMATION
447 SUNNYSIDE AVENUE
WATERTOWN, CT 06795
LITCHFIELD COUNTY
CL&P STRUCTURE NO 1522
CT33XC516

DRAWN TYPE
NETWORK VISION

DRAWN BY	CHECKED BY	DATE
JLS		05-23-12

SHEET TITLE
EQUIPMENT PLANS

SHEET NUMBER C03 REV 3

Northeast
Utilities System

107 Selden Street, Berlin, CT 06037

Northeast Utilities Service Company
P.O. Box 270
Hartford, CT 06141-0270
(203) 665-5000

January 9, 2014

Ms. Jennifer Gaudet
HPC Development

Sprint,
1 International Blvd.
Suite 300
Mahwah NJ
07495

RE: Sprint Antenna Site, CT-33XC516, 447 Sunnyside Ave, Watertown CT, structure 1522.

Dear Ms. Gaudet:

Based on our reviews of the site drawings, the structural analysis and foundation review provided by Centek Engineering, along with a third party review performed by Paul J. Ford we have reviewed for acceptance this modification.

Since there are no outstanding structural issues to resolve at this time please contact Mr. O'Brien (860-665-6987) to resolve any lease issues; once the lease amendment is secured you may then contact Mr. John Landry directly (860-665-5425) to begin the construction arrangements.

Sincerely,

Robert Gray
Transmission Line Engineering

REF: NV_CT33XC516_12.24.13_Final CD_Rev 3.pdf
12047.CO8 - CT33XC516.pdf

EBI Consulting
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RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

Sprint Existing Facility

Site ID: CT33XC516

N. Waterbury / NU (CL&P)
447 Sunnyside Avenue
Watertown, CT 06795

July 17, 2013

EBI Project Number: 62136520

21 B Street · Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

EBI Consulting
environmental | engineering | due diligence

July 17, 2013

Sprint
Attn: RF Engineering Manager
1 International Boulevard, Suite 800
Mahwah, NJ 07495

Re: Emissions Values for Site: **CT33XC516 – N. Waterbury / NU (CL&P)**

EBI Consulting was directed to analyze the proposed upgrades to the existing Sprint facility located at 447 Sunnyside Avenue, Watertown, CT, for the purpose of determining whether the emissions from the proposed Sprint equipment upgrades on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (µW/cm2). The number of µW/cm2 calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limit for the cellular band is approximately 567 $\mu W/cm^2$, and the general population exposure limit for the PCS band is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed upgrades to the existing Sprint Wireless antenna facility located at 447 Sunnyside Avenue, Watertown, CT, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. All calculations were performed assuming the main lobe of the antenna was focused at the base of the tower to present a worst case scenario. Actual values seen from this site will be dramatically less than those shown in this report. For this report the sample point is the top of a 6 foot person standing at the base of the tower.

For all calculations, all emissions were calculated using the following assumptions:

1) 5 CDMA Carriers (1900 MHz) were considered for each sector of the proposed installation.
2) 1 CDMA Carrier (850 MHz) was considered for each sector of the proposed installation
3) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
4) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The actual gain in this direction was used per the manufactures supplied specifications.
5) The antennas used in this modeling are the RFS APXVSPP18-C-A20 and the RFS APXV9ERR18-C-A20. This is based on feedback from the carrier with regards to anticipated antenna selection. The RFS APXVSPP18-C-A20 has a 15.9 dBd gain value at its main lobe at 1900 MHz and 13.4 dBd at its main lobe for 850 MHz. The RFS

APXV9ERR18-C-A20 has a 14.9 dBd gain value at its main lobe at 1900 MHz and 11.9 dBd at its main lobe for 850 MHz. All `calculations were performed assuming the main lobe of the antenna was focused at the base of the tower to present a worst case scenario.

6) The antenna mounting height centerline of the proposed antennas is **110.3 feet** above ground level (AGL)
7) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

All calculation were done with respect to uncontrolled / general public threshold limits

Site ID	CT33XC516 - N. Waterbury / NU (CL&P)
Site Addresss	447 Sunnyside Avenue, Watertown, CT, 06795
Site Type	Utility Transmission Pole

Sector 1

Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
1a	RFS	APXV9ERR18-C-A20	RRH	1900 MHz	CDMA / LTE	20	5	100	14.9	110.3	104.3	1/2 "	0.5	0	2754.2287	91.02011	9.10201%
1a	RFS	APXV9ERR18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	11.9	110.3	104.3	1/2 "	0.5	0	276.07685	9.123624	1.60910%
														Sector total Power Density Value:		10.711%	

Sector 2

Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
2a	RFS	APXVSPP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	5	100	15.9	110.3	104.3	1/2 "	0.5	0	3467.3685	114.5875	11.45875%
2a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	110.3	104.3	1/2 "	0.5	0	389.96892	12.88746	2.27292%
														Sector total Power Density Value:		13.732%	

Sector 3

Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
3a	RFS	APXVSPP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	5	100	15.9	110.3	104.3	1/2 "	0.5	0	3467.3685	114.5875	11.45875%
3a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	110.3	104.3	1/2 "	0.5	0	389.96892	12.88746	2.27292%
														Sector total Power Density Value:		13.732%	

Site Composite MPE %	
Carrier	MPE %
Sprint	38.174%
Total Site MPE %	**38.174%**

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Summary

All calculations performed for this analysis yielded results that were well within the allowable limits for general public exposure to RF Emissions.

The anticipated Maximum Composite contributions from the Sprint facility are **38.174% (10.711% from Sector 1 and 13.732% each from sectors 2 and 3)** of the allowable FCC established general public limit considering all three sectors simultaneously sampled at the ground level.

The anticipated composite MPE value for this site assuming all carriers present is **38.174%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions. There are no additional carriers listed at this facility.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.

Scott Heffernan
RF Engineering Director

EBI Consulting
21 B Street
Burlington, MA 01803

CENTEK engineering

Centered on Solutions℠

Structural Analysis of Powermount and CL&P Tower

Sprint Site Ref: CT33XC516

CL&P Structure No. 1522

95' Electric Transmission Lattice Tower

337 Sunnyside Ave
Watertown, CT

CENTEK Project No. 12047.CO8

~~Date: May 21, 2013~~

Rev 1: August 21, 2013

Prepared for:
Sprint Nextel
8 Airline Drive, Suite 105
Albany, NY 12205

Table of Contents

Introduction

The purpose of this report is to analyze the existing 110' FWT Powermount job no. 19641001 dated August 14, 2000 and 95' CL&P tower located at 337 Sunnyside Ave in Watertown, CT for the proposed antenna and equipment upgrade by Sprint.

The proposed loads consist of the following:

- SPRINT (Existing to Remain)
  Coax Cables: Six (6) 1-5/8" ∅ coax cables mounted within the existing powermount.
  Mast: 12" Sch. 40 (O.D. = 12.75") x 110'-0" tall ASTM A500 Gr. 50 FWT powermount.
- **SPRINT (Existing to Remove)**
  Antennas: Six (6) Decibel DB980H90E-M panel antennas mounted on the existing low profile platform to the powermount with a RAD center elevation of 110-ft above grade.
- **SPRINT (Proposed):**
  Antennas: Three (3) RFS APXVSPP18-C panel antennas mounted on the existing low profile platform to the powermount with a RAD center elevation of 110-ft above grade.
  Coax Cables: Twelve (12) 1-5/8" ∅ coax cables mounted on a Site Pro Super Universal T-Brackets p/n T1200 running on a leg of the existing tower as indicated in section 4 of this report.

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 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 existing FWT powermount consisting of a 12-in SCH. 40 pipe (O.D. = 12.75") connected at five 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. Load cases and combinations used in RISA-3D for TIA/EIA loading are listed in report Section 6.

Structural analysis of the existing CL&P tower structure was completed using the current version of PLS-Tower computer program licensed to CENTEK Engineering, Inc. The NESC program contains a library of all AISC angle shapes and corresponding section properties are computed and applied directly within the program. The program's Steel Code Check option was also utilized.

The existing 95-ft tall CL&P lattice tower was analyzed for its ability to resist loads prescribed by the NESC standard. Maximum usage for the tower was calculated considering the additional forces from the powermount and associated appurtenances. Section 7 of this report details these gravity and lateral wind loads.

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 existing powermount 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, Section25, Rule 250C: Extreme Wind Loading, 1.25 x Gust Response Factor (wind speed: 3-second gust)

- POWERMOUNT ANALYSIS

  The 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**.

Component	Design Limit	Stress Ratio (percentage of capacity)	Result
12” Sch. 40 Pipe	Bending	42.3%	**PASS**
L2x2x3/16 Brace	Bending	35.4%	**PASS**
Connection	Shear	57.7%	**PASS**

- UTILITY TOWER

  This analysis finds that the subject utility structure is adequate to support the proposed antenna mast 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 8 of this report. The analysis results are summarized as follows:

  A maximum usage of **89.99%** occurs in the utility structure under the **NESC Heavy** loading condition.

  TOWER SECTION:

  The utility structure was found to be within allowable limits.

Tower Member	Stress Ratio (% of capacity)	Result
Angle g41P	89.99%	**PASS**

- FOUNDATION AND ANCHORS

The existing foundation consists of four (4) 4-ft square x 10-ft long reinforced concrete piers on four (4) 12.5-ft square x 2.5-ft thick reinforced concrete pads. The base of the tower is connected to the foundation by four (4) 1-1/4" ∅ anchor bolts per leg. Foundation information was obtained from NUSCO drawing # 01096-60000.

Review of the foundation design consisted of a structural evaluation of the existing foundation based on applied loads obtained from the PLS tower base reactions.

BASE REACTIONS:

From PLS-Tower analysis of CL&P structure based on NESC/NU prescribed loads.

Load Case	Shear	Uplift	Compression
NESC Heavy Wind	12.97 kips	13.22 kips	57.35 kips
NESC Extreme Wind	16.83 kips	59.13 kips	82.79 kips

Note 1 – 10% increase applied to tower base reactions per OTRM 051

ANCHOR BOLTS:

The anchor bolts was found to be within allowable limits.

Tower Component	Design Limit	Stress Ratio (% of capacity)	Result
Anchor Bolts	Tension	70.3%	**PASS**

FOUNDATION:

The foundation was found to be within allowable limits.

Foundation	Design Limit	Allowable Limit	Proposed Loading (2)	Result
Reinforced Conc. Pad and Pier	Uplift	1.0 FS (1)	4.42 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

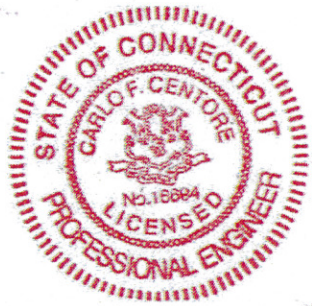
This analysis shows that the subject utility tower **with the modification to the powermount detailed in section 4 of this report is adequate** to support the proposed Sprint equipment upgrade.

The analysis is based, in part on the information provided to this office by Northeast Utilities and Sprint. 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, PE
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 CENTEK 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 CENTEK 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. CENTEK 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-3D

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.

G E N E R A L D E S C R I P T I O N O F S T R U C T U R A L A N A L Y S I S P R O G R A M ~ P L S - T O W E R

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 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 provided 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 Standard 222 with two exceptions:

1. An 85 mph extreme wind speed shall be used for locations in all counties throughout the NU system.
2. The stress increase of TIA Section 3.1.1.1 is disallowed. The combined wind and ice condition shall consider ½" radial ice in combination with the wind load (0.75 Wi) 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.

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 (.75Wi)	TIA	TIA	TIA, Section 3.1.1.1 disallowed for connection design	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 Condtion	TIA/EIA	Antenna Mount	85	TIA	TIA	TIA	TIA, Section 3.1.1.1 disallowed for connection design	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 Conditon*		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						

Shape Factor Criteria shall be per TIA Shape Factors.

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.

SHIELD Wire Ld

TITLE SPRINT PCS, WATERTOWN 11/18/99

STRUCT 1522

	CONDUCTOR			
	AHEAD		BACK	
	3/8 AW		3/8 AW	
	0.000		0.000	
	7 #8 Al Weld		7 #8 Al Weld	
DIAM =	0.385		0.385	
WEIGHT =	0.262		0.262	
TENSION (LBS)	AHEAD	4,200	BACK	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	NESC HEAVY H	L	V
BACK	0	266	1080	307	-6930	1316
AHEAD	0	266	1080	307	6930	1316
TOTALS	**0.0**	**532**	**2160**	**614**	**0**	**2631**

SHIELD Wire Ld

TITLE Sprint PCS, Watertown 11/18/99

STRUCT 1522

CONDUCTOR

	AHEAD	BACK
	3/8 AW	3/8 AW
	0.000	0.000
	7 #8 Al Weld	7 #8 Al Weld
DIAM =	0.385	0.385
WEIGHT =	0.262	0.262
TENSION (LBS)	AHEAD 2,725	BACK 2,725

LOADCASE	HI WIND
WIND (PSF)	20
ICE (IN)	0.00
OLF ANG	1.15
OLF WIND	1.15
OLF WT	1.15

STR	ANGLE	WIND SPAN	WGT SPAN	HI WIND H	HI WIND L	HI WIND V
BACK	0	266	1080	196	-3134	325
AHEAD	0	266	1080	196	3134	325
TOTALS	**0.0**	**532**	**2160**	**393**	**0**	**650**

TITLE SPRINT PCS, WATERTOWN1 11/18/99

STRUCT 1522

	CONDUCTOR	
	AHEAD	BACK
	LAPWING	LAPWING
	1595.000	1595.000
	45/7 ACSR	45/7 ACSR
DIAM =	1.504	1.504
WEIGHT =	1.790	1.790
TENSION (LBS)	AHEAD 14,000	BACK 14,000

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	NESC HEAVY H	L	V
BACK	0	266	1080	555	-23100	4918
AHEAD	0	266	1080	555	23100	4918
TOTALS	**0.0**	**532**	**2160**	**1110**	**0**	**9837**

TITLE SPRINT PCS, WATERTOWN 11/18/99

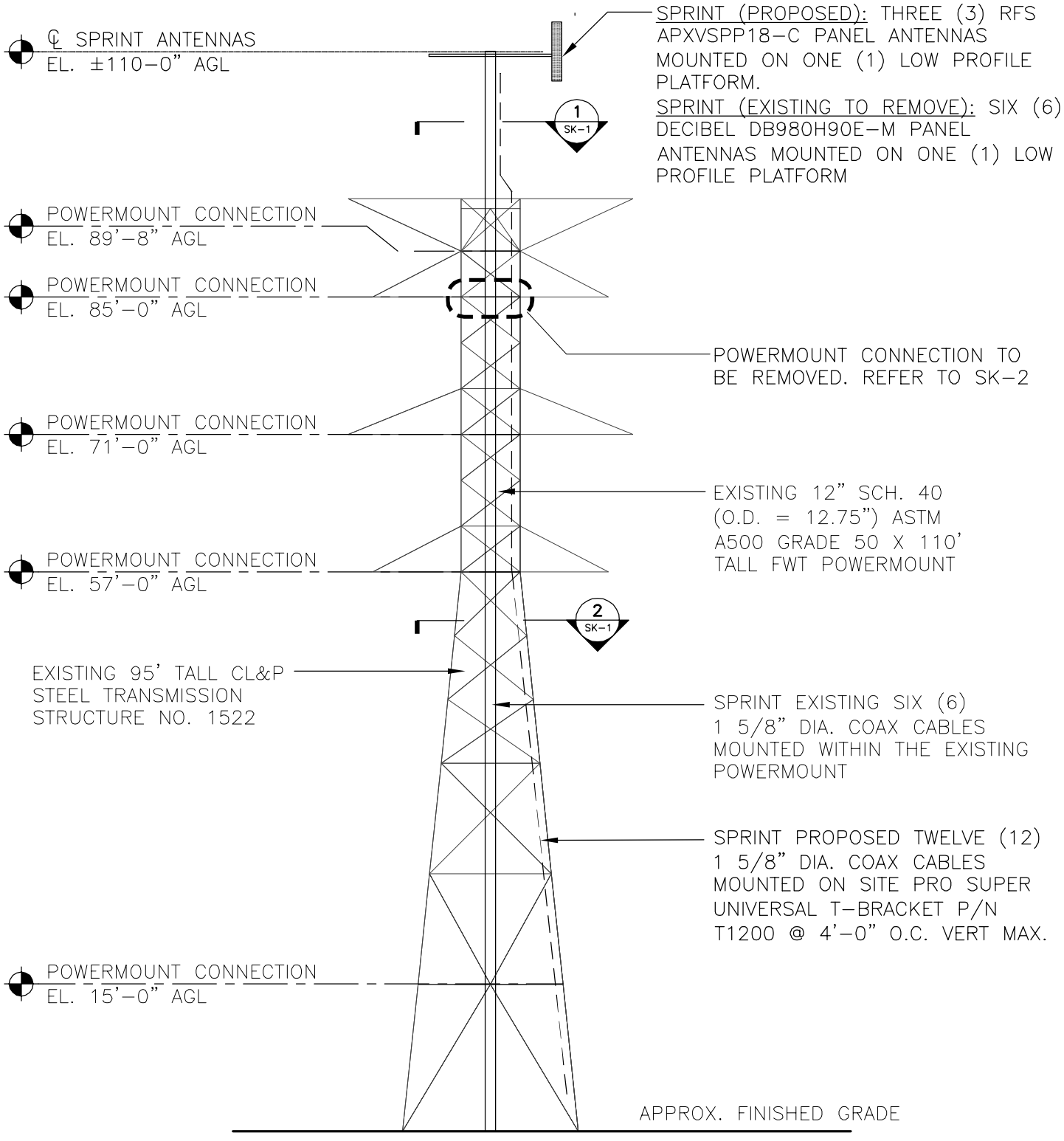
STRUCT 1522

CONDUCTOR

	AHEAD	BACK
	LAPWING	LAPWING
	1595.000	1595.000
	45/7 ACSR	45/7 ACSR
DIAM =	1.504	1.504
WEIGHT =	1.790	1.790
TENSION (LBS)	AHEAD 10,152	BACK 10,152

LOADCASE	HI WIND
WIND (PSF)	20
ICE (IN)	0.00
OLF ANG	1.15
OLF WIND	1.15
OLF WT	1.15

STR	ANGLE	WIND SPAN	WGT SPAN	HI WIND H	HI WIND L	HI WIND V
BACK	0	266	1080	767	-11675	2223
AHEAD	0	266	1080	767	11675	2223
TOTALS	**0.0**	**532**	**2160**	**1534**	**0**	**4446**



1 / EL–1 TOWER & POWERMOUNT ELEVATION

SCALE: NOT TO SCALE

REVISIONS		
00	5/21/13	ISSUED FOR NU REVIEW
01	8/21/13	CONSTRUCTION

CENTEK engineering
Centered on Solutions℠
www.CentekEng.com
(203) 488-0580
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63-2 North Branford Road, Branford, CT 06405

CT33XC516
CL&P 1522

337 SUNNYSIDE AVE
WATERTOWN, CT 06779

PROJECT NO:	12047.CO8
DRAWN BY:	TJL
CHECKED BY:	CFC
SCALE:	AS NOTED
DATE:	5/21/13

TOWER AND MAST ELEVATION

EL-1

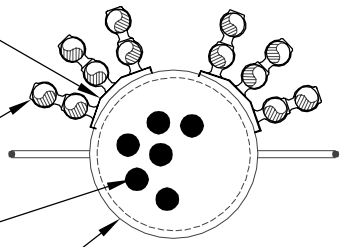
DWG. 1 OF 3

VALMONT TRANSMISSION LINE BRACKET P/N B3254 AT 4' O.C. MAX W/ STACKABLE SNAP-IN HANGERS

SPRINT PROPOSED TWELVE (12) 1-5/8" DIA. COAX CABLES

SPRINT EXISTING SIX (6) 1 5/8" DIA. COAX CABLES MOUNTED WITHIN THE EXISTING POWERMOUNT

EXISTING 12" SCH. 40 (O.D. = 12.75") ASTM A500 GRADE 50 X 110'-0" TALL FWT POWERMOUNT



ABOVE TOP OF TOWER

1 SK-1 FEEDLINE PLAN - POWERMOUNT

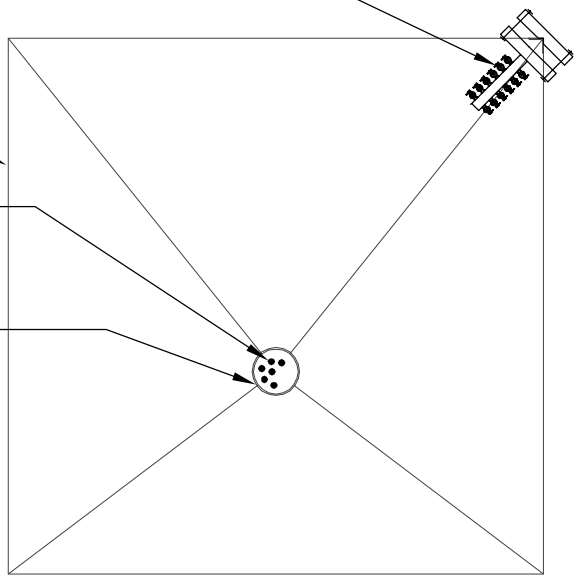
SCALE: NOT TO SCALE

SPRINT PROPOSED TWELVE (12) 1 5/8" DIA. COAX CABLES MOUNTED INSIDE OF NORTHEAST TOWER LEG ON SITE PRO SUPER UNIVERSAL T-BRACKET P/N T1200 @ 4'-0" O.C. VERT MAX.

EXISTING 95' TALL CL&P STEEL TRANSMISSION STRUCTURE NO. 1522

SPRINT EXISTING SIX (6) 1 5/8" DIA. COAX CABLES MOUNTED WITHIN THE EXISTING POWERMOUNT

EXISTING 12" SCH. 40 (O.D. = 12.75") ASTM A500 GRADE 50 X 110'-0" TALL FWT POWERMOUNT



2 SK-1 FEEDLINE PLAN - TOWER

SCALE: NOT TO SCALE

APPROX. NORTH

REVISIONS		
00	5/21/13	ISSUED FOR NU REVIEW
01	8/21/13	CONSTRUCTION

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CL&P 1522

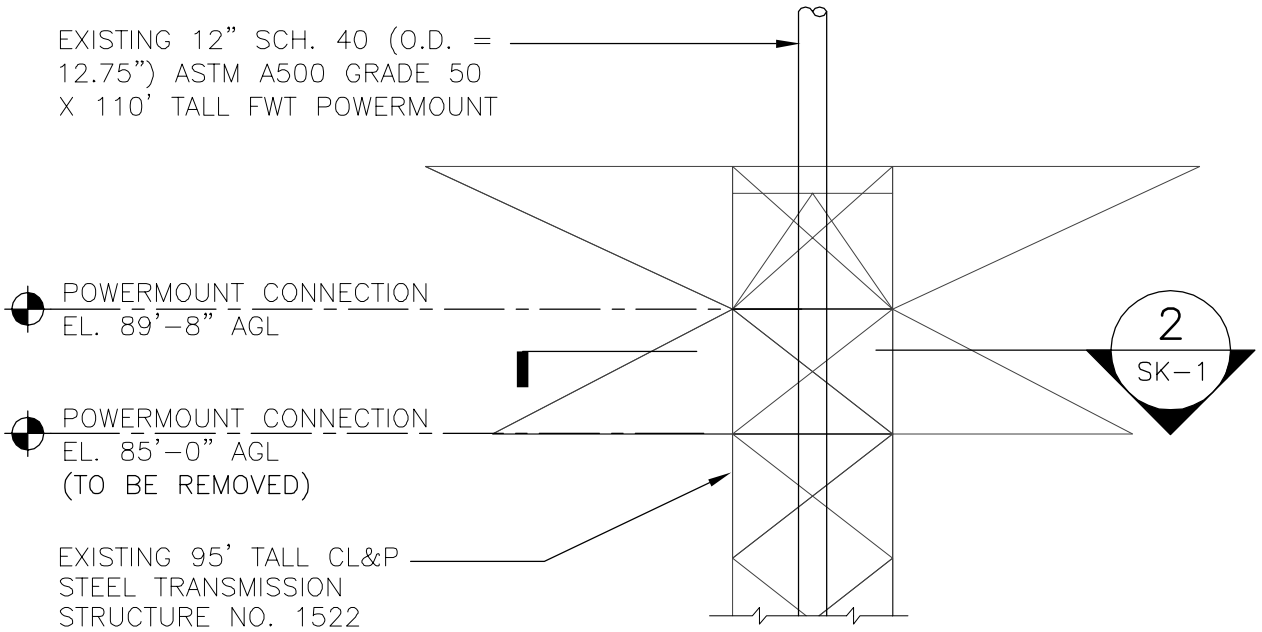
337 SUNNYSIDE AVE
WATERTOWN, CT 06779

PROJECT NO:	12047.CO8
DRAWN BY:	TJL
CHECKED BY:	CFC
SCALE:	AS NOTED
DATE:	5/21/13

FEEDLINE PLAN

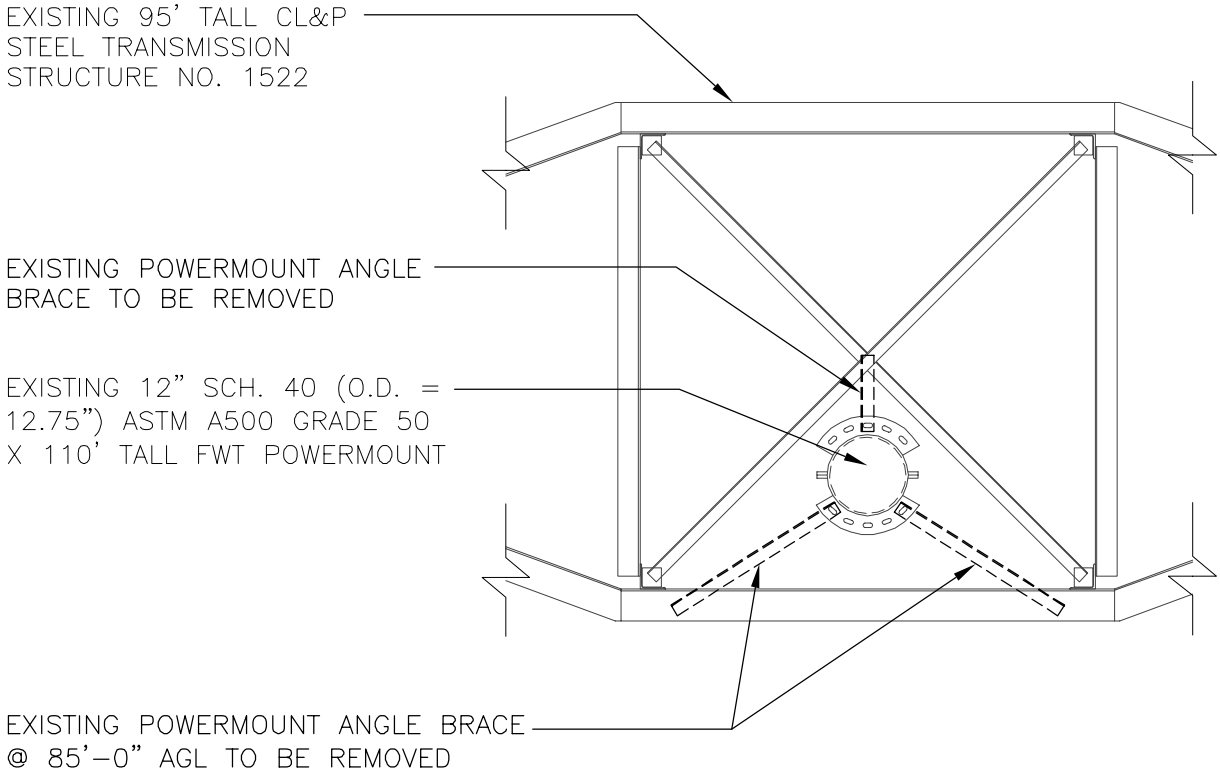
SK-1

DWG. 2 OF 3



1 SK-2 TOWER/POWERMOUNT ELEVATION

SCALE: NOT TO SCALE



2 SK-2 TOWER/POWERMOUNT PLAN

SCALE: NOT TO SCALE

REVISIONS		
00	5/21/13	ISSUED FOR NU REVIEW
01	8/21/13	CONSTRUCTION

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CT33XC516
CL&P 1522

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POWERMOUNT MODIFICATION

SK-2

DWG. 3 OF 3

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Subject:	Load Analysis of Powermount on CL&P Tower # 1522
Location:	Watertown, CT
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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	$z_{pmnt1} := 100$	ft	(User Input)
Powermount Section 2	$z_{pmnt2} := 75$	ft	(User Input)
Powermount Section 3	$z_{pmnt3} := 45$	ft	(User Input)
Powermount Section 4	$z_{pmnt4} := 15$	ft	(User Input)
Sprint	$z_{spt} := 110$	ft	(User Input)
Coax	$z_{coax} := 102.5$	ft	(User Input)

Exposure Coefficients, kz

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

Powermount Section 1: $Kz_{pmnt1} := \left(\frac{z_{pmnt1}}{33}\right)^{\frac{2}{7}} = 1.373$

Powermount Section 2: $Kz_{pmnt2} := \left(\frac{z_{pmnt2}}{33}\right)^{\frac{2}{7}} = 1.264$

Powermount Section 3: $Kz_{pmnt3} := \left(\frac{z_{pmnt3}}{33}\right)^{\frac{2}{7}} = 1.093$

Powermount Section 4: $Kz_{pmnt4} := \left(\frac{z_{pmnt4}}{33}\right)^{\frac{2}{7}} = 0.798$

Sprint: $Kz_{spt} := \left(\frac{z_{spt}}{33}\right)^{\frac{2}{7}} = 1.411$

Coax: $Kz_{coax} := \left(\frac{z_{coax}}{33}\right)^{\frac{2}{7}} = 1.382$

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Velocity Pressure without ice, qz (per TIA/EIA-222-F Section 2.3.3)

Powermount Section 1 $qz_{pmnt1} := 0.00256 \cdot Kz_{pmnt1} \cdot V^2 = 25.389$

Powermount Section 2 $qz_{pmnt2} := 0.00256 \cdot Kz_{pmnt2} \cdot V^2 = 23.386$

Powermount Section 3 $qz_{pmnt3} := 0.00256 \cdot Kz_{pmnt3} \cdot V^2 = 20.21$

Powermount Section 4 $qz_{pmnt4} := 0.00256 \cdot Kz_{pmnt4} \cdot V^2 = 14.765$

Sprint $qz_{spt} := 0.00256 \cdot Kz_{spt} \cdot V^2 = 26.09$

Coax $qz_{coax} := 0.00256 \cdot Kz_{coax} \cdot V^2 = 25.569$

Velocity Pressure with ice, qzICE (per TIA/EIA-222-F Section 2.3.3)

Powermount Section 1 $qzICE_{pmnt1} := 0.00256 \cdot Kz_{pmnt1} \cdot V_i^2 = 19.243$

Powermount Section 2 $qzICE_{pmnt2} := 0.00256 \cdot Kz_{pmnt2} \cdot V_i^2 = 17.725$

Powermount Section 3 $qzICE_{pmnt3} := 0.00256 \cdot Kz_{pmnt3} \cdot V_i^2 = 15.318$

Powermount Section 4 $qzICE_{pmnt4} := 0.00256 \cdot Kz_{pmnt4} \cdot V_i^2 = 11.191$

Sprint $qzICE_{spt} := 0.00256 \cdot Kz_{spt} \cdot V_i^2 = 19.774$

Coax $qzICE_{coax} := 0.00256 \cdot Kz_{coax} \cdot V_i^2 = 19.379$

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 =	$Ir := 0.50$	in	(User Input per TIA/EIA-222-F Section 2.3.1)
Radial Ice Density =	$Id := 56.00$	pcf	(User Input)

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Development of Wind & Ice Load on Powermonut (per TIA/EIA-222-F-1996 Criteria)

Powermount Data: (12" Std. Pipe)

Powermount Shape =	Round		(User Input)
Powermount Diameter =	$D_{pmnt} := 12.8$	in	(User Input)
Powermount Length =	$L_{pmnt} := 110$	ft	(User Input)
Powermount Thickness =	$t_{pmnt} := 0.375$	in	(User Input)
Velocity Coefficient =	$C := \sqrt{Kz_{pmnt4}} \cdot V \cdot \frac{D_{pmnt}}{12} = 81$		
Powermount Force Coefficient =	$CF_{pmnt} = 0.59$		(per TIA/EIA-222-F Table 1)

Wind Load (without ice) (per TIA/EIA-222-F-1996 Section 2.3.2)

Powermount Projected Surface Area =	$A_{pmnt} := \frac{D_{pmnt}}{12} = 1.067$	sf/ft		
Total Powermount Section 1 Wind Force =	$qz_{pmnt1} \cdot G_H \cdot CF_{pmnt} \cdot A_{pmnt} = 27$	plf	**BLC 5,7**	
Total Powermount Section 2 Wind Force =	$qz_{pmnt2} \cdot G_H \cdot CF_{pmnt} \cdot A_{pmnt} = 25$	plf	**BLC 5,7**	
Total Powermount Section 3 Wind Force =	$qz_{pmnt3} \cdot G_H \cdot CF_{pmnt} \cdot A_{pmnt} = 21$	plf	**BLC 5,7**	
Total Powermount Section 4 Wind Force =	$qz_{pmnt4} \cdot G_H \cdot CF_{pmnt} \cdot A_{pmnt} = 16$	plf	**BLC 5,7**	

Wind Load (with ice) (per TIA/EIA-222-F-1996 Section 2.3.2)

Powermount Projected Surface Area w/ Ice =	$AICE_{pmnt} := \frac{(D_{pmnt} + 2 \cdot Ir)}{12} = 1.15$	sf/ft		
Total Powermount Section 1 Wind Force w/ Ice =	$qzICE_{pmnt1} \cdot G_H \cdot CF_{pmnt} \cdot AICE_{pmnt} = 22$	plf	**BLC 4,6**	
Total Powermount Section 2 Wind Force w/ Ice =	$qzICE_{pmnt2} \cdot G_H \cdot CF_{pmnt} \cdot AICE_{pmnt} = 20$	plf	**BLC 4,6**	
Total Powermount Section 3 Wind Force w/ Ice =	$qzICE_{pmnt3} \cdot G_H \cdot CF_{pmnt} \cdot AICE_{pmnt} = 18$	plf	**BLC 4,6**	
Total Powermount Section 4 Wind Force w/ Ice =	$qzICE_{pmnt4} \cdot G_H \cdot CF_{pmnt} \cdot AICE_{pmnt} = 13$	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)

Ice Area per Linear Foot =	$Ai_{pmnt} := \frac{\pi}{4}\left[(D_{pmnt} + Ir \cdot 2)^2 - D_{pmnt}^2\right] = 20.9$	sq in		
Weight of Ice on Powermount =	$W_{ICEpmnt} := Id \cdot \frac{Ai_{pmnt}}{144} = 8$	plf	**BLC 3**	

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Development of Wind & Ice Load on Antennas (per TIA/EIA-222-F-1996 Criteria)

Antenna Data: (Sprint)

Antenna Model =	RFS APXVSPP18-C			
Antenna Shape =	Flat		(User Input)	
Antenna Height =	$L_{ant} := 72$	in	(User Input)	
Antenna Width =	$W_{ant} := 11.8$	in	(User Input)	
Antenna Thickness =	$T_{ant} := 7$	in	(User Input)	
Antenna Weight =	$WT_{ant} := 57$	lbs	(User Input)	
Number of Antennas =	$N_{ant} := 3$		(User Input)	
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 6.1$			
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 =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 5.9$	sf	
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 17.7$	sf	
Total Antenna Wind Force =	$F_{ant} := qz_{spt} \cdot G_H \cdot Ca_{ant} \cdot A_{ant} = 1093$	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 =	$SA_{ICEant} := \frac{(L_{ant} + 1) \cdot (W_{ant} + 1)}{144} = 6.5$	sf	
Antenna Projected Surface Area w/ Ice =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 19.5$	sf	
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qzICE_{spt} \cdot G_H \cdot Ca_{ant} \cdot A_{ICEant} = 911$	lbs	**BLC 4,6**

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 171$	lbs	**BLC 2**

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 5947$	cu in	
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 1)(W_{ant} + 1) \cdot (T_{ant} + 1) - V_{ant} = 1528$	cu in	
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 50$	lbs	
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 149$	lbs	**BLC 3**

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Subject: Load Analysis of Powermount on CL&P Tower # 1522

Location: Watertown, CT

Rev. 0: 5/20/13

Prepared by: T.J.L. Checked by: C.F.C.
Job No. 12047.CO8

Development of Wind & Ice Load on Platform (per TIA/EIA-222-F-1996 Criteria)

Platform Data: (Sprint)

Platform Model =	FWT Low Profile Platform			
Platform Shape =	Flat		(User Input)	
Platform Area =	$A_{plt} := 13.07$	sq ft	(User Input from FWT design calcs)	
Platform Area w/ Ice =	$A_{ICE.plt} := 16.4$	sq ft	(User Input from FWT design calcs)	
Platform Weight =	$WT_{plt} := 3282$	lbs	(User Input from FWT design calcs)	
Platform Weight w/ Ice =	$WT_{ICE.plt} := 4478$	lbs	(User Input from FWT design calcs)	

Wind Load (without ice) (per TIA/EIA-222-F-1996 Section 2.3.2)

Total Platform Wind Force =	$F_{plt} := qz_{spt} \cdot G_H \cdot C_a \cdot A_{plt} = 807$	lbs	**BLC 5,7**

Wind Load (with ice) (per TIA/EIA-222-F-1996 Section 2.3.2)

Total Platform Wind Force w/ Ice =	$Fi_{plt} := qzICE_{spt} \cdot G_H \cdot C_a \cdot A_{ICE.plt} = 767$	lbs	**BLC 4,6**

Gravity Load (without ice)

Weight of Platform =	$WT_{plt} = 3282$	lbs	**BLC 2**

Gravity Loads (ice only)

Weight of Ice on Platform =	$WT_{ICE.plt} - WT_{plt} = 1196$	lbs	**BLC 3**

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Development of Wind & Ice Load on Coax Cables per TIA/EIA-222-F-96 Criteria

Coax Cable Data: (Cables located inside Powermount from grade to antennas)

Coax Type =	HELIAX 1-5/8"		(Sprint)
Shape =	Round		(User Input)
Coax Outside Diameter =	$D_{coax} := 1.98$	in	(User Input)
Coax Cable Length =	$L_{coax} := 110$	ft	(User Input)
Weight of Coax per foot =	$Wt_{coax} := 1.04$	plf	(User Input)
Total Number of Coax =	$N_{coax} := 6$		(User Input)
No. of Coax Projecting Outside Face of PCS Mast =	$NP_{coax} := 0$		(User Input) (Cables located inside Powermount)

Coax aspect ratio, $Ar_{coax} := \frac{(L_{coax} \cdot 12)}{D_{coax}} = 666.7$

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 = $A_{coax} := 0$ (Cables within Powermount) sf/ft

Total Coax Wind Force = $F_{coax} := Ca_{coax} \cdot qz_{coax} \cdot G_H \cdot A_{coax} = 0$ plf **BLC 5,7**

Wind Load (with ice) per TIA/EIA-222-F-96 Section 2.3.2

Coax projected surface area w/ Ice = $AICE_{coax} := 0$ (Cables within Powermount) sf/ft

Total Coax Wind Force w/ Ice = $Fi_{coax} := Ca_{coax} \cdot qzICE_{coax} \cdot G_H \cdot AICE_{coax} = 0$ plf **BLC 4,6**

Gravity Loads (without ice)

Weight of all cables w/o ice $WT_{coax} := Wt_{coax} \cdot N_{coax} = 6$ plf **BLC 2**

Gravity Loads (ice only)

Ice Area per Linear Foot = $Ai_{coax} := 0$ (Cables within Powermount) sq in

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

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Development of Wind & Ice Load on Coax Cables per TIA/EIA-222-F-96 Criteria

Coax Cable Data: (Cables located on exterior of Powermount above tower to antennas)

Coax Type =	HELIAX 1-5/8"		(Sprint)
Shape =	Round		(User Input)
Coax Outside Diameter =	$D_{coax} := 1.98$	in	(User Input)
Coax Cable Length =	$L_{coax} := 15$	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 =	$NP_{coax} := 4$		(User Input)

Coax aspect ratio, $Ar_{coax} := \frac{(L_{coax} \cdot 12)}{D_{coax}} = 90.9$

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 = $A_{coax} := \frac{(NP_{coax} D_{coax})}{12} = 0.7$ sf/ft

Total Coax Wind Force = $F_{coax} := Ca_{coax} \cdot qz_{coax} \cdot G_H \cdot A_{coax} = 34$ plf **BLC 5**

Wind Load (with ice) per TIA/EIA-222-F-96 Section 2.3.2

Coax projected surface area w/ Ice = $AICE_{coax} := \frac{(NP_{coax} \cdot D_{coax} + 2 \cdot Ir)}{12} = 0.7$ sf/ft

Total Coax Wind Force w/ Ice = $Fi_{coax} := Ca_{coax} \cdot qzICE_{coax} \cdot G_H \cdot AICE_{coax} = 29$ plf **BLC 4**

Gravity Loads (without ice)

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

Gravity Loads (ice only)

Ice Area per Linear Foot = $Ai_{coax} := \frac{\pi}{4}\left[(D_{coax} + 2 \cdot Ir)^2 - D_{coax}^2\right] = 3.9$ sq in

Ice Weight All Coax per foot = $WTi_{coax} := N_{coax} \cdot Id \cdot \frac{Ai_{coax}}{144} = 18$ plf **BLC 3**

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Development of Wind & Ice Load on Brace Member (per TIA/EIA-222-F-1996 Criteria)

Member Data: L2x2x3/16

Antenna Shape =	Flat		(User Input)		
Height =	$H_{mem} := 2$	in	(User Input)		
Width =	$W_{mem} := 2$	in	(User Input)		
Thickness =	$t_{mem} := 0.1875$	in	(User Input)		
Length =	$L_{mem} := 30$	in	(User Input)		
Member Aspect Ratio =	$Ar_{mem} := \frac{L_{mem}}{W_{mem}} = 15.0$				
Member Force Coefficient =	$Ca_{mem} = 1.67$		(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 =	$A_{mem} := \frac{H_{mem}}{12} = 0.2$			sf/ft	
Total Member Wind Force =	$F_{mem} := qz_{pmnt2} \cdot G_H \cdot Ca_{mem} \cdot A_{mem} = 11$			plf	**BLC 5,7**

Wind Load (with ice) (per TIA/EIA-222-F-1996 Section 2.3.2)

Member Projected Surface Area w/ Ice =	$A_{ICEmem} := \frac{(H_{mem} + 2 \cdot Ir)}{12} = 0.3$			sf/ft	
Total Member Wind Force w/ Ice =	$Fi_{mem} := qzICE_{pmnt2} \cdot G_H \cdot Ca_{mem} \cdot A_{ICEmem} = 12$			plf	**BLC 4,6**

Gravity Load (without ice)

Weight of Member =	Self Weight			lbs	**BLC 1**

Gravity Loads (ice only)

Ice Area per Linear foot =

$$Ai_{mem} := \left[(H_{mem} + 2 \cdot Ir) + (W_{mem} - t_{mem})\right] \cdot (t_{mem} + 2 \cdot Ir) - \left[H_{mem} + (W_{mem} + t_{mem})\right] \cdot t_{mem} = 5 \quad \text{sq in}$$

Weight of Ice on Member =	$W_{ICE.mem} := Id \cdot \frac{Ai_{mem}}{144} = 2$			plf	**BLC 3**

Development of Wind & Ice Load on Brace Member (per TIA/EIA-222-F-1996 Criteria)

Member Data: L2.5x2.5x3/16

Antenna Shape = Flat (User Input)

Height = $H_{mem} := 2.5$ in (User Input)

Width = $W_{mem} := 2.5$ in (User Input)

Thickness = $t_{mem} := 0.1875$ in (User Input)

Length = $L_{mem} := 84$ in (User Input)

Member Aspect Ratio = $Ar_{mem} := \frac{L_{mem}}{W_{mem}} = 33.6$

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 = $A_{mem} := \frac{H_{mem}}{12} = 0.2$ sf/ft

Total Member Wind Force = $F_{mem} := qz_{pmnt2} \cdot G_H \cdot Ca_{mem} \cdot A_{mem} = 16$ plf **BLC 5,7**

Wind Load (with ice) (per TIA/EIA-222-F-1996 Section 2.3.2)

Member Projected Surface Area w/ Ice = $A_{ICEmem} := \frac{(H_{mem} + 2 \cdot Ir)}{12} = 0.3$ sf/ft

Total Member Wind Force w/ Ice = $Fi_{mem} := qzICE_{pmnt2} \cdot G_H \cdot Ca_{mem} \cdot A_{ICEmem} = 17$ plf **BLC 4,6**

Gravity Load (without ice)

Weight of Member = Self Weight lbs **BLC 1**

Gravity Loads (ice only)

Ice Area per Linear foot =

$$Ai_{mem} := \left[(H_{mem} + 2 \cdot Ir) + (W_{mem} - t_{mem})\right] \cdot (t_{mem} + 2 \cdot Ir) - \left[H_{mem} + (W_{mem} + t_{mem})\right] \cdot t_{mem} = 6 \text{ sq in}$$

Weight of Ice on Member = $W_{ICE.mem} := Id \cdot \frac{Ai_{mem}}{144} = 2$ plf **BLC 3**

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Development of Wind & Ice Load on Brace Member (per TIA/EIA-222-F-1996 Criteria)

Member Data: L3x3x3/16

Antenna Shape = Flat (User Input)

Height = $H_{mem} := 3$ in (User Input)

Width = $W_{mem} := 3$ in (User Input)

Thickness = $t_{mem} := 0.1875$ in (User Input)

Length = $L_{mem} := 102$ in (User Input)

Member Aspect Ratio = $Ar_{mem} := \frac{L_{mem}}{W_{mem}} = 34.0$

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 = $A_{mem} := \frac{H_{mem}}{12} = 0.3$ sf/ft

Total Member Wind Force = $F_{mem} := qz_{pmnt4} \cdot G_H \cdot Ca_{mem} \cdot A_{mem} = 12$ plf **BLC 5,7**

Wind Load (with ice) (per TIA/EIA-222-F-1996 Section 2.3.2)

Member Projected Surface Area w/ Ice = $A_{ICEmem} := \frac{(H_{mem} + 2 \cdot Ir)}{12} = 0.3$ sf/ft

Total Member Wind Force w/ Ice = $Fi_{mem} := qzICE_{pmnt4} \cdot G_H \cdot Ca_{mem} \cdot A_{ICEmem} = 13$ plf **BLC 4,6**

Gravity Load (without ice)

Weight of Member = Self Weight lbs **BLC 1**

Gravity Loads (ice only)

Ice Area per Linear foot =

$$Ai_{mem} := \left[(H_{mem} + 2 \cdot Ir) + (W_{mem} - t_{mem})\right] \cdot (t_{mem} + 2 \cdot Ir) - \left[H_{mem} + (W_{mem} + t_{mem})\right] \cdot t_{mem} = 7 \text{ sq in}$$

Weight of Ice on Member = $W_{ICE.mem} := Id \cdot \frac{Ai_{mem}}{144} = 3$ plf **BLC 3**

CENTEK engineering, INC.	Subject:	**Analysis of TIA/EIA Wind and Ice Loads for Analysis of Powermount Only**		
Consulting Engineers		**Tabulated Load Cases**		
63-2 North Branford Road				
Branford, CT 06405	Location:	**Watertown, CT**		
Ph. 203-488-0580 / Fax. 203-488-8587	Date: 5/21/13	Prepared by: T.J.L.	Checked by: C.F.C.	Job No. 12047.CO8

Load Case	Description
1	Self Weight (Powermountt)
2	Weight of Appurtenances
3	Weight of Ice Only on PCS Structure (1)
4	(X) TIA/EIA Wind with Ice on PCS Structure (1)
5	(X) TIA/EIA Wind on PCS Structure (1)
6	(Z) TIA/EIA Wind with Ice on PCS Structure (1)
7	(Z) TIA/EIA 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 TIA/EIA Wind and Ice Loads for Analysis of Powermount Only Load Combinations Table**

Location: **Watertown, CT**

Date: 5/21/13 Prepared by: T.J.L. Checked by: C.F.C. Job No. 12047.CO8

Load Combination	Description	Envelope Soultion	Wind Factor	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	(X) TIA/EIA Wind + Ice on PCS Structure		1		1	1	2	1	3	1	4	1		
2	(X) TIA/EIA Wind on PCS Structure		1		1	1	2	1	5	1				
3	(Z) TIA/EIA Wind + Ice on PCS Structure		1		1	1	2	1	3	1	6	1		
4	(Z) TIA/EIA Wind on PCS Structure		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
Parme 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 (\1E...	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. 50	29000	11154	.3	.65	.49	50	1.1	58	1.2

Hot Rolled Steel Design Parameters

	Label	Shape	Lengt...	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	Kyy	Kzz	Cm-...	Cm-...	Cb	y sw...	z sw...	Function
1	M1	Powerm...	110	Segment	Segment										Lateral
2	M2	Brace 3	4.299												Lateral
3	M3	Brace 3	4.299												Lateral
4	M4	Brace 3	6.376												Lateral
5	M5	Brace 3	6.376												Lateral
6	M6	Brace 2	3.354												Lateral
7	M7	Brace 2	3.354												Lateral
8	M8	Brace 1	1.5												Lateral
9	M9	Brace 2	3.354												Lateral
10	M10	Brace 2	3.354												Lateral
11	M11	Brace 1	1.5												Lateral
12	M15	Brace 2	3.354												Lateral
13	M16	Brace 1	1.5												Lateral
14	M17	Brace 2	3.354												Lateral

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rul...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Powermount	12" FWT Powermo...	Beam	Pipe	A500 Gr. 50	Typical	14.579	279.335	279.335	558.67
2	Brace 1	L2X2X3	Beam	Single Angle	A36 Gr.36	Typical	.715	.272	.272	.009
3	Brace 2	L2.5X2.5X3	Beam	Single Angle	A36 Gr.36	Typical	.902	.547	.547	.011
4	Brace 3	L3X3X3	Beam	Single Angle	A36 Gr.36	Typical	1.09	.962	.962	.014

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N1	N7			Powermount	Beam	Pipe	A500 Gr. ...	Typical
2	M2	N8	N2			Brace 3	Beam	Single Angle	A36 Gr.36	Typical
3	M3	N2	N9			Brace 3	Beam	Single Angle	A36 Gr.36	Typical
4	M4	N10	N2			Brace 3	Beam	Single Angle	A36 Gr.36	Typical
5	M5	N2	N11			Brace 3	Beam	Single Angle	A36 Gr.36	Typical
6	M6	N13	N3			Brace 2	Beam	Single Angle	A36 Gr.36	Typical
7	M7	N3	N14			Brace 2	Beam	Single Angle	A36 Gr.36	Typical
8	M8	N3	N12			Brace 1	Beam	Single Angle	A36 Gr.36	Typical
9	M9	N16	N4			Brace 2	Beam	Single Angle	A36 Gr.36	Typical
10	M10	N4	N17			Brace 2	Beam	Single Angle	A36 Gr.36	Typical
11	M11	N4	N15			Brace 1	Beam	Single Angle	A36 Gr.36	Typical
12	M15	N6	N23			Brace 2	Beam	Single Angle	A36 Gr.36	Typical
13	M16	N6	N21			Brace 1	Beam	Single Angle	A36 Gr.36	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
14	M17	N6	N22			Brace 2	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	15	0	0	
3	N3	0	57	0	0	
4	N4	0	71	0	0	
5	N5	0	85	0	0	
6	N6	0	89.67	0	0	
7	N7	0	110	0	0	
8	N8	3.696	15	2.196	0	
9	N9	-3.696	15	2.196	0	
10	N10	3.696	15	-5.196	0	
11	N11	-3.696	15	-5.196	0	
12	N12	0	57	-1.5	0	
13	N13	3	57	1.5	0	
14	N14	-3	57	1.5	0	
15	N15	0	71	-1.5	0	
16	N16	3	71	1.5	0	
17	N17	-3	71	1.5	0	
18	N21	0	89.67	-1.5	0	
19	N22	3	89.67	1.5	0	
20	N23	-3	89.67	1.5	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	N1	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction	
2	N2							
3	N3							
4	N4							
5	N5							
6	N6							
7	N8	Reaction	Reaction	Reaction				
8	N9	Reaction	Reaction	Reaction				
9	N10	Reaction	Reaction	Reaction				
10	N11	Reaction	Reaction	Reaction				
11	N12	Reaction	Reaction	Reaction				
12	N13	Reaction	Reaction	Reaction				
13	N15	Reaction	Reaction	Reaction				
14	N16	Reaction	Reaction	Reaction				
15	N14	Reaction	Reaction	Reaction				
16	N17	Reaction	Reaction	Reaction				
17	N22	Reaction	Reaction	Reaction				
18	N23	Reaction	Reaction	Reaction				
19	N21	Reaction	Reaction	Reaction				

Joint Loads and Enforced Displacements

Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
No Data to Print ...			

Member Point Loads (BLC 2 : Weight of Appurtenances)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	Y	-.171	110
2	M1	Y	-3.282	110

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	Y	-.149	110
2	M1	Y	-1.196	110

Member Point Loads (BLC 4 : (X) TIA/EIA Wind with Ice on PCS)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	X	.911	110
2	M1	X	.767	110

Member Point Loads (BLC 5 : (X) TIA/EIA Wind on PCS Structur)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	X	1.093	110
2	M1	X	.807	110

Member Point Loads (BLC 6 : (Z) TIA/EIA Wind with Ice on PCS)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	Z	.911	110
2	M1	Z	.767	110

Member Point Loads (BLC 7 : (Z) TIA/EIA Wind on PCS Structur)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	Z	1.093	110
2	M1	Z	.807	110

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	-.006	-.006	0	0
2	M1	Y	-.012	-.012	95	110

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	-.008	-.008	0	0
2	M1	Y	-.018	-.018	95	110
3	M16	Y	-.002	-.002	0	0
4	M17	Y	-.002	-.002	0	0
5	M15	Y	-.002	-.002	0	0
6	M11	Y	-.002	-.002	0	0
7	M9	Y	-.002	-.002	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,deg]	End Magnitude[k/f...	Start Location[ft,%]	End Location[ft,%]
8	M10	Y	-.002	-.002	0	0
9	M8	Y	-.002	-.002	0	0
10	M6	Y	-.002	-.002	0	0
11	M7	Y	-.002	-.002	0	0
12	M2	Y	-.003	-.003	0	0
13	M3	Y	-.003	-.003	0	0
14	M4	Y	-.003	-.003	0	0
15	M5	Y	-.003	-.003	0	0

Member Distributed Loads (BLC 4 : (X) TIA/EIA Wind with Ice on PCS)

	Member Label	Direction	Start Magnitude[k/ft,deg]	End Magnitude[k/f...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	.013	.013	0	30
2	M1	X	.018	.018	30	60
3	M1	X	.02	.02	60	90
4	M1	X	.022	.022	90	110
5	M1	X	.029	.029	95	110
6	M16	X	.012	.012	0	0
7	M11	X	.012	.012	0	0
8	M8	X	.012	.012	0	0
9	M15	X	.017	.017	0	0
10	M17	X	.017	.017	0	0
11	M10	X	.017	.017	0	0
12	M9	X	.017	.017	0	0
13	M7	X	.017	.017	0	0
14	M6	X	.017	.017	0	0
15	M2	X	.013	.013	0	0
16	M3	X	.013	.013	0	0
17	M4	X	.013	.013	0	0
18	M5	X	.013	.013	0	0

Member Distributed Loads (BLC 5 : (X) TIA/EIA Wind on PCS Structur)

	Member Label	Direction	Start Magnitude[k/ft,deg]	End Magnitude[k/f...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	.016	.016	0	30
2	M1	X	.021	.021	30	60
3	M1	X	.025	.025	60	90
4	M1	X	.027	.027	90	110
5	M1	X	.034	.034	95	110
6	M16	X	.011	.011	0	0
7	M11	X	.011	.011	0	0
8	M8	X	.011	.011	0	0
9	M15	X	.016	.016	0	0
10	M17	X	.016	.016	0	0
11	M10	X	.016	.016	0	0
12	M9	X	.016	.016	0	0
13	M7	X	.016	.016	0	0
14	M6	X	.016	.016	0	0
15	M2	X	.012	.012	0	0
16	M3	X	.012	.012	0	0
17	M4	X	.012	.012	0	0
18	M5	X	.012	.012	0	0

Member Distributed Loads (BLC 6 : (Z) TIA/EIA Wind with Ice on PCS)

	Member Label	Direction	Start Magnitude[k/ft,deg]	End Magnitude[k/f...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	.013	.013	0	30
2	M1	Z	.018	.018	30	60
3	M1	Z	.02	.02	60	90
4	M1	Z	.022	.022	90	110
5	M1	Z	.029	.029	95	110
6	M17	Z	.017	.017	0	0
7	M15	Z	.017	.017	0	0
8	M9	Z	.017	.017	0	0
9	M10	Z	.017	.017	0	0
10	M6	Z	.017	.017	0	0
11	M7	Z	.017	.017	0	0
12	M5	Z	.013	.013	0	0
13	M4	Z	.013	.013	0	0
14	M2	Z	.013	.013	0	0
15	M3	Z	.013	.013	0	0

Member Distributed Loads (BLC 7 : (Z) TIA/EIA Wind on PCS Structur)

	Member Label	Direction	Start Magnitude[k/ft,deg]	End Magnitude[k/f...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	.016	.016	0	30
2	M1	Z	.021	.021	30	60
3	M1	Z	.025	.025	60	90
4	M1	Z	.027	.027	90	110
5	M1	Z	.034	.034	95	110
6	M17	Z	.011	.011	0	0
7	M15	Z	.011	.011	0	0
8	M9	Z	.011	.011	0	0
9	M10	Z	.011	.011	0	0
10	M6	Z	.011	.011	0	0
11	M7	Z	.011	.011	0	0
12	M5	Z	.012	.012	0	0
13	M4	Z	.012	.012	0	0
14	M2	Z	.012	.012	0	0
15	M3	Z	.012	.012	0	0

Basic Load Cases

	BLC Description	Category	X Gr...	Y Gr...	Z Grav...	Joint	Point	Distri...	Area(...	Surfa...
1	Self Weight (Powermount)	None		-1						
2	Weight of Appurtenances	None					2	2		
3	Weight of Ice Only on PCS Struct	None					2	15		
4	(X) TIA/EIA Wind with Ice on PCS	None					2	18		
5	(X) TIA/EIA Wind on PCS Structur	None					2	18		
6	(Z) TIA/EIA Wind with Ice on PCS	None					2	15		
7	(Z) TIA/EIA Wind on PCS Structur	None					2	15		

Load Combinations

	Description	So...	PDelta	SRSS	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...
1	(X) TIA/EIA Wind + Ice on P...	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 P...	Yes			1	1	2	1	3	1	6	1								

Load Combinations (Continued)

	Description	So...	PDelta	SRSS	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...
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	12.378	1	0	3	.011	3	0	1	0	1	0	3
2			min	9.826	2	-.015	2	0	1	0	1	-.309	4	-.338	2
3		2	max	10.557	1	.116	2	0	1	0	1	0	1	0	3
4			min	8.257	2	0	3	-.114	4	0	1	-1.017	4	-1.011	2
5		3	max	8.807	1	0	3	.451	4	0	1	3.474	4	3.419	2
6			min	6.728	2	-.449	2	0	1	0	1	0	1	0	3
7		4	max	7.018	1	0	3	3.52	4	0	1	24.867	4	24.915	2
8			min	5.174	2	-3.514	2	0	1	0	1	0	1	0	3
9		5	max	4.798	3	1.9	2	0	1	0	1	0	1	0	1
10			min	3.453	2	0	3	-1.9	4	0	1	0	1	0	1
11	M2	1	max	.333	2	.014	3	.024	3	0	1	0	1	0	1
12			min	.232	3	.008	2	-.014	1	0	1	0	1	0	1
13		2	max	.322	2	.007	3	.012	3	0	1	.022	3	.008	4
14			min	.224	3	.004	4	-.007	1	0	1	-.003	2	-.016	1
15		3	max	.311	2	0	1	0	1	0	1	.029	3	.011	4
16			min	.217	3	0	1	0	1	0	1	-.004	2	-.022	1
17		4	max	.3	2	-.004	2	.007	1	0	1	.022	3	.008	4
18			min	.21	3	-.007	3	-.012	3	0	1	-.003	2	-.016	1
19		5	max	.289	2	-.008	2	.014	1	0	1	0	1	0	1
20			min	.203	3	-.014	3	-.024	3	0	1	0	1	0	1
21	M3	1	max	.236	4	.014	3	.024	3	0	1	0	1	0	1
22			min	-.289	2	.008	4	.013	2	0	1	0	1	0	1
23		2	max	.243	4	.007	3	.012	3	0	1	.022	3	.008	4
24			min	-.3	2	.004	4	.007	2	0	1	.012	2	0	1
25		3	max	.25	4	0	1	0	1	0	1	.029	3	.011	4
26			min	-.311	2	0	1	0	1	0	1	.016	2	0	1
27		4	max	.256	4	-.004	2	-.007	2	0	1	.022	3	.008	4
28			min	-.322	2	-.007	1	-.012	3	0	1	.012	2	0	1
29		5	max	.263	4	-.008	2	-.013	2	0	1	0	1	0	1
30			min	-.333	2	-.014	1	-.024	3	0	1	0	1	0	1
31	M4	1	max	.164	2	.021	1	.034	1	0	1	0	1	0	1
32			min	-.3	4	.012	4	.022	4	0	1	0	1	0	1
33		2	max	.152	2	.011	1	.017	1	0	1	.047	1	.016	2
34			min	-.284	4	.006	4	.011	4	0	1	.029	4	.002	3
35		3	max	.141	2	0	1	0	1	0	1	.062	1	.022	2
36			min	-.268	4	0	1	0	1	0	1	.038	4	.003	3
37		4	max	.13	2	-.006	2	-.011	4	0	1	.047	1	.016	2
38			min	-.253	4	-.011	3	-.017	1	0	1	.029	4	.002	3
39		5	max	.119	2	-.012	2	-.022	4	0	1	0	1	0	1
40			min	-.237	4	-.021	3	-.034	1	0	1	0	1	0	1
41	M5	1	max	-.099	1	.021	3	.024	3	0	1	0	1	0	1
42			min	-.237	4	.012	2	-.034	1	0	1	0	1	0	1
43		2	max	-.111	1	.011	3	.012	3	0	1	.038	3	.009	4
44			min	-.253	4	.006	2	-.017	1	0	1	-.016	2	-.047	1
45		3	max	-.123	1	0	1	0	1	0	1	.051	3	.012	4
46			min	-.268	4	0	1	0	1	0	1	-.022	2	-.062	1
47		4	max	-.135	1	-.006	2	.017	1	0	1	.038	3	.009	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
48			min	-.284	4	-.011	1	-.012	3	0	1	-.016	2	-.047	1
49		5	max	-.147	1	-.012	2	.034	1	0	1	0	1	0	1
50			min	-.3	4	-.021	3	-.024	3	0	1	0	1	0	1
51	M6	1	max	1.152	2	.009	3	.025	3	0	1	0	1	0	1
52			min	.375	3	.005	4	-.013	1	0	1	0	1	0	1
53		2	max	1.14	2	.004	3	.013	3	0	1	.015	3	.008	3
54			min	.368	3	.003	4	-.006	1	0	1	-.003	2	-.009	1
55		3	max	1.128	2	0	1	0	1	0	1	.02	3	.01	3
56			min	.362	3	0	1	0	1	0	1	-.004	2	-.013	1
57		4	max	1.116	2	-.003	2	.006	1	0	1	.015	3	.008	3
58			min	.356	3	-.004	1	-.013	3	0	1	-.003	2	-.009	1
59		5	max	1.104	2	-.005	2	.013	1	0	1	0	1	0	1
60			min	.349	3	-.009	1	-.026	3	0	1	0	1	0	1
61	M7	1	max	.405	4	.009	1	.026	3	0	1	0	1	0	1
62			min	-1.104	2	.005	4	.012	2	0	1	0	1	0	1
63		2	max	.409	4	.004	1	.013	3	0	1	.015	3	.008	3
64			min	-1.116	2	.003	4	.006	2	0	1	.008	2	.002	1
65		3	max	.413	4	0	1	0	1	0	1	.02	3	.01	3
66			min	-1.128	2	0	1	0	1	0	1	.01	2	.003	1
67		4	max	.417	4	-.003	2	-.006	2	0	1	.015	3	.008	3
68			min	-1.14	2	-.004	3	-.013	3	0	1	.008	2	.002	1
69		5	max	.422	4	-.005	2	-.012	2	0	1	0	1	0	1
70			min	-1.152	2	-.009	3	-.026	3	0	1	0	1	0	1
71	M8	1	max	0	1	.003	3	0	3	0	1	0	1	0	1
72			min	-1.638	4	.002	2	-.009	1	0	1	0	1	0	1
73		2	max	0	1	.002	3	0	3	0	1	0	3	0	4
74			min	-1.638	4	0	2	-.004	1	0	1	-.001	2	-.002	1
75		3	max	0	1	0	1	0	1	0	1	0	3	0	4
76			min	-1.638	4	0	1	0	1	0	1	-.002	2	-.003	1
77		4	max	0	1	0	4	.005	1	0	1	0	3	0	4
78			min	-1.638	4	-.002	1	0	4	0	1	-.001	2	-.002	1
79		5	max	0	1	-.002	4	.009	1	0	1	0	1	0	1
80			min	-1.638	4	-.003	1	0	4	0	1	0	1	0	1
81	M9	1	max	-.767	3	.009	3	.026	3	0	1	0	1	0	1
82			min	-2.374	2	.005	4	-.013	1	0	1	0	1	0	1
83		2	max	-.773	3	.004	3	.013	3	0	1	.015	3	.008	3
84			min	-2.386	2	.003	4	-.006	1	0	1	-.003	2	-.009	1
85		3	max	-.779	3	0	1	0	1	0	1	.02	3	.01	3
86			min	-2.398	2	0	1	0	1	0	1	-.004	2	-.013	1
87		4	max	-.786	3	-.003	2	.006	1	0	1	.015	3	.008	3
88			min	-2.41	2	-.004	1	-.013	3	0	1	-.003	2	-.009	1
89		5	max	-.792	3	-.005	2	.013	1	0	1	0	1	0	1
90			min	-2.422	2	-.009	1	-.026	3	0	1	0	1	0	1
91	M10	1	max	2.422	2	.009	3	.025	3	0	1	0	1	0	1
92			min	-.901	4	.005	2	.012	2	0	1	0	1	0	1
93		2	max	2.41	2	.004	3	.013	3	0	1	.015	3	.008	3
94			min	-.897	4	.003	2	.006	2	0	1	.008	2	.002	1
95		3	max	2.398	2	0	1	0	1	0	1	.02	3	.01	3
96			min	-.892	4	0	1	0	1	0	1	.01	2	.003	1
97		4	max	2.386	2	-.003	4	-.006	2	0	1	.015	3	.008	3
98			min	-.888	4	-.004	1	-.013	3	0	1	.008	2	.002	1
99		5	max	2.374	2	-.005	4	-.012	2	0	1	0	1	0	1
100			min	-.884	4	-.009	1	-.026	3	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
101	M11	1	max	3.537	4	.003	1	0	3	0	1	0	1	0	1
102			min	0	1	.002	4	-.009	1	0	1	0	1	0	1
103		2	max	3.537	4	.002	1	0	3	0	1	0	3	0	4
104			min	0	1	0	4	-.004	1	0	1	-.001	2	-.002	1
105		3	max	3.537	4	0	1	0	1	0	1	0	3	0	4
106			min	0	1	0	1	0	1	0	1	-.002	2	-.003	1
107		4	max	3.537	4	0	2	.005	1	0	1	0	3	0	4
108			min	0	1	-.002	3	0	4	0	1	-.001	2	-.002	1
109		5	max	3.537	4	-.002	2	.009	1	0	1	0	1	0	1
110			min	0	1	-.003	1	0	4	0	1	0	1	0	1
111	M15	1	max	1.37	4	.009	3	.026	3	0	1	0	1	0	1
112			min	-3.729	2	.005	2	.012	2	0	1	0	1	0	1
113		2	max	1.374	4	.004	3	.013	3	0	1	.015	3	.008	3
114			min	-3.741	2	.003	2	.006	2	0	1	.008	2	.002	1
115		3	max	1.378	4	0	1	0	1	0	1	.02	3	.01	3
116			min	-3.753	2	0	1	0	1	0	1	.01	2	.003	1
117		4	max	1.382	4	-.003	4	-.006	2	0	1	.015	3	.008	3
118			min	-3.765	2	-.004	1	-.013	3	0	1	.008	2	.002	1
119		5	max	1.386	4	-.005	4	-.012	2	0	1	0	1	0	1
120			min	-3.777	2	-.009	1	-.025	3	0	1	0	1	0	1
121	M16	1	max	0	1	.003	3	0	3	0	1	0	1	0	1
122			min	-5.462	4	.002	2	-.009	1	0	1	0	1	0	1
123		2	max	0	1	.002	3	0	3	0	1	0	3	0	4
124			min	-5.462	4	0	2	-.004	1	0	1	-.001	2	-.002	1
125		3	max	0	1	0	1	0	1	0	1	0	3	0	4
126			min	-5.462	4	0	1	0	1	0	1	-.002	2	-.003	1
127		4	max	0	1	0	4	.005	1	0	1	0	3	0	4
128			min	-5.462	4	-.002	1	0	4	0	1	-.001	2	-.002	1
129		5	max	0	1	-.002	4	.009	1	0	1	0	1	0	1
130			min	-5.462	4	-.003	1	0	4	0	1	0	1	0	1
131	M17	1	max	3.729	2	.009	3	.013	1	0	1	0	1	0	1
132			min	1.187	3	.005	2	-.026	3	0	1	0	1	0	1
133		2	max	3.741	2	.004	3	.006	1	0	1	.009	1	.003	2
134			min	1.193	3	.003	2	-.013	3	0	1	-.008	3	-.015	3
135		3	max	3.753	2	0	1	0	1	0	1	.013	1	.004	2
136			min	1.2	3	0	1	0	1	0	1	-.01	3	-.02	3
137		4	max	3.765	2	-.003	4	.013	3	0	1	.009	1	.003	2
138			min	1.206	3	-.004	1	-.006	1	0	1	-.008	3	-.015	3
139		5	max	3.777	2	-.005	4	.025	3	0	1	0	1	0	1
140			min	1.212	3	-.009	1	-.013	1	0	1	0	1	0	1

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	.849	1	0	3	.001	3	.093	2	0	3	0	1	.085	4
2			min	.674	2	-.002	2	0	1	0	3	-.093	2	-.085	4	0	1
3		2	max	.724	1	.016	2	0	1	.277	2	0	3	0	1	.279	4
4			min	.566	2	0	3	-.016	4	0	3	-.277	2	-.279	4	0	1
5		3	max	.604	1	0	3	.062	4	0	3	.936	2	.951	4	0	1
6			min	.461	2	-.062	2	0	1	-.936	2	0	3	0	1	-.951	4
7		4	max	.481	1	0	3	.483	4	0	3	6.823	2	6.81	4	0	1
8			min	.355	2	-.482	2	0	1	-6.823	2	0	3	0	1	-6.81	4

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
9		5	max	.329	3	.261	2	0	1	0	1	0	1	0	1	0	1
10			min	.237	2	0	3	-.261	4	0	1	0	1	0	1	0	1
11	M2	1	max	.306	2	.031	3	.051	3	0	1	0	1	0	1	0	1
12			min	.212	3	.017	2	-.03	1	0	1	0	1	0	1	0	1
13		2	max	.296	2	.015	3	.026	3	.262	1	.13	4	.699	3	.107	2
14			min	.206	3	.009	4	-.015	1	-.13	4	-.262	1	-.095	2	-.787	3
15		3	max	.285	2	0	1	0	1	.35	1	.173	4	.931	3	.142	2
16			min	.199	3	0	1	0	1	-.173	4	-.35	1	-.126	2	-1.05	3
17		4	max	.275	2	-.009	2	.015	1	.262	1	.13	4	.699	3	.107	2
18			min	.193	3	-.015	3	-.026	3	-.13	4	-.262	1	-.095	2	-.787	3
19		5	max	.265	2	-.017	2	.03	1	0	1	0	1	0	1	0	1
20			min	.186	3	-.031	3	-.051	3	0	1	0	1	0	1	0	1
21	M3	1	max	.217	4	.031	3	.051	3	0	1	0	1	0	1	0	1
22			min	-.265	2	.017	4	.028	2	0	1	0	1	0	1	0	1
23		2	max	.223	4	.015	3	.026	3	.001	1	.13	4	.699	3	-.433	2
24			min	-.275	2	.009	4	.014	2	-.13	4	-.001	1	.384	2	-.787	3
25		3	max	.229	4	0	1	0	1	.002	1	.173	4	.931	3	-.577	2
26			min	-.285	2	0	1	0	1	-.173	4	-.002	1	.512	2	-1.05	3
27		4	max	.235	4	-.009	2	-.014	2	.001	1	.13	4	.699	3	-.433	2
28			min	-.296	2	-.015	1	-.026	3	-.13	4	-.001	1	.384	2	-.787	3
29		5	max	.241	4	-.017	2	-.028	2	0	1	0	1	0	1	0	1
30			min	-.306	2	-.031	1	-.051	3	0	1	0	1	0	1	0	1
31	M4	1	max	.15	2	.046	1	.072	1	0	1	0	1	0	1	0	1
32			min	-.275	4	.025	4	.047	4	0	1	0	1	0	1	0	1
33		2	max	.14	2	.023	1	.036	1	-.036	3	.263	2	1.487	1	-1.033	4
34			min	-.261	4	.013	4	.024	4	-.263	2	.036	3	.916	4	-1.675	1
35		3	max	.13	2	0	1	0	1	-.048	3	.35	2	1.982	1	-1.377	4
36			min	-.246	4	0	1	0	1	-.35	2	.048	3	1.222	4	-2.234	1
37		4	max	.12	2	-.013	2	-.024	4	-.036	3	.263	2	1.487	1	-1.033	4
38			min	-.232	4	-.023	3	-.036	1	-.263	2	.036	3	.916	4	-1.675	1
39		5	max	.109	2	-.025	2	-.047	4	0	1	0	1	0	1	0	1
40			min	-.218	4	-.046	3	-.072	1	0	1	0	1	0	1	0	1
41	M5	1	max	-.091	1	.046	3	.051	3	0	1	0	1	0	1	0	1
42			min	-.218	4	.025	2	-.072	1	0	1	0	1	0	1	0	1
43		2	max	-.102	1	.023	3	.026	3	.748	1	.14	4	1.224	3	.588	2
44			min	-.232	4	.013	2	-.036	1	-.14	4	-.748	1	-.522	2	-1.379	3
45		3	max	-.113	1	0	1	0	1	.998	1	.187	4	1.632	3	.784	2
46			min	-.246	4	0	1	0	1	-.187	4	-.998	1	-.695	2	-1.839	3
47		4	max	-.124	1	-.013	2	.036	1	.748	1	.14	4	1.224	3	.588	2
48			min	-.261	4	-.023	1	-.026	3	-.14	4	-.748	1	-.522	2	-1.379	3
49		5	max	-.135	1	-.025	2	.072	1	0	1	0	1	0	1	0	1
50			min	-.275	4	-.046	3	-.051	3	0	1	0	1	0	1	0	1
51	M6	1	max	1.277	2	.022	3	.065	3	0	1	0	1	0	1	0	1
52			min	.416	3	.013	4	-.033	1	0	1	0	1	0	1	0	1
53		2	max	1.264	2	.011	3	.033	3	.221	1	.177	3	.699	3	.162	2
54			min	.408	3	.007	4	-.016	1	-.177	3	-.221	1	-.141	2	-.806	3
55		3	max	1.25	2	0	1	0	1	.295	1	.236	3	.933	3	.217	2
56			min	.401	3	0	1	0	1	-.236	3	-.295	1	-.188	2	-1.075	3
57		4	max	1.237	2	-.007	2	.016	1	.221	1	.177	3	.699	3	.162	2
58			min	.394	3	-.011	1	-.033	3	-.177	3	-.221	1	-.141	2	-.806	3
59		5	max	1.224	2	-.013	2	.033	1	0	1	0	1	0	1	0	1
60			min	.387	3	-.022	1	-.065	3	0	1	0	1	0	1	0	1
61	M7	1	max	.449	4	.022	1	.065	3	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
62			min	-1.224	2	.013	4	.031	2	0	1	0	1	0	1	0	1
63		2	max	.454	4	.011	1	.033	3	-.044	1	.177	3	.699	3	-.407	2
64			min	-1.237	2	.007	4	.015	2	-.177	3	.044	1	.353	2	-.806	3
65		3	max	.458	4	0	1	0	1	-.059	1	.236	3	.933	3	-.542	2
66			min	-1.25	2	0	1	0	1	-.236	3	.059	1	.47	2	-1.075	3
67		4	max	.463	4	-.007	2	-.015	2	-.044	1	.177	3	.699	3	-.407	2
68			min	-1.264	2	-.011	3	-.033	3	-.177	3	.044	1	.353	2	-.806	3
69		5	max	.467	4	-.013	2	-.031	2	0	1	0	1	0	1	0	1
70			min	-1.277	2	-.022	3	-.065	3	0	1	0	1	0	1	0	1
71	M8	1	max	0	1	.011	3	0	3	0	1	0	1	0	1	0	1
72			min	-2.291	4	.006	2	-.029	1	0	1	0	1	0	1	0	1
73		2	max	0	1	.005	3	0	3	.092	1	-.014	4	.048	3	.111	2
74			min	-2.291	4	.003	2	-.014	1	.014	4	-.092	1	-.093	2	-.058	3
75		3	max	0	1	0	1	0	1	.122	1	-.018	4	.064	3	.148	2
76			min	-2.291	4	0	1	0	1	.018	4	-.122	1	-.124	2	-.077	3
77		4	max	0	1	-.003	4	.014	1	.092	1	-.014	4	.048	3	.111	2
78			min	-2.291	4	-.005	1	0	3	.014	4	-.092	1	-.093	2	-.058	3
79		5	max	0	1	-.006	4	.029	1	0	1	0	1	0	1	0	1
80			min	-2.291	4	-.011	1	0	3	0	1	0	1	0	1	0	1
81	M9	1	max	-.85	3	.022	3	.065	3	0	1	0	1	0	1	0	1
82			min	-2.632	2	.013	4	-.033	1	0	1	0	1	0	1	0	1
83		2	max	-.857	3	.011	3	.033	3	.221	1	.177	3	.699	3	.162	2
84			min	-2.646	2	.007	4	-.016	1	-.177	3	-.221	1	-.141	2	-.806	3
85		3	max	-.864	3	0	1	0	1	.295	1	.236	3	.933	3	.217	2
86			min	-2.659	2	0	1	0	1	-.236	3	-.295	1	-.188	2	-1.075	3
87		4	max	-.871	3	-.007	2	.016	1	.221	1	.177	3	.699	3	.162	2
88			min	-2.672	2	-.011	1	-.033	3	-.177	3	-.221	1	-.141	2	-.806	3
89		5	max	-.878	3	-.013	2	.033	1	0	1	0	1	0	1	0	1
90			min	-2.686	2	-.022	1	-.065	3	0	1	0	1	0	1	0	1
91	M10	1	max	2.686	2	.022	3	.065	3	0	1	0	1	0	1	0	1
92			min	-.998	4	.013	2	.031	2	0	1	0	1	0	1	0	1
93		2	max	2.672	2	.011	3	.033	3	-.044	1	.177	3	.699	3	-.407	2
94			min	-.994	4	.007	2	.015	2	-.177	3	.044	1	.353	2	-.806	3
95		3	max	2.659	2	0	1	0	1	-.059	1	.236	3	.933	3	-.542	2
96			min	-.989	4	0	1	0	1	-.236	3	.059	1	.47	2	-1.075	3
97		4	max	2.646	2	-.007	4	-.015	2	-.044	1	.177	3	.699	3	-.407	2
98			min	-.985	4	-.011	1	-.033	3	-.177	3	.044	1	.353	2	-.806	3
99		5	max	2.632	2	-.013	4	-.031	2	0	1	0	1	0	1	0	1
100			min	-.98	4	-.022	1	-.065	3	0	1	0	1	0	1	0	1
101	M11	1	max	4.947	4	.011	1	0	3	0	1	0	1	0	1	0	1
102			min	0	1	.006	4	-.029	1	0	1	0	1	0	1	0	1
103		2	max	4.947	4	.005	1	0	3	.092	1	-.014	4	.048	3	.111	2
104			min	0	1	.003	4	-.014	1	.014	4	-.092	1	-.093	2	-.058	3
105		3	max	4.947	4	0	1	0	1	.122	1	-.018	4	.064	3	.148	2
106			min	0	1	0	1	0	1	.018	4	-.122	1	-.124	2	-.077	3
107		4	max	4.947	4	-.003	2	.014	1	.092	1	-.014	4	.048	3	.111	2
108			min	0	1	-.005	3	0	3	.014	4	-.092	1	-.093	2	-.058	3
109		5	max	4.947	4	-.006	2	.029	1	0	1	0	1	0	1	0	1
110			min	0	1	-.011	1	0	3	0	1	0	1	0	1	0	1
111	M15	1	max	1.519	4	.022	3	.065	3	0	1	0	1	0	1	0	1
112			min	-4.134	2	.013	2	.031	2	0	1	0	1	0	1	0	1
113		2	max	1.523	4	.011	3	.033	3	-.044	1	.177	3	.699	3	-.407	2
114			min	-4.147	2	.007	2	.015	2	-.177	3	.044	1	.353	2	-.806	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
115		3	max	1.528	4	0	1	0	1	-.059	1	.236	3	.933	3	-.542	2
116			min	-4.16	2	0	1	0	1	-.236	3	.059	1	.47	2	-1.075	3
117		4	max	1.532	4	-.007	4	-.015	2	-.044	1	.177	3	.699	3	-.407	2
118			min	-4.174	2	-.011	1	-.033	3	-.177	3	.044	1	.353	2	-.806	3
119		5	max	1.537	4	-.013	4	-.031	2	0	1	0	1	0	1	0	1
120			min	-4.187	2	-.022	1	-.065	3	0	1	0	1	0	1	0	1
121	M16	1	max	0	1	.011	3	0	3	0	1	0	1	0	1	0	1
122			min	-7.639	4	.006	2	-.029	1	0	1	0	1	0	1	0	1
123		2	max	0	1	.005	3	0	3	.092	1	-.014	4	.048	3	.111	2
124			min	-7.639	4	.003	2	-.014	1	.014	4	-.092	1	-.093	2	-.058	3
125		3	max	0	1	0	1	0	1	.122	1	-.018	4	.064	3	.148	2
126			min	-7.639	4	0	1	0	1	.018	4	-.122	1	-.124	2	-.077	3
127		4	max	0	1	-.003	4	.014	1	.092	1	-.014	4	.048	3	.111	2
128			min	-7.639	4	-.005	1	0	3	.014	4	-.092	1	-.093	2	-.058	3
129		5	max	0	1	-.006	4	.029	1	0	1	0	1	0	1	0	1
130			min	-7.639	4	-.011	1	0	3	0	1	0	1	0	1	0	1
131	M17	1	max	4.134	2	.022	3	.033	1	0	1	0	1	0	1	0	1
132			min	1.316	3	.013	2	-.065	3	0	1	0	1	0	1	0	1
133		2	max	4.147	2	.011	3	.016	1	.354	3	.071	2	.437	1	.403	3
134			min	1.323	3	.007	2	-.033	3	-.071	2	-.354	3	-.35	3	-.504	1
135		3	max	4.16	2	0	1	0	1	.472	3	.095	2	.583	1	.537	3
136			min	1.33	3	0	1	0	1	-.095	2	-.472	3	-.466	3	-.672	1
137		4	max	4.174	2	-.007	4	.033	3	.354	3	.071	2	.437	1	.403	3
138			min	1.337	3	-.011	1	-.016	1	-.071	2	-.354	3	-.35	3	-.504	1
139		5	max	4.187	2	-.013	4	.065	3	0	1	0	1	0	1	0	1
140			min	1.344	3	-.022	1	-.033	1	0	1	0	1	0	1	0	1

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	N1	max	.015	2	12.378	1	.011	3	.309	4	0	1	0	4
2		min	0	4	9.826	2	0	1	0	1	0	1	-.338	2
3	N8	max	-.187	3	.014	1	-.138	1	0	1	0	1	0	1
4		min	-.293	2	.008	2	-.159	2	0	1	0	1	0	1
5	N9	max	.215	4	.014	1	.159	2	0	1	0	1	0	1
6		min	-.293	2	.008	2	-.153	4	0	1	0	1	0	1
7	N10	max	.156	4	.021	1	.115	2	0	1	0	1	0	1
8		min	-.12	2	.012	2	-.257	4	0	1	0	1	0	1
9	N11	max	-.113	1	.021	1	-.1	1	0	1	0	1	0	1
10		min	-.156	4	.012	2	-.257	4	0	1	0	1	0	1
11	N12	max	0	4	.003	1	0	2	0	1	0	1	0	1
12		min	-.009	1	.002	2	-1.638	4	0	1	0	1	0	1
13	N13	max	-.324	3	.009	3	-.19	3	0	1	0	1	0	1
14		min	-1.035	2	.005	2	-.504	2	0	1	0	1	0	1
15	N15	max	0	4	.003	3	3.537	4	0	1	0	1	0	1
16		min	-.009	1	.002	2	0	1	0	1	0	1	0	1
17	N16	max	2.118	2	.009	1	1.073	2	0	1	0	1	0	1
18		min	.697	3	.005	2	.32	3	0	1	0	1	0	1
19	N14	max	.37	4	.009	1	.504	2	0	1	0	1	0	1
20		min	-1.035	2	.005	2	-.203	4	0	1	0	1	0	1
21	N17	max	2.118	2	.009	1	.381	4	0	1	0	1	0	1
22		min	-.798	4	.005	4	-1.073	2	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
23	N22	max	-1.073	3	.009	1	-.565	3	0	1	0	1	0	1
24		min	-3.383	2	.005	4	-1.678	2	0	1	0	1	0	1
25	N23	max	1.233	4	.009	3	1.678	2	0	1	0	1	0	1
26		min	-3.383	2	.005	4	-.635	4	0	1	0	1	0	1
27	N21	max	0	4	.003	1	0	1	0	1	0	1	0	1
28		min	-.009	1	.002	4	-5.462	4	0	1	0	1	0	1
29	Totals:	max	0	4	12.51	1	0	1						
30		min	-5.438	2	9.902	2	-5.288	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	4	0	2	0	1	0	1	0	1	0	2
2		min	0	2	0	1	0	3	0	4	0	1	0	4
3	N2	max	0	2	-.004	2	0	4	9.901e-5	4	0	1	0	3
4		min	0	3	-.005	1	0	2	0	2	0	1	-9.958e-5	2
5	N3	max	.002	2	-.013	2	.001	4	2.203e-4	4	0	1	0	3
6		min	0	3	-.017	1	0	2	0	1	0	1	-2.109e-4	2
7	N4	max	0	4	-.016	2	0	1	0	1	0	1	1.068e-3	2
8		min	-.004	2	-.02	1	-.003	4	-1.067e-3	4	0	1	0	4
9	N5	max	0	4	-.018	2	0	1	1.293e-3	4	0	1	0	3
10		min	-.156	2	-.023	1	-.157	4	0	1	0	1	-1.311e-3	2
11	N6	max	.006	2	-.019	2	.005	4	4.796e-3	4	0	1	0	4
12		min	0	3	-.024	1	0	1	0	1	0	1	-4.816e-3	2
13	N7	max	2.598	2	-.021	2	2.592	4	1.328e-2	4	0	1	0	4
14		min	0	3	-.027	1	0	1	0	1	0	1	-1.33e-2	2
15	N8	max	0	2	0	2	0	2	-8.422e-5	2	4.163e-4	3	4.271e-4	3
16		min	0	3	0	1	0	1	-1.714e-4	3	-1.105e-4	2	4.216e-5	2
17	N9	max	0	2	0	4	0	4	-9.621e-5	2	-2.283e-4	2	-2.615e-4	2
18		min	0	4	0	1	0	2	-1.714e-4	3	-4.163e-4	3	-4.271e-4	3
19	N10	max	0	2	0	2	0	4	1.015e-3	1	1.273e-3	1	6.393e-4	1
20		min	0	4	0	1	0	2	6.322e-4	4	8.025e-4	4	3.793e-4	4
21	N11	max	0	4	0	2	0	4	8.748e-4	3	6.636e-4	2	1.046e-5	2
22		min	0	1	0	1	0	1	-1.547e-4	2	-1.008e-3	3	-5.636e-4	3
23	N12	max	0	1	0	2	0	4	9.626e-4	3	1.461e-4	2	0	3
24		min	0	4	0	1	0	2	7.221e-4	2	-1.037e-5	3	-2.109e-4	2
25	N13	max	0	2	0	2	0	2	-5.996e-5	4	4.326e-4	3	7.362e-4	3
26		min	0	3	0	3	0	3	-2.693e-4	1	-1.401e-4	2	2.297e-4	2
27	N14	max	0	2	0	2	0	4	-5.996e-5	4	-2.211e-4	2	-4.829e-4	2
28		min	0	4	0	3	0	2	-2.094e-4	1	-4.326e-4	3	-7.362e-4	3
29	N15	max	0	1	0	2	0	1	1.144e-3	3	-5.691e-6	4	1.068e-3	2
30		min	0	4	0	3	0	4	8.593e-4	2	-1.908e-4	2	0	4
31	N16	max	0	3	0	2	0	3	2.64e-4	2	3.453e-4	3	6.484e-4	1
32		min	0	2	0	3	0	2	-1.117e-3	4	-7.273e-5	2	1.004e-4	4
33	N17	max	0	4	0	4	0	2	-6.752e-4	2	-1.537e-4	2	-1.004e-4	4
34		min	0	2	0	1	0	4	-1.117e-3	4	-3.453e-4	3	-4.541e-4	1
35	N21	max	0	1	0	4	0	4	1.355e-3	3	3.97e-4	2	0	4
36		min	0	4	0	1	0	1	1.015e-3	2	-1.037e-5	3	-4.816e-3	2
37	N22	max	0	2	0	4	0	2	3.658e-3	4	3.629e-4	3	2.276e-3	4
38		min	0	3	0	1	0	3	-2.205e-3	2	-2.982e-4	1	-4.052e-4	2
39	N23	max	0	2	0	4	0	4	3.542e-3	4	-2.713e-4	2	-1.521e-3	2
40		min	0	4	0	3	0	2	1.319e-3	1	-4.966e-4	3	-2.508e-3	4

Envelope AISC ASD Steel Code Checks

	Member	Shape	Code Check	Loc[ft]	LC	Sh...	Loc[ft]	.....	Fa...	Ft [ksi]	Fb y-y [ksi]	Fb.....	...	AS...
1	M1	12" FW...	.423	89.3...	2	.025	89.375	4	29...	30	33	33	1 .6	H1...
2	M2	L3X3X3	.022	0	2	.004	0	z	3 13...	21.6	- Code check based o...			H1...
3	M3	L3X3X3	.018	4.299	4	.004	0	z	3 13...	21.6	- Code check based o...			H1...
4	M4	L3X3X3	.017	0	2	.005	6.376	z	1 9....	21.6	- Code check based o...			H1...
5	M5	L3X3X3	.013	6.376	4	.005	6.376	z	1 9....	21.6	- Code check based o...			H2...
6	M6	L2.5X2....	.085	0	2	.005	3.354	z	3 15...	21.6	- Code check based o...			H1...
7	M7	L2.5X2....	.059	3.354	2	.005	0	z	3 15...	21.6	- Code check based o...			H2...
8	M8	L2X2X3	.106	0	4	.002	1.5	z	1 18...	21.6	- Code check based o...			H2...
9	M9	L2.5X2....	.124	3.354	2	.005	0	z	3 15...	21.6	- Code check based o...			H2...
10	M10	L2.5X2....	.179	0	2	.005	3.354	z	3 15...	21.6	- Code check based o...			H1...
11	M11	L2X2X3	.264	0	4	.002	1.5	z	1 18...	21.6	- Code check based o...			H1...
12	M15	L2.5X2....	.194	3.354	2	.005	0	z	3 15...	21.6	- Code check based o...			H2...
13	M16	L2X2X3	.354	0	4	.002	1.5	z	1 18...	21.6	- Code check based o...			H2...
14	M17	L2.5X2....	.279	3.354	2	.005	0	z	3 15...	21.6	- Code check based o...			H1...

Joint Reactions

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	1	N1	.014	12.378	0	0	0	-.285
2	1	N8	-.261	.014	-.138	0	0	0
3	1	N9	-.261	.014	.138	0	0	0
4	1	N10	-.113	.021	.1	0	0	0
5	1	N11	-.113	.021	-.1	0	0	0
6	1	N12	-.009	.003	0	0	0	0
7	1	N13	-.906	.009	-.439	0	0	0
8	1	N15	-.009	.003	0	0	0	0
9	1	N16	1.851	.009	.94	0	0	0
10	1	N14	-.906	.009	.439	0	0	0
11	1	N17	1.851	.009	-.94	0	0	0
12	1	N22	-2.944	.009	-1.458	0	0	0
13	1	N23	-2.944	.009	1.458	0	0	0
14	1	N21	-.009	.003	0	0	0	0
15	1	Totals:	-4.757	12.51	0			
16	1	COG (ft):	X: 0	Y: 77.516	Z: -.008			

Joint Reactions

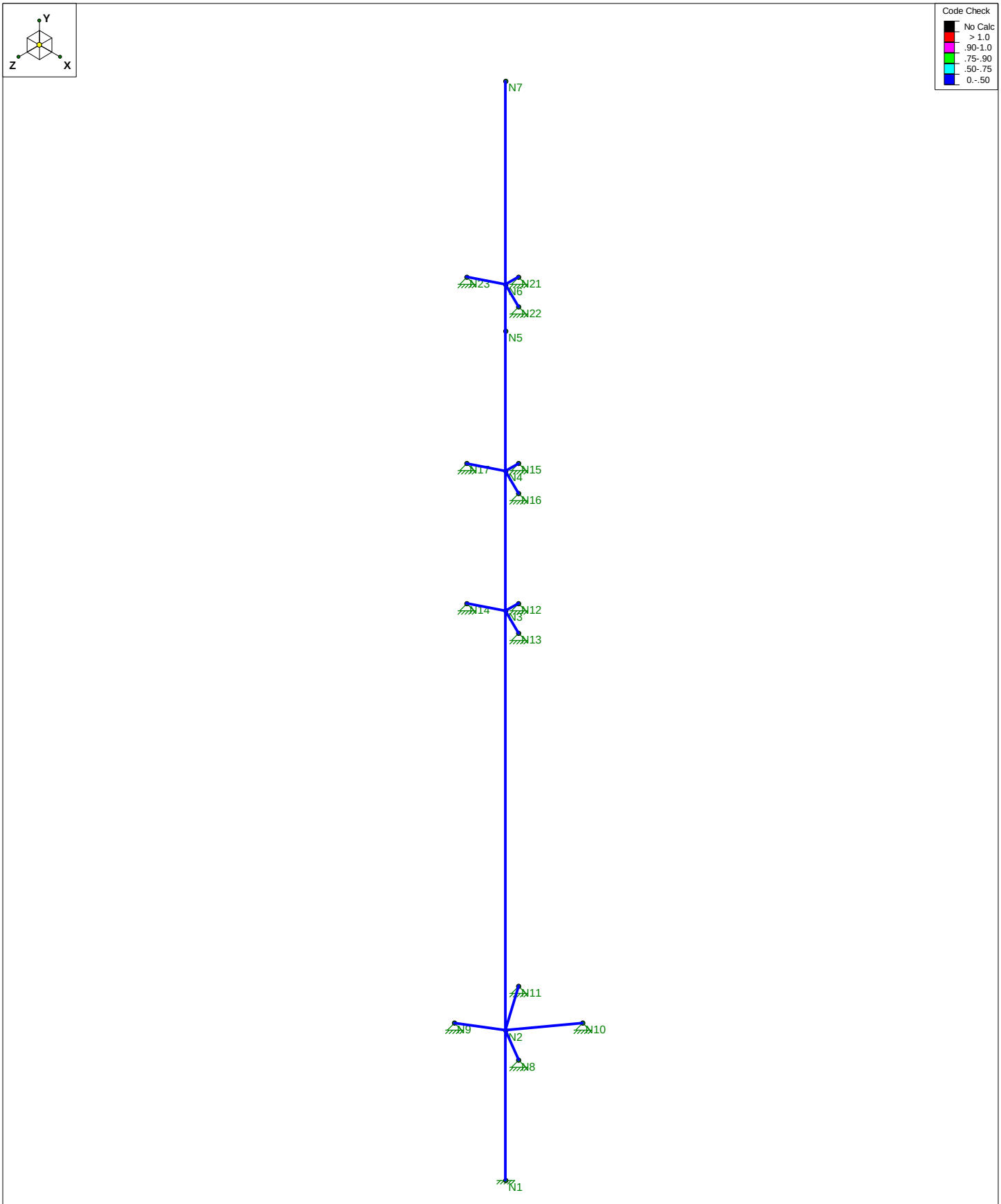
	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	2	N1	.015	9.826	0	0	0	-.338
2	2	N8	-.293	.008	-.159	0	0	0
3	2	N9	-.293	.008	.159	0	0	0
4	2	N10	-.12	.012	.115	0	0	0
5	2	N11	-.12	.012	-.115	0	0	0
6	2	N12	-.008	.002	0	0	0	0
7	2	N13	-1.035	.005	-.504	0	0	0
8	2	N15	-.008	.002	0	0	0	0
9	2	N16	2.118	.005	1.073	0	0	0
10	2	N14	-1.035	.005	.504	0	0	0
11	2	N17	2.118	.005	-1.073	0	0	0
12	2	N22	-3.383	.005	-1.678	0	0	0
13	2	N23	-3.383	.005	1.678	0	0	0
14	2	N21	-.008	.002	0	0	0	0
15	2	Totals:	-5.438	9.902	0			
16	2	COG (ft):	X: 0	Y: 74.852	Z: -.005			

Joint Reactions

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	3	N1	0	12.378	.011	.259	0	0
2	3	N8	-.187	.014	-.139	0	0	0
3	3	N9	.187	.014	-.139	0	0	0
4	3	N10	.135	.021	-.232	0	0	0
5	3	N11	-.135	.021	-.232	0	0	0
6	3	N12	0	.003	-1.435	0	0	0
7	3	N13	-.324	.009	-.19	0	0	0
8	3	N15	0	.003	3.089	0	0	0
9	3	N16	.697	.009	.32	0	0	0
10	3	N14	.324	.009	-.19	0	0	0
11	3	N17	-.697	.009	.32	0	0	0
12	3	N22	-1.073	.009	-.565	0	0	0
13	3	N23	1.073	.009	-.565	0	0	0
14	3	N21	0	.003	-4.755	0	0	0
15	3	Totals:	0	12.51	-4.703			
16	3	COG (ft):	X: 0	Y: 77.516	Z: -.008			

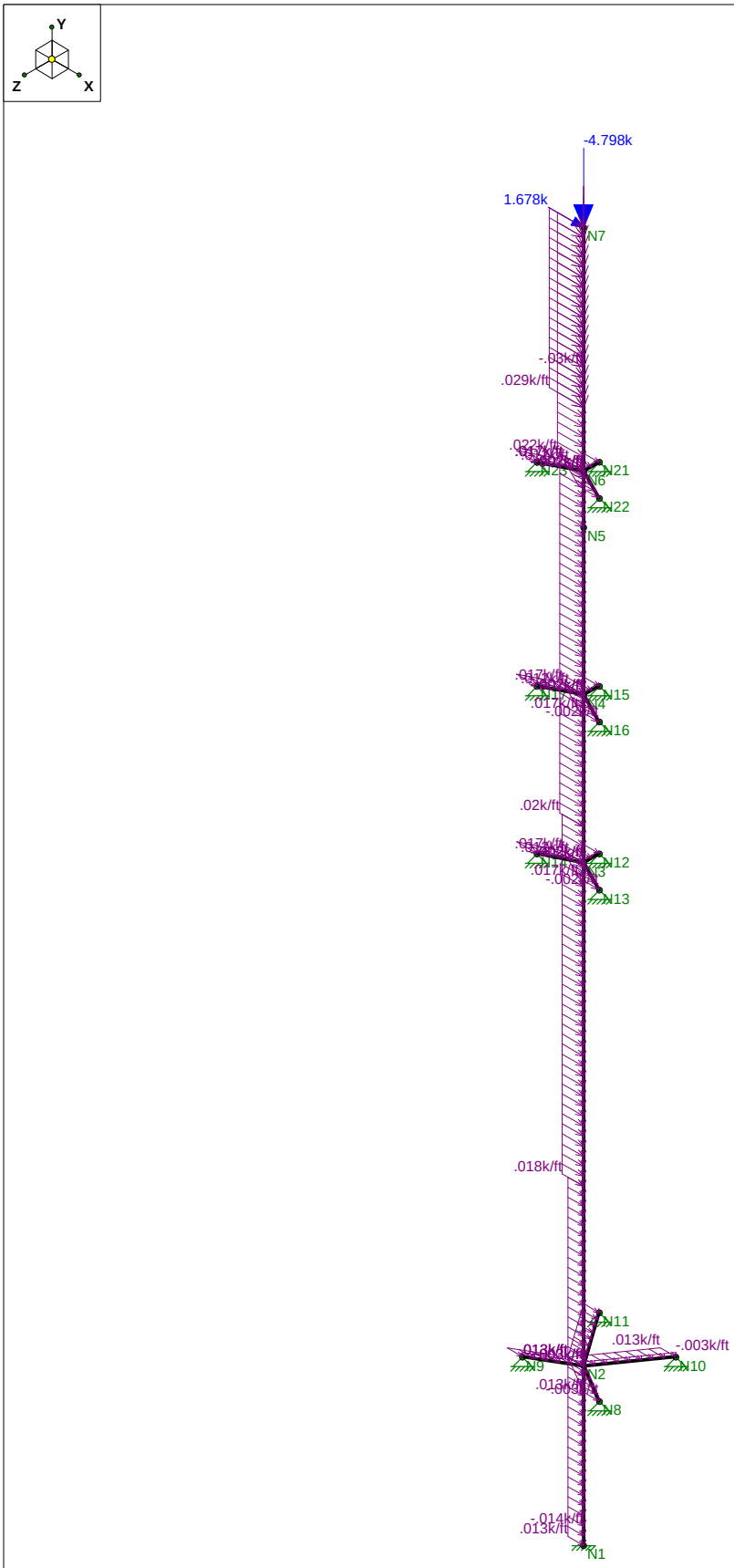
Joint Reactions

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	4	N1	0	9.826	.011	.309	0	0
2	4	N8	-.215	.008	-.153	0	0	0
3	4	N9	.215	.008	-.153	0	0	0
4	4	N10	.156	.012	-.257	0	0	0
5	4	N11	-.156	.012	-.257	0	0	0
6	4	N12	0	.002	-1.638	0	0	0
7	4	N13	-.37	.005	-.203	0	0	0
8	4	N15	0	.002	3.537	0	0	0
9	4	N16	.798	.005	.381	0	0	0
10	4	N14	.37	.005	-.203	0	0	0
11	4	N17	-.798	.005	.381	0	0	0
12	4	N22	-1.233	.005	-.635	0	0	0
13	4	N23	1.233	.005	-.635	0	0	0
14	4	N21	0	.002	-5.462	0	0	0
15	4	Totals:	0	9.902	-5.288			
16	4	COG (ft):	X: 0	Y: 74.852	Z: -.005			



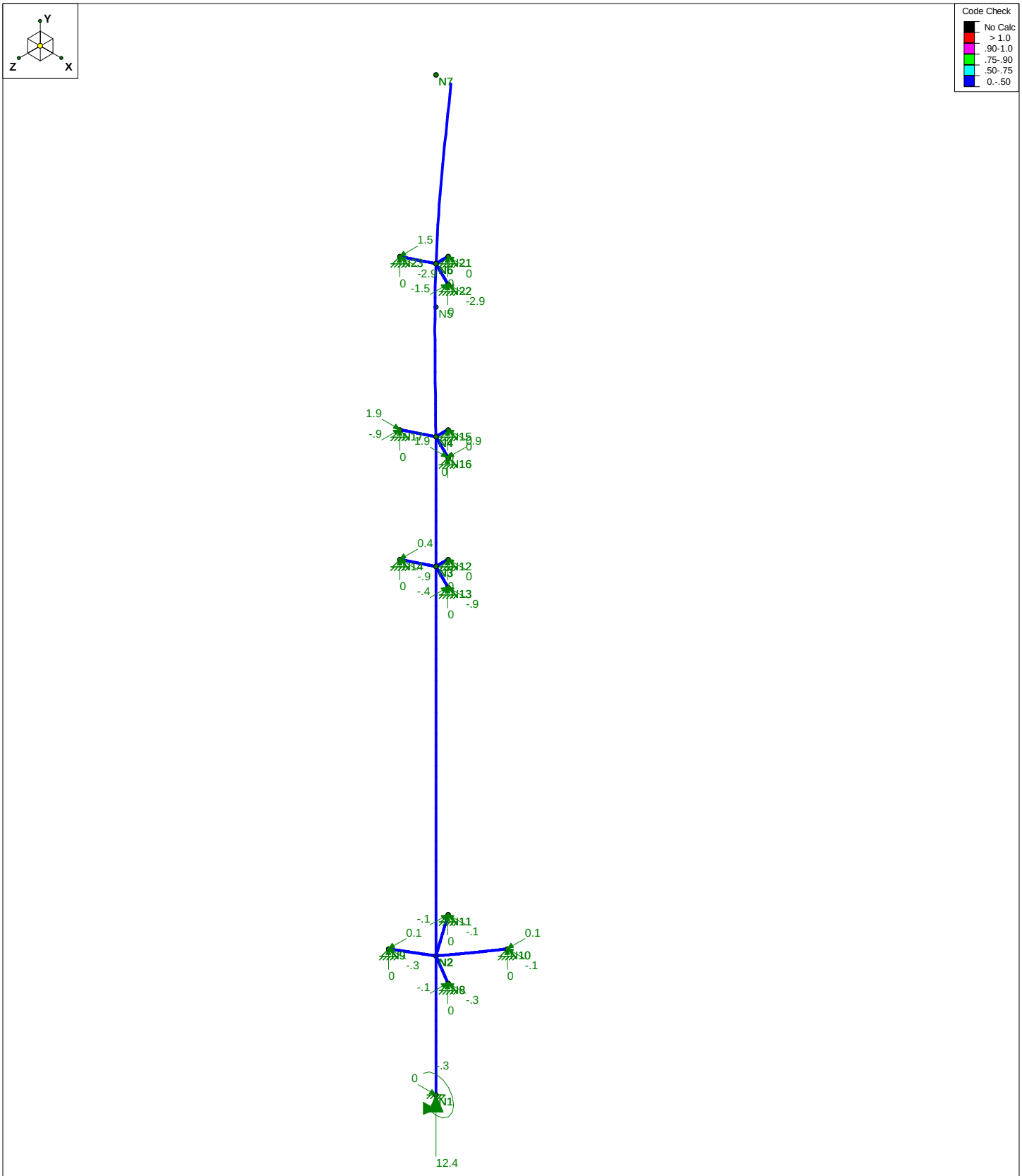
Solution: Envelope

CENTEK Engineering, INC.		
tjl, cfc	CL&P Struct. #1522 - Powermount	May 21, 2013 at 10:00 AM
12047.CO8 - CT33XC516	Unity Check	EIA-TIA.r3d



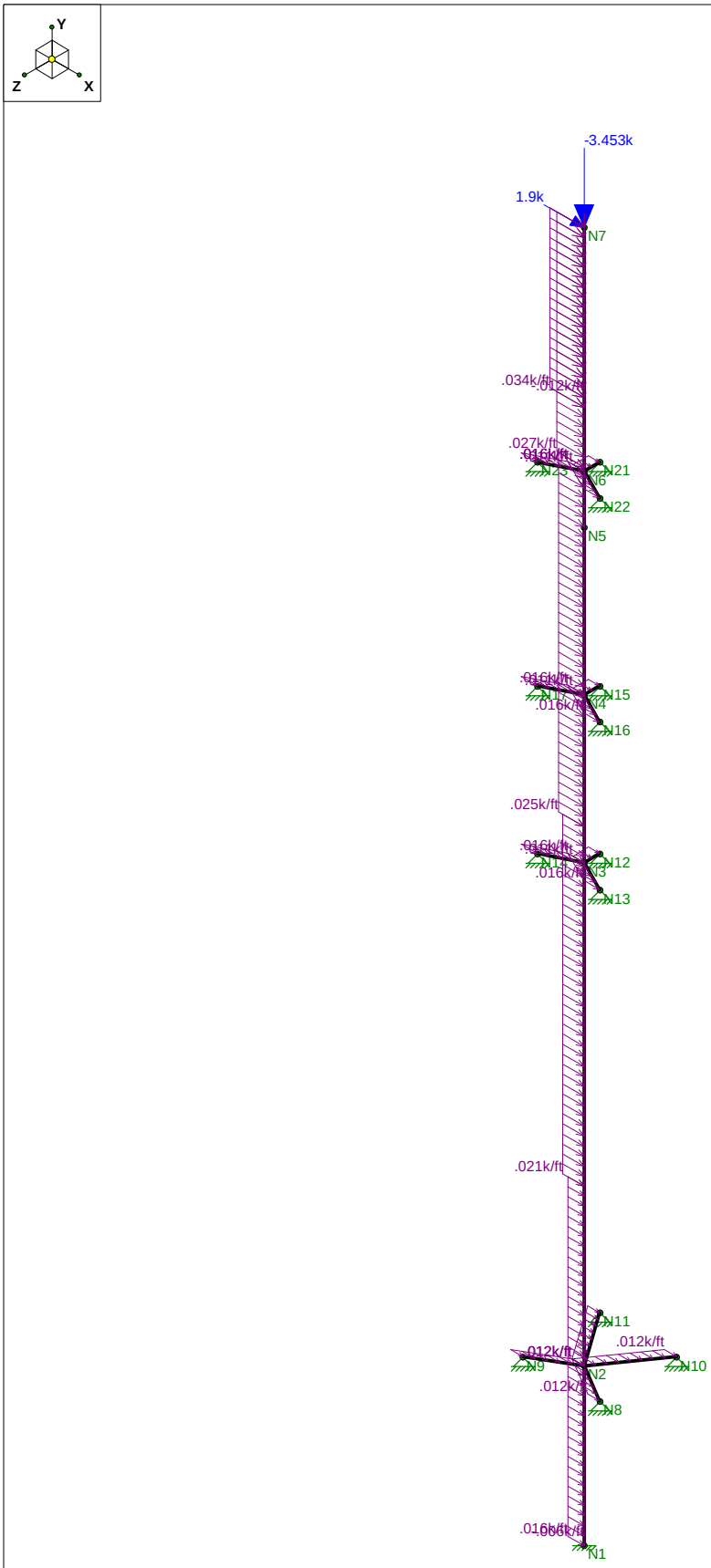
Loads: LC 1, (X) TIA/EIA Wind + Ice on PCS Structure

CENTEK Engineering, INC.		
tjl, cfc	CL&P Struct. #1522 - Powermount	May 21, 2013 at 10:02 AM
12047.CO8 - CT33XC516	LC #1 Loads	EIA-TIA.r3d



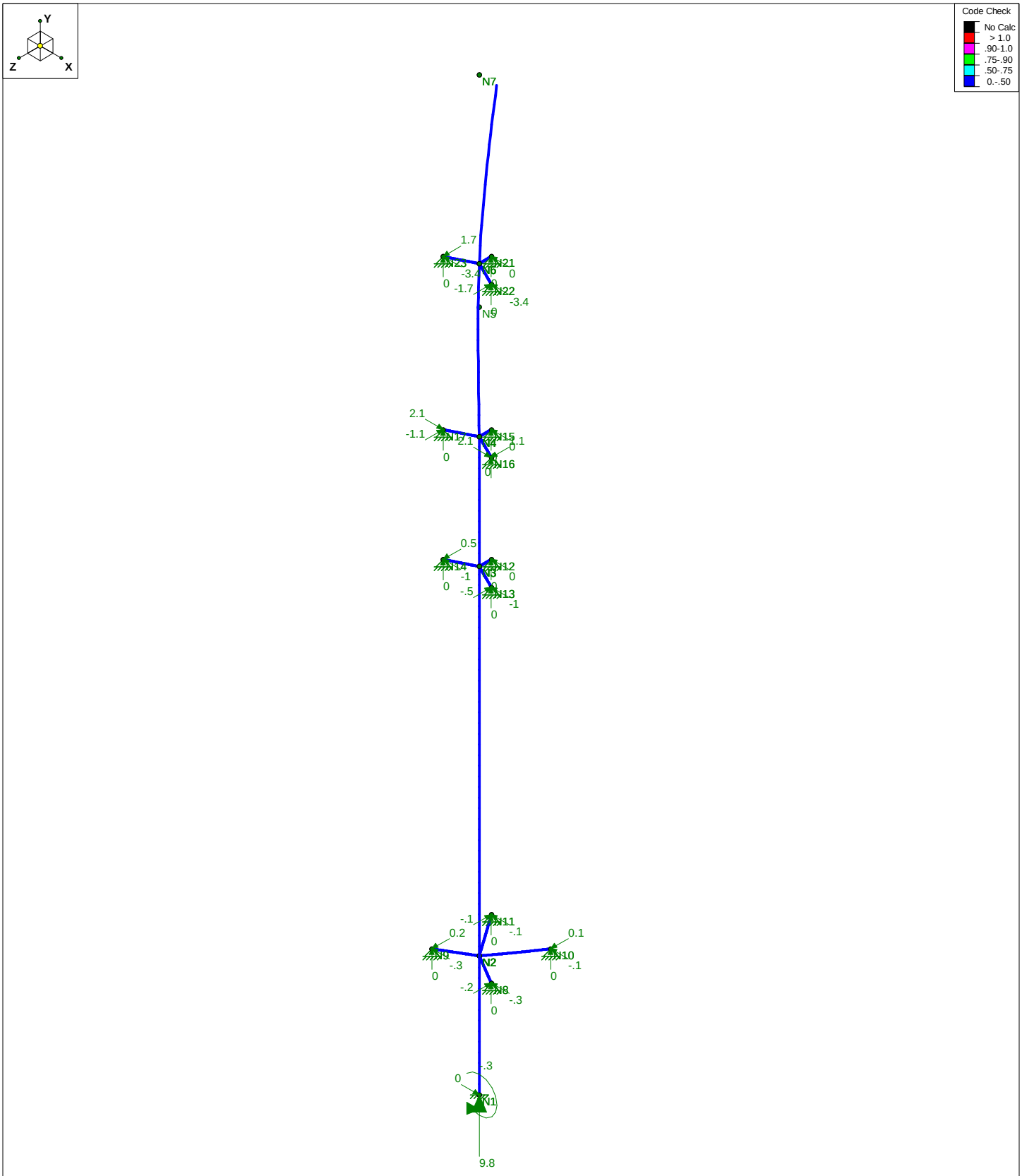
Results for LC 1, (X) TIA/EIA Wind + Ice on PCS Structure
Z-moment Reaction units are k and k-ft

CENTEK Engineering, INC.		
tjl, cfc	CL&P Struct. #1522 - Powermount	May 21, 2013 at 10:04 AM
12047.CO8 - CT33XC516	LC #1 Reactions and Deflected Shape	EIA-TIA.r3d



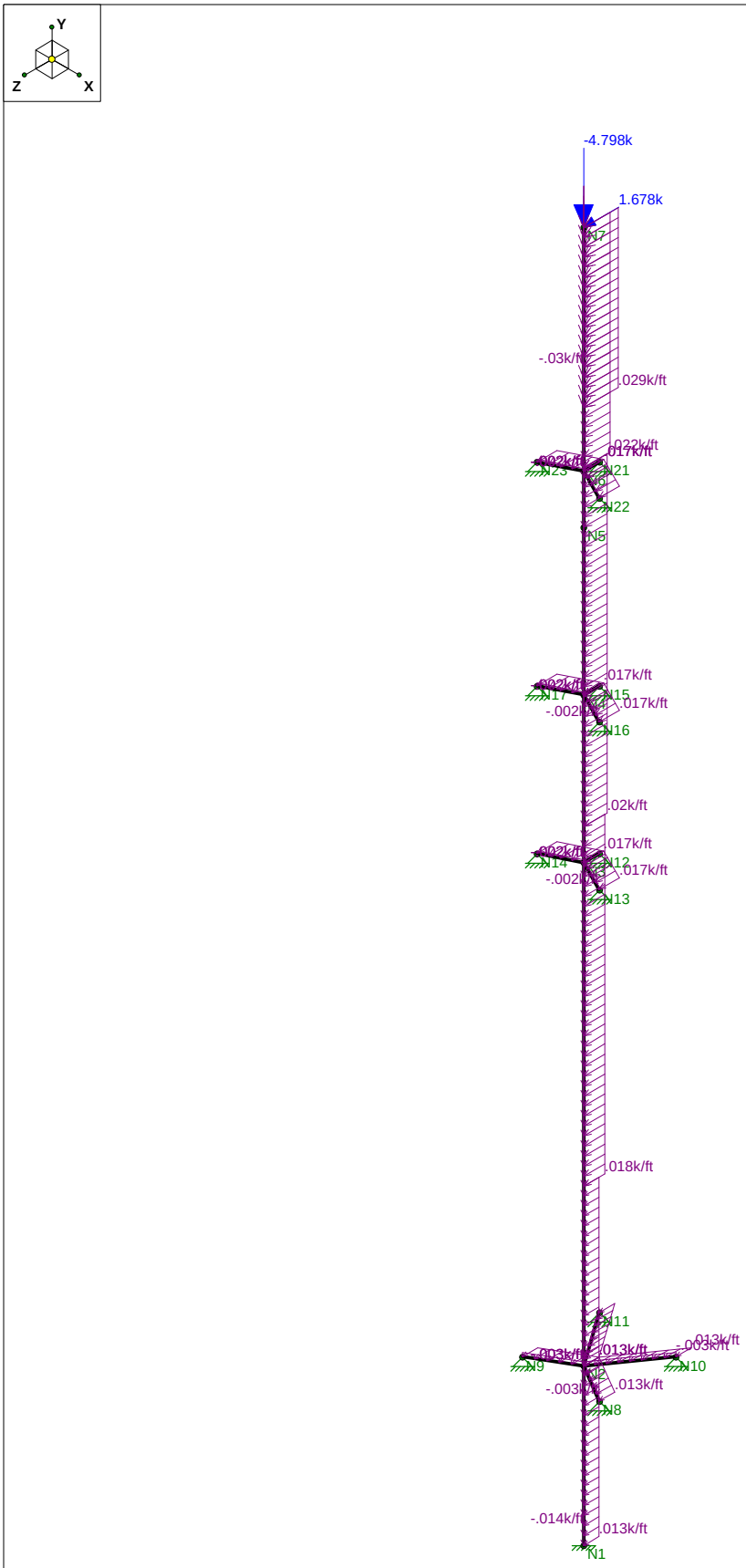
Loads: LC 2, (X) TIA/EIA Wind on PCS Structure

CENTEK Engineering, INC.		
tjl, cfc	CL&P Struct. #1522 - Powermount	May 21, 2013 at 10:03 AM
12047.CO8 - CT33XC516	LC #2 Loads	EIA-TIA.r3d



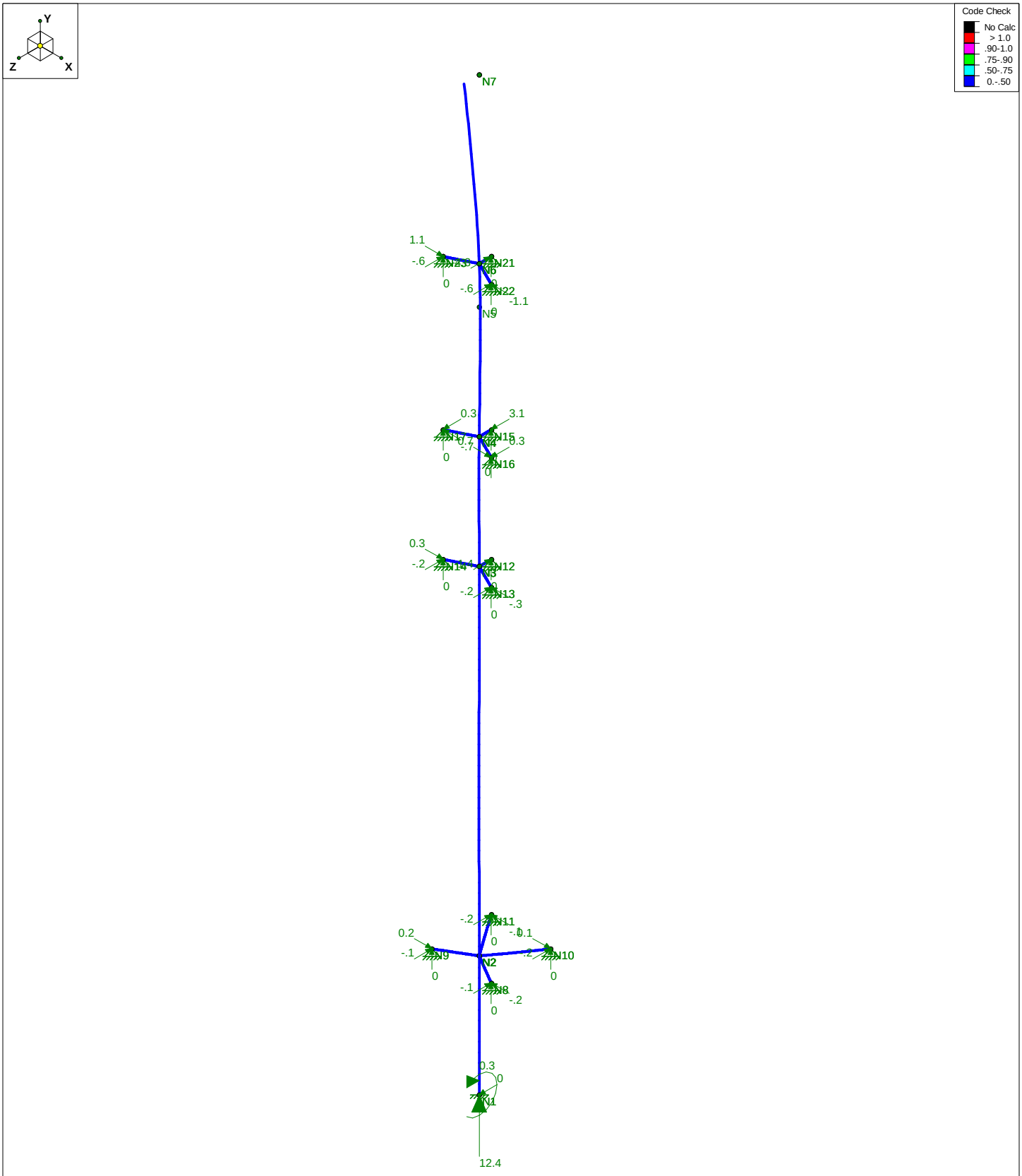
Results for LC 2, (X) TIA/EIA Wind on PCS Structure
Z-moment Reaction units are k and k-ft

CENTEK Engineering, INC.		
tjl, cfc	CL&P Struct. #1522 - Powermount	May 21, 2013 at 10:04 AM
12047.CO8 - CT33XC516	LC #2 Reactions and Deflected Shape	EIA-TIA.r3d



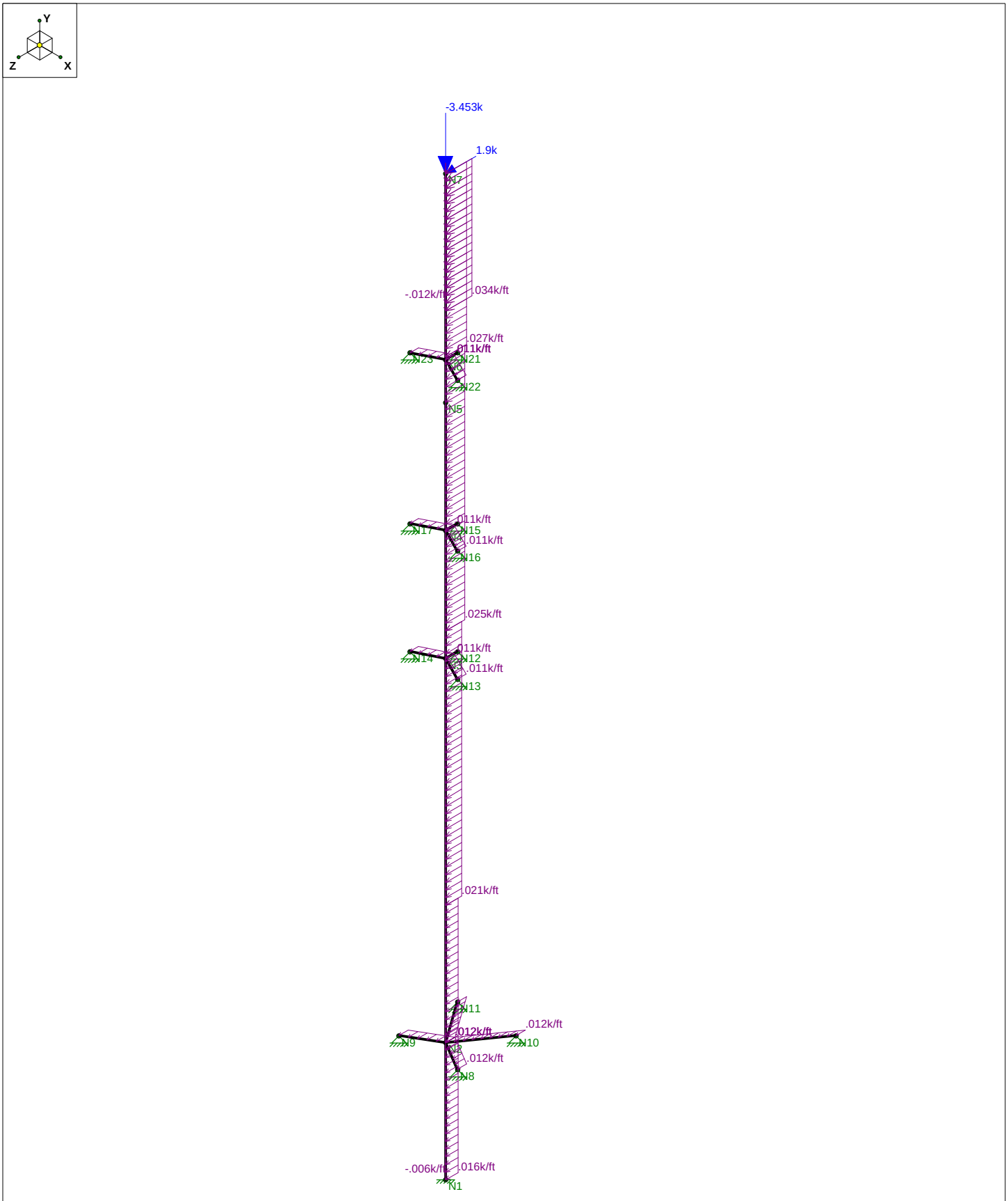
Loads: LC 3, (Z) TIA/EIA Wind + Ice on PCS Structure

CENTEK Engineering, INC.		
tjl, cfc	CL&P Struct. #1522 - Powermount	May 21, 2013 at 10:03 AM
12047.CO8 - CT33XC516	LC #3 Loads	EIA-TIA.r3d



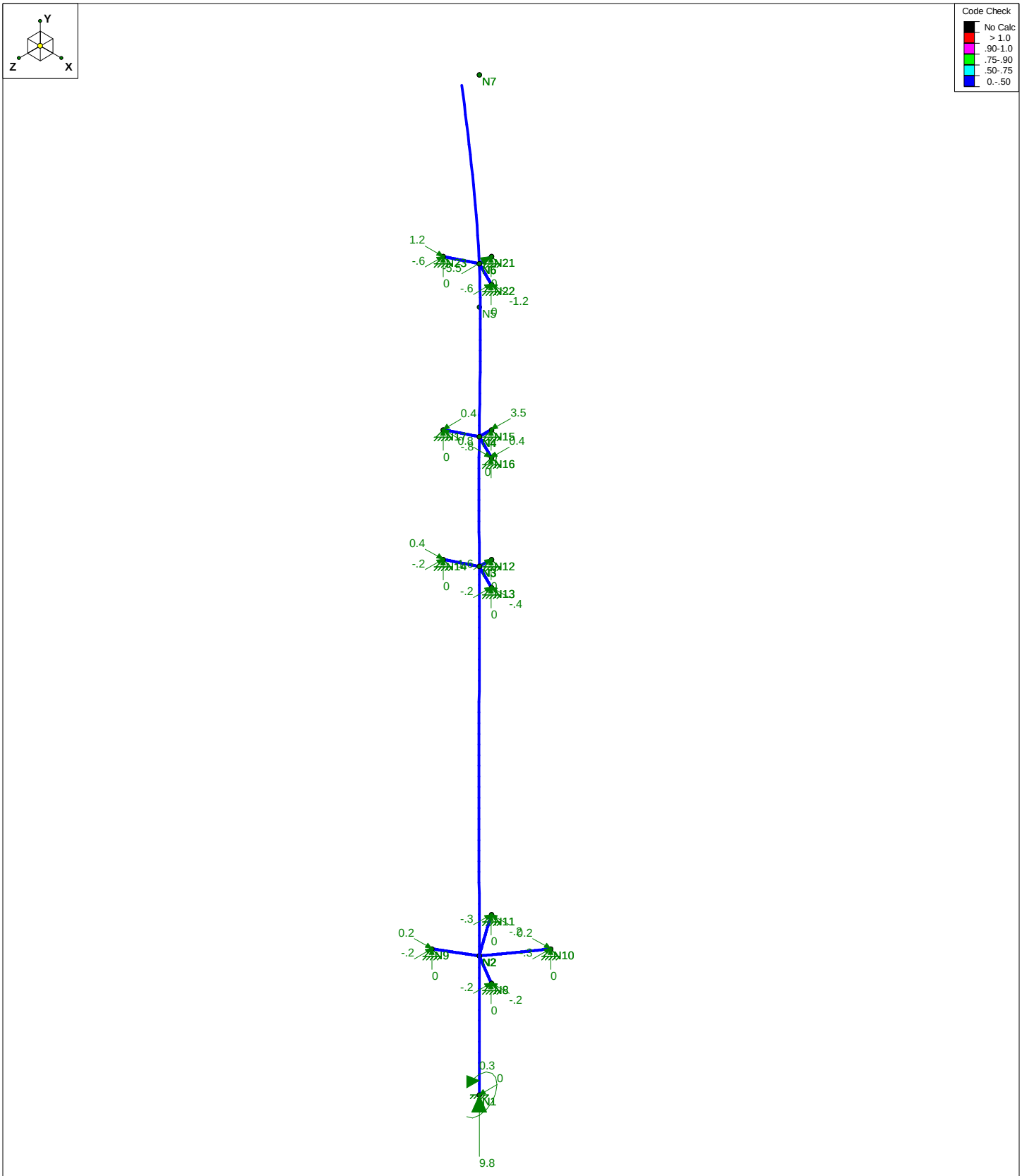
Results for LC 3, (Z) TIA/EIA Wind + Ice on PCS Structure
Z-moment Reaction units are k and k-ft

CENTEK Engineering, INC.		
tjl, cfc	CL&P Struct. #1522 - Powermount	May 21, 2013 at 10:05 AM
12047.CO8 - CT33XC516	LC #3 Reactions and Deflected Shape	EIA-TIA.r3d



Loads: LC 4, (Z) TIA/EIA Wind on PCS Structure

CENTEK Engineering, INC.		
tjl, cfc	CL&P Struct. #1522 - Powermount	May 21, 2013 at 10:03 AM
12047.CO8 - CT33XC516	LC #4 Loads	EIA-TIA.r3d



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

CENTEK Engineering, INC.		
tjl, cfc	CL&P Struct. #1522 - Powermount	May 21, 2013 at 10:06 AM
12047.CO8 - CT33XC516	LC #4 Reactions and Deflected Shape	EIA-TIA.r3d

CENTEK engineering
Centered on Solutions℠ www.centekeng.com
63-2 North Branford Road P: (203) 488-0580
Branford, CT 06405 F: (203) 488-8587

Subject:	Connection of Powermount to CL&P Tower # 1522
Location:	Watertown, CT
Rev. 0: 5/21/13	Prepared by: T.J.L. Checked by: C.F.C. Job No. 12047.CO8

Powermount Connection to CL&P Tower:

Check Pipe Collar Bolts:

Reactions:

Tension = $Tension := 6.7 \cdot kips$ (Input From Risa-3D LC #4) (Sum of the forces in brace members)

Shear = $Shear := 6.7 \cdot kips$ (Input From Risa-3D LC #2) (Sum of the forces in brace members)

Bolt Data:

Bolt Type = ASTM A325 (User Input)

Bolt Diameter = $D := 0.625 \cdot in$ (User Input)

Number of Bolts = $N_b := 4$ (User Input)

Allowable Tensile Strength = $F_t := 13.8 \cdot kips$ (User Input)

Allowable Shear Strength = $F_v := 8.3 \cdot kips$ (User Input)

Shear Force = $f_v := \frac{Shear}{N_b} = 1.7 \cdot kips$

Bolt Shear % of Capacity = $\frac{f_v}{F_v} = 20.18 \cdot \%$

Check Bolt Shear = $Bolt\_Shear := if\left(\frac{f_v}{F_v} \le 1.00, "OK", "Overstressed"\right)$

$Bolt\_Shear = "OK"$

Tension Force = $f_t := \frac{Tension}{N_b} = 1.7 \cdot kips$

Bolt Tenison % of Capacity = $\frac{f_t}{F_t} = 12.14 \cdot \%$

Check Bolt Tension = $Bolt\_Tension := if\left(\frac{f_t}{F_t} \le 1.00, "OK", "Overstressed"\right)$

$Bolt\_Tension = "OK"$

Check Pipe Collar to Angle Brace Bolts:

Reactions:

Shear = $Shear := 6.7 \cdot kips$ (Input From Risa-3D LC #4)
(Sum of the forces in brace members)

Bolt Data:

Bolt Type = ASTM A325 (User Input)

Bolt Diameter = $D := 0.625 \cdot in$ (User Input)

Totoal Number of Bolts = $N_b := 3$ (User Input)

Number of Bolts (Hole Transverse to Line of Force) = $N_{bT} := 1$ (User Input)

Number of Bolts (Hole Parallel to Line of Force) = $N_{bP} := 2$ (User Input)

Allowable Shear Strength (Hole Transverse to Line of Force) = $F_{VT} := 4.3 \cdot kips$ (User Input)

Allowable Shear Strength (Hole Parallel to Line of Force) = $F_{VP} := 3.66 \cdot kips$ (User Input)

Bolt Shear % of Capacity = $f_V := \frac{Shear}{\left(N_{bT} \cdot F_{VT} + N_{bP} \cdot F_{VP}\right)} = 57.7 \cdot \%$

Check Bolt Shear = $Bolt\_Shear := if\left(f_V \le 1.00, "OK", "Overstressed"\right)$

$Bolt\_Shear = "OK"$

Check Angle Brace to Tower Bolts:

Reactions:

Vertical = $Vertical := 0 \cdot kips$ (Input From Risa-3D LC #4)

Horizontal x-dir = $Horizontal_x := 0 \cdot kips$ (Input From Risa-3D LC #4)

Horizontal z-dir = $Horizontal_z := 5.5 \cdot kips$ (Input From Risa-3D LC #4)

Bolt Data:

Bolt Type = ASTM A325 (User Input)

Bolt Diameter = $D := 0.625 \cdot in$ (User Input)

Number of Bolts = $N_b := 1$ (User Input)

Allowable Tensile Strength = $F_t := 13.8 \cdot kips$ (User Input)

Allowable Shear Strength = $F_V := 16.6 \cdot kips$ (User Input) (Bolt is in Double Shear)

Shear Force = $f_V := \frac{\sqrt{Horizontal_z^2 + Vertical^2}}{N_b} = \blacksquare \cdot kips$

Bolt Shear % of Capacity = $\frac{f_V}{F_V} = 33.13 \cdot \%$

Check Bolt Shear = $Bolt\_Shear := if\left(\frac{f_V}{F_V} \le 1.00, "OK", "Overstressed"\right)$

$Bolt\_Shear = "OK"$

CENTEK engineering
Centered on Solutions℠ www.centekeng.com
63-2 North Branford Road P: (203) 488-0580
Branford, CT 06405 F: (203) 488-8587

Subject: Load Analysis of Powermount on CL&P Structure #1522

Location: Watertown, CT

Rev. 0: 5/20/13

Prepared by: T.J.L Checked by: C.F.C.
Job No. 12047.CO8

Basic Components

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

Factors for Extreme Wind Calculation

Elevation of Top of PCS Mast Above Grade =	TME := 110	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 = $Kz := 2.01 \cdot \left(\frac{TME}{900}\right)^{\frac{2}{9.5}} = 1.291$ (NESC 2007 Table 250-2)

Exposure Factor = $Es := 0.346 \left[\frac{33}{(0.67 \cdot TME)}\right]^{\frac{1}{7}} = 0.308$ (NESC 2007 Table 250-3)

Response Term = $Bs := \frac{1}{\left(1 + 0.375 \cdot \frac{TME}{220}\right)} = 0.842$ (NESC 2007 Table 250-3)

Gust Response Factor = $Grf := \frac{\left[1 + \left(2.7 \cdot Es \cdot Bs^{\frac{1}{2}}\right)\right]}{kv^2} = 0.863$ (NESC 2007 Table 250-3)

Wind Pressure = $qz := 0.00256 \cdot Kz \cdot V^2 \cdot Grf \cdot I = 34.5$ psf (NESC 2007 Section 250.C.2)

Shape Factors

NUS Design Criteria Issued April 12, 2007

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 Pole =	$Cd_{coax} := 1.45$	(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

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Subject: Load Analysis of Powermount on CL&P Structure #1522

Location: Watertown, CT

Rev. 0: 5/20/13

Prepared by: T.J.L Checked by: C.F.C.
Job No. 12047.CO8

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	RFS APXVSPP18-C		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 72$	in	(User Input)
Antenna Width =	$W_{ant} := 11.8$	in	(User Input)
Antenna Thickness =	$T_{ant} := 7$	in	(User Input)
Antenna Weight =	$WT_{ant} := 57$	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 = $SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 5.9$ sf

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 17.7$ sf

Total Antenna Wind Force = $F_{ant1} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 1222$ lbs **BLC 5**

Wind Load (NESC Heavy)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := \frac{(L_{ant} + 1) \cdot (W_{ant} + 1)}{144} = 6.5$ sf

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 19.5$ sf

Total Antenna Wind Force w/ Ice = $Fi_{ant1} := p \cdot Cd_F \cdot A_{ICEant} = 125$ lbs **BLC 4**

Gravity Load (without ice)

Weight of All Antennas = $Wt_{ant1} := (WT_{ant} \cdot N_{ant}) = 171$ lbs **BLC 2**

Gravity Load (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 5947$ cu in

Volume of Ice on Each Antenna = $V_{ice} := (L_{ant} + 1)(W_{ant} + 1) \cdot (T_{ant} + 1) - V_{ant} = 1528$ cu in

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

Weight of Ice on All Antennas = $Wt_{ice.ant1} := W_{ICEant} \cdot N_{ant} = 149$ lbs **BLC 3**

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Subject:	Load Analysis of Powermount on CL&P Structure #1522
Location:	Watertown, CT
Rev. 0: 5/20/13	Prepared by: T.J.L Checked by: C.F.C. Job No. 12047.CO8

Development of Wind & Ice Load on Platform

Platform Data: (Sprint)

Platform Model =	FWT Low Profile Platform		(User Input)
Platform Shape =	Flat		(User Input)
Platform Area =	$A_{plt} := 13.07$	sq ft	(User Input from FWT design calcs)
Platform Area w/ Ice =	$A_{ICEplt} := 16.4$	sq ft	(User Input from FWT design calcs)
Platform Weight =	$WT_{plt} := 3282$	lbs	(User Input from FWT design calcs)
Platform Weight w/ Ice =	$WT_{ICEplt} := 4478$	lbs	(User Input from FWT design calcs)

Wind Load (NESC Extreme)

Total Platform Wind Force = $F_{mnt1} := qz \cdot Cd_F \cdot A_{plt} \cdot m = 902$ lbs **BLC 5**

Wind Load (NESC Heavy)

Total Platform Wind Force w/ Ice = $Fi_{mnt1} := p \cdot Cd_F \cdot A_{ICEplt} = 105$ lbs **BLC 4**

Gravity Load (without ice)

Weight of Platform = $Wt_{mnt1} := WT_{plt} = 3282$ lbs **BLC 2**

Gravity Load (ice only)

Weight of Ice on Platform = $Wt_{ice.mnt1} := WT_{ICEplt} - WT_{plt} = 1196$ lbs **BLC 3**

Total Equipment Loads:

Sprint @ 96.25-ft AGL

NESC Heavy Wind Vertical = $\left(Wt_{ant1} + Wt_{ice.ant1} + Wt_{mnt1} + Wt_{ice.mnt1}\right)\cdot 1.5 = 7196$

NESC Heavy Wind Trasnsverse = $\left(Fi_{ant1} + Fi_{mnt1}\right)\cdot 2.5 = 574$

NESC Extreme Wind Vertical = $\left(Wt_{ant1} + Wt_{mnt1}\right) = 3453$

NESC Extreme Wind Trasnsverse = $\left(F_{ant1} + F_{mnt1}\right) = 2124$

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63-2 North Branford Road P: (203) 488-0580
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Subject:	Coax Cable on Powermount on CL&P Tower # 1522
Location:	Watertown, CT
Rev. 0: 5/21/13	Prepared by: T.J.L Checked by: C.F.C. Job No. 12047.CO8

Coax Cable within Powermount

Distance Between Coax Cable Attach Points = $Coax_{Span} := \begin{pmatrix} 10 \\ 12.5 \\ 9.5 \\ 14 \\ 28 \\ 36 \end{pmatrix} \cdot ft$ *(User Input)*

Diameter of Coax Cable =	$D_{coax} := 1.98 \cdot in$	*(User Input)*	
Weight of Coax Cable =	$W_{coax} := 1.04 \cdot plf$	*(User Input)*	
Number of Coax Cables =	$N_{coax} := 6$	*(User Input)*	(6 Cables inside Powermount)
Number of Projected Coax Cables Transverse =	$NP_{Tcoax} := 0$	*(User Input)*	
Extreme Wind Pressure =	$qz := 34.5 \cdot psf$	*(User Input)*	
Heavy Wind Pressure =	$p := 4 \cdot psf$	*(User Input)*	
Radial Ice Thickness =	$Ir := 0.5 \cdot in$	*(User Input)*	
Radial Ice Density =	$Id := 56 \cdot pcf$	*(User Input)*	
Shape Factor =	$Cd_{coax} := 1.6$	*(User Input)*	
Overload Factor for NESC Heavy Wind Load =	$OF_{HW} := 2.5$	*(User Input)*	
Overload Factor for NESC Extreme Wind Load =	$OF_{EW} := 1.0$	*(User Input)*	
Overload Factor for NESC Heavy Vertical Load =	$OF_{HV} := 1.5$	*(User Input)*	
Overload Factor for NESC Extreme Vertical Load =	$OF_{EV} := 1.0$	*(User Input)*	
Wind Area with Ice Transverse =	$A_{Tice} := 0$		
Wind Area without Ice Transverse =	$A_T := 0$		
Ice Area per Liner Ft =	$Ai_{coax} := 0$		
Weight of Ice on All Coax Cables =	$W_{ice} := 0$		

Heavy Vertical Load =

$$Heavy_{Vert} := \overrightarrow{\left[\left(N_{coax} \cdot W_{coax} + W_{ice}\right) \cdot Coax_{Span} \cdot OF_{HV}\right]}$$

Heavy Transverse Load =

$$Heavy_{Trans} := \overrightarrow{\left(p \cdot A_{Tice} \cdot Cd_{coax} \cdot Coax_{Span} \cdot OF_{HW}\right)}$$

$$Heavy_{Vert} = \begin{pmatrix} 94 \\ 117 \\ 89 \\ 131 \\ 262 \\ 337 \end{pmatrix} lb \qquad Heavy_{Trans} = \begin{pmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \end{pmatrix}$$

Extreme Vertical Load =

$$Extreme_{Vert} := \overrightarrow{\left[\left(N_{coax} \cdot W_{coax}\right) \cdot Coax_{Span} \cdot OF_{EV}\right]}$$

Extreme Transverse Load =

$$Extreme_{Trans} := \overrightarrow{\left[\left(qz \cdot A_T \cdot Cd_{coax}\right) \cdot Coax_{Span} \cdot OF_{EW}\right]}$$

$$Extreme_{Vert} = \begin{pmatrix} 62 \\ 78 \\ 59 \\ 87 \\ 175 \\ 225 \end{pmatrix} lb \qquad Extreme_{Trans} = \begin{pmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \end{pmatrix}$$

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Subject: Sprint Coax Cable on CL&P Tower # 1522

Location: Watertown, CT

Rev. 0: 5/21/13

Prepared by: T.J.L Checked by: C.F.C.
Job No. 12047.CO8

Coax Cable on CL&P Tower

Distance Between Coax Cable Attach Points =

Coax Cable Span = $Coax_{Span} := \begin{pmatrix} 10 \\ 15 \\ 9.5 \\ 9.5 \\ 10 \\ 12 \\ 17.75 \\ 26.25 \end{pmatrix} \cdot ft$ *(User Input)*

Diameter of Coax Cable = $D_{coax} := 1.98 \cdot in$ *(User Input)*

Weight of Coax Cable = $W_{coax} := 1.04 \cdot plf$ *(User Input)*

Number of Coax Cables = $N_{coax} := 12$ *(User Input)*

Number of Projected Coax Cables Transverse = $NP_{Tcoax} := 6$ *(User Input)*

Extreme Wind Pressure = $qz := 34.5 \cdot psf$ *(User Input)*

Heavy Wind Pressure = $p := 4 \cdot psf$ *(User Input)*

Radial Ice Thickness = $Ir := 0.5 \cdot in$ *(User Input)*

Radial Ice Density = $Id := 56 \cdot pcf$ *(User Input)*

Shape Factor = $Cd_{coax} := 1.6$ *(User Input)*

Overload Factor for NESC Heavy Wind Load = $OF_{HW} := 2.5$ *(User Input)*

Overload Factor for NESC Extreme Wind Load = $OF_{EW} := 1.0$ *(User Input)*

Overload Factor for NESC Heavy Vertical Load = $OF_{HV} := 1.5$ *(User Input)*

Overload Factor for NESC Extreme Vertical Load = $OF_{EV} := 1.0$ *(User Input)*

Wind Area with Ice Transverse = $A_{Tice} := \left(NP_{Tcoax} \cdot D_{coax} + 2 \cdot Ir\right) = 12.88 \cdot in$

Wind Area without Ice Transverse = $A_T := \left(NP_{Tcoax} \cdot D_{coax}\right) = 11.88 \cdot in$

Ice Area per Liner Ft = $Ai_{coax} := \frac{\pi}{4} \cdot \left[\left(D_{coax} + 2 \cdot Ir\right)^2 - D_{coax}^2\right] = 0.027\,ft^2$

Weight of Ice on All Coax Cables = $W_{ice} := Ai_{coax} \cdot Id \cdot N_{coax} = 18.179 \cdot plf$

Heavy Vertical Load =

$$Heavy_{Vert} := \overrightarrow{\left[\left(N_{coax} \cdot W_{coax} + W_{ice}\right) \cdot Coax_{Span} \cdot OF_{HV}\right]}$$

Heavy Transverse Load =

$$Heavy_{Trans} := \overrightarrow{\left(p \cdot A_{Tice} \cdot Cd_{coax} \cdot Coax_{Span} \cdot OF_{HW}\right)}$$

$$Heavy_{Vert} = \begin{pmatrix} 460 \\ 690 \\ 437 \\ 437 \\ 460 \\ 552 \\ 816 \\ 1207 \end{pmatrix} lb \qquad Heavy_{Trans} = \begin{pmatrix} 172 \\ 258 \\ 163 \\ 163 \\ 172 \\ 206 \\ 305 \\ 451 \end{pmatrix} lb$$

Extreme Vertical Load =

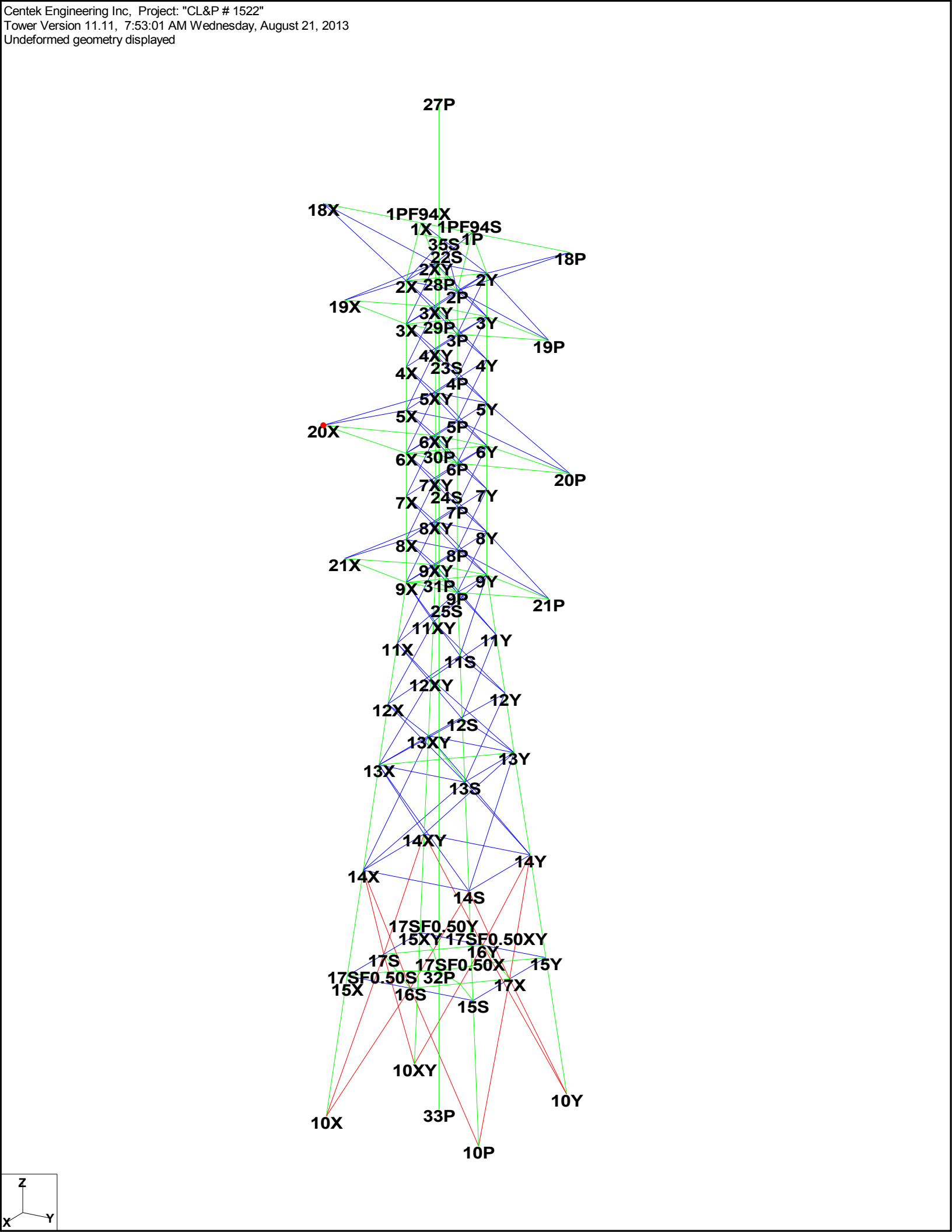
$$Extreme_{Vert} := \overrightarrow{\left[\left(N_{coax} \cdot W_{coax}\right) \cdot Coax_{Span} \cdot OF_{EV}\right]}$$

Extreme Transverse Load =

$$Extreme_{Trans} := \overrightarrow{\left[\left(qz \cdot A_T \cdot Cd_{coax}\right) \cdot Coax_{Span} \cdot OF_{EW}\right]}$$

$$Extreme_{Vert} = \begin{pmatrix} 125 \\ 187 \\ 119 \\ 119 \\ 125 \\ 150 \\ 222 \\ 328 \end{pmatrix} lb \qquad Extreme_{Trans} = \begin{pmatrix} 546 \\ 820 \\ 519 \\ 519 \\ 546 \\ 656 \\ 970 \\ 1435 \end{pmatrix} lb$$

Centek Engineering Inc, Project: "CL&P # 1522"
Tower Version 11.11, 7:53:01 AM Wednesday, August 21, 2013
Undeformed geometry displayed



Project Name : 12047.CO8 - Watertown, CT
Project Notes: CL&P Structure #1522 / Sprint - CT33XC516
Project File : J:\Jobs\1204700.WI\CO8 - CT33XC516\Rev (1)\Calcs\PLS Tower\CL&P # 1522.tow
Date run : 7:52:06 AM Wednesday, August 21, 2013
by : Tower Version 11.11
Licensed to : Centek Engineering Inc

Successfully performed nonlinear analysis

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 "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 "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 "g14Y" 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 201.25 exceeds maximum of 200.00 for member "g36P" ??
KL/R value of 201.25 exceeds maximum of 200.00 for member "g36X" ??
KL/R value of 201.25 exceeds maximum of 200.00 for member "g36XY" ??
KL/R value of 201.25 exceeds maximum of 200.00 for member "g36Y" ??
KL/R value of 201.25 exceeds maximum of 200.00 for member "g37P" ??
KL/R value of 201.25 exceeds maximum of 200.00 for member "g37X" ??
KL/R value of 201.25 exceeds maximum of 200.00 for member "g37XY" ??
KL/R value of 201.25 exceeds maximum of 200.00 for member "g37Y" ??
KL/R value of 232.56 exceeds maximum of 200.00 for member "g47P" ??
KL/R value of 232.56 exceeds maximum of 200.00 for member "g47Y" ??
KL/R value of 232.56 exceeds maximum of 200.00 for member "g48P" ??
KL/R value of 232.56 exceeds maximum of 200.00 for member "g48Y" ??
KL/R value of 318.49 exceeds maximum of 200.00 for member "g59P" ??
KL/R value of 318.49 exceeds maximum of 200.00 for member "g59X" ??
KL/R value of 233.59 exceeds maximum of 200.00 for member "g60P" ??
KL/R value of 233.59 exceeds maximum of 200.00 for member "g60X" ??
KL/R value of 233.59 exceeds maximum of 200.00 for member "g60XY" ??
KL/R value of 233.59 exceeds maximum of 200.00 for member "g60Y" ??
KL/R value of 233.59 exceeds maximum of 200.00 for member "Fg6072P" ??
KL/R value of 233.59 exceeds maximum of 200.00 for member "Fg6072X" ??
KL/R value of 233.59 exceeds maximum of 200.00 for member "Fg6072XY" ??
KL/R value of 233.59 exceeds maximum of 200.00 for member "Fg6072Y" ??
Unable to calculate rupture capacity for member "g61P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g61X" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g62P" because it has a long and short edge distance of 0. ??

KL/R value of 236.29 exceeds maximum of 200.00 for member "g70P" ??
KL/R value of 236.29 exceeds maximum of 200.00 for member "g70X" ??
KL/R value of 236.29 exceeds maximum of 200.00 for member "g70XY" ??
KL/R value of 236.29 exceeds maximum of 200.00 for member "g70Y" ??
KL/R value of 248.28 exceeds maximum of 200.00 for member "g71P" ??
KL/R value of 248.28 exceeds maximum of 200.00 for member "g71X" ??
KL/R value of 248.28 exceeds maximum of 200.00 for member "g71XY" ??
KL/R value of 248.28 exceeds maximum of 200.00 for member "g71Y" ??
KL/R value of 236.19 exceeds maximum of 200.00 for member "g72P" ??
KL/R value of 236.19 exceeds maximum of 200.00 for member "g72X" ??
KL/R value of 236.19 exceeds maximum of 200.00 for member "g72XY" ??
KL/R value of 236.19 exceeds maximum of 200.00 for member "g72Y" ??
KL/R value of 233.16 exceeds maximum of 200.00 for member "g94P" ??
KL/R value of 233.16 exceeds maximum of 200.00 for member "g94X" ??
KL/R value of 233.16 exceeds maximum of 200.00 for member "g94XY" ??
KL/R value of 233.16 exceeds maximum of 200.00 for member "g94Y" ??
Unusual number of fixed joints found: 5. Towers normally have from between 1 and 4 fixed joints. ??
The model has 54 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\1204700.wi\co8 - ct33xc516\rev (1)\calcs\pls tower\cl&p # 1522.lca

*** Analysis Results:

Maximum element usage is 89.99% for Angle "g41P" in load case "NESC Heavy"
Maximum insulator usage is 20.33% for Clamp "6" in load case "NESC Heavy"

Summary of Joint Support Reactions For All Load Cases:

Load Case	Joint Label	Long. Force (kips)	Tran. Force (kips)	Vert. Force (kips)	Shear Force (kips)	Tran. Moment (ft-k)	Long. Moment (ft-k)	Vert. Moment (ft-k)	Bending Moment (ft-k)	Found. Usage %
NESC Heavy	10P	-9.79	-8.25	55.70	12.81	-0.05	0.02	-0.03	0.05	0.00
NESC Heavy	33P	0.05	-0.25	19.28	0.25	1.24	0.60	-0.01	1.37	0.00
NESC Heavy	10X	2.40	-1.31	-13.22	2.73	-0.03	-0.03	0.01	0.04	0.00
NESC Heavy	10XY	-2.40	-1.13	-12.24	2.66	-0.02	0.01	-0.00	0.02	0.00
NESC Heavy	10Y	9.75	-8.56	57.35	12.97	-0.04	-0.07	0.02	0.08	0.00
NESC Extreme	10P	-8.16	-11.53	77.64	14.12	-0.13	-1.55	-0.13	1.56	0.00
NESC Extreme	33P	-0.98	-1.02	8.19	1.42	9.84	-9.85	1.15	13.92	0.00
NESC Extreme	10X	9.72	-7.18	-56.46	12.09	-0.15	-0.10	0.06	0.18	0.00
NESC Extreme	10XY	-10.07	-13.48	-59.13	16.83	1.32	0.04	-0.06	1.32	0.00
NESC Extreme	10Y	9.48	-8.98	82.79	13.06	1.44	-1.59	-0.22	2.14	0.00

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

Load Case	Support Joint	Origin Joint	Member Leg	Leg Force In Dir. (kips)	Residual Shear Perpendicular To Leg (kips)	Residual Shear Horizontal To Leg - Res. (kips)	Residual Shear Horizontal To Leg - Long. (kips)	Residual Shear Horizontal To Leg - Tran. (kips)	Total Long. Force (kips)	Total Tran. Force (kips)	Total Vert. Force (kips)
NESC Heavy	10P	15S	g14P	56.972	4.605	4.652	3.970	2.425	-9.79	-8.25	55.70
NESC Heavy	10X	15X	g14X	-13.463	1.013	1.018	-1.015	-0.069	2.40	-1.31	-13.22
NESC Heavy	10XY	15XY	g14XY	-12.470	1.130	1.134	1.125	-0.146	-2.40	-1.13	-12.24

NESC Heavy	10Y	15Y	g14Y	58.630	4.494	4.541	-3.749	2.562	9.75	-8.56	57.35		
NESC Extreme	10P	15S	g14P	78.841	3.392	3.411	0.040	3.410	-8.16	-11.53	77.64		
NESC Extreme	10X	15X	g14X	-57.597	3.993	4.028	-3.820	1.279	9.72	-7.18	-56.46		
NESC Extreme	10XY	15XY	g14XY	-60.929	8.186	8.267	3.887	7.297	-10.07	-13.48	-59.13		
NESC Extreme	10Y	15Y	g14Y	83.805	0.880	0.888	-0.828	0.323	9.48	-8.98	82.79		

Sections Information:

Section Label	Top Z (ft)	Bottom Z (ft)	Joint Count	Member Count	Tran. Face Top Width (ft)	Tran. Face Bot Width (ft)	Tran. Face Gross Area (ft^2)	Long. Face Top Width (ft)	Long. Face Bot Width (ft)	Long. Face Gross Area (ft^2)
1	109.500	57.000	54	176	0.00	6.00	215.258	0.00	24.00	637.105
2	57.000	0.000	39	108	6.00	17.92	681.720	6.00	17.92	681.720

*** 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 No.	Angle Desc.	Angle Type	Angle Size	Steel Strength (ksi)	Max Usage %	Max Use In Comp. %	Comp. Control Member	Comp. Force (kips)	Comp. Control Load Case	L/R Capacity (kips)	Comp. Connect. Shear Capacity (kips)	Comp. Connect. Bearing Capacity (kips)	RLX	RLY	RLZ	L/R Comp. (ft)	KL/R Length Curve	No. Of Member Bolts
Leg1	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	36.0	10.99	10.99	g90P	-1.291	NESC Ext	11.743	36.400	40.781	1.000	1.000	1.000	148.27	148.27	6.116	4
Leg2	L4x4x1/4	SAE	4X4X0.25	36.0	44.25	44.25	g5P	-25.916	NESC Ext	58.567	72.800	108.750	1.000	1.000	1.000	70.34	70.34	4.660	8
Leg3	L4x4x7/16	SAE	4X4X0.4375	36.0	49.12	49.12	g8Y	-49.193	NESC Ext	100.146	127.400	333.046	1.000	1.000	1.000	71.24	71.24	4.660	14
Leg4	L5x5x7/16	SAE	5X5X0.4375	50.0	43.46	43.46	g11Y	-63.274	NESC Ext	150.630	145.600	426.562	1.000	1.000	1.000	79.97	79.97	6.571	16
Leg5	L6x6x3/8	SAE	6X6X0.375	50.0	49.25	49.25	g13Y	-80.856	NESC Ext	164.165	182.000	457.031	0.500	0.500	0.500	57.34	57.34	11.372	20
Leg6	L6x6x3/8	SAE	6X6X0.375	50.0	48.15	48.15	g14Y	-81.552	NESC Ext	169.375	182.000	457.031	0.330	0.330	0.330	50.46	50.46	15.163	20
Diag1	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	36.0	33.72	33.72	g16P	-3.543	NESC Ext	10.509	18.200	20.391	0.750	0.500	0.500	133.00	129.95	7.603	2
Diag2	L3x3x3/16	SAE	3X3X0.1875	36.0	25.26	24.20	g18X	-6.607	NESC Ext	29.813	27.300	30.586	0.750	0.500	0.500	76.54	87.41	7.603	3
Diag3	L3x2.5x1/4	SAU	3X2.5X0.25	36.0	26.57	25.76	g24XY	-7.032	NESC Ext	33.833	27.300	40.781	0.750	0.500	0.500	86.40	94.80	7.603	3
Diag4	L3x3x1/4	SAE	3X3X0.25	36.0	19.25	15.70	g28XY	-5.716	NESC Ext	39.289	36.400	54.375	0.750	0.500	0.500	77.00	87.75	7.597	4
Diag5	L3x3x3/16	SAE	3X3X0.1875	36.0	13.96	13.96	g34XY	-2.891	NESC Ext	20.706	27.300	30.586	0.767	0.535	0.535	123.31	122.56	11.447	3
Diag6	L2.5x2.5x1/4	SAE	2.5X2.5X0.25	36.0	77.35	77.35	g37Y	-6.505	NESC Ext	8.410	36.400	54.375	0.791	0.581	0.581	226.57	201.25	15.956	4

Diag7	L3x2.5x1/4	SAU	3X2.5X0.25	36.0	89.99	89.99	g41P	-9.509	NESC Hea	10.567	36.400	54.375	0.386	0.750	0.386	209.67	188.37	17.543	5	4
Horz1	L2x2x3/16	SAE	2X2X0.1875	36.0	43.25	43.25	g42X	-3.120	NESC Hea	7.213	18.200	20.391	1.000	1.000	1.000	182.74	167.85	6.000	5	2
Horz2	L3.5x2.5x1/4	SAU	3.5X2.5X0.25	36.0	18.78	0.00	g45X	0.000		24.594	27.300	40.781	1.000	1.000	1.000	132.35	129.45	6.000	5	3
Horz3	L3x2x3/16	SAU	3X2X0.1875	36.0	36.54	0.00	g46Y	0.000		10.922	18.200	20.391	1.000	1.000	1.000	164.01	153.57	6.000	5	2
Horz4	L1.75x1.25x3/16	SAU	1.75X1.25X0.1875	36.0	73.49	0.00	g48Y	0.000		2.789	18.200	20.391	1.000	1.000	1.000	267.66	232.56	6.000	5	2
Horz5	L3x2.5x3/16	SAU	3X2.5X0.1875	36.0	34.31	21.99	g50X	-4.003	NESC Ext	18.257	18.200	20.391	1.000	0.500	0.500	126.77	125.20	10.078	5	2
Horz6	L3.5x3x1/4	SAU	3.5X3X0.25	36.0	29.34	29.34	g52X	-7.633	NESC Ext	26.018	27.300	40.781	1.000	0.500	0.500	134.38	131.00	12.431	5	3
Horz7	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	36.0	13.67	6.05	g53P	-0.573	NESC Ext	9.466	18.200	20.391	1.000	1.000	1.000	179.19	165.14	7.392	5	2
Inner1	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	36.0	26.50	26.50	Fg6072Y	-0.862	NESC Ext	3.252	9.100	10.195	2.000	1.000	1.000	233.59	233.59	5.227	4	1
Inner2	L2x2x3/16	SAE	2X2X0.1875	36.0	13.98	13.98	g57Y	-1.192	NESC Ext	8.530	18.200	20.391	2.000	1.000	1.000	165.03	154.35	4.243	5	2
ShieldAr	WT4x12	WT	WT4x12	36.0	36.93	0.00	g62P	0.000		81.514	18.200	53.287	1.000	1.000	1.000	72.07	96.04	6.000	3	2
ShArmBr	L3.5x2.5x1/4	SAU	3.5X2.5X0.25	36.0	18.98	18.98	g69XY	-3.454	NESC Hea	19.970	18.200	27.187	1.000	0.500	0.500	143.66	143.66	13.025	4	2
TopCrArm	L5x3.5x7/16	SAU	5X3.5X0.4375	50.0	59.30	59.30	g63P	-10.792	NESC Hea	103.153	18.200	53.320	0.500	0.500	0.500	75.09	97.55	9.487	3	2
TopArmBr	L1.75X1.75x3/16	SAE	1.75X1.75X0.1875	36.0	72.95	0.00	g70Y	0.000		3.178	18.200	20.391	1.000	0.500	0.500	236.29	236.29	10.574	4	2
MidCrArm	L5x3.5x7/16	SAU	5X3.5X0.4375	50.0	73.61	73.61	g65P	-13.397	NESC Hea	88.186	18.200	53.320	0.500	0.500	0.500	94.08	107.04	11.885	3	2
MidArmBr	L2x2x3/16	SAE	2X2X0.1875	36.0	83.44	0.00	g71Y	0.000		3.297	18.200	20.391	1.000	0.500	0.500	248.28	248.28	12.766	4	2
BotCrArm	L5x3.5x7/16	SAU	5X3.5X0.4375	50.0	58.66	58.66	g67P	-10.676	NESC Hea	103.153	18.200	53.320	0.500	0.500	0.500	75.09	97.55	9.487	3	2
BotArmBr	L1.75X1.75x3/16	SAE	1.75X1.75X0.1875	36.0	72.10	0.00	g72Y	0.000		3.181	18.200	20.391	1.000	0.500	0.500	236.19	236.19	10.570	4	2
Pwmnt	12" Std. Pipe	Pwmnt	Pipe 12" Std.	50.0	5.36	5.36	g75P	-15.834	NESC Hea	295.328	0.000	0.000	1.000	1.000	1.000	114.81	114.81	42.000	1	0
PMBR1	L2x2x3/16	SAE	2X2X0.1875	36.0	15.66	6.60	g83P	-0.673	NESC Hea	20.044	16.800	10.195	1.000	1.000	1.000	45.69	82.84	1.500	3	1
PMBR2	**L2.5x2.5x3/16**	**SAE**	**2.5X2.5X0.1875**	**36.0**	**46.47**	**27.28**	**g86P**	**-2.781**	**NESC Ext**	**22.127**	**16.800**	**10.195**	**1.000**	**1.000**	**1.000**	**81.31**	**100.66**	**3.354**	**3**	**1 A potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize moments): g84P ??**
PMBR3	L3x3x3/16	SAE	3X3X0.1875	36.0	8.82	8.82	g88X	-0.899	NESC Hea	26.079	16.800	10.195	1.000	1.000	1.000	86.55	103.28	4.299	3	1
Diag8	L2x2x3/16	SAE	2X2X0.1875	36.0	9.16	9.16	g92X	-0.596	NESC Ext	6.503	16.800	10.195	1.000	1.000	1.000	176.78	176.78	5.804	4	1
Diag9	L2x2x3/16	SAE	2X2X0.1875	36.0	2.21	1.20	g93P	-0.122	NESC Ext	14.460	16.800	10.195	2.000	1.000	1.000	116.69	117.52	3.000	2	1
TopCArmA	L5x3.5x7/16	SAU	5X3.5X0.4375	36.0	40.87	40.87	g64P	-7.438	NESC Hea	80.907	18.200	47.578	1.000	1.000	1.000	94.99	107.49	6.000	3	2
MidCArmA	L5x3.5x7/16	SAU	5X3.5X0.4375	36.0	60.58	60.58	g66Y	-11.025	NESC Hea	80.907	18.200	47.578	1.000	1.000	1.000	94.99	107.49	6.000	3	2
BotCArmA	L5x3.5x7/16	SAU	5X3.5X0.4375	36.0	59.41	59.41	g68Y	-10.813	NESC Hea	80.907	18.200	47.578	1.000	1.000	1.000	94.99	107.49	6.000	3	2
Inner3	**L1.75x1.25x3/16**	**SAU**	**1.75X1.25X0.1875**	**36.0**	**30.86**	**30.86**	**g94XY**	**-0.856**	**NESC Ext**	**2.775**	**9.100**	**10.195**	**1.000**	**1.000**	**1.000**	**233.16**	**233.16**	**5.227**	**4**	**1 A potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize moments): g94P g94X g94XY g94Y ??**

Group Summary (Tension Portion):

Group Label	Group Desc.	Angle Type	Angle Size	Steel Strength (ksi)	Max Usage %	Max Tension Use In Tens. %	Tension Control Member	Tension Force (kips)	Tension Control Load Case	Net Section Capacity (kips)	Tension Connect. Shear Capacity (kips)	Tension Connect. Bearing Capacity (kips)	Tension Connect. Rupture Capacity (kips)	Length Tens. Member (ft)	No. Of Bolts	No. Of Holes	Hole Diameter (in)
Leg1	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	36.0	10.99	1.44	g90X	0.322	NESC Ext	22.347	36.400	40.781	33.984	6.116	4	2.000	0.75
Leg2	L4x4x1/4	SAE	4X4X0.25	36.0	44.25	26.70	g5X	15.044	NESC Ext	56.340	72.800	108.750	120.833	4.660	8	2.000	0.75
Leg3	L4x4x7/16	SAE	4X4X0.4375	36.0	49.12	33.86	g8X	32.347	NESC Ext	95.535	127.400	333.046	370.052	4.660	14	2.000	0.75
Leg4	L5x5x7/16	SAE	5X5X0.4375	50.0	43.46	30.77	g11X	44.798	NESC Ext	158.633	145.600	426.562	473.958	6.571	16	3.070	0.75
Leg5	L6x6x3/8	SAE	6X6X0.375	50.0	49.25	28.64	g12X	46.323	NESC Ext	161.750	0.000	0.000	0.000	11.372	0	4.000	0.75
Leg6	L6x6x3/8	SAE	6X6X0.375	50.0	48.15	28.10	g14X	47.633	NESC Ext	169.484	182.000	457.031	477.940	15.163	20	3.450	0.75
Diag1	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	36.0	33.72	29.59	g16X	3.654	NESC Ext	15.532	18.200	20.391	12.347	7.603	2	1.000	0.75
Diag2	L3x3x3/16	SAE	3X3X0.1875	36.0	25.26	25.26	g20P	6.895	NESC Ext	30.760	27.300	30.586	30.586	7.603	3	1.000	0.75
Diag3	L3x2.5x1/4	SAU	3X2.5X0.25	36.0	26.57	26.57	g26Y	7.253	NESC Ext	32.319	27.300	40.781	40.781	7.603	3	1.000	0.75
Diag4	L3x3x1/4	SAE	3X3X0.25	36.0	19.25	19.25	g28Y	6.763	NESC Ext	40.581	36.400	54.375	35.137	7.597	4	1.000	0.75
Diag5	L3x3x3/16	SAE	3X3X0.1875	36.0	13.96	11.49	g32Y	3.123	NESC Ext	30.760	27.300	30.586	27.187	10.360	3	1.000	0.75
Diag6	L2.5x2.5x1/4	SAE	2.5X2.5X0.25	36.0	77.35	12.05	g37XY	3.915	NESC Ext	32.481	36.400	54.375	44.306	15.956	4	1.000	0.75
Diag7	L3x2.5x1/4	SAU	3X2.5X0.25	36.0	89.99	45.18	g40Y	15.874	NESC Ext	36.369	36.400	54.375	35.137	17.543	4	1.000	0.75
Horz1	L2x2x3/16	SAE	2X2X0.1875	36.0	43.25	0.58	g42P	0.081	NESC Ext	18.448	18.200	20.391	14.006	6.000	2	1.000	0.75
Horz2	L3.5x2.5x1/4	SAU	3.5X2.5X0.25	36.0	18.78	18.78	g44P	5.128	NESC Hea	40.581	27.300	40.781	27.450	6.000	3	1.000	0.75
Horz3	L3x2x3/16	SAU	3X2X0.1875	36.0	36.54	36.54	g46Y	5.117	NESC Hea	18.529	18.200	20.391	14.006	6.000	2	1.000	0.75
Horz4	L1.75x1.25x3/16	SAU	1.75X1.25X0.1875	36.0	73.49	73.49	g47Y	8.433	NESC Hea	12.519	18.200	20.391	11.475	6.000	2	1.000	0.75
Horz5	L3x2.5x3/16	SAU	3X2.5X0.1875	36.0	34.31	34.31	g50P	5.384	NESC Ext	24.806	18.200	20.391	15.694	10.078	2	1.000	0.75
Horz6	L3.5x3x1/4	SAU	3.5X3X0.25	36.0	29.34	27.74	g52P	7.572	NESC Hea	40.419	27.300	40.781	29.700	12.431	3	1.000	0.75
Horz7	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	36.0	13.67	13.67	g53XY	2.145	NESC Ext	24.669	18.200	20.391	15.694	7.392	2	1.000	0.75
Inner1	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	36.0	26.50	13.11	g55Y	1.726	NESC Ext	15.532	18.200	20.391	13.162	4.243	2	1.000	0.75
Inner2	L2x2x3/16	SAE	2X2X0.1875	36.0	13.98	8.98	g57P	1.258	NESC Ext	18.448	18.200	20.391	14.006	4.243	2	1.000	0.75
ShieldAr	WT4x12	WT	WT4x12	36.0	36.93	36.93	g61X	6.722	NESC Hea	108.742	18.200	53.287	0.000	11.500	2	1.000	0.75

ShArmBr	L3.5x2.5x1/4	SAU	3.5X2.5X0.25	36.0	18.98	0.00	g69Y	0.000		32.481	18.200	27.187	20.925	13.025	2	1.000
0.75																
TopCrArm	L5x3.5x7/16	SAU	5X3.5X0.4375	50.0	59.30	0.00	g63Y	0.000		129.319	18.200	53.320	53.320	9.487	2	2.000
0.75																
TopArmBr	L1.75X1.75x3/16	SAE	1.75X1.75X0.1875	36.0	72.95	72.95	g70P	11.330	NESC Hea	15.532	18.200	20.391	15.609	10.574	2	1.000
0.75																
MidCrArm	L5x3.5x7/16	SAU	5X3.5X0.4375	50.0	73.61	0.00	g65Y	0.000		129.319	18.200	53.320	53.320	11.885	2	2.000
0.75																
MidArmBr	L2x2x3/16	SAE	2X2X0.1875	36.0	83.44	83.44	g71P	13.729	NESC Hea	18.448	18.200	20.391	16.453	12.766	2	1.000
0.75																
BotCrArm	L5x3.5x7/16	SAU	5X3.5X0.4375	50.0	58.66	0.00	g67Y	0.000		129.319	18.200	53.320	53.320	9.487	2	2.000
0.75																
BotArmBr	L1.75X1.75x3/16	SAE	1.75X1.75X0.1875	36.0	72.10	72.10	g72P	11.199	NESC Hea	15.532	18.200	20.391	15.609	10.570	2	1.000
0.75																
Pwmnt	12" Std. Pipe	Pwmnt	Pipe 12" Std.	50.0	5.36	0.00	g79P	0.000		679.999	0.000	0.000	0.000	19.830	0	0.000
0																
PMBR1	L2x2x3/16	SAE	2X2X0.1875	36.0	15.66	15.66	g80P	1.597	NESC Hea	18.827	16.800	10.195	10.343	1.500	1	1.000
0.6875																
PMBR2	**L2.5x2.5x3/16**	**SAE**	**2.5X2.5X0.1875**	**36.0**	**46.47**	**46.47**	**g84P**	**4.738**	**NESC Ext**	**25.048**	**16.800**	**10.195**	**11.328**	**3.354**	**1**	**1.000**
0.6875 A potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize moments): g84P ??																
PMBR3	L3x3x3/16	SAE	3X3X0.1875	36.0	8.82	4.19	g88X	0.427	NESC Ext	31.139	16.800	10.195	11.328	4.299	1	1.000
0.6875																
Diag8	L2x2x3/16	SAE	2X2X0.1875	36.0	9.16	4.29	g92P	0.437	NESC Ext	18.827	16.800	10.195	10.343	5.804	1	1.000
0.6875																
Diag9	L2x2x3/16	SAE	2X2X0.1875	36.0	2.21	2.21	g93X	0.225	NESC Ext	18.827	16.800	10.195	10.343	3.000	1	1.000
0.6875																
TopCArmA	L5x3.5x7/16	SAU	5X3.5X0.4375	36.0	40.87	0.00	g64Y	0.000		103.741	18.200	47.578	44.494	6.000	2	1.000
0.75																
MidCArmA	L5x3.5x7/16	SAU	5X3.5X0.4375	36.0	60.58	0.00	g66Y	0.000		103.741	18.200	47.578	44.494	6.000	2	1.000
0.75																
BotCArmA	L5x3.5x7/16	SAU	5X3.5X0.4375	36.0	59.41	0.00	g68Y	0.000		103.741	18.200	47.578	44.494	6.000	2	1.000
0.75																
Inner3	**L1.75x1.25x3/16**	**SAU**	**1.75X1.25X0.1875**	**36.0**	**30.86**	**2.80**	**g94X**	**0.184**	**NESC Ext**	**12.519**	**9.100**	**10.195**	**6.581**	**5.227**	**1**	**1.000**
0.75 A potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize moments): g94P g94X g94XY g94Y ??																

*** Maximum Stress Summary for Each Load Case

Summary of Maximum Usages by Load Case:

Load Case	Maximum Usage %	Element Label	Element Type
NESC Heavy	89.99	g41P	Angle
NESC Extreme	77.35	g37Y	Angle

Summary of Insulator Usages:

Insulator Label	Insulator Type	Maximum Usage %	Load Case	Weight (lbs)
1	Clamp	5.79	NESC Heavy	0.0
2	Clamp	5.82	NESC Heavy	0.0
3	Clamp	20.21	NESC Heavy	0.0

4	Clamp	20.22	NESC Heavy	0.0
5	Clamp	20.32	NESC Heavy	0.0
6	Clamp	20.33	NESC Heavy	0.0
7	Clamp	20.21	NESC Heavy	0.0
8	Clamp	20.22	NESC Heavy	0.0
9	Clamp	17.11	NESC Heavy	0.0
10	Clamp	2.25	NESC Heavy	0.0
11	Clamp	1.69	NESC Heavy	0.0
12	Clamp	2.56	NESC Heavy	0.0
13	Clamp	5.40	NESC Heavy	0.0
14	Clamp	5.82	NESC Heavy	0.0
15	Clamp	2.13	NESC Extreme	0.0
16	Clamp	1.52	NESC Extreme	0.0
17	Clamp	1.60	NESC Heavy	0.0
18	Clamp	1.57	NESC Extreme	0.0
19	Clamp	2.20	NESC Extreme	0.0
20	Clamp	2.84	NESC Extreme	0.0
21	Clamp	3.79	NESC Extreme	0.0

*** Weight of structure (lbs):
Weight of Angles*Section DLF: 19543.9
Total: 19543.9

*** End of Report

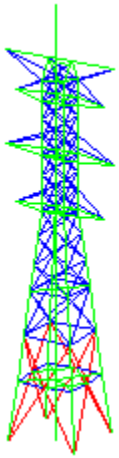
```
*****************************************************************************
*                                                                           *
* TOWER - Analysis and Design -  Copyright Power Line Systems, Inc. 1986-2011 *
*                                                           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

Project Name : 12047.CO8 - Watertown, CT
Project Notes: CL&P Structure #1522 / Sprint - CT33XC516
Project File : J:\Jobs\1204700.WI\CO8 - CT33XC516\Rev (1)\Calcs\PLS Tower\CL&P # 1522.tow
Date run     : 7:52:06 AM Wednesday, August 21, 2013
by           : Tower Version 11.11
Licensed to  : Centek Engineering Inc

Successfully performed nonlinear analysis

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 "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 "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 "g14Y" 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 201.25 exceeds maximum of 200.00 for member "g36P" ??
KL/R value of 201.25 exceeds maximum of 200.00 for member "g36X" ??
KL/R value of 201.25 exceeds maximum of 200.00 for member "g36XY" ??
KL/R value of 201.25 exceeds maximum of 200.00 for member "g36Y" ??
KL/R value of 201.25 exceeds maximum of 200.00 for member "g37P" ??
KL/R value of 201.25 exceeds maximum of 200.00 for member "g37X" ??
KL/R value of 201.25 exceeds maximum of 200.00 for member "g37XY" ??
KL/R value of 201.25 exceeds maximum of 200.00 for member "g37Y" ??
KL/R value of 232.56 exceeds maximum of 200.00 for member "g47P" ??
KL/R value of 232.56 exceeds maximum of 200.00 for member "g47Y" ??
KL/R value of 232.56 exceeds maximum of 200.00 for member "g48P" ??
KL/R value of 232.56 exceeds maximum of 200.00 for member "g48Y" ??
KL/R value of 318.49 exceeds maximum of 200.00 for member "g59P" ??
KL/R value of 318.49 exceeds maximum of 200.00 for member "g59X" ??
KL/R value of 233.59 exceeds maximum of 200.00 for member "g60P" ??
KL/R value of 233.59 exceeds maximum of 200.00 for member "g60X" ??
KL/R value of 233.59 exceeds maximum of 200.00 for member "g60XY" ??
KL/R value of 233.59 exceeds maximum of 200.00 for member "g60Y" ??
KL/R value of 233.59 exceeds maximum of 200.00 for member "Fg6072P" ??
```

KL/R value of 233.59 exceeds maximum of 200.00 for member "Fg6072X" ??
KL/R value of 233.59 exceeds maximum of 200.00 for member "Fg6072XY" ??
KL/R value of 233.59 exceeds maximum of 200.00 for member "Fg6072Y" ??
Unable to calculate rupture capacity for member "g61P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g61X" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g62P" because it has a long and short edge distance of 0. ??
KL/R value of 236.29 exceeds maximum of 200.00 for member "g70P" ??
KL/R value of 236.29 exceeds maximum of 200.00 for member "g70X" ??
KL/R value of 236.29 exceeds maximum of 200.00 for member "g70XY" ??
KL/R value of 236.29 exceeds maximum of 200.00 for member "g70Y" ??
KL/R value of 248.28 exceeds maximum of 200.00 for member "g71P" ??
KL/R value of 248.28 exceeds maximum of 200.00 for member "g71X" ??
KL/R value of 248.28 exceeds maximum of 200.00 for member "g71XY" ??
KL/R value of 248.28 exceeds maximum of 200.00 for member "g71Y" ??
KL/R value of 236.19 exceeds maximum of 200.00 for member "g72P" ??
KL/R value of 236.19 exceeds maximum of 200.00 for member "g72X" ??
KL/R value of 236.19 exceeds maximum of 200.00 for member "g72XY" ??
KL/R value of 236.19 exceeds maximum of 200.00 for member "g72Y" ??
KL/R value of 233.16 exceeds maximum of 200.00 for member "g94P" ??
KL/R value of 233.16 exceeds maximum of 200.00 for member "g94X" ??
KL/R value of 233.16 exceeds maximum of 200.00 for member "g94XY" ??
KL/R value of 233.16 exceeds maximum of 200.00 for member "g94Y" ??
Unusual number of fixed joints found: 5. Towers normally have from between 1 and 4 fixed joints. ??
The model has 54 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	X-Symmetry	0	3	95	Free	Free	Free	Free	Free	Free
2P	XY-Symmetry	3	3	89.67	Free	Free	Free	Free	Free	Free
3P	XY-Symmetry	3	3	85	Free	Free	Free	Free	Free	Free
4P	XY-Symmetry	3	3	80.33	Free	Free	Free	Free	Free	Free
5P	XY-Symmetry	3	3	75.66	Free	Free	Free	Free	Free	Free
6P	XY-Symmetry	3	3	71	Free	Free	Free	Free	Free	Free
7P	XY-Symmetry	3	3	66.33	Free	Free	Free	Free	Free	Free
8P	XY-Symmetry	3	3	61.66	Free	Free	Free	Free	Free	Free
9P	XY-Symmetry	3	3	57	Free	Free	Free	Free	Free	Free
10P	XY-Symmetry	8.96	8.96	0	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
18P	X-Symmetry	0	14.5	95	Free	Free	Free	Free	Free	Free
19P	X-Symmetry	0	12	85	Free	Free	Free	Free	Free	Free
20P	X-Symmetry	0	14.5	71	Free	Free	Free	Free	Free	Free
21P	X-Symmetry	0	12	57	Free	Free	Free	Free	Free	Free
27P	None	1.5	0	109.5	Free	Free	Free	Free	Free	Free
28P	None	1.5	0	89.67	Free	Free	Free	Free	Free	Free
29P	None	1.5	0	85	Free	Free	Free	Free	Free	Free
30P	None	1.5	0	71	Free	Free	Free	Free	Free	Free
31P	None	1.5	0	57	Free	Free	Free	Free	Free	Free
32P	None	1.5	0	15	Free	Free	Free	Free	Free	Free
33P	None	1.5	0	0	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
1X	X-Gen	0	-3	95	Free	Free	Free	Free	Free	Free
2X	X-GenXY	3	-3	89.67	Free	Free	Free	Free	Free	Free
2XY	XY-GenXY	-3	-3	89.67	Free	Free	Free	Free	Free	Free
2Y	Y-GenXY	-3	3	89.67	Free	Free	Free	Free	Free	Free
3X	X-GenXY	3	-3	85	Free	Free	Free	Free	Free	Free
3XY	XY-GenXY	-3	-3	85	Free	Free	Free	Free	Free	Free
3Y	Y-GenXY	-3	3	85	Free	Free	Free	Free	Free	Free
4X	X-GenXY	3	-3	80.33	Free	Free	Free	Free	Free	Free
4XY	XY-GenXY	-3	-3	80.33	Free	Free	Free	Free	Free	Free
4Y	Y-GenXY	-3	3	80.33	Free	Free	Free	Free	Free	Free
5X	X-GenXY	3	-3	75.66	Free	Free	Free	Free	Free	Free
5XY	XY-GenXY	-3	-3	75.66	Free	Free	Free	Free	Free	Free
5Y	Y-GenXY	-3	3	75.66	Free	Free	Free	Free	Free	Free
6X	X-GenXY	3	-3	71	Free	Free	Free	Free	Free	Free
6XY	XY-GenXY	-3	-3	71	Free	Free	Free	Free	Free	Free
6Y	Y-GenXY	-3	3	71	Free	Free	Free	Free	Free	Free
7X	X-GenXY	3	-3	66.33	Free	Free	Free	Free	Free	Free
7XY	XY-GenXY	-3	-3	66.33	Free	Free	Free	Free	Free	Free
7Y	Y-GenXY	-3	3	66.33	Free	Free	Free	Free	Free	Free
8X	X-GenXY	3	-3	61.66	Free	Free	Free	Free	Free	Free
8XY	XY-GenXY	-3	-3	61.66	Free	Free	Free	Free	Free	Free
8Y	Y-GenXY	-3	3	61.66	Free	Free	Free	Free	Free	Free
9X	X-GenXY	3	-3	57	Free	Free	Free	Free	Free	Free
9XY	XY-GenXY	-3	-3	57	Free	Free	Free	Free	Free	Free
9Y	Y-GenXY	-3	3	57	Free	Free	Free	Free	Free	Free
10X	X-GenXY	8.96	-8.96	0	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
10XY	XY-GenXY	-8.96	-8.96	0	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
10Y	Y-GenXY	-8.96	8.96	0	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
18X	X-Gen	0	-14.5	95	Free	Free	Free	Free	Free	Free
19X	X-Gen	0	-12	85	Free	Free	Free	Free	Free	Free
20X	X-Gen	0	-14.5	71	Free	Free	Free	Free	Free	Free
21X	X-Gen	0	-12	57	Free	Free	Free	Free	Free	Free

Secondary Joints:

Joint Label	Symmetry Code	Origin Joint	End Joint	Fraction	Elevation	X Disp. Rest.	Y Disp. Rest.	Z Disp. Rest.	X Rot. Rest.	Y Rot. Rest.	Z Rot. Rest.

					(ft)						
11S	XY-Symmetry	9P	10P	0	50.5	Free	Free	Free	Free	Free	Free
12S	XY-Symmetry	9P	10P	0	44	Free	Free	Free	Free	Free	Free
13S	XY-Symmetry	9P	10P	0	37.5	Free	Free	Free	Free	Free	Free
14S	XY-Symmetry	9P	10P	0	26.25	Free	Free	Free	Free	Free	Free
15S	XY-Symmetry	9P	10P	0	15	Free	Free	Free	Free	Free	Free
16S	Y-Symmetry	15X	15S	0.5	0	Free	Free	Free	Free	Free	Free
17S	X-Symmetry	15X	15XY	0.5	0	Free	Free	Free	Free	Free	Free
22S	None	2X	2Y	0.5	0	Free	Free	Free	Free	Free	Free
23S	None	3X	3Y	0.5	0	Free	Free	Free	Free	Free	Free
24S	None	6X	6Y	0.5	0	Free	Free	Free	Free	Free	Free
25S	None	9X	9Y	0.5	0	Free	Free	Free	Free	Free	Free
17SF0.50S	XY-Symmetry	17S	16S	0.5	0	Free	Free	Free	Free	Free	Free
1PF94S	X-Symmetry	1P	2P	0	94	Free	Free	Free	Free	Free	Free
35S	None	1PF94S	1PF94X	0.5	0	Free	Free	Free	Free	Free	Free
11X	X-GenXY	9P	10P	0	50.5	Free	Free	Free	Free	Free	Free
11XY	XY-GenXY	9P	10P	0	50.5	Free	Free	Free	Free	Free	Free
11Y	Y-GenXY	9P	10P	0	50.5	Free	Free	Free	Free	Free	Free
12X	X-GenXY	9P	10P	0	44	Free	Free	Free	Free	Free	Free
12XY	XY-GenXY	9P	10P	0	44	Free	Free	Free	Free	Free	Free
12Y	Y-GenXY	9P	10P	0	44	Free	Free	Free	Free	Free	Free
13X	X-GenXY	9P	10P	0	37.5	Free	Free	Free	Free	Free	Free
13XY	XY-GenXY	9P	10P	0	37.5	Free	Free	Free	Free	Free	Free
13Y	Y-GenXY	9P	10P	0	37.5	Free	Free	Free	Free	Free	Free
14X	X-GenXY	9P	10P	0	26.25	Free	Free	Free	Free	Free	Free
14XY	XY-GenXY	9P	10P	0	26.25	Free	Free	Free	Free	Free	Free
14Y	Y-GenXY	9P	10P	0	26.25	Free	Free	Free	Free	Free	Free
15X	X-GenXY	9P	10P	0	15	Free	Free	Free	Free	Free	Free
15XY	XY-GenXY	9P	10P	0	15	Free	Free	Free	Free	Free	Free
15Y	Y-GenXY	9P	10P	0	15	Free	Free	Free	Free	Free	Free
16Y	Y-Gen	15X	15S	0.5	0	Free	Free	Free	Free	Free	Free
17X	X-Gen	15X	15XY	0.5	0	Free	Free	Free	Free	Free	Free
17SF0.50X	X-GenXY	17S	16S	0.5	0	Free	Free	Free	Free	Free	Free
17SF0.50XY	XY-GenXY	17S	16S	0.5	0	Free	Free	Free	Free	Free	Free
17SF0.50Y	Y-GenXY	17S	16S	0.5	0	Free	Free	Free	Free	Free	Free
1PF94X	X-Gen	1P	2P	0	94	Free	Free	Free	Free	Free	Free

The model contains 53 primary and 35 secondary joints for a total of 88 joints.

Steel Material Properties:

Steel Material Label	Modulus of Elasticity (ksi)	Yield Stress Fy (ksi)	Ultimate Stress Fu (ksi)	Member All. Stress Hyp. 1 (ksi)	Member All. Stress Hyp. 2 (ksi)	Member Rupture Hyp. 1 (ksi)	Member Rupture Hyp. 2 (ksi)	Member Bearing Hyp. 1 (ksi)	Member Bearing Hyp. 2 (ksi)
A 36	2.9e+004	36	58	0	0	0	0	0	0
A572-50	2.9e+004	50	65	0	0	0	0	0	0
A500-50	2.9e+004	50	62	0	0	0	0	0	0

Bolt Properties:

Bolt Label	Bolt Diameter (in)	Hole Diameter (in)	Ultimate Shear Capacity (kips)	Default End Distance (in)	Default Bolt Spacing (in)	Shear Capacity Hyp. 1 (kips)	Shear Capacity Hyp. 2 (kips)
5/8 A394	0.625	0.75	9.1	1.125	1.5	0	0

5/8 A325	0.625	0.6875	16.8	1.25	1.5	0	0

Number Bolts Used By Type:

Bolt Type	Number Bolts
5/8 A394	874
5/8 A325	17

Angle Properties:

Angle Type	Angle Size	Long Leg (in)	Short Leg (in)	Thick. (in)	Unit Weight (lbs/ft)	Gross Area (in^2)	w/t Ratio	Radius of Gyration Rx (in)	Radius of Gyration Ry (in)	Radius of Gyration Rz (in)	Number of Angles	Wind Width (in)	Short Edge Dist. (in)	Long Edge Dist. (in)	Optimize Cost Factor	Section Modulus (in^3)
SAE	6X6X0.375	6	6	0.375	14.9	4.36	13.67	1.88	1.88	1.19	1	6	3	0	1.0000	0
SAE	5X5X0.4375	5	5	0.4375	14.3	4.18	9.29	1.55	1.55	0.986	1	5	2.5	0	1.0000	0
SAE	4X4X0.4375	4	4	0.4375	11.3	3.31	7.29	1.23	1.23	0.785	1	4	2	0	1.0000	0
SAE	4X4X0.25	4	4	0.25	6.6	1.94	13.5	1.25	1.25	0.795	1	4	2	0	1.0000	0
SAE	3X3X0.25	3	3	0.25	4.9	1.44	9.75	0.93	0.93	0.592	1	3	1.5	0	1.0000	0
SAE	3X3X0.1875	3	3	0.1875	3.71	1.09	13.33	0.939	0.939	0.596	1	3	1.5	0	1.0000	0
SAE	2.5X2.5X0.25	2.5	2.5	0.25	4.1	1.19	7.75	0.769	0.769	0.491	1	2.5	1.25	0	1.0000	0
SAE	2.5X2.5X0.1875	2.5	2.5	0.1875	3.07	0.902	10.67	0.778	0.778	0.495	1	2.5	1.25	0	1.0000	0
SAE	2X2X0.1875	2	2	0.1875	2.44	0.71	8	0.617	0.617	0.394	1	2	1	0	1.0000	0
SAE	1.75X1.75X0.1875	1.75	1.75	0.1875	2.12	0.62	6	0.537	0.537	0.343	1	1.75	0.875	0	1.0000	0
SAU	5X3.5X0.4375	5	3.5	0.4375	12	3.53	9.29	1.59	1.01	0.758	1	5	1.75	0	1.0000	0
SAU	3.5X3X0.25	3.5	3	0.25	5.4	1.56	11.25	1.11	0.914	0.631	1	3.5	1.5	0	1.0000	0
SAU	3.5X2.5X0.25	3.5	2.5	0.25	4.9	1.44	11.25	1.12	0.735	0.544	1	3.5	1.25	0	1.0000	0
SAU	3X2.5X0.25	3	2.5	0.25	4.5	1.31	9.5	0.945	0.753	0.528	1	3	1.25	0	1.0000	0
SAU	3X2.5X0.1875	3	2.5	0.1875	3.39	1	13	0.954	0.761	0.533	1	3	1.25	0	1.0000	0
SAU	3X2X0.1875	3	2	0.1875	3.07	0.9	13.33	0.966	0.583	0.439	1	3	1	0	1.0000	0
SAU	1.75X1.25X0.1875	1.75	1.25	0.1875	1.8	0.527	7.33	0.551	0.359	0.269	1	1.75	0.625	0	1.0000	0
Pwmnt	Pipe 12" Std.	12.75	12	0	49.6	13.6	1	4.39	4.39	4.39	1	12.75	0	0	0.0000	0
WT	WT4x12	6.5	3.97	0.245	12	3.54	16.32	0.999	1.61	0.999	2	4	0	0	0.0000	0

Angle Groups:

Group Label	Group Description	Angle Type	Angle Size	Material Type	Element Type	Group Type	Optimize Group	Allow. Add. Angle Width For Optimize (in)
Leg1	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	A 36	Beam	Leg	None	0.000
Leg2	L4x4x1/4	SAE	4X4X0.25	A 36	Beam	Leg	None	0.000
Leg3	L4x4x7/16	SAE	4X4X0.4375	A 36	Beam	Leg	None	0.000
Leg4	L5x5x7/16	SAE	5X5X0.4375	A572-50	Beam	Leg	None	0.000
Leg5	L6x6x3/8	SAE	6X6X0.375	A572-50	Beam	Leg	None	0.000
Leg6	L6x6x3/8	SAE	6X6X0.375	A572-50	Beam	Leg	None	0.000
Diag1	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	A 36	Truss	Crossing Diagonal	None	0.000
Diag2	L3x3x3/16	SAE	3X3X0.1875	A 36	Truss	Crossing Diagonal	None	0.000
Diag3	L3x2.5x1/4	SAU	3X2.5X0.25	A 36	Truss	Crossing Diagonal	None	0.000
Diag4	L3x3x1/4	SAE	3X3X0.25	A 36	Truss	Crossing Diagonal	None	0.000
Diag5	L3x3x3/16	SAE	3X3X0.1875	A 36	Truss	Crossing Diagonal	None	0.000
Diag6	L2.5x2.5x1/4	SAE	2.5X2.5X0.25	A 36	Truss	Crossing Diagonal	None	0.000
Diag7	L3x2.5x1/4	SAU	3X2.5X0.25	A 36	T-Only	Other	None	0.000
Horz1	L2x2x3/16	SAE	2X2X0.1875	A 36	Truss	Other	None	0.000
Horz2	L3.5x2.5x1/4	SAU	3.5X2.5X0.25	A 36	Truss	Other	None	0.000

Horz3	L3x2x3/16	SAU	3X2X0.1875	A 36	Truss	Other	None	0.000
Horz4	L1.75x1.25x3/16	SAU	1.75X1.25X0.1875	A 36	Truss	Other	None	0.000
Horz5	L3x2.5x3/16	SAU	3X2.5X0.1875	A 36	Truss	Other	None	0.000
Horz6	L3.5x3x1/4	SAU	3.5X3X0.25	A 36	Truss	Other	None	0.000
Horz7	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	A 36	Truss	Other	None	0.000
Inner1	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	A 36	Beam	Other	None	0.000
Inner2	L2x2x3/16	SAE	2X2X0.1875	A 36	Beam	Other	None	0.000
ShieldAr	WT4x12	WT	WT4x12	A 36	Beam	Other	None	0.000
ShArmBr	L3.5x2.5x1/4	SAU	3.5X2.5X0.25	A 36	Truss	Other	None	0.000
TopCrArm	L5x3.5x7/16	SAU	5X3.5X0.4375	A572-50	Beam	Other	None	0.000
TopArmBr	L1.75X1.75x3/16	SAE	1.75X1.75X0.1875	A 36	Truss	Other	None	0.000
MidCrArm	L5x3.5x7/16	SAU	5X3.5X0.4375	A572-50	Beam	Other	None	0.000
MidArmBr	L2x2x3/16	SAE	2X2X0.1875	A 36	Truss	Other	None	0.000
BotCrArm	L5x3.5x7/16	SAU	5X3.5X0.4375	A572-50	Beam	Other	None	0.000
BotArmBr	L1.75X1.75x3/16	SAE	1.75X1.75X0.1875	A 36	Truss	Other	None	0.000
Pwmnt	12" Std. Pipe	Pwmnt	Pipe 12" Std.	A500-50	Beam	Other	None	0.000
PMBR1	L2x2x3/16	SAE	2X2X0.1875	A 36	Beam	Other	None	12.000
PMBR2	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	A 36	Beam	Other	None	12.000
PMBR3	L3x3x3/16	SAE	3X3X0.1875	A 36	Beam	Other	None	12.000
Diag8	L2x2x3/16	SAE	2X2X0.1875	A 36	Truss	Other	None	0.000
Diag9	L2x2x3/16	SAE	2X2X0.1875	A 36	Beam	Other	None	0.000
TopCArmA	L5x3.5x7/16	SAU	5X3.5X0.4375	A 36	Beam	Other	None	0.000
MidCArmA	L5x3.5x7/16	SAU	5X3.5X0.4375	A 36	Beam	Other	None	0.000
BotCArmA	L5x3.5x7/16	SAU	5X3.5X0.4375	A 36	Beam	Other	None	0.000
Inner3	L1.75x1.25x3/16	SAU	1.75X1.25X0.1875	A 36	Beam	Other	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)	Total Surface Area (ft^2)	Total Weight (lbs)
SAE	2.5X2.5X0.1875	A 36	103.72	86.44	318.43
SAE	4X4X0.25	A 36	74.68	99.57	492.89
SAE	4X4X0.4375	A 36	56.00	74.67	632.80
SAE	5X5X0.4375	A572-50	78.85	131.41	1127.53
SAE	6X6X0.375	A572-50	151.63	303.26	2259.30
SAE	1.75X1.75X0.1875	A 36	249.82	145.73	529.63
SAE	3X3X0.1875	A 36	378.24	378.24	1403.27
SAU	3X2.5X0.25	A 36	365.24	334.81	1643.60
SAE	3X3X0.25	A 36	135.54	135.54	664.13
SAE	2.5X2.5X0.25	A 36	127.65	106.38	523.37
SAE	2X2X0.1875	A 36	136.08	90.72	332.04
SAU	3.5X2.5X0.25	A 36	88.10	88.10	431.70
SAU	3X2X0.1875	A 36	12.00	10.00	36.84
SAU	1.75X1.25X0.1875	A 36	44.91	22.45	80.83
SAU	3X2.5X0.1875	A 36	40.31	36.95	136.66
SAU	3.5X3X0.25	A 36	49.72	53.87	268.50
WT	WT4x12	A 36	29.00	50.61	348.00
SAU	5X3.5X0.4375	A572-50	123.43	174.87	1481.21
SAU	5X3.5X0.4375	A 36	36.00	51.00	432.00
Pwmnt	Pipe 12" Std.	A500-50	109.50	451.69	5431.20

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 Bottom	Dead Load Adjust. Factor	Transverse Drag x Area Factor For Face	Longitudinal Drag x Area Factor For Face	Transverse Area Factor (CD From Code)	Longitudinal Area Factor (CD From Code)	Af Flat Factor For Face EIA Only	Ar Round Factor For Face EIA Only	Transverse Drag x Area Factor For All	Longitudinal Drag x Area Factor For All	SAPS Angle Drag x Area Factor	SAPS Round Drag x Area Factor	Force Solid Face
1	9P	1.000	3.200	3.200	1.000	1.000	0.000	0.000	1.000	1.000	0.000	0.000	None
2	10P	1.100	3.300	3.300	1.000	1.000	0.000	0.000	1.000	1.000	0.000	0.000	None

Angle Member Connectivity:

Member Label	Group Label	Section Label	Symmetry Code	Origin Joint	End Joint	Ecc. Code	Rest. Code	Ratio RLX	Ratio RLY	Ratio RLZ	Bolt Type	# Bolts	# Bolt Holes	# Shear Planes	Connect Leg	Short Edge Dist. (in)	Long Edge Dist. (in)	End Dist. (in)	Bolt Spacing (in)	Coef.
g1P	Leg1		X-Symmetry	1P	1PF94S	1	4	1	1	1	5/8 A394	0	2	1		0	0	0	0	
g1X	Leg1		X-Gen	1X	1PF94X	1	4	1	1	1	5/8 A394	0	2	1		0	0	0	0	
Fg190P	Leg1		X-Symmetry	1PF94S	2P	1	4	1	1	1	5/8 A394	4	2	1	Both	1	0	0.9375	2	0
Fg190X	Leg1		X-Gen	1PF94X	2X	1	4	1	1	1	5/8 A394	4	2	1	Both	1	0	0.9375	2	0
g2P	Leg2		XY-Symmetry	2P	3P	1	4	1	1	1	5/8 A394	0	2	1		0	0	0	0	
g2X	Leg2		X-GenXY	2X	3X	1	4	1	1	1	5/8 A394	0	2	1		0	0	0	0	
g2XY	Leg2		XY-GenXY	2XY	3XY	1	4	1	1	1	5/8 A394	0	2	1		0	0	0	0	
g2Y	Leg2		Y-GenXY	2Y	3Y	1	4	1	1	1	5/8 A394	0	2	1		0	0	0	0	
g3P	Leg2		XY-Symmetry	3P	4P	1	4	1	1	1	5/8 A394	0	2	1		0	0	0	0	
g3X	Leg2		X-GenXY	3X	4X	1	4	1	1	1	5/8 A394	0	2	1		0	0	0	0	
g3XY	Leg2		XY-GenXY	3XY	4XY	1	4	1	1	1	5/8 A394	0	2	1		0	0	0	0	
g3Y	Leg2		Y-GenXY	3Y	4Y	1	4	1	1	1	5/8 A394	0	2	1		0	0	0	0	
g4P	Leg2		XY-Symmetry	4P	5P	1	4	1	1	1	5/8 A394	0	2	1		0	0	0	0	
g4X	Leg2		X-GenXY	4X	5X	1	4	1	1	1	5/8 A394	0	2	1		0	0	0	0	
g4XY	Leg2		XY-GenXY	4XY	5XY	1	4	1	1	1	5/8 A394	0	2	1		0	0	0	0	
g4Y	Leg2		Y-GenXY	4Y	5Y	1	4	1	1	1	5/8 A394	0	2	1		0	0	0	0	
g5P	Leg2		XY-Symmetry	5P	6P	1	4	1	1	1	5/8 A394	8	2	1	Both	2	0	1.25	2	0
g5X	Leg2		X-GenXY	5X	6X	1	4	1	1	1	5/8 A394	8	2	1	Both	2	0	1.25	2	0
g5XY	Leg2		XY-GenXY	5XY	6XY	1	4	1	1	1	5/8 A394	8	2	1	Both	2	0	1.25	2	0
g5Y	Leg2		Y-GenXY	5Y	6Y	1	4	1	1	1	5/8 A394	8	2	1	Both	2	0			

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1.25       2     0
      g6P     Leg3          XY-Symmetry         6P         7P    1     4     1     1     1 5/8 A394     0      2       1                 0      0
0       0     0
      g6X     Leg3               X-GenXY         6X         7X    1     4     1     1     1 5/8 A394     0      2       1                 0      0
0       0     0
     g6XY     Leg3              XY-GenXY        6XY        7XY    1     4     1     1     1 5/8 A394     0      2       1                 0      0
0       0     0
      g6Y     Leg3               Y-GenXY         6Y         7Y    1     4     1     1     1 5/8 A394     0      2       1                 0      0
0       0     0
      g7P     Leg3          XY-Symmetry         7P         8P    1     4     1     1     1 5/8 A394     0      2       1                 0      0
0       0     0
      g7X     Leg3               X-GenXY         7X         8X    1     4     1     1     1 5/8 A394     0      2       1                 0      0
0       0     0
     g7XY     Leg3              XY-GenXY        7XY        8XY    1     4     1     1     1 5/8 A394     0      2       1                 0      0
0       0     0
      g7Y     Leg3               Y-GenXY         7Y         8Y    1     4     1     1     1 5/8 A394     0      2       1                 0      0
0       0     0
      g8P     Leg3          XY-Symmetry         8P         9P    1     4     1     1     1 5/8 A394    14      2       1       Both      2      0
1.25       2     0
      g8X     Leg3               X-GenXY         8X         9X    1     4     1     1     1 5/8 A394    14      2       1       Both      2      0
1.25       2     0
     g8XY     Leg3              XY-GenXY        8XY        9XY    1     4     1     1     1 5/8 A394    14      2       1       Both      2      0
1.25       2     0
      g8Y     Leg3               Y-GenXY         8Y         9Y    1     4     1     1     1 5/8 A394    14      2       1       Both      2      0
1.25       2     0
      g9P     Leg4          XY-Symmetry         9P        11S    1     4     1     1     1 5/8 A394     0   3.07       1                 0      0
0       0     0
      g9X     Leg4               X-GenXY         9X        11X    1     4     1     1     1 5/8 A394     0   3.07       1                 0      0
0       0     0
     g9XY     Leg4              XY-GenXY        9XY       11XY    1     4     1     1     1 5/8 A394     0   3.07       1                 0      0
0       0     0
      g9Y     Leg4               Y-GenXY         9Y        11Y    1     4     1     1     1 5/8 A394     0   3.07       1                 0      0
0       0     0
     g10P     Leg4          XY-Symmetry        11S        12S    1     4     1     1     1 5/8 A394     0   3.07       1                 0      0
0       0     0
     g10X     Leg4               X-GenXY        11X        12X    1     4     1     1     1 5/8 A394     0   3.07       1                 0      0
0       0     0
    g10XY     Leg4              XY-GenXY       11XY       12XY    1     4     1     1     1 5/8 A394     0   3.07       1                 0      0
0       0     0
     g10Y     Leg4               Y-GenXY        11Y        12Y    1     4     1     1     1 5/8 A394     0   3.07       1                 0      0
0       0     0
     g11P     Leg4          XY-Symmetry        12S        13S    1     4     1     1     1 5/8 A394    16   3.07       1       Both    1.5   3.25
1.25     3.5     0
     g11X     Leg4               X-GenXY        12X        13X    1     4     1     1     1 5/8 A394    16   3.07       1       Both    1.5   3.25
1.25     3.5     0
    g11XY     Leg4              XY-GenXY       12XY       13XY    1     4     1     1     1 5/8 A394    16   3.07       1       Both    1.5   3.25
1.25     3.5     0
     g11Y     Leg4               Y-GenXY        12Y        13Y    1     4     1     1     1 5/8 A394    16   3.07       1       Both    1.5   3.25
1.25     3.5     0
     g12P     Leg5          XY-Symmetry        13S        14S    1     4   0.5   0.5   0.5 5/8 A394     0      4       1                 0      0
0       0     0
     g12X     Leg5               X-GenXY        13X        14X    1     4   0.5   0.5   0.5 5/8 A394     0      4       1                 0      0
0       0     0
    g12XY     Leg5              XY-GenXY       13XY       14XY    1     4   0.5   0.5   0.5 5/8 A394     0      4       1                 0      0
0       0     0
     g12Y     Leg5               Y-GenXY        13Y        14Y    1     4   0.5   0.5   0.5 5/8 A394     0      4       1                 0      0
0       0     0
     g13P     Leg5          XY-Symmetry        14S        15S    1     4   0.5   0.5   0.5 5/8 A394    20   3.45       1       Both 1.4375 3.9375
1.25       3     0
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g13X	Leg5	X-GenXY	14X	15X	1	4	0.5	0.5	0.5	5/8	A394	20	3.45	1	Both	1.4375	3.9375	1.25
3	0																	
g13XY	Leg5	XY-GenXY	14XY	15XY	1	4	0.5	0.5	0.5	5/8	A394	20	3.45	1	Both	1.4375	3.9375	1.25
3	0																	
g13Y	Leg5	Y-GenXY	14Y	15Y	1	4	0.5	0.5	0.5	5/8	A394	20	3.45	1	Both	1.4375	3.9375	1.25
3	0																	
g14P	Leg6	XY-Symmetry	15S	10P	1	4	0.33	0.33	0.33	5/8	A394	20	3.45	1	Both	1	3.5	2.75
3	0																	
g14X	Leg6	X-GenXY	15X	10X	1	4	0.33	0.33	0.33	5/8	A394	20	3.45	1	Both	1	3.5	2.75
3	0																	
g14XY	Leg6	XY-GenXY	15XY	10XY	1	4	0.33	0.33	0.33	5/8	A394	20	3.45	1	Both	1	3.5	2.75
3	0																	
g14Y	Leg6	Y-GenXY	15Y	10Y	1	4	0.33	0.33	0.33	5/8	A394	20	3.45	1	Both	1	3.5	2.75
3	0																	
g15P	Diag1	X-Symmetry	1X	2Y	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	0.875	0	1
2	0																	
g15X	Diag1	X-Gen	1P	2XY	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	0.875	0	1
2	0																	
g16P	Diag1	XY-Symmetry	2X	3P	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	0.875	0	1
1.5	0																	
g16X	Diag1	X-GenXY	2P	3X	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	0.875	0	1
1.5	0																	
g16XY	Diag1	XY-GenXY	2Y	3XY	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	0.875	0	1
1.5	0																	
g16Y	Diag1	Y-GenXY	2XY	3Y	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	0.875	0	1
1.5	0																	
g17P	Diag1	XY-Symmetry	2P	3Y	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	0.875	0	1
1.5	0																	
g17X	Diag1	X-GenXY	2X	3XY	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	0.875	0	1
1.5	0																	
g17XY	Diag1	XY-GenXY	2XY	3X	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	0.875	0	1
1.5	0																	
g17Y	Diag1	Y-GenXY	2Y	3P	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	0.875	0	1
1.5	0																	
g18P	Diag2	XY-Symmetry	4X	3P	2	5	0.75	0.5	0.5	5/8	A394	3	1	1	Short only	1.5	0	5
1.5	0																	
g18X	Diag2	X-GenXY	4P	3X	2	5	0.75	0.5	0.5	5/8	A394	3	1	1	Short only	1.5	0	5
1.5	0																	
g18XY	Diag2	XY-GenXY	4Y	3XY	2	5	0.75	0.5	0.5	5/8	A394	3	1	1	Short only	1.5	0	5
1.5	0																	
g18Y	Diag2	Y-GenXY	4XY	3Y	2	5	0.75	0.5	0.5	5/8	A394	3	1	1	Short only	1.5	0	5
1.5	0																	
g19P	Diag2	XY-Symmetry	4P	3Y	2	5	0.75	0.5	0.5	5/8	A394	3	1	1	Short only	1.5	0	5
1.5	0																	
g19X	Diag2	X-GenXY	4X	3XY	2	5	0.75	0.5	0.5	5/8	A394	3	1	1	Short only	1.5	0	5
1.5	0																	
g19XY	Diag2	XY-GenXY	4XY	3X	2	5	0.75	0.5	0.5	5/8	A394	3	1	1	Short only	1.5	0	5
1.5	0																	
g19Y	Diag2	Y-GenXY	4Y	3P	2	5	0.75	0.5	0.5	5/8	A394	3	1	1	Short only	1.5	0	5
1.5	0																	
g20P	Diag2	XY-Symmetry	5X	4P	2	5	0.75	0.5	0.5	5/8	A394	3	1	1	Short only	1.5	0	5
1.5	0																	
g20X	Diag2	X-GenXY	5P	4X	2	5	0.75	0.5	0.5	5/8	A394	3	1	1	Short only	1.5	0	5
1.5	0																	
g20XY	Diag2	XY-GenXY	5Y	4XY	2	5	0.75	0.5	0.5	5/8	A394	3	1	1	Short only	1.5	0	5
1.5	0																	
g20Y	Diag2	Y-GenXY	5XY	4Y	2	5	0.75	0.5	0.5	5/8	A394	3	1	1	Short only	1.5	0	5
1.5	0																	
g21P	Diag2	XY-Symmetry	5P	4Y	2	5	0.75	0.5	0.5	5/8	A394	3	1	1	Short only	1.5	0	5

5	1.5	0																
	g21X	Diag2	X-GenXY	5X	4XY	2	5	0.75	0.5	0.5	5/8	A394	3	1	1	Short only	1.5	0
5	1.5	0																
	g21XY	Diag2	XY-GenXY	5XY	4X	2	5	0.75	0.5	0.5	5/8	A394	3	1	1	Short only	1.5	0
5	1.5	0																
	g21Y	Diag2	Y-GenXY	5Y	4P	2	5	0.75	0.5	0.5	5/8	A394	3	1	1	Short only	1.5	0
5	1.5	0																
	g22P	Diag2	XY-Symmetry	5P	6X	2	5	0.75	0.5	0.5	5/8	A394	4	1	1	Short only	1.5	0
1	1.5	0																
	g22X	Diag2	X-GenXY	5X	6P	2	5	0.75	0.5	0.5	5/8	A394	4	1	1	Short only	1.5	0
1	1.5	0																
	g22XY	Diag2	XY-GenXY	5XY	6Y	2	5	0.75	0.5	0.5	5/8	A394	4	1	1	Short only	1.5	0
1	1.5	0																
	g22Y	Diag2	Y-GenXY	5Y	6XY	2	5	0.75	0.5	0.5	5/8	A394	4	1	1	Short only	1.5	0
1	1.5	0																
	g23P	Diag2	XY-Symmetry	5P	6Y	2	5	0.75	0.5	0.5	5/8	A394	4	1	1	Short only	1.5	0
1	1.5	0																
	g23X	Diag2	X-GenXY	5X	6XY	2	5	0.75	0.5	0.5	5/8	A394	4	1	1	Short only	1.5	0
1	1.5	0																
	g23XY	Diag2	XY-GenXY	5XY	6X	2	5	0.75	0.5	0.5	5/8	A394	4	1	1	Short only	1.5	0
1	1.5	0																
	g23Y	Diag2	Y-GenXY	5Y	6P	2	5	0.75	0.5	0.5	5/8	A394	4	1	1	Short only	1.5	0
1	1.5	0																
	g24P	Diag3	XY-Symmetry	6P	7X	2	5	0.75	0.5	0.5	5/8	A394	3	1	1	Short only	1.25	0
5	1.5	0																
	g24X	Diag3	X-GenXY	6X	7P	2	5	0.75	0.5	0.5	5/8	A394	3	1	1	Short only	1.25	0
5	1.5	0																
	g24XY	Diag3	XY-GenXY	6XY	7Y	2	5	0.75	0.5	0.5	5/8	A394	3	1	1	Short only	1.25	0
5	1.5	0																
	g24Y	Diag3	Y-GenXY	6Y	7XY	2	5	0.75	0.5	0.5	5/8	A394	3	1	1	Short only	1.25	0
5	1.5	0																
	g25P	Diag3	XY-Symmetry	6P	7Y	2	5	0.75	0.5	0.5	5/8	A394	3	1	1	Short only	1.25	0
5	1.5	0																
	g25X	Diag3	X-GenXY	6X	7XY	2	5	0.75	0.5	0.5	5/8	A394	3	1	1	Short only	1.25	0
5	1.5	0																
	g25XY	Diag3	XY-GenXY	6XY	7X	2	5	0.75	0.5	0.5	5/8	A394	3	1	1	Short only	1.25	0
5	1.5	0																
	g25Y	Diag3	Y-GenXY	6Y	7P	2	5	0.75	0.5	0.5	5/8	A394	3	1	1	Short only	1.25	0
5	1.5	0																
	g26P	Diag3	XY-Symmetry	7P	8X	2	5	0.75	0.5	0.5	5/8	A394	3	1	1	Short only	1.25	0
5	1.5	0																
	g26X	Diag3	X-GenXY	7X	8P	2	5	0.75	0.5	0.5	5/8	A394	3	1	1	Short only	1.25	0
5	1.5	0																
	g26XY	Diag3	XY-GenXY	7XY	8Y	2	5	0.75	0.5	0.5	5/8	A394	3	1	1	Short only	1.25	0
5	1.5	0																
	g26Y	Diag3	Y-GenXY	7Y	8XY	2	5	0.75	0.5	0.5	5/8	A394	3	1	1	Short only	1.25	0
5	1.5	0																
	g27P	Diag3	XY-Symmetry	7P	8Y	2	5	0.75	0.5	0.5	5/8	A394	3	1	1	Short only	1.25	0
5	1.5	0																
	g27X	Diag3	X-GenXY	7X	8XY	2	5	0.75	0.5	0.5	5/8	A394	3	1	1	Short only	1.25	0
5	1.5	0																
	g27XY	Diag3	XY-GenXY	7XY	8X	2	5	0.75	0.5	0.5	5/8	A394	3	1	1	Short only	1.25	0
5	1.5	0																
	g27Y	Diag3	Y-GenXY	7Y	8P	2	5	0.75	0.5	0.5	5/8	A394	3	1	1	Short only	1.25	0
5	1.5	0																
	g28P	Diag4	XY-Symmetry	8P	9X	2	5	0.75	0.5	0.5	5/8	A394	4	1	1	Short only	1.5	0
1	1.5	0																
	g28X	Diag4	X-GenXY	8X	9P	2	5	0.75	0.5	0.5	5/8	A394	4	1	1	Short only	1.5	0
1	1.5	0																

g28XY	Diag4	XY-GenXY	8XY	9Y	2	5	0.75	0.5	0.5	5/8	A394	4	1	1	Short only	1.5	0	1	1.5
0																			
g28Y	Diag4	Y-GenXY	8Y	9XY	2	5	0.75	0.5	0.5	5/8	A394	4	1	1	Short only	1.5	0	1	1.5
0																			
g29P	Diag4	XY-Symmetry	8P	9Y	2	5	0.75	0.5	0.5	5/8	A394	4	1	1	Short only	1.5	0	1	1.5
0																			
g29X	Diag4	X-GenXY	8X	9XY	2	5	0.75	0.5	0.5	5/8	A394	4	1	1	Short only	1.5	0	1	1.5
0																			
g29XY	Diag4	XY-GenXY	8XY	9X	2	5	0.75	0.5	0.5	5/8	A394	4	1	1	Short only	1.5	0	1	1.5
0																			
g29Y	Diag4	Y-GenXY	8Y	9P	2	5	0.75	0.5	0.5	5/8	A394	4	1	1	Short only	1.5	0	1	1.5
0																			
g30P	Diag4	XY-Symmetry	9P	11X	2	5	0.768	0.536	0.536	5/8	A394	3	1	1	Short only	1.5	0	1	2.6875
0																			
g30X	Diag4	X-GenXY	9X	11S	2	5	0.768	0.536	0.536	5/8	A394	3	1	1	Short only	1.5	0	1	2.6875
0																			
g30XY	Diag4	XY-GenXY	9XY	11Y	2	5	0.768	0.536	0.536	5/8	A394	3	1	1	Short only	1.5	0	1	2.6875
0																			
g30Y	Diag4	Y-GenXY	9Y	11XY	2	5	0.768	0.536	0.536	5/8	A394	3	1	1	Short only	1.5	0	1	2.6875
0																			
g31P	Diag4	XY-Symmetry	9P	11Y	2	5	0.768	0.536	0.536	5/8	A394	3	1	1	Short only	1.5	0	1	2.6875
0																			
g31X	Diag4	X-GenXY	9X	11XY	2	5	0.768	0.536	0.536	5/8	A394	3	1	1	Short only	1.5	0	1	2.6875
0																			
g31XY	Diag4	XY-GenXY	9XY	11X	2	5	0.768	0.536	0.536	5/8	A394	3	1	1	Short only	1.5	0	1	2.6875
0																			
g31Y	Diag4	Y-GenXY	9Y	11S	2	5	0.768	0.536	0.536	5/8	A394	3	1	1	Short only	1.5	0	1	2.6875
0																			
g32P	Diag5	XY-Symmetry	11S	12X	2	5	0.788	0.577	0.577	5/8	A394	3	1	1	Short only	1.5	0	1	2.5
0																			
g32X	Diag5	X-GenXY	11X	12S	2	5	0.788	0.577	0.577	5/8	A394	3	1	1	Short only	1.5	0	1	2.5
0																			
g32XY	Diag5	XY-GenXY	11XY	12Y	2	5	0.788	0.577	0.577	5/8	A394	3	1	1	Short only	1.5	0	1	2.5
0																			
g32Y	Diag5	Y-GenXY	11Y	12XY	2	5	0.788	0.577	0.577	5/8	A394	3	1	1	Short only	1.5	0	1	2.5
0																			
g33P	Diag5	XY-Symmetry	11S	12Y	2	5	0.788	0.577	0.577	5/8	A394	3	1	1	Short only	1.5	0	1	2.5
0																			
g33X	Diag5	X-GenXY	11X	12XY	2	5	0.788	0.577	0.577	5/8	A394	3	1	1	Short only	1.5	0	1	2.5
0																			
g33XY	Diag5	XY-GenXY	11XY	12X	2	5	0.788	0.577	0.577	5/8	A394	3	1	1	Short only	1.5	0	1	2.5
0																			
g33Y	Diag5	Y-GenXY	11Y	12S	2	5	0.788	0.577	0.577	5/8	A394	3	1	1	Short only	1.5	0	1	2.5
0																			
g34P	Diag5	XY-Symmetry	12S	13X	2	5	0.767	0.535	0.535	5/8	A394	3	1	1	Short only	1.5	0	1	1.6875
0																			
g34X	Diag5	X-GenXY	12X	13S	2	5	0.767	0.535	0.535	5/8	A394	3	1	1	Short only	1.5	0	1	1.6875
0																			
g34XY	Diag5	XY-GenXY	12XY	13Y	2	5	0.767	0.535	0.535	5/8	A394	3	1	1	Short only	1.5	0	1	1.6875
0																			
g34Y	Diag5	Y-GenXY	12Y	13XY	2	5	0.767	0.535	0.535	5/8	A394	3	1	1	Short only	1.5	0	1	1.6875
0																			
g35P	Diag5	XY-Symmetry	12S	13Y	2	5	0.767	0.535	0.535	5/8	A394	3	1	1	Short only	1.5	0	1	1.6875
0																			
g35X	Diag5	X-GenXY	12X	13XY	2	5	0.767	0.535	0.535	5/8	A394	3	1	1	Short only	1.5	0	1	1.6875
0																			
g35XY	Diag5	XY-GenXY	12XY	13X	2	5	0.767	0.535	0.535	5/8	A394	3	1	1	Short only	1.5	0	1	1.6875
0																			
g35Y	Diag5	Y-GenXY	12Y	13S	2	5	0.767	0.535	0.535	5/8	A394	3	1	1	Short only	1.5	0		

```
1  1.6875     0
     g36P    Diag6          XY-Symmetry        13X        14S    2     5 0.791 0.581 0.581 5/8 A394     4      1       1 Short only   1.25      0
1  1.9375     0
     g36X    Diag6              X-GenXY        13S        14X    2     5 0.791 0.581 0.581 5/8 A394     4      1       1 Short only   1.25      0
1  1.9375     0
    g36XY    Diag6             XY-GenXY        13Y       14XY    2     5 0.791 0.581 0.581 5/8 A394     4      1       1 Short only   1.25      0
1  1.9375     0
     g36Y    Diag6              Y-GenXY       13XY        14Y    2     5 0.791 0.581 0.581 5/8 A394     4      1       1 Short only   1.25      0
1  1.9375     0
     g37P    Diag6          XY-Symmetry        13S        14Y    2     5 0.791 0.581 0.581 5/8 A394     4      1       1 Short only   1.25      0
1  1.9375     0
     g37X    Diag6              X-GenXY        13X       14XY    2     5 0.791 0.581 0.581 5/8 A394     4      1       1 Short only   1.25      0
1  1.9375     0
    g37XY    Diag6             XY-GenXY       13XY        14X    2     5 0.791 0.581 0.581 5/8 A394     4      1       1 Short only   1.25      0
1  1.9375     0
     g37Y    Diag6              Y-GenXY        13Y        14S    2     5 0.791 0.581 0.581 5/8 A394     4      1       1 Short only   1.25      0
1  1.9375     0
     g38P    Diag7          XY-Symmetry        14X        16S    3     5   0.5     1   0.5 5/8 A394     5      1       1  Long only    1.5      0
1     1.5     0
     g38X    Diag7              X-GenXY        14S        16S    3     5   0.5     1   0.5 5/8 A394     5      1       1  Long only    1.5      0
1     1.5     0
    g38XY    Diag7             XY-GenXY        14Y        16Y    3     5   0.5     1   0.5 5/8 A394     5      1       1  Long only    1.5      0
1     1.5     0
     g38Y    Diag7              Y-GenXY       14XY        16Y    3     5   0.5     1   0.5 5/8 A394     5      1       1  Long only    1.5      0
1     1.5     0
     g39P    Diag7          XY-Symmetry        14S        17X    3     5   0.5     1   0.5 5/8 A394     5      1       1  Long only    1.5      0
1     1.5     0
     g39X    Diag7              X-GenXY        14X        17S    3     5   0.5     1   0.5 5/8 A394     5      1       1  Long only    1.5      0
1     1.5     0
    g39XY    Diag7             XY-GenXY       14XY        17S    3     5   0.5     1   0.5 5/8 A394     5      1       1  Long only    1.5      0
1     1.5     0
     g39Y    Diag7              Y-GenXY        14Y        17X    3     5   0.5     1   0.5 5/8 A394     5      1       1  Long only    1.5      0
1     1.5     0
     g40P    Diag7          XY-Symmetry        16S        10X    2     5 0.386  0.75 0.386 5/8 A394     4      1       1  Long only    1.5      0
1     1.5     0
     g40X    Diag7              X-GenXY        16S        10P    2     5 0.386  0.75 0.386 5/8 A394     4      1       1  Long only    1.5      0
1     1.5     0
    g40XY    Diag7             XY-GenXY        16Y        10Y    2     5 0.386  0.75 0.386 5/8 A394     4      1       1  Long only    1.5      0
1     1.5     0
     g40Y    Diag7              Y-GenXY        16Y       10XY    2     5 0.386  0.75 0.386 5/8 A394     4      1       1  Long only    1.5      0
1     1.5     0
     g41P    Diag7          XY-Symmetry        17X        10P    2     5 0.386  0.75 0.386 5/8 A394     4      1       1  Long only    1.5      0
1     1.5     0
     g41X    Diag7              X-GenXY        17S        10X    2     5 0.386  0.75 0.386 5/8 A394     4      1       1  Long only    1.5      0
1     1.5     0
    g41XY    Diag7             XY-GenXY        17S       10XY    2     5 0.386  0.75 0.386 5/8 A394     4      1       1  Long only    1.5      0
1     1.5     0
     g41Y    Diag7              Y-GenXY        17X        10Y    2     5 0.386  0.75 0.386 5/8 A394     4      1       1  Long only    1.5      0
1     1.5     0
     g42P    Horz1           X-Symmetry         2P         2Y    3     5     1     1     1 5/8 A394     2      1       1  Long only      0      0
0       0     0
     g42X    Horz1                X-Gen         2X        2XY    3     5     1     1     1 5/8 A394     2      1       1  Long only      0      0
0       0     0
     g43P    Horz2           X-Symmetry         3P         3Y    3     5     1     1     1 5/8 A394     3      1       1  Long only      0      0
0       0     0
     g43X    Horz2                X-Gen         3X        3XY    3     5     1     1     1 5/8 A394     3      1       1  Long only      0      0
0       0     0
     g44P    Horz2           X-Symmetry         6P         6Y    3     5     1     1     1 5/8 A394     3      1       1  Long only      0      0
0       0     0
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g44X	Horz2	X-Gen	6X	6XY	3	5	1	1	1 5/8	A394	3	1	1	Long only	0	0	0
g45P	Horz2	X-Symmetry	9P	9Y	3	5	1	1	1 5/8	A394	3	1	1	Long only	0	0	0
g45X	Horz2	X-Gen	9X	9XY	3	5	1	1	1 5/8	A394	3	1	1	Long only	0	0	0
g46P	Horz3	Y-Symmetry	2X	2P	3	5	1	1	1 5/8	A394	2	1	1	Short only	0	0	0
g46Y	Horz3	Y-Gen	2XY	2Y	3	5	1	1	1 5/8	A394	2	1	1	Short only	0	0	0
g47P	Horz4	Y-Symmetry	5X	5P	3	5	1	1	1 5/8	A394	2	1	1	Long only	0	0	0
g47Y	Horz4	Y-Gen	5XY	5Y	3	5	1	1	1 5/8	A394	2	1	1	Long only	0	0	0
g48P	Horz4	Y-Symmetry	8X	8P	3	5	1	1	1 5/8	A394	2	1	1	Long only	0	0	0
g48Y	Horz4	Y-Gen	8XY	8Y	3	5	1	1	1 5/8	A394	2	1	1	Long only	0	0	0
g49P	Horz5	Y-Symmetry	13X	13S	3	5	1	0.5	0.5 5/8	A394	2	1	1	Short only	0	0	0
g49Y	Horz5	Y-Gen	13XY	13Y	3	5	1	0.5	0.5 5/8	A394	2	1	1	Short only	0	0	0
g50P	Horz5	X-Symmetry	13S	13Y	3	5	1	0.5	0.5 5/8	A394	2	1	1	Short only	0	0	0
g50X	Horz5	X-Gen	13X	13XY	3	5	1	0.5	0.5 5/8	A394	2	1	1	Short only	0	0	0
g51P	Horz6	Y-Symmetry	14X	14S	3	5	1	0.5	0.5 5/8	A394	3	1	1	Short only	0	0	0
g51Y	Horz6	Y-Gen	14XY	14Y	3	5	1	0.5	0.5 5/8	A394	3	1	1	Short only	0	0	0
g52P	Horz6	X-Symmetry	14S	14Y	3	5	1	0.5	0.5 5/8	A394	3	1	1	Short only	0	0	0
g52X	Horz6	X-Gen	14X	14XY	3	5	1	0.5	0.5 5/8	A394	3	1	1	Short only	0	0	0
g53P	Horz7	XY-Symmetry	15X	16S	3	5	1	1	1 5/8	A394	2	1	1	Short only	0	0	0
g53X	Horz7	X-GenXY	15S	16S	3	5	1	1	1 5/8	A394	2	1	1	Short only	0	0	0
g53XY	Horz7	XY-GenXY	15Y	16Y	3	5	1	1	1 5/8	A394	2	1	1	Short only	0	0	0
g53Y	Horz7	Y-GenXY	15XY	16Y	3	5	1	1	1 5/8	A394	2	1	1	Short only	0	0	0
g54P	Horz7	XY-Symmetry	15S	17X	3	5	1	1	1 5/8	A394	2	1	1	Short only	0	0	0
g54X	Horz7	X-GenXY	15X	17S	3	5	1	1	1 5/8	A394	2	1	1	Short only	0	0	0
g54XY	Horz7	XY-GenXY	15XY	17S	3	5	1	1	1 5/8	A394	2	1	1	Short only	0	0	0
g54Y	Horz7	Y-GenXY	15Y	17X	3	5	1	1	1 5/8	A394	2	1	1	Short only	0	0	0
g55P	Inner1	XY-Symmetry	2X	22S	3	5	2	1	1 5/8	A394	2	1	1	Short only	0	0	0
g55X	Inner1	X-GenXY	2P	22S	3	5	2	1	1 5/8	A394	2	1	1	Short only	0	0	0
g55XY	Inner1	XY-GenXY	2Y	22S	3	5	2	1	1 5/8	A394	2	1	1	Short only	0	0	0
g55Y	Inner1	Y-GenXY	2XY	22S	3	5	2	1	1 5/8	A394	2	1	1	Short only	0	0	0
g56P	Inner2	XY-Symmetry	3X	23S	3	5	2	1	1 5/8	A394	2	1	1	Short only	0	0	0

0	0	0																	
	g56X	Inner2	X-GenXY	3P	23S	3	5	2	1	1	5/8	A394	2	1	1	Short only	0	0	
0	0	0																	
	g56XY	Inner2	XY-GenXY	3Y	23S	3	5	2	1	1	5/8	A394	2	1	1	Short only	0	0	
0	0	0																	
	g56Y	Inner2	Y-GenXY	3XY	23S	3	5	2	1	1	5/8	A394	2	1	1	Short only	0	0	
0	0	0																	
	g57P	Inner2	XY-Symmetry	6X	24S	3	5	2	1	1	5/8	A394	2	1	1	Short only	0	0	
0	0	0																	
	g57X	Inner2	X-GenXY	6P	24S	3	5	2	1	1	5/8	A394	2	1	1	Short only	0	0	
0	0	0																	
	g57XY	Inner2	XY-GenXY	6Y	24S	3	5	2	1	1	5/8	A394	2	1	1	Short only	0	0	
0	0	0																	
	g57Y	Inner2	Y-GenXY	6XY	24S	3	5	2	1	1	5/8	A394	2	1	1	Short only	0	0	
0	0	0																	
	g58P	Inner2	XY-Symmetry	9X	25S	3	5	2	1	1	5/8	A394	2	1	1	Short only	0	0	
0	0	0																	
	g58X	Inner2	X-GenXY	9P	25S	3	5	2	1	1	5/8	A394	2	1	1	Short only	0	0	
0	0	0																	
	g58XY	Inner2	XY-GenXY	9Y	25S	3	5	2	1	1	5/8	A394	2	1	1	Short only	0	0	
0	0	0																	
	g58Y	Inner2	Y-GenXY	9XY	25S	3	5	2	1	1	5/8	A394	2	1	1	Short only	0	0	
0	0	0																	
	g59P	Inner1	X-Symmetry	13X	13Y	3	4	1	0.5	0.5	5/8	A394	1	1	1	Short only	0	0	
0	0	0																	
	g59X	Inner1	X-Gen	13S	13XY	3	4	1	0.5	0.5	5/8	A394	1	1	1	Short only	0	0	
0	0	0																	
	g60P	Inner1	XY-Symmetry	17S	17SF0.50S	3	4	2	1	1	5/8	A394	1	1	1	Short only	0	0	
0	0	0																	
	g60X	Inner1	X-GenXY	17X	17SF0.50X	3	4	2	1	1	5/8	A394	1	1	1	Short only	0	0	
0	0	0																	
	g60XY	Inner1	XY-GenXY	17X	17SF0.50XY	3	4	2	1	1	5/8	A394	1	1	1	Short only	0	0	
0	0	0																	
	g60Y	Inner1	Y-GenXY	17S	17SF0.50Y	3	4	2	1	1	5/8	A394	1	1	1	Short only	0	0	
0	0	0																	
	Fg6072P	Inner1	XY-Symmetry	17SF0.50S	16S	3	4	2	1	1	5/8	A394	1	1	1	Short only	0	0	
0	0	0																	
	Fg6072X	Inner1	X-GenXY	17SF0.50X	16S	3	4	2	1	1	5/8	A394	1	1	1	Short only	0	0	
0	0	0																	
	Fg6072XY	Inner1	XY-GenXY	17SF0.50XY	16Y	3	4	2	1	1	5/8	A394	1	1	1	Short only	0	0	
0	0	0																	
	Fg6072Y	Inner1	Y-GenXY	17SF0.50Y	16Y	3	4	2	1	1	5/8	A394	1	1	1	Short only	0	0	
0	0	0																	
	g61P	ShieldAr	X-Symmetry	18X	1X	3	4	1	1	1	5/8	A394	2	1	1	Long only	0	0	
0	0	0																	
	g61X	ShieldAr	X-Gen	18P	1P	3	4	1	1	1	5/8	A394	2	1	1	Long only	0	0	
0	0	0																	
	g62P	ShieldAr	None	1X	1P	3	4	1	1	1	5/8	A394	2	1	1	Long only	0	0	
0	0	0																	
	g63P	TopCrArm	XY-Symmetry	19X	3X	3	4	0.5	0.5	0.5	5/8	A394	2	2	1	Long only	0	0	
0	0	0																	
	g63X	TopCrArm	X-GenXY	19P	3P	3	4	0.5	0.5	0.5	5/8	A394	2	2	1	Long only	0	0	
0	0	0																	
	g63XY	TopCrArm	XY-GenXY	19P	3Y	3	4	0.5	0.5	0.5	5/8	A394	2	2	1	Long only	0	0	
0	0	0																	
	g63Y	TopCrArm	Y-GenXY	19X	3XY	3	4	0.5	0.5	0.5	5/8	A394	2	2	1	Long only	0	0	
0	0	0																	
	g64P	TopCArmA	Y-Symmetry	3X	3P	3	4	1	1	1	5/8	A394	2	1	1	Long only	0	0	
0	0	0																	

g64Y	TopCArmA	Y-Gen	3XY	3Y	3	4	1	1	1	5/8	A394	2	1	1	Long only	0	0	0	0
g65P	MidCrArm	XY-Symmetry	20X	6X	3	4	0.5	0.5	0.5	5/8	A394	2	2	1	Long only	0	0	0	0
g65X	MidCrArm	X-GenXY	20P	6P	3	4	0.5	0.5	0.5	5/8	A394	2	2	1	Long only	0	0	0	0
g65XY	MidCrArm	XY-GenXY	20P	6Y	3	4	0.5	0.5	0.5	5/8	A394	2	2	1	Long only	0	0	0	0
g65Y	MidCrArm	Y-GenXY	20X	6XY	3	4	0.5	0.5	0.5	5/8	A394	2	2	1	Long only	0	0	0	0
g66P	MidCArmA	Y-Symmetry	6X	6P	3	4	1	1	1	5/8	A394	2	1	1	Long only	0	0	0	0
g66Y	MidCArmA	Y-Gen	6XY	6Y	3	4	1	1	1	5/8	A394	2	1	1	Long only	0	0	0	0
g67P	BotCrArm	XY-Symmetry	21X	9X	3	4	0.5	0.5	0.5	5/8	A394	2	2	1	Long only	0	0	0	0
g67X	BotCrArm	X-GenXY	21P	9P	3	4	0.5	0.5	0.5	5/8	A394	2	2	1	Long only	0	0	0	0
g67XY	BotCrArm	XY-GenXY	21P	9Y	3	4	0.5	0.5	0.5	5/8	A394	2	2	1	Long only	0	0	0	0
g67Y	BotCrArm	Y-GenXY	21X	9XY	3	4	0.5	0.5	0.5	5/8	A394	2	2	1	Long only	0	0	0	0
g68P	BotCArmA	Y-Symmetry	9X	9P	3	4	1	1	1	5/8	A394	2	1	1	Long only	0	0	0	0
g68Y	BotCArmA	Y-Gen	9XY	9Y	3	4	1	1	1	5/8	A394	2	1	1	Long only	0	0	0	0
g69P	ShArmBr	XY-Symmetry	18X	2X	3	4	1	0.5	0.5	5/8	A394	2	1	1	Short only	0	0	0	0
g69X	ShArmBr	X-GenXY	18P	2P	3	4	1	0.5	0.5	5/8	A394	2	1	1	Short only	0	0	0	0
g69XY	ShArmBr	XY-GenXY	18P	2Y	3	4	1	0.5	0.5	5/8	A394	2	1	1	Short only	0	0	0	0
g69Y	ShArmBr	Y-GenXY	18X	2XY	3	4	1	0.5	0.5	5/8	A394	2	1	1	Short only	0	0	0	0
g70P	TopArmBr	XY-Symmetry	19X	2X	3	4	1	0.5	0.5	5/8	A394	2	1	1	Short only	0	0	1	2
g70X	TopArmBr	X-GenXY	19P	2P	3	4	1	0.5	0.5	5/8	A394	2	1	1	Short only	0	0	1	2
g70XY	TopArmBr	XY-GenXY	19P	2Y	3	4	1	0.5	0.5	5/8	A394	2	1	1	Short only	0	0	1	2
g70Y	TopArmBr	Y-GenXY	19X	2XY	3	4	1	0.5	0.5	5/8	A394	2	1	1	Short only	0	0	1	2
g71P	MidArmBr	XY-Symmetry	20X	5X	3	4	1	0.5	0.5	5/8	A394	2	1	1	Short only	0	0	1	2
g71X	MidArmBr	X-GenXY	20P	5P	3	4	1	0.5	0.5	5/8	A394	2	1	1	Short only	0	0	1	2
g71XY	MidArmBr	XY-GenXY	20P	5Y	3	4	1	0.5	0.5	5/8	A394	2	1	1	Short only	0	0	1	2
g71Y	MidArmBr	Y-GenXY	20X	5XY	3	4	1	0.5	0.5	5/8	A394	2	1	1	Short only	0	0	1	2
g72P	BotArmBr	XY-Symmetry	21X	8X	3	4	1	0.5	0.5	5/8	A394	2	1	1	Short only	0	0	1	2
g72X	BotArmBr	X-GenXY	21P	8P	3	4	1	0.5	0.5	5/8	A394	2	1	1	Short only	0	0	1	2
g72XY	BotArmBr	XY-GenXY	21P	8Y	3	4	1	0.5	0.5	5/8	A394	2	1	1	Short only	0	0	1	2
g72Y	BotArmBr	Y-GenXY	21X	8XY	3	4	1	0.5	0.5	5/8	A394	2	1	1	Short only	0	0	1	2
g74P	Pwmnt	None	33P	32P	1	4	1	1	1			0	0	0		0	0		

0	0	0																	
	g75P	Pwmnt	None	32P	31P	1	4	1	1	1		0	0	0		0	0		
0	0	0																	
	g76P	Pwmnt	None	31P	30P	1	4	1	1	1		0	0	0		0	0		
0	0	0																	
	g77P	Pwmnt	None	30P	29P	1	4	1	1	1		0	0	0		0	0		
0	0	0																	
	g78P	Pwmnt	None	29P	28P	1	4	1	1	1		0	0	0		0	0		
0	0	0																	
	g79P	Pwmnt	None	28P	27P	1	4	1	1	1		0	0	0		0	0		
0	0	0																	
	g80P	PMBR1	None	22S	28P	3	4	1	1	1	5/8	A325	1	1	1	Short only	0	0	
0	0	0																	
	g82P	PMBR1	None	24S	30P	3	4	1	1	1	5/8	A325	1	1	1	Short only	0	0	
0	0	0																	
	g83P	PMBR1	None	25S	31P	3	4	1	1	1	5/8	A325	1	1	1	Short only	0	0	
0	0	0																	
	g84P	PMBR2	X-Symmetry	2X	28P	3	4	1	1	1	5/8	A325	1	1	1	Short only	0	0	
0	0	0																	
	g84X	PMBR2	X-Gen	2P	28P	3	4	1	1	1	5/8	A325	1	1	1	Short only	0	0	
0	0	0																	
	g86P	PMBR2	X-Symmetry	6X	30P	3	4	1	1	1	5/8	A325	1	1	1	Short only	0	0	
0	0	0																	
	g86X	PMBR2	X-Gen	6P	30P	3	4	1	1	1	5/8	A325	1	1	1	Short only	0	0	
0	0	0																	
	g87P	PMBR2	X-Symmetry	9X	31P	3	4	1	1	1	5/8	A325	1	1	1	Short only	0	0	
0	0	0																	
	g87X	PMBR2	X-Gen	9P	31P	3	4	1	1	1	5/8	A325	1	1	1	Short only	0	0	
0	0	0																	
	g88P	PMBR3	X-Symmetry	17SF0.50S	32P	3	4	1	1	1	5/8	A325	1	1	1	Short only	0	0	
0	0	0																	
	g88X	PMBR3	X-Gen	17SF0.50X	32P	3	4	1	1	1	5/8	A325	1	1	1	Short only	0	0	
0	0	0																	
	g89P	PMBR3	X-Symmetry	32P	17SF0.50Y	3	4	1	1	1	5/8	A325	1	1	1	Short only	0	0	
0	0	0																	
	g89X	PMBR3	X-Gen	32P	17SF0.50XY	3	4	1	1	1	5/8	A325	1	1	1	Short only	0	0	
0	0	0																	
	g90P	Leg1	X-Symmetry	1P	2Y	1	4	1	1	1	5/8	A394	4	2	1	Both	1	0	
0.9375	2	0																	
	g90X	Leg1	X-Gen	1X	2XY	1	4	1	1	1	5/8	A394	4	2	1	Both	1	0	
0.9375	2	0																	
	g92P	Diag8	X-Symmetry	2X	35S	2	4	1	1	1	5/8	A325	1	1	1	Short only	0	0	
0	0	0																	
	g92X	Diag8	X-Gen	2P	35S	2	4	1	1	1	5/8	A325	1	1	1	Short only	0	0	
0	0	0																	
	g93P	Diag9	X-Symmetry	1PF94X	35S	2	4	2	1	1	5/8	A325	1	1	1	Short only	0	0	
0	0	0																	
	g93X	Diag9	X-Gen	1PF94S	35S	2	4	2	1	1	5/8	A325	1	1	1	Short only	0	0	
0	0	0																	
	g94P	Inner3	XY-Symmetry	15X	17SF0.50S	3	4	1	1	1	5/8	A394	1	1	1	Long only	0	0	
0	0	0																	
	g94X	Inner3	X-GenXY	15S	17SF0.50X	3	4	1	1	1	5/8	A394	1	1	1	Long only	0	0	
0	0	0																	
	g94XY	Inner3	XY-GenXY	15Y	17SF0.50XY	3	4	1	1	1	5/8	A394	1	1	1	Long only	0	0	
0	0	0																	
	g94Y	Inner3	Y-GenXY	15XY	17SF0.50Y	3	4	1	1	1	5/8	A394	1	1	1	Long only	0	0	
0	0	0																	

Member Capacities and Overrides:

Member Label	Group Label	Design Comp.	Comp. Override	Design Override	Tension Override	L/r Length		L/r Comp.	Connection Shear	Connection Bearing	Net Section	Rupture Tension	RTE End Dist.	RTE Edge Dist.	Override Comp.
Comp.	Comp.	Tension Capacity	Tension Control	Face Capacity	Control Criterion			Capacity	Capacity	Capacity	Tension Capacity	Capacity	Tension Capacity	Tension Capacity	Capacity
Capacity	Control	Capacity	Control	Member											
Unsup.	Criterion	(kips)	Criterion	ship (kips)		(ft)		(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)
(kips)		(kips)													
g1P	Leg1	31.682	L/r	22.347	Net Sect	28	1.15	31.682	0.000	0.000	22.347	0.000	0.000	0.000	0.000
0.000		0.000	Automatic												
g1X	Leg1	31.682	L/r	22.347	Net Sect	28	1.15	31.682	0.000	0.000	22.347	0.000	0.000	0.000	0.000
0.000		0.000	Automatic												
Fg190P	Leg1	17.657	L/r	22.347	Net Sect	120	4.97	17.657	36.400	40.781	22.347	33.984	0.000	0.000	0.000
0.000		0.000	Automatic												
Fg190X	Leg1	17.657	L/r	22.347	Net Sect	120	4.97	17.657	36.400	40.781	22.347	33.984	0.000	0.000	0.000
0.000		0.000	Automatic												
g2P	Leg2	58.521	L/r	56.340	Net Sect	70	4.67	58.521	0.000	0.000	56.340	0.000	0.000	0.000	0.000
0.000		0.000	Automatic												
g2X	Leg2	58.521	L/r	56.340	Net Sect	70	4.67	58.521	0.000	0.000	56.340	0.000	0.000	0.000	0.000
0.000		0.000	Automatic												
g2XY	Leg2	58.521	L/r	56.340	Net Sect	70	4.67	58.521	0.000	0.000	56.340	0.000	0.000	0.000	0.000
0.000		0.000	Automatic												
g2Y	Leg2	58.521	L/r	56.340	Net Sect	70	4.67	58.521	0.000	0.000	56.340	0.000	0.000	0.000	0.000
0.000		0.000	Automatic												
g3P	Leg2	58.521	L/r	56.340	Net Sect	70	4.67	58.521	0.000	0.000	56.340	0.000	0.000	0.000	0.000
0.000		0.000	Automatic												
g3X	Leg2	58.521	L/r	56.340	Net Sect	70	4.67	58.521	0.000	0.000	56.340	0.000	0.000	0.000	0.000
0.000		0.000	Automatic												
g3XY	Leg2	58.521	L/r	56.340	Net Sect	70	4.67	58.521	0.000	0.000	56.340	0.000	0.000	0.000	0.000
0.000		0.000	Automatic												
g3Y	Leg2	58.521	L/r	56.340	Net Sect	70	4.67	58.521	0.000	0.000	56.340	0.000	0.000	0.000	0.000
0.000		0.000	Automatic												
g4P	Leg2	58.521	L/r	56.340	Net Sect	70	4.67	58.521	0.000	0.000	56.340	0.000	0.000	0.000	0.000
0.000		0.000	Automatic												
g4X	Leg2	58.521	L/r	56.340	Net Sect	70	4.67	58.521	0.000	0.000	56.340	0.000	0.000	0.000	0.000
0.000		0.000	Automatic												
g4XY	Leg2	58.521	L/r	56.340	Net Sect	70	4.67	58.521	0.000	0.000	56.340	0.000	0.000	0.000	0.000
0.000		0.000	Automatic												
g4Y	Leg2	58.521	L/r	56.340	Net Sect	70	4.67	58.521	0.000	0.000	56.340	0.000	0.000	0.000	0.000
0.000		0.000	Automatic												
g5P	Leg2	58.567	L/r	56.340	Net Sect	70	4.66	58.567	72.800	108.750	56.340	120.833	0.000	0.000	0.000
0.000		0.000	Automatic												
g5X	Leg2	58.567	L/r	56.340	Net Sect	70	4.66	58.567	72.800	108.750	56.340	120.833	0.000	0.000	0.000
0.000		0.000	Automatic												
g5XY	Leg2	58.567	L/r	56.340	Net Sect	70	4.66	58.567	72.800	108.750	56.340	120.833	0.000	0.000	0.000
0.000		0.000	Automatic												
g5Y	Leg2	58.567	L/r	56.340	Net Sect	70	4.66	58.567	72.800	108.750	56.340	120.833	0.000	0.000	0.000
0.000		0.000	Automatic												
g6P	Leg3	100.064	L/r	95.535	Net Sect	71	4.67	100.064	0.000	0.000	95.535	0.000	0.000	0.000	0.000
0.000		0.000	Automatic												
g6X	Leg3	100.064	L/r	95.535	Net Sect	71	4.67	100.064	0.000	0.000	95.535	0.000	0.000	0.000	0.000

0.000		0.000	Automatic														
g6XY	Leg3	100.064	L/r	95.535	Net Sect	71	4.67	100.064	0.000	0.000	95.535	0.000	0.000	0.000	0.000		
0.000		0.000	Automatic														
g6Y	Leg3	100.064	L/r	95.535	Net Sect	71	4.67	100.064	0.000	0.000	95.535	0.000	0.000	0.000	0.000		
0.000		0.000	Automatic														
g7P	Leg3	100.064	L/r	95.535	Net Sect	71	4.67	100.064	0.000	0.000	95.535	0.000	0.000	0.000	0.000		
0.000		0.000	Automatic														
g7X	Leg3	100.064	L/r	95.535	Net Sect	71	4.67	100.064	0.000	0.000	95.535	0.000	0.000	0.000	0.000		
0.000		0.000	Automatic														
g7XY	Leg3	100.064	L/r	95.535	Net Sect	71	4.67	100.064	0.000	0.000	95.535	0.000	0.000	0.000	0.000		
0.000		0.000	Automatic														
g7Y	Leg3	100.064	L/r	95.535	Net Sect	71	4.67	100.064	0.000	0.000	95.535	0.000	0.000	0.000	0.000		
0.000		0.000	Automatic														
g8P	Leg3	100.146	L/r	95.535	Net Sect	71	4.66	100.146	127.400	333.046	95.535	370.052	0.000	0.000	0.000		
0.000		0.000	Automatic														
g8X	Leg3	100.146	L/r	95.535	Net Sect	71	4.66	100.146	127.400	333.046	95.535	370.052	0.000	0.000	0.000		
0.000		0.000	Automatic														
g8XY	Leg3	100.146	L/r	95.535	Net Sect	71	4.66	100.146	127.400	333.046	95.535	370.052	0.000	0.000	0.000		
0.000		0.000	Automatic														
g8Y	Leg3	100.146	L/r	95.535	Net Sect	71	4.66	100.146	127.400	333.046	95.535	370.052	0.000	0.000	0.000		
0.000		0.000	Automatic														
g9P	Leg4	150.630	L/r	158.633	Net Sect	80	6.57	150.630	0.000	0.000	158.633	0.000	0.000	0.000	0.000		
0.000		0.000	Automatic														
g9X	Leg4	150.630	L/r	158.633	Net Sect	80	6.57	150.630	0.000	0.000	158.633	0.000	0.000	0.000	0.000		
0.000		0.000	Automatic														
g9XY	Leg4	150.630	L/r	158.633	Net Sect	80	6.57	150.630	0.000	0.000	158.633	0.000	0.000	0.000	0.000		
0.000		0.000	Automatic														
g9Y	Leg4	150.630	L/r	158.633	Net Sect	80	6.57	150.630	0.000	0.000	158.633	0.000	0.000	0.000	0.000		
0.000		0.000	Automatic														
g10P	Leg4	150.630	L/r	158.633	Net Sect	80	6.57	150.630	0.000	0.000	158.633	0.000	0.000	0.000	0.000		
0.000		0.000	Automatic														
g10X	Leg4	150.630	L/r	158.633	Net Sect	80	6.57	150.630	0.000	0.000	158.633	0.000	0.000	0.000	0.000		
0.000		0.000	Automatic														
g10XY	Leg4	150.630	L/r	158.633	Net Sect	80	6.57	150.630	0.000	0.000	158.633	0.000	0.000	0.000	0.000		
0.000		0.000	Automatic														
g10Y	Leg4	150.630	L/r	158.633	Net Sect	80	6.57	150.630	0.000	0.000	158.633	0.000	0.000	0.000	0.000		
0.000		0.000	Automatic														
g11P	**Leg4**	**145.600**	**Shear**	**145.600**	**Shear**	**80**	**6.57**	**150.630**	**145.600**	**426.562**	**158.633**	**473.958**	**0.000**	**0.000**	**0.000**		
0.000		**0.000**	**Automatic**	**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. ??**													
g11X	**Leg4**	**145.600**	**Shear**	**145.600**	**Shear**	**80**	**6.57**	**150.630**	**145.600**	**426.562**	**158.633**	**473.958**	**0.000**	**0.000**	**0.000**		
0.000		**0.000**	**Automatic**	**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. ??**													
g11XY	**Leg4**	**145.600**	**Shear**	**145.600**	**Shear**	**80**	**6.57**	**150.630**	**145.600**	**426.562**	**158.633**	**473.958**	**0.000**	**0.000**	**0.000**		
0.000		**0.000**	**Automatic**	**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. ??**													
g11Y	**Leg4**	**145.600**	**Shear**	**145.600**	**Shear**	**80**	**6.57**	**150.630**	**145.600**	**426.562**	**158.633**	**473.958**	**0.000**	**0.000**	**0.000**		
0.000		**0.000**	**Automatic**	**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. ??**													
g12P	Leg5	164.165	L/r	161.750	Net Sect	57	11.37	164.165	0.000	0.000	161.750	0.000	0.000	0.000	0.000		
0.000		0.000	Automatic														
g12X	Leg5	164.165	L/r	161.750	Net Sect	57	11.37	164.165	0.000	0.000	161.750	0.000	0.000	0.000	0.000		
0.000		0.000	Automatic														
g12XY	Leg5	164.165	L/r	161.750	Net Sect	57	11.37	164.165	0.000	0.000	161.750	0.000	0.000	0.000	0.000		
0.000		0.000	Automatic														
g12Y	Leg5	164.165	L/r	161.750	Net Sect	57	11.37	164.165	0.000	0.000	161.750	0.000	0.000	0.000	0.000		
0.000		0.000	Automatic														
g13P	**Leg5**	**164.165**	**L/r**	**169.484**	**Net Sect**	**57**	**11.37**	**164.165**	**182.000**	**457.031**	**169.484**	**507.812**	**0.000**	**0.000**	**0.000**		
0.000		**0.000**	**Automatic**	**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. ??
g13X Leg5 164.165 L/r 169.484 Net Sect 57 11.37 164.165 182.000 457.031 169.484 507.812 0.000 0.000 0.000
0.000 0.000 Automatic 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. ??
g13XY Leg5 164.165 L/r 169.484 Net Sect 57 11.37 164.165 182.000 457.031 169.484 507.812 0.000 0.000 0.000
0.000 0.000 Automatic 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. ??
g13Y Leg5 164.165 L/r 169.484 Net Sect 57 11.37 164.165 182.000 457.031 169.484 507.812 0.000 0.000 0.000
0.000 0.000 Automatic 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. ??
g14P Leg6 169.375 L/r 169.484 Net Sect 50 15.16 169.375 182.000 457.031 169.484 477.940 0.000 0.000 0.000
0.000 0.000 Automatic 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. ??
g14X Leg6 169.375 L/r 169.484 Net Sect 50 15.16 169.375 182.000 457.031 169.484 477.940 0.000 0.000 0.000
0.000 0.000 Automatic 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. ??
g14XY Leg6 169.375 L/r 169.484 Net Sect 50 15.16 169.375 182.000 457.031 169.484 477.940 0.000 0.000 0.000
0.000 0.000 Automatic 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. ??
g14Y Leg6 169.375 L/r 169.484 Net Sect 50 15.16 169.375 182.000 457.031 169.484 477.940 0.000 0.000 0.000
0.000 0.000 Automatic Member "g14Y" 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. ??
g15P Diag1 8.702 L/r 15.532 Net Sect 150 8.57 8.702 18.200 20.391 15.532 15.609 0.000 0.000 0.000
0.000 0.000 Automatic
g15X Diag1 8.702 L/r 15.532 Net Sect 150 8.57 8.702 18.200 20.391 15.532 15.609 0.000 0.000 0.000
0.000 0.000 Automatic
g16P Diag1 10.509 L/r 12.347 Rupture 133 7.60 10.509 18.200 20.391 15.532 12.347 0.000 0.000 0.000
0.000 0.000 Automatic
g16X Diag1 10.509 L/r 12.347 Rupture 133 7.60 10.509 18.200 20.391 15.532 12.347 0.000 0.000 0.000
0.000 0.000 Automatic
g16XY Diag1 10.509 L/r 12.347 Rupture 133 7.60 10.509 18.200 20.391 15.532 12.347 0.000 0.000 0.000
0.000 0.000 Automatic
g16Y Diag1 10.509 L/r 12.347 Rupture 133 7.60 10.509 18.200 20.391 15.532 12.347 0.000 0.000 0.000
0.000 0.000 Automatic
g17P Diag1 10.509 L/r 12.347 Rupture 133 7.60 10.509 18.200 20.391 15.532 12.347 0.000 0.000 0.000
0.000 0.000 Automatic
g17X Diag1 10.509 L/r 12.347 Rupture 133 7.60 10.509 18.200 20.391 15.532 12.347 0.000 0.000 0.000
0.000 0.000 Automatic
g17XY Diag1 10.509 L/r 12.347 Rupture 133 7.60 10.509 18.200 20.391 15.532 12.347 0.000 0.000 0.000
0.000 0.000 Automatic
g17Y Diag1 10.509 L/r 12.347 Rupture 133 7.60 10.509 18.200 20.391 15.532 12.347 0.000 0.000 0.000
0.000 0.000 Automatic
g18P Diag2 27.300 Shear 27.300 Shear 77 7.60 29.813 27.300 30.586 30.760 30.586 0.000 0.000 0.000
0.000 0.000 Automatic
g18X Diag2 27.300 Shear 27.300 Shear 77 7.60 29.813 27.300 30.586 30.760 30.586 0.000 0.000 0.000
0.000 0.000 Automatic
g18XY Diag2 27.300 Shear 27.300 Shear 77 7.60 29.813 27.300 30.586 30.760 30.586 0.000 0.000 0.000
0.000 0.000 Automatic
g18Y Diag2 27.300 Shear 27.300 Shear 77 7.60 29.813 27.300 30.586 30.760 30.586 0.000 0.000 0.000
0.000 0.000 Automatic
g19P Diag2 27.300 Shear 27.300 Shear 77 7.60 29.813 27.300 30.586 30.760 30.586 0.000 0.000 0.000
0.000 0.000 Automatic
g19X Diag2 27.300 Shear 27.300 Shear 77 7.60 29.813 27.300 30.586 30.760 30.586 0.000 0.000 0.000
0.000 0.000 Automatic
g19XY Diag2 27.300 Shear 27.300 Shear 77 7.60 29.813 27.300 30.586 30.760 30.586 0.000 0.000 0.000
0.000 0.000 Automatic
g19Y Diag2 27.300 Shear 27.300 Shear 77 7.60 29.813 27.300 30.586 30.760 30.586 0.000 0.000 0.000
0.000 0.000 Automatic
g20P Diag2 27.300 Shear 27.300 Shear 77 7.60 29.813 27.300 30.586 30.760 30.586 0.000 0.000 0.000

0.000		0.000	Automatic												
g20X	Diag2	27.300	Shear	27.300	Shear	77	7.60	29.813	27.300	30.586	30.760	30.586	0.000	0.000	0.000
0.000		0.000	Automatic												
g20XY	Diag2	27.300	Shear	27.300	Shear	77	7.60	29.813	27.300	30.586	30.760	30.586	0.000	0.000	0.000
0.000		0.000	Automatic												
g20Y	Diag2	27.300	Shear	27.300	Shear	77	7.60	29.813	27.300	30.586	30.760	30.586	0.000	0.000	0.000
0.000		0.000	Automatic												
g21P	Diag2	27.300	Shear	27.300	Shear	77	7.60	29.813	27.300	30.586	30.760	30.586	0.000	0.000	0.000
0.000		0.000	Automatic												
g21X	Diag2	27.300	Shear	27.300	Shear	77	7.60	29.813	27.300	30.586	30.760	30.586	0.000	0.000	0.000
0.000		0.000	Automatic												
g21XY	Diag2	27.300	Shear	27.300	Shear	77	7.60	29.813	27.300	30.586	30.760	30.586	0.000	0.000	0.000
0.000		0.000	Automatic												
g21Y	Diag2	27.300	Shear	27.300	Shear	77	7.60	29.813	27.300	30.586	30.760	30.586	0.000	0.000	0.000
0.000		0.000	Automatic												
g22P	Diag2	29.823	L/r	26.353	Rupture	76	7.60	29.823	36.400	40.781	30.760	26.353	0.000	0.000	0.000
0.000		0.000	Automatic												
g22X	Diag2	29.823	L/r	26.353	Rupture	76	7.60	29.823	36.400	40.781	30.760	26.353	0.000	0.000	0.000
0.000		0.000	Automatic												
g22XY	Diag2	29.823	L/r	26.353	Rupture	76	7.60	29.823	36.400	40.781	30.760	26.353	0.000	0.000	0.000
0.000		0.000	Automatic												
g22Y	Diag2	29.823	L/r	26.353	Rupture	76	7.60	29.823	36.400	40.781	30.760	26.353	0.000	0.000	0.000
0.000		0.000	Automatic												
g23P	Diag2	29.823	L/r	26.353	Rupture	76	7.60	29.823	36.400	40.781	30.760	26.353	0.000	0.000	0.000
0.000		0.000	Automatic												
g23X	Diag2	29.823	L/r	26.353	Rupture	76	7.60	29.823	36.400	40.781	30.760	26.353	0.000	0.000	0.000
0.000		0.000	Automatic												
g23XY	Diag2	29.823	L/r	26.353	Rupture	76	7.60	29.823	36.400	40.781	30.760	26.353	0.000	0.000	0.000
0.000		0.000	Automatic												
g23Y	Diag2	29.823	L/r	26.353	Rupture	76	7.60	29.823	36.400	40.781	30.760	26.353	0.000	0.000	0.000
0.000		0.000	Automatic												
g24P	Diag3	27.300	Shear	27.300	Shear	86	7.60	33.833	27.300	40.781	32.319	40.781	0.000	0.000	0.000
0.000		0.000	Automatic												
g24X	Diag3	27.300	Shear	27.300	Shear	86	7.60	33.833	27.300	40.781	32.319	40.781	0.000	0.000	0.000
0.000		0.000	Automatic												
g24XY	Diag3	27.300	Shear	27.300	Shear	86	7.60	33.833	27.300	40.781	32.319	40.781	0.000	0.000	0.000
0.000		0.000	Automatic												
g24Y	Diag3	27.300	Shear	27.300	Shear	86	7.60	33.833	27.300	40.781	32.319	40.781	0.000	0.000	0.000
0.000		0.000	Automatic												
g25P	Diag3	27.300	Shear	27.300	Shear	86	7.60	33.833	27.300	40.781	32.319	40.781	0.000	0.000	0.000
0.000		0.000	Automatic												
g25X	Diag3	27.300	Shear	27.300	Shear	86	7.60	33.833	27.300	40.781	32.319	40.781	0.000	0.000	0.000
0.000		0.000	Automatic												
g25XY	Diag3	27.300	Shear	27.300	Shear	86	7.60	33.833	27.300	40.781	32.319	40.781	0.000	0.000	0.000
0.000		0.000	Automatic												
g25Y	Diag3	27.300	Shear	27.300	Shear	86	7.60	33.833	27.300	40.781	32.319	40.781	0.000	0.000	0.000
0.000		0.000	Automatic												
g26P	Diag3	27.300	Shear	27.300	Shear	86	7.60	33.833	27.300	40.781	32.319	40.781	0.000	0.000	0.000
0.000		0.000	Automatic												
g26X	Diag3	27.300	Shear	27.300	Shear	86	7.60	33.833	27.300	40.781	32.319	40.781	0.000	0.000	0.000
0.000		0.000	Automatic												
g26XY	Diag3	27.300	Shear	27.300	Shear	86	7.60	33.833	27.300	40.781	32.319	40.781	0.000	0.000	0.000
0.000		0.000	Automatic												
g26Y	Diag3	27.300	Shear	27.300	Shear	86	7.60	33.833	27.300	40.781	32.319	40.781	0.000	0.000	0.000
0.000		0.000	Automatic												
g27P	Diag3	27.300	Shear	27.300	Shear	86	7.60	33.833	27.300	40.781	32.319	40.781	0.000	0.000	0.000
0.000		0.000	Automatic												
g27X	Diag3	27.300	Shear	27.300	Shear	86	7.60	33.833	27.300	40.781	32.319	40.781	0.000	0.000	0.000
0.000		0.000	Automatic												

g27XY	Diag3	27.300	Shear	27.300	Shear	86	7.60	33.833	27.300	40.781	32.319	40.781	0.000	0.000	0.000	0.000
0.000		0.000		Automatic												
g27Y	Diag3	27.300	Shear	27.300	Shear	86	7.60	33.833	27.300	40.781	32.319	40.781	0.000	0.000	0.000	0.000
0.000		0.000		Automatic												
g28P	Diag4	36.400	Shear	35.137	Rupture	77	7.60	39.289	36.400	54.375	40.581	35.137	0.000	0.000	0.000	0.000
0.000		0.000		Automatic												
g28X	Diag4	36.400	Shear	35.137	Rupture	77	7.60	39.289	36.400	54.375	40.581	35.137	0.000	0.000	0.000	0.000
0.000		0.000		Automatic												
g28XY	Diag4	36.400	Shear	35.137	Rupture	77	7.60	39.289	36.400	54.375	40.581	35.137	0.000	0.000	0.000	0.000
0.000		0.000		Automatic												
g28Y	Diag4	36.400	Shear	35.137	Rupture	77	7.60	39.289	36.400	54.375	40.581	35.137	0.000	0.000	0.000	0.000
0.000		0.000		Automatic												
g29P	Diag4	36.400	Shear	35.137	Rupture	77	7.60	39.289	36.400	54.375	40.581	35.137	0.000	0.000	0.000	0.000
0.000		0.000		Automatic												
g29X	Diag4	36.400	Shear	35.137	Rupture	77	7.60	39.289	36.400	54.375	40.581	35.137	0.000	0.000	0.000	0.000
0.000		0.000		Automatic												
g29XY	Diag4	36.400	Shear	35.137	Rupture	77	7.60	39.289	36.400	54.375	40.581	35.137	0.000	0.000	0.000	0.000
0.000		0.000		Automatic												
g29Y	Diag4	36.400	Shear	35.137	Rupture	77	7.60	39.289	36.400	54.375	40.581	35.137	0.000	0.000	0.000	0.000
0.000		0.000		Automatic												
g30P	Diag4	27.300	Shear	27.300	Shear	102	9.35	33.473	27.300	40.781	40.581	36.250	0.000	0.000	0.000	0.000
0.000		0.000		Automatic												
g30X	Diag4	27.300	Shear	27.300	Shear	102	9.35	33.473	27.300	40.781	40.581	36.250	0.000	0.000	0.000	0.000
0.000		0.000		Automatic												
g30XY	Diag4	27.300	Shear	27.300	Shear	102	9.35	33.473	27.300	40.781	40.581	36.250	0.000	0.000	0.000	0.000
0.000		0.000		Automatic												
g30Y	Diag4	27.300	Shear	27.300	Shear	102	9.35	33.473	27.300	40.781	40.581	36.250	0.000	0.000	0.000	0.000
0.000		0.000		Automatic												
g31P	Diag4	27.300	Shear	27.300	Shear	102	9.35	33.473	27.300	40.781	40.581	36.250	0.000	0.000	0.000	0.000
0.000		0.000		Automatic												
g31X	Diag4	27.300	Shear	27.300	Shear	102	9.35	33.473	27.300	40.781	40.581	36.250	0.000	0.000	0.000	0.000
0.000		0.000		Automatic												
g31XY	Diag4	27.300	Shear	27.300	Shear	102	9.35	33.473	27.300	40.781	40.581	36.250	0.000	0.000	0.000	0.000
0.000		0.000		Automatic												
g31Y	Diag4	27.300	Shear	27.300	Shear	102	9.35	33.473	27.300	40.781	40.581	36.250	0.000	0.000	0.000	0.000
0.000		0.000		Automatic												
g32P	Diag5	21.379	L/r	27.187	Rupture	120	10.36	21.379	27.300	30.586	30.760	27.187	0.000	0.000	0.000	0.000
0.000		0.000		Automatic												
g32X	Diag5	21.379	L/r	27.187	Rupture	120	10.36	21.379	27.300	30.586	30.760	27.187	0.000	0.000	0.000	0.000
0.000		0.000		Automatic												
g32XY	Diag5	21.379	L/r	27.187	Rupture	120	10.36	21.379	27.300	30.586	30.760	27.187	0.000	0.000	0.000	0.000
0.000		0.000		Automatic												
g32Y	Diag5	21.379	L/r	27.187	Rupture	120	10.36	21.379	27.300	30.586	30.760	27.187	0.000	0.000	0.000	0.000
0.000		0.000		Automatic												
g33P	Diag5	21.379	L/r	27.187	Rupture	120	10.36	21.379	27.300	30.586	30.760	27.187	0.000	0.000	0.000	0.000
0.000		0.000		Automatic												
g33X	Diag5	21.379	L/r	27.187	Rupture	120	10.36	21.379	27.300	30.586	30.760	27.187	0.000	0.000	0.000	0.000
0.000		0.000		Automatic												
g33XY	Diag5	21.379	L/r	27.187	Rupture	120	10.36	21.379	27.300	30.586	30.760	27.187	0.000	0.000	0.000	0.000
0.000		0.000		Automatic												
g33Y	Diag5	21.379	L/r	27.187	Rupture	120	10.36	21.379	27.300	30.586	30.760	27.187	0.000	0.000	0.000	0.000
0.000		0.000		Automatic												
g34P	Diag5	20.706	L/r	23.906	Rupture	123	11.45	20.706	27.300	30.586	30.760	23.906	0.000	0.000	0.000	0.000
0.000		0.000		Automatic												
g34X	Diag5	20.706	L/r	23.906	Rupture	123	11.45	20.706	27.300	30.586	30.760	23.906	0.000	0.000	0.000	0.000
0.000		0.000		Automatic												
g34XY	Diag5	20.706	L/r	23.906	Rupture	123	11.45	20.706	27.300	30.586	30.760	23.906	0.000	0.000	0.000	0.000
0.000		0.000		Automatic												
g34Y	Diag5	20.706	L/r	23.906	Rupture	123	11.45	20.706	27.300	30.586	30.760	23.906	0.000	0.000	0.000	0.000

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0.000              0.000          Automatic
     g35P    Diag5   20.706       L/r   23.906   Rupture  123  11.45   20.706     27.300     30.586   30.760   23.906    0.000    0.000    0.000
0.000              0.000          Automatic
     g35X    Diag5   20.706       L/r   23.906   Rupture  123  11.45   20.706     27.300     30.586   30.760   23.906    0.000    0.000    0.000
0.000              0.000          Automatic
    g35XY    Diag5   20.706       L/r   23.906   Rupture  123  11.45   20.706     27.300     30.586   30.760   23.906    0.000    0.000    0.000
0.000              0.000          Automatic
     g35Y    Diag5   20.706       L/r   23.906   Rupture  123  11.45   20.706     27.300     30.586   30.760   23.906    0.000    0.000    0.000
0.000              0.000          Automatic
     g36P    Diag6    8.410       L/r   32.481  Net Sect  227  15.96    8.410     36.400     54.375   32.481   44.306    0.000    0.000    0.000
0.000              0.000          Automatic
KL/R value of 201.25 exceeds maximum of 200.00 for member "g36P"  ??
     g36X    Diag6    8.410       L/r   32.481  Net Sect  227  15.96    8.410     36.400     54.375   32.481   44.306    0.000    0.000    0.000
0.000              0.000          Automatic
KL/R value of 201.25 exceeds maximum of 200.00 for member "g36X"  ??
    g36XY    Diag6    8.410       L/r   32.481  Net Sect  227  15.96    8.410     36.400     54.375   32.481   44.306    0.000    0.000    0.000
0.000              0.000          Automatic
KL/R value of 201.25 exceeds maximum of 200.00 for member "g36XY"  ??
     g36Y    Diag6    8.410       L/r   32.481  Net Sect  227  15.96    8.410     36.400     54.375   32.481   44.306    0.000    0.000    0.000
0.000              0.000          Automatic
KL/R value of 201.25 exceeds maximum of 200.00 for member "g36Y"  ??
     g37P    Diag6    8.410       L/r   32.481  Net Sect  227  15.96    8.410     36.400     54.375   32.481   44.306    0.000    0.000    0.000
0.000              0.000          Automatic
KL/R value of 201.25 exceeds maximum of 200.00 for member "g37P"  ??
     g37X    Diag6    8.410       L/r   32.481  Net Sect  227  15.96    8.410     36.400     54.375   32.481   44.306    0.000    0.000    0.000
0.000              0.000          Automatic
KL/R value of 201.25 exceeds maximum of 200.00 for member "g37X"  ??
    g37XY    Diag6    8.410       L/r   32.481  Net Sect  227  15.96    8.410     36.400     54.375   32.481   44.306    0.000    0.000    0.000
0.000              0.000          Automatic
KL/R value of 201.25 exceeds maximum of 200.00 for member "g37XY"  ??
     g37Y    Diag6    8.410       L/r   32.481  Net Sect  227  15.96    8.410     36.400     54.375   32.481   44.306    0.000    0.000    0.000
0.000              0.000          Automatic
KL/R value of 201.25 exceeds maximum of 200.00 for member "g37Y"  ??
     g38P    Diag7   10.917       L/r   36.369  Net Sect  206  12.91   10.917     45.500     67.969   36.369   41.662    0.000    0.000    0.000
0.000              0.000          Automatic
     g38X    Diag7   10.917       L/r   36.369  Net Sect  206  12.91   10.917     45.500     67.969   36.369   41.662    0.000    0.000    0.000
0.000              0.000          Automatic
    g38XY    Diag7   10.917       L/r   36.369  Net Sect  206  12.91   10.917     45.500     67.969   36.369   41.662    0.000    0.000    0.000
0.000              0.000          Automatic
     g38Y    Diag7   10.917       L/r   36.369  Net Sect  206  12.91   10.917     45.500     67.969   36.369   41.662    0.000    0.000    0.000
0.000              0.000          Automatic
     g39P    Diag7   10.917       L/r   36.369  Net Sect  206  12.91   10.917     45.500     67.969   36.369   41.662    0.000    0.000    0.000
0.000              0.000          Automatic
     g39X    Diag7   10.917       L/r   36.369  Net Sect  206  12.91   10.917     45.500     67.969   36.369   41.662    0.000    0.000    0.000
0.000              0.000          Automatic
    g39XY    Diag7   10.917       L/r   36.369  Net Sect  206  12.91   10.917     45.500     67.969   36.369   41.662    0.000    0.000    0.000
0.000              0.000          Automatic
     g39Y    Diag7   10.917       L/r   36.369  Net Sect  206  12.91   10.917     45.500     67.969   36.369   41.662    0.000    0.000    0.000
0.000              0.000          Automatic
     g40P    Diag7   10.567       L/r   35.137   Rupture  210  17.54   10.567     36.400     54.375   36.369   35.137    0.000    0.000    0.000
0.000              0.000          Automatic
     g40X    Diag7   10.567       L/r   35.137   Rupture  210  17.54   10.567     36.400     54.375   36.369   35.137    0.000    0.000    0.000
0.000              0.000          Automatic
    g40XY    Diag7   10.567       L/r   35.137   Rupture  210  17.54   10.567     36.400     54.375   36.369   35.137    0.000    0.000    0.000
0.000              0.000          Automatic
     g40Y    Diag7   10.567       L/r   35.137   Rupture  210  17.54   10.567     36.400     54.375   36.369   35.137    0.000    0.000    0.000
0.000              0.000          Automatic
     g41P    Diag7   10.567       L/r   35.137   Rupture  210  17.54   10.567     36.400     54.375   36.369   35.137    0.000    0.000    0.000
0.000              0.000          Automatic
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g41X	Diag7	10.567	L/r	35.137	Rupture	210	17.54	10.567	36.400	54.375	36.369	35.137	0.000	0.000	0.000
0.000		0.000	Automatic												
g41XY	Diag7	10.567	L/r	35.137	Rupture	210	17.54	10.567	36.400	54.375	36.369	35.137	0.000	0.000	0.000
0.000		0.000	Automatic												
g41Y	Diag7	10.567	L/r	35.137	Rupture	210	17.54	10.567	36.400	54.375	36.369	35.137	0.000	0.000	0.000
0.000		0.000	Automatic												
g42P	Horz1	7.213	L/r	14.006	Rupture	183	6.00	7.213	18.200	20.391	18.448	14.006	0.000	0.000	0.000
0.000		0.000	Automatic												
g42X	Horz1	7.213	L/r	14.006	Rupture	183	6.00	7.213	18.200	20.391	18.448	14.006	0.000	0.000	0.000
0.000		0.000	Automatic												
g43P	Horz2	24.594	L/r	27.300	Shear	132	6.00	24.594	27.300	40.781	40.581	27.450	0.000	0.000	0.000
0.000		0.000	Automatic												
g43X	Horz2	24.594	L/r	27.300	Shear	132	6.00	24.594	27.300	40.781	40.581	27.450	0.000	0.000	0.000
0.000		0.000	Automatic												
g44P	Horz2	24.594	L/r	27.300	Shear	132	6.00	24.594	27.300	40.781	40.581	27.450	0.000	0.000	0.000
0.000		0.000	Automatic												
g44X	Horz2	24.594	L/r	27.300	Shear	132	6.00	24.594	27.300	40.781	40.581	27.450	0.000	0.000	0.000
0.000		0.000	Automatic												
g45P	Horz2	24.594	L/r	27.300	Shear	132	6.00	24.594	27.300	40.781	40.581	27.450	0.000	0.000	0.000
0.000		0.000	Automatic												
g45X	Horz2	24.594	L/r	27.300	Shear	132	6.00	24.594	27.300	40.781	40.581	27.450	0.000	0.000	0.000
0.000		0.000	Automatic												
g46P	Horz3	10.922	L/r	14.006	Rupture	164	6.00	10.922	18.200	20.391	18.529	14.006	0.000	0.000	0.000
0.000		0.000	Automatic												
g46Y	Horz3	10.922	L/r	14.006	Rupture	164	6.00	10.922	18.200	20.391	18.529	14.006	0.000	0.000	0.000
0.000		0.000	Automatic												
g47P	**Horz4**	**2.789**	**L/r**	**11.475**	**Rupture**	**268**	**6.00**	**2.789**	**18.200**	**20.391**	**12.519**	**11.475**	**0.000**	**0.000**	**0.000**
0.000		**0.000**	**Automatic**												
KL/R value of 232.56 exceeds maximum of 200.00 for member "g47P" ??															
g47Y	**Horz4**	**2.789**	**L/r**	**11.475**	**Rupture**	**268**	**6.00**	**2.789**	**18.200**	**20.391**	**12.519**	**11.475**	**0.000**	**0.000**	**0.000**
0.000		**0.000**	**Automatic**												
KL/R value of 232.56 exceeds maximum of 200.00 for member "g47Y" ??															
g48P	**Horz4**	**2.789**	**L/r**	**11.475**	**Rupture**	**268**	**6.00**	**2.789**	**18.200**	**20.391**	**12.519**	**11.475**	**0.000**	**0.000**	**0.000**
0.000		**0.000**	**Automatic**												
KL/R value of 232.56 exceeds maximum of 200.00 for member "g48P" ??															
g48Y	**Horz4**	**2.789**	**L/r**	**11.475**	**Rupture**	**268**	**6.00**	**2.789**	**18.200**	**20.391**	**12.519**	**11.475**	**0.000**	**0.000**	**0.000**
0.000		**0.000**	**Automatic**												
KL/R value of 232.56 exceeds maximum of 200.00 for member "g48Y" ??															
g49P	Horz5	18.200	Shear	15.694	Rupture	127	10.08	18.257	18.200	20.391	24.806	15.694	0.000	0.000	0.000
0.000		0.000	Automatic												
g49Y	Horz5	18.200	Shear	15.694	Rupture	127	10.08	18.257	18.200	20.391	24.806	15.694	0.000	0.000	0.000
0.000		0.000	Automatic												
g50P	Horz5	18.200	Shear	15.694	Rupture	127	10.08	18.257	18.200	20.391	24.806	15.694	0.000	0.000	0.000
0.000		0.000	Automatic												
g50X	Horz5	18.200	Shear	15.694	Rupture	127	10.08	18.257	18.200	20.391	24.806	15.694	0.000	0.000	0.000
0.000		0.000	Automatic												
g51P	Horz6	26.018	L/r	27.300	Shear	134	12.43	26.018	27.300	40.781	40.419	29.700	0.000	0.000	0.000
0.000		0.000	Automatic												
g51Y	Horz6	26.018	L/r	27.300	Shear	134	12.43	26.018	27.300	40.781	40.419	29.700	0.000	0.000	0.000
0.000		0.000	Automatic												
g52P	Horz6	26.018	L/r	27.300	Shear	134	12.43	26.018	27.300	40.781	40.419	29.700	0.000	0.000	0.000
0.000		0.000	Automatic												
g52X	Horz6	26.018	L/r	27.300	Shear	134	12.43	26.018	27.300	40.781	40.419	29.700	0.000	0.000	0.000
0.000		0.000	Automatic												
g53P	Horz7	9.466	L/r	15.694	Rupture	179	7.39	9.466	18.200	20.391	24.669	15.694	0.000	0.000	0.000
0.000		0.000	Automatic												
g53X	Horz7	9.466	L/r	15.694	Rupture	179	7.39	9.466	18.200	20.391	24.669	15.694	0.000	0.000	0.000
0.000		0.000	Automatic												
g53XY	Horz7	9.466	L/r	15.694	Rupture	179	7.39	9.466	18.200	20.391	24.669	15.694	0.000	0.000	0.000

0.000		0.000	Automatic												
g53Y	Horz7	9.466	L/r	15.694	Rupture	179	7.39	9.466	18.200	20.391	24.669	15.694	0.000	0.000	0.000
0.000		0.000	Automatic												
g54P	Horz7	9.466	L/r	15.694	Rupture	179	7.39	9.466	18.200	20.391	24.669	15.694	0.000	0.000	0.000
0.000		0.000	Automatic												
g54X	Horz7	9.466	L/r	15.694	Rupture	179	7.39	9.466	18.200	20.391	24.669	15.694	0.000	0.000	0.000
0.000		0.000	Automatic												
g54XY	Horz7	9.466	L/r	15.694	Rupture	179	7.39	9.466	18.200	20.391	24.669	15.694	0.000	0.000	0.000
0.000		0.000	Automatic												
g54Y	Horz7	9.466	L/r	15.694	Rupture	179	7.39	9.466	18.200	20.391	24.669	15.694	0.000	0.000	0.000
0.000		0.000	Automatic												
g55P	Inner1	5.923	L/r	13.162	Rupture	190	4.24	5.923	18.200	20.391	15.532	13.162	0.000	0.000	0.000
0.000		0.000	Automatic												
g55X	Inner1	5.923	L/r	13.162	Rupture	190	4.24	5.923	18.200	20.391	15.532	13.162	0.000	0.000	0.000
0.000		0.000	Automatic												
g55XY	Inner1	5.923	L/r	13.162	Rupture	190	4.24	5.923	18.200	20.391	15.532	13.162	0.000	0.000	0.000
0.000		0.000	Automatic												
g55Y	Inner1	5.923	L/r	13.162	Rupture	190	4.24	5.923	18.200	20.391	15.532	13.162	0.000	0.000	0.000
0.000		0.000	Automatic												
g56P	Inner2	8.530	L/r	14.006	Rupture	165	4.24	8.530	18.200	20.391	18.448	14.006	0.000	0.000	0.000
0.000		0.000	Automatic												
g56X	Inner2	8.530	L/r	14.006	Rupture	165	4.24	8.530	18.200	20.391	18.448	14.006	0.000	0.000	0.000
0.000		0.000	Automatic												
g56XY	Inner2	8.530	L/r	14.006	Rupture	165	4.24	8.530	18.200	20.391	18.448	14.006	0.000	0.000	0.000
0.000		0.000	Automatic												
g56Y	Inner2	8.530	L/r	14.006	Rupture	165	4.24	8.530	18.200	20.391	18.448	14.006	0.000	0.000	0.000
0.000		0.000	Automatic												
g57P	Inner2	8.530	L/r	14.006	Rupture	165	4.24	8.530	18.200	20.391	18.448	14.006	0.000	0.000	0.000
0.000		0.000	Automatic												
g57X	Inner2	8.530	L/r	14.006	Rupture	165	4.24	8.530	18.200	20.391	18.448	14.006	0.000	0.000	0.000
0.000		0.000	Automatic												
g57XY	Inner2	8.530	L/r	14.006	Rupture	165	4.24	8.530	18.200	20.391	18.448	14.006	0.000	0.000	0.000
0.000		0.000	Automatic												
g57Y	Inner2	8.530	L/r	14.006	Rupture	165	4.24	8.530	18.200	20.391	18.448	14.006	0.000	0.000	0.000
0.000		0.000	Automatic												
g58P	Inner2	8.530	L/r	14.006	Rupture	165	4.24	8.530	18.200	20.391	18.448	14.006	0.000	0.000	0.000
0.000		0.000	Automatic												
g58X	Inner2	8.530	L/r	14.006	Rupture	165	4.24	8.530	18.200	20.391	18.448	14.006	0.000	0.000	0.000
0.000		0.000	Automatic												
g58XY	Inner2	8.530	L/r	14.006	Rupture	165	4.24	8.530	18.200	20.391	18.448	14.006	0.000	0.000	0.000
0.000		0.000	Automatic												
g58Y	Inner2	8.530	L/r	14.006	Rupture	165	4.24	8.530	18.200	20.391	18.448	14.006	0.000	0.000	0.000
0.000		0.000	Automatic												
g59P	**Inner1**	**1.749**	**L/r**	**8.269**	**Rupture**	**318**	**14.25**	**1.749**	**9.100**	**10.195**	**15.532**	**8.269**	**0.000**	**0.000**	**0.000**
0.000		**0.000**	**Automatic**												
KL/R value of 318.49 exceeds maximum of 200.00 for member "g59P" ??															
g59X	**Inner1**	**1.749**	**L/r**	**8.269**	**Rupture**	**318**	**14.25**	**1.749**	**9.100**	**10.195**	**15.532**	**8.269**	**0.000**	**0.000**	**0.000**
0.000		**0.000**	**Automatic**												
KL/R value of 318.49 exceeds maximum of 200.00 for member "g59X" ??															
g60P	**Inner1**	**3.252**	**L/r**	**8.269**	**Rupture**	**234**	**5.23**	**3.252**	**9.100**	**10.195**	**15.532**	**8.269**	**0.000**	**0.000**	**0.000**
0.000		**0.000**	**Automatic**												
KL/R value of 233.59 exceeds maximum of 200.00 for member "g60P" ??															
g60X	**Inner1**	**3.252**	**L/r**	**8.269**	**Rupture**	**234**	**5.23**	**3.252**	**9.100**	**10.195**	**15.532**	**8.269**	**0.000**	**0.000**	**0.000**
0.000		**0.000**	**Automatic**												
KL/R value of 233.59 exceeds maximum of 200.00 for member "g60X" ??															
g60XY	**Inner1**	**3.252**	**L/r**	**8.269**	**Rupture**	**234**	**5.23**	**3.252**	**9.100**	**10.195**	**15.532**	**8.269**	**0.000**	**0.000**	**0.000**
0.000		**0.000**	**Automatic**												
KL/R value of 233.59 exceeds maximum of 200.00 for member "g60XY" ??															
g60Y	**Inner1**	**3.252**	**L/r**	**8.269**	**Rupture**	**234**	**5.23**	**3.252**	**9.100**	**10.195**	**15.532**	**8.269**	**0.000**	**0.000**	**0.000**

0.000 0.000 Automatic
KL/R value of 233.59 exceeds maximum of 200.00 for member "g60Y" ??
Fg6072P Inner1 3.252 L/r 8.269 Rupture 234 5.23 3.252 9.100 10.195 15.532 8.269 0.000 0.000 0.000
0.000 0.000 Automatic
KL/R value of 233.59 exceeds maximum of 200.00 for member "Fg6072P" ??
Fg6072X Inner1 3.252 L/r 8.269 Rupture 234 5.23 3.252 9.100 10.195 15.532 8.269 0.000 0.000 0.000
0.000 0.000 Automatic
KL/R value of 233.59 exceeds maximum of 200.00 for member "Fg6072X" ??
Fg6072XY Inner1 3.252 L/r 8.269 Rupture 234 5.23 3.252 9.100 10.195 15.532 8.269 0.000 0.000 0.000
0.000 0.000 Automatic
KL/R value of 233.59 exceeds maximum of 200.00 for member "Fg6072XY" ??
Fg6072Y Inner1 3.252 L/r 8.269 Rupture 234 5.23 3.252 9.100 10.195 15.532 8.269 0.000 0.000 0.000
0.000 0.000 Automatic
KL/R value of 233.59 exceeds maximum of 200.00 for member "Fg6072Y" ??
g61P ShieldAr 18.200 Shear 18.200 Shear 138 11.50 53.097 18.200 53.287 108.742 0.000 0.000 0.000 0.000
0.000 0.000 Automatic Unable to calculate
rupture capacity for member "g61P" because it has a long and short edge distance of 0. ??
g61X ShieldAr 18.200 Shear 18.200 Shear 138 11.50 53.097 18.200 53.287 108.742 0.000 0.000 0.000 0.000
0.000 0.000 Automatic Unable to calculate
rupture capacity for member "g61X" because it has a long and short edge distance of 0. ??
g62P ShieldAr 18.200 Shear 18.200 Shear 72 6.00 81.514 18.200 53.287 108.742 0.000 0.000 0.000 0.000
0.000 0.000 Automatic Unable to calculate
rupture capacity for member "g62P" because it has a long and short edge distance of 0. ??
g63P TopCrArm 18.200 Shear 18.200 Shear 75 9.49 103.153 18.200 53.320 129.319 53.320 0.000 0.000 0.000
0.000 0.000 Automatic
g63X TopCrArm 18.200 Shear 18.200 Shear 75 9.49 103.153 18.200 53.320 129.319 53.320 0.000 0.000 0.000
0.000 0.000 Automatic
g63XY TopCrArm 18.200 Shear 18.200 Shear 75 9.49 103.153 18.200 53.320 129.319 53.320 0.000 0.000 0.000
0.000 0.000 Automatic
g63Y TopCrArm 18.200 Shear 18.200 Shear 75 9.49 103.153 18.200 53.320 129.319 53.320 0.000 0.000 0.000
0.000 0.000 Automatic
g64P TopCArmA 18.200 Shear 18.200 Shear 95 6.00 80.907 18.200 47.578 103.741 44.494 0.000 0.000 0.000
0.000 0.000 Automatic
g64Y TopCArmA 18.200 Shear 18.200 Shear 95 6.00 80.907 18.200 47.578 103.741 44.494 0.000 0.000 0.000
0.000 0.000 Automatic
g65P MidCrArm 18.200 Shear 18.200 Shear 94 11.88 88.186 18.200 53.320 129.319 53.320 0.000 0.000 0.000
0.000 0.000 Automatic
g65X MidCrArm 18.200 Shear 18.200 Shear 94 11.88 88.186 18.200 53.320 129.319 53.320 0.000 0.000 0.000
0.000 0.000 Automatic
g65XY MidCrArm 18.200 Shear 18.200 Shear 94 11.88 88.186 18.200 53.320 129.319 53.320 0.000 0.000 0.000
0.000 0.000 Automatic
g65Y MidCrArm 18.200 Shear 18.200 Shear 94 11.88 88.186 18.200 53.320 129.319 53.320 0.000 0.000 0.000
0.000 0.000 Automatic
g66P MidCArmA 18.200 Shear 18.200 Shear 95 6.00 80.907 18.200 47.578 103.741 44.494 0.000 0.000 0.000
0.000 0.000 Automatic
g66Y MidCArmA 18.200 Shear 18.200 Shear 95 6.00 80.907 18.200 47.578 103.741 44.494 0.000 0.000 0.000
0.000 0.000 Automatic
g67P BotCrArm 18.200 Shear 18.200 Shear 75 9.49 103.153 18.200 53.320 129.319 53.320 0.000 0.000 0.000
0.000 0.000 Automatic
g67X BotCrArm 18.200 Shear 18.200 Shear 75 9.49 103.153 18.200 53.320 129.319 53.320 0.000 0.000 0.000
0.000 0.000 Automatic
g67XY BotCrArm 18.200 Shear 18.200 Shear 75 9.49 103.153 18.200 53.320 129.319 53.320 0.000 0.000 0.000
0.000 0.000 Automatic
g67Y BotCrArm 18.200 Shear 18.200 Shear 75 9.49 103.153 18.200 53.320 129.319 53.320 0.000 0.000 0.000
0.000 0.000 Automatic
g68P BotCArmA 18.200 Shear 18.200 Shear 95 6.00 80.907 18.200 47.578 103.741 44.494 0.000 0.000 0.000
0.000 0.000 Automatic
g68Y BotCArmA 18.200 Shear 18.200 Shear 95 6.00 80.907 18.200 47.578 103.741 44.494 0.000 0.000 0.000
0.000 0.000 Automatic

g69P	ShArmBr	18.200	Shear	18.200	Shear	144	13.03	19.970	18.200	27.187	32.481	20.925	0.000	0.000	0.000	0.000	0.000	Automatic
g69X	ShArmBr	18.200	Shear	18.200	Shear	144	13.03	19.970	18.200	27.187	32.481	20.925	0.000	0.000	0.000	0.000	0.000	Automatic
g69XY	ShArmBr	18.200	Shear	18.200	Shear	144	13.03	19.970	18.200	27.187	32.481	20.925	0.000	0.000	0.000	0.000	0.000	Automatic
g69Y	ShArmBr	18.200	Shear	18.200	Shear	144	13.03	19.970	18.200	27.187	32.481	20.925	0.000	0.000	0.000	0.000	0.000	Automatic
g70P	**TopArmBr**	**3.178**	**L/r**	**15.532**	**Net Sect**	**236**	**10.57**	**3.178**	**18.200**	**20.391**	**15.532**	**15.609**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Automatic**
KL/R value of 236.29 exceeds maximum of 200.00 for member "g70P" ??																		
g70X	**TopArmBr**	**3.178**	**L/r**	**15.532**	**Net Sect**	**236**	**10.57**	**3.178**	**18.200**	**20.391**	**15.532**	**15.609**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Automatic**
KL/R value of 236.29 exceeds maximum of 200.00 for member "g70X" ??																		
g70XY	**TopArmBr**	**3.178**	**L/r**	**15.532**	**Net Sect**	**236**	**10.57**	**3.178**	**18.200**	**20.391**	**15.532**	**15.609**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Automatic**
KL/R value of 236.29 exceeds maximum of 200.00 for member "g70XY" ??																		
g70Y	**TopArmBr**	**3.178**	**L/r**	**15.532**	**Net Sect**	**236**	**10.57**	**3.178**	**18.200**	**20.391**	**15.532**	**15.609**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Automatic**
KL/R value of 236.29 exceeds maximum of 200.00 for member "g70Y" ??																		
g71P	**MidArmBr**	**3.297**	**L/r**	**16.453**	**Rupture**	**248**	**12.77**	**3.297**	**18.200**	**20.391**	**18.448**	**16.453**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Automatic**
KL/R value of 248.28 exceeds maximum of 200.00 for member "g71P" ??																		
g71X	**MidArmBr**	**3.297**	**L/r**	**16.453**	**Rupture**	**248**	**12.77**	**3.297**	**18.200**	**20.391**	**18.448**	**16.453**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Automatic**
KL/R value of 248.28 exceeds maximum of 200.00 for member "g71X" ??																		
g71XY	**MidArmBr**	**3.297**	**L/r**	**16.453**	**Rupture**	**248**	**12.77**	**3.297**	**18.200**	**20.391**	**18.448**	**16.453**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Automatic**
KL/R value of 248.28 exceeds maximum of 200.00 for member "g71XY" ??																		
g71Y	**MidArmBr**	**3.297**	**L/r**	**16.453**	**Rupture**	**248**	**12.77**	**3.297**	**18.200**	**20.391**	**18.448**	**16.453**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Automatic**
KL/R value of 248.28 exceeds maximum of 200.00 for member "g71Y" ??																		
g72P	**BotArmBr**	**3.181**	**L/r**	**15.532**	**Net Sect**	**236**	**10.57**	**3.181**	**18.200**	**20.391**	**15.532**	**15.609**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Automatic**
KL/R value of 236.19 exceeds maximum of 200.00 for member "g72P" ??																		
g72X	**BotArmBr**	**3.181**	**L/r**	**15.532**	**Net Sect**	**236**	**10.57**	**3.181**	**18.200**	**20.391**	**15.532**	**15.609**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Automatic**
KL/R value of 236.19 exceeds maximum of 200.00 for member "g72X" ??																		
g72XY	**BotArmBr**	**3.181**	**L/r**	**15.532**	**Net Sect**	**236**	**10.57**	**3.181**	**18.200**	**20.391**	**15.532**	**15.609**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Automatic**
KL/R value of 236.19 exceeds maximum of 200.00 for member "g72XY" ??																		
g72Y	**BotArmBr**	**3.181**	**L/r**	**15.532**	**Net Sect**	**236**	**10.57**	**3.181**	**18.200**	**20.391**	**15.532**	**15.609**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**Automatic**
KL/R value of 236.19 exceeds maximum of 200.00 for member "g72Y" ??																		
g74P	Pwmnt	630.072	L/r	679.999	Net Sect	41	15.00	630.072	0.000	0.000	679.999	0.000	0.000	0.000	0.000	0.000	0.000	Automatic
g75P	Pwmnt	295.328	L/r	679.999	Net Sect	115	42.00	295.328	0.000	0.000	679.999	0.000	0.000	0.000	0.000	0.000	0.000	Automatic
g76P	Pwmnt	636.507	L/r	679.999	Net Sect	38	14.00	636.507	0.000	0.000	679.999	0.000	0.000	0.000	0.000	0.000	0.000	Automatic
g77P	Pwmnt	636.507	L/r	679.999	Net Sect	38	14.00	636.507	0.000	0.000	679.999	0.000	0.000	0.000	0.000	0.000	0.000	Automatic
g78P	Pwmnt	675.160	L/r	679.999	Net Sect	13	4.67	675.160	0.000	0.000	679.999	0.000	0.000	0.000	0.000	0.000	0.000	Automatic
g79P	Pwmnt	592.742	L/r	679.999	Net Sect	54	19.83	592.742	0.000	0.000	679.999	0.000	0.000	0.000	0.000	0.000	0.000	Automatic
g80P	PMBR1	10.195	Bearing	10.195	Bearing	46	1.50	20.044	16.800	10.195	18.827	10.343	0.000	0.000	0.000	0.000	0.000	Automatic

g82P	PMBR1	10.195	Bearing	10.195	Bearing	46	1.50	20.044	16.800	10.195	18.827	10.343	0.000	0.000	0.000
0.000		0.000		Automatic											
g83P	PMBR1	10.195	Bearing	10.195	Bearing	46	1.50	20.044	16.800	10.195	18.827	10.343	0.000	0.000	0.000
0.000		0.000		Automatic											
g84P	PMBR2	10.195	Bearing	10.195	Bearing	81	3.35	22.127	16.800	10.195	25.048	11.328	0.000	0.000	0.000
0.000		0.000		Automatic											
g84X	PMBR2	10.195	Bearing	10.195	Bearing	81	3.35	22.127	16.800	10.195	25.048	11.328	0.000	0.000	0.000
0.000		0.000		Automatic											
g86P	PMBR2	10.195	Bearing	10.195	Bearing	81	3.35	22.127	16.800	10.195	25.048	11.328	0.000	0.000	0.000
0.000		0.000		Automatic											
g86X	PMBR2	10.195	Bearing	10.195	Bearing	81	3.35	22.127	16.800	10.195	25.048	11.328	0.000	0.000	0.000
0.000		0.000		Automatic											
g87P	PMBR2	10.195	Bearing	10.195	Bearing	81	3.35	22.127	16.800	10.195	25.048	11.328	0.000	0.000	0.000
0.000		0.000		Automatic											
g87X	PMBR2	10.195	Bearing	10.195	Bearing	81	3.35	22.127	16.800	10.195	25.048	11.328	0.000	0.000	0.000
0.000		0.000		Automatic											
g88P	PMBR3	10.195	Bearing	10.195	Bearing	87	4.30	26.079	16.800	10.195	31.139	11.328	0.000	0.000	0.000
0.000		0.000		Automatic											
g88X	PMBR3	10.195	Bearing	10.195	Bearing	87	4.30	26.079	16.800	10.195	31.139	11.328	0.000	0.000	0.000
0.000		0.000		Automatic											
g89P	PMBR3	10.195	Bearing	10.195	Bearing	128	6.38	18.929	16.800	10.195	31.139	11.328	0.000	0.000	0.000
0.000		0.000		Automatic											
g89X	PMBR3	10.195	Bearing	10.195	Bearing	128	6.38	18.929	16.800	10.195	31.139	11.328	0.000	0.000	0.000
0.000		0.000		Automatic											
g90P	Leg1	11.743	L/r	22.347	Net Sect	148	6.12	11.743	36.400	40.781	22.347	33.984	0.000	0.000	0.000
0.000		0.000		Automatic											
g90X	Leg1	11.743	L/r	22.347	Net Sect	148	6.12	11.743	36.400	40.781	22.347	33.984	0.000	0.000	0.000
0.000		0.000		Automatic											
g92P	Diag8	6.503	L/r	10.195	Bearing	177	5.80	6.503	16.800	10.195	18.827	10.343	0.000	0.000	0.000
0.000		0.000		Automatic											
g92X	Diag8	6.503	L/r	10.195	Bearing	177	5.80	6.503	16.800	10.195	18.827	10.343	0.000	0.000	0.000
0.000		0.000		Automatic											
g93P	Diag9	10.195	Bearing	10.195	Bearing	117	3.00	14.460	16.800	10.195	18.827	10.343	0.000	0.000	0.000
0.000		0.000		Automatic											
g93X	Diag9	10.195	Bearing	10.195	Bearing	117	3.00	14.460	16.800	10.195	18.827	10.343	0.000	0.000	0.000
0.000		0.000		Automatic											
g94P	**Inner3**	**2.775**	**L/r**	**6.581**	**Rupture**	**233**	**5.23**	**2.775**	**9.100**	**10.195**	**12.519**	**6.581**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**											
KL/R value of 233.16 exceeds maximum of 200.00 for member "g94P" ??															
g94X	**Inner3**	**2.775**	**L/r**	**6.581**	**Rupture**	**233**	**5.23**	**2.775**	**9.100**	**10.195**	**12.519**	**6.581**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**											
KL/R value of 233.16 exceeds maximum of 200.00 for member "g94X" ??															
g94XY	**Inner3**	**2.775**	**L/r**	**6.581**	**Rupture**	**233**	**5.23**	**2.775**	**9.100**	**10.195**	**12.519**	**6.581**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**											
KL/R value of 233.16 exceeds maximum of 200.00 for member "g94XY" ??															
g94Y	**Inner3**	**2.775**	**L/r**	**6.581**	**Rupture**	**233**	**5.23**	**2.775**	**9.100**	**10.195**	**12.519**	**6.581**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**											
KL/R value of 233.16 exceeds maximum of 200.00 for member "g94Y" ??															

The model contains 284 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	0.125	4.161	1.203
2P	0.116	6.432	4.777

3P	0.188	7.361	5.736
4P	0.0872	4.625	4.625
5P	0.108	6.093	5.083
6P	0.236	8.830	6.528
7P	0.121	4.625	4.625
8P	0.141	5.798	5.025
9P	0.274	9.340	7.559
10P	0.192	7.840	7.840
18P	0.133	5.614	1.784
19P	0.136	5.229	2.059
20P	0.174	6.860	2.174
21P	0.136	5.228	2.058
27P	0.492	10.535	10.535
28P	0.62	13.641	13.453
29P	0.463	9.918	9.918
30P	0.707	15.500	15.313
31P	1.4	30.375	30.188
32P	1.45	32.129	32.129
33P	0.372	7.969	7.969
1X	0.125	4.161	1.203
2X	0.116	6.432	4.777
2XY	0.114	6.370	4.772
2Y	0.114	6.370	4.772
3X	0.188	7.361	5.736
3XY	0.188	7.361	5.736
3Y	0.188	7.361	5.736
4X	0.0872	4.625	4.625
4XY	0.0872	4.625	4.625
4Y	0.0872	4.625	4.625
5X	0.108	6.093	5.083
5XY	0.108	6.093	5.083
5Y	0.108	6.093	5.083
6X	0.236	8.830	6.528
6XY	0.231	8.517	6.371
6Y	0.231	8.517	6.371
7X	0.121	4.625	4.625
7XY	0.121	4.625	4.625
7Y	0.121	4.625	4.625
8X	0.141	5.798	5.025
8XY	0.141	5.798	5.025
8Y	0.141	5.798	5.025
9X	0.274	9.340	7.559
9XY	0.269	9.027	7.402
9Y	0.269	9.027	7.402
10X	0.192	7.840	7.840
10XY	0.192	7.840	7.840
10Y	0.192	7.840	7.840
18X	0.133	5.614	1.784
19X	0.136	5.229	2.059
20X	0.174	6.860	2.174
21X	0.136	5.228	2.058
11S	0.178	6.814	6.814
12S	0.175	7.078	7.078
13S	0.289	11.265	11.265
14S	0.36	13.325	13.325
15S	0.225	7.638	7.638
16S	0.171	9.660	7.137
17S	0.171	7.137	9.660
22S	0.0198	0.875	1.000

23S	0.0207	1.000	1.000
24S	0.0225	1.000	1.125
25S	0.0225	1.000	1.125
17SF0.50S	0.0238	1.270	1.083
1PF94S	0.013	0.805	0.637
35S	0.0215	1.378	0.828
11X	0.178	6.814	6.814
11XY	0.178	6.814	6.814
11Y	0.178	6.814	6.814
12X	0.175	7.078	7.078
12XY	0.175	7.078	7.078
12Y	0.175	7.078	7.078
13X	0.289	11.265	11.265
13XY	0.289	11.265	11.265
13Y	0.289	11.265	11.265
14X	0.36	13.325	13.325
14XY	0.36	13.325	13.325
14Y	0.36	13.325	13.325
15X	0.225	7.638	7.638
15XY	0.225	7.638	7.638
15Y	0.225	7.638	7.638
16Y	0.171	9.660	7.137
17X	0.171	7.137	9.660
17SF0.50X	0.0238	1.270	1.083
17SF0.50XY	0.0276	1.270	1.458
17SF0.50Y	0.0276	1.270	1.458
1PF94X	0.013	0.805	0.637
Total	18.6	646.664	574.119

Unadjusted Dead Load and Drag Areas by Section:

Section Label	Unfactored Dead Load (kips)	X-Drag Area All (ft^2)	Y-Drag Area All (ft^2)	X-Drag Area Face (ft^2)	Y-Drag Area Face (ft^2)
1	8.874	316.366	243.821	113.806	119.733
2	9.700	330.298	330.298	100.603	161.166
Total	18.574	646.664	574.119	214.409	280.899

Angle Member Weights and Surface Areas by Section:

Section Label	Unfactored Weight (kips)	Factored Weight (kips)	Unfactored Surface Area (ft^2)	Factored Surface Area (ft^2)
1	8.874	8.874	1323.364	1323.364
2	9.700	10.670	1416.744	1558.419
Total	18.574	19.544	2740.108	2881.783

Section Joint Information:

Section Label	Joint Label	Joint Elevation (ft)
1	1P	95.000
1	1PF94S	94.000
1	1X	95.000
1	1PF94X	94.000

1	2P	89.670
1	2X	89.670
1	3P	85.000
1	3X	85.000
1	2XY	89.670
1	3XY	85.000
1	2Y	89.670
1	3Y	85.000
1	4P	80.330
1	4X	80.330
1	4XY	80.330
1	4Y	80.330
1	5P	75.660
1	5X	75.660
1	5XY	75.660
1	5Y	75.660
1	6P	71.000
1	6X	71.000
1	6XY	71.000
1	6Y	71.000
1	7P	66.330
1	7X	66.330
1	7XY	66.330
1	7Y	66.330
1	8P	61.660
1	8X	61.660
1	8XY	61.660
1	8Y	61.660
1	9P	57.000
1	9X	57.000
1	9XY	57.000
1	9Y	57.000
1	22S	89.670
1	23S	85.000
1	24S	71.000
1	25S	57.000
1	18X	95.000
1	18P	95.000
1	19X	85.000
1	19P	85.000
1	20X	71.000
1	20P	71.000
1	21X	57.000
1	21P	57.000
1	31P	57.000
1	30P	71.000
1	29P	85.000
1	28P	89.670
1	27P	109.500
1	35S	94.000
2	9P	57.000
2	11S	50.500
2	9X	57.000
2	11X	50.500
2	9XY	57.000
2	11XY	50.500
2	9Y	57.000
2	11Y	50.500
2	12S	44.000

2	12X	44.000
2	12XY	44.000
2	12Y	44.000
2	13S	37.500
2	13X	37.500
2	13XY	37.500
2	13Y	37.500
2	14S	26.250
2	14X	26.250
2	14XY	26.250
2	14Y	26.250
2	15S	15.000
2	15X	15.000
2	15XY	15.000
2	15Y	15.000
2	10P	0.000
2	10X	0.000
2	10XY	0.000
2	10Y	0.000
2	16S	15.000
2	16Y	15.000
2	17X	15.000
2	17S	15.000
2	17SF0.50S	15.000
2	17SF0.50X	15.000
2	17SF0.50XY	15.000
2	17SF0.50Y	15.000
2	33P	0.000
2	32P	15.000
2	31P	57.000

Sections Information:

Section Label	Top Z (ft)	Bottom Z (ft)	Joint Count	Member Count	Tran. Face Top Width (ft)	Tran. Face Bot Width (ft)	Tran. Face Gross Area (ft^2)	Long. Face Top Width (ft)	Long. Face Bot Width (ft)	Long. Face Gross Area (ft^2)
1	109.500	57.000	54	176	0.00	6.00	215.258	0.00	24.00	637.105
2	57.000	0.000	39	108	6.00	17.92	681.720	6.00	17.92	681.720

*** Insulator Data

Clamp Properties:

Label	Stock Number	Holding Capacity (lbs)
C-EX1		5e+004

Clamp Insulator Connectivity:

Clamp Label	Structure And Tip Attach	Property Set	Min. Required Vertical Load (uplift) (lbs)
1	18P	C-EX1	No Limit
2	18X	C-EX1	No Limit

3	19P	C-EX1	No Limit
4	19X	C-EX1	No Limit
5	20P	C-EX1	No Limit
6	20X	C-EX1	No Limit
7	21P	C-EX1	No Limit
8	21X	C-EX1	No Limit
9	27P	C-EX1	No Limit
10	28P	C-EX1	No Limit
11	29P	C-EX1	No Limit
12	30P	C-EX1	No Limit
13	31P	C-EX1	No Limit
14	32P	C-EX1	No Limit
15	2Y	C-EX1	No Limit
16	4Y	C-EX1	No Limit
17	6Y	C-EX1	No Limit
18	8Y	C-EX1	No Limit
19	11Y	C-EX1	No Limit
20	13Y	C-EX1	No Limit
21	15Y	C-EX1	No Limit

*** Loads Data

Loads from file: j:\jobs\1204700.wi\co8 - ct33xc516\rev (1)\calcs\pls tower\cl&p # 1522.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)	109.50	(ft)	
Structure height	109.50	(ft)	
Structure height above ground	109.50	(ft)	
Tower Shape	Rectangular		

Vector Load Cases:

Load Case Description	Dead Load Factor	Wind Area Factor	SF for Steel Tubular Poles Arms and Towers	SF for Guys and Cables	SF for Insuls.	SF For Found.	Point Loads	Wind/Ice Model	Trans. Wind Pressure (psf)	Longit. Wind Pressure (psf)	Ice Thick. (in)	Ice Density (lbs/ft^3)	Temperature (deg F)	Joint Displ.
NESC Heavy	1.5000	2.5000	1.00000	1.0000	1.0000	1.0000	23 loads	Wind on Face	4	0	0.000	0.000	0.0	
NESC Extreme	1.0000	1.0000	1.00000	1.0000	1.0000	1.0000	23 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)	Load Comment
18P	2631	614	0	Shield Wire
18X	2631	614	0	Shield Wire
19P	9837	1110	0	Conductor
19X	9837	1110	0	Conductor
20P	9837	1110	0	Conductor
20X	9837	1110	0	Conductor
21P	9837	1110	0	Conductor
21X	9837	1110	0	Conductor
27P	7196	574	0	Sprint Antennas
27P	94	0	0	Coax Cables in Powermount
28P	117	0	0	Coax Cables in Powermount
29P	89	0	0	Coax Cables in Powermount
30P	131	0	0	Coax Cables in Powermount
31P	262	0	0	Coax Cables in Powermount
32P	337	0	0	Coax Cables in Powermount
27P	460	172	0	Coax Cables on Tower
2Y	690	258	0	Coax Cables on Tower
4Y	437	163	0	Coax Cables on Tower
6Y	437	163	0	Coax Cables on Tower
8Y	460	172	0	Coax Cables on Tower
11Y	552	206	0	Coax Cables on Tower
13Y	816	305	0	Coax Cables on Tower

15Y	1207	451	0	Coax Cables on Tower

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

Section Label	Z of Top (ft)	Z of Bottom (ft)	Ave. Elev. Above Ground (ft)	Res. Adj. Wind Pres. (psf)	Tran Adj. Wind Pres. (psf)	Tran Drag Coef	Tran Wind Load (lbs)	Long Adj. Wind Pres. (psf)	Long Drag Coef	Long Wind Load (lbs)	Ice Weight (lbs)	Total Weight (lbs)
1	109.50	57.00	83.25	10.00	10.00	3.200	3831.4	0.00	3.200	0.0	0	13311
2	57.00	0.00	28.50	10.00	10.00	3.300	5318.5	0.00	3.300	0.0	0	16005

Point Loads for Load Case "NESC Extreme":

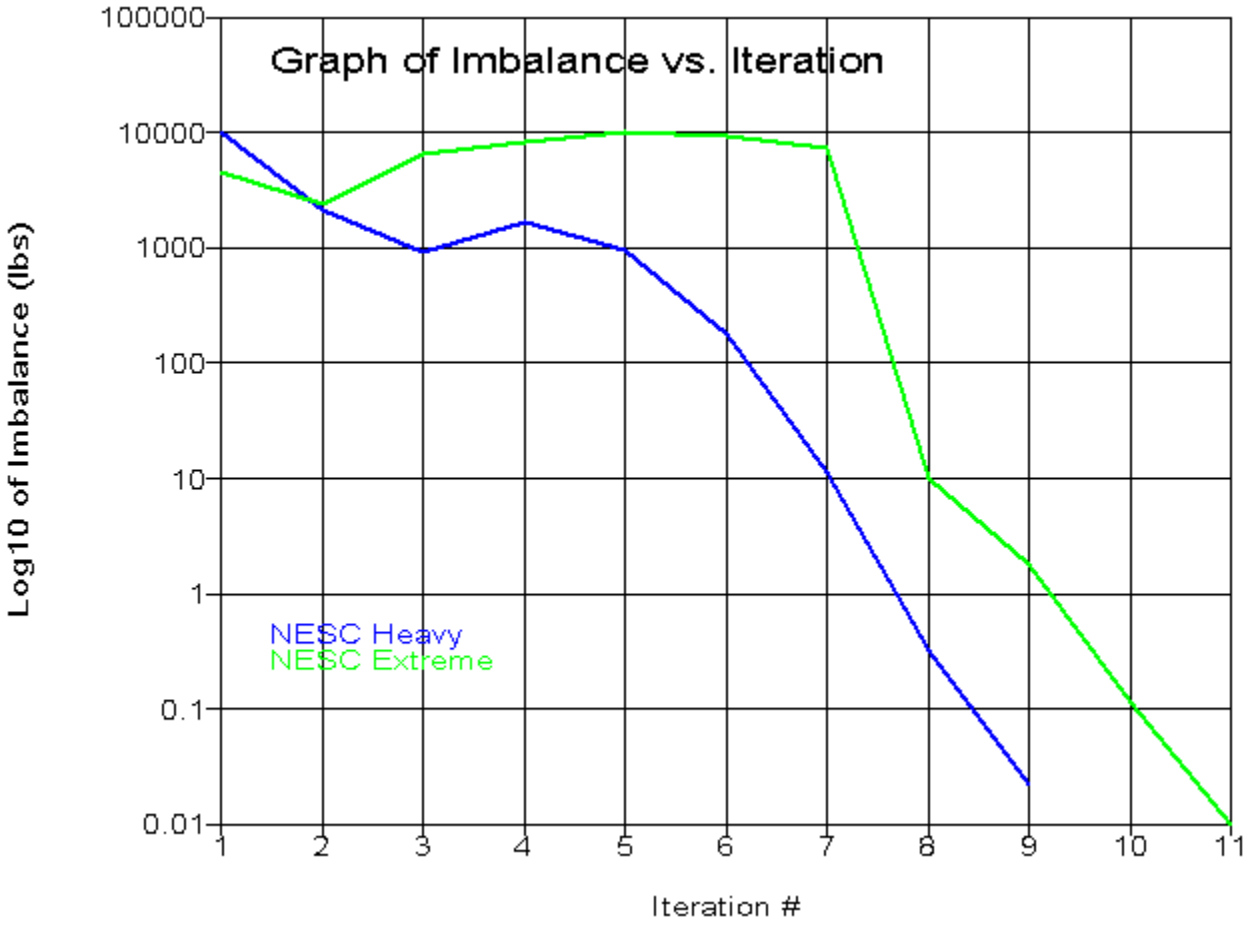
Joint Label	Vertical Load (lbs)	Transverse Load (lbs)	Longitudinal Load (lbs)	Load Comment
18P	650	393	0	Shield Wire
18X	650	393	0	Shield Wire
19P	4446	1534	0	Conductor
19X	4446	1534	0	Conductor
20P	4446	1534	0	Conductor
20X	4446	1534	0	Conductor
21P	4446	1534	0	Conductor
21X	4446	1534	0	Conductor
27P	3453	2124	0	Sprint Antennas
27P	62	0	0	Coax Cables in Powermount
28P	78	0	0	Coax Cables in Powermount
29P	59	0	0	Coax Cables in Powermount
30P	87	0	0	Coax Cables in Powermount
31P	175	0	0	Coax Cables in Powermount
32P	225	0	0	Coax Cables in Powermount
27P	125	546	0	Coax Cables on Tower
2Y	187	820	0	Coax Cables on Tower
4Y	119	519	0	Coax Cables on Tower
6Y	119	519	0	Coax Cables on Tower
8Y	125	546	0	Coax Cables on Tower
11Y	150	656	0	Coax Cables on Tower
13Y	222	970	0	Coax Cables on Tower
15Y	328	1435	0	Coax Cables on Tower

Section Load Case Information (Code) for "NESC Extreme":

Section Label	Z of Top (ft)	Z of Bottom (ft)	Ave. Elev. Above Ground (ft)	Res. Adj. Wind Pres. (psf)	Tran Adj. Wind Pres. (psf)	Tran Angle Face Area (ft^2)	Tran Round Face Area (ft^2)	Tran Gross Area (ft^2)	Tran Soli-dity Ratio	Tran Angle Drag Coef	Tran Round Drag Coef	Tran Wind Load (lbs)	Long Adj. Wind Pres. (psf)	Long Angle Face Area (ft^2)	Long Round Face Area (ft^2)	Long Gross Area (ft^2)	Long Soli-dity Ratio	Long Angle Drag Coef	Long Round Drag Coef	Long Wind Load (lbs)	Ice Weight (lbs)	Total Weight (lbs)
1	109.50	57.00	83.25	31.70	31.70	63.95	55.78	215.26	0.556	3.200	2.000	10023.5	0.00	113.81	0.00	637.11	0.179	3.200	2.000	0.0	0	8874
2	57.00	0.00	28.50	31.70	31.70	100.60	60.56	681.72	0.236	3.200	2.000	14044.4	0.00	100.60	0.00	681.72	0.148	3.200	2.000	0.0	0	10670

*** Analysis Results:

Maximum element usage is 89.99% for Angle "g41P" in load case "NESC Heavy"
Maximum insulator usage is 20.33% for Clamp "6" 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 LC %	Max. Tens. For All LC (kips)	Max. Comp. For All LC (kips)	LC 1 (kips)	LC 2 (kips)
Leg1	g1P	0.44	0.000	-0.138	-0.138	-0.041
Leg1	g1X	0.22	0.000	-0.071	-0.071	-0.050
Leg1	Fg190P	1.05	0.000	-0.186	-0.170	-0.186
Leg1	Fg190X	1.11	0.000	-0.195	-0.089	-0.195

Leg2	g2P	12.13	0.000	-7.100	-7.100	-5.345
Leg2	g2X	7.46	0.160	-4.365	-4.365	0.160
Leg2	g2XY	7.15	0.620	-4.182	-4.182	0.620
Leg2	g2Y	14.33	0.000	-8.388	-8.388	-6.283
Leg2	g3P	17.69	0.000	-10.350	-9.583	-10.350
Leg2	g3X	8.97	5.055	-1.879	-1.879	5.055
Leg2	g3XY	8.22	4.634	-2.282	-2.282	4.634
Leg2	g3Y	18.08	0.000	-10.578	-10.322	-10.578
Leg2	g4P	32.00	0.000	-18.729	-15.353	-18.729
Leg2	g4X	20.07	11.308	-0.328	-0.328	11.308
Leg2	g4XY	18.32	10.322	-1.132	-1.132	10.322
Leg2	g4Y	31.60	0.000	-18.494	-16.087	-18.494
Leg2	g5P	44.25	0.000	-25.916	-21.748	-25.916
Leg2	g5X	26.70	15.044	-1.346	-1.346	15.044
Leg2	g5XY	24.92	14.038	-2.264	-2.264	14.038
Leg2	g5Y	43.42	0.000	-25.428	-22.121	-25.428
Leg3	g6P	31.86	0.000	-31.882	-24.646	-31.882
Leg3	g6X	22.57	21.563	0.000	2.371	21.563
Leg3	g6XY	21.47	20.509	0.000	1.132	20.509
Leg3	g6Y	31.95	0.000	-31.967	-25.620	-31.967
Leg3	g7P	41.44	0.000	-41.470	-31.541	-41.470
Leg3	g7X	30.42	29.058	0.000	4.891	29.058
Leg3	g7XY	29.61	28.287	0.000	3.689	28.287
Leg3	g7Y	42.15	0.000	-42.174	-32.583	-42.174
Leg3	g8P	47.80	0.000	-47.874	-37.654	-47.874
Leg3	g8X	33.86	32.347	0.000	4.226	32.347
Leg3	g8XY	33.50	32.009	0.000	3.281	32.009
Leg3	g8Y	49.12	0.000	-49.193	-39.061	-49.193
Leg4	g9P	35.75	0.000	-53.845	-40.836	-53.845
Leg4	g9X	23.92	37.946	0.000	7.237	37.946
Leg4	g9XY	23.37	37.072	0.000	5.940	37.072
Leg4	g9Y	36.75	0.000	-55.357	-42.224	-55.357
Leg4	g10P	40.86	0.000	-61.554	-46.549	-61.554
Leg4	g10X	27.10	42.982	0.000	8.158	42.982
Leg4	g10XY	26.43	41.932	0.000	6.702	41.932
Leg4	g10Y	41.32	0.000	-62.240	-47.897	-62.240
Leg4	g11P	43.29	0.000	-63.034	-46.498	-63.034
Leg4	g11X	30.77	44.798	0.000	9.582	44.798
Leg4	g11XY	30.11	43.843	0.000	8.155	43.843
Leg4	g11Y	43.46	0.000	-63.274	-47.340	-63.274
Leg5	g12P	38.35	0.000	-62.959	-45.527	-62.959
Leg5	g12X	28.64	46.323	0.000	11.105	46.323
Leg5	g12XY	28.49	46.079	0.000	9.744	46.079
Leg5	g12Y	38.28	0.000	-62.838	-46.784	-62.838
Leg5	g13P	43.49	0.000	-71.397	-42.295	-71.397
Leg5	g13X	28.31	47.988	0.000	12.629	47.988
Leg5	g13XY	22.88	38.785	0.000	11.580	38.785
Leg5	g13Y	49.25	0.000	-80.856	-42.901	-80.856
Leg6	g14P	42.37	0.000	-71.759	-42.675	-71.759
Leg6	g14X	28.10	47.633	0.000	12.241	47.633
Leg6	g14XY	22.69	38.448	0.000	11.187	38.448
Leg6	g14Y	48.15	0.000	-81.552	-44.507	-81.552
Diag1	g15P	8.26	0.085	-0.719	0.085	-0.719
Diag1	g15X	10.32	1.602	0.000	1.602	1.512
Diag1	g16P	33.72	0.000	-3.543	-1.786	-3.543
Diag1	g16X	29.59	3.654	0.000	1.693	3.654
Diag1	g16XY	24.27	2.996	0.000	1.193	2.996
Diag1	g16Y	26.50	0.000	-2.785	-1.314	-2.785
Diag1	g17P	12.25	0.000	-0.957	-0.957	-0.500

Diag1	g17X	12.34	0.000	-0.964	-0.964	-0.467
Diag1	g17XY	12.76	0.000	-0.997	-0.997	-0.563
Diag1	g17Y	12.95	0.000	-1.012	-1.012	-0.401
Diag2	g18P	14.82	4.045	-0.187	-0.187	4.045
Diag2	g18X	24.20	0.000	-6.607	-5.515	-6.607
Diag2	g18XY	19.65	0.000	-5.270	-4.852	-5.270
Diag2	g18Y	11.20	3.057	-0.732	-0.732	3.057
Diag2	g19P	3.49	0.954	0.000	0.954	0.086
Diag2	g19X	5.44	1.484	0.000	1.484	1.041
Diag2	g19XY	6.18	1.687	0.000	1.687	1.553
Diag2	g19Y	2.72	0.743	-0.456	0.743	-0.456
Diag2	g20P	25.26	6.895	0.000	5.570	6.895
Diag2	g20X	15.69	0.079	-4.283	0.079	-4.283
Diag2	g20XY	12.11	0.610	-3.307	0.610	-3.307
Diag2	g20Y	22.68	6.191	0.000	5.097	6.191
Diag2	g21P	3.01	0.516	-0.742	-0.742	0.516
Diag2	g21X	7.05	0.000	-1.741	-1.741	-1.611
Diag2	g21XY	6.15	0.000	-1.519	-1.519	-1.079
Diag2	g21Y	3.85	0.000	-0.950	-0.950	-0.043
Diag2	g22P	24.43	6.438	0.000	4.636	6.438
Diag2	g22X	15.87	0.000	-4.734	-0.784	-4.734
Diag2	g22XY	14.29	0.000	-4.262	-0.560	-4.262
Diag2	g22Y	22.14	5.834	0.000	4.160	5.834
Diag2	g23P	13.15	0.000	-3.249	-3.249	-2.351
Diag2	g23X	8.95	0.000	-2.210	-2.210	-0.146
Diag2	g23XY	9.73	0.000	-2.402	-2.402	-0.609
Diag2	g23Y	12.55	0.000	-3.100	-3.100	-1.905
Diag3	g24P	14.30	3.904	0.000	0.069	3.904
Diag3	g24X	24.38	0.000	-6.655	-6.056	-6.655
Diag3	g24XY	25.76	0.000	-7.032	-5.989	-7.032
Diag3	g24Y	15.58	4.252	-0.025	-0.025	4.252
Diag3	g25P	3.63	0.443	-0.992	0.443	-0.992
Diag3	g25X	7.65	2.090	0.000	2.090	2.006
Diag3	g25XY	7.62	2.081	0.000	1.915	2.081
Diag3	g25Y	3.37	0.510	-0.920	0.510	-0.920
Diag3	g26P	24.96	6.813	0.000	5.915	6.813
Diag3	g26X	15.63	0.000	-4.268	-0.382	-4.268
Diag3	g26XY	16.76	0.000	-4.575	-0.238	-4.575
Diag3	g26Y	26.57	7.253	0.000	5.900	7.253
Diag3	g27P	3.49	0.952	-0.531	-0.531	0.952
Diag3	g27X	8.12	0.000	-2.218	-2.034	-2.218
Diag3	g27XY	7.89	0.000	-2.155	-2.155	-2.099
Diag3	g27Y	3.93	1.073	-0.407	-0.407	1.073
Diag4	g28P	18.11	6.364	0.000	4.432	6.364
Diag4	g28X	14.25	0.000	-5.188	-1.943	-5.188
Diag4	g28XY	15.70	0.000	-5.716	-2.089	-5.716
Diag4	g28Y	19.25	6.763	0.000	4.253	6.763
Diag4	g29P	11.25	0.000	-3.653	-3.653	-3.128
Diag4	g29X	5.04	0.596	-1.635	-1.635	0.596
Diag4	g29XY	5.52	0.623	-1.794	-1.794	0.623
Diag4	g29Y	10.89	0.000	-3.537	-3.537	-2.935
Diag4	g30P	7.75	2.116	0.000	0.141	2.116
Diag4	g30X	13.09	0.000	-3.573	-3.168	-3.573
Diag4	g30XY	10.63	0.000	-2.902	-2.682	-2.902
Diag4	g30Y	7.63	2.084	-0.284	-0.284	2.084
Diag4	g31P	7.89	0.000	-2.155	-1.540	-2.155
Diag4	g31X	7.42	2.025	0.000	0.968	2.025
Diag4	g31XY	7.81	2.131	0.000	0.656	2.131
Diag4	g31Y	9.88	0.000	-2.697	-1.628	-2.697

Diag5	g32P	10.72	2.916	0.000	2.059	2.916
Diag5	g32X	10.51	0.000	-2.246	-0.656	-2.246
Diag5	g32XY	10.42	0.000	-2.228	-0.310	-2.228
Diag5	g32Y	11.49	3.123	0.000	1.872	3.123
Diag5	g33P	6.60	1.795	0.000	1.106	1.795
Diag5	g33X	7.36	0.000	-1.410	-0.405	-1.410
Diag5	g33XY	6.79	0.000	-1.300	-0.618	-1.300
Diag5	g33Y	5.12	1.392	0.000	0.992	1.392
Diag5	g34P	9.05	2.164	0.000	0.572	2.164
Diag5	g34X	13.30	0.000	-2.755	-1.780	-2.755
Diag5	g34XY	13.96	0.000	-2.891	-1.626	-2.891
Diag5	g34Y	9.33	2.232	0.000	0.300	2.232
Diag5	g35P	5.88	0.000	-0.990	-0.779	-0.990
Diag5	g35X	3.66	0.876	0.000	0.390	0.876
Diag5	g35XY	4.01	0.959	0.000	0.212	0.959
Diag5	g35Y	8.12	0.000	-1.366	-0.881	-1.366
Diag6	g36P	44.15	0.000	-3.713	-2.969	-3.713
Diag6	g36X	7.03	2.282	-0.255	-0.255	2.282
Diag6	g36XY	6.32	2.054	-0.414	-0.414	2.054
Diag6	g36Y	58.85	0.000	-4.949	-2.975	-4.949
Diag6	g37P	72.64	0.000	-6.109	-3.929	-6.109
Diag6	g37X	11.36	3.689	0.000	0.783	3.689
Diag6	g37XY	12.05	3.915	0.000	0.620	3.915
Diag6	g37Y	77.35	0.000	-6.505	-4.139	-6.505
Diag7	g38P	56.62	0.000	-6.181	-4.791	-6.181
Diag7	g38X	12.11	1.355	-1.322	-1.322	1.355
Diag7	g38XY	34.55	12.566	-1.648	-1.648	12.566
Diag7	g38Y	45.38	3.379	-4.954	-4.954	3.379
Diag7	g39P	80.48	0.000	-8.786	-8.786	-0.352
Diag7	g39X	24.75	9.000	0.000	2.679	9.000
Diag7	g39XY	25.36	9.222	0.000	2.491	9.222
Diag7	g39Y	82.74	0.000	-9.033	-9.033	-1.388
Diag7	g40P	6.36	2.180	-0.673	-0.673	2.180
Diag7	g40X	70.60	0.000	-7.460	-5.893	-7.460
Diag7	g40XY	58.84	0.000	-6.217	-6.217	0.000
Diag7	g40Y	45.18	15.874	-0.858	-0.858	15.874
Diag7	g41P	89.99	0.000	-9.509	-9.509	0.000
Diag7	g41X	25.76	9.051	0.000	2.340	9.051
Diag7	g41XY	26.05	9.155	0.000	2.593	9.155
Diag7	g41Y	85.11	0.000	-8.994	-8.994	-2.144
Horz1	g42P	23.56	0.081	-1.699	-1.699	0.081
Horz1	g42X	43.25	0.000	-3.120	-3.120	-2.575
Horz2	g43P	11.23	3.066	0.000	3.066	1.704
Horz2	g43X	10.46	2.856	0.000	2.856	1.032
Horz2	g44P	18.78	5.128	0.000	5.128	3.152
Horz2	g44X	14.10	3.848	0.000	3.848	0.926
Horz2	g45P	11.57	3.158	0.000	3.158	0.432
Horz2	g45X	16.43	4.485	0.000	4.485	2.999
Horz3	g46P	34.99	4.901	0.000	4.901	2.607
Horz3	g46Y	36.54	5.117	0.000	5.117	2.988
Horz4	g47P	73.18	8.398	0.000	8.398	3.847
Horz4	g47Y	73.49	8.433	0.000	8.433	3.796
Horz4	g48P	54.36	6.237	0.000	6.237	2.881
Horz4	g48Y	55.09	6.322	0.000	6.322	3.053
Horz5	g49P	6.55	1.028	0.000	1.028	0.366
Horz5	g49Y	8.85	1.389	0.000	1.244	1.389
Horz5	g50P	34.31	5.384	0.000	3.220	5.384
Horz5	g50X	21.99	0.000	-4.003	-1.265	-4.003
Horz6	g51P	9.24	2.522	0.000	2.522	1.771

Horz6	g51Y	14.15	2.714	-3.681	2.714	-3.681
Horz6	g52P	27.74	7.572	0.000	7.572	4.450
Horz6	g52X	29.34	0.000	-7.633	-1.989	-7.633
Horz7	g53P	6.05	0.000	-0.573	-0.240	-0.573
Horz7	g53X	3.69	0.580	0.000	0.580	0.197
Horz7	g53XY	13.67	2.145	0.000	0.634	2.145
Horz7	g53Y	3.53	0.000	-0.334	-0.334	-0.007
Horz7	g54P	3.69	0.580	-0.335	0.580	-0.335
Horz7	g54X	0.75	0.050	-0.071	0.050	-0.071
Horz7	g54XY	1.06	0.167	-0.043	-0.043	0.167
Horz7	g54Y	4.47	0.702	0.000	0.189	0.702
Inner1	g55P	12.01	0.000	-0.711	-0.133	-0.711
Inner1	g55X	7.21	0.950	0.000	0.407	0.950
Inner1	g55XY	7.39	0.973	-0.243	0.973	-0.243
Inner1	g55Y	13.11	1.726	0.000	1.562	1.726
Inner2	g56P	1.23	0.000	-0.105	-0.105	-0.098
Inner2	g56X	0.66	0.093	0.000	0.081	0.093
Inner2	g56XY	2.70	0.000	-0.230	-0.105	-0.230
Inner2	g56Y	1.60	0.224	0.000	0.082	0.224
Inner2	g57P	8.98	1.258	0.000	0.488	1.258
Inner2	g57X	11.46	0.000	-0.978	-0.037	-0.978
Inner2	g57XY	7.04	0.987	0.000	0.096	0.987
Inner2	g57Y	13.98	0.000	-1.192	-0.463	-1.192
Inner2	g58P	2.23	0.000	-0.190	-0.147	-0.190
Inner2	g58X	2.76	0.386	0.000	0.386	0.132
Inner2	g58XY	7.53	0.000	-0.642	-0.642	-0.385
Inner2	g58Y	1.07	0.150	-0.072	-0.072	0.150
Inner1	g59P	7.97	0.659	0.000	0.659	0.562
Inner1	g59X	7.88	0.651	0.000	0.651	0.410
Inner1	g60P	8.04	0.016	-0.262	-0.262	0.016
Inner1	g60X	6.08	0.000	-0.198	-0.198	-0.156
Inner1	g60XY	7.77	0.643	0.000	0.153	0.643
Inner1	g60Y	16.93	0.000	-0.551	-0.182	-0.551
Inner1	Fg6072P	4.92	0.000	-0.160	-0.160	-0.149
Inner1	Fg6072X	1.18	0.098	0.000	0.094	0.098
Inner1	Fg6072XY	9.61	0.794	0.000	0.099	0.794
Inner1	Fg6072Y	26.50	0.000	-0.862	-0.157	-0.862
ShieldAr	g61P	29.75	5.414	0.000	5.414	1.164
ShieldAr	g61X	36.93	6.722	0.000	6.722	2.328
ShieldAr	g62P	29.78	5.421	0.000	5.421	1.432
TopCrArm	g63P	59.30	0.000	-10.792	-10.792	-5.831
TopCrArm	g63X	51.19	0.000	-9.316	-9.316	-3.381
TopCrArm	g63XY	52.06	0.000	-9.475	-9.475	-3.878
TopCrArm	g63Y	57.96	0.000	-10.548	-10.548	-5.245
TopCArmA	g64P	40.87	0.000	-7.438	-7.438	-3.491
TopCArmA	g64Y	40.22	0.000	-7.319	-7.319	-3.539
MidCrArm	g65P	73.61	0.000	-13.397	-13.397	-6.840
MidCrArm	g65X	65.95	0.000	-12.004	-12.004	-4.680
MidCrArm	g65XY	66.49	0.000	-12.102	-12.102	-4.961
MidCrArm	g65Y	72.77	0.000	-13.245	-13.245	-6.615
MidCArmA	g66P	59.87	0.000	-10.896	-10.896	-4.973
MidCArmA	g66Y	60.58	0.000	-11.025	-11.025	-4.743
BotCrArm	g67P	58.66	0.000	-10.676	-10.676	-5.495
BotCrArm	g67X	51.73	0.000	-9.414	-9.414	-3.728
BotCrArm	g67XY	51.22	0.000	-9.322	-9.322	-3.474
BotCrArm	g67Y	58.59	0.000	-10.664	-10.664	-5.647
BotCArmA	g68P	57.59	0.000	-10.482	-10.482	-4.666
BotCArmA	g68Y	59.41	0.000	-10.813	-10.813	-5.253
ShArmBr	g69P	18.97	0.000	-3.453	-3.453	-0.989

ShArmBr	g69X	18.96	0.000	-3.451	-3.451	-0.990
ShArmBr	g69XY	18.98	0.000	-3.454	-3.454	-0.985
ShArmBr	g69Y	18.96	0.000	-3.451	-3.451	-0.992
TopArmBr	g70P	72.95	11.330	0.000	11.330	5.481
TopArmBr	g70X	71.28	11.071	0.000	11.071	4.807
TopArmBr	g70XY	72.39	11.244	0.000	11.244	5.350
TopArmBr	g70Y	71.14	11.050	0.000	11.050	4.806
MidArmBr	g71P	83.44	13.729	0.000	13.729	6.382
MidArmBr	g71X	82.32	13.544	0.000	13.544	6.016
MidArmBr	g71XY	82.94	13.647	0.000	13.647	6.289
MidArmBr	g71Y	82.47	13.568	0.000	13.568	6.133
BotArmBr	g72P	72.10	11.199	0.000	11.199	5.106
BotArmBr	g72X	71.87	11.162	0.000	11.162	5.186
BotArmBr	g72XY	71.25	11.066	0.000	11.066	4.888
BotArmBr	g72Y	72.02	11.186	0.000	11.186	5.265
Pwmnt	g74P	2.96	0.000	-18.669	-18.669	-7.919
Pwmnt	g75P	5.36	0.000	-15.834	-15.834	-6.788
Pwmnt	g76P	2.02	0.000	-12.826	-12.826	-5.670
Pwmnt	g77P	1.74	0.000	-11.044	-11.044	-4.878
Pwmnt	g78P	1.52	0.000	-10.265	-10.265	-4.675
Pwmnt	g79P	1.43	0.000	-8.478	-8.478	-3.745
PMBR1	g80P	15.66	1.597	0.000	1.597	0.880
PMBR1	g82P	5.67	0.000	-0.578	-0.578	-0.343
PMBR1	g83P	6.60	0.000	-0.673	-0.673	-0.124
PMBR2	g84P	46.47	4.738	0.000	3.513	4.738
PMBR2	g84X	27.01	0.063	-2.754	0.063	-2.754
PMBR2	g86P	27.28	0.000	-2.781	-1.401	-2.781
PMBR2	g86X	22.44	2.288	0.000	0.018	2.288
PMBR2	g87P	7.11	0.725	0.000	0.084	0.725
PMBR2	g87X	15.95	0.000	-1.626	-1.585	-1.626
PMBR3	g88P	2.64	0.000	-0.269	-0.151	-0.269
PMBR3	g88X	8.82	0.427	-0.899	-0.899	0.427
PMBR3	g89P	5.38	0.008	-0.549	0.008	-0.549
PMBR3	g89X	6.04	0.000	-0.616	-0.478	-0.616
Leg1	g90P	10.99	0.000	-1.291	-1.261	-1.291
Leg1	g90X	1.58	0.322	-0.186	-0.186	0.322
Diag8	g92P	4.29	0.437	0.000	0.248	0.437
Diag8	g92X	9.16	0.000	-0.596	-0.263	-0.596
Diag9	g93P	1.20	0.000	-0.122	-0.053	-0.122
Diag9	g93X	2.21	0.225	0.000	0.211	0.225
Inner3	g94P	4.75	0.000	-0.132	-0.132	-0.003
Inner3	g94X	30.76	0.184	-0.854	-0.854	0.184
Inner3	g94XY	30.86	0.000	-0.856	-0.472	-0.856
Inner3	g94Y	10.38	0.006	-0.288	0.006	-0.288

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	3.78	0.98	116.67	10.27	94.55	9.80	184.06
NESC Heavy	g1X	0.36	5.47	72.63	5.70	0.22	9.74	63.49
NESC Heavy	Fg190P	-8.88	-10.67	-63.91	-28.45	-70.10	-7.86	-26.98
NESC Heavy	Fg190X	12.17	-5.32	8.01	-32.48	45.39	-7.60	10.75
NESC Heavy	g2P	23.83	266.96	-129.96	220.02	65.04	104.29	-13.91
NESC Heavy	g2X	-26.00	-500.40	-292.33	-429.02	-13.40	-199.03	-65.50
NESC Heavy	g2XY	6.73	-47.26	67.55	-234.04	-49.24	-60.24	3.92

NESC Heavy	g2Y	-7.49	30.28	44.19	143.56	-81.58	37.23	-8.01
NESC Heavy	g3P	4.27	129.46	113.41	-115.51	-30.58	2.99	17.74
NESC Heavy	g3X	-1.37	-176.04	143.00	55.88	-64.36	-25.73	16.84
NESC Heavy	g3XY	1.06	-217.27	-82.50	45.58	73.56	-36.77	-1.91
NESC Heavy	g3Y	1.06	181.47	-86.52	-100.74	29.87	17.29	-12.13
NESC Heavy	g4P	4.26	115.50	30.58	139.57	48.87	54.63	17.01
NESC Heavy	g4X	-1.36	-55.88	64.36	-185.06	145.52	-51.59	44.94
NESC Heavy	g4XY	1.06	-45.58	-73.56	-196.42	-136.45	-51.82	-44.97
NESC Heavy	g4Y	1.07	100.74	-29.87	151.32	-35.01	53.99	-13.90
NESC Heavy	g5P	4.26	-139.58	-48.86	16.76	-22.39	-26.37	-15.30
NESC Heavy	g5X	-1.43	185.06	-145.52	-163.53	-124.07	4.62	-57.85
NESC Heavy	g5XY	1.10	196.42	136.45	-90.30	60.89	22.77	42.35
NESC Heavy	g5Y	1.08	-151.32	35.01	-40.11	-47.98	-41.10	-2.78
NESC Heavy	g6P	-4.89	612.98	-20.64	-22.66	-46.06	126.44	-14.29
NESC Heavy	g6X	7.80	-623.34	37.14	-115.81	-115.48	-158.27	-16.77
NESC Heavy	g6XY	-5.07	-521.33	-138.63	-88.66	79.69	-130.62	-12.62
NESC Heavy	g6Y	9.15	507.98	-90.61	-50.11	9.07	98.07	-17.47
NESC Heavy	g7P	-4.87	22.65	46.06	111.78	-24.49	28.80	4.62
NESC Heavy	g7X	7.79	115.81	115.48	-221.47	238.70	-22.62	75.84
NESC Heavy	g7XY	-5.06	88.66	-79.69	-246.94	-217.34	-33.89	-63.60
NESC Heavy	g7Y	9.16	50.10	-9.07	140.13	45.72	40.75	7.85
NESC Heavy	g8P	-4.88	-111.78	24.49	-83.91	173.08	-42.01	42.41
NESC Heavy	g8X	7.67	221.46	-238.71	-197.36	-244.79	5.17	-103.75
NESC Heavy	g8XY	-4.98	246.94	217.35	-118.69	170.05	27.52	83.13
NESC Heavy	g8Y	9.17	-140.14	-45.72	-168.05	-249.02	-66.17	-63.27
NESC Heavy	g9P	13.52	-799.32	-608.57	-333.65	-33.98	-172.49	-97.82
NESC Heavy	g9X	4.68	-305.45	674.58	-205.14	457.07	-77.70	172.22
NESC Heavy	g9XY	-0.59	-175.71	-652.72	-178.81	-472.03	-53.95	-171.17
NESC Heavy	g9Y	-15.00	-714.99	613.19	-318.73	58.31	-157.38	102.23
NESC Heavy	g10P	13.63	333.65	33.98	215.08	102.06	83.55	20.71
NESC Heavy	g10X	4.66	205.13	-457.07	-50.35	-102.74	23.56	-85.19
NESC Heavy	g10XY	-0.55	178.81	472.03	-42.98	111.81	20.67	88.85
NESC Heavy	g10Y	-15.09	318.73	-58.30	223.25	-116.03	82.52	-26.54
NESC Heavy	g11P	13.61	-215.08	-102.05	121.04	76.69	-14.32	-3.86
NESC Heavy	g11X	4.69	50.35	102.74	-97.98	142.04	-7.25	37.25
NESC Heavy	g11XY	-0.58	42.98	-111.81	-91.66	-149.64	-7.41	-39.79
NESC Heavy	g11Y	-15.08	-223.26	116.03	122.51	-57.15	-15.34	8.97
NESC Heavy	g12P	11.55	-122.07	-77.05	-84.06	15.95	-18.13	-5.37
NESC Heavy	g12X	6.36	98.74	-141.70	10.52	-1.86	9.61	-12.62
NESC Heavy	g12XY	-2.70	92.17	149.27	3.10	1.91	8.38	13.29
NESC Heavy	g12Y	-13.18	-123.81	57.51	-92.88	-28.20	-19.06	2.58
NESC Heavy	g13P	11.56	84.06	-15.95	222.42	164.55	26.96	13.07
NESC Heavy	g13X	6.36	-10.52	1.85	-176.52	147.71	-16.44	13.15
NESC Heavy	g13XY	-2.69	-3.10	-1.91	-146.58	-157.73	-13.16	-14.04
NESC Heavy	g13Y	-13.20	92.87	28.20	260.08	-131.34	31.05	-9.07
NESC Heavy	g14P	23.83	-206.31	-163.21	-49.13	-20.56	-16.85	-12.12
NESC Heavy	g14X	-5.71	190.33	-148.45	37.14	-0.91	15.00	-9.85
NESC Heavy	g14XY	5.83	177.62	159.14	20.08	10.99	13.04	11.22
NESC Heavy	g14Y	-22.37	-227.15	129.26	-75.26	-15.10	-19.95	7.53
NESC Heavy	g55P	-2.64	-82.02	1.45	-121.26	10.15	-47.91	2.72
NESC Heavy	g55X	7.01	-75.02	4.05	-96.37	1.97	-40.40	1.44
NESC Heavy	g55XY	3.66	-59.89	3.16	-40.40	8.05	-23.64	2.65
NESC Heavy	g55Y	-7.98	-84.92	-2.53	-75.72	-1.38	-37.86	-0.94
NESC Heavy	g56P	6.11	10.34	-8.90	13.29	-6.89	5.57	-3.72
NESC Heavy	g56X	-7.94	19.93	8.39	16.31	6.83	8.54	3.59
NESC Heavy	g56XY	7.34	23.25	-7.15	15.65	-6.05	9.17	-3.11
NESC Heavy	g56Y	-5.58	17.90	7.14	15.09	6.10	7.77	3.12
NESC Heavy	g57P	-1.18	-89.37	-8.95	-116.37	-11.37	-48.49	-4.79
NESC Heavy	g57X	-1.38	-84.40	6.71	-119.12	5.02	-47.97	2.76

NESC Heavy	g57XY	14.39	-59.91	-10.99	-55.45	-12.49	-27.19	-5.52
NESC Heavy	g57Y	-11.93	-68.11	7.48	-55.53	3.89	-29.15	2.67
NESC Heavy	g58P	-1.16	-75.07	-13.11	-98.50	-8.13	-40.91	-5.01
NESC Heavy	g58X	0.21	-73.47	13.15	-93.07	13.04	-39.25	6.17
NESC Heavy	g58XY	10.58	-51.10	-11.97	-39.24	-5.42	-21.30	-4.09
NESC Heavy	g58Y	-9.76	-55.00	18.40	-46.20	16.27	-23.86	8.16
NESC Heavy	g59P	-0.09	0.76	-1.71	1.30	-1.92	0.14	-0.26
NESC Heavy	g59X	0.05	-1.03	2.10	-0.51	2.15	-0.11	0.30
NESC Heavy	g60P	6.31	4.24	30.35	9.62	42.15	2.66	13.87
NESC Heavy	g60X	-6.24	4.17	-34.26	9.26	-48.25	2.58	-15.79
NESC Heavy	g60XY	4.16	6.24	34.26	13.16	32.79	3.72	12.83
NESC Heavy	g60Y	-4.23	6.32	-30.35	13.32	-28.45	3.76	-11.25
NESC Heavy	Fg6072P	-4.04	-3.79	42.76	-4.09	32.68	-1.51	14.43
NESC Heavy	Fg6072X	4.10	-3.53	-43.16	-4.04	-32.68	-1.45	-14.51
NESC Heavy	Fg6072XY	-8.25	-22.19	25.75	-8.17	24.91	-5.82	9.69
NESC Heavy	Fg6072Y	8.18	-22.38	-25.91	-8.24	-24.91	-5.87	-9.72
NESC Heavy	g61P	-0.00	0.00	-0.00	-27.64	8.97	-2.40	0.78
NESC Heavy	g61X	-0.00	-0.00	-0.00	-22.63	0.78	-1.97	0.07
NESC Heavy	g62P	-1.50	-46.43	-38.90	-109.35	-69.68	-25.96	-18.10
NESC Heavy	g63P	-109.05	-33.23	17.40	-753.43	2.77	-82.93	2.04
NESC Heavy	g63X	115.69	-36.72	-13.35	-858.59	-4.27	-94.38	-1.75
NESC Heavy	g63XY	-114.58	-40.06	13.34	-836.72	5.94	-92.43	1.93
NESC Heavy	g63Y	107.17	-38.86	-17.40	-713.48	-14.53	-79.31	-3.29
NESC Heavy	g64P	8.18	132.55	-18.21	-481.93	15.23	-58.24	-0.49
NESC Heavy	g64Y	-0.93	242.85	12.89	-483.34	-7.17	-40.08	0.95
NESC Heavy	g65P	-71.74	-17.45	18.55	-784.36	25.01	-67.47	3.61
NESC Heavy	g65X	82.98	-20.73	-19.89	-995.37	-20.28	-85.51	-3.30
NESC Heavy	g65XY	-82.53	-22.47	19.89	-1043.47	17.93	-89.70	3.09
NESC Heavy	g65Y	71.12	-19.83	-18.55	-834.77	-6.71	-71.92	-2.06
NESC Heavy	g66P	4.87	333.58	5.26	-693.92	-2.12	-60.06	0.53
NESC Heavy	g66Y	-7.55	253.79	5.19	-594.82	-14.82	-56.84	-1.61
NESC Heavy	g67P	-81.80	-29.34	11.25	-797.12	-6.60	-87.12	0.42
NESC Heavy	g67X	125.45	-43.21	-2.88	-1106.06	4.08	-121.16	0.27
NESC Heavy	g67XY	-126.28	-40.71	2.88	-1140.16	-30.70	-124.48	-3.08
NESC Heavy	g67Y	83.04	-25.62	-11.26	-833.87	13.12	-90.61	0.27
NESC Heavy	g68P	-28.05	205.80	-36.08	-445.70	11.80	-39.99	-4.06
NESC Heavy	g68Y	23.14	149.87	59.37	-382.24	-22.72	-38.73	6.12
NESC Heavy	g74P	13.87	1236.32	-597.00	-1425.94	-234.13	-12.64	-55.41
NESC Heavy	g75P	26.83	1423.62	292.17	-4164.14	271.50	-65.25	13.42
NESC Heavy	g76P	10.32	4250.24	-368.12	2695.19	-31.04	496.12	-28.51
NESC Heavy	g77P	25.22	-2751.51	-101.20	-15084.23	-149.93	-1274.02	-17.93
NESC Heavy	g78P	25.27	15084.24	149.88	-22432.47	-232.66	-1573.54	-17.71
NESC Heavy	g79P	0.00	22989.22	-10.12	0.01	0.00	1159.34	-0.51
NESC Heavy	g80P	-48.74	-86.82	-18.78	-187.51	-34.07	-182.83	-35.45
NESC Heavy	g82P	5.44	-106.50	14.95	-174.55	20.78	-187.36	23.84
NESC Heavy	g83P	-7.52	-90.40	-15.76	-148.51	-20.98	-159.27	-24.52
NESC Heavy	g84P	22.86	-554.92	12.79	-752.11	31.73	-389.62	13.48
NESC Heavy	g84X	24.11	-294.77	-1.12	-207.64	-23.00	-149.80	-7.13
NESC Heavy	g86P	7.71	-316.18	-30.31	-340.21	-31.36	-195.71	-18.36
NESC Heavy	g86X	-15.90	-321.99	24.60	-392.99	25.59	-213.17	14.89
NESC Heavy	g87P	11.01	-290.11	-39.64	-336.76	-31.78	-186.90	-21.25
NESC Heavy	g87X	-8.42	-242.40	41.42	-250.20	36.41	-146.88	23.18
NESC Heavy	g88P	1.29	-33.06	-100.98	-88.99	-161.69	-28.39	-61.10
NESC Heavy	g88X	-1.83	-32.60	108.53	-90.15	182.24	-28.56	67.64
NESC Heavy	g89P	-0.27	90.06	66.45	53.49	63.69	22.51	20.41
NESC Heavy	g89X	0.87	91.01	-74.30	53.08	-68.90	22.60	-22.46
NESC Heavy	g90P	0.88	2.47	15.52	-0.75	10.38	0.28	4.24
NESC Heavy	g90X	0.15	3.99	-12.50	1.86	-8.28	0.96	-3.40
NESC Heavy	g93P	-0.39	-1.38	-14.34	15.51	-4.47	4.71	-6.27

NESC Heavy	g93X	-0.39	32.90	-4.00	15.50	4.47	16.13	0.16
NESC Heavy	g94P	-1.04	13.82	12.05	22.00	16.07	6.85	5.38
NESC Heavy	g94X	0.49	16.12	-12.34	21.72	-17.12	7.24	-5.64
NESC Heavy	g94XY	0.70	32.94	9.39	39.78	10.35	13.91	3.78
NESC Heavy	g94Y	-0.14	31.04	-8.64	40.28	-9.32	13.65	-3.44
NESC Extreme	g1P	39.42	45.05	9.15	68.14	21.34	98.65	26.54
NESC Extreme	g1X	-31.03	41.61	-23.80	65.02	-32.93	92.94	-49.42
NESC Extreme	Fg190P	-11.76	-67.92	-17.48	-41.85	-39.59	-22.09	-11.49
NESC Extreme	Fg190X	19.53	-65.23	28.88	-70.47	45.41	-27.30	14.97
NESC Extreme	g2P	-7.22	2.10	82.76	-56.91	113.74	-11.74	42.08
NESC Extreme	g2X	-32.19	-527.60	-310.30	-393.32	-59.77	-197.19	-79.27
NESC Extreme	g2XY	3.59	-38.01	75.32	-167.30	-16.91	-43.96	12.51
NESC Extreme	g2Y	-5.38	-10.64	18.46	-34.76	-78.04	-9.72	-12.76
NESC Extreme	g3P	3.52	7.14	64.59	-99.75	25.17	-19.83	19.22
NESC Extreme	g3X	1.01	-91.03	124.86	-15.20	-51.12	-22.74	15.79
NESC Extreme	g3XY	1.42	-119.19	-62.90	-22.93	62.12	-30.43	-0.17
NESC Extreme	g3Y	1.52	58.99	-81.27	-75.33	-33.89	-3.50	-24.66
NESC Extreme	g4P	3.50	99.75	-25.17	25.85	-53.04	26.90	-16.75
NESC Extreme	g4X	1.01	15.20	51.12	-114.13	144.29	-21.18	41.84
NESC Extreme	g4XY	1.42	22.93	-62.12	-114.69	-143.30	-19.65	-43.98
NESC Extreme	g4Y	1.53	75.33	33.89	30.77	72.06	22.73	22.70
NESC Extreme	g5P	3.51	-25.85	53.04	-91.81	49.77	-25.26	22.07
NESC Extreme	g5X	0.94	114.13	-144.29	-212.47	-151.51	-21.10	-63.46
NESC Extreme	g5XY	1.48	114.69	143.30	-153.33	116.50	-8.29	55.74
NESC Extreme	g5Y	1.52	-30.77	-72.06	-123.57	-115.72	-33.13	-40.31
NESC Extreme	g6P	-3.99	340.32	-96.69	-93.74	12.79	52.82	-17.97
NESC Extreme	g6X	2.22	-292.31	33.05	-156.88	-105.13	-96.17	-15.43
NESC Extreme	g6XY	-3.84	-224.17	-112.12	-130.25	76.63	-75.88	-7.60
NESC Extreme	g6Y	3.16	226.37	0.73	-131.75	-43.12	20.27	-9.08
NESC Extreme	g7P	-4.00	93.74	-12.78	-39.54	-195.13	11.61	-44.54
NESC Extreme	g7X	2.24	156.88	105.13	-173.60	300.89	-3.58	86.92
NESC Extreme	g7XY	-3.85	130.25	-76.63	-202.36	-282.67	-15.44	-76.92
NESC Extreme	g7Y	3.19	131.75	43.12	1.26	214.47	28.50	55.18
NESC Extreme	g8P	-3.95	39.54	195.13	-206.07	366.25	-35.76	120.53
NESC Extreme	g8X	2.06	173.60	-300.89	-317.05	-437.96	-30.77	-158.50
NESC Extreme	g8XY	-3.70	202.36	282.68	-247.02	370.39	-9.58	140.10
NESC Extreme	g8Y	3.12	-1.26	-214.47	-315.37	-433.23	-67.98	-139.06
NESC Extreme	g9P	-31.97	-785.07	-243.04	-282.57	310.43	-162.57	10.26
NESC Extreme	g9X	-35.92	173.32	346.09	-6.86	505.99	25.31	129.64
NESC Extreme	g9XY	-63.71	294.10	-351.20	-2.64	-544.06	44.37	-136.21
NESC Extreme	g9Y	-67.01	-758.29	271.00	-315.56	-232.42	-163.49	5.86
NESC Extreme	g10P	-31.75	282.60	-310.43	327.68	-11.28	92.93	-48.98
NESC Extreme	g10X	-36.03	6.89	-505.99	-219.20	-47.70	-32.30	-84.24
NESC Extreme	g10XY	-63.57	2.58	544.07	-179.82	90.12	-26.97	96.48
NESC Extreme	g10Y	-67.22	315.51	232.43	377.44	-102.66	105.52	19.78
NESC Extreme	g11P	-31.86	-327.67	11.26	118.03	324.72	-31.93	51.16
NESC Extreme	g11X	-35.94	219.21	47.72	-194.26	221.79	3.79	41.00
NESC Extreme	g11XY	-63.66	179.81	-90.08	-193.62	-235.06	-2.09	-49.47
NESC Extreme	g11Y	-67.15	-377.46	102.61	94.82	-53.81	-43.04	7.43
NESC Extreme	g12P	-42.36	-118.56	-326.26	121.08	-299.05	0.23	-55.01
NESC Extreme	g12X	-44.56	195.37	-222.89	82.35	6.22	24.41	-19.04
NESC Extreme	g12XY	-74.31	194.01	233.57	-74.64	-117.85	10.50	10.17
NESC Extreme	g12Y	-75.63	-95.96	52.68	-18.82	-440.13	-10.08	-34.09
NESC Extreme	g13P	-42.44	-121.07	299.04	-319.62	1271.37	-38.80	138.16
NESC Extreme	g13X	-44.59	-82.33	-6.21	-430.78	321.57	-45.11	27.71
NESC Extreme	g13XY	-74.32	74.62	117.86	445.00	347.00	45.67	40.88
NESC Extreme	g13Y	-75.79	18.80	440.10	564.36	1310.27	51.27	154.03
NESC Extreme	g14P	-40.70	482.38	-1277.65	1006.78	-1193.68	98.29	-163.06
NESC Extreme	g14X	-65.23	553.17	-321.56	179.12	-30.37	48.28	-23.20

NESC Extreme	g14XY	-77.88	-263.60	-346.36	-904.95	-965.60	-77.01	-86.53
NESC Extreme	g14Y	-93.35	-356.22	-1320.74	-105.01	-2149.12	-30.35	-228.99
NESC Extreme	g55P	-0.98	-69.54	-1.06	-123.96	10.49	-45.61	2.22
NESC Extreme	g55X	12.65	-54.66	-1.46	-62.13	4.97	-27.53	0.85
NESC Extreme	g55XY	2.06	-3.16	2.27	31.22	8.45	6.61	2.52
NESC Extreme	g55Y	-13.66	-65.36	-2.24	-61.17	2.04	-29.82	-0.08
NESC Extreme	g56P	1.89	74.44	-3.27	84.21	-1.55	37.40	-1.14
NESC Extreme	g56X	-5.24	93.60	2.83	89.13	2.98	43.07	1.38
NESC Extreme	g56XY	4.78	92.96	-3.20	88.00	-2.66	42.65	-1.39
NESC Extreme	g56Y	-1.45	83.05	1.60	86.24	1.23	39.90	0.67
NESC Extreme	g57P	-7.90	-58.33	-10.80	-78.65	-20.98	-32.28	-7.51
NESC Extreme	g57X	2.25	-52.13	-4.69	-89.87	-14.57	-33.47	-4.53
NESC Extreme	g57XY	13.92	-13.73	-11.60	-5.24	-22.61	-4.48	-8.06
NESC Extreme	g57Y	-8.26	-27.58	-5.09	-1.53	-17.08	-6.86	-5.23
NESC Extreme	g58P	-6.47	-51.96	-8.79	-81.20	-8.51	-31.39	-4.09
NESC Extreme	g58X	4.89	-50.49	2.04	-71.71	-0.18	-28.80	0.45
NESC Extreme	g58XY	10.79	-11.86	-3.40	10.96	-3.51	-0.21	-1.63
NESC Extreme	g58Y	-9.32	-19.60	10.91	-3.63	6.64	-5.48	4.14
NESC Extreme	g59P	-0.16	1.09	8.67	1.11	8.57	0.15	1.21
NESC Extreme	g59X	-0.05	-0.55	10.72	-0.43	10.79	-0.07	1.51
NESC Extreme	g60P	41.41	32.39	27.76	75.34	29.58	20.66	10.86
NESC Extreme	g60X	-35.35	27.64	-28.57	69.87	-49.97	18.72	-14.94
NESC Extreme	g60XY	27.60	35.39	28.56	76.89	18.15	21.50	8.86
NESC Extreme	g60Y	-32.35	41.46	-27.75	85.18	-35.50	24.27	-12.00
NESC Extreme	Fg6072P	-30.50	-51.07	31.18	-29.08	30.65	-15.37	11.80
NESC Extreme	Fg6072X	29.10	-45.54	-50.45	-30.48	-30.65	-14.58	-15.49
NESC Extreme	Fg6072XY	-41.82	-102.81	3.51	-40.87	14.15	-27.51	3.32
NESC Extreme	Fg6072Y	40.91	-120.86	-23.98	-41.79	-14.13	-31.14	-7.23
NESC Extreme	g61P	0.00	0.00	0.00	6.33	3.25	0.55	0.28
NESC Extreme	g61X	-0.00	-0.00	0.00	-20.80	-25.44	-1.81	-2.21
NESC Extreme	g62P	3.62	-6.63	36.58	-8.13	-17.45	-2.46	3.19
NESC Extreme	g63P	-53.32	-17.23	3.66	-281.01	-10.53	-31.44	-0.74
NESC Extreme	g63X	69.30	-19.28	-4.37	-496.73	-8.36	-54.40	-1.31
NESC Extreme	g63XY	-67.01	-26.16	4.37	-514.59	-2.40	-57.00	0.17
NESC Extreme	g63Y	53.00	-18.21	-3.66	-221.90	-6.25	-25.31	-1.03
NESC Extreme	g64P	24.49	-254.87	-19.25	-473.03	-5.27	-121.32	-4.07
NESC Extreme	g64Y	2.21	-118.98	6.78	-416.04	-1.26	-89.17	0.92
NESC Extreme	g65P	-21.66	-1.94	3.15	-165.41	16.49	-14.08	1.65
NESC Extreme	g65X	45.17	-9.65	-11.10	-608.70	-0.95	-52.03	-0.99
NESC Extreme	g65XY	-44.13	-13.65	11.10	-649.77	26.47	-55.82	3.13
NESC Extreme	g65Y	19.85	-8.89	-3.15	-211.42	18.30	-18.54	1.28
NESC Extreme	g66P	12.53	-97.30	-14.80	-619.84	-18.90	-119.53	-5.61
NESC Extreme	g66Y	-13.17	-154.27	-7.98	-536.93	-16.43	-115.20	-4.08
NESC Extreme	g67P	-4.79	0.38	4.75	-118.17	-1.02	-12.42	0.39
NESC Extreme	g67X	89.60	-27.41	2.92	-717.06	8.61	-78.48	1.28
NESC Extreme	g67XY	-88.13	-31.83	-2.92	-760.14	-10.46	-83.48	-1.48
NESC Extreme	g67Y	3.60	-3.18	-4.75	-168.87	16.47	-18.14	1.24
NESC Extreme	g68P	-53.83	-46.18	-28.05	-391.90	-4.80	-73.02	-5.50
NESC Extreme	g68Y	47.16	-109.54	83.12	-332.43	43.92	-73.66	21.19
NESC Extreme	g74P	-1147.28	9834.60	9848.23	220.86	4914.02	670.24	984.18
NESC Extreme	g75P	-587.39	-120.11	-4405.28	-9352.79	-1469.01	-225.53	-140.00
NESC Extreme	g76P	-360.32	9522.61	1463.39	9230.40	290.70	1339.52	125.38
NESC Extreme	g77P	-107.30	-9422.15	-293.09	-39623.59	117.17	-3503.31	-12.67
NESC Extreme	g78P	-107.05	39623.59	-116.71	-56745.98	59.78	-3666.51	-12.34
NESC Extreme	g79P	0.00	58172.05	-95.89	-0.00	-0.00	2933.57	-4.84
NESC Extreme	g80P	-125.57	-131.13	-25.83	-259.88	-18.77	-260.61	-30.51
NESC Extreme	g82P	18.54	-137.23	75.25	-224.26	142.76	-240.93	145.44
NESC Extreme	g83P	-14.90	-135.55	5.56	-208.55	55.37	-229.43	40.54
NESC Extreme	g84P	61.42	-619.89	27.97	-1028.12	76.23	-491.20	31.81

NESC Extreme	g84X	60.81	36.25	17.93	364.71	50.06	119.59	20.01
NESC Extreme	g86P	-5.85	-215.26	7.92	-173.76	42.75	-116.00	15.09
NESC Extreme	g86X	-17.33	-265.25	31.95	-355.84	67.62	-185.17	29.61
NESC Extreme	g87P	3.96	-269.42	25.04	-328.50	70.43	-178.26	28.48
NESC Extreme	g87X	1.83	-177.86	57.09	-158.27	96.36	-100.22	45.76
NESC Extreme	g88P	32.02	-237.80	-76.83	-550.19	5.98	-183.30	-16.36
NESC Extreme	g88X	-33.24	-255.50	113.91	-476.54	330.98	-170.36	103.38
NESC Extreme	g89P	16.01	614.90	162.94	316.10	65.43	146.02	35.78
NESC Extreme	g89X	-20.75	556.61	67.60	321.87	-31.97	137.78	5.63
NESC Extreme	g90P	2.89	41.43	3.13	14.77	11.47	9.19	2.39
NESC Extreme	g90X	1.89	45.23	-5.63	19.45	0.60	10.58	-0.82
NESC Extreme	g93P	0.21	28.34	-42.08	38.56	-58.11	22.30	-33.40
NESC Extreme	g93X	0.21	28.49	42.71	38.56	58.11	22.35	33.61
NESC Extreme	g94P	-3.12	122.34	20.49	166.45	16.11	55.25	7.03
NESC Extreme	g94X	6.26	162.66	-0.22	191.32	-13.50	67.72	-2.69
NESC Extreme	g94XY	7.31	208.00	19.49	251.39	10.28	87.90	5.59
NESC Extreme	g94Y	-1.30	181.40	3.39	241.10	-5.86	80.84	-0.45

*** Analysis Results for Load Case No. 1 "NESC Heavy" - Number of iterations in SAPS 9

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	-0.005338	0.1874	-0.02434	-0.2311	-0.0088	0.0057	-0.005338	3.187	94.98
2P	-0.004592	0.1675	-0.02384	-0.2570	0.0114	0.0220	2.995	3.168	89.65
3P	-0.003539	0.1485	-0.02321	-0.2467	-0.0314	0.0086	2.996	3.148	84.98
4P	-0.002512	0.1306	-0.02238	-0.1931	0.0002	0.0060	2.997	3.131	80.31
5P	-0.002599	0.1154	-0.02108	-0.1983	-0.0038	0.0036	2.997	3.115	75.64
6P	-0.001834	0.09754	-0.01925	-0.2325	-0.0096	0.0012	2.998	3.098	70.98
7P	-0.001069	0.08311	-0.01803	-0.1482	-0.0062	0.0029	2.999	3.083	66.31
8P	-0.0009845	0.0708	-0.01647	-0.1600	0.0031	0.0045	2.999	3.071	61.64
9P	-0.0008001	0.05728	-0.01463	-0.1637	-0.0165	0.0063	2.999	3.057	56.99
10P	0	0	0	0.0000	0.0000	0.0000	8.96	8.96	0
18P	-0.006463	0.1881	-0.07212	-0.2415	-0.0088	0.0056	-0.006463	14.69	94.93
19P	-0.004605	0.147	-0.0777	-0.3851	-0.0092	0.0053	-0.004605	12.15	84.92
20P	-0.002488	0.0957	-0.09226	-0.4259	0.0001	0.0016	-0.002488	14.6	70.91
21P	-0.001366	0.05606	-0.05935	-0.3384	-0.0007	0.0038	-0.001366	12.06	56.94
27P	-0.005097	0.3454	-0.004822	-0.5971	-0.0038	0.0027	1.495	0.3454	109.5
28P	-0.003775	0.1672	-0.003595	-0.3497	-0.0037	0.0027	1.496	0.1672	89.67
29P	-0.003428	0.1429	-0.00341	-0.2546	-0.0047	0.0026	1.497	0.1429	85
30P	-0.002157	0.09774	-0.002945	-0.1609	-0.0050	0.0021	1.498	0.09774	71
31P	-0.001109	0.05769	-0.002432	-0.1490	-0.0025	0.0019	1.499	0.05769	57
32P	-0.0006874	0.002768	-0.0007103	-0.0217	-0.0030	0.0003	1.499	0.002768	15
33P	0	0	0	0.0000	0.0000	0.0000	1.5	0	0
1X	-0.004412	0.1872	-0.001599	-0.2159	-0.0083	0.0086	-0.004412	-2.813	95
2X	-0.00424	0.1664	-0.001439	-0.1723	0.0268	-0.0144	2.996	-2.834	89.67
2XY	-0.003331	0.1657	-0.002114	-0.2220	-0.0117	0.0114	-3.003	-2.834	89.67
2Y	-0.004097	0.1668	-0.02466	-0.2257	-0.0140	-0.0014	-3.004	3.167	89.65
3X	-0.003055	0.149	-0.001044	-0.1880	-0.0343	0.0007	2.997	-2.851	85
3XY	-0.003466	0.1484	-0.001735	-0.1811	0.0139	0.0075	-3.003	-2.852	85
3Y	-0.00398	0.1479	-0.02393	-0.2505	0.0136	0.0027	-3.004	3.148	84.98
4X	-0.002352	0.1312	-0.0008539	-0.2388	0.0112	0.0013	2.998	-2.869	80.33
4XY	-0.003177	0.1308	-0.001512	-0.2387	-0.0203	0.0070	-3.003	-2.869	80.33
4Y	-0.003874	0.1303	-0.02304	-0.1887	-0.0119	0.0022	-3.004	3.13	80.31
5X	-0.003173	0.1122	-0.0007878	-0.2105	-0.0066	0.0021	2.997	-2.888	75.66
5XY	-0.001449	0.1119	-0.00138	-0.2056	-0.0065	0.0063	-3.001	-2.888	75.66
5Y	-0.002751	0.1152	-0.02168	-0.1998	-0.0108	0.0016	-3.003	3.115	75.64
6X	-0.001632	0.09821	-0.0006551	-0.1343	-0.0113	0.0030	2.998	-2.902	71
6XY	-0.002185	0.09807	-0.001172	-0.1429	0.0100	0.0056	-3.002	-2.902	71
6Y	-0.002571	0.0974	-0.01981	-0.2241	0.0074	0.0009	-3.003	3.097	70.98
7X	-0.001387	0.08317	-0.0007463	-0.2016	0.0089	0.0002	2.999	-2.917	66.33
7XY	-0.001717	0.08297	-0.001202	-0.2003	-0.0189	0.0075	-3.002	-2.917	66.33
7Y	-0.002477	0.08299	-0.01854	-0.1501	-0.0059	-0.0022	-3.002	3.083	66.31
8X	-0.002093	0.06837	-0.0009607	-0.1568	-0.0074	-0.0024	2.998	-2.932	61.66
8XY	-0.000376	0.06817	-0.001358	-0.1558	-0.0007	0.0092	-3	-2.932	61.66
8Y	-0.001766	0.07063	-0.01694	-0.1620	-0.0131	-0.0053	-3.002	3.071	61.64
9X	-0.0006393	0.05791	-0.001154	-0.1014	-0.0066	-0.0051	2.999	-2.942	57
9XY	-0.001284	0.05769	-0.001506	-0.1074	0.0056	0.0109	-3.001	-2.942	57
9Y	-0.001254	0.05704	-0.01502	-0.1583	0.0138	-0.0086	-3.001	3.057	56.98
10X	0	0	0	0.0000	0.0000	0.0000	8.96	-8.96	0
10XY	0	0	0	0.0000	0.0000	0.0000	-8.96	-8.96	0
10Y	0	0	0	0.0000	0.0000	0.0000	-8.96	8.96	0
18X	-0.002906	0.1866	0.04002	-0.2031	-0.0083	0.0070	-0.002906	-14.31	95.04

19X	-0.002388	0.1498	0.01442	-0.0653	-0.0107	0.0063	-0.002388	-11.85	85.01
20X	-0.001619	0.09981	0.00538	0.0190	0.0007	0.0000	-0.001619	-14.4	71.01
21X	-0.0006337	0.05895	0.00136	0.0232	0.0001	0.0017	-0.0006337	-11.94	57
11S	0.0009542	0.04471	-0.01351	-0.0953	-0.0094	0.0109	3.681	3.724	50.49
12S	0.0004194	0.03272	-0.01226	-0.0983	0.0032	0.0085	4.36	4.392	43.99
13S	0.0003668	0.02348	-0.01067	-0.0642	-0.0070	0.0077	5.039	5.062	37.49
14S	0.001099	0.01222	-0.00763	-0.0543	-0.0026	0.0060	6.216	6.227	26.24
15S	0.0003954	0.002522	-0.004868	-0.0304	0.0007	0.0057	7.392	7.394	15
16S	0.004571	0.00236	-0.001296	-0.0218	-0.0166	-0.0030	7.396	0.00236	15
17S	0.0001144	0.006993	0.0005994	-0.0541	-0.0190	-0.0102	0.0001144	-7.385	15
22S	-0.00389	0.1668	-0.005416	-0.2496	-0.0831	0.0153	-0.00389	0.1668	89.66
23S	-0.003512	0.1484	-0.01315	-0.2084	-0.0045	0.0051	-0.003512	0.1484	84.99
24S	-0.002114	0.09787	-0.004804	-0.1720	-0.0588	-0.0024	-0.002114	0.09787	71
25S	-0.001059	0.05745	-0.003934	-0.1336	-0.0484	0.0061	-0.001059	0.05745	57
17SF0.50S	0.002381	0.004617	-0.001516	0.0100	0.0134	0.0389	3.698	-3.691	15
1PF94S	-0.005161	0.1832	-0.02422	-0.2354	-0.0116	-0.0001	0.5577	3.183	93.98
35S	-0.004823	0.1831	-0.01329	-0.2079	-0.0099	0.0133	0.558	0.1831	93.99
11X	-0.001151	0.04303	-3.079e-005	-0.1220	0.0008	-0.0092	3.678	-3.637	50.5
11XY	-0.0001448	0.0428	-0.0003755	-0.1190	-0.0063	0.0135	-3.68	-3.637	50.5
11Y	-0.002314	0.04468	-0.01388	-0.0957	0.0033	-0.0125	-3.682	3.724	50.49
12X	-0.0004057	0.03223	0.0007385	-0.0820	-0.0055	-0.0054	4.359	-4.327	44
12XY	-0.0004066	0.03221	0.0004007	-0.0809	0.0025	0.0087	-4.36	-4.327	44
12Y	-0.001245	0.03266	-0.01261	-0.0979	-0.0071	-0.0097	-4.361	4.392	43.99
13X	-0.0004439	0.02313	0.001167	-0.0696	0.0015	-0.0060	5.039	-5.016	37.5
13XY	-4.411e-006	0.02313	0.0008671	-0.0696	-0.0038	0.0083	-5.039	-5.016	37.5
13Y	-0.0007522	0.02356	-0.01102	-0.0635	0.0040	-0.0085	-5.04	5.063	37.49
14X	-0.0002913	0.01153	0.001392	-0.0526	-0.0024	-0.0056	6.215	-6.204	26.25
14XY	0.0002552	0.01155	0.001171	-0.0520	0.0004	0.0068	-6.215	-6.204	26.25
14Y	-0.000982	0.01229	-0.007912	-0.0545	-0.0004	-0.0062	-6.216	6.228	26.24
15X	0.0001272	0.002429	0.001243	-0.0294	-0.0009	-0.0051	7.392	-7.389	15
15XY	0.000128	0.002519	0.001079	-0.0299	0.0013	0.0051	-7.391	-7.389	15
15Y	0.0001809	0.002599	-0.005143	-0.0300	-0.0001	-0.0051	-7.391	7.394	14.99
16Y	-0.004311	0.002422	-0.00146	-0.0222	0.0734	0.0019	-7.396	0.002422	15
17X	0.000233	-0.002025	-0.005208	0.0080	-0.0195	0.0115	0.000233	7.39	14.99
17SF0.50X	0.002753	0.000578	-0.004353	-0.0547	0.0131	-0.0466	3.699	3.696	15
17SF0.50XY	-0.002251	0.0003977	-0.0069	-0.0442	-0.0309	0.0054	-3.698	3.696	14.99
17SF0.50Y	-0.002078	0.004722	-0.004027	-0.0011	-0.0307	-0.0023	-3.698	-3.691	15
1PF94X	-0.004274	0.1832	-0.00151	-0.2346	-0.0084	-0.0023	0.5586	-2.817	94

Joint Support Reactions for Load Case "NESC Heavy":

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	Z Force (kips)	Comp. Usage %	Uplift Usage %	Result. Force (kips)	Result. Usage %	X Moment (ft-k)	X-M. Usage %	Y Moment (ft-k)	Y-M. Usage %	Z Moment (ft-k)	Z-M. Usage %	Max. Usage %
10P	-9.79	0.0	-8.25	0.0	55.70	0.0	0.0	57.16	0.0	-0.05	0.0	0.0	0.0	-0.03	0.0	0.0
33P	0.05	0.0	-0.25	0.0	19.28	0.0	0.0	19.28	0.0	1.24	0.0	0.6	0.0	-0.01	0.0	0.0
10X	2.40	0.0	-1.31	0.0	-13.22	0.0	0.0	13.50	0.0	-0.03	0.0	-0.0	0.0	0.01	0.0	0.0
10XY	-2.40	0.0	-1.13	0.0	-12.24	0.0	0.0	12.52	0.0	-0.02	0.0	0.0	0.0	-0.00	0.0	0.0
10Y	9.75	0.0	-8.56	0.0	57.35	0.0	0.0	58.80	0.0	-0.04	0.0	-0.1	0.0	0.02	0.0	0.0

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 Disp. (ft)	Y Disp. (ft)	Z Disp. (ft)
1P	0.0000	0.0000	-0.1878	0.0000	0.0000	0.1879	-0.0053	0.1874	-0.0243

2P	0.0000	0.0000	-0.1733	-0.0000	0.0000	0.1733	-0.0046	0.1675	-0.0238
3P	0.0000	0.0000	-0.2819	0.0000	0.0000	0.2819	-0.0035	0.1485	-0.0232
4P	0.0000	0.0000	-0.1309	-0.0000	0.0000	0.1309	-0.0025	0.1306	-0.0224
5P	0.0000	0.0000	-0.1622	-0.0000	0.0000	0.1622	-0.0026	0.1154	-0.0211
6P	0.0000	0.0000	-0.3547	0.0000	0.0000	0.3547	-0.0018	0.0975	-0.0192
7P	0.0000	0.0000	-0.1818	-0.0000	0.0000	0.1818	-0.0011	0.0831	-0.0180
8P	0.0000	0.0000	-0.2111	-0.0000	0.0000	0.2111	-0.0010	0.0708	-0.0165
9P	0.0000	0.0000	-0.4253	0.0000	0.0000	0.4253	-0.0008	0.0573	-0.0146
10P	0.0000	0.0000	-0.3166	9.7948	8.2493	-55.3883	0.0000	0.0000	0.0000
18P	0.0000	0.6140	-2.8302	-0.0000	-0.6140	2.8302	-0.0065	0.1881	-0.0721
19P	0.0000	1.1100	-10.0414	-0.0000	-1.1100	10.0414	-0.0046	0.1470	-0.0777
20P	0.0000	1.1100	-10.0977	-0.0000	-1.1100	10.0976	-0.0025	0.0957	-0.0923
21P	0.0000	1.1100	-10.0414	-0.0000	-1.1100	10.0414	-0.0014	0.0561	-0.0594
27P	0.0000	1.0831	-8.4877	-0.0000	-1.0831	8.4877	-0.0051	0.3454	-0.0048
28P	0.0000	0.4165	-1.0466	-0.0000	-0.4165	1.0466	-0.0038	0.1672	-0.0036
29P	0.0000	0.3174	-0.7835	0.0000	-0.3174	0.7835	-0.0034	0.1429	-0.0034
30P	0.0000	0.4760	-1.1908	-0.0000	-0.4760	1.1908	-0.0022	0.0977	-0.0029
31P	0.0000	0.9743	-2.5196	-0.0000	-0.9743	2.5196	-0.0011	0.0577	-0.0024
32P	0.0000	0.9993	-2.7348	-0.0000	-0.9993	2.7348	-0.0007	0.0028	-0.0007
33P	0.0000	0.2630	-0.6138	-0.0546	-0.0161	-18.6691	0.0000	0.0000	0.0000
1X	0.0000	0.0000	-0.1878	0.0000	0.0000	0.1879	-0.0044	0.1872	-0.0016
2X	0.0000	0.1001	-0.1733	0.0000	-0.1001	0.1733	-0.0042	0.1664	-0.0014
2XY	0.0000	0.1001	-0.1712	-0.0000	-0.1001	0.1712	-0.0033	0.1657	-0.0021
2Y	0.0000	0.2580	-0.8612	-0.0000	-0.2580	0.8612	-0.0041	0.1668	-0.0247
3X	0.0000	0.1180	-0.2819	-0.0000	-0.1180	0.2819	-0.0031	0.1490	-0.0010
3XY	0.0000	0.1180	-0.2819	0.0000	-0.1180	0.2819	-0.0035	0.1484	-0.0017
3Y	0.0000	0.0000	-0.2819	-0.0000	0.0000	0.2819	-0.0040	0.1479	-0.0239
4X	0.0000	0.1106	-0.1309	-0.0000	-0.1106	0.1309	-0.0024	0.1312	-0.0009
4XY	0.0000	0.1106	-0.1309	-0.0000	-0.1106	0.1309	-0.0032	0.1308	-0.0015
4Y	0.0000	0.1630	-0.5679	-0.0000	-0.1630	0.5679	-0.0039	0.1303	-0.0230
5X	0.0000	0.1253	-0.1622	-0.0000	-0.1253	0.1622	-0.0032	0.1122	-0.0008
5XY	0.0000	0.1253	-0.1622	-0.0000	-0.1253	0.1622	-0.0014	0.1119	-0.0014
5Y	0.0000	0.0000	-0.1622	-0.0000	0.0000	0.1622	-0.0028	0.1152	-0.0217
6X	0.0000	0.1306	-0.3547	-0.0000	-0.1306	0.3547	-0.0016	0.0982	-0.0007
6XY	0.0000	0.1306	-0.3470	0.0000	-0.1306	0.3470	-0.0022	0.0981	-0.0012
6Y	0.0000	0.1630	-0.7840	-0.0000	-0.1630	0.7840	-0.0026	0.0974	-0.0198
7X	0.0000	0.1106	-0.1818	-0.0000	-0.1106	0.1818	-0.0014	0.0832	-0.0007
7XY	0.0000	0.1106	-0.1818	-0.0000	-0.1106	0.1818	-0.0017	0.0830	-0.0012
7Y	0.0000	0.0000	-0.1818	-0.0000	0.0000	0.1818	-0.0025	0.0830	-0.0185
8X	0.0000	0.1235	-0.2111	-0.0000	-0.1235	0.2111	-0.0021	0.0684	-0.0010
8XY	0.0000	0.1235	-0.2111	0.0000	-0.1235	0.2111	-0.0004	0.0682	-0.0014
8Y	0.0000	0.1720	-0.6711	-0.0000	-0.1720	0.6711	-0.0018	0.0706	-0.0169
9X	0.0000	0.1586	-0.4253	-0.0000	-0.1586	0.4253	-0.0006	0.0579	-0.0012
9XY	0.0000	0.1586	-0.4176	0.0000	-0.1586	0.4176	-0.0013	0.0577	-0.0015
9Y	0.0000	0.0000	-0.4176	-0.0000	0.0000	0.4176	-0.0013	0.0570	-0.0150
10X	0.0000	0.1965	-0.3166	-2.3978	1.1172	13.5379	0.0000	0.0000	0.0000
10XY	0.0000	0.1965	-0.3166	2.4040	0.9363	12.5519	0.0000	0.0000	0.0000
10Y	0.0000	0.0000	-0.3166	-9.7464	8.5587	-57.0369	0.0000	0.0000	0.0000
18X	0.0000	0.6711	-2.8302	-0.0000	-0.6711	2.8302	-0.0029	0.1866	0.0400
19X	0.0000	1.1759	-10.0414	-0.0000	-1.1759	10.0414	-0.0024	0.1498	0.0144
20X	0.0000	1.1796	-10.0977	-0.0000	-1.1796	10.0977	-0.0016	0.0998	0.0054
21X	0.0000	1.1759	-10.0414	-0.0000	-1.1759	10.0414	-0.0006	0.0590	0.0014
11S	0.0000	0.0000	-0.2940	-0.0000	0.0000	0.2940	0.0010	0.0447	-0.0135
12S	0.0000	0.0000	-0.2885	0.0000	0.0000	0.2885	0.0004	0.0327	-0.0123
13S	0.0000	0.0000	-0.4766	0.0000	0.0000	0.4766	0.0004	0.0235	-0.0107
14S	0.0000	0.0000	-0.5941	0.0000	0.0000	0.5941	0.0011	0.0122	-0.0076
15S	0.0000	0.0000	-0.3714	0.0000	0.0000	0.3714	0.0004	0.0025	-0.0049
16S	0.0000	0.0000	-0.2818	0.0000	0.0000	0.2818	0.0046	0.0024	-0.0013
17S	0.0000	0.3010	-0.2818	0.0000	-0.3010	0.2818	0.0001	0.0070	0.0006

22S	0.0000	0.0000	-0.0297	-0.0000	0.0000	0.0297	-0.0039	0.1668	-0.0054
23S	0.0000	0.0000	-0.0311	-0.0000	0.0000	0.0311	-0.0035	0.1484	-0.0132
24S	0.0000	0.0000	-0.0338	-0.0000	0.0000	0.0338	-0.0021	0.0979	-0.0048
25S	0.0000	0.0000	-0.0338	-0.0000	0.0000	0.0338	-0.0011	0.0574	-0.0039
17SF0.50S	0.0000	0.0000	-0.0392	0.0000	0.0000	0.0392	0.0024	0.0046	-0.0015
1PF94S	0.0000	0.0000	-0.0196	-0.0000	0.0000	0.0196	-0.0052	0.1832	-0.0242
35S	0.0000	0.0000	-0.0322	-0.0000	0.0000	0.0322	-0.0048	0.1831	-0.0133
11X	0.0000	0.1710	-0.2940	-0.0000	-0.1709	0.2940	-0.0012	0.0430	-0.0000
11XY	0.0000	0.1710	-0.2940	0.0000	-0.1709	0.2940	-0.0001	0.0428	-0.0004
11Y	0.0000	0.2060	-0.8460	-0.0000	-0.2060	0.8460	-0.0023	0.0447	-0.0139
12X	0.0000	0.1796	-0.2885	-0.0000	-0.1796	0.2885	-0.0004	0.0322	0.0007
12XY	0.0000	0.1796	-0.2885	0.0000	-0.1796	0.2885	-0.0004	0.0322	0.0004
12Y	0.0000	0.0000	-0.2885	-0.0000	0.0000	0.2885	-0.0012	0.0327	-0.0126
13X	0.0000	0.2817	-0.4766	0.0000	-0.2817	0.4766	-0.0004	0.0231	0.0012
13XY	0.0000	0.2817	-0.4766	-0.0000	-0.2817	0.4766	-0.0000	0.0231	0.0009
13Y	0.0000	0.3050	-1.2926	-0.0000	-0.3050	1.2926	-0.0008	0.0236	-0.0110
14X	0.0000	0.3542	-0.5941	-0.0000	-0.3542	0.5941	-0.0003	0.0115	0.0014
14XY	0.0000	0.3542	-0.5941	0.0000	-0.3542	0.5941	0.0003	0.0116	0.0012
14Y	0.0000	0.0000	-0.5941	-0.0000	0.0000	0.5941	-0.0010	0.0123	-0.0079
15X	0.0000	0.2432	-0.3714	0.0000	-0.2432	0.3714	0.0001	0.0024	0.0012
15XY	0.0000	0.2432	-0.3714	0.0000	-0.2432	0.3714	0.0001	0.0025	0.0011
15Y	0.0000	0.4510	-1.5784	-0.0000	-0.4510	1.5784	0.0002	0.0026	-0.0051
16Y	0.0000	0.0000	-0.2818	-0.0000	0.0000	0.2818	-0.0043	0.0024	-0.0015
17X	0.0000	0.0000	-0.2818	-0.0000	-0.0000	0.2818	0.0002	-0.0020	-0.0052
17SF0.50X	0.0000	0.0000	-0.0392	0.0000	0.0000	0.0392	0.0028	0.0006	-0.0044
17SF0.50XY	0.0000	0.0000	-0.0456	-0.0000	0.0000	0.0456	-0.0023	0.0004	-0.0069
17SF0.50Y	0.0000	0.0000	-0.0456	-0.0000	0.0000	0.0456	-0.0021	0.0047	-0.0040
1PF94X	0.0000	0.0000	-0.0196	-0.0000	0.0000	0.0196	-0.0043	0.1832	-0.0015

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

Comp. Member Label	Tens. Member Label	Connect Leg for Comp. Member	Force In Comp. Member (kips)	Force In Tens. Member (kips)	Original Supported L/R Cap. (kips)	RLX	RLY	RLZ	L/R	KL/R	Curve No.	Alternate Unsupported L/R Cap. (kips)	RLOUT	L/R	KL/R	Curve No.
g17P	g17Y	Short only	-0.96	-1.01	10.51	0.750	0.500	0.500	133.00	129.95	5	7.81	1.000	169.90	150.69	6
g17X	g17XY	Short only	-0.96	-1.00	10.51	0.750	0.500	0.500	133.00	129.95	5	7.81	1.000	169.90	150.69	6
g17XY	g17X	Short only	-1.00	-0.96	10.51	0.750	0.500	0.500	133.00	129.95	5	7.81	1.000	169.90	150.69	6
g17Y	g17P	Short only	-1.01	-0.96	10.51	0.750	0.500	0.500	133.00	129.95	5	7.81	1.000	169.90	150.69	6
g18P	g18X	Short only	-0.19	-5.51	29.81	0.750	0.500	0.500	76.54	87.41	2	24.69	1.000	97.17	108.58	3
g18X	g18P	Short only	-5.51	-0.19	29.81	0.750	0.500	0.500	76.54	87.41	2	24.69	1.000	97.17	108.58	3
g18XY	g18Y	Short only	-4.85	-0.73	29.81	0.750	0.500	0.500	76.54	87.41	2	24.69	1.000	97.17	108.58	3
g18Y	g18XY	Short only	-0.73	-4.85	29.81	0.750	0.500	0.500	76.54	87.41	2	24.69	1.000	97.17	108.58	3
g21P	g21Y	Short only	-0.74	-0.95	29.81	0.750	0.500	0.500	76.54	87.41	2	24.69	1.000	97.17	108.58	3
g21X	g21XY	Short only	-1.74	-1.52	29.81	0.750	0.500	0.500	76.54	87.41	2	24.69	1.000	97.17	108.58	3
g21XY	g21X	Short only	-1.52	-1.74	29.81	0.750	0.500	0.500	76.54	87.41	2	24.69	1.000	97.17	108.58	3
g21Y	g21P	Short only	-0.95	-0.74	29.81	0.750	0.500	0.500	76.54	87.41	2	24.69	1.000	97.17	108.58	3
g23P	g23Y	Short only	-3.25	-3.10	29.82	0.750	0.500	0.500	76.48	87.36	2	24.70	1.000	97.09	108.54	3
g23X	g23XY	Short only	-2.21	-2.40	29.82	0.750	0.500	0.500	76.48	87.36	2	24.70	1.000	97.09	108.54	3
g23XY	g23X	Short only	-2.40	-2.21	29.82	0.750	0.500	0.500	76.48	87.36	2	24.70	1.000	97.09	108.54	3
g23Y	g23P	Short only	-3.10	-3.25	29.82	0.750	0.500	0.500	76.48	87.36	2	24.70	1.000	97.09	108.54	3
g24X	g24P	Short only	-6.06	0.07	33.83	0.750	0.500	0.500	86.40	94.80	2	29.78	1.000	96.55	108.27	3
g24XY	g24Y	Short only	-5.99	-0.03	33.83	0.750	0.500	0.500	86.40	94.80	2	29.78	1.000	96.55	108.27	3
g24Y	g24XY	Short only	-0.03	-5.99	33.83	0.750	0.500	0.500	86.40	94.80	2	29.78	1.000	96.55	108.27	3
g27P	g27Y	Short only	-0.53	-0.41	33.83	0.750	0.500	0.500	86.40	94.80	2	29.78	1.000	96.55	108.27	3
g27X	g27XY	Short only	-2.03	-2.16	33.83	0.750	0.500	0.500	86.40	94.80	2	29.78	1.000	96.55	108.27	3
g27XY	g27X	Short only	-2.16	-2.03	33.83	0.750	0.500	0.500	86.40	94.80	2	29.78	1.000	96.55	108.27	3

g27Y	g27P	Short only	-0.41	-0.53	33.83	0.750	0.500	0.500	86.40	94.80	2	29.78	1.000	96.55	108.27	3
g29P	g29Y	Short only	-3.65	-3.54	39.29	0.750	0.500	0.500	77.00	87.75	2	32.47	1.000	98.03	109.01	3
g29X	g29XY	Short only	-1.63	-1.79	39.29	0.750	0.500	0.500	77.00	87.75	2	32.47	1.000	98.03	109.01	3
g29XY	g29X	Short only	-1.79	-1.63	39.29	0.750	0.500	0.500	77.00	87.75	2	32.47	1.000	98.03	109.01	3
g29Y	g29P	Short only	-3.54	-3.65	39.29	0.750	0.500	0.500	77.00	87.75	2	32.47	1.000	98.03	109.01	3
g30X	g30P	Short only	-3.17	0.14	33.47	0.768	0.536	0.536	101.53	106.15	2	28.23	1.000	120.58	120.36	6
g30XY	g30Y	Short only	-2.68	-0.28	33.47	0.768	0.536	0.536	101.53	106.15	2	28.23	1.000	120.58	120.36	6
g30Y	g30XY	Short only	-0.28	-2.68	33.47	0.768	0.536	0.536	101.53	106.15	2	28.23	1.000	120.58	120.36	6
g31P	g31Y	Short only	-1.54	-1.63	33.47	0.768	0.536	0.536	101.53	106.15	2	28.23	1.000	120.58	120.36	6
g31Y	g31P	Short only	-1.63	-1.54	33.47	0.768	0.536	0.536	101.53	106.15	2	28.23	1.000	120.58	120.36	6
g33X	g33XY	Short only	-0.41	-0.62	21.38	0.788	0.577	0.577	120.36	120.31	5	19.15	1.000	132.40	127.63	6
g33XY	g33X	Short only	-0.62	-0.41	21.38	0.788	0.577	0.577	120.36	120.31	5	19.15	1.000	132.40	127.63	6
g34XY	g34Y	Short only	-1.63	0.30	20.71	0.767	0.535	0.535	123.31	122.56	5	16.83	1.000	146.29	136.17	6
g35P	g35Y	Short only	-0.78	-0.88	20.71	0.767	0.535	0.535	123.31	122.56	5	16.83	1.000	146.29	136.17	6
g35Y	g35P	Short only	-0.88	-0.78	20.71	0.767	0.535	0.535	123.31	122.56	5	16.83	1.000	146.29	136.17	6

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

Clamp Label	Force (kips)	Input Holding Capacity (kips)	Factored Holding Capacity (kips)	Usage %
1	2.896	50.00	50.00	5.79
2	2.909	50.00	50.00	5.82
3	10.103	50.00	50.00	20.21
4	10.110	50.00	50.00	20.22
5	10.158	50.00	50.00	20.32
6	10.166	50.00	50.00	20.33
7	10.103	50.00	50.00	20.21
8	10.110	50.00	50.00	20.22
9	8.557	50.00	50.00	17.11
10	1.126	50.00	50.00	2.25
11	0.845	50.00	50.00	1.69
12	1.282	50.00	50.00	2.56
13	2.701	50.00	50.00	5.40
14	2.912	50.00	50.00	5.82
15	0.899	50.00	50.00	1.80
16	0.591	50.00	50.00	1.18
17	0.801	50.00	50.00	1.60
18	0.693	50.00	50.00	1.39
19	0.871	50.00	50.00	1.74
20	1.328	50.00	50.00	2.66
21	1.642	50.00	50.00	3.28

*** Analysis Results for Load Case No. 2 "NESC Extreme" - Number of iterations in SAPS 11

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	-0.009159	0.3749	-0.031	-0.4201	0.0146	-0.0914	-0.009159	3.375	94.97
2P	-0.007023	0.3312	-0.02957	-0.4463	-0.0261	-0.0955	2.993	3.331	89.64
3P	-0.005291	0.2951	-0.02899	-0.4334	-0.0329	-0.0914	2.995	3.295	84.97
4P	-0.003274	0.2605	-0.028	-0.4100	-0.0243	-0.0934	2.997	3.26	80.3
5P	-0.001346	0.2281	-0.02633	-0.3938	-0.0183	-0.0955	2.999	3.228	75.63
6P	-0.0002455	0.1963	-0.02408	-0.3794	-0.0176	-0.0975	3	3.196	70.98
7P	0.001885	0.1682	-0.02244	-0.3218	-0.0322	-0.0960	3.002	3.168	66.31
8P	0.003858	0.1428	-0.02035	-0.3041	-0.0080	-0.0947	3.004	3.143	61.64
9P	0.00437	0.1191	-0.01797	-0.2716	-0.0307	-0.0932	3.004	3.119	56.98
10P	0	0	0	0.0000	0.0000	0.0000	8.96	8.96	0
18P	0.00855	0.3748	-0.1166	-0.4297	0.0146	-0.0868	0.00855	14.87	94.88
19P	0.008805	0.2992	-0.107	-0.5142	-0.0188	-0.0897	0.008805	12.3	84.89
20P	0.01963	0.2006	-0.117	-0.4972	-0.0154	-0.1021	0.01963	14.7	70.88
21P	0.01934	0.1236	-0.07407	-0.3865	-0.0159	-0.0952	0.01934	12.12	56.93
27P	-0.01844	0.7435	-0.00677	-1.3908	-0.0209	-0.0693	1.482	0.7435	109.5
28P	-0.01172	0.334	-0.002353	-0.7647	-0.0207	-0.0691	1.488	0.334	89.67
29P	-0.0101	0.2824	-0.002011	-0.5205	-0.0205	-0.0683	1.49	0.2824	85
30P	-0.005471	0.1987	-0.001587	-0.2910	-0.0177	-0.0661	1.495	0.1987	71
31P	-0.00073	0.122	-0.001175	-0.2888	-0.0266	-0.0590	1.499	0.122	57
32P	0.01061	0.01388	-0.0003113	-0.0783	0.0402	-0.0243	1.511	0.01388	15
33P	0	0	0	0.0000	0.0000	0.0000	1.5	0	0
1X	-0.01848	0.3749	0.01292	-0.4197	0.0134	-0.0863	-0.01848	-2.625	95.01
2X	-0.01707	0.3307	0.01394	-0.3830	0.0132	-0.1134	2.983	-2.669	89.68
2XY	-0.01631	0.3397	0.01173	-0.4323	-0.0277	-0.0880	-3.016	-2.66	89.68
2Y	-0.00704	0.3402	-0.03173	-0.4376	-0.0278	-0.0950	-3.007	3.34	89.64
3X	-0.01496	0.2955	0.01406	-0.4126	-0.0417	-0.0947	2.985	-2.704	85.01
3XY	-0.0151	0.305	0.0118	-0.4039	-0.0075	-0.0902	-3.015	-2.695	85.01
3Y	-0.005528	0.3047	-0.03107	-0.4323	-0.0067	-0.0921	-3.006	3.305	84.97
4X	-0.01341	0.2609	0.01377	-0.4291	-0.0031	-0.0956	2.987	-2.739	80.34
4XY	-0.01342	0.2708	0.01154	-0.4251	-0.0349	-0.0908	-3.013	-2.729	80.34
4Y	-0.00426	0.2706	-0.03007	-0.4029	-0.0171	-0.0929	-3.004	3.271	80.3
5X	-0.01297	0.2268	0.01296	-0.4008	-0.0236	-0.0960	2.987	-2.773	75.67
5XY	-0.01073	0.2371	0.01081	-0.3949	-0.0171	-0.0917	-3.011	-2.763	75.67
5Y	-0.002891	0.2385	-0.02842	-0.3932	-0.0255	-0.0937	-3.003	3.238	75.63
6X	-0.01027	0.1968	0.01181	-0.3294	-0.0221	-0.0965	2.99	-2.803	71.01
6XY	-0.0104	0.2072	0.009742	-0.3362	-0.0114	-0.0926	-3.01	-2.793	71.01
6Y	-0.0006888	0.2069	-0.02621	-0.3728	-0.0160	-0.0946	-3.001	3.207	70.97
7X	-0.009134	0.1683	0.01085	-0.3473	-0.0037	-0.0974	2.991	-2.832	66.34
7XY	-0.008435	0.1787	0.008833	-0.3487	-0.0364	-0.0911	-3.008	-2.821	66.34
7Y	0.0004148	0.1786	-0.02457	-0.3253	-0.0103	-0.0957	-3	3.179	66.31
8X	-0.008554	0.1418	0.009509	-0.3035	-0.0298	-0.0980	2.991	-2.858	61.67
8XY	-0.005968	0.1519	0.007534	-0.3046	-0.0091	-0.0899	-3.006	-2.848	61.67
8Y	0.001667	0.153	-0.02245	-0.3081	-0.0330	-0.0967	-2.998	3.153	61.64
9X	-0.005556	0.1195	0.007993	-0.2385	-0.0117	-0.0987	2.994	-2.881	57.01
9XY	-0.005978	0.1295	0.006034	-0.2451	-0.0208	-0.0886	-3.006	-2.871	57.01
9Y	0.004316	0.1291	-0.02	-0.2664	-0.0041	-0.0979	-2.996	3.129	56.98
10X	0	0	0	0.0000	0.0000	0.0000	8.96	-8.96	0
10XY	0	0	0	0.0000	0.0000	0.0000	-8.96	-8.96	0
10Y	0	0	0	0.0000	0.0000	0.0000	-8.96	8.96	0
18X	-0.03587	0.3751	0.09756	-0.4227	0.0134	-0.0869	-0.03587	-14.12	95.1

19X	-0.02923	0.301	0.07215	-0.3653	-0.0260	-0.0893	-0.02923	-11.7	85.07
20X	-0.03041	0.203	0.07243	-0.2956	-0.0153	-0.1027	-0.03041	-14.3	71.07
21X	-0.02079	0.1252	0.04284	-0.2207	-0.0149	-0.0965	-0.02079	-11.87	57.04
11S	0.009836	0.09213	-0.01721	-0.2033	-0.0287	-0.0780	3.689	3.772	50.48
12S	0.01149	0.06875	-0.01607	-0.1816	-0.0130	-0.0664	4.371	4.428	43.98
13S	0.01455	0.04969	-0.01426	-0.1327	-0.0227	-0.0545	5.053	5.089	37.49
14S	0.01951	0.02542	-0.01053	-0.1141	-0.0397	-0.0426	6.235	6.241	26.24
15S	0.02385	0.004406	-0.005763	-0.0586	0.0452	-0.0163	7.415	7.396	14.99
16S	0.0156	0.004357	0.0001965	-0.0492	-0.2017	-0.0797	7.407	0.004357	15
17S	4.681e-005	0.02004	0.002808	-0.3232	-0.0938	-0.0844	4.681e-005	-7.372	15
22S	-0.01178	0.3357	-0.004132	-0.5071	-0.1223	-0.0736	-0.01178	0.3357	89.67
23S	-0.01022	0.3001	-0.01337	-0.4049	-0.0185	-0.0910	-0.01022	0.3001	84.99
24S	-0.00544	0.2019	-0.004398	-0.3291	-0.0866	-0.1191	-0.00544	0.2019	71
25S	-0.000717	0.1242	-0.003803	-0.2582	-0.0844	-0.0980	-0.000717	0.1242	57
17SF0.50S	0.007786	0.01226	-0.01058	0.1197	0.0961	-0.0772	3.704	-3.684	14.99
1PF94S	-0.00929	0.3667	-0.03103	-0.4019	0.0077	-0.1162	0.5536	3.367	93.97
35S	-0.01614	0.3667	-0.01051	-0.4178	0.0070	-0.0919	0.5467	0.3667	93.99
11X	-0.006601	0.09142	0.008797	-0.2172	-0.0094	-0.0880	3.673	-3.588	50.51
11XY	-0.003057	0.1035	0.006459	-0.2114	-0.0263	-0.0759	-3.683	-3.576	50.51
11Y	0.005133	0.1047	-0.01956	-0.2028	-0.0096	-0.0887	-3.675	3.784	50.48
12X	-0.004513	0.0685	0.009097	-0.1734	-0.0235	-0.0730	4.355	-4.291	44.01
12XY	-0.003325	0.0832	0.006348	-0.1683	-0.0072	-0.0669	-4.363	-4.276	44.01
12Y	0.009631	0.08316	-0.01883	-0.1753	-0.0290	-0.0771	-4.35	4.442	43.98
13X	-0.003747	0.0496	0.008726	-0.1357	-0.0068	-0.0621	5.035	-4.989	37.51
13XY	-0.002342	0.06616	0.005646	-0.1327	-0.0208	-0.0536	-5.041	-4.973	37.51
13Y	0.01269	0.06661	-0.01739	-0.1323	-0.0099	-0.0632	-5.026	5.106	37.48
14X	-0.002563	0.02497	0.00724	-0.1118	-0.0140	-0.0465	6.213	-6.19	26.26
14XY	-0.0004475	0.0459	0.003395	-0.0848	-0.0129	-0.0389	-6.216	-6.169	26.25
14Y	0.0183	0.04486	-0.01452	-0.0883	-0.0425	-0.0502	-6.197	6.26	26.24
15X	1.005e-005	0.004537	0.005301	-0.0631	-0.0109	-0.0294	7.392	-7.387	15.01
15XY	3.712e-006	0.02771	0.001738	-0.1270	-0.0001	-0.0154	-7.392	-7.364	15
15Y	0.02378	0.02829	-0.00946	-0.1095	0.0598	-0.0166	-7.368	7.42	14.99
16Y	0.008423	0.0277	-0.008882	-0.0270	0.3323	-0.0745	-7.383	0.0277	14.99
17X	0.02396	0.01264	-0.01418	0.1676	-0.0815	-0.0739	0.02396	7.404	14.99
17SF0.50X	0.01972	0.008472	-0.01805	-0.2274	0.0645	-0.1624	3.716	3.704	14.98
17SF0.50XY	0.01569	0.02069	-0.02949	-0.1651	-0.1700	-0.1179	-3.68	3.716	14.97
17SF0.50Y	0.003911	0.02357	-0.02371	0.0531	-0.2125	-0.1161	-3.692	-3.672	14.98
1PF94X	-0.01889	0.3668	0.01272	-0.4340	0.0063	-0.0666	0.544	-2.633	94.01

Joint Support Reactions for Load Case "NESC Extreme":

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	Z Force (kips)	Comp. Usage %	Uplift Usage %	Result. Force (kips)	Result. Usage %	X Moment (ft-k)	X-M. Usage %	Y Moment (ft-k)	Y-M. Usage %	Z Moment (ft-k)	Z-M. Usage %	Max. Usage %
10P	-8.16	0.0	-11.53	0.0	77.64	0.0	0.0	78.91	0.0	-0.13	0.0	-1.6	0.0	-0.13	0.0	0.0
33P	-0.98	0.0	-1.02	0.0	8.19	0.0	0.0	8.32	0.0	9.84	0.0	-9.8	0.0	1.15	0.0	0.0
10X	9.72	0.0	-7.18	0.0	-56.46	0.0	0.0	57.74	0.0	-0.15	0.0	-0.1	0.0	0.06	0.0	0.0
10XY	-10.07	0.0	-13.48	0.0	-59.13	0.0	0.0	61.48	0.0	1.32	0.0	0.0	0.0	-0.06	0.0	0.0
10Y	9.48	0.0	-8.98	0.0	82.79	0.0	0.0	83.81	0.0	1.44	0.0	-1.6	0.0	-0.22	0.0	0.0

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	0.1856	-0.1643	-0.0000	-0.1856	0.1643	-0.0092	0.3749	-0.0310

2P	0.0000	0.1856	-0.1643	-0.0000	-0.1856	0.1643	-0.0070	0.3312	-0.0296
3P	0.0000	0.1856	-0.1643	-0.0000	-0.1856	0.1643	-0.0053	0.2951	-0.0290
4P	0.0000	0.1856	-0.1643	0.0000	-0.1856	0.1643	-0.0033	0.2605	-0.0280
5P	0.0000	0.1856	-0.1643	0.0000	-0.1856	0.1643	-0.0013	0.2281	-0.0263
6P	0.0000	0.1856	-0.1643	-0.0000	-0.1856	0.1643	-0.0002	0.1963	-0.0241
7P	0.0000	0.1856	-0.1643	0.0000	-0.1856	0.1643	0.0019	0.1682	-0.0224
8P	0.0000	0.1856	-0.1643	0.0000	-0.1856	0.1643	0.0039	0.1428	-0.0204
9P	0.0000	0.5457	-0.4379	-0.0000	-0.5457	0.4379	0.0044	0.1191	-0.0180
10P	0.0000	0.3601	-0.2736	8.1583	11.1685	-77.3658	0.0000	0.0000	0.0000
18P	0.0000	0.5786	-0.8143	-0.0000	-0.5786	0.8143	0.0085	0.3748	-0.1166
19P	0.0000	1.7196	-4.6103	-0.0000	-1.7196	4.6103	0.0088	0.2992	-0.1070
20P	0.0000	1.7196	-4.6103	-0.0000	-1.7196	4.6103	0.0196	0.2006	-0.1170
21P	0.0000	1.7196	-4.6103	-0.0000	-1.7196	4.6103	0.0193	0.1236	-0.0741
27P	0.0000	2.8556	-3.8043	0.0000	-2.8556	3.8043	-0.0184	0.7435	-0.0068
28P	0.0000	0.1856	-0.2423	0.0000	-0.1856	0.2423	-0.0117	0.3340	-0.0024
29P	0.0000	0.1856	-0.2233	-0.0000	-0.1856	0.2233	-0.0101	0.2824	-0.0020
30P	0.0000	0.1856	-0.2513	-0.0000	-0.1856	0.2513	-0.0055	0.1987	-0.0016
31P	0.0000	0.5457	-0.6129	-0.0000	-0.5457	0.6129	-0.0007	0.1220	-0.0012
32P	0.0000	0.3601	-0.4986	0.0000	-0.3601	0.4986	0.0106	0.0139	-0.0003
33P	0.0000	0.3601	-0.2736	0.9786	0.6629	-7.9201	0.0000	0.0000	0.0000
1X	0.0000	0.1856	-0.1643	-0.0000	-0.1856	0.1643	-0.0185	0.3749	0.0129
2X	0.0000	0.1856	-0.1643	-0.0000	-0.1856	0.1643	-0.0171	0.3307	0.0139
2XY	0.0000	0.1856	-0.1643	0.0000	-0.1856	0.1643	-0.0163	0.3397	0.0117
2Y	0.0000	1.0056	-0.3513	0.0000	-1.0056	0.3513	-0.0070	0.3402	-0.0317
3X	0.0000	0.1856	-0.1643	-0.0000	-0.1856	0.1643	-0.0150	0.2955	0.0141
3XY	0.0000	0.1856	-0.1643	-0.0000	-0.1856	0.1643	-0.0151	0.3050	0.0118
3Y	0.0000	0.1856	-0.1643	-0.0000	-0.1856	0.1643	-0.0055	0.3047	-0.0311
4X	0.0000	0.1856	-0.1643	0.0000	-0.1856	0.1643	-0.0134	0.2609	0.0138
4XY	0.0000	0.1856	-0.1643	0.0000	-0.1856	0.1643	-0.0134	0.2708	0.0115
4Y	0.0000	0.7046	-0.2833	0.0000	-0.7046	0.2833	-0.0043	0.2706	-0.0301
5X	0.0000	0.1856	-0.1643	0.0000	-0.1856	0.1643	-0.0130	0.2268	0.0130
5XY	0.0000	0.1856	-0.1643	0.0000	-0.1856	0.1643	-0.0107	0.2371	0.0108
5Y	0.0000	0.1856	-0.1643	0.0000	-0.1856	0.1643	-0.0029	0.2385	-0.0284
6X	0.0000	0.1856	-0.1643	-0.0000	-0.1856	0.1643	-0.0103	0.1968	0.0118
6XY	0.0000	0.1856	-0.1643	-0.0000	-0.1856	0.1643	-0.0104	0.2072	0.0097
6Y	0.0000	0.7046	-0.2833	-0.0000	-0.7046	0.2833	-0.0007	0.2069	-0.0262
7X	0.0000	0.1856	-0.1643	0.0000	-0.1856	0.1643	-0.0091	0.1683	0.0108
7XY	0.0000	0.1856	-0.1643	0.0000	-0.1856	0.1643	-0.0084	0.1787	0.0088
7Y	0.0000	0.1856	-0.1643	0.0000	-0.1856	0.1643	0.0004	0.1786	-0.0246
8X	0.0000	0.1856	-0.1643	0.0000	-0.1856	0.1643	-0.0086	0.1418	0.0095
8XY	0.0000	0.1856	-0.1643	0.0000	-0.1856	0.1643	-0.0060	0.1519	0.0075
8Y	0.0000	0.7316	-0.2893	0.0000	-0.7316	0.2893	0.0017	0.1530	-0.0224
9X	0.0000	0.5457	-0.4379	-0.0000	-0.5457	0.4379	-0.0056	0.1195	0.0080
9XY	0.0000	0.5457	-0.4379	-0.0000	-0.5457	0.4379	-0.0060	0.1295	0.0060
9Y	0.0000	0.5457	-0.4379	-0.0000	-0.5457	0.4379	0.0043	0.1291	-0.0200
10X	0.0000	0.3601	-0.2736	-9.7227	6.8224	56.7297	0.0000	0.0000	0.0000
10XY	0.0000	0.3601	-0.2736	10.0695	13.1191	59.4025	0.0000	0.0000	0.0000
10Y	0.0000	0.3601	-0.2736	-9.4837	8.6194	-82.5123	0.0000	0.0000	0.0000
18X	0.0000	0.5786	-0.8143	-0.0000	-0.5786	0.8143	-0.0359	0.3751	0.0976
19X	0.0000	1.7196	-4.6103	-0.0000	-1.7196	4.6103	-0.0292	0.3010	0.0721
20X	0.0000	1.7196	-4.6103	-0.0000	-1.7196	4.6103	-0.0304	0.2030	0.0724
21X	0.0000	1.7196	-4.6103	-0.0000	-1.7196	4.6103	-0.0208	0.1252	0.0428
11S	0.0000	0.3601	-0.2736	0.0000	-0.3601	0.2736	0.0098	0.0921	-0.0172
12S	0.0000	0.3601	-0.2736	0.0000	-0.3601	0.2736	0.0115	0.0687	-0.0161
13S	0.0000	0.3601	-0.2736	-0.0000	-0.3601	0.2736	0.0145	0.0497	-0.0143
14S	0.0000	0.3601	-0.2736	0.0000	-0.3601	0.2736	0.0195	0.0254	-0.0105
15S	0.0000	0.3601	-0.2736	0.0000	-0.3601	0.2736	0.0239	0.0044	-0.0058
16S	0.0000	0.3601	-0.2736	0.0000	-0.3601	0.2736	0.0156	0.0044	0.0002
17S	0.0000	0.3601	-0.2736	0.0000	-0.3601	0.2736	0.0000	0.0200	0.0028

22S	0.0000	0.1856	-0.1643	-0.0000	-0.1856	0.1643	-0.0118	0.3357	-0.0041
23S	0.0000	0.1856	-0.1643	-0.0000	-0.1856	0.1643	-0.0102	0.3001	-0.0134
24S	0.0000	0.1856	-0.1643	-0.0000	-0.1856	0.1643	-0.0054	0.2019	-0.0044
25S	0.0000	0.1856	-0.1643	-0.0000	-0.1856	0.1643	-0.0007	0.1242	-0.0038
17SF0.50S	0.0000	0.3601	-0.2736	-0.0000	-0.3601	0.2736	0.0078	0.0123	-0.0106
1PF94S	0.0000	0.1856	-0.1643	0.0000	-0.1856	0.1643	-0.0093	0.3667	-0.0310
35S	0.0000	0.1856	-0.1643	-0.0000	-0.1856	0.1643	-0.0161	0.3667	-0.0105
11X	0.0000	0.3601	-0.2736	0.0000	-0.3601	0.2736	-0.0066	0.0914	0.0088
11XY	0.0000	0.3601	-0.2736	0.0000	-0.3601	0.2736	-0.0031	0.1035	0.0065
11Y	0.0000	1.0161	-0.4236	0.0000	-1.0161	0.4236	0.0051	0.1047	-0.0196
12X	0.0000	0.3601	-0.2736	0.0000	-0.3601	0.2736	-0.0045	0.0685	0.0091
12XY	0.0000	0.3601	-0.2736	0.0000	-0.3601	0.2736	-0.0033	0.0832	0.0063
12Y	0.0000	0.3601	-0.2736	0.0000	-0.3601	0.2736	0.0096	0.0832	-0.0188
13X	0.0000	0.3601	-0.2736	-0.0000	-0.3601	0.2736	-0.0037	0.0496	0.0087
13XY	0.0000	0.3601	-0.2736	-0.0000	-0.3601	0.2736	-0.0023	0.0662	0.0056
13Y	0.0000	1.3301	-0.4956	-0.0000	-1.3301	0.4956	0.0127	0.0666	-0.0174
14X	0.0000	0.3601	-0.2736	-0.0000	-0.3601	0.2736	-0.0026	0.0250	0.0072
14XY	0.0000	0.3601	-0.2736	-0.0000	-0.3601	0.2736	-0.0004	0.0459	0.0034
14Y	0.0000	0.3601	-0.2736	0.0000	-0.3601	0.2736	0.0183	0.0449	-0.0145
15X	0.0000	0.3601	-0.2736	-0.0000	-0.3601	0.2736	0.0000	0.0045	0.0053
15XY	0.0000	0.3601	-0.2736	-0.0000	-0.3601	0.2736	0.0000	0.0277	0.0017
15Y	0.0000	1.7951	-0.6016	-0.0000	-1.7951	0.6016	0.0238	0.0283	-0.0095
16Y	0.0000	0.3601	-0.2736	0.0000	-0.3601	0.2736	0.0084	0.0277	-0.0089
17X	0.0000	0.3601	-0.2736	0.0000	-0.3601	0.2736	0.0240	0.0126	-0.0142
17SF0.50X	0.0000	0.3601	-0.2736	0.0000	-0.3601	0.2736	0.0197	0.0085	-0.0180
17SF0.50XY	0.0000	0.3601	-0.2736	-0.0000	-0.3601	0.2736	0.0157	0.0207	-0.0295
17SF0.50Y	0.0000	0.3601	-0.2736	-0.0000	-0.3601	0.2736	0.0039	0.0236	-0.0237
1PF94X	0.0000	0.1856	-0.1643	0.0000	-0.1856	0.1643	-0.0189	0.3668	0.0127

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

Comp. Member Label	Tens. Member Label	Connect Leg for Comp. Member	Force In Comp. Member (kips)	Force In Tens. Member (kips)	Original Supported L/R Cap. (kips)	RLX	RLY	RLZ	L/R	KL/R	Curve No.	Alternate Unsupported L/R Cap. (kips)	RLOUT	L/R	KL/R	Curve No.
g17P	g17Y	Short only	-0.50	-0.40	10.51	0.750	0.500	0.500	133.00	129.95	5	7.81	1.000	169.90	150.69	6
g17X	g17XY	Short only	-0.47	-0.56	10.51	0.750	0.500	0.500	133.00	129.95	5	7.81	1.000	169.90	150.69	6
g17XY	g17X	Short only	-0.56	-0.47	10.51	0.750	0.500	0.500	133.00	129.95	5	7.81	1.000	169.90	150.69	6
g17Y	g17P	Short only	-0.40	-0.50	10.51	0.750	0.500	0.500	133.00	129.95	5	7.81	1.000	169.90	150.69	6
g19Y	g19P	Short only	-0.46	0.09	29.81	0.750	0.500	0.500	76.54	87.41	2	24.69	1.000	97.17	108.58	3
g21X	g21XY	Short only	-1.61	-1.08	29.81	0.750	0.500	0.500	76.54	87.41	2	24.69	1.000	97.17	108.58	3
g21XY	g21X	Short only	-1.08	-1.61	29.81	0.750	0.500	0.500	76.54	87.41	2	24.69	1.000	97.17	108.58	3
g23P	g23Y	Short only	-2.35	-1.90	29.82	0.750	0.500	0.500	76.48	87.36	2	24.70	1.000	97.09	108.54	3
g23X	g23XY	Short only	-0.15	-0.61	29.82	0.750	0.500	0.500	76.48	87.36	2	24.70	1.000	97.09	108.54	3
g23XY	g23X	Short only	-0.61	-0.15	29.82	0.750	0.500	0.500	76.48	87.36	2	24.70	1.000	97.09	108.54	3
g23Y	g23P	Short only	-1.90	-2.35	29.82	0.750	0.500	0.500	76.48	87.36	2	24.70	1.000	97.09	108.54	3
g25P	g25Y	Short only	-0.99	-0.92	33.83	0.750	0.500	0.500	86.40	94.80	2	29.78	1.000	96.55	108.27	3
g25Y	g25P	Short only	-0.92	-0.99	33.83	0.750	0.500	0.500	86.40	94.80	2	29.78	1.000	96.55	108.27	3
g27X	g27XY	Short only	-2.22	-2.10	33.83	0.750	0.500	0.500	86.40	94.80	2	29.78	1.000	96.55	108.27	3
g27XY	g27X	Short only	-2.10	-2.22	33.83	0.750	0.500	0.500	86.40	94.80	2	29.78	1.000	96.55	108.27	3
g29P	g29Y	Short only	-3.13	-2.94	39.29	0.750	0.500	0.500	77.00	87.75	2	32.47	1.000	98.03	109.01	3
g29Y	g29P	Short only	-2.94	-3.13	39.29	0.750	0.500	0.500	77.00	87.75	2	32.47	1.000	98.03	109.01	3
g31P	g31Y	Short only	-2.16	-2.70	33.47	0.768	0.536	0.536	101.53	106.15	2	28.23	1.000	120.58	120.36	6
g31Y	g31P	Short only	-2.70	-2.16	33.47	0.768	0.536	0.536	101.53	106.15	2	28.23	1.000	120.58	120.36	6
g33X	g33XY	Short only	-1.41	-1.30	21.38	0.788	0.577	0.577	120.36	120.31	5	19.15	1.000	132.40	127.63	6
g33XY	g33X	Short only	-1.30	-1.41	21.38	0.788	0.577	0.577	120.36	120.31	5	19.15	1.000	132.40	127.63	6
g35P	g35Y	Short only	-0.99	-1.37	20.71	0.767	0.535	0.535	123.31	122.56	5	16.83	1.000	146.29	136.17	6

g35Y	g35P	Short only	-1.37	-0.99	20.71	0.767	0.535	0.535	123.31	122.56	5	16.83	1.000	146.29	136.17	6

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

Clamp Label	Force (kips)	Input Holding Capacity (kips)	Factored Holding Capacity (kips)	Usage %
1	0.999	50.00	50.00	2.00
2	0.999	50.00	50.00	2.00
3	4.921	50.00	50.00	9.84
4	4.921	50.00	50.00	9.84
5	4.921	50.00	50.00	9.84
6	4.921	50.00	50.00	9.84
7	4.921	50.00	50.00	9.84
8	4.921	50.00	50.00	9.84
9	4.757	50.00	50.00	9.51
10	0.305	50.00	50.00	0.61
11	0.290	50.00	50.00	0.58
12	0.312	50.00	50.00	0.62
13	0.821	50.00	50.00	1.64
14	0.615	50.00	50.00	1.23
15	1.065	50.00	50.00	2.13
16	0.759	50.00	50.00	1.52
17	0.759	50.00	50.00	1.52
18	0.787	50.00	50.00	1.57
19	1.101	50.00	50.00	2.20
20	1.419	50.00	50.00	2.84
21	1.893	50.00	50.00	3.79

*** 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 (ksi)	Max Usage %	Max Use In Comp. %	Comp. Control Member	Comp. Force (kips)	Comp. Control Load Case	L/R Capacity (kips)	Comp. Connect. Shear Capacity (kips)	Comp. Connect. Bearing Capacity (kips)	RLX	RLY	RLZ	L/R Comp.	KL/R No. Of Member Bolts	Length Comp. (ft)	Curve No.
Leg1	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	36.0	10.99	10.99	g90P	-1.291	NESC Ext	11.743	36.400	40.781	1.000	1.000	1.000	148.27	148.27	6.116	4
Leg2	L4x4x1/4	SAE	4X4X0.25	36.0	44.25	44.25	g5P	-25.916	NESC Ext	58.567	72.800	108.750	1.000	1.000	1.000	70.34	70.34	4.660	1
Leg3	L4x4x7/16	SAE	4X4X0.4375	36.0	49.12	49.12	g8Y	-49.193	NESC Ext	100.146	127.400	333.046	1.000	1.000	1.000	71.24	71.24	4.660	1
Leg4	L5x5x7/16	SAE	5X5X0.4375	50.0	43.46	43.46	g11Y	-63.274	NESC Ext	150.630	145.600	426.562	1.000	1.000	1.000	79.97	79.97	6.571	1
Leg5	L6x6x3/8	SAE	6X6X0.375	50.0	49.25	49.25	g13Y	-80.856	NESC Ext	164.165	182.000	457.031	0.500	0.500	0.500	57.34	57.34	11.372	1
Leg6	L6x6x3/8	SAE	6X6X0.375	50.0	48.15	48.15	g14Y	-81.552	NESC Ext	169.375	182.000	457.031	0.330	0.330	0.330	50.46	50.46	15.163	1
Diag1	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	36.0	33.72	33.72	g16P	-3.543	NESC Ext	10.509	18.200	20.391	0.750	0.500	0.500	133.00	129.95	7.603	5
Diag2	L3x3x3/16	SAE	3X3X0.1875	36.0	25.26	24.20	g18X	-6.607	NESC Ext	29.813	27.300	30.586	0.750	0.500	0.500	76.54	87.41	7.603	2
Diag3	L3x2.5x1/4	SAU	3X2.5X0.25	36.0	26.57	25.76	g24XY	-7.032	NESC Ext	33.833	27.300	40.781	0.750	0.500	0.500	86.40	94.80	7.603	2
Diag4	L3x3x1/4	SAE	3X3X0.25	36.0	19.25	15.70	g28XY	-5.716	NESC Ext	39.289	36.400	54.375	0.750	0.500	0.500	77.00	87.75	7.597	2
Diag5	L3x3x3/16	SAE	3X3X0.1875	36.0	13.96	13.96	g34XY	-2.891	NESC Ext	20.706	27.300	30.586	0.767	0.535	0.535	123.31	122.56	11.447	5
Diag6	L2.5x2.5x1/4	SAE	2.5X2.5X0.25	36.0	77.35	77.35	g37Y	-6.505	NESC Ext	8.410	36.400	54.375	0.791	0.581	0.581	226.57	201.25	15.956	5
Diag7	L3x2.5x1/4	SAU	3X2.5X0.25	36.0	89.99	89.99	g41P	-9.509	NESC Hea	10.567	36.400	54.375	0.386	0.750	0.386	209.67	188.37	17.543	5
Horz1	L2x2x3/16	SAE	2X2X0.1875	36.0	43.25	43.25	g42X	-3.120	NESC Hea	7.213	18.200	20.391	1.000	1.000	1.000	182.74	167.85	6.000	5
Horz2	L3.5x2.5x1/4	SAU	3.5X2.5X0.25	36.0	18.78	0.00	g45X	0.000		24.594	27.300	40.781	1.000	1.000	1.000	132.35	129.45	6.000	5
Horz3	L3x2x3/16	SAU	3X2X0.1875	36.0	36.54	0.00	g46Y	0.000		10.922	18.200	20.391	1.000	1.000	1.000	164.01	153.57	6.000	5
Horz4	L1.75x1.25x3/16	SAU	1.75X1.25X0.1875	36.0	73.49	0.00	g48Y	0.000		2.789	18.200	20.391	1.000	1.000	1.000	267.66	232.56	6.000	5
Horz5	L3x2.5x3/16	SAU	3X2.5X0.1875	36.0	34.31	21.99	g50X	-4.003	NESC Ext	18.257	18.200	20.391	1.000	0.500	0.500	126.77	125.20	10.078	5
Horz6	L3.5x3x1/4	SAU	3.5X3X0.25	36.0	29.34	29.34	g52X	-7.633	NESC Ext	26.018	27.300	40.781	1.000	0.500	0.500	134.38			

131.00 12.431 5 3
Horz7 L2.5x2.5x3/16 SAE 2.5X2.5X0.1875 36.0 13.67 6.05 g53P -0.573NESC Ext 9.466 18.200 20.391 1.000 1.000 1.000 179.19
165.14 7.392 5 2
Inner1 L1.75x1.75x3/16 SAE 1.75X1.75X0.1875 36.0 26.50 26.50 Fg6072Y -0.862NESC Ext 3.252 9.100 10.195 2.000 1.000 1.000 233.59
233.59 5.227 4 1
Inner2 L2x2x3/16 SAE 2X2X0.1875 36.0 13.98 13.98 g57Y -1.192NESC Ext 8.530 18.200 20.391 2.000 1.000 1.000 165.03
154.35 4.243 5 2
ShieldAr WT4x12 WT WT4x12 36.0 36.93 0.00 g62P 0.000 81.514 18.200 53.287 1.000 1.000 1.000 72.07
96.04 6.000 3 2
ShArmBr L3.5x2.5x1/4 SAU 3.5X2.5X0.25 36.0 18.98 18.98 g69XY -3.454NESC Hea 19.970 18.200 27.187 1.000 0.500 0.500 143.66
143.66 13.025 4 2
TopCrArm L5x3.5x7/16 SAU 5X3.5X0.4375 50.0 59.30 59.30 g63P -10.792NESC Hea 103.153 18.200 53.320 0.500 0.500 0.500 75.09
97.55 9.487 3 2
TopArmBr L1.75X1.75x3/16 SAE 1.75X1.75X0.1875 36.0 72.95 0.00 g70Y 0.000 3.178 18.200 20.391 1.000 0.500 0.500 236.29
236.29 10.574 4 2
MidCrArm L5x3.5x7/16 SAU 5X3.5X0.4375 50.0 73.61 73.61 g65P -13.397NESC Hea 88.186 18.200 53.320 0.500 0.500 0.500 94.08
107.04 11.885 3 2
MidArmBr L2x2x3/16 SAE 2X2X0.1875 36.0 83.44 0.00 g71Y 0.000 3.297 18.200 20.391 1.000 0.500 0.500 248.28
248.28 12.766 4 2
BotCrArm L5x3.5x7/16 SAU 5X3.5X0.4375 50.0 58.66 58.66 g67P -10.676NESC Hea 103.153 18.200 53.320 0.500 0.500 0.500 75.09
97.55 9.487 3 2
BotArmBr L1.75X1.75x3/16 SAE 1.75X1.75X0.1875 36.0 72.10 0.00 g72Y 0.000 3.181 18.200 20.391 1.000 0.500 0.500 236.19
236.19 10.570 4 2
Pwmnt 12" Std. Pipe Pwmnt Pipe 12" Std. 50.0 5.36 5.36 g75P -15.834NESC Hea 295.328 0.000 0.000 1.000 1.000 1.000 114.81
114.81 42.000 1 0
PMBR1 L2x2x3/16 SAE 2X2X0.1875 36.0 15.66 6.60 g83P -0.673NESC Hea 20.044 16.800 10.195 1.000 1.000 1.000 45.69
82.84 1.500 3 1
PMBR2 L2.5x2.5x3/16 SAE 2.5X2.5X0.1875 36.0 46.47 27.28 g86P -2.781NESC Ext 22.127 16.800 10.195 1.000 1.000 1.000 81.31
100.66 3.354 3 1 A potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize moments): g84P ??
PMBR3 L3x3x3/16 SAE 3X3X0.1875 36.0 8.82 8.82 g88X -0.899NESC Hea 26.079 16.800 10.195 1.000 1.000 1.000 86.55
103.28 4.299 3 1
Diag8 L2x2x3/16 SAE 2X2X0.1875 36.0 9.16 9.16 g92X -0.596NESC Ext 6.503 16.800 10.195 1.000 1.000 1.000 176.78
176.78 5.804 4 1
Diag9 L2x2x3/16 SAE 2X2X0.1875 36.0 2.21 1.20 g93P -0.122NESC Ext 14.460 16.800 10.195 2.000 1.000 1.000 116.69
117.52 3.000 2 1
TopCArmA L5x3.5x7/16 SAU 5X3.5X0.4375 36.0 40.87 40.87 g64P -7.438NESC Hea 80.907 18.200 47.578 1.000 1.000 1.000 94.99
107.49 6.000 3 2
MidCArmA L5x3.5x7/16 SAU 5X3.5X0.4375 36.0 60.58 60.58 g66Y -11.025NESC Hea 80.907 18.200 47.578 1.000 1.000 1.000 94.99
107.49 6.000 3 2
BotCArmA L5x3.5x7/16 SAU 5X3.5X0.4375 36.0 59.41 59.41 g68Y -10.813NESC Hea 80.907 18.200 47.578 1.000 1.000 1.000 94.99
107.49 6.000 3 2
Inner3 L1.75x1.25x3/16 SAU 1.75X1.25X0.1875 36.0 30.86 30.86 g94XY -0.856NESC Ext 2.775 9.100 10.195 1.000 1.000 1.000 233.16
233.16 5.227 4 1 A potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize moments): g94P g94X g94XY g94Y ??

Group Summary (Tension Portion):

Group Label	Group Desc.	Angle Type	Angle Size	Steel Strength (ksi)	Max Usage %	Max Tension Use In Tens. %	Tension Control Member	Tension Force (kips)	Tension Control Load Case	Net Section Capacity (kips)	Tension Connect. Shear Capacity (kips)	Tension Connect. Bearing Capacity (kips)	Tension Connect. Rupture Capacity (kips)	Length Tens. Member (ft)	No. Of Bolts	No. Of Holes	Hole Diameter (in)

Leg1	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	36.0	10.99	1.44	g90X	0.322NESC	Ext	22.347	36.400	40.781	33.984	6.116	4	2.000	0.75
Leg2	L4x4x1/4	SAE	4X4X0.25	36.0	44.25	26.70	g5X	15.044NESC	Ext	56.340	72.800	108.750	120.833	4.660	8	2.000	0.75
Leg3	L4x4x7/16	SAE	4X4X0.4375	36.0	49.12	33.86	g8X	32.347NESC	Ext	95.535	127.400	333.046	370.052	4.660	14	2.000	0.75
Leg4	L5x5x7/16	SAE	5X5X0.4375	50.0	43.46	30.77	g11X	44.798NESC	Ext	158.633	145.600	426.562	473.958	6.571	16	3.070	0.75
Leg5	L6x6x3/8	SAE	6X6X0.375	50.0	49.25	28.64	g12X	46.323NESC	Ext	161.750	0.000	0.000	0.000	11.372	0	4.000	0.75
Leg6	L6x6x3/8	SAE	6X6X0.375	50.0	48.15	28.10	g14X	47.633NESC	Ext	169.484	182.000	457.031	477.940	15.163	20	3.450	0.75
Diag1	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	36.0	33.72	29.59	g16X	3.654NESC	Ext	15.532	18.200	20.391	12.347	7.603	2	1.000	0.75
Diag2	L3x3x3/16	SAE	3X3X0.1875	36.0	25.26	25.26	g20P	6.895NESC	Ext	30.760	27.300	30.586	30.586	7.603	3	1.000	0.75
Diag3	L3x2.5x1/4	SAU	3X2.5X0.25	36.0	26.57	26.57	g26Y	7.253NESC	Ext	32.319	27.300	40.781	40.781	7.603	3	1.000	0.75
Diag4	L3x3x1/4	SAE	3X3X0.25	36.0	19.25	19.25	g28Y	6.763NESC	Ext	40.581	36.400	54.375	35.137	7.597	4	1.000	0.75
Diag5	L3x3x3/16	SAE	3X3X0.1875	36.0	13.96	11.49	g32Y	3.123NESC	Ext	30.760	27.300	30.586	27.187	10.360	3	1.000	0.75
Diag6	L2.5x2.5x1/4	SAE	2.5X2.5X0.25	36.0	77.35	12.05	g37XY	3.915NESC	Ext	32.481	36.400	54.375	44.306	15.956	4	1.000	0.75
Diag7	L3x2.5x1/4	SAU	3X2.5X0.25	36.0	89.99	45.18	g40Y	15.874NESC	Ext	36.369	36.400	54.375	35.137	17.543	4	1.000	0.75
Horz1	L2x2x3/16	SAE	2X2X0.1875	36.0	43.25	0.58	g42P	0.081NESC	Ext	18.448	18.200	20.391	14.006	6.000	2	1.000	0.75
Horz2	L3.5x2.5x1/4	SAU	3.5X2.5X0.25	36.0	18.78	18.78	g44P	5.128NESC	Hea	40.581	27.300	40.781	27.450	6.000	3	1.000	0.75
Horz3	L3x2x3/16	SAU	3X2X0.1875	36.0	36.54	36.54	g46Y	5.117NESC	Hea	18.529	18.200	20.391	14.006	6.000	2	1.000	0.75
Horz4	L1.75x1.25x3/16	SAU	1.75X1.25X0.1875	36.0	73.49	73.49	g47Y	8.433NESC	Hea	12.519	18.200	20.391	11.475	6.000	2	1.000	0.75
Horz5	L3x2.5x3/16	SAU	3X2.5X0.1875	36.0	34.31	34.31	g50P	5.384NESC	Ext	24.806	18.200	20.391	15.694	10.078	2	1.000	0.75
Horz6	L3.5x3x1/4	SAU	3.5X3X0.25	36.0	29.34	27.74	g52P	7.572NESC	Hea	40.419	27.300	40.781	29.700	12.431	3	1.000	0.75
Horz7	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	36.0	13.67	13.67	g53XY	2.145NESC	Ext	24.669	18.200	20.391	15.694	7.392	2	1.000	0.75
Inner1	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	36.0	26.50	13.11	g55Y	1.726NESC	Ext	15.532	18.200	20.391	13.162	4.243	2	1.000	0.75
Inner2	L2x2x3/16	SAE	2X2X0.1875	36.0	13.98	8.98	g57P	1.258NESC	Ext	18.448	18.200	20.391	14.006	4.243	2	1.000	0.75
ShieldAr	WT4x12	WT	WT4x12	36.0	36.93	36.93	g61X	6.722NESC	Hea	108.742	18.200	53.287	0.000	11.500	2	1.000	0.75
ShArmBr	L3.5x2.5x1/4	SAU	3.5X2.5X0.25	36.0	18.98	0.00	g69Y	0.000		32.481	18.200	27.187	20.925	13.025	2	1.000	0.75
TopCrArm	L5x3.5x7/16	SAU	5X3.5X0.4375	50.0	59.30	0.00	g63Y	0.000		129.319	18.200	53.320	53.320	9.487	2	2.000	0.75
TopArmBr	L1.75X1.75x3/16	SAE	1.75X1.75X0.1875	36.0	72.95	72.95	g70P	11.330NESC	Hea	15.532	18.200	20.391	15.609	10.574	2	1.000	0.75
MidCrArm	L5x3.5x7/16	SAU	5X3.5X0.4375	50.0	73.61	0.00	g65Y	0.000		129.319	18.200	53.320	53.320	11.885	2	2.000	0.75
MidArmBr	L2x2x3/16	SAE	2X2X0.1875	36.0	83.44	83.44	g71P	13.729NESC	Hea	18.448	18.200	20.391	16.453	12.766	2	1.000	0.75
BotCrArm	L5x3.5x7/16	SAU	5X3.5X0.4375	50.0	58.66	0.00	g67Y	0.000		129.319	18.200	53.320	53.320	9.487	2	2.000	0.75
BotArmBr	L1.75X1.75x3/16	SAE	1.75X1.75X0.1875	36.0	72.10	72.10	g72P	11.199NESC	Hea	15.532	18.200	20.391	15.609	10.570	2	1.000	

0.75
Pwmnt 12" Std. Pipe Pwmnt Pipe 12" Std. 50.0 5.36 0.00 g79P 0.000 679.999 0.000 0.000 0.000 19.830 0 0.000
0
PMBR1 L2x2x3/16 SAE 2X2X0.1875 36.0 15.66 15.66 g80P 1.597NESC Hea 18.827 16.800 10.195 10.343 1.500 1 1.000
0.6875
PMBR2 L2.5x2.5x3/16 SAE 2.5X2.5X0.1875 36.0 46.47 46.47 g84P 4.738NESC Ext 25.048 16.800 10.195 11.328 3.354 1 1.000
0.6875 A potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize moments): g84P ??
PMBR3 L3x3x3/16 SAE 3X3X0.1875 36.0 8.82 4.19 g88X 0.427NESC Ext 31.139 16.800 10.195 11.328 4.299 1 1.000
0.6875
Diag8 L2x2x3/16 SAE 2X2X0.1875 36.0 9.16 4.29 g92P 0.437NESC Ext 18.827 16.800 10.195 10.343 5.804 1 1.000
0.6875
Diag9 L2x2x3/16 SAE 2X2X0.1875 36.0 2.21 2.21 g93X 0.225NESC Ext 18.827 16.800 10.195 10.343 3.000 1 1.000
0.6875
TopCArmA L5x3.5x7/16 SAU 5X3.5X0.4375 36.0 40.87 0.00 g64Y 0.000 103.741 18.200 47.578 44.494 6.000 2 1.000
0.75
MidCArmA L5x3.5x7/16 SAU 5X3.5X0.4375 36.0 60.58 0.00 g66Y 0.000 103.741 18.200 47.578 44.494 6.000 2 1.000
0.75
BotCArmA L5x3.5x7/16 SAU 5X3.5X0.4375 36.0 59.41 0.00 g68Y 0.000 103.741 18.200 47.578 44.494 6.000 2 1.000
0.75
Inner3 L1.75x1.25x3/16 SAU 1.75X1.25X0.1875 36.0 30.86 2.80 g94X 0.184NESC Ext 12.519 9.100 10.195 6.581 5.227 1 1.000
0.75 A potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize moments): g94P g94X g94XY g94Y ??

*** Maximum Stress Summary for Each Load Case

Summary of Maximum Usages by Load Case:

Load Case	Maximum Usage %	Element Label	Element Type
NESC Heavy	89.99	g41P	Angle
NESC Extreme	77.35	g37Y	Angle

Summary of Insulator Usages:

Insulator Label	Insulator Type	Maximum Usage %	Load Case	Weight (lbs)
1	Clamp	5.79	NESC Heavy	0.0
2	Clamp	5.82	NESC Heavy	0.0
3	Clamp	20.21	NESC Heavy	0.0
4	Clamp	20.22	NESC Heavy	0.0
5	Clamp	20.32	NESC Heavy	0.0
6	Clamp	20.33	NESC Heavy	0.0
7	Clamp	20.21	NESC Heavy	0.0
8	Clamp	20.22	NESC Heavy	0.0
9	Clamp	17.11	NESC Heavy	0.0
10	Clamp	2.25	NESC Heavy	0.0
11	Clamp	1.69	NESC Heavy	0.0
12	Clamp	2.56	NESC Heavy	0.0
13	Clamp	5.40	NESC Heavy	0.0
14	Clamp	5.82	NESC Heavy	0.0
15	Clamp	2.13	NESC Extreme	0.0
16	Clamp	1.52	NESC Extreme	0.0

17	Clamp	1.60	NESC Heavy	0.0
18	Clamp	1.57	NESC Extreme	0.0
19	Clamp	2.20	NESC Extreme	0.0
20	Clamp	2.84	NESC Extreme	0.0
21	Clamp	3.79	NESC Extreme	0.0

Loads At Insulator Attachments For All Load Cases:

Load Case	Insulator Label	Insulator Type	Structure Attach Label	Structure Attach Load X (kips)	Structure Attach Load Y (kips)	Structure Attach Load Z (kips)	Structure Attach Load Res. (kips)
NESC Heavy	1	Clamp	18P	0.000	0.614	2.830	2.896
NESC Heavy	2	Clamp	18X	0.000	0.671	2.830	2.909
NESC Heavy	3	Clamp	19P	0.000	1.110	10.041	10.103
NESC Heavy	4	Clamp	19X	0.000	1.176	10.041	10.110
NESC Heavy	5	Clamp	20P	0.000	1.110	10.098	10.158
NESC Heavy	6	Clamp	20X	0.000	1.180	10.098	10.166
NESC Heavy	7	Clamp	21P	0.000	1.110	10.041	10.103
NESC Heavy	8	Clamp	21X	0.000	1.176	10.041	10.110
NESC Heavy	9	Clamp	27P	0.000	1.083	8.488	8.557
NESC Heavy	10	Clamp	28P	0.000	0.416	1.047	1.126
NESC Heavy	11	Clamp	29P	0.000	0.317	0.784	0.845
NESC Heavy	12	Clamp	30P	0.000	0.476	1.191	1.282
NESC Heavy	13	Clamp	31P	0.000	0.974	2.520	2.701
NESC Heavy	14	Clamp	32P	0.000	0.999	2.735	2.912
NESC Heavy	15	Clamp	2Y	0.000	0.258	0.861	0.899
NESC Heavy	16	Clamp	4Y	0.000	0.163	0.568	0.591
NESC Heavy	17	Clamp	6Y	0.000	0.163	0.784	0.801
NESC Heavy	18	Clamp	8Y	0.000	0.172	0.671	0.693
NESC Heavy	19	Clamp	11Y	0.000	0.206	0.846	0.871
NESC Heavy	20	Clamp	13Y	0.000	0.305	1.293	1.328
NESC Heavy	21	Clamp	15Y	0.000	0.451	1.578	1.642
NESC Extreme	1	Clamp	18P	0.000	0.579	0.814	0.999
NESC Extreme	2	Clamp	18X	0.000	0.579	0.814	0.999
NESC Extreme	3	Clamp	19P	0.000	1.720	4.610	4.921
NESC Extreme	4	Clamp	19X	0.000	1.720	4.610	4.921
NESC Extreme	5	Clamp	20P	0.000	1.720	4.610	4.921
NESC Extreme	6	Clamp	20X	0.000	1.720	4.610	4.921
NESC Extreme	7	Clamp	21P	0.000	1.720	4.610	4.921
NESC Extreme	8	Clamp	21X	0.000	1.720	4.610	4.921
NESC Extreme	9	Clamp	27P	0.000	2.856	3.804	4.757
NESC Extreme	10	Clamp	28P	0.000	0.186	0.242	0.305
NESC Extreme	11	Clamp	29P	0.000	0.186	0.223	0.290
NESC Extreme	12	Clamp	30P	0.000	0.186	0.251	0.312
NESC Extreme	13	Clamp	31P	0.000	0.546	0.613	0.821
NESC Extreme	14	Clamp	32P	0.000	0.360	0.499	0.615
NESC Extreme	15	Clamp	2Y	0.000	1.006	0.351	1.065
NESC Extreme	16	Clamp	4Y	0.000	0.705	0.283	0.759
NESC Extreme	17	Clamp	6Y	0.000	0.705	0.283	0.759
NESC Extreme	18	Clamp	8Y	0.000	0.732	0.289	0.787
NESC Extreme	19	Clamp	11Y	0.000	1.016	0.424	1.101
NESC Extreme	20	Clamp	13Y	0.000	1.330	0.496	1.419
NESC Extreme	21	Clamp	15Y	0.000	1.795	0.602	1.893

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 Vert. Load (kips)	Transverse Overturning Moment (ft-k)	Longitudinal Overturning Moment (ft-k)
NESC Heavy	10.352	0.000	77.569	779.356	-8.108
NESC Extreme	18.125	0.000	33.490	1303.028	0.651

*** Weight of structure (lbs):
Weight of Angles*Section DLF: 19543.9
Total: 19543.9

*** End of Report

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Subject:	Anchor Bolt Analysis for CL&P Tower # 1522
Location:	Watertown, CT
Rev. 1: 8/21/13	Prepared by: T.J.L. Checked by: C.F.C. Job No. 12047.CO8

Tower Anchor Bolt Analysis

Max Leg Reactions:

Uplift = $Uplift := 59.13 \cdot kips$ (User Input)

Shear = $Shear := 16.83 \cdot kips$ (User Input)

Compression = $Compression := 82.79 \cdot kips$ (User Input)

Anchor Bolt Data:

Use ASTM A36 (Assumed Conservative Value - Actual Grade Unknown)

Number of Anchor Bolts = $N := 4$ (User Input)

Bolt Ultimate Strength = $F_u := 58ksi$ (User Input)

Bolt Yield Strength = $F_y := 36ksi$ (User Input)

Diameter of Bolts = $D := 1.25in$ (User Input)

Threads per Inch = $n := 6$ (User Input)

Coefficient of Friction = $\mu := 0.55$ (User Input)

Anchor Bolt Area:

Net Area of Bolt = $A_n := \frac{\pi}{4} \cdot \left(D - \frac{0.9743 \cdot in}{n} \right)^2 = 0.929 \cdot in^2$ (AISC 13th Ed. pg. 7-83)

Check Anchor Bolt Area:

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

Required Area = $A_{s1} := \frac{Uplift}{F_y} + \frac{Shear}{\mu \cdot .85 \cdot F_y} = 2.6 \cdot in^2$

$A_{s2} := \left[\frac{Shear - (0.3 \cdot Compression)}{\mu \cdot .85 \cdot F_y} \right] = -0.476 \cdot in^2$

Provided Area = $A_{sprovided} := A_n \cdot N = 3.7 \cdot in^2$

$Condition1 := if\left(\frac{A_{s1}}{A_{sprovided}} \le 1.00, "OK", "Overstressed" \right)$

Condition1 = "OK"

$Condition2 := if\left(\frac{A_{s2}}{A_{sprovided}} \le 1.00, "OK", "Overstressed" \right)$

Condition2 = "OK"

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Subject:	Foundation Analysis CL&P Tower # 1522
Location:	Watertown, CT
Rev. 1: 8/21/13	Prepared by: T.J.L. Checked by: C.F.C. Job No. 12047.CO8

Foundation Analysis

Input Data:

Max. Reactions at Tower Leg:

Shear (Compression Leg) = $Shear_{comp} := 13.06 \cdot 1.1 \cdot kips = 14.4 \cdot kips$ (User Input from PLS Tower)

Shear (Uplift Leg) = $Shear_{up} := 16.83 \cdot 1.1 \cdot kips = 18.5 \cdot kips$ (User Input from PLS Tower)

Compression = $Comp := 82.79 \cdot 1.1 \cdot kips = 91.1 \cdot kips$ (User Input from PLS Tower)

Uplift = $Uplift := 59.13 \cdot 1.1 \cdot kips = 65 \cdot kips$ (User Input from PLS Tower)

Tower Properties:

Tower Height = $H_t := 95 \cdot ft$ (User Input)

Foundation Properties: (Refer to NUSCO drawing 01096-60000 sheet 5)

Pier Height = $P_H := 10.0 \cdot ft$ (User Input)

Pier Width Top = $P_{w1} := 4 \cdot ft$ (User Input)

Pier Width Botttom = $P_{w2} := 4 \cdot ft$ (User Input)

Pier Projection Above Grade = $P_P := 2.5 \cdot ft$ (User Input)

Pad Width = $Pd_w := 12.5 \cdot ft$ (User Input)

Pad Thickness = $Pd_t := 2.5 \cdot ft$ (User Input)

Subgrade Properties:

Concrete Unit Weight = $\gamma c := 150 \cdot pcf$ (User Input)

Water Unit Weight = $\gamma w := 62.4 \cdot pcf$ (User Input)

Soil Unit Weight = $\gamma s := 100 \cdot pcf$ (User Input)

Uplift Angle = $\phi := 30.0 \cdot deg$ (User Input)

Soil Bearing Capacity = $BC_{soil} := 4000 \cdot psf$ (User Input)

Coefficient of Friction = $\mu := 0.45$ (User Input)

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

Calculated Data:

Volume of the Concrete Pad = $V_{pad} := Pd_w^2 \cdot Pd_t = 390.625 \cdot ft^3$

Volume of the Concrete Pier = $V_{pier} := \frac{(P_H)}{3} \cdot \left(P_{w1}^2 + P_{w2}^2 + \sqrt{P_{w1}^2 \cdot P_{w2}^2}\right) = 160 \cdot ft^3$

Resisting Pyramid Base 1 = $B_1 := Pd_w^2 = 156.25 ft^2$

Resisting Pyramid Base 2 = $B_2 := \left[2 \cdot \tan(\phi) \cdot (P_H - P_P) + Pd_w\right]^2 = 448 ft^2$

Volume of Soil = $V_{soil} := \left[\frac{(P_H - P_P)}{3} \cdot \left(B_1 + B_2 + \sqrt{B_1 \cdot B_2}\right)\right] - P_{w1}^2 \cdot (P_H - P_P) = 2051 \cdot ft^3$

Total Volume of Concrete = $V_{Conc} := V_{pad} + V_{pier} = 551 \cdot ft^3$

Mass of Concrete = $Mass_{Conc} := V_{Conc} \cdot \gamma c = 82.6 \cdot kips$

Mass of Soil = $Mass_{Soil} := V_{soil} \cdot \gamma s = 205 \cdot kips$

Total Mass = $Mass_{tot} := Mass_{Conc} + Mass_{Soil} = 288 \cdot kips$

Check Uplift:

Required Factor of Safety = $F_S := 1.0$

$ActualFS := \frac{Mass_{tot}}{Uplift} = 4.42$

$Uplift\_Check := if\left(\frac{Mass_{tot}}{Uplift} \geq F_S, "OK", "Overstressed"\right)$

Uplift_Check = "OK"

Check Bearing:

Cross Sectional Area of Pad = $A_{pad} := Pd_w^2 = 156 ft^2$

Section Modulus of Pad = $S_{pad} := \frac{(Pd_w)^3}{6} = 326 \cdot ft^3$

Residual Mass of Concrete = $Mass_{Concr} := V_{Conc} \cdot (\gamma c - \gamma s) = 27.5 \cdot kips$

$Bearing := \frac{Comp + Mass_{Concr}}{A_{pad}} + \frac{\left[Shear_{comp} \cdot (P_H + Pd_t)\right]}{S_{pad}} = 1.31 \cdot ksf$

$Bearing\_Check := if\left(Bearing \leq BC_{soil}, "OK", "No Good"\right)$

Bearing_Check = "OK"

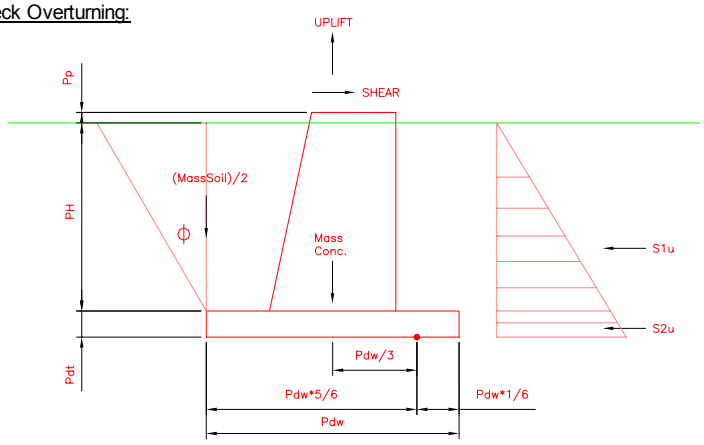
Check Sliding:

Sliding Resistance = $S_R := \mu \cdot \left(Mass_{Conc} + Comp\right) = 78.148 \cdot kips$

$Sliding\_Check := if\left(Shear_{comp} \leq S_R, "OK", "No Good"\right)$

Sliding_Check = "OK"

Check Overturning:



Passive Pressure (on pier) =

$P1_{top} := K_p \cdot \gamma s \cdot 0 = 0 \cdot ksf$

$P1_{bot} := K_p \cdot \gamma s \cdot (P_H - P_P) = 2.25 \cdot ksf$

$P1_{ave} := \frac{P1_{top} + P1_{bot}}{2} = 1.125 \cdot ksf$

$A_1 := (P_H - P_P) \cdot \left[\frac{(P_{w1} + P_{w2})}{2} \right] = 30\,ft^2$

Ultimate Shear =

$S1_u := P1_{ave} \cdot A_1 = 33.75 \cdot kip$

Passive Pressure (on pad) =

$P2_{top} := K_p \cdot \gamma s \cdot (P_H - P_P) = 2.25 \cdot ksf$

$P2_{bot} := K_p \cdot \gamma s \cdot (P_H + Pd_t - P_P) = 3 \cdot ksf$

$P2_{ave} := \frac{P2_{top} + P2_{bot}}{2} = 2.625 \cdot ksf$

$A_2 := Pd_t \cdot Pd_w = 31.25\,ft^2$

Ultimate Shear =

$S2_u := P2_{ave} \cdot A_2 = 82.031 \cdot kip$

Overturning Moment =

$OM := Uplift \cdot \frac{Pd_w}{3} + Shear_{up} \cdot (P_H + Pd_t) = 502.4 \cdot k \cdot ft$

Resisting Moment =

$RM := Mass_{Conc} \cdot \left(\frac{Pd_w}{3} \right) + \frac{Mass_{Soil}}{2} \cdot \left(\frac{5 \cdot Pd_w}{6} \right) + S1_u \cdot \left[Pd_t + \frac{1}{3} \cdot (P_H - P_P) \right] + S2_u \cdot \left(\frac{1}{3} \cdot Pd_t \right) = 1649.6 \cdot k \cdot ft$

$ActualFS := \frac{RM}{OM} = 3.28$

$Overturning\_Check := if\left(\frac{RM}{OM} \geq F_S, "OK", "No\ Good" \right)$

Overturning_Check = "OK"

Product Data Sheet APXVSPP18-C

Triple Band Dual Polarized Antenna, 806-1995, 65deg, 16-18dBi, 1.8m, VET, 0-10deg, 0.5m AISG Cable

Product Description

This antenna is an ideal choice for dual band site upgrade for high traffic areas. It features 4 ports in 1900 MHz and 2 ports in 800 MHz.

Features/Benefits

- **Variable electrical downtilt – provides enhanced precision in controlling intercell interference. The tilt is infield adjustable 0-10 deg.**
- **High suppression of all upper sidelobes (Typically < 18 dB)**
- **Independent control of electrical downtilt for 800 and PCS bands**
- **Remote tilt – AISG compatible**
- **Low profile for low visual impact**
- **Quick and easy to adjust**
- **High front-to-back ratio**

Technical Specifications

Electrical Specifications

Frequency Range, MHz	806-869	1850-1995	1850-1995
Horizontal Beamwidth, deg	65	65	65
Vertical Beamwidth, deg	11.5	5.5	5.5
Electrical Downtilt, deg		0-10	
Gain, dBi (dBd)	15.5 (13.4)	18.0 (15.9)	18.0 (15.9)
1st Upper Sidelobe Suppression, dB, typ. @ T0° & T8°		>18	
Front-To-Back Ratio, dB, @ 180° ± 15°	>30	>27	>27
Polarization		Dual pol +/-45°	
Return Loss, dB		> 14	
Isolation between Ports, dB		>28	
3rd Order IMP @ 2 x 43 dBm, @ 2 min. duration		>110	
Cross Polar Discrimination (XPD) 0°, dB	>15	>20	>20
Cross Polar Discrimination (XPD) ± 60°, dB	>9.5	>11	>11
HBW Squint accross same band ports, °		±5	
Impedance, Ohms		50	
Maximum Power Input, W		250	
Lightning Protection		Direct Ground	
Connector Type		(6) 7-16 DIN Female	

Mechanical Specifications

Dimensions - HxWxD, mm (in)	1829 x 302 x 178 (72.0 x 11.8 x 7)
Weight w/o Mtg Hardware, kg (lb)	25.8 (57)
Radome Material	ASA
Radome Color	Light Grey RAL7035
Mounting Hardware Material	Diecasted Aluminum and Galvanized Steel

Ordering Information

Mounting Hardware	APM40-2 Downtilt Kit
AISG System Cable	0.5 m, included
Mounting Pipe Diameter, mm (in)	60-120 (2.4-4.7)
Mounting Hardware Weight, kg (lb)	3.4 (7.5)