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

HPC
WIRELESS SERVICES

June 4, 2013

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
280 Morehouse Drive, Fairfield, 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 First Selectman of the Town of Fairfield.

Sprint plans to modify the existing wireless communications facility owned by the Connecticut Light and Power Company ("CL&P") and located at 280 Morehouse Drive, Fairfield (coordinates 41°-44'-35" N, 72°-32'-5.8 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 six (6) existing CMDA antennas and add three (3) dual-band panel LTE antennas to existing pipe masts at a centerline height of approximately 104'. The proposed modifications will not extend the height of the approximately 86' structure, with PowerMount mast extending to a height of approximately 103'.

2. Sprint will remove and replace two (2) existing cabinets mounted and add a third cabinet on the existing concrete pad. Sprint will also install two ground-mounted pipes to which 6 RRHs (remote radio heads) will be attached. 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 at the site will result in a power density of approximately 38.874%; the combined site operations will result in a total power density of approximately 69.554%.

Please feel free to contact me by phone at (860) 798-7454 or by e-mail at jgaudet@hpcwireless.com with questions concerning this matter. Thank you for your consideration.

Respectfully yours,

Jennifer Young Gaudet

Jennifer Young Gaudet

Attachments

cc: Honorable Michael C. Tetreau, First Selectman, Town of Fairfield
Connecticut Light & Power Company (underlying property owner)

Northeast Utilities System

107 Selden Street, Berlin, CT 06037

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

May 31, 2013

Ms. Jennifer Gaudet
HPC Development

Sprint,
1 International Blvd.
Suite 300
Mahwah NJ
07495

RE: Sprint Antenna Site, CT-03XC333, 281 Morehouse Rd., Fairfield CT, structure 876.

Dear Ms. Gaudet:

Based on our reviews of the site drawings, the structural analysis and foundation review provided by Centek Engineering, we have reviewed for acceptance this modification.

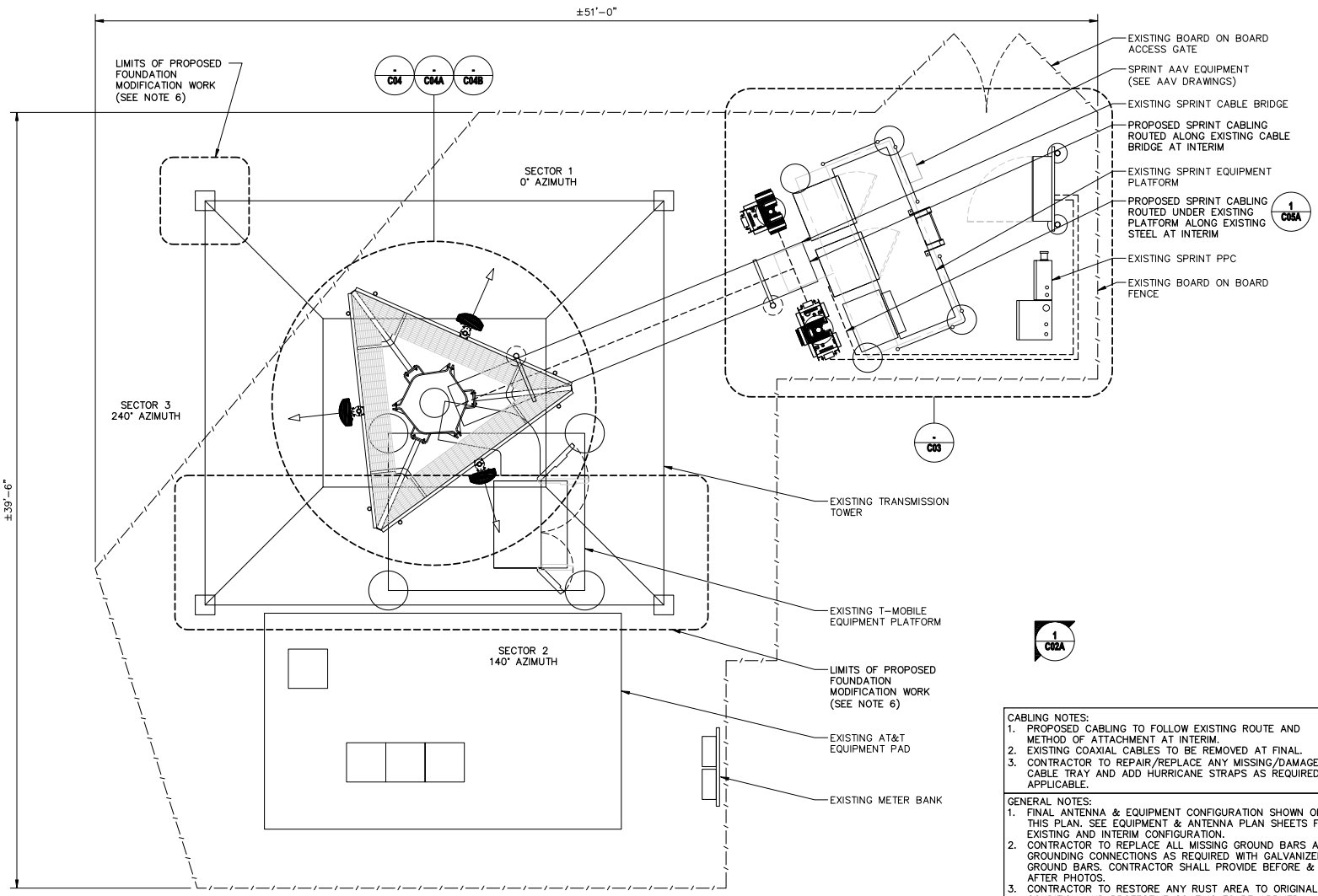
Since there are no outstanding structural issues to resolve at this time please contact Mr. O'Brien (860-665-6987) to resolve any lease issues; once the lease amendment is secured you may then contact Mr. John Landry directly (860-665-5425) to begin the construction arrangements.

Sincerely,

Robert Gray
Transmission Line Engineering

REF: NV_CT03XC333_05.24.13_Final CD Rev 2_4348320135241638372.24.13_Final CD Rev 2.pdf

CT03XC333.StructuralAnalysis.1.17.13.pdf



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 WITH GALVANIZED GROUND BARS. 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.
6. REFER TO STRUCTURAL ANALYSIS AND MODIFICATION DESIGN PREPARED FOR T-MOBILE BY CENTEK ENGINEERING, INC. PROJECT NO. 12066.C01, DATED 10/19/12, REVISION 2, FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

2 0 1 2 4
(IN FEET)

1 COMPOUND PLAN

11x17 SCALE: 3/16" = 1'-0" | 24x36 SCALE: 3/8" = 1'-0"

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Stephen A. Bray
PROFESSIONAL ENGINEER

STATE OF CONNECTICUT · STEPHEN A. BRAY · LICENSED PROFESSIONAL ENGINEER

CT LICENSE: 26657 5/24/13

PROJECT NUMBER: 332.1470

SITE INFORMATION:
281 MOREHOUSE AVENUE
FAIRFIELD, CT 06825
FAIRFIELD COUNTY

CT03XC333

DESIGN TYPE: NETWORK VISION

DRAWN BY:	CHECKED BY:	DATE:
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SHEET TITLE: COMPOUND PLAN

SHEET NUMBER: C02 | REV.: 2

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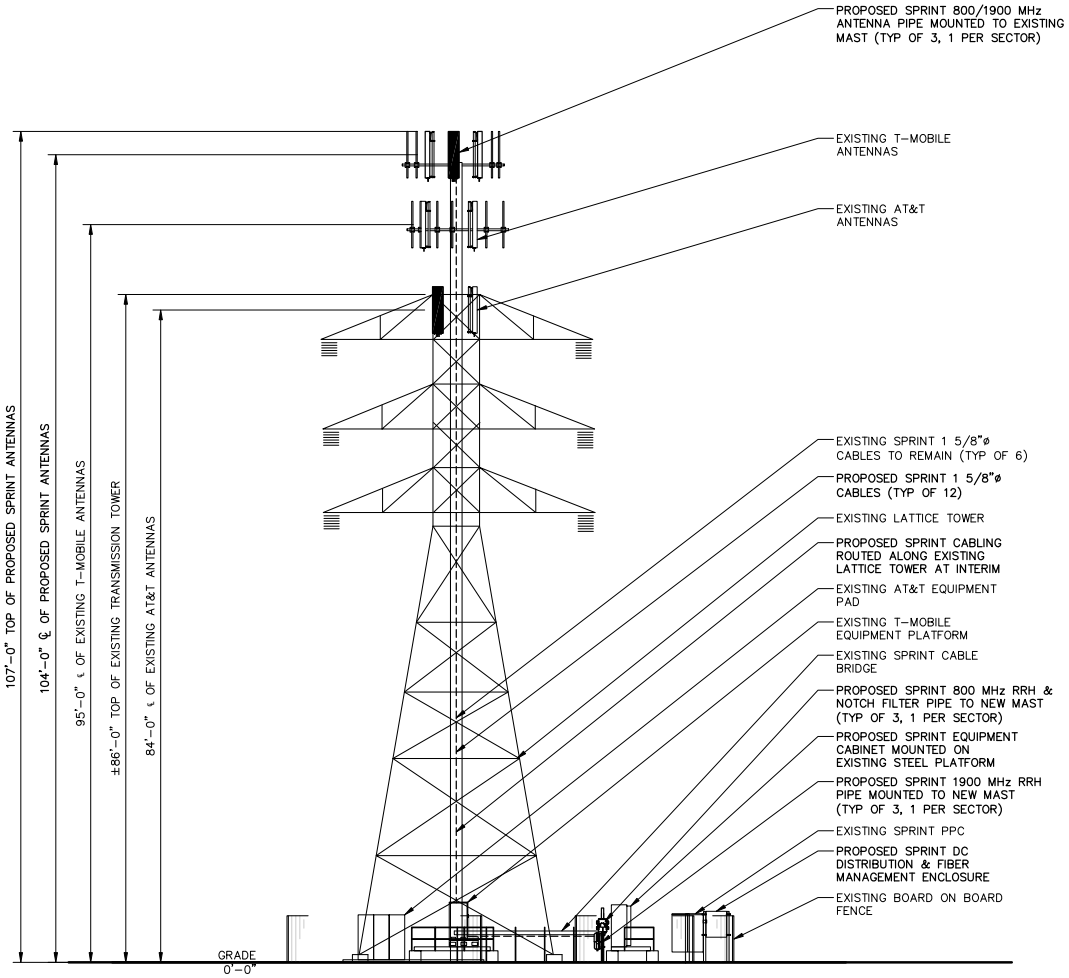

NOTES:
1. FINAL ANTENNA & EQUIPMENT CONFIGURATION SHOWN ON THIS PLAN. SEE EQUIPMENT & ANTENNA PLAN SHEETS FOR EXISTING AND INTERIM CONFIGURATION.
2. SEE CENTER REPORT 12047.C04, DATED 11/20/12 FOR NEW SPRINT CABLING LOCATION.

4 0 2 4 8 16 (IN FEET)

1 EAST ELEVATION

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

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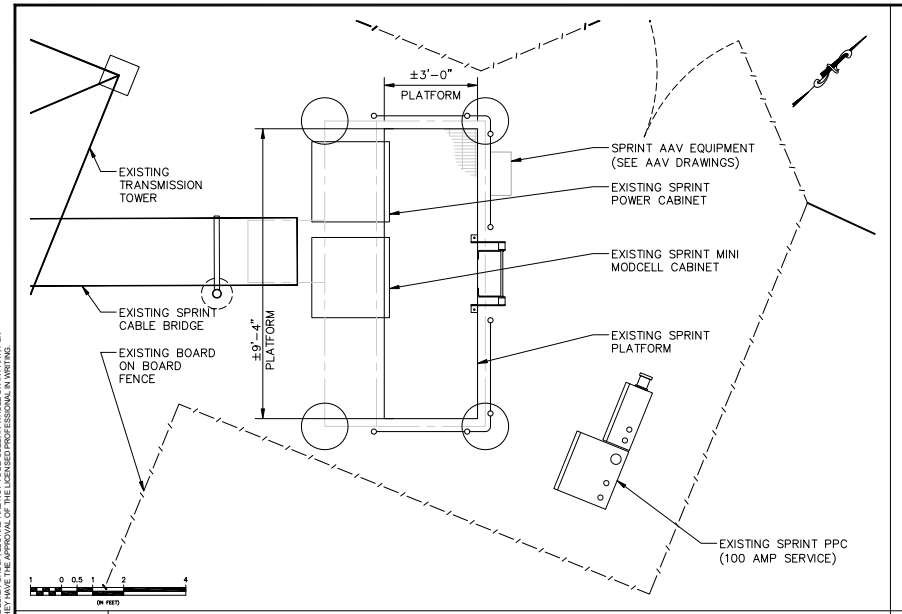

1 EXISTING EQUIPMENT PLAN

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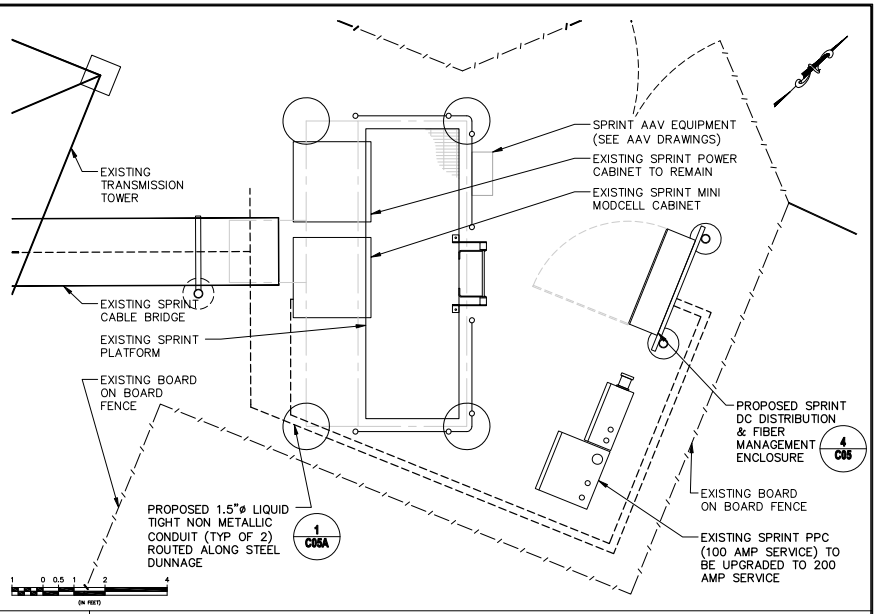

2 INTERIM EQUIPMENT PLAN

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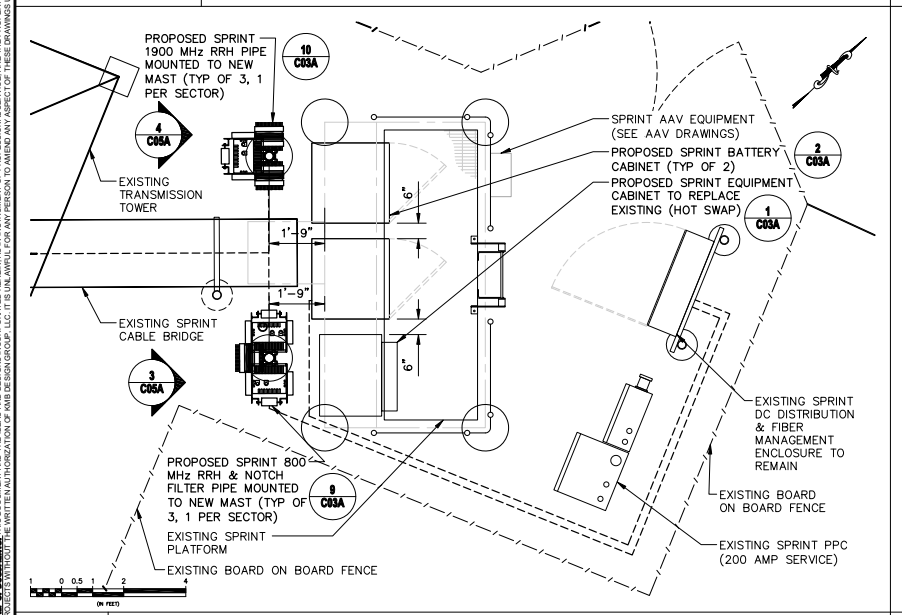

3 FINAL EQUIPMENT PLAN

11x17 SCALE: 1/4" = 1'-0" | 24x36 SCALE: 1/2" = 1'-0"

NOTE:
1. CONTRACTOR TO REPLACE ALL MISSING GROUND BARS AND GROUNDING CONNECTIONS AS REQUIRED.

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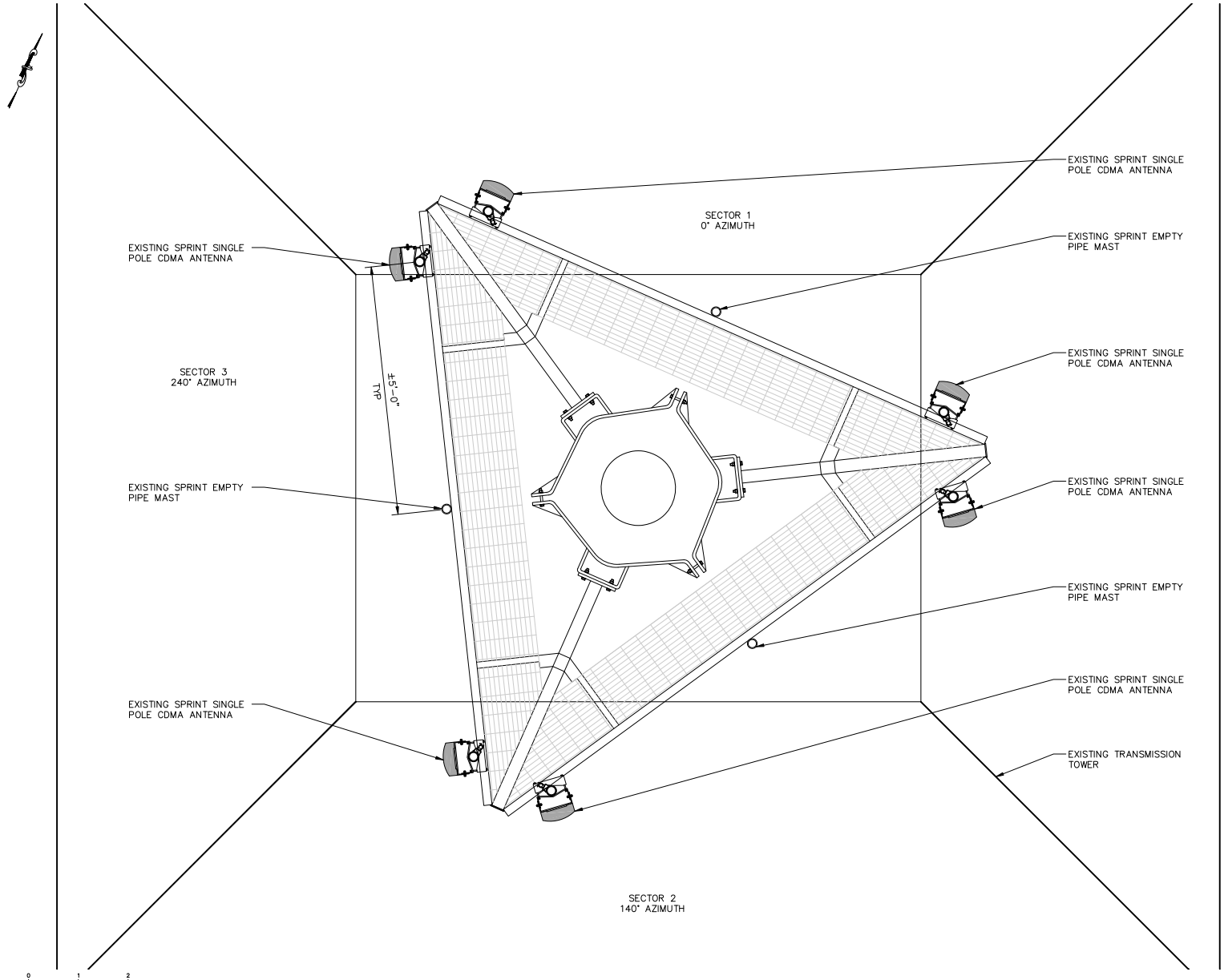

1 EXISTING ANTENNA PLAN @ ±104'-0" AGL (ALL SECTORS)

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

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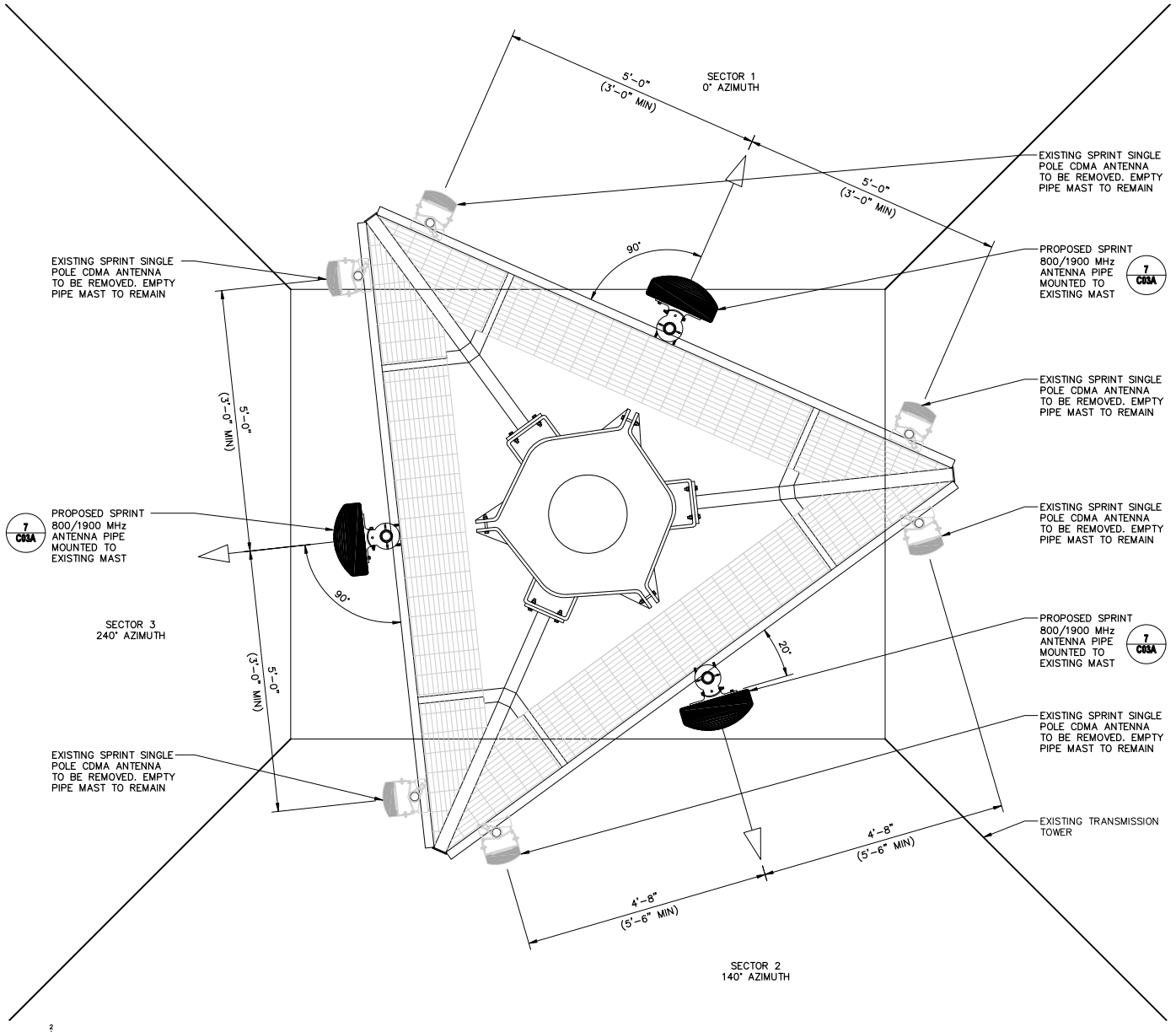

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1 FINAL ANTENNA PLAN @ ±104'-0" AGL (ALL SECTORS)

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CT LICENSE: 26657 5/24/13

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FINAL ANTENNA PLAN
(ALL SECTORS)

SHEET NUMBER: C04A

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CENTEK engineering

Centered on Solutions℠

Structural Analysis of Powermount and CL&P Tower

Sprint Site Ref: CT03XC333

CL&P Structure No. 876
86' Electric Transmission Lattice Tower

280 Morehouse Drive
Fairfield, CT

CENTEK Project No. 12047.CO4

Date: January 17, 2013

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

63-2 North Branford Road, Branford, CT 06405 203.488.0580 Fax 203.488.8587 www.CentekEng.com

Table of Contents

SECTION 1 - REPORT

- INTRODUCTION
- PRIMARY ASSUMPTIONS USED IN THE ANALYSIS
- ANALYSIS
- DESIGN BASIS
- RESULTS
- CONCLUSION

SECTION 2 - CONDITIONS & SOFTWARE

- STANDARD ENGINEERING CONDITIONS
- GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAMS

SECTION 3 - DESIGN CRITERIA

- CRITERIA FOR DESIGN OF PCS FACILITIES ON OR EXTENDING ABOVE METAL ELECTRIC TRANSMISSON TOWERS
- NU DESIGN CRITERIA TABLE
- PCS SHAPE FACTOR CRITERIA
- WIRE LOADS SHEET

SECTION 4 - DRAWINGS

- EL-1 TOWER ELEVATION
- FP-1 FEEDLINE PLAN

SECTION 5 - NECS/NU LOAD CALCULATIONS FOR UTILITY STRUCTURE ANALYSIS

- POWERMOUNT WIND LOAD
- AT&T EQUIPMENT WIND LOAD CALCULATION
- COAX CABLE LOAD ON CL&P TOWER

SECTION 6 - PLS TOWER RESULTS

- PLS REPORT
- FOUNDATION ANALYSIS

SECTION 7 - REFERENCE MATERIAL

- EQUIPMENT CUT SHEETS

Introduction

The purpose of this report is to analyze the existing 86' CL&P tower located at 280 Morehouse Dr., in Fairfield, CT for the proposed antenna and equipment upgrade by Sprint.

The proposed loads consist of the following:

- T-MOBILE (Existing/Reserved):
  Antennas: Six (6) RFS APX16DWV-16DWVS panel antennas mounted on a Site Pro WiMAX Monopole T-Arm p/n UDS-NP to the existing powermount with a RAD center elevation of 95-ft above grade.
  Coax Cables: Twelve (12) 1-1/4" ∅ coax cables running on the exterior of the existing FWT Powermount and six (6) 1-1/4" ∅ coax cables mounted on a Andrew Universal Cable Ladder Kit p/n CL-0620-U running on a face of the existing tower as indicated in section 4 of this report.
- AT&T (Existing/Reserved):
  Antennas: Three (3) KMW FX-X-CD-65-12-65-14-00T panel antennas leg mounted to the existing utility tower with a RAD center elevation of 84-ft above grade.
  Coax Cables: Six (6) 1-5/8" ∅ coax cables running on a leg of the existing utility tower.
- SPRINT (Existing to Remain):
  Coax Cables: Six (6) 1-5/8" ∅ coax cables running on the inside of the existing FWT Powermount.
- SPRINT (Existing to Remove):
  Antennas: Six (6) Decibel DB980H90 panel antennas and one (1) 14-ft low profile platform on the existing powermount with a RAD center elevation of 104-ft above grade.
- **SPRINT (Proposed):**
  Antennas: Three (3) RFS APXVSPP18-C panel antennas mounted on a Site Pro WiMAX Monopole T-Arm p/n UDS-NP to the existing powermount with a RAD center elevation of 104-ft above grade.
  Coax Cables: Twelve (12) 1-5/8" ∅ coax cables mounted on a Andrew Universal Cable Ladder Kit p/n CL-1220-U running on a face 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.

Analysis

Structural analysis of the existing transmission tower was independently completed using the current version of PLS-Tower computer program licensed to CENTEK Engineering, Inc.

The existing 86-ft tall transmission tower with a FWT powermount consisting of a 12" Std. pipe conforming to ASTM A500 Grade C (Fy = 50ksi) connected at five points to the existing tower was analyzed for its ability to resist loads prescribed by the NESC standard. These loads are developed in Section 5 of this report.

The loads per NESC guidelines were applied to the CL&P tower using PLS-Tower. Maximum usage for the tower was calculated considering the additional forces from the powermount and associated appurtenances.

Design Basis

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)

Results

- UTILITY TOWER

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

A maximum usage of **98.55%** occurs in the utility tower under the **NESC Extreme Wind** loading condition.

TOWER SECTION:

The utility tower was found to be within allowable limits.

Tower Member	Stress Ratio (% of capacity)	Result
Angle g11x	98.55%	**PASS**

- FOUNDATION AND ANCHORS

The existing foundation consists of four (4) 1-ft 8-in square tapering to 2-ft 4-in square x 5.25-ft long reinforced concrete piers and four (4) 5-ft square x 2-ft thick reinforced concrete pads. The base of the tower is connected to the foundation by one (1) anchor stub angle per leg. Foundation information was obtained from Northeast Utilities drawing 01064-60003.

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

BASE REACTIONS:

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

Foundation	Load Case	Shear	Uplift	Compression
Single Conc. Pad & Pier	NESC Heavy Wind	8.46 kips	18.40 kips	38.69 kips
	NESC Extreme Wind	14.88 kips	51.98 kips	60.39 kips
Conc. Pad & Pier (2) w/ Mat	NESC Heavy Wind	16.25 kips	36.34 kips	74.63 kips
	NESC Extreme Wind	28.72 kips	98.44 kips	118.02 kips

Note 1 – 10% increase to be applied to the above tower base reactions for foundation verification per OTRM 051
Note 2 – Reactions used to analysis the reinforced foundation are the combination of the two adjacent tower legs.

FOUNDATION:

The foundation **with the proposed reinforcements detailed in the previous structural analysis report prepared by this office, for T-Mobile job no. 12066.CO1 Rev. 2 dated October 19, 2012** was found to be within allowable limits.

Foundation	Design Limit	Allowable Limit	Proposed Loading (2)	Result
Single Conc. Pad & Pier	Uplift	1.0 FS (1)	1.13 FS (1)	**PASS**
Conc. Pad & Pier (2) w/ Mat	Uplift	1.0 FS (1)	1.32 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 proposed reinforcements detailed in the previous structural analysis report prepared by this office, for T-Mobile job no. 12066.CO1 Rev. 2 dated October 19, 2012 is adequate** to support the proposed AT&T 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

STATE OF CONNECTICUT
CARLO F. CENTORE
No.16694
LICENSED
PROFESSIONAL ENGINEER

Prepared by:

Timothy J. Lynn, EIT
Structural Engineer

STANDARD CONDITIONS FOR FURNISHING OF PROFESSIONAL ENGINEERING SERVICES ON EXISTING STRUCTURES

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

- Information supplied by the client regarding the structure itself, its foundations, the soil conditions, the antenna and feed line loading on the structure and its components, or other relevant information.

- Information from the field and/or drawings in the possession of 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.

GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAM~PLS-TOWER

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

Modeling Features:

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

Analysis Features:

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

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

Results Features:

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

Tool for interactive angle member sizing and bolt quantity determination.

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

Introduction

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

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

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

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

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

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

Note 1: Prepared from documentation provide from Northeast Utilities.

P C S M a s t

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

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

   The combined wind and ice condition shall consider ½" radial ice in combination with the wind load (0.75 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
Ice Condition	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
Ice Condition	NESC Heavy	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
Ice Condition	NESC Heavy	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
High Wind Condtion	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
High Wind Condtion	NESC Extreme Wind	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
High Wind Condtion	NESC Extreme Wind	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
NESC Extreme Ice with Wind Conditon*		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
NESC Extreme Ice with Wind Conditon*		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.

FOCAS 96 FIBER

10/29/97

FOC PARAMETERS

F-7389EC-535-096

DIAM = 0.738 in.
WEIGHT = 0.518 lb/ft

LOADING PARAMETERS

1000 RS

	NESC	1" ICE	HI WIND
WIND (PSF)	4	0	20
ICE (IN)	0.5	1	0
OLF ANG	1.65	1.15	1.15
OLF WIND	2.5	1.15	1.15
OLF WT	1.5	1.15	1.15
TENS (#) **	6500	9000	5000

STR	ANGLE	WIND SPAN	WGT SPAN	NESC H	NESC V	1" ICE H	1" ICE V	HI WIND H	HI WIND V
876	0	736.5	1190	1067	2299	0	3667	1042	709

876 tower Shield Wire

1720/1730

10/10/97

	AHEAD SW	BACK SW
	7#9 cw	7#9 cw
DIAM =	0.343	0.343
WEIGHT =	0.257	0.257

LOADING PARAMETERS

bk
ah

	AHEAD NESC	BACK	AHEAD 1" ICE	BACK	AHEAD HIGH WIND	BACK
WIND (PSF)	4		0		20	
ICE (IN)	0.5		1		0	
OLF ANG	1.65		1.15		1.15	
OLF WIND	2.5		1.15		1.15	
OLF WT	1.5		1.15		1.15	
TENS (#) **	3600	3600	5263	5263	1976	1976

STR	ANGLE	WIND SPAN	WGT SPAN	NESC H	NESC L	NESC V	1" ICE H	1" ICE L	1" ICE V	HIGH WIND H	HIGH WIND L	HIGH WIND V
BACK	0	367	581	411	-5940	681	0	-6052	1288	241	-2272	172
AHEAD	0	367	581	411	5940	681	0	6052	1288	241	2272	172
	0	734	1162	821	0	1362	0	0	2575	483	0	343

876 tower

1720/1730 CONDUCTOR

10/10/97

	AHEAD COND	BACK COND
	556 ACSR	556 ACSR
DIAM =	0.927	0.927
WEIGHT =	0.766	0.766

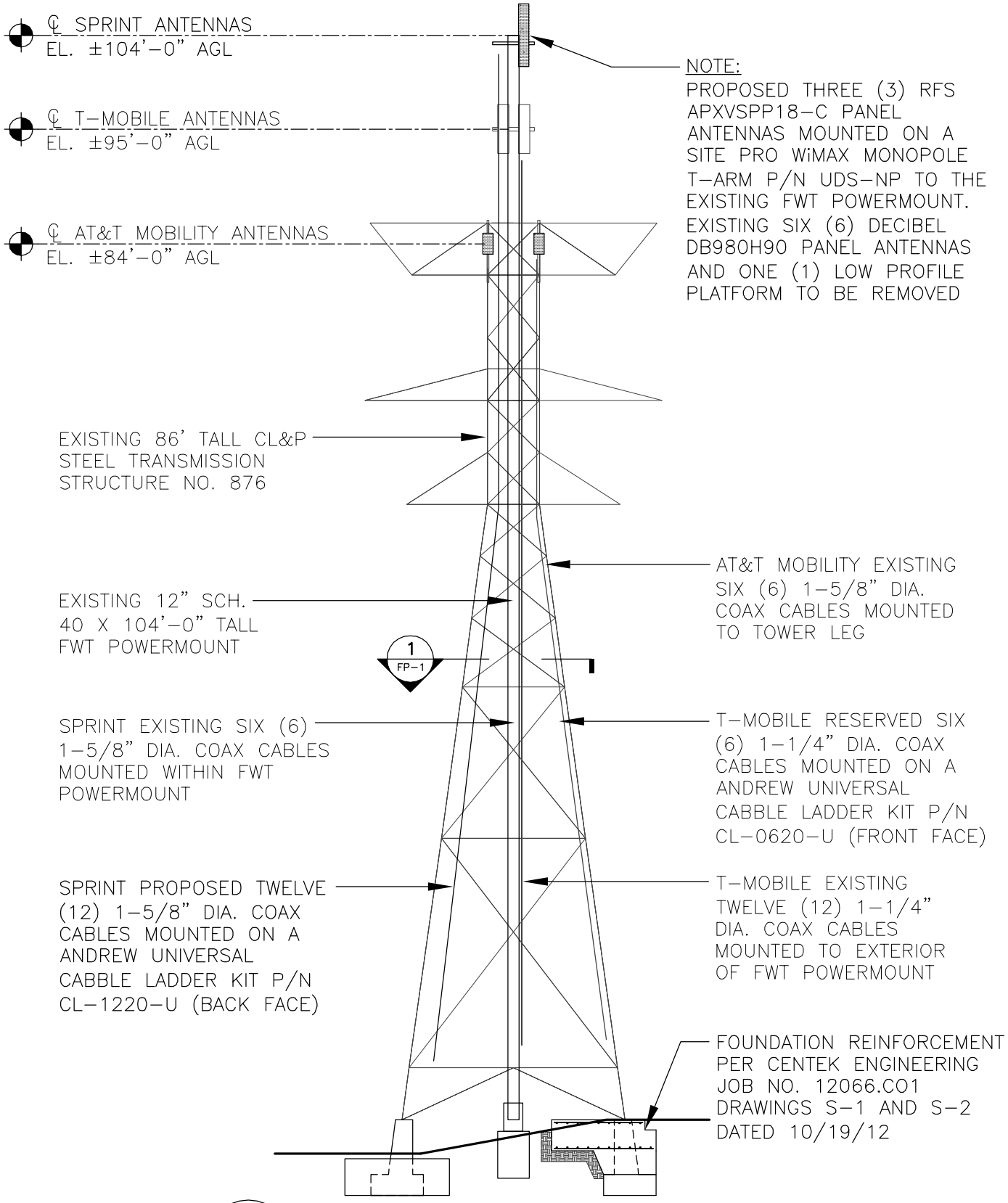
LOADING PARAMETERS

bk
ah

	AHEAD NESC	BACK	AHEAD 1" ICE	BACK	AHEAD High Wind	BACK
WIND (PSF)	4		0		20	
ICE (IN)	0.5		1		0	
OLF ANG	1.65		1.15		1.15	
OLF WIND	2.5		1.15		1.15	
OLF WT	1.5		1.15		1.15	
TENS (#) **	7000	7000	9838	9838	5606	5606

STR	ANGLE	WIND SPAN	WGT SPAN	NESC H	NESC L	NESC V	1" ICE H	1" ICE L	1" ICE V	High Wind H	High Wind L	High Wind V
BACK	0	367	581	589	-11550	1441	0	-11314	2113	652	-6447	512
AHEAD	0	367	581	589	11550	1441	0	11314	2113	652	6447	512
	0	734	1162	1179	0	2882	0	0	4226	1304	0	1024

10 PSF = 62.5 MPH



1
EL-1

TOWER & MAST ELEVATION

SCALE: NOT TO SCALE

REVISIONS		
0	1/17/13	ISSUED FOR NU REVIEW

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CT5145
CL&P 876

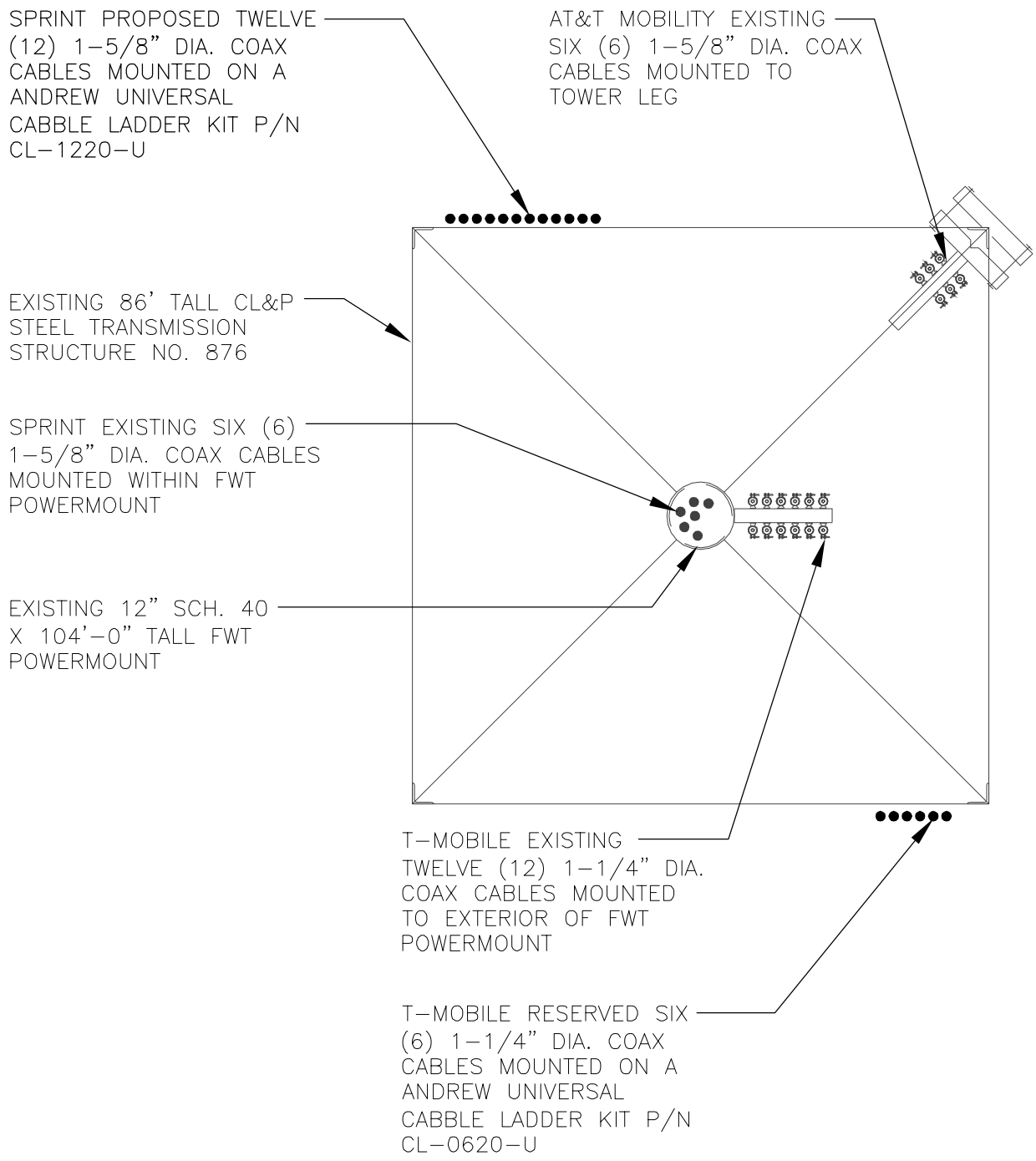
280 MOREHOUSE DRIVE
FAIRFIELD, CT 06825

PROJECT NO:	12047.CO4
DRAWN BY:	TJL
CHECKED BY:	CFC
SCALE:	AS NOTED
DATE:	11/20/12

TOWER AND MAST ELEVATION

EL-1

DWG. 1 OF 2



1 / FP–1

FEEDLINE PLAN

SCALE: NOT TO SCALE

REVISIONS		
0	1/17/13	ISSUED FOR NU REVIEW

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SCALE:	AS NOTED
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FEEDLINE PLAN

FP-1

DWG. 2 OF 2

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 =	$TME := 106$	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 = $Kz := 2.01 \cdot \left(\frac{TME}{900}\right)^{\frac{2}{9.5}} = 1.281$ (NESC 2007 Table 250-2)

Exposure Factor = $Es := 0.346 \left[\frac{33}{(0.67 \cdot TME)}\right]^{\frac{1}{7}} = 0.31$ (NESC 2007 Table 250-3)

Response Term = $Bs := \frac{1}{\left(1 + 0.375 \cdot \frac{TME}{220}\right)} = 0.847$ (NESC 2007 Table 250-3)

Gust Response Factor = $Grf := \frac{\left[1 + \left(2.7 \cdot Es \cdot Bs^{\frac{1}{2}}\right)\right]}{kv^2} = 0.866$ (NESC 2007 Table 250-3)

Wind Pressure = $qz := 0.00256 \cdot Kz \cdot V^2 \cdot Grf \cdot I = 34.4$ 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

Development of Wind & Ice Load on Antennas

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)

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 =	$F_{ant1} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 1216$	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**

Development of Wind & Ice Load on Antenna Mounts

Mount Data: (Sprint)

Mount Type: Site Pro WiMAX Monopole T-Arm p/n UDS-NP

Mount Shape = Flat

Mount Projected Surface Area = $CdAa := 6.3$ sf (User Input)

Mount Projected Surface Area w/ Ice = $CdAa_{ice} := 7.88$ sf (User Input)

Mount Weight = $WT_{mnt} := 550$ lbs (User Input)

Mount Weight w/ Ice = $WT_{mnt.ice} := 700$ lbs (User Input)

Gravity Loads (without ice)

Weight of All Mounts = $Wt_{mnt1} := WT_{mnt} = 550$ lbs **BLC 2**

Gravity Load (ice only)

Weight of Ice on All Mounts = $Wt_{ice.mnt1} := WT_{mnt.ice} - WT_{mnt} = 150$ lbs **BLC 3**

Wind Load (NESC Heavy)

Total Mount Wind Force w/ Ice = $Fi_{mnt1} := p \cdot CdAa_{ice} = 32$ lbs **BLC 4**

Wind Load (NESC Extreme)

Total Mount Wind Force = $F_{mnt1} := qz \cdot CdAa \cdot m = 271$ lbs **BLC 5**

Development of Wind & Ice Load on Antennas

Antenna Data: (T-Mobile)

Antenna Model =	RFS APX 16DWV-16DWVS		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 55.9$	in	(User Input)
Antenna Width =	$W_{ant} := 13$	in	(User Input)
Antenna Thickness =	$T_{ant} := 3.15$	in	(User Input)
Antenna Weight =	$WT_{ant} := 19$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 6$		(User Input)

Wind Load (NESC Extreme)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 5$	sf	
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 30.3$	sf	
Total Antenna Wind Force =	$F_{ant2} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 2081$	lbs	**BLC 5**

Wind Load (NESC Heavy)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna w/ Ice =	$SA_{ICEant} := \frac{(L_{ant} + 1) \cdot (W_{ant} + 1)}{144} = 5.5$	sf	
Antenna Projected Surface Area w/ Ice =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 33.2$	sf	
Total Antenna Wind Force w/ Ice =	$Fi_{ant2} := p \cdot Cd_F \cdot A_{ICEant} = 212$	lbs	**BLC 4**

Gravity Load (without ice)

Weight of All Antennas =	$Wt_{ant2} := WT_{ant} \cdot N_{ant} = 114$	lbs	**BLC 2**

Gravity Load (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 2289$	cu in	
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 1)(W_{ant} + 1) \cdot (T_{ant} + 1) - V_{ant} = 1017$	cu in	
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 33$	lbs	
Weight of Ice on All Antennas =	$Wt_{ice.ant2} := W_{ICEant} \cdot N_{ant} = 198$	lbs	**BLC 3**

Development of Wind & Ice Load on Antenna Mounts

Mount Data: (T-Mobile)

Mount Type: Site Pro WiMAX Monopole T-Arm p/n UDS-NP

Mount Shape = Flat

Mount Projected Surface Area = $CdAa := 6.3$ sf (User Input)

Mount Projected Surface Area w/ Ice = $CdAa_{ice} := 7.88$ sf (User Input)

Mount Weight = $WT_{mnt} := 550$ lbs (User Input)

Mount Weight w/ Ice = $WT_{mnt.ice} := 700$ lbs (User Input)

Gravity Loads (without ice)

Weight of All Mounts = $Wt_{mnt2} := WT_{mnt} = 550$ lbs **BLC 2**

Gravity Load (ice only)

Weight of Ice on All Mounts = $Wt_{ice.mnt2} := WT_{mnt.ice} - WT_{mnt} = 150$ lbs **BLC 3**

Wind Load (NESC Heavy)

Total Mount Wind Force w/ Ice = $Fi_{mnt2} := p \cdot CdAa_{ice} = 32$ lbs **BLC 4**

Wind Load (NESC Extreme)

Total Mount Wind Force = $F_{mnt2} := qz \cdot CdAa \cdot m = 271$ lbs **BLC 5**

Total Equipment Loads:

Sprint @ 104-ft AGL

NESC Heavy Wind Vertical = $\left(Wt_{ant1} + Wt_{ice.ant1} + Wt_{mnt1} + Wt_{ice.mnt1}\right)\cdot 1.5 = 1529$

NESC Heavy Wind Trasnsverse = $\left(Fi_{ant1} + Fi_{mnt1}\right)\cdot 2.5 = 390$

NESC Extreme Wind Vertical = $\left(Wt_{ant1} + Wt_{mnt1}\right) = 721$

NESC Extreme Wind Trasnsverse = $\left(F_{ant1} + F_{mnt1}\right) = 1487$

T-Mobile @ 95-ft AGL

NESC Heavy Wind Vertical = $\left(Wt_{ant2} + Wt_{ice.ant2} + Wt_{mnt2} + Wt_{ice.mnt2}\right)\cdot 1.5 = 1518$

NESC Heavy Wind Trasnsverse = $\left(Fi_{ant2} + Fi_{mnt2}\right)\cdot 2.5 = 610$

NESC Extreme Wind Vertical = $\left(Wt_{ant2} + Wt_{mnt2}\right) = 664$

NESC Extreme Wind Trasnsverse = $\left(F_{ant2} + F_{mnt2}\right) = 2352$

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 =	$TME := 106$	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 = $Kz := 2.01 \cdot \left(\frac{TME}{900}\right)^{\frac{2}{9.5}} = 1.281$ (NESC 2007 Table 250-2)

Exposure Factor = $Es := 0.346 \left[\frac{33}{(0.67 \cdot TME)}\right]^{\frac{1}{7}} = 0.31$ (NESC 2007 Table 250-3)

Response Term = $Bs := \frac{1}{\left(1 + 0.375 \cdot \frac{TME}{220}\right)} = 0.847$ (NESC 2007 Table 250-3)

Gust Response Factor = $Grf := \frac{\left[1 + \left(2.7 \cdot Es \cdot Bs^{\frac{1}{2}}\right)\right]}{kv^2} = 0.866$ (NESC 2007 Table 250-3)

Wind Pressure = $qz := 0.00256 \cdot Kz \cdot V^2 \cdot Grf \cdot I = 34.4$ 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

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	KMW FX-X-CD-65-12-65-14-00T		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 24$	in	(User Input)
Antenna Width =	$W_{ant} := 11.8$	in	(User Input)
Antenna Thickness =	$T_{ant} := 6.0$	in	(User Input)
Antenna Weight =	$WT_{ant} := 16$	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 =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 2$	sf	
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 5.9$	sf	
Total Antenna Wind Force =	$F_{ant1} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 405$	lbs	**BLC 5**

Wind Load (NESC Heavy)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna w/ Ice =	$SA_{ICEant} := \frac{(L_{ant} + 1) \cdot (W_{ant} + 1)}{144} = 2.2$	sf	
Antenna Projected Surface Area w/ Ice =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 6.7$	sf	
Total Antenna Wind Force w/ Ice =	$Fi_{ant1} := p \cdot Cd_F \cdot A_{ICEant} = 43$	lbs	**BLC 4**

Gravity Load (without ice)

Weight of All Antennas =	$Wt_{ant1} := WT_{ant} \cdot N_{ant} = 48$	lbs	**BLC 2**

Gravity Load (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 1699$	cu in	
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 1)(W_{ant} + 1) \cdot (T_{ant} + 1) - V_{ant} = 541$	cu in	
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 18$	lbs	
Weight of Ice on All Antennas =	$Wt_{ice.ant1} := W_{ICEant} \cdot N_{ant} = 53$	lbs	**BLC 3**

Development of Wind & Ice Load on Antenna Mounts

Mount Data:

Mount Type:	Pipe Mount		
Mount Shape =	Round		(User Input)
Pipe Mount Length =	$L_{mnt} := 72$	in	(User Input)
Pipe Mount Linear Weight =	$W_{mnt} := 7.58$	plf	(User Input)
Pipe Mount Outside Diameter =	$D_{mnt} := 3.5$	in	(User Input)
Number of Mounting Pipes =	$N_{mnt} := 3$		(User Input)

Wind Load (NESC Extreme)

Assumes Mount is Shielded by Antenna

Mount Projected Surface Area =	$A_{mnt} := 0.0$	sf	
Total Mount Wind Force =	$F_{mnt1} := qz \cdot Cd_F \cdot A_{mnt} \cdot m = 0$	lbs	**BLC 5**

Wind Load (NESC Heavy)

Assumes Mount is Shielded by Antenna

Mount Projected Surface Area w/ Ice =	$A_{ICEmnt} := 0.0$	sf	
Total Mount Wind Force =	$Fi_{mnt1} := p \cdot Cd_F \cdot A_{ICEmnt} = 0$	lbs	**BLC 4**

Gravity Loads (without ice)

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

Weight Each Pipe Mount =	$WT_{mnt} := W_{mnt} \cdot \frac{L_{mnt}}{12} = 45$	lbs	
Weight of All Mounts =	$Wt_{mnt1} := WT_{mnt} \cdot N_{mnt} = 136$	lbs	**BLC 2**

Gravity Load (ice only)

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

Volume of Each Pipe =	$V_{mnt} := \frac{\pi}{4} \cdot D_{mnt}^2 \cdot L_{mnt} = 693$	cu in	
Volume of Ice on Each Pipe =	$V_{ice} := \left[\frac{\pi}{4} \cdot \left[\left(D_{mnt} + 1\right)^2\right] \cdot \left(L_{mnt} + 1\right)\right] - V_{mnt} = 468$	cu in	
Weight of Ice each mount (incl, hardware) =	$W_{ICEmnt} := \frac{V_{ice}}{1728} \cdot Id = 15$	lbs	
Weight of Ice on All Mounts =	$Wt_{ice.mnt1} := \left(W_{ICEmnt} \cdot N_{mnt} + 5\right) = 51$	lbs	**BLC 3**

Equipment Loads (per Leg):

At&T @ 84-ft AGL

NESC Heavy Wind Vertical =

$$\frac{\left[\left(Wt_{ant1} + Wt_{ice.ant1} + Wt_{mnt1} + Wt_{ice.mnt1}\right)\cdot 1.5\right]}{3} = 144$$

NESC Heavy Wind Trasnsverse =

$$\frac{\left[\left(Fi_{ant1} + Fi_{mnt1}\right)\cdot 2.5\right]}{3} = 36$$

NESC Extreme Wind Vertical =

$$\frac{\left(Wt_{ant1} + Wt_{mnt1}\right)}{3} = 61$$

NESC Extreme Wind Trasnsverse =

$$\frac{\left(F_{ant1} + F_{mnt1}\right)}{3} = 135$$

Coax Cable within Powermount

(Sprint - Existing)

Distance Between Coax Cable Attach Points =

Coax Cable Span = $Coax_{Span} := \begin{pmatrix} 5 \\ 7 \\ 8.5 \\ 11 \\ 21 \\ 43 \end{pmatrix} \cdot ft$ *(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)*

Number of Projected Coax Cables = $NP_{coax} := 0$ *(User Input)*

Extreme Wind Pressure = $qz := 34.4 \cdot psf$ *(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 = $A_{ice} := 0$

Wind Area without Ice = $A := \left(NP_{coax} \cdot D_{coax}\right) = 0 \cdot in$

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 = $W_{ice} := 0$

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 =

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

$$Heavy_{Vert} = \begin{pmatrix} 47 \\ 66 \\ 80 \\ 103 \\ 197 \\ 402 \end{pmatrix} lb \qquad Heavy_{Trans} = \begin{pmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \end{pmatrix}$$

Extreme Vertical Load =

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

Extreme Transverse Load =

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

$$Extreme_{Vert} = \begin{pmatrix} 31 \\ 44 \\ 53 \\ 69 \\ 131 \\ 268 \end{pmatrix} lb \qquad Extreme_{Trans} = \begin{pmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \end{pmatrix}$$

Coax Cable on CL&P Tower

(Sprint - Proposed)

Distance Between Coax Cable Attach Points =

Coax Cable Span = $Coax_{Span} := \begin{pmatrix} 11 \\ 11 \\ 13.5 \\ 16 \\ 18.5 \\ 16 \end{pmatrix} \cdot ft$ *(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 = $NP_{Tcoax} := 1$ *(User Input)*

Number of Projected Coax Cables Longitudinal = $NP_{Lcoax} := 12$ *(User Input)*

Extreme Wind Pressure = $qz := 34.4 \cdot psf$ *(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 = $A_{Tice} := \left(NP_{Tcoax} \cdot D_{coax} + 2 \cdot Ir\right) = 2.98 \cdot in$

Wind Area without Ice Transverse = $A_T := \left(NP_{Tcoax} \cdot D_{coax}\right) = 1.98 \cdot in$

Wind Area with Ice Longitudinal = $A_{Lice} := \left(NP_{Lcoax} \cdot D_{coax} + 2 \cdot Ir\right) = 24.76 \cdot in$

Wind Area without Ice Longitudinal = $A_L := \left(NP_{Lcoax} \cdot D_{coax}\right) = 23.76 \cdot in$

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 Longitudinal Load =

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

$$Heavy_{Vert} = \begin{pmatrix} 506 \\ 506 \\ 621 \\ 736 \\ 851 \\ 736 \end{pmatrix} lb \qquad Heavy_{Trans} = \begin{pmatrix} 44 \\ 44 \\ 54 \\ 64 \\ 74 \\ 64 \end{pmatrix} lb$$

$$Heavy_{Long} = \begin{pmatrix} 363 \\ 363 \\ 446 \\ 528 \\ 611 \\ 528 \end{pmatrix} lb$$

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 Longitudinal Load =

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

$$Extreme_{Vert} = \begin{pmatrix} 137 \\ 137 \\ 168 \\ 200 \\ 231 \\ 200 \end{pmatrix} lb \qquad Extreme_{Trans} = \begin{pmatrix} 100 \\ 100 \\ 123 \\ 145 \\ 168 \\ 145 \end{pmatrix} lb$$

$$Extreme_{Long} = \begin{pmatrix} 1199 \\ 1199 \\ 1471 \\ 1744 \\ 2016 \\ 1744 \end{pmatrix} lb$$

Coax Cable on CL&P Tower

(AT&T - Existing)

Distance Between Coax Cable Attach Points =

Coax Cable Span = $Coax_{Span} := \begin{pmatrix} 6 \\ 11 \\ 13.5 \\ 16 \\ 18.5 \\ 16 \end{pmatrix} \cdot ft$ *(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)*

Number of Projected Coax Cables Transverse = $NP_{Tcoax} := 3$ *(User Input)*

Number of Projected Coax Cables Longitudinal = $NP_{Lcoax} := 3$ *(User Input)*

Extreme Wind Pressure = $qz := 34.4 \cdot psf$ *(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 = $A_{Tice} := \left(NP_{Tcoax} \cdot D_{coax} + 2 \cdot Ir\right) = 6.94 \cdot in$

Wind Area without Ice Transverse = $A_T := \left(NP_{Tcoax} \cdot D_{coax}\right) = 5.94 \cdot in$

Wind Area with Ice Longitudinal = $A_{Lice} := \left(NP_{Lcoax} \cdot D_{coax} + 2 \cdot Ir\right) = 6.94 \cdot in$

Wind Area without Ice Longitudinal = $A_L := \left(NP_{Lcoax} \cdot D_{coax}\right) = 5.94 \cdot in$

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 = $W_{ice} := Ai_{coax} \cdot Id \cdot N_{coax} = 9.09 \cdot plf$

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 Longitudinal Load =

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

$$Heavy_{Vert} = \begin{pmatrix} 138 \\ 253 \\ 310 \\ 368 \\ 425 \\ 368 \end{pmatrix} lb \qquad Heavy_{Trans} = \begin{pmatrix} 56 \\ 102 \\ 125 \\ 148 \\ 171 \\ 148 \end{pmatrix} lb$$

$$Heavy_{Long} = \begin{pmatrix} 56 \\ 102 \\ 125 \\ 148 \\ 171 \\ 148 \end{pmatrix} lb$$

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 Longitudinal Load =

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

$$Extreme_{Vert} = \begin{pmatrix} 37 \\ 69 \\ 84 \\ 100 \\ 115 \\ 100 \end{pmatrix} lb \qquad Extreme_{Trans} = \begin{pmatrix} 163 \\ 300 \\ 368 \\ 436 \\ 504 \\ 436 \end{pmatrix} lb$$

$$Extreme_{Long} = \begin{pmatrix} 163 \\ 300 \\ 368 \\ 436 \\ 504 \\ 436 \end{pmatrix} lb$$

Coax Cable on Powermount

(T-Mobile - Existing)

Distance Between Coax Cable Attach Points =

Coax Cable Span = $Coax_{Span} := \begin{pmatrix} 5 \\ 7 \\ 8.5 \\ 11 \\ 21 \\ 43 \end{pmatrix} \cdot ft$ *(User Input)*

Diameter of Coax Cable = $D_{coax} := 1.55 \cdot in$ *(User Input)*

Weight of Coax Cable = $W_{coax} := 0.66 \cdot plf$ *(User Input)*

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

Number of Projected Coax Cables Transverse = $NP_{Tcoax} := 2$ *(User Input)*

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

Extreme Wind Pressure = $qz := 34.4 \cdot psf$ *(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 = $A_{Tice} := \left(NP_{Tcoax} \cdot D_{coax} + 2 \cdot Ir\right) = 4.1 \cdot in$

Wind Area without Ice Transverse = $A_T := \left(NP_{Tcoax} \cdot D_{coax}\right) = 3.1 \cdot in$

Wind Area with Ice Longitudinal = $A_{Lice} := \left(NP_{Lcoax} \cdot D_{coax} + 2 \cdot Ir\right) = 10.3 \cdot in$

Wind Area without Ice Longitudinal = $A_L := \left(NP_{Lcoax} \cdot D_{coax}\right) = 9.3 \cdot in$

Ice Area per Liner Ft = $Ai_{coax} := \frac{\pi}{4} \cdot \left[\left(D_{coax} + 2 \cdot Ir\right)^2 - D_{coax}^2\right] = 0.022\, ft^2$

Weight of Ice on All Coax Cables = $W_{ice} := Ai_{coax} \cdot Id \cdot N_{coax} = 15.027 \cdot plf$

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 Longitudinal Load =

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

$$Heavy_{Vert} = \begin{pmatrix} 172 \\ 241 \\ 293 \\ 379 \\ 723 \\ 1480 \end{pmatrix} lb \qquad Heavy_{Trans} = \begin{pmatrix} 27 \\ 38 \\ 46 \\ 60 \\ 115 \\ 235 \end{pmatrix} lb$$

$$Heavy_{Long} = \begin{pmatrix} 69 \\ 96 \\ 117 \\ 151 \\ 288 \\ 591 \end{pmatrix} lb$$

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 Longitudinal Load =

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

$$Extreme_{Vert} = \begin{pmatrix} 40 \\ 55 \\ 67 \\ 87 \\ 166 \\ 341 \end{pmatrix} lb \qquad Extreme_{Trans} = \begin{pmatrix} 71 \\ 100 \\ 121 \\ 156 \\ 299 \\ 611 \end{pmatrix} lb$$

$$Extreme_{Long} = \begin{pmatrix} 213 \\ 299 \\ 363 \\ 469 \\ 896 \\ 1834 \end{pmatrix} lb$$

Coax Cable on CL&P Tower

(T-Mobile - Reserved)

Distance Between Coax Cable Attach Points =

Coax Cable Span = $Coax_{Span} := \begin{pmatrix} 11 \\ 11 \\ 13.5 \\ 16 \\ 18.5 \\ 16 \end{pmatrix} \cdot ft$ *(User Input)*

Diameter of Coax Cable = $D_{coax} := 1.55 \cdot in$ *(User Input)*

Weight of Coax Cable = $W_{coax} := 0.66 \cdot plf$ *(User Input)*

Number of Coax Cables = $N_{coax} := 6$ *(User Input)*

Number of Projected Coax Cables Transverse = $NP_{Tcoax} := 1$ *(User Input)*

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

Extreme Wind Pressure = $qz := 34.4 \cdot psf$ *(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 = $A_{Tice} := \left(NP_{Tcoax} \cdot D_{coax} + 2 \cdot Ir\right) = 2.55 \cdot in$

Wind Area without Ice Transverse = $A_T := \left(NP_{Tcoax} \cdot D_{coax}\right) = 1.55 \cdot in$

Wind Area with Ice Longitudinal = $A_{Lice} := \left(NP_{Lcoax} \cdot D_{coax} + 2 \cdot Ir\right) = 10.3 \cdot in$

Wind Area without Ice Longitudinal = $A_L := \left(NP_{Lcoax} \cdot D_{coax}\right) = 9.3 \cdot in$

Ice Area per Liner Ft = $Ai_{coax} := \frac{\pi}{4} \cdot \left[\left(D_{coax} + 2 \cdot Ir\right)^2 - D_{coax}^2\right] = 0.022\, ft^2$

Weight of Ice on All Coax Cables = $W_{ice} := Ai_{coax} \cdot Id \cdot N_{coax} = 7.514 \cdot plf$

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 Longitudinal Load =

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

$$Heavy_{Vert} = \begin{pmatrix} 189 \\ 189 \\ 232 \\ 275 \\ 318 \\ 275 \end{pmatrix} lb \qquad Heavy_{Trans} = \begin{pmatrix} 37 \\ 37 \\ 46 \\ 54 \\ 63 \\ 54 \end{pmatrix} lb$$

$$Heavy_{Long} = \begin{pmatrix} 151 \\ 151 \\ 185 \\ 220 \\ 254 \\ 220 \end{pmatrix} lb$$

Extreme Vertical Load =

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

Extreme Transverse Load =

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

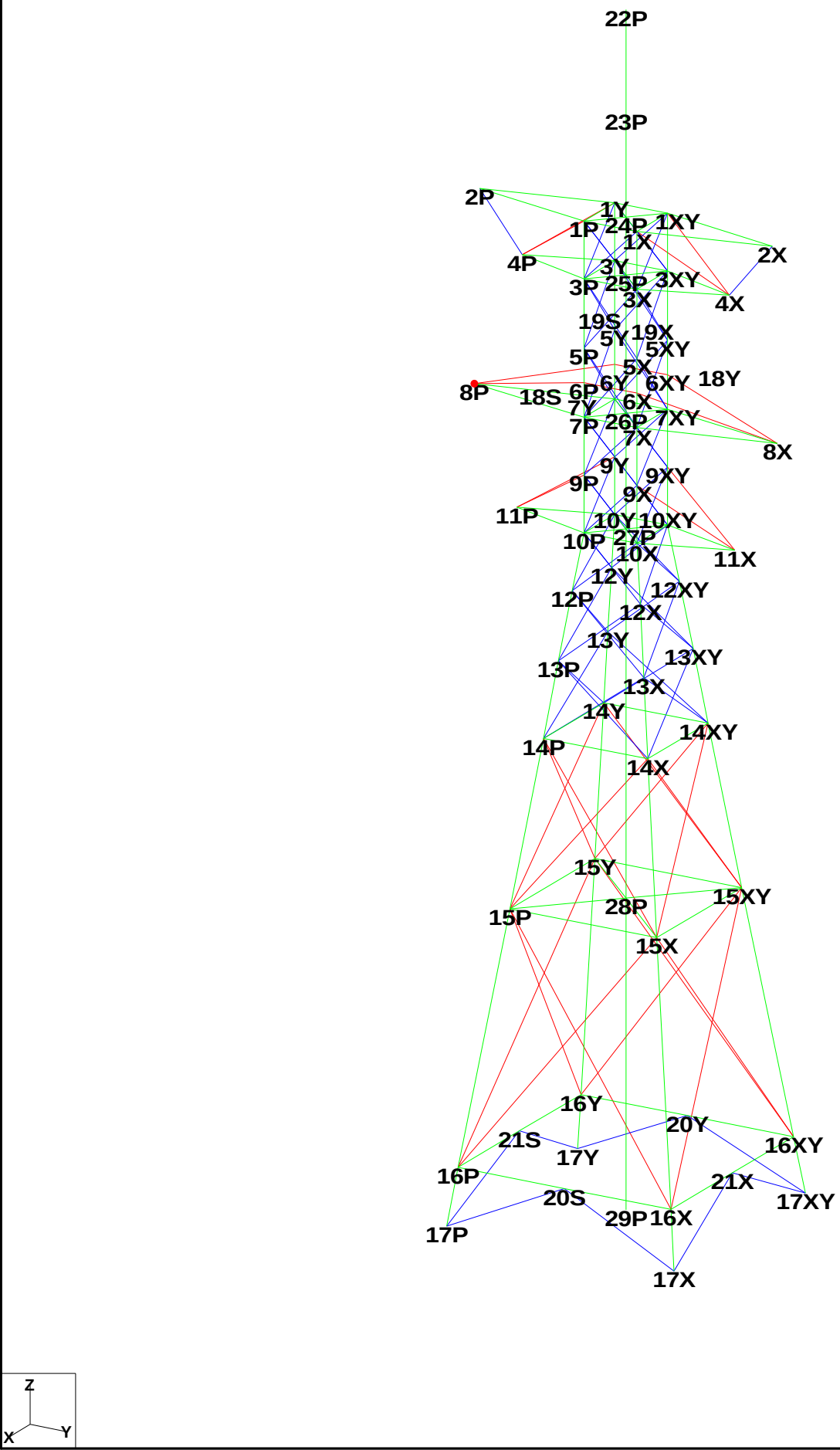
Extreme Longitudinal Load =

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

$$Extreme_{Vert} = \begin{pmatrix} 44 \\ 44 \\ 53 \\ 63 \\ 73 \\ 63 \end{pmatrix} lb \qquad Extreme_{Trans} = \begin{pmatrix} 78 \\ 78 \\ 96 \\ 114 \\ 132 \\ 114 \end{pmatrix} lb$$

$$Extreme_{Long} = \begin{pmatrix} 469 \\ 469 \\ 576 \\ 682 \\ 789 \\ 682 \end{pmatrix} lb$$

Centek Engineering Inc, Project: "cl&p # 876 w_powermnt"
Tower Version 11.11, 10:35:47 AM Thursday, January 17, 2013
Undeformed geometry displayed



Project Name : 12047.CO4 - Fairfield, CT
Project Notes: CL&P Structure # 876 / Sprint CT03XC333
Project File : J:\Jobs\1204700.WI\CO4 - CT03XC333\Calcs\PLS\cl&p # 876 w_powermnt.tow
Date run : 10:35:02 AM Thursday, January 17, 2013
by : Tower Version 11.11
Licensed to : Centek Engineering Inc

Successfully performed nonlinear analysis

Member "g6P" 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 "g6X" 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 "g6XY" 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 "g6Y" 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 "g9P" 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 "g9X" 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 "g9XY" 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 "g9Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g10P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g10X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g10XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g10Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g11P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g11X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g11XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g11Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g12P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g12X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g12XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g12Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g15P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g15X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g15XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g15Y" 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 "g16P" 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 "g16X" 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 "g16XY" 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 "g16Y" 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 "g17P" 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 "g17X" 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 "g17XY" 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 "g17Y" 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 "g18P" 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 "g18X" 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 "g18XY" 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 "g18Y" 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 "g19P" 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 "g19X" 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 "g19XY" 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 "g19Y" 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 "g20P" 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 "g20X" 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 "g20XY" 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 "g20Y" 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 "g21P" 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 "g21X" 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 "g21XY" 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 "g21Y" 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 "g22P" 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 "g22X" 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 "g22XY" 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 "g22Y" 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 "g23P" 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 "g23X" 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 "g23XY" 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 "g23Y" 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 "g24P" 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 "g24X" 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 "g24XY" 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 "g24Y" 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. ??
Unable to calculate rupture capacity for member "g47P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g47X" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g47XY" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g47Y" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g49P" because it has a long and short edge distance of 0. ??
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Unable to calculate rupture capacity for member "g49XY" because it has a long and short edge distance of 0. ??
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Unable to calculate rupture capacity for member "g51P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g51X" because it has a long and short edge distance of 0. ??
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Unable to calculate rupture capacity for member "g51Y" because it has a long and short edge distance of 0. ??
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Unable to calculate rupture capacity for member "g56P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g56X" because it has a long and short edge distance of 0. ??
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Unable to calculate rupture capacity for member "g59Y" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g60P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g60X" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g60XY" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g60Y" because it has a long and short edge distance of 0. ??
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 "g61XY" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g61Y" 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. ??
Unable to calculate rupture capacity for member "g62X" because it has a long and short edge distance of 0. ??
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Unable to calculate rupture capacity for member "g62Y" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g63P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g63X" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g63XY" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g63Y" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g64P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g64X" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g64XY" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g64Y" because it has a long and short edge distance of 0. ??
w/t equals 34.00 for member "g65P" which exceeds ASCE 10 section 3.7.1 limit of 25. ??
w/t equals 34.00 for member "g66P" which exceeds ASCE 10 section 3.7.1 limit of 25. ??
w/t equals 34.00 for member "g67P" which exceeds ASCE 10 section 3.7.1 limit of 25. ??
w/t equals 34.00 for member "g68P" which exceeds ASCE 10 section 3.7.1 limit of 25. ??
w/t equals 34.00 for member "g69P" which exceeds ASCE 10 section 3.7.1 limit of 25. ??
w/t equals 34.00 for member "g70P" which exceeds ASCE 10 section 3.7.1 limit of 25. ??
w/t equals 34.00 for member "g71P" which exceeds ASCE 10 section 3.7.1 limit of 25. ??
Unusual number of fixed joints found: 5. Towers normally have from between 1 and 4 fixed joints. ??
The model has 122 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\co4 - ct03xc333\calcs\pls\876 w_ powermnt.lca

*** Analysis Results:

Maximum element usage is 98.55% for Angle "g11X" in load case "Extreme Wind - Transverse"
Maximum insulator usage is 15.50% for Clamp "30" in load case "NESC Heavy - Transverse"

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 - Transverse	17P	2.56	-3.42	-18.40	4.27	-0.02	0.02	0.26	0.03	0.00
NESC Heavy - Transverse	29P	0.04	-0.64	18.37	0.64	5.13	0.74	-0.37	5.19	0.00
NESC Heavy - Transverse	17X	-5.48	-6.45	38.69	8.46	-0.03	0.07	-0.04	0.07	0.00
NESC Heavy - Transverse	17XY	5.18	-5.82	35.94	7.79	-0.04	-0.07	0.03	0.08	0.00
NESC Heavy - Transverse	17Y	-2.30	-3.10	-17.94	3.86	-0.05	-0.00	-0.27	0.05	0.00
Extreme Wind - Transverse	17P	6.90	-10.12	-50.24	12.25	-0.04	0.09	0.72	0.10	0.00
Extreme Wind - Transverse	29P	0.05	-0.91	6.25	0.92	9.23	0.96	-0.54	9.28	0.00
Extreme Wind - Transverse	17X	-8.77	-12.02	60.39	14.88	-0.09	0.12	0.65	0.15	0.00
Extreme Wind - Transverse	17XY	8.38	-11.02	57.63	13.84	-0.13	-0.13	-0.66	0.18	0.00
Extreme Wind - Transverse	17Y	-6.57	-9.20	-48.20	11.31	-0.10	-0.09	-0.73	0.13	0.00
NESC Heavy - Longitudinal	17P	-2.37	1.42	12.07	2.77	-0.02	0.01	0.26	0.03	0.00
NESC Heavy - Longitudinal	29P	-0.14	-0.62	18.22	0.63	3.17	-2.80	-0.04	4.23	0.00
NESC Heavy - Longitudinal	17X	-4.06	-4.08	25.90	5.76	-0.04	0.03	-0.03	0.05	0.00
NESC Heavy - Longitudinal	17XY	1.07	-2.23	9.05	2.48	0.03	-0.02	0.03	0.04	0.00
NESC Heavy - Longitudinal	17Y	-1.69	-1.95	-8.58	2.58	-0.00	-0.06	-0.26	0.06	0.00
Extreme Wind - Longitudinal	17P	-4.15	0.37	14.77	4.17	-0.07	0.03	0.71	0.07	0.00
Extreme Wind - Longitudinal	29P	-0.31	-0.85	6.11	0.90	6.06	-6.86	0.08	9.16	0.00
Extreme Wind - Longitudinal	17X	-9.32	-9.82	54.65	13.54	-0.17	0.03	0.63	0.17	0.00
Extreme Wind - Longitudinal	17XY	-0.69	-4.00	2.29	4.06	0.02	-0.10	-0.67	0.10	0.00
Extreme Wind - Longitudinal	17Y	-9.10	-10.42	-51.98	13.84	-0.02	-0.20	-0.69	0.20	0.00

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

Load Case	Support Joint	Origin Joint	Member	Leg Force In Leg 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 - Transverse	17P	16P	g12P	-18.869	0.853	0.862	-0.004	0.862	2.56	-3.42	-18.40
NESC Heavy - Transverse	17X	16X	g12X	39.591	1.071	1.083	0.106	1.078	-5.48	-6.45	38.69
NESC Heavy - Transverse	17XY	16XY	g12XY	36.764	0.840	0.851	-0.188	0.830	5.18	-5.82	35.94
NESC Heavy - Transverse	17Y	16Y	g12Y	-18.340	0.637	0.640	-0.189	0.611	-2.30	-3.10	-17.94
Extreme Wind - Transverse	17P	16P	g12P	-51.613	3.112	3.140	0.073	3.139	6.90	-10.12	-50.24
Extreme Wind - Transverse	17X	16X	g12X	62.095	3.612	3.653	0.378	3.634	-8.77	-12.02	60.39
Extreme Wind - Transverse	17XY	16XY	g12XY	59.197	3.003	3.038	-0.373	3.015	8.38	-11.02	57.63
Extreme Wind - Transverse	17Y	16Y	g12Y	-49.444	2.490	2.511	-0.126	2.508	-6.57	-9.20	-48.20
NESC Heavy - Longitudinal	17P	16P	g12P	12.360	0.738	0.741	0.696	0.255	-2.37	1.42	12.07
NESC Heavy - Longitudinal	17X	16X	g12X	26.528	0.661	0.673	0.467	0.485	-4.06	-4.08	25.90
NESC Heavy - Longitudinal	17XY	16XY	g12XY	9.333	0.984	0.990	0.183	0.973	1.07	-2.23	9.05
NESC Heavy - Longitudinal	17Y	16Y	g12Y	-8.919	0.892	0.909	0.500	0.759	-1.69	-1.95	-8.58
Extreme Wind - Longitudinal	17P	16P	g12P	15.106	2.690	2.691	2.103	1.678	-4.15	0.37	14.77
Extreme Wind - Longitudinal	17X	16X	g12X	56.238	2.769	2.821	1.725	2.233	-9.32	-9.82	54.65
Extreme Wind - Longitudinal	17XY	16XY	g12XY	2.701	3.804	3.821	1.007	3.686	-0.69	-4.00	2.29
Extreme Wind - Longitudinal	17Y	16Y	g12Y	-53.665	3.648	3.714	1.885	3.200	-9.10	-10.42	-51.98

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	104.000	59.000	46	143	0.00	5.00	157.500	0.00	20.50	425.250
2	59.000	41.500	16	40	5.00	9.81	129.882	5.00	9.81	129.882
3	41.500	0.000	23	54	9.81	21.39	646.560	9.81	21.39	646.560

*** 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. 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 KL/R Comp. (ft)	Length Comp. Member (ft)	No. Of Bolts
LEG1	L4x4x1/4	SAE	4X4X0.25	33.0	74.54	74.54	g6XY	-39.887	Extreme	53.509	125.640	168.750	1.000	1.000	1.000	75.47	75.47	5.000
LEG2	L4x4x5/16	SAE	4X4X0.3125	33.0	90.52	90.52	g12X	-59.340	Extreme	65.558	104.700	175.781	1.000	1.000	1.000	77.30	77.30	5.096
LEG3	L4x4x3/8	SAE	4X4X0.375	33.0	98.55	98.55	g11X	-58.943	Extreme	59.809	104.700	210.937	0.330	0.330	0.330	112.73	112.73	22.432
	1	10																

XBR1	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	33.0	51.09	51.09	g13P	-5.906	Extreme	11.559	20.940	21.094	0.750	0.500	0.500	123.69	122.85	7.071	5	2		
XBR2	L3x2x3/16	SAU	3X2X0.1875	33.0	43.86	43.86	g16Y	-5.368	Extreme	12.241	31.410	31.641	0.500	1.000	0.500	160.76	145.07	7.810	6	3		
XBR3	L3x2x3/16	SAU	3X2X0.1875	33.0	39.15	37.99	g35X	-3.746	Extreme	9.860	10.470	10.547	1.000	0.500	0.500	161.63	161.63	11.826	4	1		
XBR4	L2x2x3/16	SAE	2X2X0.1875	33.0	23.85	23.85	g26Y	-2.590	Extreme	10.862	20.940	21.094	1.000	0.560	0.560	147.29	136.78	7.573	6	2		
XBR5	L2.5x2x3/16	SAU	2.5X2X0.1875	33.0	22.02	22.02	g29P	-1.522	Extreme	6.910	20.940	21.094	0.560	1.000	0.560	222.71	183.17	11.135	6	2		
XBR6	L1.75x1.75x1/4	SAE	1.75X1.75X0.25	33.0	89.26	89.26	g32Y	-2.015	NESC Hea	2.257	20.940	28.125	0.790	0.580	0.580	383.86	321.10	18.807	5	2		
XBR7	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	33.0	50.62	0.00	g34XY	0.000		1.061	20.940	21.094	0.800	0.410	0.410	499.05	408.88	27.916	5	2		
PMBR1	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	36.0	53.55	50.65	g60X	-5.164	Extreme	21.670	10.470	10.195	1.000	1.000	1.000	85.71	102.85	3.536	3	1		
PMBR2	L3.5x3.5x1/4	SAE	3.5X3.5X0.25	36.0	30.73	30.73	g64P	-3.217	Extreme	16.980	10.470	13.594	1.000	1.000	1.000	168.78	168.78	9.761	4	1		
HBR1	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	33.0	72.68	72.68	g37P	-4.215	Extreme	5.799	10.470	10.547	1.000	1.000	1.000	174.93	174.93	5.000	4	1		
HBR2	2.5x2x3/16	SAU	2.5X2X0.1875	33.0	42.97	42.97	g41P	-4.499	Extreme	10.510	10.470	10.547	1.000	0.500	0.500	148.52	148.52	9.815	4	1		
HBR3	L3x2.5x1/4	SAU	3X2.5X0.25	33.0	46.51	46.51	g43P	-4.870	Extreme	12.202	10.470	14.062	1.000	0.500	0.500	175.29	175.29	13.804	4	1		
HBR4	**L4x3x1/4**	**SAU**	**4X3X0.25**	**33.0**	**45.08**	**45.08**	**g45Y**	**-4.719**	**Extreme**	**13.759**	**10.470**	**14.062**	**2.000**	**1.000**	**1.000**	**187.50**	**187.50**	**10.000**	**4**	**1**	**A potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize moments): g46P g46X g46XY g46Y ??**	
Arm1	L3x2.5x1/4	SAU	3X2.5X0.25	33.0	20.18	20.18	g49P	-5.754	NESC Hea	28.509	31.410	42.187	1.000	0.500	0.500	97.38	108.69	7.669	3	3		
Arm2	L3.5x2.5x1/4	SAU	3.5X2.5X0.25	33.0	26.71	26.71	g53P	-6.551	NESC Hea	24.527	31.410	42.187	1.000	0.500	0.500	132.50	129.56	12.013	5	3		
ArmBR1	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	33.0	29.15	29.15	g55P	-3.052	NESC Hea	10.714	10.470	10.547	1.000	1.000	1.000	155.23	155.23	6.403	4	1		
ArmBR2	L1.75x1/4x1/4	BAR	1.75X0.25X0.25	33.0	77.43	0.00	g59Y	0.000		0.050	10.470	14.062	1.000	1.000	1.000	1588.21	1588.21	9.556	4	1		
Powermnt	12" Std. Pipe	PIP	12.75X0.375	50.0	14.97	14.97	g65P	-17.263	NESC Hea	115.298	0.000	0.000	1.000	1.000	1.000	73.97	73.97	27.000	1	0		

Group Summary (Tension Portion):

Group Label	Group Desc.	Angle Type	Angle Size	Steel Strength (ksi)	Max Usage %	Max Tension Use %	Tension Control In Tens.	Member	Tension Force (kips)	Tension Control Load Case	Net Section (kips)	Tension Connect. 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	L4x4x1/4	SAE	4X4X0.25	33.0	74.54	65.10	g6Y		34.292	Extreme	52.676	125.640	168.750	220.588	5.000		12	2.000	0.6875
LEG2	L4x4x5/16	SAE	4X4X0.3125	33.0	90.52	78.54	g12Y		51.068	Extreme	65.020	104.700	175.781	103.401	5.096		10	2.000	0.6875
LEG3	L4x4x3/8	SAE	4X4X0.375	33.0	98.55	54.37	g11P		42.059	Extreme	77.364	104.700	210.937	193.014	22.432		10	2.000	0.6875
XBR1	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	33.0	51.09	37.69	g13X		5.497	Extreme	14.585	20.940	21.094	16.189	7.071		2	1.000	0.6875

XBR2	L3x2x3/16	SAU	3X2X0.1875	33.0	43.86	31.84	g23XY	7.292	Extreme	22.901	31.410	31.641	28.125	7.071	3	1.000
0.6875																
XBR3	L3x2x3/16	SAU	3X2X0.1875	33.0	39.15	39.15	g35Y	3.021	Extreme	17.333	10.470	10.547	7.717	11.826	1	1.000
0.6875																
XBR4	L2x2x3/16	SAE	2X2X0.1875	33.0	23.85	14.63	g25XY	2.229	Extreme	17.258	20.940	21.094	15.240	7.573	2	1.000
0.6875																
XBR5	L2.5x2x3/16	SAU	2.5X2X0.1875	33.0	22.02	9.90	g28P	1.855	Extreme	20.228	20.940	21.094	18.750	9.373	2	1.000
0.6875																
XBR6	L1.75x1.75x1/4	SAE	1.75X1.75X0.25	33.0	89.26	28.22	g32XY	5.373	Extreme	19.041	20.940	28.125	24.820	18.807	2	1.000
0.6875																
XBR7	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	33.0	50.62	50.62	g33XY	7.382	Extreme	14.585	20.940	21.094	17.420	27.916	2	1.000
0.6875																
PMBR1	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	36.0	53.55	53.55	g60Y	5.460	Extreme	25.048	10.470	10.195	0.000	3.536	1	1.000
0.6875																
PMBR2	L3.5x3.5x1/4	SAE	3.5X3.5X0.25	36.0	30.73	4.01	g64Y	0.420	NESC Hea	49.187	10.470	13.594	0.000	9.761	1	1.000
0.6875																
HBR1	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	33.0	72.68	51.66	g38P	3.986	Extreme	14.585	10.470	10.547	7.717	5.000	1	1.000
0.6875																
HBR2	2.5x2x3/16	SAU	2.5X2X0.1875	33.0	42.97	19.11	g41X	1.475	NESC Hea	17.444	10.470	10.547	7.717	9.815	1	1.000
0.6875																
HBR3	L3x2.5x1/4	SAU	3X2.5X0.25	33.0	46.51	13.18	g43X	1.380	Extreme	30.090	10.470	14.062	12.500	13.804	1	1.000
0.6875																
HBR4	**L4x3x1/4**	**SAU**	**4X3X0.25**	**33.0**	**45.08**	**17.48**	**g46X**	**1.831**	**Extreme**	**37.663**	**10.470**	**14.062**	**12.500**	**10.000**	**1**	**1.000**
0.6875 A potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize moments): g46P g46X g46XY g46Y ??																
Arm1	L3x2.5x1/4	SAU	3X2.5X0.25	33.0	20.18	12.57	g48P	5.435	Extreme	43.230	0.000	0.000	0.000	5.000	0	0.000
0.6875																
Arm2	L3.5x2.5x1/4	SAU	3.5X2.5X0.25	33.0	26.71	0.00	g54Y	0.000		47.520	0.000	0.000	0.000	5.000	0	0.000
0.6875																
ArmBR1	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	33.0	29.15	0.00	g55X	0.000		22.961	10.470	10.547	0.000	6.403	1	1.000
0.6875																
ArmBR2	L1.75x1/4x1/4	BAR	1.75X0.25X0.25	33.0	77.43	77.43	g57Y	6.108	NESC Hea	7.889	10.470	14.062	0.000	12.382	1	1.000
0.6875																
Powermnt	12" Std. Pipe	PIP	12.75X0.375	50.0	14.97	0.00	g71P	0.000		729.999	0.000	0.000	0.000	9.000	0	0.000
0																

*** Maximum Stress Summary for Each Load Case

Summary of Maximum Usages by Load Case:

Load Case	Maximum Usage %	Element Label	Element Type
NESC Heavy - Transverse	88.05	g31Y	Angle
Extreme Wind - Transverse	98.55	g11X	Angle
NESC Heavy - Longitudinal	89.26	g32Y	Angle
Extreme Wind - Longitudinal	88.78	g11X	Angle

Summary of Insulator Usages:

Insulator Label	Insulator Type	Maximum Usage %	Load Case	Weight (lbs)
1	Clamp	8.78	NESC Heavy - Transverse	0.0

2	Clamp	5.57	NESC Heavy - Transverse	0.0
3	Clamp	10.73	NESC Heavy - Transverse	0.0
4	Clamp	10.65	NESC Heavy - Transverse	0.0
5	Clamp	10.79	NESC Heavy - Transverse	0.0
6	Clamp	10.74	NESC Heavy - Transverse	0.0
7	Clamp	10.67	NESC Heavy - Transverse	0.0
8	Clamp	10.62	NESC Heavy - Transverse	0.0
14	Clamp	3.66	Extreme Wind - Transverse	0.0
15	Clamp	3.95	NESC Heavy - Transverse	0.0
16	Clamp	4.25	Extreme Wind - Transverse	0.0
17	Clamp	2.57	Extreme Wind - Transverse	0.0
18	Clamp	1.75	Extreme Wind - Transverse	0.0
19	Clamp	4.37	Extreme Wind - Longitudinal	0.0
20	Clamp	0.99	Extreme Wind - Transverse	0.0
21	Clamp	1.54	Extreme Wind - Transverse	0.0
22	Clamp	0.99	Extreme Wind - Transverse	0.0
23	Clamp	0.99	Extreme Wind - Transverse	0.0
24	Clamp	0.99	Extreme Wind - Transverse	0.0
25	Clamp	9.17	Extreme Wind - Transverse	0.0
26	Clamp	2.94	NESC Heavy - Transverse	0.0
27	Clamp	3.56	NESC Heavy - Transverse	0.0
28	Clamp	4.67	NESC Heavy - Transverse	0.0
29	Clamp	9.20	NESC Heavy - Transverse	0.0
30	Clamp	15.50	NESC Heavy - Transverse	0.0
31	Clamp	6.47	NESC Heavy - Transverse	0.0
32	Clamp	4.13	Extreme Wind - Longitudinal	0.0
33	Clamp	5.18	Extreme Wind - Longitudinal	0.0
34	Clamp	6.62	Extreme Wind - Longitudinal	0.0
35	Clamp	7.23	Extreme Wind - Longitudinal	0.0
36	Clamp	6.37	Extreme Wind - Longitudinal	0.0
37	Clamp	1.77	Extreme Wind - Longitudinal	0.0
38	Clamp	2.39	Extreme Wind - Longitudinal	0.0
39	Clamp	3.68	Extreme Wind - Longitudinal	0.0
40	Clamp	3.52	Extreme Wind - Longitudinal	0.0
41	Clamp	3.24	Extreme Wind - Longitudinal	0.0
42	Clamp	1.77	Extreme Wind - Longitudinal	0.0

```
*** Weight of structure (lbs):
    Weight of Angles*Section DLF:     13831.2
    Total:                            13831.2

*** End of Report
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*****************************************************************************
*                                                                           *
* TOWER - Analysis and Design -  Copyright Power Line Systems, Inc. 1986-2011 *
*                                                                           *
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Project Name : 12047.CO4 - Fairfield, CT
Project Notes: CL&P Structure # 876 / Sprint CT03XC333
Project File : J:\Jobs\1204700.WI\CO4 - CT03XC333\Calcs\PLS\cl&p # 876 w_powermnt.tow
Date run : 10:35:01 AM Thursday, January 17, 2013
by : Tower Version 11.11
Licensed to : Centek Engineering Inc

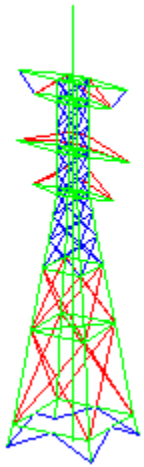
Successfully performed nonlinear analysis

Member "g6P" 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 "g6X" 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 "g6XY" 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 "g6Y" 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 "g9P" 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 "g9X" 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 "g9XY" 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 "g9Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g10P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g10X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g10XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g10Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g11P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g11X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g11XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g11Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g12P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g12X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g12XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g12Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g15P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g15X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge

and spacing distances will be checked. ??
Member "g15XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g15Y" 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 "g16P" 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 "g16X" 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 "g16XY" 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 "g16Y" 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 "g17P" 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 "g17X" 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 "g17XY" 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 "g17Y" 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 "g18P" 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 "g18X" 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 "g18XY" 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 "g18Y" 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 "g19P" 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 "g19X" 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 "g19XY" 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 "g19Y" 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 "g20P" 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 "g20X" 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 "g20XY" 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 "g20Y" 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 "g21P" 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 "g21X" 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 "g21XY" 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 "g21Y" 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 "g22P" 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 "g22X" 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 "g22XY" 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 "g22Y" 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 "g23P" 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 "g23X" 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 "g23XY" 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 "g23Y" 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 "g24P" 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 "g24X" 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 "g24XY" 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 "g24Y" 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. ??
Unable to calculate rupture capacity for member "g47P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g47X" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g47XY" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g47Y" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g49P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g49X" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g49XY" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g49Y" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g51P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g51X" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g51XY" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g51Y" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g53P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g53X" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g53XY" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g53Y" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g55P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g55X" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g56P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g56X" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g56XY" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g56Y" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g57P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g57X" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g57XY" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g57Y" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g58P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g58X" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g58XY" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g58Y" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g59P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g59X" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g59XY" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g59Y" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g60P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g60X" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g60XY" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g60Y" because it has a long and short edge distance of 0. ??
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 "g61XY" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g61Y" 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. ??
Unable to calculate rupture capacity for member "g62X" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g62XY" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g62Y" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g63P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g63X" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g63XY" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g63Y" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g64P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g64X" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g64XY" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g64Y" because it has a long and short edge distance of 0. ??
w/t equals 34.00 for member "g65P" which exceeds ASCE 10 section 3.7.1 limit of 25. ??
w/t equals 34.00 for member "g66P" which exceeds ASCE 10 section 3.7.1 limit of 25. ??
w/t equals 34.00 for member "g67P" which exceeds ASCE 10 section 3.7.1 limit of 25. ??
w/t equals 34.00 for member "g68P" which exceeds ASCE 10 section 3.7.1 limit of 25. ??
w/t equals 34.00 for member "g69P" which exceeds ASCE 10 section 3.7.1 limit of 25. ??
w/t equals 34.00 for member "g70P" which exceeds ASCE 10 section 3.7.1 limit of 25. ??
w/t equals 34.00 for member "g71P" which exceeds ASCE 10 section 3.7.1 limit of 25. ??
Unusual number of fixed joints found: 5. Towers normally have from between 1 and 4 fixed joints. ??
The model has 122 warnings. ??



Nonlinear convergence parameters: Use Standard Parameters
Member check option: ASCE 10
Connection rupture check: ASCE 10
Crossing diagonal check: ASCE 10 [Alternate Unsupported RLOUT = 1]
Included angle check: None

Joints Geometry:

Joint Label	Symmetry Code	X Coord. (ft)	Y Coord. (ft)	Z Coord. (ft)	X Disp. Rest.	Y Disp. Rest.	Z Disp. Rest.	X Rot. Rest.	Y Rot. Rest.	Z Rot. Rest.

1P	XY-Symmetry	2.5	-2.5	86	Free	Free	Free	Free	Free	Free
2P	X-Symmetry	0	-13.75	86	Free	Free	Free	Free	Free	Free
3P	XY-Symmetry	2.5	-2.5	81	Free	Free	Free	Free	Free	Free
4P	X-Symmetry	0	-9.75	81	Free	Free	Free	Free	Free	Free
5P	XY-Symmetry	2.5	-2.5	75	Free	Free	Free	Free	Free	Free
6P	XY-Symmetry	2.5	-2.5	72	Free	Free	Free	Free	Free	Free
7P	XY-Symmetry	2.5	-2.5	69	Free	Free	Free	Free	Free	Free
8P	X-Symmetry	0	-14.25	69	Free	Free	Free	Free	Free	Free
9P	XY-Symmetry	2.5	-2.5	64	Free	Free	Free	Free	Free	Free
10P	XY-Symmetry	2.5	-2.5	59	Free	Free	Free	Free	Free	Free
11P	X-Symmetry	0	-10.25	59	Free	Free	Free	Free	Free	Free
12P	XY-Symmetry	3.188	-3.188	54.05	Free	Free	Free	Free	Free	Free
13P	XY-Symmetry	4.013	-4.013	48.1	Free	Free	Free	Free	Free	Free
14P	XY-Symmetry	4.907	-4.907	41.5	Free	Free	Free	Free	Free	Free
15P	XY-Symmetry	6.902	-6.902	27	Free	Free	Free	Free	Free	Free
16P	XY-Symmetry	10	-10	5	Free	Free	Free	Free	Free	Free
17P	XY-Symmetry	10.69	-10.69	0	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
22P	None	0	0	104	Free	Free	Free	Free	Free	Free
23P	None	0	0	95	Free	Free	Free	Free	Free	Free
24P	None	0	0	86	Free	Free	Free	Free	Free	Free
25P	None	0	0	81	Free	Free	Free	Free	Free	Free
26P	None	0	0	69	Free	Free	Free	Free	Free	Free
27P	None	0	0	59	Free	Free	Free	Free	Free	Free
28P	None	0	0	27	Free	Free	Free	Free	Free	Free
29P	None	0	0	0	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
1X	X-GenXY	2.5	2.5	86	Free	Free	Free	Free	Free	Free
1XY	XY-GenXY	-2.5	2.5	86	Free	Free	Free	Free	Free	Free
1Y	Y-GenXY	-2.5	-2.5	86	Free	Free	Free	Free	Free	Free
2X	X-Gen	0	13.75	86	Free	Free	Free	Free	Free	Free
3X	X-GenXY	2.5	2.5	81	Free	Free	Free	Free	Free	Free
3XY	XY-GenXY	-2.5	2.5	81	Free	Free	Free	Free	Free	Free
3Y	Y-GenXY	-2.5	-2.5	81	Free	Free	Free	Free	Free	Free
4X	X-Gen	0	9.75	81	Free	Free	Free	Free	Free	Free
5X	X-GenXY	2.5	2.5	75	Free	Free	Free	Free	Free	Free
5XY	XY-GenXY	-2.5	2.5	75	Free	Free	Free	Free	Free	Free
5Y	Y-GenXY	-2.5	-2.5	75	Free	Free	Free	Free	Free	Free
6X	X-GenXY	2.5	2.5	72	Free	Free	Free	Free	Free	Free
6XY	XY-GenXY	-2.5	2.5	72	Free	Free	Free	Free	Free	Free
6Y	Y-GenXY	-2.5	-2.5	72	Free	Free	Free	Free	Free	Free
7X	X-GenXY	2.5	2.5	69	Free	Free	Free	Free	Free	Free
7XY	XY-GenXY	-2.5	2.5	69	Free	Free	Free	Free	Free	Free
7Y	Y-GenXY	-2.5	-2.5	69	Free	Free	Free	Free	Free	Free
8X	X-Gen	0	14.25	69	Free	Free	Free	Free	Free	Free
9X	X-GenXY	2.5	2.5	64	Free	Free	Free	Free	Free	Free
9XY	XY-GenXY	-2.5	2.5	64	Free	Free	Free	Free	Free	Free
9Y	Y-GenXY	-2.5	-2.5	64	Free	Free	Free	Free	Free	Free
10X	X-GenXY	2.5	2.5	59	Free	Free	Free	Free	Free	Free
10XY	XY-GenXY	-2.5	2.5	59	Free	Free	Free	Free	Free	Free
10Y	Y-GenXY	-2.5	-2.5	59	Free	Free	Free	Free	Free	Free
11X	X-Gen	0	10.25	59	Free	Free	Free	Free	Free	Free
12X	X-GenXY	3.188	3.188	54.05	Free	Free	Free	Free	Free	Free
12XY	XY-GenXY	-3.188	3.188	54.05	Free	Free	Free	Free	Free	Free
12Y	Y-GenXY	-3.188	-3.188	54.05	Free	Free	Free	Free	Free	Free
13X	X-GenXY	4.013	4.013	48.1	Free	Free	Free	Free	Free	Free
13XY	XY-GenXY	-4.013	4.013	48.1	Free	Free	Free	Free	Free	Free
13Y	Y-GenXY	-4.013	-4.013	48.1	Free	Free	Free	Free	Free	Free
14X	X-GenXY	4.907	4.907	41.5	Free	Free	Free	Free	Free	Free
14XY	XY-GenXY	-4.907	4.907	41.5	Free	Free	Free	Free	Free	Free

14Y	Y-GenXY	-4.907	-4.907	41.5	Free	Free	Free	Free	Free	Free
15X	X-GenXY	6.902	6.902	27	Free	Free	Free	Free	Free	Free
15XY	XY-GenXY	-6.902	6.902	27	Free	Free	Free	Free	Free	Free
15Y	Y-GenXY	-6.902	-6.902	27	Free	Free	Free	Free	Free	Free
16X	X-GenXY	10	10	5	Free	Free	Free	Free	Free	Free
16XY	XY-GenXY	-10	10	5	Free	Free	Free	Free	Free	Free
16Y	Y-GenXY	-10	-10	5	Free	Free	Free	Free	Free	Free
17X	X-GenXY	10.69	10.69	0	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
17XY	XY-GenXY	-10.69	10.69	0	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
17Y	Y-GenXY	-10.69	-10.69	0	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed

Secondary Joints:

Joint Label	Symmetry Code	Origin Joint	End Joint	Fraction	Elevation (ft)	X Disp. Rest.	Y Disp. Rest.	Z Disp. Rest.	X Rot. Rest.	Y Rot. Rest.	Z Rot. Rest.
18S	Y-Symmetry	6P	6X	0.5	0	Free	Free	Free	Free	Free	Free
19S	X-Symmetry	6P	6Y	0.5	0	Free	Free	Free	Free	Free	Free
20S	Y-Symmetry	16P	16X	0.5	0	Free	Free	Free	Free	Free	Free
21S	X-Symmetry	16P	16Y	0.5	0	Free	Free	Free	Free	Free	Free
18Y	Y-Gen	6P	6X	0.5	0	Free	Free	Free	Free	Free	Free
19X	X-Gen	6P	6Y	0.5	0	Free	Free	Free	Free	Free	Free
20Y	Y-Gen	16P	16X	0.5	0	Free	Free	Free	Free	Free	Free
21X	X-Gen	16P	16Y	0.5	0	Free	Free	Free	Free	Free	Free

The model contains 68 primary and 8 secondary joints for a total of 76 joints.

Steel Material Properties:

Steel Material Label	Modulus of Elasticity (ksi)	Yield Stress Fy (ksi)	Ultimate Stress Fu (ksi)	Member Stress All. Hyp. 1 (ksi)	Member Stress All. Hyp. 2 (ksi)	Member Rupture Hyp. 1 (ksi)	Member Rupture Hyp. 2 (ksi)	Member Bearing Hyp. 1 (ksi)	Member Bearing Hyp. 2 (ksi)
A7	2.9e+004	33	60	0	0	0	0	0	0
A36	2.9e+004	36	58	0	0	0	0	0	0
A572-50	2.9e+004	50	65	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 A7	0.625	0.6875	10.47	0	0	0	0

Number Bolts Used By Type:

Bolt Type	Number Bolts
5/8 A7	542

Angle Properties:

Angle Type	Angle Size	Long Leg	Short Leg	Thick.	Unit Weight	Gross Area	w/t Ratio	Radius of Gyration	Radius of Gyration	Radius of Gyration	Number of	Wind Width	Short Edge	Long Edge	Optimize Cost	Section Modulus

		(in)	(in)	(in)	(lbs/ft)	(in^2)	Rx (in)	Ry (in)	Rz (in)	Angles	(in)	Dist. (in)	Dist. (in)	Factor	(in^3)
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	0	1.0000	0
SAE	1.75X1.75X0.25	1.75	1.75	0.25	2.77	0.813	4.25	0.529	0.529	0.341	1	1.75	0	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	0	0	1.0000	0
SAE	2X2X0.1875	2	2	0.1875	2.44	0.71	8	0.617	0.617	0.394	1	2	0	0	1.0000	0
SAE	3.5X3.5X0.25	3.5	3.5	0.25	5.8	1.69	11.5	1.09	1.09	0.694	1	3.5	0	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	0	0	1.0000	0
SAE	4X4X0.3125	4	4	0.3125	8.2	2.4	10.6	1.24	1.24	0.791	1	4	0	0	1.0000	0
SAE	4X4X0.375	4	4	0.375	9.8	2.86	8.67	1.23	1.23	0.788	1	4	0	0	1.0000	0
SAU	2.5X2X0.1875	2.5	2	0.1875	2.75	0.81	10.67	0.793	0.6	0.427	1	2.5	0	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	0	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	0	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	0	0	1.0000	0
SAU	4X3X0.25	4	3	0.25	5.8	1.69	13.25	1.28	0.896	0.651	1	4	0	0	1.0000	0
BAR	1.75X0.25X0.25	1.75	0.25	0.25	1.49	0.4375	7	0.5052	0.0722	0.101	1	1.75	0	0	1.0000	0
PIP	12.75X0.375	12.75	12.75	0.375	49.56	14.6	34	4.38	4.38	4.38	1	12.75	0	0	1.0000	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	L4x4x1/4	SAE	4X4X0.25	A7	Beam	Leg	None	12.000
LEG2	L4x4x5/16	SAE	4X4X0.3125	A7	Beam	Leg	None	12.000
LEG3	L4x4x3/8	SAE	4X4X0.375	A7	Beam	Leg	None	12.000
XBR1	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	A7	Truss	Crossing Diagonal	None	12.000
XBR2	L3x2x3/16	SAU	3X2X0.1875	A7	Truss	Crossing Diagonal	None	12.000
XBR3	L3x2x3/16	SAU	3X2X0.1875	A7	Truss	Other	None	12.000
XBR4	L2x2x3/16	SAE	2X2X0.1875	A7	Truss	Crossing Diagonal	None	12.000
XBR5	L2.5x2x3/16	SAU	2.5X2X0.1875	A7	Truss	Crossing Diagonal	None	12.000
XBR6	L1.75x1.75x1/4	SAE	1.75X1.75X0.25	A7	T-Only	Other	None	12.000
XBR7	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	A7	T-Only	Other	None	12.000
PMBR1	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	A36	Beam	Other	None	12.000
PMBR2	L3.5x3.5x1/4	SAE	3.5X3.5X0.25	A36	Beam	Other	None	12.000
HBR1	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	A7	Beam	Other	None	12.000
HBR2	2.5x2x3/16	SAU	2.5X2X0.1875	A7	Beam	Other	None	12.000
HBR3	L3x2.5x1/4	SAU	3X2.5X0.25	A7	Beam	Other	None	12.000
HBR4	L4x3x1/4	SAU	4X3X0.25	A7	Beam	Other	None	12.000
Arm1	L3x2.5x1/4	SAU	3X2.5X0.25	A7	Beam	Other	None	12.000
Arm2	L3.5x2.5x1/4	SAU	3.5X2.5X0.25	A7	Beam	Other	None	12.000
ArmBR1	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	A7	Truss	Other	None	0.000
ArmBR2	L1.75x1/4x1/4	BAR	1.75X0.25X0.25	A7	T-Only	Other	None	0.000
Powermnt	12" Std. Pipe	PIP	12.75X0.375	A572-50	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	4X4X0.25	A7	108.00	144.00	712.80
SAE	4X4X0.3125	A7	91.69	122.26	751.90

SAE	4X4X0.375	A7	148.82	198.42	1458.39
SAE	1.75X1.75X0.1875	A7	319.89	186.60	678.17
SAU	3X2X0.1875	A7	332.71	277.26	1021.42
SAE	2X2X0.1875	A7	60.58	40.39	147.83
SAU	2.5X2X0.1875	A7	203.33	152.50	559.15
SAE	1.75X1.75X0.25	A7	150.45	87.77	416.76
SAU	3X2.5X0.25	A7	194.56	178.35	875.54
SAU	4X3X0.25	A7	80.00	93.33	464.00
SAU	3.5X2.5X0.25	A7	58.05	58.05	284.46
SAE	2.5X2.5X0.1875	A7	12.81	10.67	39.32
BAR	1.75X0.25X0.25	A7	134.37	44.79	200.21
SAE	2.5X2.5X0.1875	A36	56.57	47.14	173.67
SAE	3.5X3.5X0.25	A36	39.04	45.55	226.46
PIP	12.75X0.375	A572-50	104.00	442.00	5154.24

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	10P	1.000	3.200	3.200	1.000	1.000	0.000	0.000	1.000	1.000	0.000	0.000	None
2	14P	1.000	3.200	3.200	1.000	1.000	0.000	0.000	1.000	1.000	0.000	0.000	None
3	17P	1.100	3.200	3.200	1.100	1.100	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)	Rest. Coef.
g1P	LEG1		XY-Symmetry	1P	3P	1	4	1	1	1		0	0	0		0	0	0	0	0
g1X	LEG1		X-GenXY	1X	3X	1	4	1	1	1		0	0	0		0	0	0	0	0
g1XY	LEG1		XY-GenXY	1XY	3XY	1	4	1	1	1		0	0	0		0	0	0	0	0
g1Y	LEG1		Y-GenXY	1Y	3Y	1	4	1	1	1		0	0	0		0	0	0	0	0
g2P	LEG1		XY-Symmetry	3P	5P	1	4	1	1	1		0	0	0		0	0	0	0	0
g2X	LEG1		X-GenXY	3X	5X	1	4	1	1	1		0	0	0		0	0	0	0	0
g2XY	LEG1		XY-GenXY	3XY	5XY	1	4	1	1	1		0	0	0		0	0	0	0	0
g2Y	LEG1		Y-GenXY	3Y	5Y	1	4	1	1	1		0	0	0		0	0	0	0	0
g3P	LEG1		XY-Symmetry	5P	6P	1	4	1	1	1		0	0	0		0	0	0	0	0
g3X	LEG1		X-GenXY	5X	6X	1	4	1	1	1		0	0	0		0	0	0	0	0
g3XY	LEG1		XY-GenXY	5XY	6XY	1	4	1	1	1		0	0	0		0	0	0	0	0

g3Y	LEG1	Y-GenXY	5Y	6Y	1	4	1	1	1		0	0	0		0	0	0	0
g4P	LEG1	XY-Symmetry	6P	7P	1	4	1	1	1		0	0	0		0	0	0	0
g4X	LEG1	X-GenXY	6X	7X	1	4	1	1	1		0	0	0		0	0	0	0
g4XY	LEG1	XY-GenXY	6XY	7XY	1	4	1	1	1		0	0	0		0	0	0	0
g4Y	LEG1	Y-GenXY	6Y	7Y	1	4	1	1	1		0	0	0		0	0	0	0
g5P	LEG1	XY-Symmetry	7P	9P	1	4	1	1	1		0	0	0		0	0	0	0
g5X	LEG1	X-GenXY	7X	9X	1	4	1	1	1		0	0	0		0	0	0	0
g5XY	LEG1	XY-GenXY	7XY	9XY	1	4	1	1	1		0	0	0		0	0	0	0
g5Y	LEG1	Y-GenXY	7Y	9Y	1	4	1	1	1		0	0	0		0	0	0	0
g6P	LEG1	XY-Symmetry	9P	10P	1	4	1	1	1	5/8 A7	12	2	1	Both	1.25	2.375	1.5	4
g6X	LEG1	X-GenXY	9X	10X	1	4	1	1	1	5/8 A7	12	2	1	Both	1.25	2.375	1.5	4
g6XY	LEG1	XY-GenXY	9XY	10XY	1	4	1	1	1	5/8 A7	12	2	1	Both	1.25	2.375	1.5	4
g6Y	LEG1	Y-GenXY	9Y	10Y	1	4	1	1	1	5/8 A7	12	2	1	Both	1.25	2.375	1.5	4
g7P	LEG2	XY-Symmetry	10P	12P	1	4	1	1	1		0	0	0		0	0	0	0
g7X	LEG2	X-GenXY	10X	12X	1	4	1	1	1		0	0	0		0	0	0	0
g7XY	LEG2	XY-GenXY	10XY	12XY	1	4	1	1	1		0	0	0		0	0	0	0
g7Y	LEG2	Y-GenXY	10Y	12Y	1	4	1	1	1		0	0	0		0	0	0	0
g8P	LEG2	XY-Symmetry	12P	13P	1	4	1	1	1		0	0	0		0	0	0	0
g8X	LEG2	X-GenXY	12X	13X	1	4	1	1	1		0	0	0		0	0	0	0
g8XY	LEG2	XY-GenXY	12XY	13XY	1	4	1	1	1		0	0	0		0	0	0	0
g8Y	LEG2	Y-GenXY	12Y	13Y	1	4	1	1	1		0	0	0		0	0	0	0
g9P	LEG2	XY-Symmetry	13P	14P	1	4	1	1	1	5/8 A7	10	2.02	1	Both	0.875	2	1.5	3.5
g9X	LEG2	X-GenXY	13X	14X	1	4	1	1	1	5/8 A7	10	2.02	1	Both	0.875	2	1.5	3.5
g9XY	LEG2	XY-GenXY	13XY	14XY	1	4	1	1	1	5/8 A7	10	2.02	1	Both	0.875	2	1.5	3.5
g9Y	LEG2	Y-GenXY	13Y	14Y	1	4	1	1	1	5/8 A7	10	2.02	1	Both	0.875	2	1.5	3.5
g10P	LEG3	XY-Symmetry	14P	15P	1	4	0.5	0.5	0.5	5/8 A7	10	2	1	Both	1.3125	2.375	1.5	3.5
g10X	LEG3	X-GenXY	14X	15X	1	4	0.5	0.5	0.5	5/8 A7	10	2	1	Both	1.3125	2.375	1.5	3.5
g10XY	LEG3	XY-GenXY	14XY	15XY	1	4	0.5	0.5	0.5	5/8 A7	10	2	1	Both	1.3125	2.375	1.5	3.5
g10Y	LEG3	Y-GenXY	14Y	15Y	1	4	0.5	0.5	0.5	5/8 A7	10	2	1	Both	1.3125	2.375	1.5	3.5

g11P	LEG3	XY-Symmetry	15P	16P	1	4	0.33	0.33	0.33	5/8	A7	10	2	1	Both	0.875	1.9375	1.5	3.75	0
g11X	LEG3	X-GenXY	15X	16X	1	4	0.33	0.33	0.33	5/8	A7	10	2	1	Both	0.875	1.9375	1.5	3.75	0
g11XY	LEG3	XY-GenXY	15XY	16XY	1	4	0.33	0.33	0.33	5/8	A7	10	2	1	Both	0.875	1.9375	1.5	3.75	0
g11Y	LEG3	Y-GenXY	15Y	16Y	1	4	0.33	0.33	0.33	5/8	A7	10	2	1	Both	0.875	1.9375	1.5	3.75	0
g12P	LEG2	XY-Symmetry	16P	17P	1	4	1	1	1	5/8	A7	10	2	1	Both	0.5625	1.625	1.5625	3.75	0
g12X	LEG2	X-GenXY	16X	17X	1	4	1	1	1	5/8	A7	10	2	1	Both	0.5625	1.625	1.5625	3.75	0
g12XY	LEG2	XY-GenXY	16XY	17XY	1	4	1	1	1	5/8	A7	10	2	1	Both	0.5625	1.625	1.5625	3.75	0
g12Y	LEG2	Y-GenXY	16Y	17Y	1	4	1	1	1	5/8	A7	10	2	1	Both	0.5625	1.625	1.5625	3.75	0
g13P	XBR1	XY-Symmetry	1P	3X	2	5	0.75	0.5	0.5	5/8	A7	2	1	1	Short only	0.8125	0	1	2	0
g13X	XBR1	X-GenXY	1X	3P	2	5	0.75	0.5	0.5	5/8	A7	2	1	1	Short only	0.8125	0	1	2	0
g13XY	XBR1	XY-GenXY	1XY	3Y	2	5	0.75	0.5	0.5	5/8	A7	2	1	1	Short only	0.8125	0	1	2	0
g13Y	XBR1	Y-GenXY	1Y	3XY	2	5	0.75	0.5	0.5	5/8	A7	2	1	1	Short only	0.8125	0	1	2	0
g14P	XBR1	XY-Symmetry	1X	3XY	2	5	0.75	0.5	0.5	5/8	A7	2	1	1	Short only	0.8125	0	1	2	0
g14X	XBR1	X-GenXY	1P	3Y	2	5	0.75	0.5	0.5	5/8	A7	2	1	1	Short only	0.8125	0	1	2	0
g14XY	XBR1	XY-GenXY	1Y	3P	2	5	0.75	0.5	0.5	5/8	A7	2	1	1	Short only	0.8125	0	1	2	0
g14Y	XBR1	Y-GenXY	1XY	3X	2	5	0.75	0.5	0.5	5/8	A7	2	1	1	Short only	0.8125	0	1	2	0
g15P	XBR2	XY-Symmetry	3P	5X	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	3.125	0
g15X	XBR2	X-GenXY	3X	5P	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	3.125	0
g15XY	XBR2	XY-GenXY	3XY	5Y	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	3.125	0
g15Y	XBR2	Y-GenXY	3Y	5XY	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	3.125	0
g16P	XBR2	XY-Symmetry	3X	5XY	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	3.125	0
g16X	XBR2	X-GenXY	3P	5Y	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	3.125	0
g16XY	XBR2	XY-GenXY	3Y	5P	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	3.125	0
g16Y	XBR2	Y-GenXY	3XY	5X	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	3.125	0
g17P	XBR3	XY-Symmetry	5P	18S	2	4	1	1.5	1	5/8	A7	3	1	1	Long only	0.875	2	1	3.125	0
g17X	XBR3	X-GenXY	5X	18S	2	4	1	1.5	1	5/8	A7	3	1	1	Long only	0.875	2	1	3.125	0
g17XY	XBR3	XY-GenXY	5XY	18Y	2	4	1	1.5	1	5/8	A7	3	1	1	Long only	0.875	2	1	3.125	0
g17Y	XBR3	Y-GenXY	5Y	18Y	2	4	1	1.5	1	5/8	A7	3	1	1	Long only	0.875	2	1	3.125	0
g18P	XBR3	XY-Symmetry	5X	19X	2	4	1	1.5	1	5/8	A7	3	1	1	Long only	0.875	2	1	3.125	0
g18X	XBR3	X-GenXY	5P	19S	2	4	1	1.5	1	5/8	A7	3	1	1	Long only	0.875	2	1	3.125	

g18XY	XBR3	XY-GenXY	5Y	19S	2	4	1	1.5	1	5/8	A7	3	1	1	Long only	0.875	2	1	3.125
g18Y	XBR3	Y-GenXY	5XY	19X	2	4	1	1.5	1	5/8	A7	3	1	1	Long only	0.875	2	1	3.125
g19P	XBR3	XY-Symmetry	18S	7P	2	4	1	1.5	1	5/8	A7	3	1	1	Long only	0.875	2	1	3.125
g19X	XBR3	X-GenXY	18S	7X	2	4	1	1.5	1	5/8	A7	3	1	1	Long only	0.875	2	1	3.125
g19XY	XBR3	XY-GenXY	18Y	7XY	2	4	1	1.5	1	5/8	A7	3	1	1	Long only	0.875	2	1	3.125
g19Y	XBR3	Y-GenXY	18Y	7Y	2	4	1	1.5	1	5/8	A7	3	1	1	Long only	0.875	2	1	3.125
g20P	XBR3	XY-Symmetry	19X	7X	2	4	1	1.5	1	5/8	A7	3	1	1	Long only	0.875	2	1	3.125
g20X	XBR3	X-GenXY	19S	7P	2	4	1	1.5	1	5/8	A7	3	1	1	Long only	0.875	2	1	3.125
g20XY	XBR3	XY-GenXY	19S	7Y	2	4	1	1.5	1	5/8	A7	3	1	1	Long only	0.875	2	1	3.125
g20Y	XBR3	Y-GenXY	19X	7XY	2	4	1	1.5	1	5/8	A7	3	1	1	Long only	0.875	2	1	3.125
g21P	XBR2	XY-Symmetry	7P	9X	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	2.75
g21X	XBR2	X-GenXY	7X	9P	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	2.75
g21XY	XBR2	XY-GenXY	7XY	9Y	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	2.75
g21Y	XBR2	Y-GenXY	7Y	9XY	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	2.75
g22P	XBR2	XY-Symmetry	7X	9XY	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	2.75
g22X	XBR2	X-GenXY	7P	9Y	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	2.75
g22XY	XBR2	XY-GenXY	7Y	9P	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	2.75
g22Y	XBR2	Y-GenXY	7XY	9X	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	2.75
g23P	XBR2	XY-Symmetry	9P	10X	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	2.75
g23X	XBR2	X-GenXY	9X	10P	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	2.75
g23XY	XBR2	XY-GenXY	9XY	10Y	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	2.75
g23Y	XBR2	Y-GenXY	9Y	10XY	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	2.75
g24P	XBR2	XY-Symmetry	9X	10XY	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	2.75
g24X	XBR2	X-GenXY	9P	10Y	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	2.75
g24XY	XBR2	XY-GenXY	9Y	10P	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	2.75
g24Y	XBR2	Y-GenXY	9XY	10X	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	2.75
g25P	XBR4	XY-Symmetry	10P	12X	2	5	0.78	0.56	0.56	5/8	A7	2	1	1	Short only	1	0	1	1.6875
g25X	XBR4	X-GenXY	10X	12P	2	5	0.78	0.56	0.56	5/8	A7	2	1	1	Short only	1	0	1	1.6875
g25XY	XBR4	XY-GenXY	10XY	12Y	2	5	0.78	0.56	0.56	5/8	A7	2	1	1	Short only	1	0	1	1.6875

g25Y	XBR4	Y-GenXY	10Y	12XY	2	5	0.78	0.56	0.56	5/8	A7	2	1	1	Short only	1	0	1	1.6875
0																			
g26P	XBR4	XY-Symmetry	10X	12XY	2	5	0.78	0.56	0.56	5/8	A7	2	1	1	Short only	1	0	1	1.6875
0																			
g26X	XBR4	X-GenXY	10P	12Y	2	5	0.78	0.56	0.56	5/8	A7	2	1	1	Short only	1	0	1	1.6875
0																			
g26XY	XBR4	XY-GenXY	10Y	12P	2	5	0.78	0.56	0.56	5/8	A7	2	1	1	Short only	1	0	1	1.6875
0																			
g26Y	XBR4	Y-GenXY	10XY	12X	2	5	0.78	0.56	0.56	5/8	A7	2	1	1	Short only	1	0	1	1.6875
0																			
g27P	XBR5	XY-Symmetry	12P	13X	2	5	0.56	0.78	0.56	5/8	A7	2	1	1	Long only	1	0	1	2.375
0																			
g27X	XBR5	X-GenXY	12X	13P	2	5	0.56	0.78	0.56	5/8	A7	2	1	1	Long only	1	0	1	2.375
0																			
g27XY	XBR5	XY-GenXY	12XY	13Y	2	5	0.56	0.78	0.56	5/8	A7	2	1	1	Long only	1	0	1	2.375
0																			
g27Y	XBR5	Y-GenXY	12Y	13XY	2	5	0.56	0.78	0.56	5/8	A7	2	1	1	Long only	1	0	1	2.375
0																			
g28P	XBR5	XY-Symmetry	12X	13XY	2	5	0.56	0.78	0.56	5/8	A7	2	1	1	Long only	1	0	1	2.375
0																			
g28X	XBR5	X-GenXY	12P	13Y	2	5	0.56	0.78	0.56	5/8	A7	2	1	1	Long only	1	0	1	2.375
0																			
g28XY	XBR5	XY-GenXY	12Y	13P	2	5	0.56	0.78	0.56	5/8	A7	2	1	1	Long only	1	0	1	2.375
0																			
g28Y	XBR5	Y-GenXY	12XY	13X	2	5	0.56	0.78	0.56	5/8	A7	2	1	1	Long only	1	0	1	2.375
0																			
g29P	XBR5	XY-Symmetry	13P	14X	2	5	0.56	0.78	0.56	5/8	A7	2	1	1	Long only	1	0	1	2.25
0																			
g29X	XBR5	X-GenXY	13X	14P	2	5	0.56	0.78	0.56	5/8	A7	2	1	1	Long only	1	0	1	2.25
0																			
g29XY	XBR5	XY-GenXY	13XY	14Y	2	5	0.56	0.78	0.56	5/8	A7	2	1	1	Long only	1	0	1	2.25
0																			
g29Y	XBR5	Y-GenXY	13Y	14XY	2	5	0.56	0.78	0.56	5/8	A7	2	1	1	Long only	1	0	1	2.25
0																			
g30P	XBR5	XY-Symmetry	13X	14XY	2	5	0.56	0.78	0.56	5/8	A7	2	1	1	Long only	1	0	1	2.25
0																			
g30X	XBR5	X-GenXY	13P	14Y	2	5	0.56	0.78	0.56	5/8	A7	2	1	1	Long only	1	0	1	2.25
0																			
g30XY	XBR5	XY-GenXY	13Y	14P	2	5	0.56	0.78	0.56	5/8	A7	2	1	1	Long only	1	0	1	2.25
0																			
g30Y	XBR5	Y-GenXY	13XY	14X	2	5	0.56	0.78	0.56	5/8	A7	2	1	1	Long only	1	0	1	2.25
0																			
g31P	XBR6	XY-Symmetry	14P	15X	2	5	0.79	0.58	0.58	5/8	A7	2	1	1	Short only	1	0	1	2.1875
0																			
g31X	XBR6	X-GenXY	14X	15P	2	5	0.79	0.58	0.58	5/8	A7	2	1	1	Short only	1	0	1	2.1875
0																			
g31XY	XBR6	XY-GenXY	14XY	15Y	2	5	0.79	0.58	0.58	5/8	A7	2	1	1	Short only	1	0	1	2.1875
0																			
g31Y	XBR6	Y-GenXY	14Y	15XY	2	5	0.79	0.58	0.58	5/8	A7	2	1	1	Short only	1	0	1	2.1875
0																			
g32P	XBR6	XY-Symmetry	14X	15XY	2	5	0.79	0.58	0.58	5/8	A7	2	1	1	Short only	1	0	1	2.1875
0																			
g32X	XBR6	X-GenXY	14P	15Y	2	5	0.79	0.58	0.58	5/8	A7	2	1	1	Short only	1	0	1	2.1875
0																			
g32XY	XBR6	XY-GenXY	14Y	15P	2	5	0.79	0.58	0.58	5/8	A7	2	1	1	Short only	1	0	1	2.1875
0																			
g32Y	XBR6	Y-GenXY	14XY	15X	2	5	0.79	0.58	0.58	5/8	A7	2	1	1	Short only	1	0	1	2.1875
0																			
g33P	XBR7	XY-Symmetry	15P	16X	2	5	0.8	0.41	0.41	5/8	A7	2	1	1	Short only	0.875	0	1	2.125

g33X	XBR7	X-GenXY	15X	16P	2	5	0.8	0.41	0.41	5/8	A7	2	1	1	Short only	0.875	0	1	2.125
g33XY	XBR7	XY-GenXY	15XY	16Y	2	5	0.8	0.41	0.41	5/8	A7	2	1	1	Short only	0.875	0	1	2.125
g33Y	XBR7	Y-GenXY	15Y	16XY	2	5	0.8	0.41	0.41	5/8	A7	2	1	1	Short only	0.875	0	1	2.125
g34P	XBR7	XY-Symmetry	15X	16XY	2	5	0.8	0.41	0.41	5/8	A7	2	1	1	Short only	0.875	0	1	2.125
g34X	XBR7	X-GenXY	15P	16Y	2	5	0.8	0.41	0.41	5/8	A7	2	1	1	Short only	0.875	0	1	2.125
g34XY	XBR7	XY-GenXY	15Y	16P	2	5	0.8	0.41	0.41	5/8	A7	2	1	1	Short only	0.875	0	1	2.125
g34Y	XBR7	Y-GenXY	15XY	16X	2	5	0.8	0.41	0.41	5/8	A7	2	1	1	Short only	0.875	0	1	2.125
g35P	XBR3	XY-Symmetry	17P	20S	2	4	1	0.5	0.5	5/8	A7	1	1	1	Short only	0.875	0	1	0
g35X	XBR3	X-GenXY	17X	20S	2	4	1	0.5	0.5	5/8	A7	1	1	1	Short only	0.875	0	1	0
g35XY	XBR3	XY-GenXY	17XY	20Y	2	4	1	0.5	0.5	5/8	A7	1	1	1	Short only	0.875	0	1	0
g35Y	XBR3	Y-GenXY	17Y	20Y	2	4	1	0.5	0.5	5/8	A7	1	1	1	Short only	0.875	0	1	0
g36P	XBR3	XY-Symmetry	17X	21X	2	4	1	0.5	0.5	5/8	A7	1	1	1	Short only	0.875	0	1	0
g36X	XBR3	X-GenXY	17P	21S	2	4	1	0.5	0.5	5/8	A7	1	1	1	Short only	0.875	0	1	0
g36XY	XBR3	XY-GenXY	17Y	21S	2	4	1	0.5	0.5	5/8	A7	1	1	1	Short only	0.875	0	1	0
g36Y	XBR3	Y-GenXY	17XY	21X	2	4	1	0.5	0.5	5/8	A7	1	1	1	Short only	0.875	0	1	0
g37P	HBR1	X-Symmetry	1P	1Y	3	4	1	1	1	5/8	A7	1	1	1	Short only	0.875	0	1	0
g37X	HBR1	X-Gen	1X	1XY	3	4	1	1	1	5/8	A7	1	1	1	Short only	0.875	0	1	0
g38P	HBR1	X-Symmetry	3P	3Y	3	4	1	1	1	5/8	A7	1	1	1	Short only	0.875	0	1	0
g38X	HBR1	X-Gen	3X	3XY	3	4	1	1	1	5/8	A7	1	1	1	Short only	0.875	0	1	0
g39P	HBR1	X-Symmetry	7P	7Y	3	4	1	1	1	5/8	A7	1	1	1	Short only	0.875	0	1	0
g39X	HBR1	X-Gen	7X	7XY	3	4	1	1	1	5/8	A7	1	1	1	Short only	0.875	0	1	0
g40P	HBR1	X-Symmetry	10P	10Y	3	4	1	1	1	5/8	A7	1	1	1	Short only	0.875	0	1	0
g40X	HBR1	X-Gen	10X	10XY	3	4	1	1	1	5/8	A7	1	1	1	Short only	0.875	0	1	0
g41P	HBR2	X-Symmetry	14P	14Y	3	4	1	0.5	0.5	5/8	A7	1	1	1	Short only	0.875	0	1	0
g41X	HBR2	X-Gen	14X	14XY	3	4	1	0.5	0.5	5/8	A7	1	1	1	Short only	0.875	0	1	0
g42P	HBR2	Y-Symmetry	14P	14X	3	4	1	0.5	0.5	5/8	A7	1	1	1	Short only	0.875	0	1	0
g42Y	HBR2	Y-Gen	14Y	14XY	3	4	1	0.5	0.5	5/8	A7	1	1	1	Short only	0.875	0	1	0
g43P	HBR3	X-Symmetry	15P	15Y	3	4	1	0.5	0.5	5/8	A7	1	1	1	Short only	1.25	0	1	0
g43X	HBR3	X-Gen	15X	15XY	3	4	1	0.5	0.5	5/8	A7	1	1	1	Short only	1.25	0	1	0

g44P	HBR3	Y-Symmetry	15P	15X	3	4	1	0.5	0.5	5/8 A7	1	1	1	Short only	1.25	0	1	0	0
g44Y	HBR3	Y-Gen	15Y	15XY	3	4	1	0.5	0.5	5/8 A7	1	1	1	Short only	1.25	0	1	0	0
g45P	HBR4	XY-Symmetry	16P	20S	3	4	2	1	1	5/8 A7	1	1	1	Short only	1.25	0	1	0	0
g45X	HBR4	X-GenXY	16X	20S	3	4	2	1	1	5/8 A7	1	1	1	Short only	1.25	0	1	0	0
g45XY	HBR4	XY-GenXY	16XY	20Y	3	4	2	1	1	5/8 A7	1	1	1	Short only	1.25	0	1	0	0
g45Y	HBR4	Y-GenXY	16Y	20Y	3	4	2	1	1	5/8 A7	1	1	1	Short only	1.25	0	1	0	0
g46P	HBR4	XY-Symmetry	16P	21S	3	4	2	1	1	5/8 A7	1	1	1	Short only	1.25	0	1	0	0
g46X	HBR4	X-GenXY	16X	21X	3	4	2	1	1	5/8 A7	1	1	1	Short only	1.25	0	1	0	0
g46XY	HBR4	XY-GenXY	16XY	21X	3	4	2	1	1	5/8 A7	1	1	1	Short only	1.25	0	1	0	0
g46Y	HBR4	Y-GenXY	16Y	21S	3	4	2	1	1	5/8 A7	1	1	1	Short only	1.25	0	1	0	0
g47P	Arm1	XY-Symmetry	2P	1P	3	5	1	0.5	0.5	5/8 A7	3	1	1	Long only	0	0	0	0	0
g47X	Arm1	X-GenXY	2X	1X	3	5	1	0.5	0.5	5/8 A7	3	1	1	Long only	0	0	0	0	0
g47XY	Arm1	XY-GenXY	2X	1XY	3	5	1	0.5	0.5	5/8 A7	3	1	1	Long only	0	0	0	0	0
g47Y	Arm1	Y-GenXY	2P	1Y	3	5	1	0.5	0.5	5/8 A7	3	1	1	Long only	0	0	0	0	0
g48P	Arm1	Y-Symmetry	1P	1X	3	6	1	1	1	5/8 A7	0	0	0		0	0	0	0	0
g48Y	Arm1	Y-Gen	1Y	1XY	3	6	1	1	1	5/8 A7	0	0	0		0	0	0	0	0
g49P	Arm1	XY-Symmetry	4P	3P	3	5	1	0.5	0.5	5/8 A7	3	1	1	Long only	0	0	0	0	0
g49X	Arm1	X-GenXY	4X	3X	3	5	1	0.5	0.5	5/8 A7	3	1	1	Long only	0	0	0	0	0
g49XY	Arm1	XY-GenXY	4X	3XY	3	5	1	0.5	0.5	5/8 A7	3	1	1	Long only	0	0	0	0	0
g49Y	Arm1	Y-GenXY	4P	3Y	3	5	1	0.5	0.5	5/8 A7	3	1	1	Long only	0	0	0	0	0
g50P	Arm1	Y-Symmetry	3P	3X	3	6	1	1	1	5/8 A7	0	0	0		0	0	0	0	0
g50Y	Arm1	Y-Gen	3Y	3XY	3	6	1	1	1	5/8 A7	0	0	0		0	0	0	0	0
g51P	Arm1	XY-Symmetry	11P	10P	3	5	1	0.5	0.5	5/8 A7	3	1	1	Long only	0	0	0	0	0
g51X	Arm1	X-GenXY	11X	10X	3	5	1	0.5	0.5	5/8 A7	3	1	1	Long only	0	0	0	0	0
g51XY	Arm1	XY-GenXY	11X	10XY	3	5	1	0.5	0.5	5/8 A7	3	1	1	Long only	0	0	0	0	0
g51Y	Arm1	Y-GenXY	11P	10Y	3	5	1	0.5	0.5	5/8 A7	3	1	1	Long only	0	0	0	0	0
g52P	Arm1	Y-Symmetry	10P	10X	3	6	1	1	1	5/8 A7	0	0	0		0	0	0	0	0
g52Y	Arm1	Y-Gen	10Y	10XY	3	6	1	1	1	5/8 A7	0	0	0		0	0	0	0	0
g53P	Arm2	XY-Symmetry	8P	7P	3	5	1	0.5	0.5	5/8 A7	3	1	1	Long only	0	0	0	0	0
g53X	Arm2	X-GenXY	8X	7X	3	5	1	0.5	0.5	5/8 A7	3	1	1	Long only	0	0	0	0	0

g53XY	Arm2	XY-GenXY	8X	7XY	3	5	1	0.5	0.5	5/8	A7	3	1	1	Long only	0	0	0	0
g53Y	Arm2	Y-GenXY	8P	7Y	3	5	1	0.5	0.5	5/8	A7	3	1	1	Long only	0	0	0	0
g54P	Arm2	Y-Symmetry	7P	7X	3	6	1	1	1	5/8	A7	0	0	0		0	0	0	0
g54Y	Arm2	Y-Gen	7Y	7XY	3	6	1	1	1	5/8	A7	0	0	0		0	0	0	0
g55P	ArmBR1	X-Symmetry	2P	4P	3	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0
g55X	ArmBR1	X-Gen	2X	4X	3	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0
g56P	ArmBR2	XY-Symmetry	4P	1P	3	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0
g56X	ArmBR2	X-GenXY	4X	1X	3	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0
g56XY	ArmBR2	XY-GenXY	4X	1XY	3	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0
g56Y	ArmBR2	Y-GenXY	4P	1Y	3	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0
g57P	ArmBR2	XY-Symmetry	8P	6P	3	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0
g57X	ArmBR2	X-GenXY	8X	6X	3	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0
g57XY	ArmBR2	XY-GenXY	8X	6XY	3	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0
g57Y	ArmBR2	Y-GenXY	8P	6Y	3	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0
g58P	ArmBR2	XY-Symmetry	6P	18S	2	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0
g58X	ArmBR2	X-GenXY	6X	18S	2	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0
g58XY	ArmBR2	XY-GenXY	6XY	18Y	2	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0
g58Y	ArmBR2	Y-GenXY	6Y	18Y	2	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0
g59P	ArmBR2	XY-Symmetry	11P	9P	3	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0
g59X	ArmBR2	X-GenXY	11X	9X	3	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0
g59XY	ArmBR2	XY-GenXY	11X	9XY	3	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0
g59Y	ArmBR2	Y-GenXY	11P	9Y	3	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0
g60P	PMBR1	XY-Symmetry	1P	24P	3	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0
g60X	PMBR1	X-GenXY	1X	24P	3	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0
g60XY	PMBR1	XY-GenXY	1XY	24P	3	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0
g60Y	PMBR1	Y-GenXY	1Y	24P	3	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0
g61P	PMBR1	XY-Symmetry	3P	25P	3	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0
g61X	PMBR1	X-GenXY	3X	25P	3	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0
g61XY	PMBR1	XY-GenXY	3XY	25P	3	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0

g61Y	PMBR1	Y-GenXY	3Y	25P	3	4	1	1	1 5/8 A7	1	1	1	Long only	0	0	0	0	0
g62P	PMBR1	XY-Symmetry	7P	26P	3	4	1	1	1 5/8 A7	1	1	1	Long only	0	0	0	0	0
g62X	PMBR1	X-GenXY	7X	26P	3	4	1	1	1 5/8 A7	1	1	1	Long only	0	0	0	0	0
g62XY	PMBR1	XY-GenXY	7XY	26P	3	4	1	1	1 5/8 A7	1	1	1	Long only	0	0	0	0	0
g62Y	PMBR1	Y-GenXY	7Y	26P	3	4	1	1	1 5/8 A7	1	1	1	Long only	0	0	0	0	0
g63P	PMBR1	XY-Symmetry	10P	27P	3	4	1	1	1 5/8 A7	1	1	1	Long only	0	0	0	0	0
g63X	PMBR1	X-GenXY	10X	27P	3	4	1	1	1 5/8 A7	1	1	1	Long only	0	0	0	0	0
g63XY	PMBR1	XY-GenXY	10XY	27P	3	4	1	1	1 5/8 A7	1	1	1	Long only	0	0	0	0	0
g63Y	PMBR1	Y-GenXY	10Y	27P	3	4	1	1	1 5/8 A7	1	1	1	Long only	0	0	0	0	0
g64P	PMBR2	XY-Symmetry	15P	28P	3	4	1	1	1 5/8 A7	1	1	1	Long only	0	0	0	0	0
g64X	PMBR2	X-GenXY	15X	28P	3	4	1	1	1 5/8 A7	1	1	1	Long only	0	0	0	0	0
g64XY	PMBR2	XY-GenXY	15XY	28P	3	4	1	1	1 5/8 A7	1	1	1	Long only	0	0	0	0	0
g64Y	PMBR2	Y-GenXY	15Y	28P	3	4	1	1	1 5/8 A7	1	1	1	Long only	0	0	0	0	0
g65P	Powermnt	None	29P	28P	1	4	1	1	1	0	0	0		0	0	0	0	0
g66P	Powermnt	None	28P	27P	1	4	1	1	1	0	0	0		0	0	0	0	0
g67P	Powermnt	None	27P	26P	1	4	1	1	1	0	0	0		0	0	0	0	0
g68P	Powermnt	None	26P	25P	1	4	1	1	1	0	0	0		0	0	0	0	0
g69P	Powermnt	None	25P	24P	1	4	1	1	1	0	0	0		0	0	0	0	0
g70P	Powermnt	None	24P	23P	1	4	1	1	1	0	0	0		0	0	0	0	0
g71P	Powermnt	None	23P	22P	1	4	1	1	1	0	0	0		0	0	0	0	0

Member Capacities and Overrides:

Member Label	Group Label	Design Comp.	Comp. Control	Design Tension	Tension Control	L/r Length (ft)	L/r Comp.	Connection Comp. Capacity	Connection Shear Capacity	Net Bearing Capacity	Rupture Section Tension Capacity	RTE End Tension Capacity	RTE Edge Tension Capacity	Override Comp. Capacity	Override Warnings or Errors
		Capacity (kips)	Criterion Control	Capacity (kips)	Criterion Member						Tension Capacity (kips)	Tension Capacity (kips)	Tension Capacity (kips)		
g1P	LEG1	53.509	L/r	64.020	Net Sect	75	5.00	53.509	0.000	0.000	64.020	0.000	0.000	0.000	0.000

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0.000              0.000           Automatic
    g1X     LEG1   53.509       L/r   64.020  Net Sect   75   5.00   53.509      0.000      0.000   64.020    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
   g1XY     LEG1   53.509       L/r   64.020  Net Sect   75   5.00   53.509      0.000      0.000   64.020    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
    g1Y     LEG1   53.509       L/r   64.020  Net Sect   75   5.00   53.509      0.000      0.000   64.020    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
    g2P     LEG1   48.884       L/r   64.020  Net Sect   91   6.00   48.884      0.000      0.000   64.020    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
    g2X     LEG1   48.884       L/r   64.020  Net Sect   91   6.00   48.884      0.000      0.000   64.020    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
   g2XY     LEG1   48.884       L/r   64.020  Net Sect   91   6.00   48.884      0.000      0.000   64.020    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
    g2Y     LEG1   48.884       L/r   64.020  Net Sect   91   6.00   48.884      0.000      0.000   64.020    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
    g3P     LEG1   60.236       L/r   64.020  Net Sect   45   3.00   60.236      0.000      0.000   64.020    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
    g3X     LEG1   60.236       L/r   64.020  Net Sect   45   3.00   60.236      0.000      0.000   64.020    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
   g3XY     LEG1   60.236       L/r   64.020  Net Sect   45   3.00   60.236      0.000      0.000   64.020    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
    g3Y     LEG1   60.236       L/r   64.020  Net Sect   45   3.00   60.236      0.000      0.000   64.020    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
    g4P     LEG1   60.236       L/r   64.020  Net Sect   45   3.00   60.236      0.000      0.000   64.020    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
    g4X     LEG1   60.236       L/r   64.020  Net Sect   45   3.00   60.236      0.000      0.000   64.020    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
   g4XY     LEG1   60.236       L/r   64.020  Net Sect   45   3.00   60.236      0.000      0.000   64.020    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
    g4Y     LEG1   60.236       L/r   64.020  Net Sect   45   3.00   60.236      0.000      0.000   64.020    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
    g5P     LEG1   53.509       L/r   64.020  Net Sect   75   5.00   53.509      0.000      0.000   64.020    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
    g5X     LEG1   53.509       L/r   64.020  Net Sect   75   5.00   53.509      0.000      0.000   64.020    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
   g5XY     LEG1   53.509       L/r   64.020  Net Sect   75   5.00   53.509      0.000      0.000   64.020    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
    g5Y     LEG1   53.509       L/r   64.020  Net Sect   75   5.00   53.509      0.000      0.000   64.020    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
    g6P     LEG1   53.509       L/r   52.676  Net Sect   75   5.00   53.509    125.640    168.750   52.676  220.588    0.000    0.000    0.000
0.000              0.000           Automatic   Member "g6P" 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.  ??
    g6X     LEG1   53.509       L/r   52.676  Net Sect   75   5.00   53.509    125.640    168.750   52.676  220.588    0.000    0.000    0.000
0.000              0.000           Automatic   Member "g6X" 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.  ??
   g6XY     LEG1   53.509       L/r   52.676  Net Sect   75   5.00   53.509    125.640    168.750   52.676  220.588    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g6XY" 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.  ??
    g6Y     LEG1   53.509       L/r   52.676  Net Sect   75   5.00   53.509    125.640    168.750   52.676  220.588    0.000    0.000    0.000
0.000              0.000           Automatic   Member "g6Y" 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.  ??
    g7P     LEG2   65.816       L/r   79.200  Net Sect   77   5.05   65.816      0.000      0.000   79.200    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
    g7X     LEG2   65.816       L/r   79.200  Net Sect   77   5.05   65.816      0.000      0.000   79.200    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
   g7XY     LEG2   65.816       L/r   79.200  Net Sect   77   5.05   65.816      0.000      0.000   79.200    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
    g7Y     LEG2   65.816       L/r   79.200  Net Sect   77   5.05   65.816      0.000      0.000   79.200    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
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    g8P     LEG2   59.927       L/r   79.200  Net Sect   92   6.06   59.927      0.000      0.000   79.200    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
    g8X     LEG2   59.927       L/r   79.200  Net Sect   92   6.06   59.927      0.000      0.000   79.200    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
   g8XY     LEG2   59.927       L/r   79.200  Net Sect   92   6.06   59.927      0.000      0.000   79.200    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
    g8Y     LEG2   59.927       L/r   79.200  Net Sect   92   6.06   59.927      0.000      0.000   79.200    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
    g9P     LEG2   55.441       L/r   64.878  Net Sect  102   6.72   55.441    104.700    175.781   64.878  160.845    0.000    0.000    0.000
0.000              0.000           Automatic   Member "g9P" 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.  ??
    g9X     LEG2   55.441       L/r   64.878  Net Sect  102   6.72   55.441    104.700    175.781   64.878  160.845    0.000    0.000    0.000
0.000              0.000           Automatic   Member "g9X" 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.  ??
   g9XY     LEG2   55.441       L/r   64.878  Net Sect  102   6.72   55.441    104.700    175.781   64.878  160.845    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g9XY" 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.  ??
    g9Y     LEG2   55.441       L/r   64.878  Net Sect  102   6.72   55.441    104.700    175.781   64.878  160.845    0.000    0.000    0.000
0.000              0.000           Automatic   Member "g9Y" 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.  ??
   g10P     LEG3   59.964       L/r   77.364  Net Sect  112  14.77   59.964    104.700    210.937   77.364  281.250    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g10P" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g10X     LEG3   59.964       L/r   77.364  Net Sect  112  14.77   59.964    104.700    210.937   77.364  281.250    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g10X" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
  g10XY     LEG3   59.964       L/r   77.364  Net Sect  112  14.77   59.964    104.700    210.937   77.364  281.250    0.000    0.000    0.000
0.000              0.000           Automatic Member "g10XY" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g10Y     LEG3   59.964       L/r   77.364  Net Sect  112  14.77   59.964    104.700    210.937   77.364  281.250    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g10Y" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g11P     LEG3   59.809       L/r   77.364  Net Sect  113  22.43   59.809    104.700    210.937   77.364  193.014    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     LEG3   59.809       L/r   77.364  Net Sect  113  22.43   59.809    104.700    210.937   77.364  193.014    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     LEG3   59.809       L/r   77.364  Net Sect  113  22.43   59.809    104.700    210.937   77.364  193.014    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     LEG3   59.809       L/r   77.364  Net Sect  113  22.43   59.809    104.700    210.937   77.364  193.014    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     LEG2   65.558       L/r   65.020  Net Sect   77   5.10   65.558    104.700    175.781   65.020  103.401    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g12P" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g12X     LEG2   65.558       L/r   65.020  Net Sect   77   5.10   65.558    104.700    175.781   65.020  103.401    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g12X" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
  g12XY     LEG2   65.558       L/r   65.020  Net Sect   77   5.10   65.558    104.700    175.781   65.020  103.401    0.000    0.000    0.000
0.000              0.000           Automatic Member "g12XY" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g12Y     LEG2   65.558       L/r   65.020  Net Sect   77   5.10   65.558    104.700    175.781   65.020  103.401    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g12Y" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g13P     XBR1   11.559       L/r   14.585  Net Sect  124   7.07   11.559     20.940     21.094   14.585   16.189    0.000    0.000    0.000
0.000              0.000           Automatic
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   g13X     XBR1   11.559       L/r   14.585  Net Sect  124   7.07   11.559     20.940     21.094   14.585   16.189    0.000    0.000    0.000
0.000              0.000           Automatic
  g13XY     XBR1   11.559       L/r   14.585  Net Sect  124   7.07   11.559     20.940     21.094   14.585   16.189    0.000    0.000    0.000
0.000              0.000           Automatic
   g13Y     XBR1   11.559       L/r   14.585  Net Sect  124   7.07   11.559     20.940     21.094   14.585   16.189    0.000    0.000    0.000
0.000              0.000           Automatic
   g14P     XBR1   11.559       L/r   14.585  Net Sect  124   7.07   11.559     20.940     21.094   14.585   16.189    0.000    0.000    0.000
0.000              0.000           Automatic
   g14X     XBR1   11.559       L/r   14.585  Net Sect  124   7.07   11.559     20.940     21.094   14.585   16.189    0.000    0.000    0.000
0.000              0.000           Automatic
  g14XY     XBR1   11.559       L/r   14.585  Net Sect  124   7.07   11.559     20.940     21.094   14.585   16.189    0.000    0.000    0.000
0.000              0.000           Automatic
   g14Y     XBR1   11.559       L/r   14.585  Net Sect  124   7.07   11.559     20.940     21.094   14.585   16.189    0.000    0.000    0.000
0.000              0.000           Automatic
   g15P     XBR2   17.275       L/r   22.901  Net Sect  121   7.81   17.275     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g15P" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g15X     XBR2   17.275       L/r   22.901  Net Sect  121   7.81   17.275     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g15X" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
  g15XY     XBR2   17.275       L/r   22.901  Net Sect  121   7.81   17.275     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000              0.000           Automatic Member "g15XY" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g15Y     XBR2   17.275       L/r   22.901  Net Sect  121   7.81   17.275     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g15Y" 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.  ??
   g16P     XBR2   17.275       L/r   22.901  Net Sect  121   7.81   17.275     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g16P" 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.  ??
   g16X     XBR2   17.275       L/r   22.901  Net Sect  121   7.81   17.275     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g16X" 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.  ??
  g16XY     XBR2   17.275       L/r   22.901  Net Sect  121   7.81   17.275     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000              0.000           Automatic Member "g16XY" 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.  ??
   g16Y     XBR2   17.275       L/r   22.901  Net Sect  121   7.81   17.275     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g16Y" 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.  ??
   g17P     XBR3   17.255       L/r   22.901  Net Sect  121   3.91   17.255     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g17P" 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.  ??
   g17X     XBR3   17.255       L/r   22.901  Net Sect  121   3.91   17.255     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g17X" 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.  ??
  g17XY     XBR3   17.255       L/r   22.901  Net Sect  121   3.91   17.255     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000              0.000           Automatic Member "g17XY" 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.  ??
   g17Y     XBR3   17.255       L/r   22.901  Net Sect  121   3.91   17.255     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g17Y" 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.  ??
   g18P     XBR3   17.255       L/r   22.901  Net Sect  121   3.91   17.255     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g18P" 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.  ??
   g18X     XBR3   17.255       L/r   22.901  Net Sect  121   3.91   17.255     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g18X" 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.  ??
  g18XY     XBR3   17.255       L/r   22.901  Net Sect  121   3.91   17.255     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000              0.000           Automatic Member "g18XY" will not be checked for block shear since more than one gage line exists (long edge
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distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g18Y     XBR3   17.255       L/r   22.901  Net Sect  121   3.91   17.255     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g18Y" 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.  ??
   g19P     XBR3   17.255       L/r   22.901  Net Sect  121   3.91   17.255     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g19P" 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.  ??
   g19X     XBR3   17.255       L/r   22.901  Net Sect  121   3.91   17.255     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g19X" 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.  ??
  g19XY     XBR3   17.255       L/r   22.901  Net Sect  121   3.91   17.255     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000              0.000           Automatic Member "g19XY" 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.  ??
   g19Y     XBR3   17.255       L/r   22.901  Net Sect  121   3.91   17.255     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g19Y" 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.  ??
   g20P     XBR3   17.255       L/r   22.901  Net Sect  121   3.91   17.255     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g20P" 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.  ??
   g20X     XBR3   17.255       L/r   22.901  Net Sect  121   3.91   17.255     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g20X" 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.  ??
  g20XY     XBR3   17.255       L/r   22.901  Net Sect  121   3.91   17.255     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000              0.000           Automatic Member "g20XY" 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.  ??
   g20Y     XBR3   17.255       L/r   22.901  Net Sect  121   3.91   17.255     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g20Y" 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.  ??
   g21P     XBR2   18.986       L/r   22.901  Net Sect  109   7.07   18.986     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g21P" 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.  ??
   g21X     XBR2   18.986       L/r   22.901  Net Sect  109   7.07   18.986     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g21X" 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.  ??
  g21XY     XBR2   18.986       L/r   22.901  Net Sect  109   7.07   18.986     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000              0.000           Automatic Member "g21XY" 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.  ??
   g21Y     XBR2   18.986       L/r   22.901  Net Sect  109   7.07   18.986     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g21Y" 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.  ??
   g22P     XBR2   18.986       L/r   22.901  Net Sect  109   7.07   18.986     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g22P" 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.  ??
   g22X     XBR2   18.986       L/r   22.901  Net Sect  109   7.07   18.986     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g22X" 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.  ??
  g22XY     XBR2   18.986       L/r   22.901  Net Sect  109   7.07   18.986     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000              0.000           Automatic Member "g22XY" 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.  ??
   g22Y     XBR2   18.986       L/r   22.901  Net Sect  109   7.07   18.986     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g22Y" 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.  ??
   g23P     XBR2   18.986       L/r   22.901  Net Sect  109   7.07   18.986     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g23P" 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.  ??
   g23X     XBR2   18.986       L/r   22.901  Net Sect  109   7.07   18.986     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g23X" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
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  g23XY     XBR2   18.986       L/r   22.901  Net Sect  109   7.07   18.986     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000              0.000           Automatic Member "g23XY" 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.  ??
   g23Y     XBR2   18.986       L/r   22.901  Net Sect  109   7.07   18.986     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g23Y" 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.  ??
   g24P     XBR2   18.986       L/r   22.901  Net Sect  109   7.07   18.986     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g24P" 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.  ??
   g24X     XBR2   18.986       L/r   22.901  Net Sect  109   7.07   18.986     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g24X" 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.  ??
  g24XY     XBR2   18.986       L/r   22.901  Net Sect  109   7.07   18.986     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000              0.000           Automatic Member "g24XY" 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.  ??
   g24Y     XBR2   18.986       L/r   22.901  Net Sect  109   7.07   18.986     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g24Y" 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.  ??
   g25P     XBR4   12.533       L/r   15.240   Rupture  129   7.57   12.533     20.940     21.094   17.258   15.240    0.000    0.000    0.000
0.000              0.000           Automatic
   g25X     XBR4   12.533       L/r   15.240   Rupture  129   7.57   12.533     20.940     21.094   17.258   15.240    0.000    0.000    0.000
0.000              0.000           Automatic
  g25XY     XBR4   12.533       L/r   15.240   Rupture  129   7.57   12.533     20.940     21.094   17.258   15.240    0.000    0.000    0.000
0.000              0.000           Automatic
   g25Y     XBR4   12.533       L/r   15.240   Rupture  129   7.57   12.533     20.940     21.094   17.258   15.240    0.000    0.000    0.000
0.000              0.000           Automatic
   g26P     XBR4   12.533       L/r   15.240   Rupture  129   7.57   12.533     20.940     21.094   17.258   15.240    0.000    0.000    0.000
0.000              0.000           Automatic
   g26X     XBR4   12.533       L/r   15.240   Rupture  129   7.57   12.533     20.940     21.094   17.258   15.240    0.000    0.000    0.000
0.000              0.000           Automatic
  g26XY     XBR4   12.533       L/r   15.240   Rupture  129   7.57   12.533     20.940     21.094   17.258   15.240    0.000    0.000    0.000
0.000              0.000           Automatic
   g26Y     XBR4   12.533       L/r   15.240   Rupture  129   7.57   12.533     20.940     21.094   17.258   15.240    0.000    0.000    0.000
0.000              0.000           Automatic
   g27P     XBR5   11.661       L/r   18.750   Rupture  148   9.37   11.661     20.940     21.094   20.228   18.750    0.000    0.000    0.000
0.000              0.000           Automatic
   g27X     XBR5   11.661       L/r   18.750   Rupture  148   9.37   11.661     20.940     21.094   20.228   18.750    0.000    0.000    0.000
0.000              0.000           Automatic
  g27XY     XBR5   11.661       L/r   18.750   Rupture  148   9.37   11.661     20.940     21.094   20.228   18.750    0.000    0.000    0.000
0.000              0.000           Automatic
   g27Y     XBR5   11.661       L/r   18.750   Rupture  148   9.37   11.661     20.940     21.094   20.228   18.750    0.000    0.000    0.000
0.000              0.000           Automatic
   g28P     XBR5   11.661       L/r   18.750   Rupture  148   9.37   11.661     20.940     21.094   20.228   18.750    0.000    0.000    0.000
0.000              0.000           Automatic
   g28X     XBR5   11.661       L/r   18.750   Rupture  148   9.37   11.661     20.940     21.094   20.228   18.750    0.000    0.000    0.000
0.000              0.000           Automatic
  g28XY     XBR5   11.661       L/r   18.750   Rupture  148   9.37   11.661     20.940     21.094   20.228   18.750    0.000    0.000    0.000
0.000              0.000           Automatic
   g28Y     XBR5   11.661       L/r   18.750   Rupture  148   9.37   11.661     20.940     21.094   20.228   18.750    0.000    0.000    0.000
0.000              0.000           Automatic
   g29P     XBR5    8.819       L/r   18.750   Rupture  175  11.14    8.819     20.940     21.094   20.228   18.750    0.000    0.000    0.000
0.000              0.000           Automatic
   g29X     XBR5    8.819       L/r   18.750   Rupture  175  11.14    8.819     20.940     21.094   20.228   18.750    0.000    0.000    0.000
0.000              0.000           Automatic
  g29XY     XBR5    8.819       L/r   18.750   Rupture  175  11.14    8.819     20.940     21.094   20.228   18.750    0.000    0.000    0.000
0.000              0.000           Automatic
   g29Y     XBR5    8.819       L/r   18.750   Rupture  175  11.14    8.819     20.940     21.094   20.228   18.750    0.000    0.000    0.000
0.000              0.000           Automatic
   g30P     XBR5    8.819       L/r   18.750   Rupture  175  11.14    8.819     20.940     21.094   20.228   18.750    0.000    0.000    0.000
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0.000		0.000		Automatic												
g30X	XBR5	8.819	L/r	18.750	Rupture	175	11.14	8.819	20.940	21.094	20.228	18.750	0.000	0.000	0.000	
0.000		0.000		Automatic												
g30XY	XBR5	8.819	L/r	18.750	Rupture	175	11.14	8.819	20.940	21.094	20.228	18.750	0.000	0.000	0.000	
0.000		0.000		Automatic												
g30Y	XBR5	8.819	L/r	18.750	Rupture	175	11.14	8.819	20.940	21.094	20.228	18.750	0.000	0.000	0.000	
0.000		0.000		Automatic												
g31P	XBR6	2.257	L/r	19.041	Net Sect	384	18.81	2.257	20.940	28.125	19.041	24.820	0.000	0.000	0.000	
0.000		0.000		Automatic												
g31X	XBR6	2.257	L/r	19.041	Net Sect	384	18.81	2.257	20.940	28.125	19.041	24.820	0.000	0.000	0.000	
0.000		0.000		Automatic												
g31XY	XBR6	2.257	L/r	19.041	Net Sect	384	18.81	2.257	20.940	28.125	19.041	24.820	0.000	0.000	0.000	
0.000		0.000		Automatic												
g31Y	XBR6	2.257	L/r	19.041	Net Sect	384	18.81	2.257	20.940	28.125	19.041	24.820	0.000	0.000	0.000	
0.000		0.000		Automatic												
g32P	XBR6	2.257	L/r	19.041	Net Sect	384	18.81	2.257	20.940	28.125	19.041	24.820	0.000	0.000	0.000	
0.000		0.000		Automatic												
g32X	XBR6	2.257	L/r	19.041	Net Sect	384	18.81	2.257	20.940	28.125	19.041	24.820	0.000	0.000	0.000	
0.000		0.000		Automatic												
g32XY	XBR6	2.257	L/r	19.041	Net Sect	384	18.81	2.257	20.940	28.125	19.041	24.820	0.000	0.000	0.000	
0.000		0.000		Automatic												
g32Y	XBR6	2.257	L/r	19.041	Net Sect	384	18.81	2.257	20.940	28.125	19.041	24.820	0.000	0.000	0.000	
0.000		0.000		Automatic												
g33P	XBR7	1.061	L/r	14.585	Net Sect	499	27.92	1.061	20.940	21.094	14.585	17.420	0.000	0.000	0.000	
0.000		0.000		Automatic												
g33X	XBR7	1.061	L/r	14.585	Net Sect	499	27.92	1.061	20.940	21.094	14.585	17.420	0.000	0.000	0.000	
0.000		0.000		Automatic												
g33XY	XBR7	1.061	L/r	14.585	Net Sect	499	27.92	1.061	20.940	21.094	14.585	17.420	0.000	0.000	0.000	
0.000		0.000		Automatic												
g33Y	XBR7	1.061	L/r	14.585	Net Sect	499	27.92	1.061	20.940	21.094	14.585	17.420	0.000	0.000	0.000	
0.000		0.000		Automatic												
g34P	XBR7	1.061	L/r	14.585	Net Sect	499	27.92	1.061	20.940	21.094	14.585	17.420	0.000	0.000	0.000	
0.000		0.000		Automatic												
g34X	XBR7	1.061	L/r	14.585	Net Sect	499	27.92	1.061	20.940	21.094	14.585	17.420	0.000	0.000	0.000	
0.000		0.000		Automatic												
g34XY	XBR7	1.061	L/r	14.585	Net Sect	499	27.92	1.061	20.940	21.094	14.585	17.420	0.000	0.000	0.000	
0.000		0.000		Automatic												
g34Y	XBR7	1.061	L/r	14.585	Net Sect	499	27.92	1.061	20.940	21.094	14.585	17.420	0.000	0.000	0.000	
0.000		0.000		Automatic												
g35P	XBR3	9.860	L/r	7.717	Rupture	162	11.83	9.860	10.470	10.547	17.333	7.717	0.000	0.000	0.000	
0.000		0.000		Automatic												
g35X	XBR3	9.860	L/r	7.717	Rupture	162	11.83	9.860	10.470	10.547	17.333	7.717	0.000	0.000	0.000	
0.000		0.000		Automatic												
g35XY	XBR3	9.860	L/r	7.717	Rupture	162	11.83	9.860	10.470	10.547	17.333	7.717	0.000	0.000	0.000	
0.000		0.000		Automatic												
g35Y	XBR3	9.860	L/r	7.717	Rupture	162	11.83	9.860	10.470	10.547	17.333	7.717	0.000	0.000	0.000	
0.000		0.000		Automatic												
g36P	XBR3	9.860	L/r	7.717	Rupture	162	11.83	9.860	10.470	10.547	17.333	7.717	0.000	0.000	0.000	
0.000		0.000		Automatic												
g36X	XBR3	9.860	L/r	7.717	Rupture	162	11.83	9.860	10.470	10.547	17.333	7.717	0.000	0.000	0.000	
0.000		0.000		Automatic												
g36XY	XBR3	9.860	L/r	7.717	Rupture	162	11.83	9.860	10.470	10.547	17.333	7.717	0.000	0.000	0.000	
0.000		0.000		Automatic												
g36Y	XBR3	9.860	L/r	7.717	Rupture	162	11.83	9.860	10.470	10.547	17.333	7.717	0.000	0.000	0.000	
0.000		0.000		Automatic												
g37P	HBR1	5.799	L/r	7.717	Rupture	175	5.00	5.799	10.470	10.547	14.585	7.717	0.000	0.000	0.000	
0.000		0.000		Automatic												
g37X	HBR1	5.799	L/r	7.717	Rupture	175	5.00	5.799	10.470	10.547	14.585	7.717	0.000	0.000	0.000	
0.000		0.000		Automatic												

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   g38P     HBR1    5.799       L/r    7.717   Rupture  175   5.00    5.799     10.470     10.547   14.585    7.717    0.000    0.000    0.000
0.000              0.000           Automatic
   g38X     HBR1    5.799       L/r    7.717   Rupture  175   5.00    5.799     10.470     10.547   14.585    7.717    0.000    0.000    0.000
0.000              0.000           Automatic
   g39P     HBR1    5.799       L/r    7.717   Rupture  175   5.00    5.799     10.470     10.547   14.585    7.717    0.000    0.000    0.000
0.000              0.000           Automatic
   g39X     HBR1    5.799       L/r    7.717   Rupture  175   5.00    5.799     10.470     10.547   14.585    7.717    0.000    0.000    0.000
0.000              0.000           Automatic
   g40P     HBR1    5.799       L/r    7.717   Rupture  175   5.00    5.799     10.470     10.547   14.585    7.717    0.000    0.000    0.000
0.000              0.000           Automatic
   g40X     HBR1    5.799       L/r    7.717   Rupture  175   5.00    5.799     10.470     10.547   14.585    7.717    0.000    0.000    0.000
0.000              0.000           Automatic
   g41P     HBR2   10.470     Shear    7.717   Rupture  149   9.81   10.510     10.470     10.547   17.444    7.717    0.000    0.000    0.000
0.000              0.000           Automatic
   g41X     HBR2   10.470     Shear    7.717   Rupture  149   9.81   10.510     10.470     10.547   17.444    7.717    0.000    0.000    0.000
0.000              0.000           Automatic
   g42P     HBR2   10.470     Shear    7.717   Rupture  149   9.81   10.510     10.470     10.547   17.444    7.717    0.000    0.000    0.000
0.000              0.000           Automatic
   g42Y     HBR2   10.470     Shear    7.717   Rupture  149   9.81   10.510     10.470     10.547   17.444    7.717    0.000    0.000    0.000
0.000              0.000           Automatic
   g43P     HBR3   10.470     Shear   10.470     Shear  175  13.80   12.202     10.470     14.062   30.090   12.500    0.000    0.000    0.000
0.000              0.000           Automatic
   g43X     HBR3   10.470     Shear   10.470     Shear  175  13.80   12.202     10.470     14.062   30.090   12.500    0.000    0.000    0.000
0.000              0.000           Automatic
   g44P     HBR3   10.470     Shear   10.470     Shear  175  13.80   12.202     10.470     14.062   30.090   12.500    0.000    0.000    0.000
0.000              0.000           Automatic
   g44Y     HBR3   10.470     Shear   10.470     Shear  175  13.80   12.202     10.470     14.062   30.090   12.500    0.000    0.000    0.000
0.000              0.000           Automatic
   g45P     HBR4   10.470     Shear   10.470     Shear  188  10.00   13.759     10.470     14.062   37.663   12.500    0.000    0.000    0.000
0.000              0.000           Automatic
   g45X     HBR4   10.470     Shear   10.470     Shear  188  10.00   13.759     10.470     14.062   37.663   12.500    0.000    0.000    0.000
0.000              0.000           Automatic
  g45XY     HBR4   10.470     Shear   10.470     Shear  188  10.00   13.759     10.470     14.062   37.663   12.500    0.000    0.000    0.000
0.000              0.000           Automatic
   g45Y     HBR4   10.470     Shear   10.470     Shear  188  10.00   13.759     10.470     14.062   37.663   12.500    0.000    0.000    0.000
0.000              0.000           Automatic
   g46P     HBR4   10.470     Shear   10.470     Shear  188  10.00   13.759     10.470     14.062   37.663   12.500    0.000    0.000    0.000
0.000              0.000           Automatic
   g46X     HBR4   10.470     Shear   10.470     Shear  188  10.00   13.759     10.470     14.062   37.663   12.500    0.000    0.000    0.000
0.000              0.000           Automatic
  g46XY     HBR4   10.470     Shear   10.470     Shear  188  10.00   13.759     10.470     14.062   37.663   12.500    0.000    0.000    0.000
0.000              0.000           Automatic
   g46Y     HBR4   10.470     Shear   10.470     Shear  188  10.00   13.759     10.470     14.062   37.663   12.500    0.000    0.000    0.000
0.000              0.000           Automatic
   g47P     Arm1   19.099       L/r   31.410     Shear  146  11.52   19.099     31.410     42.187   33.802    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                Unable to calculate
rupture capacity for member "g47P" because it has a long and short edge distance of 0.  ??
   g47X     Arm1   19.099       L/r   31.410     Shear  146  11.52   19.099     31.410     42.187   33.802    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                Unable to calculate
rupture capacity for member "g47X" because it has a long and short edge distance of 0.  ??
  g47XY     Arm1   19.099       L/r   31.410     Shear  146  11.52   19.099     31.410     42.187   33.802    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                Unable to calculate
rupture capacity for member "g47XY" because it has a long and short edge distance of 0.  ??
   g47Y     Arm1   19.099       L/r   31.410     Shear  146  11.52   19.099     31.410     42.187   33.802    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                Unable to calculate
rupture capacity for member "g47Y" because it has a long and short edge distance of 0.  ??
   g48P     Arm1   26.226       L/r   43.230  Net Sect  114   5.00   26.226      0.000      0.000   43.230    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
   g48Y     Arm1   26.226       L/r   43.230  Net Sect  114   5.00   26.226      0.000      0.000   43.230    0.000    0.000    0.000    0.000
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0.000              0.000           Automatic
   g49P     Arm1   28.509       L/r   31.410     Shear   97   7.67   28.509     31.410     42.187   33.802    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                          Unable to calculate
rupture capacity for member "g49P" because it has a long and short edge distance of 0.  ??
   g49X     Arm1   28.509       L/r   31.410     Shear   97   7.67   28.509     31.410     42.187   33.802    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                          Unable to calculate
rupture capacity for member "g49X" because it has a long and short edge distance of 0.  ??
  g49XY     Arm1   28.509       L/r   31.410     Shear   97   7.67   28.509     31.410     42.187   33.802    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                          Unable to calculate
rupture capacity for member "g49XY" because it has a long and short edge distance of 0.  ??
   g49Y     Arm1   28.509       L/r   31.410     Shear   97   7.67   28.509     31.410     42.187   33.802    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                          Unable to calculate
rupture capacity for member "g49Y" because it has a long and short edge distance of 0.  ??
   g50P     Arm1   26.226       L/r   43.230  Net Sect  114   5.00   26.226      0.000      0.000   43.230    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
   g50Y     Arm1   26.226       L/r   43.230  Net Sect  114   5.00   26.226      0.000      0.000   43.230    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
   g51P     Arm1   27.682       L/r   31.410     Shear  103   8.14   27.682     31.410     42.187   33.802    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                          Unable to calculate
rupture capacity for member "g51P" because it has a long and short edge distance of 0.  ??
   g51X     Arm1   27.682       L/r   31.410     Shear  103   8.14   27.682     31.410     42.187   33.802    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                          Unable to calculate
rupture capacity for member "g51X" because it has a long and short edge distance of 0.  ??
  g51XY     Arm1   27.682       L/r   31.410     Shear  103   8.14   27.682     31.410     42.187   33.802    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                          Unable to calculate
rupture capacity for member "g51XY" because it has a long and short edge distance of 0.  ??
   g51Y     Arm1   27.682       L/r   31.410     Shear  103   8.14   27.682     31.410     42.187   33.802    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                          Unable to calculate
rupture capacity for member "g51Y" because it has a long and short edge distance of 0.  ??
   g52P     Arm1   26.226       L/r   43.230  Net Sect  114   5.00   26.226      0.000      0.000   43.230    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
   g52Y     Arm1   26.226       L/r   43.230  Net Sect  114   5.00   26.226      0.000      0.000   43.230    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
   g53P     Arm2   24.527       L/r   31.410     Shear  132  12.01   24.527     31.410     42.187   37.663    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                          Unable to calculate
rupture capacity for member "g53P" because it has a long and short edge distance of 0.  ??
   g53X     Arm2   24.527       L/r   31.410     Shear  132  12.01   24.527     31.410     42.187   37.663    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                          Unable to calculate
rupture capacity for member "g53X" because it has a long and short edge distance of 0.  ??
  g53XY     Arm2   24.527       L/r   31.410     Shear  132  12.01   24.527     31.410     42.187   37.663    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                          Unable to calculate
rupture capacity for member "g53XY" because it has a long and short edge distance of 0.  ??
   g53Y     Arm2   24.527       L/r   31.410     Shear  132  12.01   24.527     31.410     42.187   37.663    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                          Unable to calculate
rupture capacity for member "g53Y" because it has a long and short edge distance of 0.  ??
   g54P     Arm2   29.359       L/r   47.520  Net Sect  110   5.00   29.359      0.000      0.000   47.520    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
   g54Y     Arm2   29.359       L/r   47.520  Net Sect  110   5.00   29.359      0.000      0.000   47.520    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
   g55P   ArmBR1   10.470     Shear   10.470     Shear  155   6.40   10.714     10.470     10.547   22.961    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                          Unable to calculate
rupture capacity for member "g55P" because it has a long and short edge distance of 0.  ??
   g55X   ArmBR1   10.470     Shear   10.470     Shear  155   6.40   10.714     10.470     10.547   22.961    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                          Unable to calculate
rupture capacity for member "g55X" because it has a long and short edge distance of 0.  ??
   g56P   ArmBR2    0.054       L/r    7.889  Net Sect 1522   9.15    0.054     10.470     14.062    7.889    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                          Unable to calculate
rupture capacity for member "g56P" because it has a long and short edge distance of 0.  ??
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   g56X   ArmBR2    0.054       L/r    7.889  Net Sect 1522   9.15    0.054     10.470     14.062    7.889    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                          Unable to calculate
rupture capacity for member "g56X" because it has a long and short edge distance of 0.  ??
  g56XY   ArmBR2    0.054       L/r    7.889  Net Sect 1522   9.15    0.054     10.470     14.062    7.889    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                          Unable to calculate
rupture capacity for member "g56XY" because it has a long and short edge distance of 0.  ??
   g56Y   ArmBR2    0.054       L/r    7.889  Net Sect 1522   9.15    0.054     10.470     14.062    7.889    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                          Unable to calculate
rupture capacity for member "g56Y" because it has a long and short edge distance of 0.  ??
   g57P   ArmBR2    0.030       L/r    7.889  Net Sect 2058  12.38    0.030     10.470     14.062    7.889    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                          Unable to calculate
rupture capacity for member "g57P" because it has a long and short edge distance of 0.  ??
   g57X   ArmBR2    0.030       L/r    7.889  Net Sect 2058  12.38    0.030     10.470     14.062    7.889    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                          Unable to calculate
rupture capacity for member "g57X" because it has a long and short edge distance of 0.  ??
  g57XY   ArmBR2    0.030       L/r    7.889  Net Sect 2058  12.38    0.030     10.470     14.062    7.889    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                          Unable to calculate
rupture capacity for member "g57XY" because it has a long and short edge distance of 0.  ??
   g57Y   ArmBR2    0.030       L/r    7.889  Net Sect 2058  12.38    0.030     10.470     14.062    7.889    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                          Unable to calculate
rupture capacity for member "g57Y" because it has a long and short edge distance of 0.  ??
   g58P   ArmBR2    0.725       L/r    7.889  Net Sect  416   2.50    0.725     10.470     14.062    7.889    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                          Unable to calculate
rupture capacity for member "g58P" because it has a long and short edge distance of 0.  ??
   g58X   ArmBR2    0.725       L/r    7.889  Net Sect  416   2.50    0.725     10.470     14.062    7.889    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                          Unable to calculate
rupture capacity for member "g58X" because it has a long and short edge distance of 0.  ??
  g58XY   ArmBR2    0.725       L/r    7.889  Net Sect  416   2.50    0.725     10.470     14.062    7.889    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                          Unable to calculate
rupture capacity for member "g58XY" because it has a long and short edge distance of 0.  ??
   g58Y   ArmBR2    0.725       L/r    7.889  Net Sect  416   2.50    0.725     10.470     14.062    7.889    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                          Unable to calculate
rupture capacity for member "g58Y" because it has a long and short edge distance of 0.  ??
   g59P   ArmBR2    0.050       L/r    7.889  Net Sect 1588   9.56    0.050     10.470     14.062    7.889    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                          Unable to calculate
rupture capacity for member "g59P" because it has a long and short edge distance of 0.  ??
   g59X   ArmBR2    0.050       L/r    7.889  Net Sect 1588   9.56    0.050     10.470     14.062    7.889    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                          Unable to calculate
rupture capacity for member "g59X" because it has a long and short edge distance of 0.  ??
  g59XY   ArmBR2    0.050       L/r    7.889  Net Sect 1588   9.56    0.050     10.470     14.062    7.889    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                          Unable to calculate
rupture capacity for member "g59XY" because it has a long and short edge distance of 0.  ??
   g59Y   ArmBR2    0.050       L/r    7.889  Net Sect 1588   9.56    0.050     10.470     14.062    7.889    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                          Unable to calculate
rupture capacity for member "g59Y" because it has a long and short edge distance of 0.  ??
   g60P    PMBR1   10.195   Bearing   10.195   Bearing   86   3.54   21.670     10.470     10.195   25.048    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                          Unable to calculate
rupture capacity for member "g60P" because it has a long and short edge distance of 0.  ??
   g60X    PMBR1   10.195   Bearing   10.195   Bearing   86   3.54   21.670     10.470     10.195   25.048    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                          Unable to calculate
rupture capacity for member "g60X" because it has a long and short edge distance of 0.  ??
  g60XY    PMBR1   10.195   Bearing   10.195   Bearing   86   3.54   21.670     10.470     10.195   25.048    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                          Unable to calculate
rupture capacity for member "g60XY" because it has a long and short edge distance of 0.  ??
   g60Y    PMBR1   10.195   Bearing   10.195   Bearing   86   3.54   21.670     10.470     10.195   25.048    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                          Unable to calculate
rupture capacity for member "g60Y" because it has a long and short edge distance of 0.  ??
   g61P    PMBR1   10.195   Bearing   10.195   Bearing   86   3.54   21.670     10.470     10.195   25.048    0.000    0.000    0.000    0.000
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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    PMBR1   10.195   Bearing   10.195   Bearing   86   3.54   21.670     10.470     10.195   25.048    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.  ??
  g61XY    PMBR1   10.195   Bearing   10.195   Bearing   86   3.54   21.670     10.470     10.195   25.048    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                 Unable to calculate
rupture capacity for member "g61XY" because it has a long and short edge distance of 0.  ??
   g61Y    PMBR1   10.195   Bearing   10.195   Bearing   86   3.54   21.670     10.470     10.195   25.048    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                  Unable to calculate
rupture capacity for member "g61Y" because it has a long and short edge distance of 0.  ??
   g62P    PMBR1   10.195   Bearing   10.195   Bearing   86   3.54   21.670     10.470     10.195   25.048    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.  ??
   g62X    PMBR1   10.195   Bearing   10.195   Bearing   86   3.54   21.670     10.470     10.195   25.048    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                  Unable to calculate
rupture capacity for member "g62X" because it has a long and short edge distance of 0.  ??
  g62XY    PMBR1   10.195   Bearing   10.195   Bearing   86   3.54   21.670     10.470     10.195   25.048    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                 Unable to calculate
rupture capacity for member "g62XY" because it has a long and short edge distance of 0.  ??
   g62Y    PMBR1   10.195   Bearing   10.195   Bearing   86   3.54   21.670     10.470     10.195   25.048    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                  Unable to calculate
rupture capacity for member "g62Y" because it has a long and short edge distance of 0.  ??
   g63P    PMBR1   10.195   Bearing   10.195   Bearing   86   3.54   21.670     10.470     10.195   25.048    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                  Unable to calculate
rupture capacity for member "g63P" because it has a long and short edge distance of 0.  ??
   g63X    PMBR1   10.195   Bearing   10.195   Bearing   86   3.54   21.670     10.470     10.195   25.048    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                  Unable to calculate
rupture capacity for member "g63X" because it has a long and short edge distance of 0.  ??
  g63XY    PMBR1   10.195   Bearing   10.195   Bearing   86   3.54   21.670     10.470     10.195   25.048    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                 Unable to calculate
rupture capacity for member "g63XY" because it has a long and short edge distance of 0.  ??
   g63Y    PMBR1   10.195   Bearing   10.195   Bearing   86   3.54   21.670     10.470     10.195   25.048    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                  Unable to calculate
rupture capacity for member "g63Y" because it has a long and short edge distance of 0.  ??
   g64P    PMBR2   10.470    Shear   10.470    Shear  169   9.76   16.980     10.470     13.594   49.187    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                  Unable to calculate
rupture capacity for member "g64P" because it has a long and short edge distance of 0.  ??
   g64X    PMBR2   10.470    Shear   10.470    Shear  169   9.76   16.980     10.470     13.594   49.187    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                  Unable to calculate
rupture capacity for member "g64X" because it has a long and short edge distance of 0.  ??
  g64XY    PMBR2   10.470    Shear   10.470    Shear  169   9.76   16.980     10.470     13.594   49.187    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                 Unable to calculate
rupture capacity for member "g64XY" because it has a long and short edge distance of 0.  ??
   g64Y    PMBR2   10.470    Shear   10.470    Shear  169   9.76   16.980     10.470     13.594   49.187    0.000    0.000    0.000    0.000
0.000              0.000           Automatic                                                                                  Unable to calculate
rupture capacity for member "g64Y" because it has a long and short edge distance of 0.  ??
   g65P Powermnt  115.298       L/r  729.999  Net Sect   74  27.00  115.298      0.000      0.000  729.999    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
w/t equals 34.00 for member "g65P" which exceeds ASCE 10 section 3.7.1 limit of 25.  ??
   g66P Powermnt  113.390       L/r  729.999  Net Sect   88  32.00  113.390      0.000      0.000  729.999    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
w/t equals 34.00 for member "g66P" which exceeds ASCE 10 section 3.7.1 limit of 25.  ??
   g67P Powermnt  119.367       L/r  729.999  Net Sect   27  10.00  119.367      0.000      0.000  729.999    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
w/t equals 34.00 for member "g67P" which exceeds ASCE 10 section 3.7.1 limit of 25.  ??
   g68P Powermnt  119.082       L/r  729.999  Net Sect   33  12.00  119.082      0.000      0.000  729.999    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
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w/t equals 34.00 for member "g68P" which exceeds ASCE 10 section 3.7.1 limit of 25.  ??
   g69P Powermnt  119.852       L/r  729.999  Net Sect   14   5.00  119.852      0.000      0.000  729.999    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
w/t equals 34.00 for member "g69P" which exceeds ASCE 10 section 3.7.1 limit of 25.  ??
   g70P Powermnt  119.490       L/r  729.999  Net Sect   25   9.00  119.490      0.000      0.000  729.999    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
w/t equals 34.00 for member "g70P" which exceeds ASCE 10 section 3.7.1 limit of 25.  ??
   g71P Powermnt  119.490       L/r  729.999  Net Sect   25   9.00  119.490      0.000      0.000  729.999    0.000    0.000    0.000    0.000
0.000              0.000           Automatic
w/t equals 34.00 for member "g71P" which exceeds ASCE 10 section 3.7.1 limit of 25.  ??
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The model contains 237 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	0.0862	4.647	3.059
2P	0.0617	3.479	1.146
3P	0.115	6.231	5.377
4P	0.058	3.764	1.961
5P	0.0657	4.089	4.089
6P	0.0309	2.067	1.285
7P	0.113	6.408	4.695
8P	0.0773	5.196	1.299
9P	0.0835	5.357	5.092
10P	0.118	6.075	5.158
11P	0.0509	3.283	1.440
12P	0.0898	4.476	4.476
13P	0.109	5.559	5.559
14P	0.21	8.854	8.854
15P	0.384	14.948	14.948
16P	0.248	9.854	9.854
17P	0.0572	2.948	2.948
22P	0.223	4.781	4.781
23P	0.446	9.563	9.563
24P	0.369	8.479	8.479
25P	0.443	10.073	10.073
26P	0.567	12.729	12.729
27P	1.06	23.354	23.354
28P	1.58	35.370	35.370
29P	0.669	14.344	14.344
1X	0.0862	4.647	3.059
1XY	0.0862	4.647	3.059
1Y	0.0862	4.647	3.059
2X	0.0617	3.479	1.146
3X	0.115	6.231	5.377
3XY	0.115	6.231	5.377
3Y	0.115	6.231	5.377
4X	0.058	3.764	1.961
5X	0.0657	4.089	4.089
5XY	0.0657	4.089	4.089
5Y	0.0657	4.089	4.089
6X	0.0309	2.067	1.285
6XY	0.0309	2.067	1.285
6Y	0.0309	2.067	1.285
7X	0.113	6.408	4.695

7XY	0.113	6.408	4.695
7Y	0.113	6.408	4.695
8X	0.0773	5.196	1.299
9X	0.0835	5.357	5.092
9XY	0.0835	5.357	5.092
9Y	0.0835	5.357	5.092
10X	0.118	6.075	5.158
10XY	0.118	6.075	5.158
10Y	0.118	6.075	5.158
11X	0.0509	3.283	1.440
12X	0.0898	4.476	4.476
12XY	0.0898	4.476	4.476
12Y	0.0898	4.476	4.476
13X	0.109	5.559	5.559
13XY	0.109	5.559	5.559
13Y	0.109	5.559	5.559
14X	0.21	8.854	8.854
14XY	0.21	8.854	8.854
14Y	0.21	8.854	8.854
15X	0.384	14.948	14.948
15XY	0.384	14.948	14.948
15Y	0.384	14.948	14.948
16X	0.248	9.854	9.854
16XY	0.248	9.854	9.854
16Y	0.248	9.854	9.854
17X	0.0572	2.948	2.948
17XY	0.0572	2.948	2.948
17Y	0.0572	2.948	2.948
18S	0.0277	2.317	1.500
19S	0.024	1.500	1.953
20S	0.0943	6.285	1.262
21S	0.0943	1.262	6.285
18Y	0.0277	2.317	1.500
19X	0.024	1.500	1.953
20Y	0.0943	6.285	1.262
21X	0.0943	1.262	6.285
Total	13.2	498.919	453.959

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	5.203	223.043	178.083	120.137	88.094
2	1.292	63.588	63.588	24.850	24.850
3	6.669	212.288	212.288	120.189	120.189
Total	13.164	498.919	453.959	265.175	233.133

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	5.203	5.203	878.388	878.388
2	1.292	1.292	287.969	287.969
3	6.669	7.336	962.726	1058.999
Total	13.164	13.831	2129.083	2225.356

Section Joint Information:

Section Label	Joint Label	Joint Elevation (ft)
1	1P	86.000
1	3P	81.000
1	1X	86.000
1	3X	81.000
1	1XY	86.000
1	3XY	81.000
1	1Y	86.000
1	3Y	81.000
1	5P	75.000
1	5X	75.000
1	5XY	75.000
1	5Y	75.000
1	6P	72.000
1	6X	72.000
1	6XY	72.000
1	6Y	72.000
1	7P	69.000
1	7X	69.000
1	7XY	69.000
1	7Y	69.000
1	9P	64.000
1	9X	64.000
1	9XY	64.000
1	9Y	64.000
1	10P	59.000
1	10X	59.000
1	10XY	59.000
1	10Y	59.000
1	18S	72.000
1	18Y	72.000
1	19X	72.000
1	19S	72.000
1	2P	86.000
1	2X	86.000
1	4P	81.000
1	4X	81.000
1	11P	59.000
1	11X	59.000
1	8P	69.000
1	8X	69.000
1	24P	86.000
1	25P	81.000
1	26P	69.000
1	27P	59.000
1	23P	95.000
1	22P	104.000
2	10P	59.000
2	12P	54.047
2	10X	59.000
2	12X	54.047
2	10XY	59.000
2	12XY	54.047

2	10Y	59.000
2	12Y	54.047
2	13P	48.105
2	13X	48.105
2	13XY	48.105
2	13Y	48.105
2	14P	41.500
2	14X	41.500
2	14XY	41.500
2	14Y	41.500
3	14P	41.500
3	15P	27.000
3	14X	41.500
3	15X	27.000
3	14XY	41.500
3	15XY	27.000
3	14Y	41.500
3	15Y	27.000
3	16P	5.000
3	16X	5.000
3	16XY	5.000
3	16Y	5.000
3	17P	0.000
3	17X	0.000
3	17XY	0.000
3	17Y	0.000
3	20S	5.000
3	20Y	5.000
3	21X	5.000
3	21S	5.000
3	28P	27.000
3	29P	0.000
3	27P	59.000

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	104.000	59.000	46	143	0.00	5.00	157.500	0.00	20.50	425.250
2	59.000	41.500	16	40	5.00	9.81	129.882	5.00	9.81	129.882
3	41.500	0.000	23	54	9.81	21.39	646.560	9.81	21.39	646.560

*** Insulator Data

Clamp Properties:

Label	Stock Number	Holding Capacity (lbs)
clamp-prop#1		3e+004

Clamp Insulator Connectivity:

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

			(lbs)
1	2P	clamp-prop#1	No Limit
2	2X	clamp-prop#1	No Limit
3	4P	clamp-prop#1	No Limit
4	4X	clamp-prop#1	No Limit
5	8P	clamp-prop#1	No Limit
6	8X	clamp-prop#1	No Limit
7	11P	clamp-prop#1	No Limit
8	11X	clamp-prop#1	No Limit
14	16P	clamp-prop#1	No Limit
15	15P	clamp-prop#1	No Limit
16	14P	clamp-prop#1	No Limit
17	10P	clamp-prop#1	No Limit
18	7P	clamp-prop#1	No Limit
19	3X	clamp-prop#1	No Limit
20	1P	clamp-prop#1	No Limit
21	3P	clamp-prop#1	No Limit
22	1X	clamp-prop#1	No Limit
23	1XY	clamp-prop#1	No Limit
24	3XY	clamp-prop#1	No Limit
25	23P	clamp-prop#1	No Limit
26	24P	clamp-prop#1	No Limit
27	25P	clamp-prop#1	No Limit
28	26P	clamp-prop#1	No Limit
29	27P	clamp-prop#1	No Limit
30	28P	clamp-prop#1	No Limit
31	22P	clamp-prop#1	No Limit
32	7X	clamp-prop#1	No Limit
33	10X	clamp-prop#1	No Limit
34	14X	clamp-prop#1	No Limit
35	15X	clamp-prop#1	No Limit
36	16X	clamp-prop#1	No Limit
37	7Y	clamp-prop#1	No Limit
38	10Y	clamp-prop#1	No Limit
39	14Y	clamp-prop#1	No Limit
40	15Y	clamp-prop#1	No Limit
41	16Y	clamp-prop#1	No Limit
42	3Y	clamp-prop#1	No Limit

*** Loads Data

Loads from file: j:\jobs\1204700.wi\co4 - ct03xc333\calcs\pls\876 w_ powermnt.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)	104.00 (ft)	
Structure height	104.00 (ft)	
Structure height above ground	104.00 (ft)	
Tower Shape	Rectangular	

Vector Load Cases:

Load Case Description	Dead Load Factor	Wind Area Factor	SF for Steel Poles Tubular 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 - Transverse	1.5000	2.5000	1.00000	1.0000	1.0000	1.0000	46 loads	Wind on Face	4	0	0.000	56.000	0.0	
Extreme Wind - Transverse	1.0000	1.0000	1.00000	1.0000	1.0000	1.0000	46 loads	NESC 2007	31	0	0.000	56.000	0.0	
NESC Heavy - Longitudinal	1.5000	2.5000	1.00000	1.0000	1.0000	1.0000	46 loads	Wind on Face	4	0	0.000	56.000	0.0	
Extreme Wind - Longitudinal	1.0000	1.0000	1.00000	1.0000	1.0000	1.0000	46 loads	NESC 2007	31	0	0.000	56.000	0.0	

Point Loads for Load Case "NESC Heavy - Transverse":

Joint Label	Vertical Load (lbs)	Transverse Load (lbs)	Longitudinal Load (lbs)	Load Comment
2X	1362	821	0	Shield Wire
2P	2299	1067	0	Shield Wire
4P	2882	1179	0	Conductor
4X	2882	1179	0	Conductor
8P	2882	1179	0	Conductor
8X	2882	1179	0	Conductor
11P	2882	1179	0	Conductor
11X	2882	1179	0	Conductor
1P	72	18	0	AT&T Antennas
3P	72	18	0	AT&T Antennas
1X	72	18	0	AT&T Antennas
3X	72	18	0	AT&T Antennas
1XY	72	18	0	AT&T Antennas
3XY	72	18	0	AT&T Antennas
3P	138	56	0	AT&T Coax (on tower leg)
7P	253	102	0	AT&T Coax (on tower leg)
10P	310	125	0	AT&T Coax (on tower leg)

14P	368	148	0	AT&T Coax (on tower leg)
15P	425	171	0	AT&T Coax (on tower leg)
16P	368	148	0	AT&T Coax (on tower leg)
23P	47	0	0	Sprint Coax (within powermount)
24P	66	0	0	Sprint Coax (within powermount)
25P	80	0	0	Sprint Coax (within powermount)
26P	103	0	0	Sprint Coax (within powermount)
27P	197	0	0	Sprint Coax (within powermount)
28P	402	0	0	Sprint Coax (within powermount)
23P	172	27	0	T-Mobile Coax (on powermount exterior)
24P	241	38	0	T-Mobile Coax (on powermount exterior)
25P	293	46	0	T-Mobile Coax (on powermount exterior)
26P	379	60	0	T-Mobile Coax (on powermount exterior)
27P	723	115	0	T-Mobile Coax (on powermount exterior)
28P	1480	235	0	T-Mobile Coax (on powermount exterior)
22P	1529	390	0	Sprint Antennas
23P	1518	610	0	T-Mobile Antennas
3X	506	44	0	Sprint Coax (on tower leg)
7X	506	44	0	Sprint Coax (on tower leg)
10X	621	54	0	Sprint Coax (on tower leg)
14X	736	64	0	Sprint Coax (on tower leg)
15X	851	74	0	Sprint Coax (on tower leg)
16X	736	64	0	Sprint Coax (on tower leg)
3Y	189	37	0	T-Mobile Coax (on tower leg)
7Y	189	37	0	T-Mobile Coax (on tower leg)
10Y	232	46	0	T-Mobile Coax (on tower leg)
14Y	275	54	0	T-Mobile Coax (on tower leg)
15Y	318	63	0	T-Mobile Coax (on tower leg)
16Y	275	54	0	T-Mobile Coax (on tower leg)

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

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	104.00	59.00	81.50	10.00	10.00	3.200	2819.0	0.00	3.200	0.0	0	7805
2	59.00	41.50	50.25	10.00	10.00	3.200	795.2	0.00	3.200	0.0	0	1938
3	41.50	0.00	20.75	10.00	10.00	3.200	3846.0	0.00	3.200	0.0	0	11004

Point Loads for Load Case "Extreme Wind - Transverse":

Joint Label	Vertical Load (lbs)	Transverse Load (lbs)	Longitudinal Load (lbs)	Load Comment
2X	343	483	0	Shield Wire
2P	709	1042	0	Shield Wire
4P	1024	1304	0	Conductor
4X	1024	1304	0	Conductor
8P	1024	1304	0	Conductor
8X	1024	1304	0	Conductor
11P	1024	1304	0	Conductor
11X	1024	1304	0	Conductor
1P	30	68	0	AT&T Antennas
3P	30	68	0	AT&T Antennas
1X	30	68	0	AT&T Antennas

3X	30	68	0	AT&T Antennas
1XY	30	68	0	AT&T Antennas
3XY	30	68	0	AT&T Antennas
3P	37	163	0	AT&T Coax (on tower leg)
7P	69	300	0	AT&T Coax (on tower leg)
10P	84	368	0	AT&T Coax (on tower leg)
14P	100	436	0	AT&T Coax (on tower leg)
15P	115	504	0	AT&T Coax (on tower leg)
16P	100	436	0	AT&T Coax (on tower leg)
23P	31	0	0	Sprint Coax (within powermount)
24P	44	0	0	Sprint Coax (within powermount)
25P	53	0	0	Sprint Coax (within powermount)
26P	69	0	0	Sprint Coax (within powermount)
27P	131	0	0	Sprint Coax (within powermount)
28P	268	0	0	Sprint Coax (within powermount)
23P	40	71	0	T-Mobile Coax (on powermount exterior)
24P	55	100	0	T-Mobile Coax (on powermount exterior)
25P	67	121	0	T-Mobile Coax (on powermount exterior)
26P	67	156	0	T-Mobile Coax (on powermount exterior)
27P	166	299	0	T-Mobile Coax (on powermount exterior)
28P	341	611	0	T-Mobile Coax (on powermount exterior)
22P	721	1487	0	Sprint Antennas
23P	664	2352	0	T-Mobile Antennas
3X	137	100	0	Sprint Coax (on tower leg)
7X	137	100	0	Sprint Coax (on tower leg)
10X	168	123	0	Sprint Coax (on tower leg)
14X	200	145	0	Sprint Coax (on tower leg)
15X	231	168	0	Sprint Coax (on tower leg)
16X	200	145	0	Sprint Coax (on tower leg)
3Y	44	78	0	T-Mobile Coax (on tower leg)
7Y	44	78	0	T-Mobile Coax (on tower leg)
10Y	53	96	0	T-Mobile Coax (on tower leg)
14Y	63	114	0	T-Mobile Coax (on tower leg)
15Y	73	132	0	T-Mobile Coax (on tower leg)
16Y	63	114	0	T-Mobile Coax (on tower leg)

Section Load Case Information (Code) for "Extreme Wind - Transverse":

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 Gross Area (ft^2)	Tran Soli-dity Ratio	Tran Angle Drag Coef	Tran Wind Load (lbs)	Long Adj. Wind Pres. (psf)	Long Angle Face Area (ft^2)	Long Gross Area (ft^2)	Long Soli-dity Ratio	Long Angle Drag Coef	Long Wind Load (lbs)	Ice Weight (lbs)	Total Weight (lbs)
1	104.00	59.00	81.50	31.51	31.51	88.09	157.50	0.559	3.200	8883.1	0.00	120.14	425.25	0.283	3.200	0.0	0	5203
2	59.00	41.50	50.25	31.51	31.51	24.85	129.88	0.191	3.200	2505.8	0.00	24.85	129.88	0.191	3.200	0.0	0	1292
3	41.50	0.00	20.75	31.51	31.51	132.21	646.56	0.204	3.200	13331.5	0.00	132.21	646.56	0.204	3.200	0.0	0	7336

Point Loads for Load Case "NESC Heavy - Longitudinal":

Joint Label	Vertical Load (lbs)	Transverse Load (lbs)	Longitudinal Load (lbs)	Load Comment
2X	1362	0	0	Shield Wire
2P	2299	0	0	Shield Wire
4P	2882	0	0	Conductor
4X	2882	0	0	Conductor
8P	2882	0	0	Conductor

8X	2882	0	0	Conductor
11P	2882	0	0	Conductor
11X	2882	0	0	Conductor
1P	72	0	18	AT&T Antennas
3P	72	0	18	AT&T Antennas
1X	72	0	18	AT&T Antennas
3X	72	0	18	AT&T Antennas
1XY	72	0	18	AT&T Antennas
3XY	72	0	18	AT&T Antennas
3P	138	0	56	AT&T Coax (on tower leg)
7P	253	0	102	AT&T Coax (on tower leg)
10P	310	0	125	AT&T Coax (on tower leg)
14P	368	0	148	AT&T Coax (on tower leg)
15P	425	0	171	AT&T Coax (on tower leg)
16P	368	0	148	AT&T Coax (on tower leg)
23P	47	0	0	Sprint Coax (within powermount)
24P	66	0	0	Sprint Coax (within powermount)
25P	80	0	0	Sprint Coax (within powermount)
26P	103	0	0	Sprint Coax (within powermount)
27P	197	0	0	Sprint Coax (within powermount)
28P	402	0	0	Sprint Coax (within powermount)
23P	172	0	69	T-Mobile Coax (on powermount exterior)
24P	241	0	96	T-Mobile Coax (on powermount exterior)
25P	293	0	117	T-Mobile Coax (on powermount exterior)
26P	379	0	151	T-Mobile Coax (on powermount exterior)
27P	723	0	288	T-Mobile Coax (on powermount exterior)
28P	1480	0	591	T-Mobile Coax (on powermount exterior)
22P	1529	0	390	Sprint Antennas
23P	1518	0	610	T-Mobile Antennas
3X	506	0	363	Sprint Coax (on tower leg)
7X	506	0	363	Sprint Coax (on tower leg)
10X	621	0	446	Sprint Coax (on tower leg)
14X	736	0	528	Sprint Coax (on tower leg)
15X	851	0	611	Sprint Coax (on tower leg)
16X	736	0	528	Sprint Coax (on tower leg)
3Y	189	0	151	T-Mobile Coax (on tower leg)
7Y	189	0	151	T-Mobile Coax (on tower leg)
10Y	232	0	185	T-Mobile Coax (on tower leg)
14Y	275	0	220	T-Mobile Coax (on tower leg)
15Y	318	0	254	T-Mobile Coax (on tower leg)
16Y	275	0	220	T-Mobile Coax (on tower leg)

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

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	104.00	59.00	81.50	10.00	10.00	3.200	2819.0	0.00	3.200	0.0	0	7805
2	59.00	41.50	50.25	10.00	10.00	3.200	795.2	0.00	3.200	0.0	0	1938
3	41.50	0.00	20.75	10.00	10.00	3.200	3846.0	0.00	3.200	0.0	0	11004

Point Loads for Load Case "Extreme Wind - Longitudinal":

Joint Label	Vertical Load (lbs)	Transverse Load (lbs)	Longitudinal Load (lbs)	Load Comment

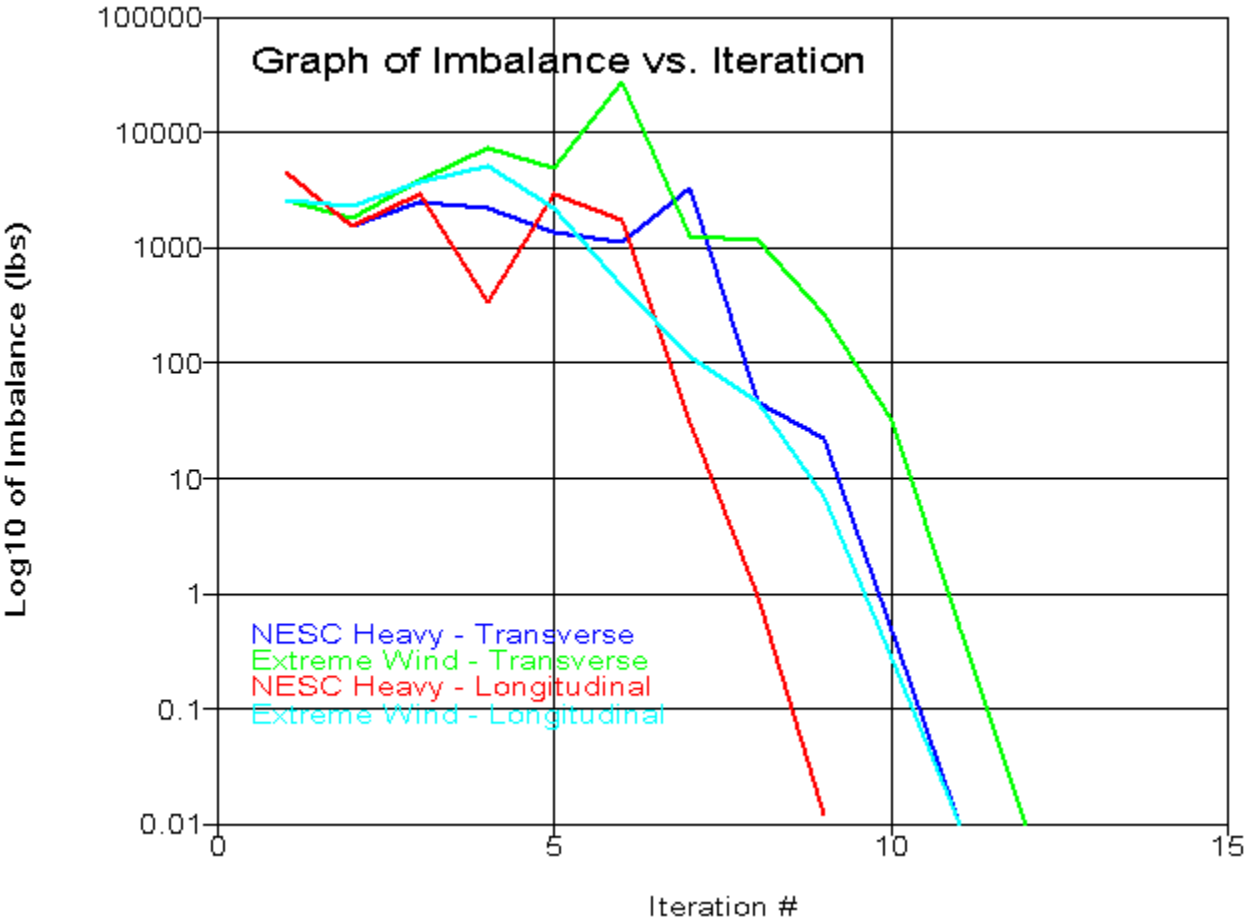
2X	343	0	0	Shield Wire
2P	709	0	0	Shield Wire
4P	1024	0	0	Conductor
4X	1024	0	0	Conductor
8P	1024	0	0	Conductor
8X	1024	0	0	Conductor
11P	1024	0	0	Conductor
11X	1024	0	0	Conductor
1P	30	0	68	AT&T Antennas
3P	30	0	68	AT&T Antennas
1X	30	0	68	AT&T Antennas
3X	30	0	68	AT&T Antennas
1XY	30	0	68	AT&T Antennas
3XY	30	0	68	AT&T Antennas
3P	37	0	163	AT&T Coax (on tower leg)
7P	69	0	300	AT&T Coax (on tower leg)
10P	84	0	368	AT&T Coax (on tower leg)
14P	100	0	436	AT&T Coax (on tower leg)
15P	115	0	504	AT&T Coax (on tower leg)
16P	100	0	436	AT&T Coax (on tower leg)
23P	31	0	0	Sprint Coax (within powermount)
24P	44	0	0	Sprint Coax (within powermount)
25P	53	0	0	Sprint Coax (within powermount)
26P	69	0	0	Sprint Coax (within powermount)
27P	131	0	0	Sprint Coax (within powermount)
28P	268	0	0	Sprint Coax (within powermount)
23P	40	0	213	T-Mobile Coax (on powermount exterior)
24P	55	0	299	T-Mobile Coax (on powermount exterior)
25P	67	0	363	T-Mobile Coax (on powermount exterior)
26P	67	0	469	T-Mobile Coax (on powermount exterior)
27P	166	0	896	T-Mobile Coax (on powermount exterior)
28P	341	0	1834	T-Mobile Coax (on powermount exterior)
22P	721	0	1487	Sprint Antennas
23P	664	0	2352	T-Mobile Antennas
3X	137	0	1199	Sprint Coax (on tower leg)
7X	137	0	1199	Sprint Coax (on tower leg)
10X	168	0	1471	Sprint Coax (on tower leg)
14X	200	0	1744	Sprint Coax (on tower leg)
15X	231	0	2016	Sprint Coax (on tower leg)
16X	200	0	1744	Sprint Coax (on tower leg)
3Y	44	0	469	T-Mobile Coax (on tower leg)
7Y	44	0	469	T-Mobile Coax (on tower leg)
10Y	53	0	576	T-Mobile Coax (on tower leg)
14Y	63	0	682	T-Mobile Coax (on tower leg)
15Y	73	0	789	T-Mobile Coax (on tower leg)
16Y	63	0	682	T-Mobile Coax (on tower leg)

Section Load Case Information (Code) for "Extreme Wind - Longitudinal":

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 Gross Area (ft^2)	Tran Soli- dity Ratio	Tran Angle Drag Coef	Tran Wind Load (lbs)	Long Adj. Wind Pres. (psf)	Long Angle Face Area (ft^2)	Long Gross Area (ft^2)	Long Soli- dity Ratio	Long Angle Drag Coef	Long Wind Load (lbs)	Ice Weight (lbs)	Total Weight (lbs)
1	104.00	59.00	81.50	31.51	31.51	88.09	157.50	0.559	3.200	8883.1	0.00	120.14	425.25	0.283	3.200	0.0	0	5203
2	59.00	41.50	50.25	31.51	31.51	24.85	129.88	0.191	3.200	2505.8	0.00	24.85	129.88	0.191	3.200	0.0	0	1292
3	41.50	0.00	20.75	31.51	31.51	132.21	646.56	0.204	3.200	13331.5	0.00	132.21	646.56	0.204	3.200	0.0	0	7336

*** Analysis Results:

Maximum element usage is 98.55% for Angle "g11X" in load case "Extreme Wind - Transverse"
Maximum insulator usage is 15.50% for Clamp "30" in load case "NESC Heavy - Transverse"



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)	LC 3 (kips)	LC 4 (kips)
LEG1	g1P	7.09	3.052	-3.792	-1.150	3.052	-3.308	-3.792
LEG1	g1X	8.83	0.000	-4.724	-3.113	-4.724	-2.776	-4.648
LEG1	g1XY	8.83	2.022	-4.725	-3.152	-4.725	-1.043	2.022
LEG1	g1Y	4.82	3.083	-1.412	-1.045	3.083	-1.412	2.923

LEG1	g2P	19.39	12.411	-6.679	2.893	12.411	-3.934	-6.679
LEG1	g2X	22.84	0.000	-11.167	-6.742	-11.167	-4.929	-10.319
LEG1	g2XY	22.60	7.935	-11.047	-6.371	-11.047	0.351	7.935
LEG1	g2Y	19.59	12.539	0.000	3.137	12.539	1.221	11.634
LEG1	g3P	25.65	16.421	-11.448	5.059	16.421	-6.005	-11.448
LEG1	g3X	35.72	0.000	-21.519	-11.294	-21.519	-7.213	-19.174
LEG1	g3XY	35.63	6.478	-21.462	-11.049	-21.462	0.062	6.478
LEG1	g3Y	26.01	16.653	0.000	5.452	16.653	1.335	14.133
LEG1	g4P	24.60	15.749	-12.124	3.517	15.749	-7.547	-12.124
LEG1	g4X	36.83	0.000	-22.183	-12.831	-22.183	-8.757	-19.855
LEG1	g4XY	36.74	5.809	-22.130	-12.589	-22.130	-1.481	5.809
LEG1	g4Y	24.97	15.984	-0.210	3.909	15.984	-0.210	13.457
LEG1	g5P	40.83	26.138	-11.782	7.827	26.138	-8.355	-11.782
LEG1	g5X	57.38	0.000	-30.702	-19.334	-30.702	-12.770	-27.357
LEG1	g5XY	58.07	8.318	-31.073	-18.918	-31.073	-2.398	8.318
LEG1	g5Y	42.03	26.909	0.000	8.550	26.909	1.478	21.881
LEG1	g6P	61.65	32.477	-12.341	10.373	32.477	-9.652	-12.341
LEG1	g6X	71.71	0.000	-38.370	-24.523	-38.370	-16.136	-35.228
LEG1	g6XY	74.54	9.076	-39.887	-24.635	-39.887	-3.467	9.076
LEG1	g6Y	65.10	34.292	0.000	11.550	34.292	1.889	26.795
LEG2	g7P	48.65	38.534	-12.035	14.401	38.534	-8.933	-12.035
LEG2	g7X	65.98	0.000	-43.426	-27.255	-43.426	-17.703	-40.683
LEG2	g7XY	68.48	10.092	-45.071	-27.178	-45.071	-2.652	10.092
LEG2	g7Y	51.19	40.543	0.000	15.718	40.543	4.443	32.589
LEG2	g8P	52.81	41.825	-12.255	15.793	41.825	-9.653	-12.255
LEG2	g8X	80.77	0.000	-48.403	-30.808	-48.403	-19.571	-44.188
LEG2	g8XY	82.34	8.247	-49.343	-30.649	-49.343	-4.014	8.247
LEG2	g8Y	54.63	43.265	0.000	17.146	43.265	4.808	35.601
LEG2	g9P	64.75	42.009	-10.567	16.423	42.009	-8.762	-10.567
LEG2	g9X	85.93	0.000	-47.641	-30.328	-47.641	-19.300	-43.379
LEG2	g9XY	86.91	6.545	-48.183	-30.444	-48.183	-4.561	6.545
LEG2	g9Y	66.15	42.915	0.000	17.474	42.915	5.313	35.993
LEG3	g10P	49.66	38.417	-12.659	14.554	38.417	-9.457	-12.659
LEG3	g10X	89.48	0.000	-53.657	-33.992	-53.657	-20.485	-49.557
LEG3	g10XY	88.26	1.736	-52.922	-31.854	-52.922	-4.241	1.736
LEG3	g10Y	50.63	39.173	0.000	17.226	39.173	5.909	35.736
LEG3	g11P	54.37	42.059	-14.724	15.353	42.059	-11.756	-14.724
LEG3	g11X	98.55	0.000	-58.943	-37.561	-58.943	-24.636	-53.096
LEG3	g11XY	94.70	0.000	-56.640	-35.585	-56.640	-8.704	-2.490
LEG3	g11Y	54.02	41.791	0.000	16.073	41.791	5.379	40.822
LEG2	g12P	77.31	50.267	-14.228	18.435	50.267	-11.942	-14.228
LEG2	g12X	90.52	0.000	-59.340	-38.687	-59.340	-25.776	-53.502
LEG2	g12XY	86.69	0.000	-56.835	-35.963	-56.835	-8.714	-0.871
LEG2	g12Y	78.54	51.068	0.000	18.185	48.526	8.244	51.068
XBR1	g13P	51.09	0.000	-5.906	-2.164	-5.906	-0.389	-1.222
XBR1	g13X	37.69	5.497	-0.535	1.417	5.497	-0.535	0.131
XBR1	g13XY	37.68	5.496	-0.309	1.451	5.496	-0.309	0.847
XBR1	g13Y	50.93	0.000	-5.887	-2.186	-5.887	-0.237	-0.548
XBR1	g14P	32.98	4.811	-0.264	-0.264	-0.167	1.139	4.811
XBR1	g14X	32.68	4.767	0.000	0.037	0.442	1.109	4.767
XBR1	g14XY	39.03	0.423	-4.512	0.014	0.423	-1.391	-4.512
XBR1	g14Y	38.42	0.000	-4.441	-0.240	-0.161	-1.303	-4.441
XBR2	g15P	24.82	0.000	-4.288	-2.334	-4.288	-0.105	-0.426
XBR2	g15X	22.41	5.132	0.000	2.922	5.132	0.760	1.609
XBR2	g15XY	22.11	5.063	0.000	2.951	5.063	0.788	1.560
XBR2	g15Y	24.46	0.000	-4.226	-2.361	-4.226	-0.288	-1.036
XBR2	g16P	21.44	0.304	-2.624	-1.191	-2.624	-0.283	0.304
XBR2	g16X	20.00	0.040	-2.448	-1.860	-2.448	-1.150	0.040
XBR2	g16XY	42.14	0.000	-5.158	-1.933	-2.589	-2.658	-5.158

XBR2	g16Y	43.86	0.000	-5.368	-1.138	-2.522	-1.873	-5.368
XBR3	g17P	31.17	0.000	-5.379	-2.993	-5.379	-0.979	-2.347
XBR3	g17X	19.77	4.528	0.000	2.344	4.528	0.074	0.607
XBR3	g17XY	19.52	4.470	0.000	2.375	4.470	0.455	1.630
XBR3	g17Y	30.72	0.000	-5.301	-3.010	-5.301	-0.796	-1.521
XBR3	g18P	21.74	4.978	-0.018	-0.018	1.994	0.794	4.978
XBR3	g18X	21.20	4.856	0.000	1.035	2.554	1.648	4.856
XBR3	g18XY	10.53	2.413	-0.278	0.961	2.413	0.158	-0.278
XBR3	g18Y	9.14	2.094	-0.777	0.035	2.094	-0.777	-0.613
XBR3	g19P	22.13	5.067	0.000	2.413	5.067	0.078	1.004
XBR3	g19X	35.18	0.000	-6.070	-3.120	-6.070	-1.040	-2.892
XBR3	g19XY	34.88	0.000	-6.018	-3.148	-6.018	-0.846	-2.030
XBR3	g19Y	21.98	5.035	0.000	2.455	5.035	0.449	1.993
XBR3	g20P	8.83	2.021	-0.801	0.012	2.021	-0.801	-0.687
XBR3	g20X	10.23	2.342	-0.351	0.938	2.342	0.135	-0.351
XBR3	g20XY	20.88	4.783	0.000	1.012	2.484	1.625	4.783
XBR3	g20Y	21.42	4.904	-0.041	-0.041	1.922	0.770	4.904
XBR2	g21P	30.27	0.561	-5.747	-2.081	-5.747	0.561	-2.000
XBR2	g21X	30.17	6.908	0.000	4.853	6.908	2.013	2.741
XBR2	g21XY	30.95	7.089	0.000	5.006	7.089	2.277	3.066
XBR2	g21Y	30.97	0.775	-5.880	-2.159	-5.880	0.775	-1.324
XBR2	g22P	16.44	3.764	0.000	0.247	0.508	0.956	3.764
XBR2	g22X	9.42	2.158	-0.913	-0.663	-0.913	0.486	2.158
XBR2	g22XY	17.06	0.000	-3.239	-0.833	-1.383	-1.144	-3.239
XBR2	g22Y	18.46	1.070	-3.506	0.476	1.070	-1.052	-3.506
XBR2	g23P	31.71	0.222	-6.020	-2.116	-6.020	0.222	-3.279
XBR2	g23X	30.51	6.987	0.000	4.946	6.987	1.913	1.995
XBR2	g23XY	31.84	7.292	0.000	5.123	7.292	2.609	4.140
XBR2	g23Y	33.35	1.001	-6.332	-2.266	-6.332	1.001	-0.765
XBR2	g24P	15.16	3.471	-1.703	-1.431	-1.703	0.361	3.471
XBR2	g24X	14.87	3.404	0.000	0.265	1.559	0.527	3.404
XBR2	g24XY	14.41	1.131	-2.735	0.094	1.131	-1.395	-2.735
XBR2	g24Y	23.86	0.000	-4.530	-1.233	-1.201	-1.893	-4.530
XBR4	g25P	20.32	0.000	-2.208	-1.683	-1.644	-1.343	-2.208
XBR4	g25X	8.62	0.777	-0.937	0.256	0.777	-0.698	-0.937
XBR4	g25XY	14.63	2.229	0.000	0.357	0.318	0.296	2.229
XBR4	g25Y	11.52	0.000	-1.444	-1.444	-1.076	-0.857	-0.630
XBR4	g26P	23.71	0.000	-2.575	-1.544	-2.575	-0.267	-0.781
XBR4	g26X	13.45	2.050	-0.002	0.878	2.050	-0.002	0.340
XBR4	g26XY	13.64	2.079	0.000	0.958	2.079	0.046	0.670
XBR4	g26Y	23.85	0.000	-2.590	-1.361	-2.590	-0.241	-0.751
XBR5	g27P	7.11	0.463	-0.829	-0.437	-0.829	0.282	0.463
XBR5	g27X	9.29	1.742	0.000	1.149	1.309	0.894	1.742
XBR5	g27XY	5.06	0.950	0.000	0.950	0.851	0.557	0.701
XBR5	g27Y	16.15	0.000	-1.883	-0.536	-0.475	-0.466	-1.883
XBR5	g28P	9.90	1.855	0.000	0.963	1.855	0.123	0.462
XBR5	g28X	15.90	0.000	-1.413	-0.680	-1.413	-0.074	-0.535
XBR5	g28XY	15.64	0.000	-1.391	-0.619	-1.391	-0.023	-0.244
XBR5	g28Y	9.67	1.814	0.000	1.088	1.814	0.162	0.579
XBR5	g29P	22.02	0.000	-1.522	-1.142	-1.460	-0.827	-1.522
XBR5	g29X	5.08	0.952	-0.140	0.437	0.952	-0.140	0.003
XBR5	g29XY	8.42	1.578	0.000	0.518	0.687	0.370	1.578
XBR5	g29Y	12.49	0.000	-1.101	-0.960	-1.101	-0.607	-0.897
XBR5	g30P	17.87	0.000	-1.235	-0.769	-1.235	-0.073	-0.293
XBR5	g30X	4.45	0.834	0.000	0.357	0.834	0.023	0.200
XBR5	g30XY	4.51	0.846	0.000	0.401	0.846	0.008	0.224
XBR5	g30Y	17.20	0.000	-1.189	-0.623	-1.189	-0.097	-0.440
XBR6	g31P	0.00	0.000	0.000	0.000	0.000	0.000	0.000
XBR6	g31X	25.24	4.806	0.000	1.901	4.806	0.850	3.290

XBR6	g31XY	24.70	4.702	-0.251	-0.251	3.581	0.648	4.702
XBR6	g31Y	88.05	0.314	-1.987	-1.987	0.000	-0.652	0.314
XBR6	g32P	64.46	2.248	-1.455	0.000	0.000	-1.455	2.248
XBR6	g32X	28.09	5.349	-0.126	2.132	5.349	-0.126	2.200
XBR6	g32XY	28.22	5.373	-0.591	2.197	5.373	-0.591	0.803
XBR6	g32Y	89.26	0.255	-2.015	0.255	0.086	-2.015	0.000
XBR7	g33P	0.00	0.000	0.000	0.000	0.000	0.000	0.000
XBR7	g33X	40.52	5.911	0.000	2.779	5.911	0.778	1.270
XBR7	g33XY	50.62	7.382	0.000	1.845	4.125	2.694	7.382
XBR7	g33Y	0.00	0.000	0.000	0.000	0.000	0.000	0.000
XBR7	g34P	16.01	2.335	0.000	0.000	0.000	0.497	2.335
XBR7	g34X	41.34	6.029	0.000	1.718	4.939	1.781	6.029
XBR7	g34XY	34.49	5.031	0.000	2.105	5.031	0.000	0.000
XBR7	g34Y	0.00	0.000	0.000	0.000	0.000	0.000	0.000
XBR3	g35P	38.82	2.996	0.000	0.934	2.996	0.215	1.318
XBR3	g35X	37.99	0.000	-3.746	-1.322	-3.746	-0.617	-2.117
XBR3	g35XY	37.61	0.000	-3.708	-1.029	-3.018	-1.166	-3.708
XBR3	g35Y	39.15	3.021	0.000	0.647	2.274	0.800	3.021
XBR3	g36P	22.07	0.000	-2.176	-0.164	-0.580	-0.590	-2.176
XBR3	g36X	25.33	0.012	-2.497	0.012	-0.102	-0.828	-2.497
XBR3	g36XY	28.05	2.165	-0.212	-0.212	-0.164	0.587	2.165
XBR3	g36Y	13.93	1.075	-0.590	-0.268	-0.590	0.202	1.075
HBR1	g37P	72.68	0.000	-4.215	-2.905	-4.215	-2.088	-1.024
HBR1	g37X	39.77	3.069	-0.971	-0.114	3.069	-0.971	-0.223
HBR1	g38P	51.66	3.986	0.000	3.710	3.986	3.033	1.814
HBR1	g38X	24.16	1.864	-0.706	1.108	-0.706	1.864	1.804
HBR1	g39P	13.40	1.034	-0.500	1.034	-0.003	0.683	-0.500
HBR1	g39X	18.57	1.430	-1.077	0.921	-1.077	1.430	-0.151
HBR1	g40P	32.15	2.481	0.000	1.818	2.481	0.678	0.521
HBR1	g40X	34.24	0.868	-1.986	-0.260	-1.986	0.868	0.307
HBR2	g41P	42.97	0.127	-4.499	-1.905	-4.499	0.127	-1.422
HBR2	g41X	19.11	1.475	0.000	0.253	0.669	1.475	0.209
HBR2	g42P	17.43	0.000	-1.825	-0.738	-1.825	-0.225	-0.779
HBR2	g42Y	20.06	0.741	-2.100	0.741	-1.317	-0.092	-2.100
HBR3	g43P	46.51	0.000	-4.870	-2.152	-4.870	-0.600	-2.082
HBR3	g43X	13.18	1.380	0.000	0.496	1.380	1.262	0.579
HBR3	g44P	20.41	0.000	-2.137	-1.297	-2.137	-0.595	-0.111
HBR3	g44Y	30.00	0.187	-3.141	0.187	-1.082	-1.096	-3.141
HBR4	g45P	43.11	0.000	-4.513	-2.080	-4.513	-0.859	-1.602
HBR4	g45X	9.59	1.004	-0.106	-0.039	1.004	-0.106	0.925
HBR4	g45XY	8.60	0.900	-0.053	0.002	0.900	-0.053	0.787
HBR4	g45Y	45.08	0.000	-4.719	-1.514	-3.306	-1.831	-4.719
HBR4	g46P	26.24	0.282	-2.748	-1.228	-2.748	0.028	0.282
HBR4	g46X	17.48	1.831	-0.062	-0.062	0.166	0.426	1.831
HBR4	g46XY	10.60	0.175	-1.110	0.031	0.175	-0.290	-1.110
HBR4	g46Y	37.57	0.000	-3.934	-1.025	-2.691	-1.251	-3.934
Arm1	g47P	3.02	0.948	-0.310	0.400	-0.310	0.948	0.226
Arm1	g47X	3.23	1.014	0.000	1.014	0.531	0.589	0.280
Arm1	g47XY	3.24	1.018	0.000	1.018	0.534	0.600	0.291
Arm1	g47Y	3.08	0.967	-0.302	0.408	-0.302	0.967	0.246
Arm1	g48P	12.57	5.435	0.000	4.217	1.476	5.294	5.435
Arm1	g48Y	9.78	4.230	-2.181	4.230	1.506	3.274	-2.181
Arm1	g49P	20.18	0.000	-5.754	-5.754	-2.622	-5.215	-2.245
Arm1	g49X	14.28	0.000	-4.072	-3.345	-0.586	-4.072	-1.616
Arm1	g49XY	13.67	0.000	-3.898	-3.341	-0.582	-3.898	-0.987
Arm1	g49Y	20.16	0.000	-5.748	-5.748	-2.615	-5.041	-1.643
Arm1	g50P	19.41	0.000	-5.091	-4.491	-2.062	-5.091	-4.345
Arm1	g50Y	17.17	0.104	-4.502	-4.502	-2.041	-3.924	0.104
Arm1	g51P	11.04	0.000	-3.055	-3.055	-1.777	-2.073	-0.111

Arm1	g51X	7.57	0.095	-2.095	-1.724	-0.038	-2.095	0.095
Arm1	g51XY	9.73	0.000	-2.694	-1.794	-0.169	-2.694	-1.723
Arm1	g51Y	11.02	0.000	-3.050	-3.050	-1.670	-2.775	-1.954
Arm1	g52P	12.28	0.000	-3.220	-3.220	-1.201	-3.164	-1.343
Arm1	g52Y	12.57	0.000	-3.295	-3.295	-1.209	-3.274	-1.070
Arm2	g53P	26.71	0.000	-6.551	-6.551	-3.008	-5.947	-2.362
Arm2	g53X	24.18	0.000	-5.930	-5.287	-1.434	-5.930	-2.180
Arm2	g53XY	24.06	0.000	-5.901	-5.289	-1.445	-5.901	-2.103
Arm2	g53Y	26.67	0.000	-6.542	-6.542	-2.989	-5.933	-2.332
Arm2	g54P	19.37	0.000	-5.686	-5.686	-1.697	-5.532	-1.254
Arm2	g54Y	20.00	0.000	-5.873	-5.674	-1.610	-5.873	-2.190
ArmBR1	g55P	29.15	0.000	-3.052	-3.047	-1.037	-3.052	-1.050
ArmBR1	g55X	17.72	0.000	-1.855	-1.849	-0.572	-1.855	-0.582
ArmBR2	g56P	63.05	4.974	0.000	4.873	1.766	4.974	2.130
ArmBR2	g56X	52.27	4.124	0.000	4.017	1.424	4.124	1.812
ArmBR2	g56XY	50.92	4.017	0.000	4.017	1.423	3.935	1.087
ArmBR2	g56Y	61.79	4.874	0.000	4.874	1.766	4.787	1.437
ArmBR2	g57P	77.35	6.102	0.000	6.102	2.302	6.100	2.318
ArmBR2	g57X	77.41	6.107	0.000	6.079	2.268	6.107	2.337
ArmBR2	g57XY	77.32	6.099	0.000	6.088	2.288	6.099	2.285
ArmBR2	g57Y	77.43	6.108	0.000	6.102	2.292	6.108	2.315
ArmBR2	g58P	71.61	5.649	0.000	5.548	1.832	5.649	2.147
ArmBR2	g58X	72.13	5.690	0.000	5.671	2.425	5.690	2.555
ArmBR2	g58XY	71.97	5.678	0.000	5.678	2.445	5.579	2.148
ArmBR2	g58Y	70.38	5.552	0.000	5.540	1.819	5.552	1.783
ArmBR2	g59P	35.75	2.821	0.000	2.821	1.154	2.397	0.000
ArmBR2	g59X	34.92	2.755	0.000	2.755	0.970	2.455	0.000
ArmBR2	g59XY	40.20	3.171	0.000	2.843	1.129	3.171	2.152
ArmBR2	g59Y	41.02	3.236	0.000	2.823	1.037	3.236	2.182
PMBR1	g60P	50.46	5.144	-4.060	2.198	5.144	-0.262	-4.060
PMBR1	g60X	50.65	0.000	-5.164	-1.404	-4.913	-1.465	-5.164
PMBR1	g60XY	48.38	4.264	-4.932	-1.437	-4.932	1.017	4.264
PMBR1	g60Y	53.55	5.460	0.000	2.228	5.174	2.302	5.460
PMBR1	g61P	31.78	3.240	-2.949	-0.980	-2.949	0.702	3.240
PMBR1	g61X	40.88	4.168	0.000	1.461	3.957	1.453	4.168
PMBR1	g61XY	37.78	3.851	-2.258	1.423	3.851	-0.231	-2.258
PMBR1	g61Y	27.76	0.000	-2.830	-0.931	-2.830	-0.868	-2.737
PMBR1	g62P	11.39	0.000	-1.161	-1.039	-1.161	-0.851	-0.552
PMBR1	g62X	10.92	0.000	-1.113	-0.987	-0.554	-1.113	-1.021
PMBR1	g62XY	11.59	0.000	-1.182	-1.182	-1.046	-1.051	-0.523
PMBR1	g62Y	9.27	0.000	-0.945	-0.927	-0.807	-0.936	-0.945
PMBR1	g63P	6.53	0.665	-0.468	0.011	0.665	-0.443	-0.468
PMBR1	g63X	11.53	0.000	-1.176	-1.115	-1.176	-1.030	-0.939
PMBR1	g63XY	10.48	0.000	-1.068	-1.068	-0.997	-0.688	-0.147
PMBR1	g63Y	11.27	1.149	0.000	0.050	0.630	0.060	1.149
PMBR2	g64P	30.73	0.000	-3.217	-0.456	-1.996	-0.545	-3.217
PMBR2	g64X	22.49	0.000	-2.355	-1.350	-2.355	-0.342	-0.680
PMBR2	g64XY	23.95	0.000	-2.508	-0.975	-2.237	-0.855	-2.508
PMBR2	g64Y	19.69	0.420	-2.061	-0.779	-2.061	0.420	0.274
Powermnt	g65P	14.97	0.000	-17.263	-17.263	-5.928	-17.113	-5.789
Powermnt	g66P	11.24	0.000	-12.742	-12.742	-4.969	-12.594	-4.833
Powermnt	g67P	8.05	0.000	-9.612	-9.612	-3.846	-9.500	-3.740
Powermnt	g68P	6.30	0.000	-7.506	-7.506	-3.068	-7.430	-2.995
Powermnt	g69P	4.81	0.000	-5.767	-5.767	-2.375	-5.727	-2.333
Powermnt	g70P	3.57	0.000	-4.266	-4.259	-1.613	-4.266	-1.635
Powermnt	g71P	1.56	0.000	-1.862	-1.859	-0.802	-1.862	-0.813

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 - Transverse	g1P	-17.65	-240.82	-232.19	-197.64	-164.85	-87.69	-79.42
NESC Heavy - Transverse	g1X	-5.08	121.87	-124.64	76.95	11.29	39.77	-22.67
NESC Heavy - Transverse	g1XY	4.98	122.25	125.64	78.13	-9.77	40.08	23.17
NESC Heavy - Transverse	g1Y	17.62	-241.65	233.06	-200.23	166.03	-88.37	79.83
NESC Heavy - Transverse	g2P	1.22	-124.32	-40.40	-19.42	-349.78	-23.96	-65.03
NESC Heavy - Transverse	g2X	1.90	138.70	-224.14	11.13	-595.20	24.97	-136.57
NESC Heavy - Transverse	g2XY	-1.96	135.67	222.70	6.55	596.24	23.70	136.51
NESC Heavy - Transverse	g2Y	-1.41	-121.38	40.67	-13.08	351.25	-22.41	65.32
NESC Heavy - Transverse	g3P	1.25	19.42	349.78	-288.91	1178.05	-89.82	509.23
NESC Heavy - Transverse	g3X	1.96	-11.13	595.19	107.60	1258.13	32.17	617.90
NESC Heavy - Transverse	g3XY	-2.03	-6.54	-596.24	109.96	-1256.77	34.48	-617.79
NESC Heavy - Transverse	g3Y	-1.44	13.08	-351.25	-296.19	-1175.28	-94.36	-508.79
NESC Heavy - Transverse	g4P	0.95	288.90	-1178.05	21.55	-944.61	103.48	-707.51
NESC Heavy - Transverse	g4X	1.99	-107.61	-1258.13	-88.35	-677.06	-65.34	-645.21
NESC Heavy - Transverse	g4XY	-2.07	-109.96	1256.77	-86.07	681.66	-65.36	646.29
NESC Heavy - Transverse	g4Y	-1.14	296.18	1175.28	22.30	945.60	106.15	706.91
NESC Heavy - Transverse	g5P	5.20	-463.21	676.05	-326.69	341.51	-157.95	203.49
NESC Heavy - Transverse	g5X	-3.94	445.49	384.20	189.57	-54.93	127.06	65.88
NESC Heavy - Transverse	g5XY	4.74	441.63	-389.50	187.02	54.49	125.77	-67.03
NESC Heavy - Transverse	g5Y	-4.53	-463.67	-675.29	-325.46	-337.13	-157.80	-202.46
NESC Heavy - Transverse	g6P	4.97	326.68	-341.52	-35.20	-290.34	58.28	-126.35
NESC Heavy - Transverse	g6X	-3.82	-189.57	54.93	-234.15	115.87	-84.78	34.17
NESC Heavy - Transverse	g6XY	4.62	-187.02	-54.49	-244.95	-117.22	-86.43	-34.35
NESC Heavy - Transverse	g6Y	-4.29	325.46	337.13	-38.72	299.75	57.33	127.35
NESC Heavy - Transverse	g7P	13.84	-7.85	184.02	-34.81	169.44	-8.45	70.02
NESC Heavy - Transverse	g7X	14.07	-434.26	-116.71	-56.44	39.95	-97.26	-15.21
NESC Heavy - Transverse	g7XY	-3.12	-446.55	129.79	-78.97	-36.00	-104.16	18.59
NESC Heavy - Transverse	g7Y	-3.58	1.50	-187.05	-55.32	-183.24	-10.66	-73.35
NESC Heavy - Transverse	g8P	13.82	34.80	-169.44	-73.46	31.55	-6.38	-22.76
NESC Heavy - Transverse	g8X	14.11	56.43	-39.95	-0.66	95.46	9.21	9.17
NESC Heavy - Transverse	g8XY	-3.16	78.97	36.00	50.34	-78.35	21.36	-6.99
NESC Heavy - Transverse	g8Y	-3.56	55.31	183.25	-44.88	-1.36	1.72	30.02
NESC Heavy - Transverse	g9P	13.69	73.45	-31.62	15.29	8.67	13.19	-3.41
NESC Heavy - Transverse	g9X	13.66	0.66	-95.53	119.04	-65.01	17.81	-23.89
NESC Heavy - Transverse	g9XY	-2.77	-50.35	78.36	7.30	-71.27	-6.40	1.06
NESC Heavy - Transverse	g9Y	-3.57	44.87	1.38	-37.91	-48.71	1.04	-7.04
NESC Heavy - Transverse	g10P	25.89	-19.09	-4.10	-75.55	30.21	-6.40	1.77
NESC Heavy - Transverse	g10X	18.69	-123.60	79.03	-53.27	63.51	-11.98	9.66
NESC Heavy - Transverse	g10XY	8.17	4.89	86.83	36.27	31.52	2.79	8.01
NESC Heavy - Transverse	g10Y	4.04	36.81	49.91	-41.08	3.85	-0.29	3.64
NESC Heavy - Transverse	g11P	74.84	-28.38	10.74	-42.36	67.11	-3.15	3.47
NESC Heavy - Transverse	g11X	2.73	-5.43	2.33	41.52	75.70	1.61	3.48
NESC Heavy - Transverse	g11XY	11.64	6.41	-5.52	62.97	-47.28	3.09	-2.36
NESC Heavy - Transverse	g11Y	-58.62	-13.72	-12.14	-29.35	-60.27	-1.91	-3.23
NESC Heavy - Transverse	g12P	-264.58	133.14	-20.07	1.86	24.69	26.48	0.91
NESC Heavy - Transverse	g12X	39.90	-104.93	-31.12	-67.74	20.72	-33.90	-2.04
NESC Heavy - Transverse	g12XY	-34.21	-117.67	14.65	-74.78	-16.28	-37.79	-0.32
NESC Heavy - Transverse	g12Y	272.00	137.10	20.80	28.99	-17.82	32.58	0.57
NESC Heavy - Transverse	g37P	0.00	3.36	-0.67	-3.04	2.72	0.06	0.41
NESC Heavy - Transverse	g37X	0.00	4.74	0.56	-4.51	1.44	0.05	0.40
NESC Heavy - Transverse	g38P	-0.04	-0.55	2.03	1.00	0.01	0.09	0.41
NESC Heavy - Transverse	g38X	0.02	-3.35	1.32	3.41	0.66	0.01	0.40
NESC Heavy - Transverse	g39P	-0.05	-16.01	1.73	16.52	0.60	0.10	0.47
NESC Heavy - Transverse	g39X	0.01	-21.01	0.70	20.80	1.48	-0.04	0.44

NESC Heavy - Transverse	g40P	-0.06	1.14	0.31	-0.79	2.11	0.07	0.48
NESC Heavy - Transverse	g40X	-0.26	1.38	1.92	-1.59	0.03	-0.04	0.39
NESC Heavy - Transverse	g41P	-0.66	-1.17	-3.32	-0.82	0.13	-0.20	-0.33
NESC Heavy - Transverse	g41X	-1.27	-12.24	-0.41	-16.54	-2.49	-2.93	-0.30
NESC Heavy - Transverse	g42P	0.02	-3.53	-9.50	-4.49	-7.42	-0.82	-1.72
NESC Heavy - Transverse	g42Y	-1.39	-1.64	-7.97	-0.59	-11.44	-0.23	-1.98
NESC Heavy - Transverse	g43P	-2.29	5.15	-5.13	-3.40	8.55	0.13	0.25
NESC Heavy - Transverse	g43X	-3.26	-38.51	-0.37	-33.81	-0.61	-5.24	-0.07
NESC Heavy - Transverse	g44P	-5.51	-25.13	-10.36	-34.60	-4.95	-4.33	-1.11
NESC Heavy - Transverse	g44Y	-1.34	-4.64	12.24	-11.02	3.71	-1.13	1.16
NESC Heavy - Transverse	g45P	7.19	-14.18	-172.86	-25.68	-18.63	-3.99	-19.15
NESC Heavy - Transverse	g45X	7.21	-19.66	9.68	-25.67	18.63	-4.53	2.83
NESC Heavy - Transverse	g45XY	-7.81	-21.62	-5.37	-20.74	-17.94	-4.24	-2.33
NESC Heavy - Transverse	g45Y	-7.80	1.77	177.16	-20.75	17.95	-1.90	19.51
NESC Heavy - Transverse	g46P	-0.80	150.39	496.66	211.00	624.98	36.14	112.17
NESC Heavy - Transverse	g46X	-0.66	-77.88	-54.94	-65.18	-72.07	-14.31	-12.70
NESC Heavy - Transverse	g46XY	-0.71	-62.85	56.77	-65.18	72.07	-12.80	12.88
NESC Heavy - Transverse	g46Y	-1.74	156.49	-493.81	210.99	-624.99	36.75	-111.88
NESC Heavy - Transverse	g47P	0.30	-0.00	-6.17	-37.73	-8.28	-3.27	-1.25
NESC Heavy - Transverse	g47X	-1.96	0.38	0.03	-32.35	0.18	-2.77	0.02
NESC Heavy - Transverse	g47XY	1.93	0.49	-0.03	-32.23	1.76	-2.75	0.15
NESC Heavy - Transverse	g47Y	-0.27	0.13	6.17	-37.59	10.17	-3.25	1.42
NESC Heavy - Transverse	g48P	2.94	11.79	2.73	-68.34	7.81	-11.31	2.11
NESC Heavy - Transverse	g48Y	-2.93	11.38	6.62	-68.69	1.43	-11.46	1.61
NESC Heavy - Transverse	g49P	-10.08	-3.70	17.01	-87.40	21.26	-11.88	4.98
NESC Heavy - Transverse	g49X	12.03	-4.21	-4.15	-71.28	-1.71	-9.85	-0.76
NESC Heavy - Transverse	g49XY	-12.07	-4.10	4.15	-70.84	4.58	-9.77	1.13
NESC Heavy - Transverse	g49Y	10.22	-3.31	-17.01	-86.47	-18.41	-11.71	-4.61
NESC Heavy - Transverse	g50P	-5.36	-13.93	1.43	-60.02	-1.37	-14.79	0.01
NESC Heavy - Transverse	g50Y	5.35	-14.19	7.98	-61.26	10.73	-15.09	3.74
NESC Heavy - Transverse	g51P	0.48	-0.14	4.01	-9.27	3.28	-1.16	0.89
NESC Heavy - Transverse	g51X	8.19	-1.86	1.80	-98.10	5.45	-12.27	0.90
NESC Heavy - Transverse	g51XY	-7.73	-3.28	-1.80	-102.85	-3.12	-13.03	-0.61
NESC Heavy - Transverse	g51Y	-0.31	0.39	-4.01	-7.91	-0.14	-0.92	-0.51
NESC Heavy - Transverse	g52P	1.84	4.04	-9.13	-70.68	-1.68	-13.33	-2.16
NESC Heavy - Transverse	g52Y	-0.32	1.29	18.64	-69.94	10.80	-13.73	5.89
NESC Heavy - Transverse	g53P	-32.80	-7.17	4.88	-239.61	7.20	-20.55	0.97
NESC Heavy - Transverse	g53X	38.72	-8.27	-2.68	-247.57	-2.10	-21.30	-0.35
NESC Heavy - Transverse	g53XY	-38.73	-8.21	2.68	-247.17	4.22	-21.26	0.53
NESC Heavy - Transverse	g53Y	32.88	-6.81	-4.89	-238.85	-5.11	-20.45	-0.79
NESC Heavy - Transverse	g54P	-13.04	40.10	8.72	-120.01	4.70	-15.99	2.68
NESC Heavy - Transverse	g54Y	12.74	40.21	3.79	-121.43	7.56	-16.25	2.28
NESC Heavy - Transverse	g60P	17.85	-323.09	23.89	-388.91	19.57	-201.36	12.37
NESC Heavy - Transverse	g60X	12.60	-212.35	-3.44	-207.69	-12.73	-118.81	-4.54
NESC Heavy - Transverse	g60XY	-12.67	-213.45	-9.65	-208.92	-22.95	-119.47	-9.25
NESC Heavy - Transverse	g60Y	-17.79	-323.84	-37.14	-389.77	-55.53	-201.81	-26.29
NESC Heavy - Transverse	g61P	4.93	-318.98	-43.50	-327.13	-59.82	-182.76	-29.21
NESC Heavy - Transverse	g61X	-8.21	-297.23	-5.38	-297.92	-18.70	-168.32	-6.84
NESC Heavy - Transverse	g61XY	8.27	-297.00	-8.86	-297.84	-19.26	-168.24	-7.92
NESC Heavy - Transverse	g61Y	-5.08	-319.58	29.34	-327.97	21.89	-183.16	14.47
NESC Heavy - Transverse	g62P	30.35	-370.47	-21.46	-349.63	-38.83	-203.70	-16.93
NESC Heavy - Transverse	g62X	-32.17	-353.14	2.37	-308.21	-10.52	-187.06	-2.42
NESC Heavy - Transverse	g62XY	31.87	-353.12	-19.81	-309.22	-35.84	-187.36	-15.62
NESC Heavy - Transverse	g62Y	-30.32	-371.41	3.66	-351.30	-8.08	-204.42	-1.38
NESC Heavy - Transverse	g63P	7.68	-236.57	-38.37	-263.40	-52.12	-141.42	-25.57
NESC Heavy - Transverse	g63X	-2.06	-187.19	-0.85	-204.81	-22.31	-110.88	-6.56
NESC Heavy - Transverse	g63XY	2.47	-187.32	-25.03	-199.64	-38.32	-109.45	-17.91
NESC Heavy - Transverse	g63Y	-8.24	-235.78	14.48	-262.10	-6.90	-140.82	2.12
NESC Heavy - Transverse	g64P	-3.60	-92.04	-40.36	-112.94	-18.93	-21.00	-6.08

NESC Heavy - Transverse	g64X	-9.77	-54.35	8.41	-49.90	9.20	-10.68	1.80
NESC Heavy - Transverse	g64XY	-5.45	12.34	-11.43	12.82	-9.72	2.58	-2.17
NESC Heavy - Transverse	g64Y	-7.20	-54.58	42.29	-72.38	11.41	-13.01	5.50
NESC Heavy - Transverse	g65P	368.27	5132.76	-744.85	211.64	-462.90	197.94	-44.73
NESC Heavy - Transverse	g66P	360.71	-107.27	392.57	-8329.47	-577.54	-263.66	-5.71
NESC Heavy - Transverse	g67P	240.83	8423.19	571.57	-3431.54	-10.45	499.18	56.13
NESC Heavy - Transverse	g68P	147.50	3488.21	12.42	-1005.50	-50.39	206.90	-3.16
NESC Heavy - Transverse	g69P	71.64	1042.88	50.73	-18366.73	-24.22	-3464.82	5.33
NESC Heavy - Transverse	g70P	-0.00	18665.83	25.75	-5021.99	-7.44	1516.00	2.03
NESC Heavy - Transverse	g71P	-0.00	5021.99	7.44	-0.00	-0.00	558.00	0.83
Extreme Wind - Transverse	g1P	-30.73	-307.61	-293.50	-298.69	-334.31	-121.23	-125.57
Extreme Wind - Transverse	g1X	-24.84	-44.31	-8.15	-109.30	42.24	-30.73	6.81
Extreme Wind - Transverse	g1XY	25.19	-42.63	11.21	-108.05	-38.63	-30.14	-5.48
Extreme Wind - Transverse	g1Y	31.08	-308.18	296.03	-300.01	335.96	-121.61	126.41
Extreme Wind - Transverse	g2P	3.44	21.97	191.59	-2.87	147.81	3.18	56.56
Extreme Wind - Transverse	g2X	2.08	152.35	-162.84	24.83	-309.49	29.53	-78.74
Extreme Wind - Transverse	g2XY	-1.07	152.11	161.70	22.81	310.29	29.16	78.68
Extreme Wind - Transverse	g2Y	-2.59	23.73	-188.90	-0.41	-146.19	3.89	-55.84
Extreme Wind - Transverse	g3P	3.40	2.86	-147.81	-262.82	407.17	-86.62	86.43
Extreme Wind - Transverse	g3X	2.17	-24.83	309.49	-144.39	522.16	-56.43	277.32
Extreme Wind - Transverse	g3XY	-1.17	-22.81	-310.29	-144.02	-524.28	-55.63	-278.30
Extreme Wind - Transverse	g3Y	-2.55	0.41	146.19	-265.77	-404.86	-88.43	-86.20
Extreme Wind - Transverse	g4P	3.26	262.82	-407.17	-95.36	-673.46	55.80	-360.11
Extreme Wind - Transverse	g4X	2.12	144.39	-522.16	-44.39	-100.47	33.35	-207.62
Extreme Wind - Transverse	g4XY	-1.11	144.02	524.28	-41.08	109.44	34.33	211.32
Extreme Wind - Transverse	g4Y	-2.41	265.77	404.86	-94.44	672.36	57.09	358.97
Extreme Wind - Transverse	g5P	3.39	-183.08	521.65	-228.51	470.78	-82.28	198.40
Extreme Wind - Transverse	g5X	1.38	191.19	-114.06	-43.74	-368.88	29.51	-96.64
Extreme Wind - Transverse	g5XY	0.71	190.09	105.24	-43.37	364.88	29.36	94.07
Extreme Wind - Transverse	g5Y	-0.82	-184.13	-514.61	-228.17	-463.43	-82.42	-195.52
Extreme Wind - Transverse	g6P	3.02	228.51	-470.79	-267.96	-485.39	-7.89	-191.12
Extreme Wind - Transverse	g6X	1.64	43.74	368.88	-277.66	356.96	-46.82	145.27
Extreme Wind - Transverse	g6XY	0.44	43.37	-364.88	-303.52	-375.99	-52.07	-148.28
Extreme Wind - Transverse	g6Y	-0.44	228.17	463.43	-288.32	501.59	-12.02	192.89
Extreme Wind - Transverse	g7P	29.10	333.95	113.43	54.94	239.99	77.02	69.98
Extreme Wind - Transverse	g7X	29.02	-567.62	13.59	-34.03	190.07	-119.27	40.38
Extreme Wind - Transverse	g7XY	-14.70	-612.24	1.49	-55.59	-195.93	-132.40	-38.55
Extreme Wind - Transverse	g7Y	-14.61	371.02	-97.23	47.65	-239.79	82.91	-66.73
Extreme Wind - Transverse	g8P	28.97	-54.97	-240.00	-160.15	84.87	-35.49	-25.59
Extreme Wind - Transverse	g8X	29.16	33.99	-190.05	16.42	127.84	8.34	-10.28
Extreme Wind - Transverse	g8XY	-14.87	55.57	195.92	80.45	-84.25	22.48	18.45
Extreme Wind - Transverse	g8Y	-14.47	-47.67	239.79	-153.39	-75.27	-33.17	27.14
Extreme Wind - Transverse	g9P	28.62	160.13	-85.03	17.46	11.37	26.39	-10.95
Extreme Wind - Transverse	g9X	28.57	-16.44	-127.97	179.79	-90.95	24.30	-32.59
Extreme Wind - Transverse	g9XY	-14.42	-80.47	84.32	-11.90	-97.85	-13.74	-2.01
Extreme Wind - Transverse	g9Y	-14.16	153.38	75.35	-6.40	-24.94	21.84	7.49
Extreme Wind - Transverse	g10P	46.25	-21.10	-3.88	-130.99	57.12	-10.29	3.61
Extreme Wind - Transverse	g10X	42.66	-187.59	113.34	-47.79	128.11	-15.94	16.36
Extreme Wind - Transverse	g10XY	-10.26	38.80	112.35	122.31	-4.03	10.91	7.34
Extreme Wind - Transverse	g10Y	-9.79	-0.86	23.16	-116.72	-44.03	-7.96	-1.41
Extreme Wind - Transverse	g11P	194.37	18.83	13.45	15.36	118.75	1.56	5.89
Extreme Wind - Transverse	g11X	172.05	-19.24	-15.43	35.25	92.72	0.74	3.44
Extreme Wind - Transverse	g11XY	-147.77	-16.05	21.17	65.06	-43.49	2.20	-0.98
Extreme Wind - Transverse	g11Y	-170.15	46.28	7.55	35.73	-103.44	3.68	-4.26
Extreme Wind - Transverse	g12P	-727.89	323.78	-31.33	-32.47	49.75	57.07	3.57
Extreme Wind - Transverse	g12X	-634.23	-318.16	-15.83	-149.28	140.74	-91.97	24.37
Extreme Wind - Transverse	g12XY	643.72	-348.35	-9.89	-184.60	-129.91	-104.82	-27.25
Extreme Wind - Transverse	g12Y	740.48	327.16	40.33	7.02	-10.73	65.52	5.80
Extreme Wind - Transverse	g37P	-0.00	1.89	-1.86	-1.04	4.74	0.17	0.58

Extreme Wind - Transverse	g37X	0.02	2.80	-1.20	-2.02	4.05	0.16	0.57
Extreme Wind - Transverse	g38P	-0.02	4.33	2.79	-3.26	-0.09	0.21	0.54
Extreme Wind - Transverse	g38X	0.01	-0.23	2.53	0.94	0.11	0.14	0.53
Extreme Wind - Transverse	g39P	-0.04	-2.54	1.70	3.97	0.95	0.29	0.53
Extreme Wind - Transverse	g39X	-0.01	-12.45	1.89	12.51	0.66	0.01	0.51
Extreme Wind - Transverse	g40P	-0.46	2.01	1.30	-0.62	1.69	0.28	0.60
Extreme Wind - Transverse	g40X	-0.56	3.04	2.01	-2.39	1.06	0.13	0.61
Extreme Wind - Transverse	g41P	-1.31	0.70	2.43	1.43	8.51	0.22	1.11
Extreme Wind - Transverse	g41X	-1.32	-19.51	2.37	-26.63	6.72	-4.70	0.93
Extreme Wind - Transverse	g42P	0.49	-4.03	-21.13	-6.65	-20.81	-1.09	-4.27
Extreme Wind - Transverse	g42Y	-1.89	-8.25	-12.53	-10.85	-13.93	-1.95	-2.70
Extreme Wind - Transverse	g43P	-1.83	8.17	-14.13	-5.40	18.68	0.20	0.33
Extreme Wind - Transverse	g43X	-3.99	-56.14	-15.04	-53.84	13.03	-7.97	-0.15
Extreme Wind - Transverse	g44P	-7.61	-32.21	-40.11	-40.02	-39.39	-5.23	-5.76
Extreme Wind - Transverse	g44Y	-2.62	-15.51	42.84	-16.44	38.81	-2.32	5.91
Extreme Wind - Transverse	g45P	37.71	50.12	-616.24	14.13	-104.53	6.41	-72.09
Extreme Wind - Transverse	g45X	37.71	-41.94	-365.03	14.09	104.53	-2.77	-26.05
Extreme Wind - Transverse	g45XY	-39.08	-57.13	373.21	17.88	-101.73	-3.91	27.15
Extreme Wind - Transverse	g45Y	-39.07	79.82	620.55	17.91	101.72	9.76	72.23
Extreme Wind - Transverse	g46P	1.30	463.65	1504.07	636.15	1856.23	109.99	336.05
Extreme Wind - Transverse	g46X	-4.47	-401.57	1140.95	-488.24	1450.51	-89.00	259.14
Extreme Wind - Transverse	g46XY	0.96	-384.90	-1139.29	-488.28	-1450.50	-87.32	-258.98
Extreme Wind - Transverse	g46Y	-6.87	463.24	-1501.66	636.08	-1856.25	109.98	-335.80
Extreme Wind - Transverse	g47P	1.38	0.08	-10.73	-0.04	-15.33	0.00	-2.26
Extreme Wind - Transverse	g47X	-1.42	0.06	-6.52	-12.02	-9.89	-1.04	-1.42
Extreme Wind - Transverse	g47XY	1.31	0.54	6.52	-11.32	12.68	-0.93	1.67
Extreme Wind - Transverse	g47Y	-1.28	0.51	10.73	0.49	18.08	0.09	2.50
Extreme Wind - Transverse	g48P	1.88	-74.68	4.67	-127.18	7.34	-40.37	2.40
Extreme Wind - Transverse	g48Y	-2.01	-74.31	8.53	-127.21	5.72	-40.30	2.85
Extreme Wind - Transverse	g49P	3.97	0.84	13.63	-14.02	19.40	-1.72	4.31
Extreme Wind - Transverse	g49X	5.58	-2.28	6.62	-47.32	11.96	-6.47	2.42
Extreme Wind - Transverse	g49XY	-5.80	-1.64	-6.62	-46.29	-8.06	-6.25	-1.92
Extreme Wind - Transverse	g49Y	-3.65	1.79	-13.63	-12.42	-15.52	-1.39	-3.80
Extreme Wind - Transverse	g50P	-9.16	-95.47	0.25	-119.39	-0.59	-42.97	-0.08
Extreme Wind - Transverse	g50Y	8.86	-94.62	13.29	-119.16	14.00	-42.76	5.47
Extreme Wind - Transverse	g51P	9.99	1.55	4.98	74.95	6.08	9.39	1.35
Extreme Wind - Transverse	g51X	7.84	-1.26	6.25	-107.08	9.39	-13.30	1.93
Extreme Wind - Transverse	g51XY	-7.10	-3.56	-6.26	-116.21	-5.77	-14.71	-1.48
Extreme Wind - Transverse	g51Y	-9.01	4.58	-4.98	84.11	-2.64	10.89	-0.93
Extreme Wind - Transverse	g52P	5.06	-32.97	-16.05	-76.89	-13.21	-21.97	-5.85
Extreme Wind - Transverse	g52Y	-0.73	-31.17	27.62	-73.43	24.98	-20.92	10.52
Extreme Wind - Transverse	g53P	-7.89	-2.27	1.57	-73.57	3.58	-6.31	0.43
Extreme Wind - Transverse	g53X	20.61	-4.45	2.85	-104.64	5.46	-9.08	0.70
Extreme Wind - Transverse	g53XY	-20.64	-4.33	-2.85	-104.45	-3.01	-9.06	-0.50
Extreme Wind - Transverse	g53Y	8.13	-1.14	-1.57	-71.91	-1.14	-6.08	-0.22
Extreme Wind - Transverse	g54P	-26.16	-37.49	9.26	-113.76	10.52	-30.25	3.94
Extreme Wind - Transverse	g54Y	25.12	-36.38	9.01	-113.54	7.37	-29.98	3.29
Extreme Wind - Transverse	g60P	43.63	-373.37	43.33	-495.52	40.08	-245.69	23.84
Extreme Wind - Transverse	g60X	38.59	-62.40	28.61	23.66	24.53	-10.95	15.02
Extreme Wind - Transverse	g60XY	-38.77	-65.63	-47.67	19.85	-76.06	-12.92	-34.99
Extreme Wind - Transverse	g60Y	-43.50	-375.35	-62.50	-497.74	-91.86	-246.85	-43.91
Extreme Wind - Transverse	g61P	-3.31	-236.05	-56.62	-250.82	-79.73	-137.72	-38.58
Extreme Wind - Transverse	g61X	-3.85	-167.74	-40.89	-173.88	-63.05	-96.61	-29.40
Extreme Wind - Transverse	g61XY	3.76	-170.03	20.28	-176.55	8.69	-98.01	8.20
Extreme Wind - Transverse	g61Y	3.15	-238.85	36.01	-253.65	25.22	-139.32	17.33
Extreme Wind - Transverse	g62P	11.14	-247.72	-14.43	-256.34	-36.18	-142.58	-14.28
Extreme Wind - Transverse	g62X	-16.64	-234.39	-17.25	-199.70	-39.86	-122.77	-16.19
Extreme Wind - Transverse	g62XY	15.95	-236.65	-6.74	-203.62	-23.59	-124.54	-8.54
Extreme Wind - Transverse	g62Y	-11.08	-251.80	-10.66	-261.17	-28.73	-145.09	-11.18

Extreme Wind - Transverse	g63P	7.35	-216.02	-38.31	-243.86	-60.66	-130.07	-27.97
Extreme Wind - Transverse	g63X	5.70	-123.57	-27.92	-132.43	-53.13	-72.42	-22.92
Extreme Wind - Transverse	g63XY	-4.69	-126.20	-5.39	-123.53	-26.62	-70.64	-9.06
Extreme Wind - Transverse	g63Y	-9.03	-212.10	5.52	-242.90	-18.27	-128.69	-3.63
Extreme Wind - Transverse	g64P	-4.99	-99.14	-104.51	-130.86	-51.25	-23.56	-15.96
Extreme Wind - Transverse	g64X	-8.93	-52.94	-93.84	-37.80	-43.26	-9.29	-14.05
Extreme Wind - Transverse	g64XY	-12.70	57.57	79.68	60.13	22.93	12.06	10.52
Extreme Wind - Transverse	g64Y	-7.10	-62.65	102.65	-82.98	30.51	-14.92	13.64
Extreme Wind - Transverse	g65P	539.66	9229.54	-958.36	38.11	-455.39	343.25	-52.36
Extreme Wind - Transverse	g66P	499.45	133.15	357.84	-16084.16	-792.62	-498.48	-13.40
Extreme Wind - Transverse	g67P	340.53	16266.41	781.80	-7566.09	92.87	870.04	87.53
Extreme Wind - Transverse	g68P	211.93	7639.51	-86.60	-4566.67	-44.19	256.07	-10.88
Extreme Wind - Transverse	g69P	103.12	4665.63	47.82	-53316.94	-47.47	-9730.32	0.20
Extreme Wind - Transverse	g70P	-0.04	54166.38	51.80	-15261.89	-14.86	4322.74	4.10
Extreme Wind - Transverse	g71P	0.00	15261.89	14.87	-0.00	-0.00	1695.77	1.65
NESC Heavy - Longitudinal	g1P	-16.05	-148.93	-155.21	-95.33	-56.14	-48.85	-42.28
NESC Heavy - Longitudinal	g1X	7.16	138.14	-127.69	96.69	-5.50	46.97	-26.64
NESC Heavy - Longitudinal	g1XY	3.14	194.13	177.49	165.56	76.28	71.94	50.75
NESC Heavy - Longitudinal	g1Y	5.24	-203.49	203.25	-163.80	128.27	-73.46	66.31
NESC Heavy - Longitudinal	g2P	1.10	-179.03	-123.15	-77.78	-437.26	-42.81	-93.41
NESC Heavy - Longitudinal	g2X	0.43	159.35	-186.03	70.06	-504.86	38.24	-115.16
NESC Heavy - Longitudinal	g2XY	-3.08	74.51	140.07	-54.23	514.08	3.38	109.02
NESC Heavy - Longitudinal	g2Y	-0.91	-98.04	76.05	46.15	447.08	-8.65	87.19
NESC Heavy - Longitudinal	g3P	1.11	77.78	437.27	-154.33	1247.24	-25.52	561.56
NESC Heavy - Longitudinal	g3X	0.41	-70.06	504.86	149.65	1249.07	26.54	584.72
NESC Heavy - Longitudinal	g3XY	-3.10	54.23	-514.08	249.73	-1193.60	101.33	-569.22
NESC Heavy - Longitudinal	g3Y	-0.88	-46.15	-447.07	-256.29	-1194.34	-100.81	-547.13
NESC Heavy - Longitudinal	g4P	0.94	154.33	-1247.24	61.98	-819.48	72.11	-689.00
NESC Heavy - Longitudinal	g4X	0.55	-149.65	-1249.06	-84.68	-766.46	-78.12	-671.95
NESC Heavy - Longitudinal	g4XY	-3.25	-249.74	1193.60	-61.69	794.28	-103.82	662.65
NESC Heavy - Longitudinal	g4Y	-0.69	256.29	1194.35	37.40	851.33	97.90	681.90
NESC Heavy - Longitudinal	g5P	4.43	-482.37	547.23	-315.01	181.50	-159.50	145.77
NESC Heavy - Longitudinal	g5X	-5.57	478.75	504.90	296.01	136.95	154.99	128.40
NESC Heavy - Longitudinal	g5XY	3.34	418.77	-525.85	200.24	-98.97	123.81	-124.97
NESC Heavy - Longitudinal	g5Y	-4.60	-424.87	-574.28	-220.59	-148.00	-129.09	-144.46
NESC Heavy - Longitudinal	g6P	4.32	315.01	-181.50	126.16	-51.22	88.25	-46.55
NESC Heavy - Longitudinal	g6X	-5.49	-296.01	-136.95	-182.25	7.83	-95.68	-25.83
NESC Heavy - Longitudinal	g6XY	3.24	-200.24	98.97	-75.80	105.79	-55.21	40.96
NESC Heavy - Longitudinal	g6Y	-4.47	220.59	148.00	36.94	152.79	51.50	60.16
NESC Heavy - Longitudinal	g7P	5.09	-251.71	142.70	-67.15	92.05	-63.18	46.52
NESC Heavy - Longitudinal	g7X	1.88	-324.10	-142.59	-68.00	-59.30	-77.71	-40.01
NESC Heavy - Longitudinal	g7XY	-3.46	-173.18	144.68	-72.68	2.91	-48.71	29.24
NESC Heavy - Longitudinal	g7Y	0.44	-133.38	-157.52	-76.14	-44.22	-41.51	-39.97
NESC Heavy - Longitudinal	g8P	5.10	67.15	-92.05	-10.09	26.71	9.42	-10.79
NESC Heavy - Longitudinal	g8X	1.86	68.01	59.30	28.97	2.57	16.02	10.22
NESC Heavy - Longitudinal	g8XY	-3.47	72.68	-2.92	8.06	-35.64	13.33	-6.37
NESC Heavy - Longitudinal	g8Y	0.44	76.14	44.22	-9.16	24.76	11.06	11.39
NESC Heavy - Longitudinal	g9P	4.97	10.09	-26.74	57.03	-12.56	9.98	-5.84
NESC Heavy - Longitudinal	g9X	1.85	-28.97	-2.58	9.53	-25.66	-2.89	-4.20
NESC Heavy - Longitudinal	g9XY	-3.30	-8.06	35.65	-1.78	-23.33	-1.46	1.83
NESC Heavy - Longitudinal	g9Y	0.32	9.16	-24.76	-16.40	-3.23	-1.08	-4.16
NESC Heavy - Longitudinal	g10P	11.61	-64.67	16.10	-61.40	3.36	-8.54	1.32
NESC Heavy - Longitudinal	g10X	4.27	-3.37	33.81	-1.22	19.14	-0.31	3.59
NESC Heavy - Longitudinal	g10XY	1.61	1.94	25.36	-19.04	29.17	-1.16	3.69
NESC Heavy - Longitudinal	g10Y	0.22	16.84	0.77	-24.31	4.47	-0.51	0.35
NESC Heavy - Longitudinal	g11P	64.39	-15.13	36.20	6.03	68.73	-0.40	4.68
NESC Heavy - Longitudinal	g11X	-8.10	44.82	-6.46	72.31	-0.68	5.22	-0.32
NESC Heavy - Longitudinal	g11XY	6.39	-12.06	-46.00	-7.39	-70.49	-0.87	-5.19
NESC Heavy - Longitudinal	g11Y	-62.11	-65.24	-11.11	-46.65	-4.21	-4.99	-0.69

NESC Heavy -	Longitudinal	g12P	-263.63	59.11	-28.13	6.44	24.64	12.85	-0.68
NESC Heavy -	Longitudinal	g12X	32.41	-99.30	-9.10	-51.89	-10.45	-29.68	-3.83
NESC Heavy -	Longitudinal	g12XY	-33.99	0.43	29.53	3.22	-30.20	0.72	-0.13
NESC Heavy -	Longitudinal	g12Y	264.47	104.18	1.41	-35.84	-8.30	13.41	-1.34
NESC Heavy -	Longitudinal	g37P	-0.09	7.73	-1.46	1.32	0.54	1.81	-0.18
NESC Heavy -	Longitudinal	g37X	0.11	8.42	0.74	0.25	0.40	1.73	0.23
NESC Heavy -	Longitudinal	g38P	-0.41	1.94	0.82	5.80	-0.45	1.55	0.07
NESC Heavy -	Longitudinal	g38X	0.40	1.29	-0.15	6.29	0.13	1.52	-0.00
NESC Heavy -	Longitudinal	g39P	-0.66	-17.33	0.69	20.41	0.11	0.62	0.16
NESC Heavy -	Longitudinal	g39X	0.67	-17.12	-0.61	20.43	0.99	0.66	0.08
NESC Heavy -	Longitudinal	g40P	0.29	1.39	-1.41	-0.17	0.79	0.24	-0.13
NESC Heavy -	Longitudinal	g40X	0.10	1.35	1.24	0.16	0.08	0.30	0.26
NESC Heavy -	Longitudinal	g41P	0.35	-4.09	-7.65	-2.57	-4.06	-0.68	-1.19
NESC Heavy -	Longitudinal	g41X	-0.54	-0.73	-6.32	-0.29	-7.25	-0.10	-1.38
NESC Heavy -	Longitudinal	g42P	-0.24	-7.30	0.42	-9.13	2.31	-1.67	0.28
NESC Heavy -	Longitudinal	g42Y	-0.56	-1.04	4.61	0.09	1.97	-0.10	0.67
NESC Heavy -	Longitudinal	g43P	-2.46	13.71	-7.25	6.30	5.16	1.45	-0.15
NESC Heavy -	Longitudinal	g43X	0.06	11.23	0.05	11.53	0.26	1.65	0.02
NESC Heavy -	Longitudinal	g44P	-1.55	-25.34	-10.74	-28.36	-3.95	-3.89	-1.06
NESC Heavy -	Longitudinal	g44Y	0.87	-5.30	11.12	-16.33	5.70	-1.57	1.22
NESC Heavy -	Longitudinal	g45P	6.39	-29.10	-177.95	-42.06	-22.10	-7.12	-20.00
NESC Heavy -	Longitudinal	g45X	6.43	-30.78	9.71	-42.06	22.10	-7.28	3.18
NESC Heavy -	Longitudinal	g45XY	-7.36	17.35	-4.47	-1.84	-16.65	1.55	-2.11
NESC Heavy -	Longitudinal	g45Y	-7.36	-4.65	169.68	-1.84	16.65	-0.65	18.63
NESC Heavy -	Longitudinal	g46P	2.06	125.45	491.80	163.48	618.03	28.90	110.98
NESC Heavy -	Longitudinal	g46X	0.63	-13.20	-47.57	-18.72	-64.68	-3.19	-11.22
NESC Heavy -	Longitudinal	g46XY	0.62	-35.17	52.17	-18.72	64.68	-5.39	11.68
NESC Heavy -	Longitudinal	g46Y	1.38	94.56	-489.57	163.50	-618.02	25.80	-110.76
NESC Heavy -	Longitudinal	g47P	0.57	-2.33	-4.22	-44.24	-6.52	-4.04	-0.93
NESC Heavy -	Longitudinal	g47X	-2.07	-2.02	1.50	-34.17	2.45	-3.14	0.34
NESC Heavy -	Longitudinal	g47XY	1.02	2.71	-1.50	-27.89	-1.17	-2.19	-0.23
NESC Heavy -	Longitudinal	g47Y	0.47	2.35	4.22	-38.13	5.55	-3.10	0.85
NESC Heavy -	Longitudinal	g48P	1.75	42.55	-3.54	-32.52	5.90	2.00	0.47
NESC Heavy -	Longitudinal	g48Y	-1.88	43.83	0.45	-34.62	0.21	1.84	0.13
NESC Heavy -	Longitudinal	g49P	-10.99	-7.70	13.94	-98.71	15.48	-13.88	3.83
NESC Heavy -	Longitudinal	g49X	9.32	-7.17	-8.67	-75.36	-8.50	-10.76	-2.23
NESC Heavy -	Longitudinal	g49XY	-11.76	-0.10	8.67	-60.93	9.54	-7.96	2.37
NESC Heavy -	Longitudinal	g49Y	13.41	-0.72	-13.94	-84.28	-15.85	-11.09	-3.88
NESC Heavy -	Longitudinal	g50P	-1.05	20.20	0.88	-18.13	-4.44	0.41	-0.71
NESC Heavy -	Longitudinal	g50Y	1.30	25.71	3.18	-26.40	4.25	-0.14	1.49
NESC Heavy -	Longitudinal	g51P	-3.65	-0.85	0.81	-44.43	-0.85	-5.56	-0.01
NESC Heavy -	Longitudinal	g51X	5.19	-2.46	-2.41	-64.40	-1.35	-8.21	-0.46
NESC Heavy -	Longitudinal	g51XY	-5.65	-1.04	2.41	-61.40	0.51	-7.67	0.36
NESC Heavy -	Longitudinal	g51Y	3.46	-1.44	-0.81	-48.41	3.15	-6.12	0.29
NESC Heavy -	Longitudinal	g52P	-1.06	27.32	-5.19	-45.53	3.29	-3.64	-0.38
NESC Heavy -	Longitudinal	g52Y	-0.28	23.00	6.38	-46.59	0.94	-4.72	1.46
NESC Heavy -	Longitudinal	g53P	-35.60	-10.12	3.49	-249.90	4.27	-21.65	0.60
NESC Heavy -	Longitudinal	g53X	35.58	-10.31	-4.87	-252.40	-5.86	-21.87	-0.85
NESC Heavy -	Longitudinal	g53XY	-36.69	-5.07	4.87	-238.75	6.75	-20.30	0.92
NESC Heavy -	Longitudinal	g53Y	36.64	-5.25	-3.49	-236.84	-3.88	-20.16	-0.57
NESC Heavy -	Longitudinal	g54P	0.58	59.88	3.71	-80.89	-0.67	-4.20	0.61
NESC Heavy -	Longitudinal	g54Y	0.04	75.66	-2.01	-100.19	2.70	-4.91	0.14
NESC Heavy -	Longitudinal	g60P	16.28	-226.04	27.58	-240.79	32.97	-132.04	17.17
NESC Heavy -	Longitudinal	g60X	-6.81	-201.49	-16.25	-196.79	-20.68	-112.66	-10.46
NESC Heavy -	Longitudinal	g60XY	-11.09	-274.37	-2.62	-317.90	-5.49	-167.51	-2.33
NESC Heavy -	Longitudinal	g60Y	1.58	-295.53	-11.77	-358.17	-15.01	-184.88	-7.57
NESC Heavy -	Longitudinal	g61P	4.84	-283.77	-34.18	-288.45	-39.46	-161.85	-20.81
NESC Heavy -	Longitudinal	g61X	-5.68	-287.81	19.69	-291.55	19.95	-163.86	11.19
NESC Heavy -	Longitudinal	g61XY	8.53	-299.06	-7.59	-301.75	-8.57	-169.94	-4.54

NESC Heavy -	Longitudinal	g61Y	-7.58	-295.95	19.16	-300.02	19.42	-168.57	10.88
NESC Heavy -	Longitudinal	g62P	30.95	-353.07	-11.84	-316.36	-15.77	-189.35	-7.69
NESC Heavy -	Longitudinal	g62X	-30.24	-341.38	12.96	-304.07	13.61	-182.57	7.41
NESC Heavy -	Longitudinal	g62XY	31.81	-338.38	-16.69	-307.66	-23.09	-182.75	-11.14
NESC Heavy -	Longitudinal	g62Y	-32.24	-349.78	9.30	-320.24	8.18	-189.52	4.82
NESC Heavy -	Longitudinal	g63P	6.48	-196.47	-20.74	-216.24	-19.19	-116.74	-11.28
NESC Heavy -	Longitudinal	g63X	-6.08	-188.04	17.00	-203.62	9.73	-110.78	7.55
NESC Heavy -	Longitudinal	g63XY	4.90	-194.47	-22.76	-214.70	-25.06	-115.73	-13.51
NESC Heavy -	Longitudinal	g63Y	-4.88	-206.13	15.09	-225.43	7.18	-122.06	6.28
NESC Heavy -	Longitudinal	g64P	2.00	-67.66	-41.47	-76.92	-13.81	-14.81	-5.66
NESC Heavy -	Longitudinal	g64X	-1.69	16.74	13.65	25.24	15.37	4.30	2.97
NESC Heavy -	Longitudinal	g64XY	-2.94	-33.92	-7.24	-38.16	-6.33	-7.38	-1.39
NESC Heavy -	Longitudinal	g64Y	-3.83	-83.71	46.17	-115.03	26.36	-20.36	7.43
NESC Heavy -	Longitudinal	g65P	39.66	3171.81	2798.82	1288.90	1025.03	165.22	141.63
NESC Heavy -	Longitudinal	g66P	61.49	-1157.26	-951.28	-1666.36	-3184.11	-88.25	-129.23
NESC Heavy -	Longitudinal	g67P	33.90	1683.17	3200.40	-227.57	-1327.27	145.56	187.32
NESC Heavy -	Longitudinal	g68P	16.85	245.96	1330.54	260.42	-1069.83	42.20	21.73
NESC Heavy -	Longitudinal	g69P	8.33	-265.13	1081.28	-5512.23	-13123.32	-1155.49	-2408.44
NESC Heavy -	Longitudinal	g70P	-0.03	5585.19	13317.28	-1403.96	-3575.09	464.59	1082.48
NESC Heavy -	Longitudinal	g71P	-0.00	1403.94	3575.10	-0.01	0.01	155.99	397.24
Extreme Wind -	Longitudinal	g1P	-25.56	-40.68	-61.60	13.01	-23.36	-5.53	-16.99
Extreme Wind -	Longitudinal	g1X	20.42	-7.93	-23.28	-60.08	22.06	-13.60	-0.24
Extreme Wind -	Longitudinal	g1XY	18.85	206.07	216.86	195.79	248.90	80.38	93.14
Extreme Wind -	Longitudinal	g1Y	-14.88	-241.48	235.78	-234.59	288.10	-95.22	104.76
Extreme Wind -	Longitudinal	g2P	1.51	-208.67	-49.90	-232.95	-23.31	-73.61	-12.20
Extreme Wind -	Longitudinal	g2X	-4.88	217.45	-93.23	236.44	-95.23	75.66	-31.41
Extreme Wind -	Longitudinal	g2XY	-4.58	-90.78	-78.12	-213.38	135.99	-50.69	9.64
Extreme Wind -	Longitudinal	g2Y	-0.42	82.58	-116.95	205.34	76.98	47.98	-6.66
Extreme Wind -	Longitudinal	g3P	1.62	232.95	23.31	93.28	526.12	108.77	183.18
Extreme Wind -	Longitudinal	g3X	-4.98	-236.44	95.23	-138.42	568.44	-125.00	221.29
Extreme Wind -	Longitudinal	g3XY	-4.58	213.39	-135.99	219.80	-414.26	144.38	-183.39
Extreme Wind -	Longitudinal	g3Y	-0.43	-205.34	-76.98	-262.36	-386.85	-155.86	-154.57
Extreme Wind -	Longitudinal	g4P	1.55	-93.28	-526.12	-7.51	-378.77	-33.61	-301.69
Extreme Wind -	Longitudinal	g4X	-4.94	138.42	-568.44	-63.26	-276.82	25.07	-281.85
Extreme Wind -	Longitudinal	g4XY	-4.61	-219.80	414.26	24.82	404.04	-64.99	272.74
Extreme Wind -	Longitudinal	g4Y	-0.33	262.36	386.85	-103.34	519.83	52.99	302.15
Extreme Wind -	Longitudinal	g5P	0.73	-297.78	224.85	-305.50	208.88	-120.68	86.77
Extreme Wind -	Longitudinal	g5X	-4.47	296.68	113.25	236.41	26.38	106.67	27.94
Extreme Wind -	Longitudinal	g5XY	-4.37	78.73	-202.75	-108.59	101.59	-5.97	-20.23
Extreme Wind -	Longitudinal	g5Y	-3.28	-80.34	-337.61	47.59	-95.66	-6.55	-86.62
Extreme Wind -	Longitudinal	g6P	0.75	305.50	-208.88	98.57	10.53	80.83	-39.68
Extreme Wind -	Longitudinal	g6X	-4.54	-236.41	-26.38	-294.22	242.41	-106.20	43.23
Extreme Wind -	Longitudinal	g6XY	-4.32	108.60	-101.59	97.48	157.18	41.21	11.12
Extreme Wind -	Longitudinal	g6Y	-3.30	-47.59	95.66	-234.70	332.13	-56.43	85.52
Extreme Wind -	Longitudinal	g7P	15.41	-213.35	40.58	-12.84	158.70	-44.82	39.49
Extreme Wind -	Longitudinal	g7X	2.82	-491.79	-45.04	-13.80	-62.45	-100.23	-21.31
Extreme Wind -	Longitudinal	g7XY	-19.53	45.49	37.16	3.99	-138.08	9.81	-19.99
Extreme Wind -	Longitudinal	g7Y	-5.47	203.61	-72.64	-10.98	26.56	38.15	-9.12
Extreme Wind -	Longitudinal	g8P	15.44	12.83	-158.70	-46.72	119.30	-5.59	-6.51
Extreme Wind -	Longitudinal	g8X	2.78	13.80	62.45	60.41	-20.25	12.26	6.97
Extreme Wind -	Longitudinal	g8XY	-19.52	-4.01	138.09	-68.90	-108.28	-12.03	4.92
Extreme Wind -	Longitudinal	g8Y	-5.48	10.98	-26.56	-83.56	21.32	-11.98	-0.87
Extreme Wind -	Longitudinal	g9P	14.90	46.70	-119.37	135.35	-36.72	27.08	-23.22
Extreme Wind -	Longitudinal	g9X	2.88	-60.41	20.23	-21.45	-25.29	-12.18	-0.75
Extreme Wind -	Longitudinal	g9XY	-19.02	68.89	108.38	57.11	14.90	18.73	18.33
Extreme Wind -	Longitudinal	g9Y	-5.58	83.56	-21.29	-44.22	11.88	5.85	-1.40
Extreme Wind -	Longitudinal	g10P	24.92	-155.32	43.91	-127.57	48.56	-19.15	6.27
Extreme Wind -	Longitudinal	g10X	15.03	51.00	34.12	116.56	28.29	11.35	4.23
Extreme Wind -	Longitudinal	g10XY	-23.08	-64.60	-22.16	-62.26	-45.47	-8.59	-4.58

Extreme Wind -	Longitudinal	g10Y	-13.53	46.92	-18.88	-71.09	-4.17	-1.64	-1.56
Extreme Wind -	Longitudinal	g11P	174.01	29.38	34.47	88.06	140.04	5.27	7.76
Extreme Wind -	Longitudinal	g11X	151.44	44.15	-13.89	102.29	-35.96	6.52	-2.25
Extreme Wind -	Longitudinal	g11XY	-160.43	-21.84	-25.96	-56.61	-97.11	-3.47	-5.50
Extreme Wind -	Longitudinal	g11Y	-170.35	-32.53	-13.22	-2.36	-1.57	-1.55	-0.66
Extreme Wind -	Longitudinal	g12P	-706.36	199.23	-41.77	28.68	71.93	44.65	5.95
Extreme Wind -	Longitudinal	g12X	-641.41	-348.95	-9.39	-137.64	23.09	-95.59	2.54
Extreme Wind -	Longitudinal	g12XY	637.92	-127.56	-8.00	-51.73	-213.84	-35.42	-43.48
Extreme Wind -	Longitudinal	g12Y	704.12	286.12	12.80	-133.75	19.38	29.90	6.47
Extreme Wind -	Longitudinal	g37P	-0.31	18.59	-3.47	15.25	-2.43	6.77	-1.18
Extreme Wind -	Longitudinal	g37X	0.47	17.94	0.91	14.51	1.28	6.49	0.44
Extreme Wind -	Longitudinal	g38P	-1.38	16.35	-0.35	12.18	-0.96	5.70	-0.26
Extreme Wind -	Longitudinal	g38X	1.42	15.65	-1.52	13.01	-0.90	5.73	-0.48
Extreme Wind -	Longitudinal	g39P	-2.39	-0.33	0.21	12.93	0.30	2.52	0.10
Extreme Wind -	Longitudinal	g39X	2.39	-2.70	-0.57	16.64	-0.06	2.79	-0.13
Extreme Wind -	Longitudinal	g40P	1.14	2.93	-2.98	-0.03	-1.61	0.58	-0.92
Extreme Wind -	Longitudinal	g40X	0.57	4.33	1.10	1.18	1.52	1.10	0.52
Extreme Wind -	Longitudinal	g41P	1.60	-10.08	-20.48	-7.38	-14.56	-1.78	-3.57
Extreme Wind -	Longitudinal	g41X	-0.35	15.94	-22.92	11.43	-17.70	2.79	-4.14
Extreme Wind -	Longitudinal	g42P	0.48	-19.31	9.14	-25.01	9.22	-4.52	1.87
Extreme Wind -	Longitudinal	g42Y	-1.70	-0.27	23.73	0.51	23.12	0.02	4.77
Extreme Wind -	Longitudinal	g43P	-5.06	23.43	-18.46	11.24	10.63	2.51	-0.57
Extreme Wind -	Longitudinal	g43X	1.37	49.34	-12.77	48.47	13.95	7.09	0.08
Extreme Wind -	Longitudinal	g44P	-0.42	-48.31	-39.90	-41.65	-35.48	-6.52	-5.46
Extreme Wind -	Longitudinal	g44Y	3.14	-1.82	40.42	-15.64	42.45	-1.26	6.00
Extreme Wind -	Longitudinal	g45P	35.45	4.81	-613.42	-45.45	-110.55	-4.08	-72.39
Extreme Wind -	Longitudinal	g45X	35.43	-99.32	-358.25	-45.50	110.54	-14.47	-24.77
Extreme Wind -	Longitudinal	g45XY	-37.58	47.33	368.80	83.04	-100.55	13.05	26.83
Extreme Wind -	Longitudinal	g45Y	-37.55	89.12	593.93	83.08	100.53	17.21	69.46
Extreme Wind -	Longitudinal	g46P	8.40	426.90	1457.98	548.55	1795.16	97.59	325.30
Extreme Wind -	Longitudinal	g46X	-0.85	-287.32	1144.93	-412.48	1448.25	-69.98	259.31
Extreme Wind -	Longitudinal	g46XY	3.60	-349.74	-1131.52	-412.45	-1448.26	-76.24	-257.98
Extreme Wind -	Longitudinal	g46Y	1.73	349.03	-1454.18	548.68	-1795.14	89.77	-324.96
Extreme Wind -	Longitudinal	g47P	2.81	-8.55	-1.81	-20.50	-4.97	-2.52	-0.59
Extreme Wind -	Longitudinal	g47X	-3.04	-8.77	-0.19	-19.59	1.17	-2.46	0.08
Extreme Wind -	Longitudinal	g47XY	-0.97	9.23	0.19	4.81	2.19	1.22	0.21
Extreme Wind -	Longitudinal	g47Y	1.07	8.94	1.81	2.09	0.57	0.96	0.21
Extreme Wind -	Longitudinal	g48P	-0.34	10.35	-10.54	-29.91	8.48	-3.91	-0.41
Extreme Wind -	Longitudinal	g48Y	-0.52	13.63	-8.31	-39.92	7.86	-5.26	-0.09
Extreme Wind -	Longitudinal	g49P	4.06	-14.25	7.42	-61.89	6.62	-9.93	1.83
Extreme Wind -	Longitudinal	g49X	-3.70	-15.27	-6.62	-59.38	-6.75	-9.73	-1.74
Extreme Wind -	Longitudinal	g49XY	-6.50	14.30	6.62	-1.96	8.05	1.61	1.91
Extreme Wind -	Longitudinal	g49Y	5.59	13.73	-7.42	-7.17	-9.79	0.85	-2.24
Extreme Wind -	Longitudinal	g50P	-1.16	-15.11	5.47	-14.24	-4.80	-5.87	0.13
Extreme Wind -	Longitudinal	g50Y	1.97	6.72	3.18	-40.01	-2.16	-6.66	0.20
Extreme Wind -	Longitudinal	g51P	3.42	2.52	0.36	27.63	0.19	3.70	0.07
Extreme Wind -	Longitudinal	g51X	1.06	-4.03	-1.93	-49.91	-4.43	-6.62	-0.78
Extreme Wind -	Longitudinal	g51XY	-3.21	2.65	1.93	-34.78	0.47	-3.95	0.29
Extreme Wind -	Longitudinal	g51Y	-4.25	-0.04	-0.36	11.74	2.97	1.44	0.32
Extreme Wind -	Longitudinal	g52P	-2.76	-2.72	-7.95	-47.77	-1.46	-10.10	-1.88
Extreme Wind -	Longitudinal	g52Y	-3.14	-14.67	7.29	-50.09	9.90	-12.95	3.44
Extreme Wind -	Longitudinal	g53P	-10.22	-14.23	0.60	-112.09	0.94	-10.52	0.12
Extreme Wind -	Longitudinal	g53X	14.30	-15.71	-1.07	-124.04	-0.89	-11.63	-0.15
Extreme Wind -	Longitudinal	g53XY	-19.46	8.53	1.07	-69.07	1.98	-5.04	0.25
Extreme Wind -	Longitudinal	g53Y	15.13	8.83	-0.61	-58.48	-0.16	-4.13	-0.06
Extreme Wind -	Longitudinal	g54P	-7.24	-30.71	-1.23	-42.68	-1.47	-14.68	-0.54
Extreme Wind -	Longitudinal	g54Y	9.65	28.02	-1.74	-109.66	-0.53	-16.33	-0.45
Extreme Wind -	Longitudinal	g60P	39.86	-84.16	44.57	-20.71	60.87	-29.64	29.84
Extreme Wind -	Longitudinal	g60X	-31.84	-36.16	-31.00	49.12	-35.32	3.68	-18.74

Extreme Wind - Longitudinal	g60XY	-35.39	-319.48	-30.20	-416.49	-35.03	-208.12	-18.62
Extreme Wind - Longitudinal	g60Y	27.38	-336.40	25.07	-452.66	35.89	-223.12	17.38
Extreme Wind - Longitudinal	g61P	-5.10	-167.41	-38.84	-181.09	-39.56	-98.56	-22.18
Extreme Wind - Longitudinal	g61X	4.75	-158.22	38.38	-169.35	48.43	-92.64	24.56
Extreme Wind - Longitudinal	g61XY	5.52	-207.02	18.38	-214.02	25.71	-119.10	12.48
Extreme Wind - Longitudinal	g61Y	-4.57	-218.85	-6.82	-229.24	-4.88	-126.75	-3.32
Extreme Wind - Longitudinal	g62P	9.71	-236.58	0.90	-218.62	3.69	-128.75	1.32
Extreme Wind - Longitudinal	g62X	-11.36	-222.64	2.47	-193.05	5.40	-117.58	2.20
Extreme Wind - Longitudinal	g62XY	18.64	-222.27	-1.53	-211.75	-0.67	-122.76	-0.57
Extreme Wind - Longitudinal	g62Y	-15.97	-233.39	4.41	-237.15	6.95	-133.09	3.17
Extreme Wind - Longitudinal	g63P	7.52	-154.74	-11.51	-170.54	-6.70	-92.01	-5.14
Extreme Wind - Longitudinal	g63X	-3.58	-123.13	6.29	-120.50	4.33	-68.91	3.00
Extreme Wind - Longitudinal	g63XY	-2.96	-153.07	-4.24	-176.51	-7.97	-93.22	-3.46
Extreme Wind - Longitudinal	g63Y	0.87	-192.97	7.40	-212.55	6.34	-114.69	3.89
Extreme Wind - Longitudinal	g64P	2.35	-77.23	-103.84	-85.04	-40.93	-16.63	-14.83
Extreme Wind - Longitudinal	g64X	6.51	97.62	-88.19	117.45	-42.13	22.03	-13.35
Extreme Wind - Longitudinal	g64XY	-5.31	-59.59	92.04	-51.68	35.94	-11.40	13.11
Extreme Wind - Longitudinal	g64Y	-5.59	-100.20	106.11	-154.82	57.82	-26.13	16.79
Extreme Wind - Longitudinal	g65P	-78.07	6059.45	6863.09	1257.39	1555.99	270.99	311.82
Extreme Wind - Longitudinal	g66P	-67.12	-1027.34	-1390.14	-4604.43	-9518.95	-175.98	-340.92
Extreme Wind - Longitudinal	g67P	-71.63	4669.37	9598.92	-1647.83	-4860.42	302.16	473.85
Extreme Wind - Longitudinal	g68P	-56.30	1680.75	4877.20	47.10	-3872.37	143.99	83.74
Extreme Wind - Longitudinal	g69P	-26.08	-29.00	3923.90	-5214.15	-49390.92	-1048.60	-9093.46
Extreme Wind - Longitudinal	g70P	0.45	5300.18	50120.76	-1767.82	-13486.13	392.49	4070.53
Extreme Wind - Longitudinal	g71P	0.00	1767.77	13486.14	0.00	-0.00	196.42	1498.46

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

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

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	0.007956	0.2108	0.002565	-0.2649	0.0280	0.0380	2.508	-2.289	86
2P	0.01689	0.2088	0.04871	-0.2136	0.0152	0.0427	0.01689	-13.54	86.05
3P	0.007561	0.1857	0.00273	-0.2750	0.0122	0.0489	2.508	-2.314	81
4P	0.01254	0.1853	0.03096	-0.1915	0.0150	0.0427	0.01254	-9.565	81.03
5P	0.003693	0.1547	0.002503	-0.3046	0.0992	0.0475	2.504	-2.345	75
6P	-0.0003855	0.1395	0.002275	-0.2611	-0.0173	0.0476	2.5	-2.36	72
7P	0.004098	0.1272	0.002116	-0.2235	-0.0502	0.0474	2.504	-2.373	69
8P	0.01285	0.1273	0.01457	0.0151	0.0145	0.0426	0.01285	-14.12	69.01
9P	0.001559	0.1036	0.001476	-0.2556	0.0283	0.0439	2.502	-2.396	64
10P	0.001813	0.086	0.0005855	-0.1706	0.0164	0.0409	2.502	-2.414	59
11P	0.007367	0.08493	0.02352	-0.1625	0.0122	0.0421	0.007367	-10.17	59.02
12P	0.0001691	0.07086	0.001419	-0.1679	0.0211	0.0335	3.188	-3.117	54.05
13P	1.19e-005	0.05671	0.001979	-0.1164	0.0053	0.0343	4.013	-3.957	48.11
14P	-0.0002518	0.04506	0.001914	-0.0972	0.0075	0.0272	4.907	-4.862	41.5
15P	-0.0007756	0.02327	0.002216	-0.0619	0.0109	-0.0017	6.901	-6.879	27
16P	-0.0004154	0.0009902	0.00118	-0.0059	-0.0305	-0.1343	10	-9.999	5.001
17P	0	0	0	0.0000	0.0000	0.0000	10.69	-10.69	0
22P	0.01122	0.3456	-0.003584	-0.4692	0.0154	0.0344	0.01122	0.3456	104
23P	0.008841	0.2731	-0.003252	-0.4463	0.0154	0.0344	0.008841	0.2731	95
24P	0.006468	0.2097	-0.002938	-0.3380	0.0153	0.0344	0.006468	0.2097	86
25P	0.005157	0.1831	-0.002799	-0.2887	0.0151	0.0339	0.005157	0.1831	81
26P	0.002074	0.125	-0.002445	-0.2613	0.0148	0.0315	0.002074	0.125	69
27P	-0.0003065	0.08388	-0.002133	-0.2011	0.0118	0.0283	-0.0003065	0.08388	59
28P	-0.002224	0.02169	-0.00111	-0.0675	-0.0039	0.0131	-0.002224	0.02169	27
29P	0	0	0	0.0000	0.0000	0.0000	0	0	0
1X	0.004559	0.2113	-0.02218	-0.3136	0.0336	0.0429	2.505	2.711	85.98
1XY	0.004592	0.2075	-0.02084	-0.3136	-0.0031	0.0466	-2.495	2.708	85.98
1Y	0.008765	0.207	0.003896	-0.2649	0.0026	0.0516	-2.491	-2.293	86
2X	-0.003952	0.2095	-0.08838	-0.3565	0.0152	0.0426	-0.003952	13.96	85.91
3X	0.003415	0.1851	-0.02183	-0.3031	0.0018	0.0462	2.503	2.685	80.98
3XY	0.003109	0.1813	-0.02049	-0.3033	0.0286	0.0434	-2.497	2.681	80.98
3Y	0.006531	0.182	0.004053	-0.2746	0.0183	0.0408	-2.493	-2.318	81
4X	-0.00224	0.1823	-0.06588	-0.3738	0.0150	0.0427	-0.00224	9.932	80.93
5X	0.00185	0.156	-0.02104	-0.2672	0.1063	0.0443	2.502	2.656	74.98
5XY	0.00157	0.1522	-0.01974	-0.2668	-0.0765	0.0454	-2.498	2.652	74.98
5Y	0.00727	0.1509	0.003798	-0.3051	-0.0692	0.0423	-2.493	-2.349	75
6X	-0.003619	0.1417	-0.0204	-0.2839	0.0129	0.0440	2.496	2.642	71.98
6XY	0.005513	0.1379	-0.01911	-0.2833	0.0165	0.0456	-2.494	2.638	71.98
6Y	0.00981	0.1357	0.003547	-0.2616	0.0469	0.0422	-2.49	-2.364	72
7X	0.0003257	0.1265	-0.01967	-0.2865	-0.0689	0.0437	2.5	2.626	68.98
7XY	7.127e-005	0.1227	-0.0184	-0.2867	0.0974	0.0460	-2.5	2.623	68.98
7Y	0.003812	0.1234	0.00337	-0.2231	0.0792	0.0424	-2.496	-2.377	69
8X	-0.00871	0.1226	-0.1137	-0.5356	0.0140	0.0426	-0.00871	14.37	68.89
9X	0.0007095	0.1063	-0.01791	-0.2265	0.0342	0.0457	2.501	2.606	63.98
9XY	-0.002709	0.1025	-0.01667	-0.2269	-0.0067	0.0435	-2.503	2.602	63.98
9Y	0.003877	0.09984	0.002666	-0.2555	-0.0001	0.0456	-2.496	-2.4	64
10X	-0.002226	0.08555	-0.01569	-0.2161	0.0199	0.0481	2.498	2.586	58.98
10XY	-0.002153	0.08179	-0.01444	-0.2133	0.0080	0.0406	-2.502	2.582	58.99
10Y	0.001309	0.08225	0.001671	-0.1700	0.0087	0.0481	-2.499	-2.418	59
11X	-0.008037	0.08319	-0.05317	-0.3147	0.0151	0.0426	-0.008037	10.33	58.95

12X	-0.00265	0.07152	-0.01566	-0.1419	-0.0099	0.0471	3.185	3.259	54.03
12XY	-0.005106	0.06704	-0.01405	-0.1402	0.0360	0.0358	-3.193	3.255	54.03
12Y	0.001998	0.06628	0.002659	-0.1625	0.0006	0.0501	-3.186	-3.122	54.05
13X	-0.004316	0.05748	-0.0151	-0.1283	0.0227	0.0447	4.009	4.071	48.09
13XY	-0.007501	0.05188	-0.01309	-0.1261	0.0125	0.0326	-4.021	4.065	48.09
13Y	0.001199	0.05153	0.003315	-0.1157	0.0143	0.0438	-4.012	-3.962	48.11
14X	-0.008082	0.04474	-0.01434	-0.0999	0.0077	0.0371	4.899	4.952	41.49
14XY	-0.008185	0.03884	-0.01175	-0.0884	-0.0041	0.0272	-4.916	4.946	41.49
14Y	0.0005463	0.03855	0.003455	-0.0912	0.0085	0.0438	-4.907	-4.869	41.5
15X	-0.003712	0.02279	-0.01057	-0.0777	-0.0185	0.0126	6.898	6.925	26.99
15XY	-0.003892	0.01974	-0.009178	-0.0603	-0.0106	0.0119	-6.906	6.922	26.99
15Y	6.832e-006	0.01968	0.003011	-0.0496	-0.0034	0.0345	-6.902	-6.883	27
16X	-4.022e-005	0.0005564	-0.002815	-0.0150	-0.0047	0.0180	10	10	4.997
16XY	-3.068e-005	0.0004193	-0.002621	-0.0126	0.0006	-0.0160	-10	10	4.997
16Y	0.0002632	0.0007295	0.001219	-0.0014	0.0287	0.1378	-10	-9.999	5.001
17X	0	0	0	0.0000	0.0000	0.0000	10.69	10.69	0
17XY	0	0	0	0.0000	0.0000	0.0000	-10.69	10.69	0
17Y	0	0	0	0.0000	0.0000	0.0000	-10.69	-10.69	0
18S	-0.002056	0.1406	-0.008599	0.0000	0.0000	0.0000	2.498	0.1406	71.99
19S	0.004659	0.2011	0.001856	0.0000	0.0000	0.0000	0.004659	-2.299	72
20S	0.003061	0.0005653	0.000216	-0.0119	-0.0176	0.0274	10	0.0005653	5
21S	-5.605e-005	0.04695	-0.006854	-0.0045	0.0006	0.0002	-5.605e-005	-9.953	4.993
18Y	0.007704	0.1368	-0.007335	0.0000	0.0000	0.0000	-2.492	0.1368	71.99
19X	0.0009893	0.08307	-0.01943	0.0000	0.0000	0.0000	0.0009893	2.583	71.98
20Y	-0.003256	0.0004199	0.000246	-0.0130	0.0147	-0.0292	-10	0.0004199	5
21X	-2.587e-005	-0.004903	-0.0009151	-0.0138	0.0018	0.0001	-2.587e-005	9.995	4.999

Joint Support Reactions for Load Case "NESC Heavy - Transverse":

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 %
17P	2.56	0.0	-3.42	0.0	-18.40	0.0	0.0	18.89	0.0	-0.02	0.0	0.0	0.0	0.26	0.0	0.0
29P	0.04	0.0	-0.64	0.0	18.37	0.0	0.0	18.38	0.0	5.13	0.0	0.7	0.0	-0.37	0.0	0.0
17X	-5.48	0.0	-6.45	0.0	38.69	0.0	0.0	39.61	0.0	-0.03	0.0	0.1	0.0	-0.04	0.0	0.0
17XY	5.18	0.0	-5.82	0.0	35.94	0.0	0.0	36.77	0.0	-0.04	0.0	-0.1	0.0	0.03	0.0	0.0
17Y	-2.30	0.0	-3.10	0.0	-17.94	0.0	0.0	18.35	0.0	-0.05	0.0	-0.0	0.0	-0.27	0.0	0.0

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

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	0.0842	-0.2013	-0.0000	-0.0842	0.2013	0.0080	0.2108	0.0026
2P	0.0000	1.1037	-2.3915	0.0000	-1.1037	2.3915	0.0169	0.2088	0.0487
3P	0.0000	0.1904	-0.3818	0.0000	-0.1904	0.3818	0.0076	0.1857	0.0027
4P	0.0000	1.2418	-2.9690	0.0000	-1.2418	2.9690	0.0125	0.1853	0.0310
5P	0.0000	0.0949	-0.0985	-0.0000	-0.0949	0.0985	0.0037	0.1547	0.0025
6P	0.0000	0.0411	-0.0463	-0.0000	-0.0411	0.0463	-0.0004	0.1395	0.0023
7P	0.0000	0.2002	-0.4218	-0.0000	-0.2002	0.4218	0.0041	0.1272	0.0021
8P	0.0000	1.2206	-2.9980	0.0000	-1.2206	2.9980	0.0129	0.1273	0.0146
9P	0.0000	0.1229	-0.1253	-0.0000	-0.1229	0.1253	0.0016	0.1036	0.0015
10P	0.0000	0.2367	-0.4865	0.0000	-0.2367	0.4865	0.0018	0.0860	0.0006
11P	0.0000	1.2251	-2.9583	0.0000	-1.2251	2.9583	0.0074	0.0849	0.0235
12P	0.0000	0.1099	-0.1347	-0.0000	-0.1099	0.1347	0.0002	0.0709	0.0014
13P	0.0000	0.1357	-0.1632	-0.0000	-0.1357	0.1632	0.0000	0.0567	0.0020

14P	0.0000	0.3750	-0.7012	0.0000	-0.3750	0.7012	-0.0003	0.0451	0.0019
15P	0.0000	0.5311	-1.0586	0.0000	-0.5311	1.0586	-0.0008	0.0233	0.0022
16P	0.0000	0.4115	-0.7772	0.0000	-0.4115	0.7772	-0.0004	0.0010	0.0012
17P	0.0000	0.0741	-0.0944	-2.5595	3.3428	18.4934	0.0000	0.0000	0.0000
22P	0.0000	0.5430	-1.8635	0.0000	-0.5430	1.8635	0.0112	0.3456	-0.0036
23P	0.0000	0.9430	-2.4061	-0.0000	-0.9430	2.4061	0.0088	0.2731	-0.0033
24P	0.0000	0.1910	-0.8599	-0.0000	-0.1910	0.8599	0.0065	0.2097	-0.0029
25P	0.0000	0.2500	-1.0375	0.0000	-0.2500	1.0375	0.0052	0.1831	-0.0028
26P	0.0000	0.4340	-1.3323	0.0000	-0.4340	1.3323	0.0021	0.1250	-0.0024
27P	0.0000	0.8290	-2.6326	0.0000	-0.8290	2.6326	-0.0003	0.0839	-0.0021
28P	0.0000	1.2380	-4.4812	-0.0000	-1.2380	4.4812	-0.0022	0.0217	-0.0011
29P	0.0000	0.4590	-1.1039	-0.0433	0.1841	-17.2629	0.0000	0.0000	0.0000
1X	0.0000	0.0180	-0.2013	-0.0000	-0.0180	0.2013	0.0046	0.2113	-0.0222
1XY	0.0000	0.0180	-0.2013	0.0000	-0.0180	0.2013	0.0046	0.2075	-0.0208
1Y	0.0000	0.0662	-0.1293	0.0000	-0.0662	0.1293	0.0088	0.2070	0.0039
2X	0.0000	0.8210	-1.4545	0.0000	-0.8210	1.4545	-0.0040	0.2095	-0.0884
3X	0.0000	0.0620	-0.7498	0.0000	-0.0620	0.7498	0.0034	0.1851	-0.0218
3XY	0.0000	0.0180	-0.2438	-0.0000	-0.0180	0.2438	0.0031	0.1813	-0.0205
3Y	0.0000	0.1534	-0.3608	-0.0000	-0.1534	0.3608	0.0065	0.1820	0.0041
4X	0.0000	1.1790	-2.9690	0.0000	-1.1790	2.9690	-0.0022	0.1823	-0.0659
5X	0.0000	0.0000	-0.0985	0.0000	-0.0000	0.0985	0.0018	0.1560	-0.0210
5XY	0.0000	0.0000	-0.0985	-0.0000	-0.0000	0.0985	0.0016	0.1522	-0.0197
5Y	0.0000	0.0949	-0.0985	0.0000	-0.0949	0.0985	0.0073	0.1509	0.0038
6X	0.0000	0.0000	-0.0463	-0.0000	-0.0000	0.0463	-0.0036	0.1417	-0.0204
6XY	0.0000	0.0000	-0.0463	-0.0000	-0.0000	0.0463	0.0055	0.1379	-0.0191
6Y	0.0000	0.0411	-0.0463	-0.0000	-0.0411	0.0463	0.0098	0.1357	0.0035
7X	0.0000	0.0440	-0.6748	-0.0000	-0.0440	0.6748	0.0003	0.1265	-0.0197
7XY	0.0000	0.0000	-0.1688	0.0000	-0.0000	0.1688	0.0001	0.1227	-0.0184
7Y	0.0000	0.1352	-0.3578	0.0000	-0.1352	0.3578	0.0038	0.1234	0.0034
8X	0.0000	1.1790	-2.9980	0.0000	-1.1790	2.9980	-0.0087	0.1226	-0.1137
9X	0.0000	0.0000	-0.1253	-0.0000	-0.0000	0.1253	0.0007	0.1063	-0.0179
9XY	0.0000	0.0000	-0.1253	-0.0000	-0.0000	0.1253	-0.0027	0.1025	-0.0167
9Y	0.0000	0.1229	-0.1253	0.0000	-0.1229	0.1253	0.0039	0.0998	0.0027
10X	0.0000	0.0540	-0.7975	0.0000	-0.0540	0.7975	-0.0022	0.0855	-0.0157
10XY	0.0000	0.0000	-0.1765	0.0000	-0.0000	0.1765	-0.0022	0.0818	-0.0144
10Y	0.0000	0.1577	-0.4085	0.0000	-0.1577	0.4085	0.0013	0.0823	0.0017
11X	0.0000	1.1790	-2.9583	0.0000	-1.1790	2.9583	-0.0080	0.0832	-0.0532
12X	0.0000	0.0000	-0.1347	-0.0000	-0.0000	0.1347	-0.0027	0.0715	-0.0157
12XY	0.0000	0.0000	-0.1347	-0.0000	-0.0000	0.1347	-0.0051	0.0670	-0.0141
12Y	0.0000	0.1099	-0.1347	-0.0000	-0.1099	0.1347	0.0020	0.0663	0.0027
13X	0.0000	0.0000	-0.1632	-0.0000	-0.0000	0.1632	-0.0043	0.0575	-0.0151
13XY	0.0000	0.0000	-0.1632	-0.0000	-0.0000	0.1632	-0.0075	0.0519	-0.0131
13Y	0.0000	0.1357	-0.1632	-0.0000	-0.1357	0.1632	0.0012	0.0515	0.0033
14X	0.0000	0.0640	-1.0692	0.0000	-0.0640	1.0692	-0.0081	0.0447	-0.0143
14XY	0.0000	0.0000	-0.3332	0.0000	-0.0000	0.3332	-0.0082	0.0388	-0.0118
14Y	0.0000	0.2810	-0.6082	0.0000	-0.2810	0.6082	0.0005	0.0385	0.0035
15X	0.0000	0.0740	-1.4846	-0.0000	-0.0740	1.4846	-0.0037	0.0228	-0.0106
15XY	0.0000	0.0000	-0.6336	-0.0000	-0.0000	0.6336	-0.0039	0.0197	-0.0092
15Y	0.0000	0.4231	-0.9516	0.0000	-0.4231	0.9516	0.0000	0.0197	0.0030
16X	0.0000	0.0640	-1.1452	-0.0000	-0.0640	1.1452	-0.0000	0.0006	-0.0028
16XY	0.0000	0.0000	-0.4092	0.0000	-0.0000	0.4092	-0.0000	0.0004	-0.0026
16Y	0.0000	0.3175	-0.6842	0.0000	-0.3175	0.6842	0.0003	0.0007	0.0012
17X	0.0000	0.0000	-0.0944	5.4796	6.4518	-38.5962	0.0000	0.0000	0.0000
17XY	0.0000	0.0000	-0.0944	-5.1794	5.8216	-35.8442	0.0000	0.0000	0.0000
17Y	0.0000	0.0741	-0.0944	2.3026	3.0287	18.0336	0.0000	0.0000	0.0000
18S	0.0000	0.0000	-0.0416	0.0000	-0.0000	0.0416	-0.0021	0.1406	-0.0086
19S	0.0000	0.0625	-0.0360	0.0000	-0.0625	0.0360	0.0047	0.2011	0.0019
20S	0.0000	0.0000	-0.1556	-0.0000	0.0000	0.1556	0.0031	0.0006	0.0002
21S	0.0000	0.2011	-0.1556	0.0000	-0.2011	0.1556	-0.0001	0.0470	-0.0069

18Y	0.0000	0.0000	-0.0416	0.0000	-0.0000	0.0416	0.0077	0.1368	-0.0073
19X	0.0000	0.0000	-0.0360	0.0000	-0.0000	0.0360	0.0010	0.0831	-0.0194
20Y	0.0000	0.0000	-0.1556	-0.0000	-0.0000	0.1556	-0.0033	0.0004	0.0002
21X	0.0000	0.0000	-0.1556	-0.0000	-0.0000	0.1556	-0.0000	-0.0049	-0.0009

Crossing Diagonal Check for Load Case "NESC Heavy - Transverse" (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.
g14P	g14Y	Short only	-0.26	-0.24	11.56	0.750	0.500	0.500	123.69	122.85	5	8.63	1.000	158.01	143.38	6
g14Y	g14P	Short only	-0.24	-0.26	11.56	0.750	0.500	0.500	123.69	122.85	5	8.63	1.000	158.01	143.38	6
g16P	g16Y	Long only	-1.19	-1.14	17.27	0.500	0.750	0.500	120.57	120.47	5	12.24	1.000	160.76	145.07	6
g16X	g16XY	Long only	-1.86	-1.93	17.27	0.500	0.750	0.500	120.57	120.47	5	12.24	1.000	160.76	145.07	6
g16XY	g16X	Long only	-1.93	-1.86	17.27	0.500	0.750	0.500	120.57	120.47	5	12.24	1.000	160.76	145.07	6
g16Y	g16P	Long only	-1.14	-1.19	17.27	0.500	0.750	0.500	120.57	120.47	5	12.24	1.000	160.76	145.07	6
g22X	g22XY	Long only	-0.66	-0.83	18.99	0.500	0.750	0.500	109.16	111.87	2	13.99	1.000	145.55	135.71	6
g22XY	g22X	Long only	-0.83	-0.66	18.99	0.500	0.750	0.500	109.16	111.87	2	13.99	1.000	145.55	135.71	6
g24P	g24Y	Long only	-1.43	-1.23	18.99	0.500	0.750	0.500	109.16	111.87	2	13.99	1.000	145.55	135.71	6
g24Y	g24P	Long only	-1.23	-1.43	18.99	0.500	0.750	0.500	109.16	111.87	2	13.99	1.000	145.55	135.71	6
g25P	g25X	Short only	-1.68	0.26	12.53	0.780	0.560	0.560	129.17	127.02	5	10.86	1.000	147.29	136.78	6
g26P	g26Y	Short only	-1.54	-1.36	12.53	0.780	0.560	0.560	129.17	127.02	5	10.86	1.000	147.29	136.78	6
g26Y	g26P	Short only	-1.36	-1.54	12.53	0.780	0.560	0.560	129.17	127.02	5	10.86	1.000	147.29	136.78	6
g28X	g28XY	Long only	-0.68	-0.62	11.66	0.560	0.780	0.560	147.51	141.00	5	8.89	1.000	187.46	161.49	6
g28XY	g28X	Long only	-0.62	-0.68	11.66	0.560	0.780	0.560	147.51	141.00	5	8.89	1.000	187.46	161.49	6
g30P	g30Y	Long only	-0.77	-0.62	8.82	0.560	0.780	0.560	175.25	162.14	5	6.91	1.000	222.71	183.17	6
g30Y	g30P	Long only	-0.62	-0.77	8.82	0.560	0.780	0.560	175.25	162.14	5	6.91	1.000	222.71	183.17	6

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

Clamp Label	Force (kips)	Input Holding Capacity (kips)	Factored Holding Capacity (kips)	Usage %
1	2.634	30.00	30.00	8.78
2	1.670	30.00	30.00	5.57
3	3.218	30.00	30.00	10.73
4	3.194	30.00	30.00	10.65
5	3.237	30.00	30.00	10.79
6	3.221	30.00	30.00	10.74
7	3.202	30.00	30.00	10.67
8	3.185	30.00	30.00	10.62
14	0.879	30.00	30.00	2.93
15	1.184	30.00	30.00	3.95
16	0.795	30.00	30.00	2.65
17	0.541	30.00	30.00	1.80
18	0.467	30.00	30.00	1.56
19	0.752	30.00	30.00	2.51
20	0.218	30.00	30.00	0.73
21	0.427	30.00	30.00	1.42
22	0.202	30.00	30.00	0.67
23	0.202	30.00	30.00	0.67
24	0.244	30.00	30.00	0.81

25	2.584	30.00	30.00	8.61
26	0.881	30.00	30.00	2.94
27	1.067	30.00	30.00	3.56
28	1.401	30.00	30.00	4.67
29	2.760	30.00	30.00	9.20
30	4.649	30.00	30.00	15.50
31	1.941	30.00	30.00	6.47
32	0.676	30.00	30.00	2.25
33	0.799	30.00	30.00	2.66
34	1.071	30.00	30.00	3.57
35	1.486	30.00	30.00	4.95
36	1.147	30.00	30.00	3.82
37	0.382	30.00	30.00	1.27
38	0.438	30.00	30.00	1.46
39	0.670	30.00	30.00	2.23
40	1.041	30.00	30.00	3.47
41	0.754	30.00	30.00	2.51
42	0.392	30.00	30.00	1.31

*** Analysis Results for Load Case No. 2 "Extreme Wind - Transverse" - Number of iterations in SAPS 12

Equilibrium Joint Positions and Rotations for Load Case "Extreme Wind - Transverse":

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	0.006134	0.4114	0.01765	-0.5789	0.0206	0.0507	2.506	-2.089	86.02
2P	0.01889	0.4093	0.1322	-0.5801	0.0146	0.0608	0.01889	-13.34	86.13
3P	0.006023	0.3587	0.01765	-0.5810	0.0302	0.0693	2.506	-2.141	81.02
4P	0.01331	0.3571	0.09128	-0.5718	0.0144	0.0609	0.01331	-9.393	81.09
5P	0.0006201	0.2983	0.01664	-0.5740	0.0425	0.0667	2.501	-2.202	75.02
6P	0.0001492	0.2689	0.01591	-0.5365	-0.0356	0.0662	2.5	-2.231	72.02
7P	0.002444	0.2423	0.01518	-0.4862	0.0020	0.0647	2.502	-2.258	69.02
8P	0.01504	0.2409	0.1054	-0.4145	0.0145	0.0604	0.01504	-14.01	69.11
9P	-0.001625	0.1989	0.01305	-0.4755	0.0139	0.0625	2.498	-2.301	64.01
10P	0.0003605	0.1623	0.0103	-0.3590	0.0175	0.0607	2.5	-2.338	59.01
11P	0.008111	0.1605	0.06657	-0.4379	0.0097	0.0589	0.008111	-10.09	59.07
12P	-0.002365	0.1341	0.01107	-0.3016	0.0368	0.0509	3.185	-3.054	54.06
13P	-0.001884	0.1067	0.01131	-0.2291	-0.0007	0.0484	4.011	-3.907	48.12
14P	-0.001296	0.08389	0.01038	-0.1831	0.0056	0.0341	4.906	-4.824	41.51
15P	-0.001183	0.04229	0.009202	-0.1169	0.0149	-0.0176	6.901	-6.86	27.01
16P	-0.001512	0.002612	0.003177	-0.0100	-0.0889	-0.3679	9.998	-9.997	5.003
17P	0	0	0	0.0000	0.0000	0.0000	10.69	-10.69	0
22P	0.008421	0.7273	-0.005261	-1.1194	0.0149	0.0490	0.008421	0.7273	104
23P	0.006231	0.555	-0.003595	-1.0496	0.0149	0.0489	0.006231	0.555	95
24P	0.00402	0.4102	-0.002395	-0.7323	0.0148	0.0489	0.00402	0.4102	86
25P	0.00278	0.3548	-0.00206	-0.5850	0.0147	0.0482	0.00278	0.3548	81
26P	-0.0001973	0.2394	-0.001417	-0.5107	0.0150	0.0448	-0.0001973	0.2394	69
27P	-0.002584	0.1595	-0.001007	-0.3896	0.0116	0.0403	-0.002584	0.1595	59
28P	-0.00317	0.03973	-0.0004074	-0.1260	-0.0069	0.0192	-0.00317	0.03973	27
29P	0	0	0	0.0000	0.0000	0.0000	0	0	0
1X	0.001746	0.4113	-0.03246	-0.6108	0.0242	0.0533	2.502	2.911	85.97
1XY	0.0008959	0.406	-0.03117	-0.6110	0.0053	0.0744	-2.499	2.906	85.97
1Y	0.007309	0.406	0.01895	-0.5788	0.0092	0.0770	-2.493	-2.094	86.02
2X	-0.01084	0.4081	-0.1536	-0.6260	0.0144	0.0607	-0.01084	14.16	85.85
3X	-1.437e-005	0.3582	-0.03176	-0.5956	0.0124	0.0685	2.5	2.858	80.97
3XY	0.0001851	0.3528	-0.03047	-0.5957	0.0170	0.0589	-2.5	2.853	80.97
3Y	0.004918	0.3533	0.01896	-0.5807	-0.0002	0.0582	-2.495	-2.147	81.02
4X	-0.007753	0.355	-0.1104	-0.6406	0.0142	0.0609	-0.007753	10.1	80.89
5X	-0.001057	0.2986	-0.03027	-0.5597	0.0537	0.0666	2.499	2.799	74.97
5XY	-0.001688	0.2932	-0.02899	-0.5592	-0.0248	0.0601	-2.502	2.793	74.97
5Y	0.007278	0.293	0.01792	-0.5739	-0.0122	0.0602	-2.493	-2.207	75.02
6X	-0.004109	0.2695	-0.02898	-0.5428	0.0238	0.0661	2.496	2.77	71.97
6XY	-8.488e-005	0.2642	-0.02771	-0.5422	0.0053	0.0602	-2.5	2.764	71.97
6Y	0.00624	0.2635	0.01718	-0.5365	0.0654	0.0604	-2.494	-2.236	72.02
7X	-0.002975	0.2419	-0.02767	-0.5162	-0.0355	0.0659	2.497	2.742	68.97
7XY	-0.002673	0.2366	-0.0264	-0.5162	0.0637	0.0600	-2.503	2.737	68.97
7Y	0.002447	0.237	0.01645	-0.4858	0.0278	0.0615	-2.498	-2.263	69.02
8X	-0.0154	0.2382	-0.1487	-0.6236	0.0139	0.0603	-0.0154	14.49	68.85
9X	-0.0007679	0.1998	-0.02477	-0.4611	0.0243	0.0645	2.499	2.7	63.98
9XY	-0.007158	0.1945	-0.02346	-0.4613	0.0029	0.0601	-2.507	2.694	63.98
9Y	0.003972	0.1936	0.01424	-0.4754	0.0158	0.0621	-2.496	-2.306	64.01
10X	-0.005479	0.1621	-0.02121	-0.3857	0.0272	0.0634	2.495	2.662	58.98
10XY	-0.004924	0.1569	-0.01977	-0.3799	0.0056	0.0598	-2.505	2.657	58.98
10Y	-0.0003266	0.1572	0.01133	-0.3542	0.0070	0.0623	-2.5	-2.343	59.01
11X	-0.01331	0.1593	-0.08219	-0.4930	0.0184	0.0588	-0.01331	10.41	58.92

12X	-0.00523	0.1341	-0.02177	-0.2864	-0.0202	0.0560	3.183	3.322	54.03
12XY	-0.00953	0.1283	-0.01968	-0.2758	0.0546	0.0594	-3.197	3.316	54.03
12Y	0.002007	0.1283	0.0121	-0.2895	-0.0172	0.0644	-3.186	-3.059	54.06
13X	-0.0077	0.1073	-0.02149	-0.2355	0.0367	0.0527	4.006	4.121	48.08
13XY	-0.01251	0.1009	-0.01864	-0.2250	0.0120	0.0558	-4.026	4.114	48.09
13Y	0.001301	0.1004	0.0123	-0.2198	0.0176	0.0587	-4.012	-3.913	48.12
14X	-0.01301	0.08307	-0.02076	-0.1903	0.0100	0.0356	4.894	4.99	41.48
14XY	-0.01328	0.07645	-0.01706	-0.1783	-0.0095	0.0565	-4.921	4.984	41.48
14Y	0.0005868	0.07705	0.01138	-0.1712	0.0077	0.0632	-4.907	-4.83	41.51
15X	-0.005607	0.04149	-0.01567	-0.1300	-0.0257	-0.0157	6.897	6.944	26.98
15XY	-0.006107	0.03615	-0.01394	-0.1087	-0.0217	0.0585	-6.908	6.938	26.99
15Y	0.0005877	0.03657	0.009895	-0.1071	-0.0077	0.0691	-6.902	-6.866	27.01
16X	-0.0005601	0.001892	-0.004243	-0.0006	0.0464	-0.3237	9.999	10	4.996
16XY	0.0005575	0.001507	-0.004109	0.0058	-0.0514	0.3271	-9.999	10	4.996
16Y	0.001478	0.002002	0.003137	-0.0001	0.0888	0.3731	-9.999	-9.998	5.003
17X	0	0	0	0.0000	0.0000	0.0000	10.69	10.69	0
17XY	0	0	0	0.0000	0.0000	0.0000	-10.69	10.69	0
17Y	0	0	0	0.0000	0.0000	0.0000	-10.69	-10.69	0
18S	0.001499	0.2691	-0.00638	0.0000	0.0000	0.0000	2.501	0.2691	71.99
19S	0.003106	0.3451	0.01443	0.0000	0.0000	0.0000	0.003106	-2.155	72.01
20S	-0.006134	0.001689	-0.001258	-0.0292	-0.0210	0.1686	9.994	0.001689	4.999
21S	-1.565e-005	0.1372	-0.02113	-0.0121	-0.0001	0.0013	-1.565e-005	-9.863	4.979
18Y	-6.686e-005	0.2638	-0.005113	0.0000	0.0000	0.0000	-2.5	0.2638	71.99
19X	-0.002201	0.362	-0.02904	0.0000	0.0000	0.0000	-0.002201	2.862	71.97
20Y	0.005891	0.001326	-0.00122	-0.0325	0.0185	-0.1709	-9.994	0.001326	4.999
21X	-2.393e-006	0.1092	0.01333	0.0075	0.0018	0.0008	-2.393e-006	10.11	5.013

Joint Support Reactions for Load Case "Extreme Wind - Transverse":

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 %
17P	6.90	0.0	-10.12	0.0	-50.24	0.0	0.0	51.71	0.0	-0.04	0.0	0.1	0.0	0.72	0.0	0.0
29P	0.05	0.0	-0.91	0.0	6.25	0.0	0.0	6.31	0.0	9.23	0.0	1.0	0.0	-0.54	0.0	0.0
17X	-8.77	0.0	-12.02	0.0	60.39	0.0	0.0	62.20	0.0	-0.09	0.0	0.1	0.0	0.65	0.0	0.0
17XY	8.38	0.0	-11.02	0.0	57.63	0.0	0.0	59.27	0.0	-0.13	0.0	-0.1	0.0	-0.66	0.0	0.0
17Y	-6.57	0.0	-9.20	0.0	-48.20	0.0	0.0	49.51	0.0	-0.10	0.0	-0.1	0.0	-0.73	0.0	0.0

Joint Displacements, Loads and Member Forces on Joints for Load Case "Extreme Wind - Transverse":

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	0.2611	-0.1431	0.0000	-0.2611	0.1431	0.0061	0.4114	0.0176
2P	0.0000	1.2351	-0.8221	-0.0000	-1.2351	0.8221	0.0189	0.4093	0.1322
3P	0.0000	0.4241	-0.1801	-0.0000	-0.4241	0.1801	0.0060	0.3587	0.0177
4P	0.0000	1.4971	-1.1371	-0.0000	-1.4971	1.1371	0.0133	0.3571	0.0913
5P	0.0000	0.1931	-0.1131	-0.0000	-0.1931	0.1131	0.0006	0.2983	0.0166
6P	0.0000	0.1931	-0.1131	0.0000	-0.1931	0.1131	0.0001	0.2689	0.0159
7P	0.0000	0.4931	-0.1821	0.0000	-0.4931	0.1821	0.0024	0.2423	0.0152
8P	0.0000	1.4971	-1.1371	-0.0000	-1.4971	1.1371	0.0150	0.2409	0.1054
9P	0.0000	0.1931	-0.1131	0.0000	-0.1931	0.1131	-0.0016	0.1989	0.0131
10P	0.0000	0.7177	-0.2779	-0.0000	-0.7177	0.2779	0.0004	0.1623	0.0103
11P	0.0000	1.4971	-1.1371	-0.0000	-1.4971	1.1371	0.0081	0.1605	0.0666
12P	0.0000	0.1566	-0.0807	-0.0000	-0.1566	0.0807	-0.0024	0.1341	0.0111
13P	0.0000	0.1566	-0.0807	-0.0000	-0.1566	0.0807	-0.0019	0.1067	0.0113

14P	0.0000	1.1722	-0.4997	-0.0000	-1.1722	0.4997	-0.0013	0.0839	0.0104
15P	0.0000	1.0836	-0.4340	-0.0000	-1.0836	0.4340	-0.0012	0.0423	0.0092
16P	0.0000	1.0156	-0.4190	-0.0000	-1.0156	0.4190	-0.0015	0.0026	0.0032
17P	0.0000	0.5796	-0.3190	-6.9039	9.5363	50.5541	0.0000	0.0000	0.0000
22P	0.0000	1.6801	-0.8341	0.0000	-1.6801	0.8341	0.0084	0.7273	-0.0053
23P	0.0000	2.6161	-0.8481	-0.0000	-2.6161	0.8481	0.0062	0.5550	-0.0036
24P	0.0000	0.2931	-0.2121	0.0000	-0.2931	0.2121	0.0040	0.4102	-0.0024
25P	0.0000	0.3141	-0.2331	-0.0000	-0.3141	0.2331	0.0028	0.3548	-0.0021
26P	0.0000	0.3491	-0.2491	-0.0000	-0.3491	0.2491	-0.0002	0.2394	-0.0014
27P	0.0000	1.0717	-0.7291	-0.0000	-1.0717	0.7291	-0.0026	0.1595	-0.0010
28P	0.0000	1.1906	-0.9280	-0.0000	-1.1906	0.9280	-0.0032	0.0397	-0.0004
29P	0.0000	0.5796	-0.3190	-0.0517	0.3345	-5.9285	0.0000	0.0000	0.0000
1X	0.0000	0.2611	-0.1431	0.0000	-0.2611	0.1431	0.0017	0.4113	-0.0325
1XY	0.0000	0.2611	-0.1431	-0.0000	-0.2611	0.1431	0.0009	0.4060	-0.0312
1Y	0.0000	0.1931	-0.1131	-0.0000	-0.1931	0.1131	0.0073	0.4060	0.0190
2X	0.0000	0.6761	-0.4561	0.0000	-0.6761	0.4561	-0.0108	0.4081	-0.1536
3X	0.0000	0.3611	-0.2801	-0.0000	-0.3611	0.2801	-0.0000	0.3582	-0.0318
3XY	0.0000	0.2611	-0.1431	0.0000	-0.2611	0.1431	0.0002	0.3528	-0.0305
3Y	0.0000	0.2711	-0.1571	0.0000	-0.2711	0.1571	0.0049	0.3533	0.0190
4X	0.0000	1.4971	-1.1371	0.0000	-1.4971	1.1371	-0.0078	0.3550	-0.1104
5X	0.0000	0.1931	-0.1131	-0.0000	-0.1931	0.1131	-0.0011	0.2986	-0.0303
5XY	0.0000	0.1931	-0.1131	0.0000	-0.1931	0.1131	-0.0017	0.2932	-0.0290
5Y	0.0000	0.1931	-0.1131	0.0000	-0.1931	0.1131	0.0073	0.2930	0.0179
6X	0.0000	0.1931	-0.1131	0.0000	-0.1931	0.1131	-0.0041	0.2695	-0.0290
6XY	0.0000	0.1931	-0.1131	-0.0000	-0.1931	0.1131	-0.0001	0.2642	-0.0277
6Y	0.0000	0.1931	-0.1131	-0.0000	-0.1931	0.1131	0.0062	0.2635	0.0172
7X	0.0000	0.2931	-0.2501	0.0000	-0.2931	0.2501	-0.0030	0.2419	-0.0277
7XY	0.0000	0.1931	-0.1131	-0.0000	-0.1931	0.1131	-0.0027	0.2366	-0.0264
7Y	0.0000	0.2711	-0.1571	-0.0000	-0.2711	0.1571	0.0024	0.2370	0.0164
8X	0.0000	1.4971	-1.1371	0.0000	-1.4971	1.1371	-0.0154	0.2382	-0.1487
9X	0.0000	0.1931	-0.1131	0.0000	-0.1931	0.1131	-0.0008	0.1998	-0.0248
9XY	0.0000	0.1931	-0.1131	-0.0000	-0.1931	0.1131	-0.0072	0.1945	-0.0235
9Y	0.0000	0.1931	-0.1131	-0.0000	-0.1931	0.1131	0.0040	0.1936	0.0142
10X	0.0000	0.4727	-0.3619	-0.0000	-0.4727	0.3619	-0.0055	0.1621	-0.0212
10XY	0.0000	0.3497	-0.1939	0.0000	-0.3497	0.1939	-0.0049	0.1569	-0.0198
10Y	0.0000	0.4457	-0.2469	0.0000	-0.4457	0.2469	-0.0003	0.1572	0.0113
11X	0.0000	1.4971	-1.1371	0.0000	-1.4971	1.1371	-0.0133	0.1593	-0.0822
12X	0.0000	0.1566	-0.0807	0.0000	-0.1566	0.0807	-0.0052	0.1341	-0.0218
12XY	0.0000	0.1566	-0.0807	-0.0000	-0.1566	0.0807	-0.0095	0.1283	-0.0197
12Y	0.0000	0.1566	-0.0807	-0.0000	-0.1566	0.0807	0.0020	0.1283	0.0121
13X	0.0000	0.1566	-0.0807	-0.0000	-0.1566	0.0807	-0.0077	0.1073	-0.0215
13XY	0.0000	0.1566	-0.0807	0.0000	-0.1566	0.0807	-0.0125	0.1009	-0.0186
13Y	0.0000	0.1566	-0.0807	-0.0000	-0.1566	0.0807	0.0013	0.1004	0.0123
14X	0.0000	0.8812	-0.5997	-0.0000	-0.8812	0.5997	-0.0130	0.0831	-0.0208
14XY	0.0000	0.7362	-0.3997	0.0000	-0.7362	0.3997	-0.0133	0.0765	-0.0171
14Y	0.0000	0.8502	-0.4627	0.0000	-0.8502	0.4627	0.0006	0.0771	0.0114
15X	0.0000	0.7476	-0.5500	-0.0000	-0.7476	0.5500	-0.0056	0.0415	-0.0157
15XY	0.0000	0.5796	-0.3190	0.0000	-0.5796	0.3190	-0.0061	0.0362	-0.0139
15Y	0.0000	0.7116	-0.3920	0.0000	-0.7116	0.3920	0.0006	0.0366	0.0099
16X	0.0000	0.7246	-0.5190	-0.0000	-0.7246	0.5190	-0.0006	0.0019	-0.0042
16XY	0.0000	0.5796	-0.3190	0.0000	-0.5796	0.3190	0.0006	0.0015	-0.0041
16Y	0.0000	0.6936	-0.3820	0.0000	-0.6936	0.3820	0.0015	0.0020	0.0031
17X	0.0000	0.5796	-0.3190	8.7658	11.4423	-60.0752	0.0000	0.0000	0.0000
17XY	0.0000	0.5796	-0.3190	-8.3780	10.4405	-57.3151	0.0000	0.0000	0.0000
17Y	0.0000	0.5796	-0.3190	6.5677	8.6227	48.5172	0.0000	0.0000	0.0000
18S	0.0000	0.1931	-0.1131	0.0000	-0.1931	0.1131	0.0015	0.2691	-0.0064
19S	0.0000	0.1931	-0.1131	-0.0000	-0.1931	0.1131	0.0031	0.3451	0.0144
20S	0.0000	0.5796	-0.3190	-0.0000	-0.5796	0.3190	-0.0061	0.0017	-0.0013
21S	0.0000	0.5796	-0.3190	0.0000	-0.5796	0.3190	-0.0000	0.1372	-0.0211

18Y	0.0000	0.1931	-0.1131	-0.0000	-0.1931	0.1131	-0.0001	0.2638	-0.0051
19X	0.0000	0.1931	-0.1131	0.0000	-0.1931	0.1131	-0.0022	0.3620	-0.0290
20Y	0.0000	0.5796	-0.3190	0.0000	-0.5796	0.3190	0.0059	0.0013	-0.0012
21X	0.0000	0.5796	-0.3190	0.0000	-0.5796	0.3190	-0.0000	0.1092	0.0133

Crossing Diagonal Check for Load Case "Extreme Wind - Transverse" (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.
g14P	g14Y	Short only	-0.17	-0.16	11.56	0.750	0.500	0.500	123.69	122.85	5	8.63	1.000	158.01	143.38	6
g14Y	g14P	Short only	-0.16	-0.17	11.56	0.750	0.500	0.500	123.69	122.85	5	8.63	1.000	158.01	143.38	6
g16P	g16Y	Long only	-2.62	-2.52	17.27	0.500	0.750	0.500	120.57	120.47	5	12.24	1.000	160.76	145.07	6
g16X	g16XY	Long only	-2.45	-2.59	17.27	0.500	0.750	0.500	120.57	120.47	5	12.24	1.000	160.76	145.07	6
g16XY	g16X	Long only	-2.59	-2.45	17.27	0.500	0.750	0.500	120.57	120.47	5	12.24	1.000	160.76	145.07	6
g16Y	g16P	Long only	-2.52	-2.62	17.27	0.500	0.750	0.500	120.57	120.47	5	12.24	1.000	160.76	145.07	6
g22X	g22XY	Long only	-0.91	-1.38	18.99	0.500	0.750	0.500	109.16	111.87	2	13.99	1.000	145.55	135.71	6
g22XY	g22X	Long only	-1.38	-0.91	18.99	0.500	0.750	0.500	109.16	111.87	2	13.99	1.000	145.55	135.71	6
g24P	g24Y	Long only	-1.70	-1.20	18.99	0.500	0.750	0.500	109.16	111.87	2	13.99	1.000	145.55	135.71	6
g24Y	g24P	Long only	-1.20	-1.70	18.99	0.500	0.750	0.500	109.16	111.87	2	13.99	1.000	145.55	135.71	6
g26P	g26Y	Short only	-2.58	-2.59	12.53	0.780	0.560	0.560	129.17	127.02	5	10.86	1.000	147.29	136.78	6
g26Y	g26P	Short only	-2.59	-2.58	12.53	0.780	0.560	0.560	129.17	127.02	5	10.86	1.000	147.29	136.78	6
g28X	g28XY	Long only	-1.41	-1.39	11.66	0.560	0.780	0.560	147.51	141.00	5	8.89	1.000	187.46	161.49	6
g28XY	g28X	Long only	-1.39	-1.41	11.66	0.560	0.780	0.560	147.51	141.00	5	8.89	1.000	187.46	161.49	6
g30P	g30Y	Long only	-1.23	-1.19	8.82	0.560	0.780	0.560	175.25	162.14	5	6.91	1.000	222.71	183.17	6
g30Y	g30P	Long only	-1.19	-1.23	8.82	0.560	0.780	0.560	175.25	162.14	5	6.91	1.000	222.71	183.17	6

Summary of Clamp Capacities and Usages for Load Case "Extreme Wind - Transverse":

Clamp Label	Force (kips)	Input Holding Capacity (kips)	Factored Holding Capacity (kips)	Usage %
1	1.484	30.00	30.00	4.95
2	0.816	30.00	30.00	2.72
3	1.880	30.00	30.00	6.27
4	1.880	30.00	30.00	6.27
5	1.880	30.00	30.00	6.27
6	1.880	30.00	30.00	6.27
7	1.880	30.00	30.00	6.27
8	1.880	30.00	30.00	6.27
14	1.099	30.00	30.00	3.66
15	1.167	30.00	30.00	3.89
16	1.274	30.00	30.00	4.25
17	0.770	30.00	30.00	2.57
18	0.526	30.00	30.00	1.75
19	0.457	30.00	30.00	1.52
20	0.298	30.00	30.00	0.99
21	0.461	30.00	30.00	1.54
22	0.298	30.00	30.00	0.99
23	0.298	30.00	30.00	0.99
24	0.298	30.00	30.00	0.99
25	2.750	30.00	30.00	9.17

26	0.362	30.00	30.00	1.21
27	0.391	30.00	30.00	1.30
28	0.429	30.00	30.00	1.43
29	1.296	30.00	30.00	4.32
30	1.510	30.00	30.00	5.03
31	1.876	30.00	30.00	6.25
32	0.385	30.00	30.00	1.28
33	0.595	30.00	30.00	1.98
34	1.066	30.00	30.00	3.55
35	0.928	30.00	30.00	3.09
36	0.891	30.00	30.00	2.97
37	0.313	30.00	30.00	1.04
38	0.510	30.00	30.00	1.70
39	0.968	30.00	30.00	3.23
40	0.812	30.00	30.00	2.71
41	0.792	30.00	30.00	2.64
42	0.313	30.00	30.00	1.04

*** Analysis Results for Load Case No. 3 "NESC Heavy - Longitudinal" - Number of iterations in SAPS 9

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

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	0.06855	0.04351	-0.0108	-0.0199	0.1163	-0.0003	2.569	-2.456	85.99
2P	0.06969	0.04296	-0.00992	0.0369	0.1011	0.0047	0.06969	-13.71	85.99
3P	0.06013	0.04039	-0.0105	-0.0325	0.0931	0.0095	2.56	-2.46	80.99
4P	0.06061	0.04134	-0.01025	0.0584	0.0962	0.0072	0.06061	-9.709	80.99
5P	0.04854	0.03422	-0.01006	-0.0610	0.1815	0.0087	2.549	-2.466	74.99
6P	0.03987	0.03179	-0.00973	-0.0283	0.0675	0.0083	2.54	-2.468	71.99
7P	0.04055	0.03092	-0.009328	-0.0153	0.0073	0.0080	2.541	-2.469	68.99
8P	0.0417	0.03246	-0.03834	0.2321	0.0798	0.0061	0.0417	-14.22	68.96
9P	0.03365	0.02511	-0.008577	-0.0546	0.0931	0.0052	2.534	-2.475	63.99
10P	0.02767	0.02381	-0.007715	-0.0103	0.0625	0.0025	2.528	-2.476	58.99
11P	0.02832	0.02407	-0.007737	0.0343	0.0602	0.0051	0.02832	-10.23	58.99
12P	0.02316	0.02052	-0.007221	-0.0421	0.0436	-0.0018	3.211	-3.167	54.04
13P	0.0189	0.01829	-0.006645	-0.0097	0.0367	0.0004	4.032	-3.995	48.1
14P	0.01511	0.01732	-0.006164	-0.0153	0.0251	-0.0021	4.923	-4.89	41.49
15P	0.00958	0.01078	-0.004306	-0.0188	0.0263	-0.0177	6.912	-6.891	27
16P	0.0002539	0.0003842	-0.0009092	0.0038	-0.0185	-0.1341	10	-10	4.999
17P	0	0	0	0.0000	0.0000	0.0000	10.69	-10.69	0
22P	0.1322	0.07047	-0.00286	-0.0954	0.2279	0.0047	0.1322	0.07047	104
23P	0.09729	0.0558	-0.002741	-0.0890	0.2115	0.0047	0.09729	0.0558	95
24P	0.0689	0.04381	-0.002597	-0.0570	0.1343	0.0048	0.0689	0.04381	86
25P	0.05928	0.03966	-0.002519	-0.0437	0.0982	0.0047	0.05928	0.03966	81
26P	0.04018	0.03038	-0.002289	-0.0438	0.0836	0.0044	0.04018	0.03038	69
27P	0.02731	0.02336	-0.002054	-0.0341	0.0606	0.0040	0.02731	0.02336	59
28P	0.009872	0.01091	-0.001095	-0.0258	0.0243	0.0014	0.009872	0.01091	27
29P	0	0	0	0.0000	0.0000	0.0000	0	0	0
1X	0.0682	0.04421	-0.01462	-0.0655	0.1197	0.0088	2.568	2.544	85.99
1XY	0.06847	0.04357	-0.006095	-0.0666	0.0872	0.0075	-2.432	2.544	85.99
1Y	0.06913	0.04314	-0.002286	-0.0189	0.0908	0.0077	-2.431	-2.457	86
2X	0.06687	0.04409	-0.02848	-0.1075	0.1009	0.0068	0.06687	13.79	85.97
3X	0.05946	0.03972	-0.01436	-0.0558	0.0910	0.0045	2.559	2.54	80.99
3XY	0.05895	0.03929	-0.005992	-0.0599	0.1109	0.0056	-2.441	2.539	80.99
3Y	0.0593	0.03981	-0.00215	-0.0282	0.1084	0.0045	-2.441	-2.46	81
4X	0.05861	0.03855	-0.02346	-0.1249	0.0964	0.0044	0.05861	9.789	80.98
5X	0.04866	0.03633	-0.01383	-0.0306	0.1808	0.0041	2.549	2.536	74.99
5XY	0.0496	0.03501	-0.00602	-0.0236	0.0056	0.0078	-2.45	2.535	74.99
5Y	0.05082	0.03447	-0.002272	-0.0688	0.0039	0.0053	-2.449	-2.466	75
6X	0.0397	0.03402	-0.01343	-0.0616	0.0760	0.0041	2.54	2.534	71.99
6XY	0.04898	0.03344	-0.006023	-0.0512	0.1013	0.0089	-2.451	2.533	71.99
6Y	0.04995	0.03125	-0.002341	-0.0392	0.1091	0.0055	-2.45	-2.469	72
7X	0.04007	0.03026	-0.01296	-0.0707	0.0081	0.0040	2.54	2.53	68.99
7XY	0.03967	0.02967	-0.005927	-0.0777	0.1575	0.0101	-2.46	2.53	68.99
7Y	0.04036	0.03038	-0.002315	-0.0084	0.1574	0.0056	-2.46	-2.47	69
8X	0.03844	0.02807	-0.0599	-0.3202	0.0801	0.0064	0.03844	14.28	68.94
9X	0.03337	0.02864	-0.01182	-0.0278	0.0944	0.0073	2.533	2.529	63.99
9XY	0.03246	0.02727	-0.005708	-0.0264	0.0573	0.0081	-2.468	2.527	63.99
9Y	0.03349	0.02532	-0.002439	-0.0564	0.0574	0.0086	-2.467	-2.475	64
10X	0.02706	0.02339	-0.01038	-0.0545	0.0605	0.0107	2.527	2.523	58.99
10XY	0.02682	0.02274	-0.005395	-0.0556	0.0557	0.0061	-2.473	2.523	58.99
10Y	0.02748	0.02317	-0.002603	-0.0133	0.0563	0.0113	-2.473	-2.477	59
11X	0.02571	0.02248	-0.02105	-0.1179	0.0572	0.0091	0.02571	10.27	58.98

12X	0.02292	0.02186	-0.009855	-0.0079	0.0366	0.0129	3.211	3.21	54.04
12XY	0.02203	0.02009	-0.004898	-0.0224	0.0502	0.0025	-3.166	3.208	54.04
12Y	0.02305	0.01998	-0.001869	-0.0365	0.0488	0.0154	-3.165	-3.168	54.05
13X	0.01877	0.0197	-0.008994	-0.0234	0.0340	0.0092	4.032	4.033	48.1
13XY	0.01779	0.01707	-0.00437	-0.0275	0.0339	0.0031	-3.996	4.03	48.1
13Y	0.0187	0.01722	-0.001305	-0.0193	0.0379	0.0142	-3.995	-3.996	48.1
14X	0.01508	0.01723	-0.007929	-0.0203	0.0230	0.0069	4.922	4.925	41.49
14XY	0.01447	0.01458	-0.003808	-0.0154	0.0242	0.0024	-4.893	4.922	41.5
14Y	0.01506	0.01462	-0.0009823	-0.0185	0.0293	0.0150	-4.892	-4.893	41.5
15X	0.01013	0.01056	-0.005809	-0.0238	0.0180	0.0002	6.912	6.913	26.99
15XY	0.00967	0.01047	-0.002942	-0.0242	0.0185	0.0008	-6.893	6.913	27
15Y	0.009798	0.01087	-0.000813	-0.0056	0.0139	0.0151	-6.892	-6.891	27
16X	0.0002843	0.0001862	-0.001858	-0.0087	0.0045	0.0163	10	10	4.998
16XY	0.000259	0.0004815	-0.0006193	-0.0109	0.0101	-0.0148	-10	10	4.999
16Y	0.0007149	0.000867	0.0003953	-0.0024	0.0365	0.1329	-9.999	-9.999	5
17X	0	0	0	0.0000	0.0000	0.0000	10.69	10.69	0
17XY	0	0	0	0.0000	0.0000	0.0000	-10.69	10.69	0
17Y	0	0	0	0.0000	0.0000	0.0000	-10.69	-10.69	0
18S	0.03927	0.0329	-0.01096	0.0000	0.0000	0.0000	2.539	0.0329	71.99
19S	0.04483	0.1008	-0.006552	0.0000	0.0000	0.0000	0.04483	-2.399	71.99
20S	0.003289	0.0002085	0.0002405	-0.0029	-0.0070	0.0293	10	0.0002085	5
21S	0.0003545	0.04615	-0.006756	0.0001	0.0011	-0.0018	0.0003545	-9.954	4.993
18Y	0.04965	0.03234	-0.003883	0.0000	0.0000	0.0000	-2.45	0.03234	72
19X	0.04428	-0.01285	-0.00992	0.0000	0.0000	0.0000	0.04428	2.487	71.99
20Y	-0.002788	0.0004927	0.0001904	-0.0010	0.0233	-0.0275	-10	0.0004927	5
21X	0.0001985	-0.004521	-0.0008382	-0.0098	0.0017	-0.0016	0.0001985	9.995	4.999

Joint Support Reactions for Load Case "NESC Heavy - Longitudinal":

Joint Label	X Force (kips)	X Usage %(kips)	Y Force (kips)	Y Usage %(kips)	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 %
17P	-2.37	0.0	1.42	0.0	12.07	0.0	0.0	12.38	0.0	-0.02	0.0	0.0	0.0	0.26	0.0	0.0
29P	-0.14	0.0	-0.62	0.0	18.22	0.0	0.0	18.23	0.0	3.17	0.0	-2.8	0.0	-0.04	0.0	0.0
17X	-4.06	0.0	-4.08	0.0	25.90	0.0	0.0	26.54	0.0	-0.04	0.0	0.0	0.0	-0.03	0.0	0.0
17XY	1.07	0.0	-2.23	0.0	9.05	0.0	0.0	9.38	0.0	0.03	0.0	-0.0	0.0	0.03	0.0	0.0
17Y	-1.69	0.0	-1.95	0.0	-8.58	0.0	0.0	8.96	0.0	-0.00	0.0	-0.1	0.0	-0.26	0.0	0.0

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

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	0.0180	0.0662	-0.2013	-0.0180	-0.0662	0.2013	0.0685	0.0435	-0.0108
2P	0.0000	0.0367	-2.3915	0.0000	-0.0367	2.3915	0.0697	0.0430	-0.0099
3P	0.0740	0.1164	-0.3818	-0.0740	-0.1164	0.3818	0.0601	0.0404	-0.0105
4P	0.0000	0.0628	-2.9690	0.0000	-0.0628	2.9690	0.0606	0.0413	-0.0103
5P	0.0000	0.0949	-0.0985	0.0000	-0.0949	0.0985	0.0485	0.0342	-0.0101
6P	0.0000	0.0411	-0.0463	0.0000	-0.0411	0.0463	0.0399	0.0318	-0.0097
7P	0.1020	0.0982	-0.4218	-0.1020	-0.0982	0.4218	0.0405	0.0309	-0.0093
8P	0.0000	0.0416	-2.9980	0.0000	-0.0416	2.9980	0.0417	0.0325	-0.0383
9P	0.0000	0.1229	-0.1253	0.0000	-0.1229	0.1253	0.0337	0.0251	-0.0086
10P	0.1250	0.1117	-0.4865	-0.1250	-0.1117	0.4865	0.0277	0.0238	-0.0077
11P	0.0000	0.0461	-2.9583	0.0000	-0.0461	2.9583	0.0283	0.0241	-0.0077
12P	0.0000	0.1099	-0.1347	0.0000	-0.1099	0.1347	0.0232	0.0205	-0.0072
13P	0.0000	0.1357	-0.1632	0.0000	-0.1357	0.1632	0.0189	0.0183	-0.0066

14P	0.1480	0.2270	-0.7012	-0.1480	-0.2270	0.7012	0.0151	0.0173	-0.0062
15P	0.1710	0.3601	-1.0586	-0.1710	-0.3601	1.0586	0.0096	0.0108	-0.0043
16P	0.1480	0.2635	-0.7772	-0.1480	-0.2635	0.7772	0.0003	0.0004	-0.0009
17P	0.0000	0.0741	-0.0944	2.3719	-1.4954	-11.9745	0.0000	0.0000	0.0000
22P	0.3900	0.1530	-1.8635	-0.3900	-0.1530	1.8635	0.1322	0.0705	-0.0029
23P	0.6790	0.3060	-2.4061	-0.6790	-0.3060	2.4061	0.0973	0.0558	-0.0027
24P	0.0960	0.1530	-0.8599	-0.0960	-0.1530	0.8599	0.0689	0.0438	-0.0026
25P	0.1170	0.2040	-1.0375	-0.1170	-0.2040	1.0375	0.0593	0.0397	-0.0025
26P	0.1510	0.3740	-1.3323	-0.1510	-0.3740	1.3323	0.0402	0.0304	-0.0023
27P	0.2880	0.7140	-2.6326	-0.2880	-0.7140	2.6326	0.0273	0.0234	-0.0021
28P	0.5910	1.0030	-4.4812	-0.5910	-1.0030	4.4812	0.0099	0.0109	-0.0011
29P	0.0000	0.4590	-1.1039	0.1354	0.1583	-17.1132	0.0000	0.0000	0.0000
1X	0.0180	0.0000	-0.2013	-0.0180	0.0000	0.2013	0.0682	0.0442	-0.0146
1XY	0.0180	0.0000	-0.2013	-0.0180	0.0000	0.2013	0.0685	0.0436	-0.0061
1Y	0.0000	0.0662	-0.1293	0.0000	-0.0662	0.1293	0.0691	0.0431	-0.0023
2X	0.0000	0.0000	-1.4545	0.0000	0.0000	1.4545	0.0669	0.0441	-0.0285
3X	0.3810	0.0000	-0.7498	-0.3810	0.0000	0.7497	0.0595	0.0397	-0.0144
3XY	0.0180	0.0000	-0.2438	-0.0180	0.0000	0.2438	0.0590	0.0393	-0.0060
3Y	0.1510	0.1164	-0.3608	-0.1510	-0.1164	0.3608	0.0593	0.0398	-0.0022
4X	0.0000	0.0000	-2.9690	0.0000	0.0000	2.9690	0.0586	0.0386	-0.0235
5X	0.0000	0.0000	-0.0985	0.0000	0.0000	0.0985	0.0487	0.0363	-0.0138
5XY	0.0000	0.0000	-0.0985	0.0000	0.0000	0.0985	0.0496	0.0350	-0.0060
5Y	0.0000	0.0949	-0.0985	0.0000	-0.0949	0.0985	0.0508	0.0345	-0.0023
6X	0.0000	0.0000	-0.0463	0.0000	0.0000	0.0463	0.0397	0.0340	-0.0134
6XY	0.0000	0.0000	-0.0463	0.0000	0.0000	0.0463	0.0490	0.0334	-0.0060
6Y	0.0000	0.0411	-0.0463	0.0000	-0.0411	0.0463	0.0500	0.0313	-0.0023
7X	0.3630	0.0000	-0.6748	-0.3630	-0.0000	0.6748	0.0401	0.0303	-0.0130
7XY	0.0000	0.0000	-0.1688	0.0000	-0.0000	0.1688	0.0397	0.0297	-0.0059
7Y	0.1510	0.0982	-0.3578	-0.1510	-0.0982	0.3578	0.0404	0.0304	-0.0023
8X	0.0000	0.0000	-2.9980	0.0000	0.0000	2.9980	0.0384	0.0281	-0.0599
9X	0.0000	0.0000	-0.1253	0.0000	0.0000	0.1253	0.0334	0.0286	-0.0118
9XY	0.0000	0.0000	-0.1253	0.0000	0.0000	0.1253	0.0325	0.0273	-0.0057
9Y	0.0000	0.1229	-0.1253	0.0000	-0.1229	0.1253	0.0335	0.0253	-0.0024
10X	0.4460	0.0000	-0.7975	-0.4460	0.0000	0.7975	0.0271	0.0234	-0.0104
10XY	0.0000	0.0000	-0.1765	0.0000	0.0000	0.1765	0.0268	0.0227	-0.0054
10Y	0.1850	0.1117	-0.4085	-0.1850	-0.1117	0.4085	0.0275	0.0232	-0.0026
11X	0.0000	0.0000	-2.9583	0.0000	0.0000	2.9583	0.0257	0.0225	-0.0211
12X	0.0000	0.0000	-0.1347	0.0000	0.0000	0.1347	0.0229	0.0219	-0.0099
12XY	0.0000	0.0000	-0.1347	0.0000	0.0000	0.1347	0.0220	0.0201	-0.0049
12Y	0.0000	0.1099	-0.1347	0.0000	-0.1099	0.1347	0.0230	0.0200	-0.0019
13X	0.0000	0.0000	-0.1632	0.0000	0.0000	0.1632	0.0188	0.0197	-0.0090
13XY	0.0000	0.0000	-0.1632	0.0000	0.0000	0.1632	0.0178	0.0171	-0.0044
13Y	0.0000	0.1357	-0.1632	0.0000	-0.1357	0.1632	0.0187	0.0172	-0.0013
14X	0.5280	0.0000	-1.0692	-0.5280	0.0000	1.0692	0.0151	0.0172	-0.0079
14XY	0.0000	0.0000	-0.3332	0.0000	0.0000	0.3332	0.0145	0.0146	-0.0038
14Y	0.2200	0.2270	-0.6082	-0.2200	-0.2270	0.6082	0.0151	0.0146	-0.0010
15X	0.6110	0.0000	-1.4846	-0.6110	0.0000	1.4846	0.0101	0.0106	-0.0058
15XY	0.0000	0.0000	-0.6336	0.0000	-0.0000	0.6336	0.0097	0.0105	-0.0029
15Y	0.2540	0.3601	-0.9516	-0.2540	-0.3601	0.9516	0.0098	0.0109	-0.0008
16X	0.5280	0.0000	-1.1452	-0.5280	0.0000	1.1452	0.0003	0.0002	-0.0019
16XY	0.0000	0.0000	-0.4092	-0.0000	0.0000	0.4092	0.0003	0.0005	-0.0006
16Y	0.2200	0.2635	-0.6842	-0.2200	-0.2635	0.6842	0.0007	0.0009	0.0004
17X	0.0000	0.0000	-0.0944	4.0648	4.0827	-25.8084	0.0000	0.0000	0.0000
17XY	0.0000	0.0000	-0.0944	-1.0742	2.2302	-8.9580	0.0000	0.0000	0.0000
17Y	0.0000	0.0741	-0.0944	1.6919	1.8770	8.6777	0.0000	0.0000	0.0000
18S	0.0000	0.0000	-0.0416	0.0000	0.0000	0.0416	0.0393	0.0329	-0.0110
19S	0.0000	0.0625	-0.0360	0.0000	-0.0625	0.0360	0.0448	0.1008	-0.0066
20S	0.0000	0.0000	-0.1556	0.0000	-0.0000	0.1556	0.0033	0.0002	0.0002
21S	0.0000	0.2011	-0.1556	0.0000	-0.2011	0.1556	0.0004	0.0461	-0.0068

18Y	0.0000	0.0000	-0.0416	0.0000	0.0000	0.0416	0.0497	0.0323	-0.0039
19X	0.0000	0.0000	-0.0360	0.0000	0.0000	0.0360	0.0443	-0.0128	-0.0099
20Y	0.0000	0.0000	-0.1556	-0.0000	0.0000	0.1556	-0.0028	0.0005	0.0002
21X	0.0000	0.0000	-0.1556	-0.0000	-0.0000	0.1556	0.0002	-0.0045	-0.0008

Crossing Diagonal Check for Load Case "NESC Heavy - Longitudinal" (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.
g13P	g13X	Short only	-0.39	-0.54	11.56	0.750	0.500	0.500	123.69	122.85	5	8.63	1.000	158.01	143.38	6
g13X	g13P	Short only	-0.54	-0.39	11.56	0.750	0.500	0.500	123.69	122.85	5	8.63	1.000	158.01	143.38	6
g13XY	g13Y	Short only	-0.31	-0.24	11.56	0.750	0.500	0.500	123.69	122.85	5	8.63	1.000	158.01	143.38	6
g13Y	g13XY	Short only	-0.24	-0.31	11.56	0.750	0.500	0.500	123.69	122.85	5	8.63	1.000	158.01	143.38	6
g16P	g16Y	Long only	-0.28	-1.87	17.27	0.500	0.750	0.500	120.57	120.47	5	12.24	1.000	160.76	145.07	6
g16X	g16XY	Long only	-1.15	-2.66	17.27	0.500	0.750	0.500	120.57	120.47	5	12.24	1.000	160.76	145.07	6
g16XY	g16X	Long only	-2.66	-1.15	17.27	0.500	0.750	0.500	120.57	120.47	5	12.24	1.000	160.76	145.07	6
g16Y	g16P	Long only	-1.87	-0.28	17.27	0.500	0.750	0.500	120.57	120.47	5	12.24	1.000	160.76	145.07	6
g24Y	g24P	Long only	-1.89	0.36	18.99	0.500	0.750	0.500	109.16	111.87	2	13.99	1.000	145.55	135.71	6
g25P	g25X	Short only	-1.34	-0.70	12.53	0.780	0.560	0.560	129.17	127.02	5	10.86	1.000	147.29	136.78	6
g25X	g25P	Short only	-0.70	-1.34	12.53	0.780	0.560	0.560	129.17	127.02	5	10.86	1.000	147.29	136.78	6
g26P	g26Y	Short only	-0.27	-0.24	12.53	0.780	0.560	0.560	129.17	127.02	5	10.86	1.000	147.29	136.78	6
g26Y	g26P	Short only	-0.24	-0.27	12.53	0.780	0.560	0.560	129.17	127.02	5	10.86	1.000	147.29	136.78	6
g28X	g28XY	Long only	-0.07	-0.02	11.66	0.560	0.780	0.560	147.51	141.00	5	8.89	1.000	187.46	161.49	6
g28XY	g28X	Long only	-0.02	-0.07	11.66	0.560	0.780	0.560	147.51	141.00	5	8.89	1.000	187.46	161.49	6
g29P	g29X	Long only	-0.83	-0.14	8.82	0.560	0.780	0.560	175.25	162.14	5	6.91	1.000	222.71	183.17	6
g29X	g29P	Long only	-0.14	-0.83	8.82	0.560	0.780	0.560	175.25	162.14	5	6.91	1.000	222.71	183.17	6
g30P	g30Y	Long only	-0.07	-0.10	8.82	0.560	0.780	0.560	175.25	162.14	5	6.91	1.000	222.71	183.17	6
g30Y	g30P	Long only	-0.10	-0.07	8.82	0.560	0.780	0.560	175.25	162.14	5	6.91	1.000	222.71	183.17	6

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

Clamp Label	Force (kips)	Input Holding Capacity (kips)	Factored Holding Capacity (kips)	Usage %
1	2.392	30.00	30.00	7.97
2	1.455	30.00	30.00	4.85
3	2.970	30.00	30.00	9.90
4	2.969	30.00	30.00	9.90
5	2.998	30.00	30.00	9.99
6	2.998	30.00	30.00	9.99
7	2.959	30.00	30.00	9.86
8	2.958	30.00	30.00	9.86
14	0.834	30.00	30.00	2.78
15	1.131	30.00	30.00	3.77
16	0.752	30.00	30.00	2.51
17	0.515	30.00	30.00	1.72
18	0.445	30.00	30.00	1.48
19	0.841	30.00	30.00	2.80
20	0.213	30.00	30.00	0.71
21	0.406	30.00	30.00	1.35
22	0.202	30.00	30.00	0.67

23	0.202	30.00	30.00	0.67
24	0.244	30.00	30.00	0.81
25	2.519	30.00	30.00	8.40
26	0.879	30.00	30.00	2.93
27	1.064	30.00	30.00	3.55
28	1.392	30.00	30.00	4.64
29	2.743	30.00	30.00	9.14
30	4.630	30.00	30.00	15.43
31	1.910	30.00	30.00	6.37
32	0.766	30.00	30.00	2.55
33	0.914	30.00	30.00	3.05
34	1.192	30.00	30.00	3.97
35	1.605	30.00	30.00	5.35
36	1.261	30.00	30.00	4.20
37	0.401	30.00	30.00	1.34
38	0.462	30.00	30.00	1.54
39	0.685	30.00	30.00	2.28
40	1.049	30.00	30.00	3.50
41	0.765	30.00	30.00	2.55
42	0.408	30.00	30.00	1.36

*** Analysis Results for Load Case No. 4 "Extreme Wind - Longitudinal" - Number of iterations in SAPS 11

Equilibrium Joint Positions and Rotations for Load Case "Extreme Wind - Longitudinal":

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	0.2253	0.1407	-0.01282	-0.1531	0.3582	-0.0228	2.725	-2.359	85.99
2P	0.2222	0.1414	0.02987	-0.1395	0.3423	-0.0159	0.2222	-13.61	86.03
3P	0.1947	0.1267	-0.01237	-0.1657	0.3492	-0.0071	2.695	-2.373	80.99
4P	0.1937	0.1276	0.01931	-0.1277	0.3233	-0.0061	0.1937	-9.622	81.02
5P	0.1589	0.1075	-0.01152	-0.1589	0.3417	-0.0082	2.659	-2.392	74.99
6P	0.1421	0.1002	-0.01086	-0.1392	0.2709	-0.0087	2.642	-2.4	71.99
7P	0.1297	0.09242	-0.01017	-0.1513	0.2502	-0.0092	2.63	-2.408	68.99
8P	0.1278	0.09354	0.01783	-0.0534	0.2653	-0.0103	0.1278	-14.16	69.02
9P	0.1062	0.07721	-0.009047	-0.1495	0.2539	-0.0097	2.606	-2.423	63.99
10P	0.08694	0.06769	-0.007904	-0.1010	0.2024	-0.0102	2.587	-2.432	58.99
11P	0.08565	0.06817	0.01708	-0.1279	0.1998	-0.0099	0.08565	-10.18	59.02
12P	0.07117	0.05761	-0.00777	-0.1115	0.1579	-0.0133	3.259	-3.13	54.04
13P	0.05659	0.04894	-0.007479	-0.0554	0.1214	-0.0101	4.07	-3.964	48.1
14P	0.04406	0.04369	-0.007412	-0.0554	0.0889	-0.0159	4.951	-4.864	41.49
15P	0.02486	0.02294	-0.004875	-0.0591	0.0736	-0.0463	6.927	-6.879	27
16P	0.0003482	0.001189	-0.001179	0.0099	-0.0572	-0.3583	10	-9.999	4.999
17P	0	0	0	0.0000	0.0000	0.0000	10.69	-10.69	0
22P	0.4535	0.2069	-0.003131	-0.2195	0.8194	-0.0089	0.4535	0.2069	104
23P	0.3279	0.1728	-0.002173	-0.2114	0.7578	-0.0088	0.3279	0.1728	95
24P	0.2271	0.1417	-0.00152	-0.1791	0.4670	-0.0082	0.2271	0.1417	86
25P	0.1942	0.1269	-0.001362	-0.1660	0.3317	-0.0077	0.1942	0.1269	81
26P	0.1301	0.09278	-0.001058	-0.1560	0.2783	-0.0067	0.1301	0.09278	69
27P	0.08724	0.06789	-0.0008464	-0.1240	0.2049	-0.0057	0.08724	0.06789	59
28P	0.02627	0.02344	-0.0003921	-0.0658	0.0728	-0.0028	0.02627	0.02344	27
29P	0	0	0	0.0000	0.0000	0.0000	0	0	0
1X	0.2264	0.1414	-0.02708	-0.1775	0.3576	-0.0044	2.726	2.641	85.97
1XY	0.2265	0.1419	0.001634	-0.1823	0.3439	-0.0029	-2.273	2.642	86
1Y	0.2257	0.1422	0.0159	-0.1499	0.3449	-0.0186	-2.274	-2.358	86.02
2X	0.2274	0.1417	-0.04913	-0.1894	0.3411	-0.0073	0.2274	13.89	85.95
3X	0.1957	0.1261	-0.02655	-0.1653	0.3469	-0.0169	2.696	2.626	80.97
3XY	0.1952	0.1274	0.001573	-0.1799	0.3364	-0.0144	-2.305	2.627	81
3Y	0.1943	0.1274	0.01576	-0.1515	0.3326	-0.0095	-2.306	-2.373	81.02
4X	0.1974	0.1264	-0.0366	-0.2006	0.3231	-0.0164	0.1974	9.876	80.96
5X	0.1602	0.1108	-0.02532	-0.1706	0.3475	-0.0133	2.66	2.611	74.97
5XY	0.1629	0.1089	0.0008424	-0.1454	0.2761	-0.0111	-2.337	2.609	75
5Y	0.1625	0.1112	0.01462	-0.1861	0.2780	-0.0088	-2.338	-2.389	75.01
6X	0.1429	0.1011	-0.02423	-0.1844	0.2809	-0.0112	2.643	2.601	71.98
6XY	0.1481	0.1018	0.0005417	-0.1463	0.3153	-0.0095	-2.352	2.602	72
6Y	0.1474	0.1011	0.01392	-0.1780	0.3216	-0.0089	-2.353	-2.399	72.01
7X	0.1304	0.09225	-0.02314	-0.1560	0.2398	-0.0094	2.63	2.592	68.98
7XY	0.1305	0.09302	0.0002965	-0.1808	0.3167	-0.0076	-2.37	2.593	69
7Y	0.1298	0.09329	0.01327	-0.1266	0.3029	-0.0090	-2.37	-2.407	69.01
8X	0.132	0.09191	-0.06018	-0.2665	0.2666	-0.0093	0.132	14.34	68.94
9X	0.1081	0.08111	-0.02064	-0.1419	0.2602	-0.0068	2.608	2.581	63.98
9XY	0.1063	0.07906	-0.0003648	-0.1368	0.2453	-0.0049	-2.394	2.579	64
9Y	0.1074	0.08083	0.01139	-0.1566	0.2462	-0.0067	-2.393	-2.419	64.01
10X	0.08739	0.0675	-0.01745	-0.1283	0.1971	-0.0039	2.587	2.567	58.98
10XY	0.08733	0.06795	-0.001123	-0.1342	0.1846	-0.0022	-2.413	2.568	59
10Y	0.08682	0.0681	0.009066	-0.1127	0.1907	-0.0047	-2.413	-2.432	59.01
11X	0.08736	0.0675	-0.03071	-0.1726	0.1864	0.0002	0.08736	10.32	58.97

12X	0.07374	0.05993	-0.01737	-0.0647	0.1292	-0.0060	3.262	3.248	54.03
12XY	0.07249	0.057	-0.001294	-0.1149	0.1539	0.0010	-3.115	3.245	54.05
12Y	0.07232	0.05907	0.009956	-0.0962	0.1481	0.0017	-3.115	-3.129	54.06
13X	0.06094	0.05195	-0.01632	-0.0702	0.1083	-0.0113	4.074	4.065	48.09
13XY	0.05898	0.04707	-0.001505	-0.0842	0.1016	0.0015	-3.954	4.06	48.1
13Y	0.05758	0.04881	0.0103	-0.0879	0.1252	0.0072	-3.956	-3.964	48.11
14X	0.04925	0.04336	-0.01478	-0.0710	0.0933	-0.0155	4.957	4.951	41.49
14XY	0.04917	0.03832	-0.001992	-0.0678	0.0809	0.0096	-4.858	4.946	41.5
14Y	0.04467	0.03921	0.009822	-0.0699	0.0963	0.0125	-4.863	-4.868	41.51
15X	0.0266	0.0229	-0.01169	-0.0479	0.0713	-0.0346	6.929	6.925	26.99
15XY	0.0264	0.02286	-0.001274	-0.0552	0.0699	0.0360	-6.876	6.925	27
15Y	0.02563	0.02401	0.008068	-0.0320	0.0532	0.0306	-6.877	-6.878	27.01
16X	0.0005926	0.001047	-0.003764	0.0110	0.0697	-0.3226	10	10	4.996
16XY	0.001622	0.001844	-3.471e-005	0.0058	-0.0270	0.3275	-9.998	10	5
16Y	0.002838	0.002651	0.003047	-0.0086	0.1080	0.3527	-9.997	-9.997	5.003
17X	0	0	0	0.0000	0.0000	0.0000	10.69	10.69	0
17XY	0	0	0	0.0000	0.0000	0.0000	-10.69	10.69	0
17Y	0	0	0	0.0000	0.0000	0.0000	-10.69	-10.69	0
18S	0.1412	0.1006	-0.01681	0.0000	0.0000	0.0000	2.641	0.1006	71.98
19S	0.1444	0.1842	0.0006113	0.0000	0.0000	0.0000	0.1444	-2.316	72
20S	-0.005244	0.0008606	-0.001159	-0.0163	0.0063	0.1689	9.995	0.0008606	4.999
21S	0.001168	0.1323	-0.02034	-0.0050	0.0054	-0.0048	0.001168	-9.868	4.98
18Y	0.148	0.1014	0.006823	0.0000	0.0000	0.0000	-2.352	0.1014	72.01
19X	0.1451	0.1902	-0.01261	0.0000	0.0000	0.0000	0.1451	2.69	71.99
20Y	0.007635	0.001686	-0.001434	-0.0125	0.0405	-0.1646	-9.992	0.001686	4.999
21X	0.0008145	0.1088	0.01332	0.0124	0.0053	-0.0046	0.0008145	10.11	5.013

Joint Support Reactions for Load Case "Extreme Wind - Longitudinal":

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 %
17P	-4.15	0.0	0.37	0.0	14.77	0.0	0.0	15.34	0.0	-0.07	0.0	0.0	0.0	0.71	0.0	0.0
29P	-0.31	0.0	-0.85	0.0	6.11	0.0	0.0	6.17	0.0	6.06	0.0	-6.9	0.0	0.08	0.0	0.0
17X	-9.32	0.0	-9.82	0.0	54.65	0.0	0.0	56.31	0.0	-0.17	0.0	0.0	0.0	0.63	0.0	0.0
17XY	-0.69	0.0	-4.00	0.0	2.29	0.0	0.0	4.67	0.0	0.02	0.0	-0.1	0.0	-0.67	0.0	0.0
17Y	-9.10	0.0	-10.42	0.0	-51.98	0.0	0.0	53.79	0.0	-0.02	0.0	-0.2	0.0	-0.69	0.0	0.0

Joint Displacements, Loads and Member Forces on Joints for Load Case "Extreme Wind - Longitudinal":

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	0.0680	0.1931	-0.1431	-0.0680	-0.1931	0.1431	0.2253	0.1407	-0.0128
2P	0.0000	0.1931	-0.8221	0.0000	-0.1931	0.8221	0.2222	0.1414	0.0299
3P	0.2310	0.1931	-0.1801	-0.2310	-0.1931	0.1801	0.1947	0.1267	-0.0124
4P	0.0000	0.1931	-1.1371	0.0000	-0.1931	1.1371	0.1937	0.1276	0.0193
5P	0.0000	0.1931	-0.1131	0.0000	-0.1931	0.1131	0.1589	0.1075	-0.0115
6P	0.0000	0.1931	-0.1131	-0.0000	-0.1931	0.1131	0.1421	0.1002	-0.0109
7P	0.3000	0.1931	-0.1821	-0.3000	-0.1931	0.1821	0.1297	0.0924	-0.0102
8P	0.0000	0.1931	-1.1371	0.0000	-0.1931	1.1371	0.1278	0.0935	0.0178
9P	0.0000	0.1931	-0.1131	0.0000	-0.1931	0.1131	0.1062	0.0772	-0.0090
10P	0.3680	0.3497	-0.2779	-0.3680	-0.3497	0.2779	0.0869	0.0677	-0.0079
11P	0.0000	0.1931	-1.1371	0.0000	-0.1931	1.1371	0.0856	0.0682	0.0171
12P	0.0000	0.1566	-0.0807	0.0000	-0.1566	0.0807	0.0712	0.0576	-0.0078
13P	0.0000	0.1566	-0.0807	0.0000	-0.1566	0.0807	0.0566	0.0489	-0.0075

14P	0.4360	0.7362	-0.4997	-0.4360	-0.7362	0.4997	0.0441	0.0437	-0.0074
15P	0.5040	0.5796	-0.4340	-0.5040	-0.5796	0.4340	0.0249	0.0229	-0.0049
16P	0.4360	0.5796	-0.4190	-0.4360	-0.5796	0.4190	0.0003	0.0012	-0.0012
17P	0.0000	0.5796	-0.3190	4.1539	-0.9522	-14.4470	0.0000	0.0000	0.0000
22P	1.4870	0.1931	-0.8341	-1.4870	-0.1931	0.8341	0.4535	0.2069	-0.0031
23P	2.5650	0.1931	-0.8481	-2.5650	-0.1931	0.8481	0.3279	0.1728	-0.0022
24P	0.2990	0.1931	-0.2121	-0.2990	-0.1931	0.2121	0.2271	0.1417	-0.0015
25P	0.3630	0.1931	-0.2331	-0.3630	-0.1931	0.2331	0.1942	0.1269	-0.0014
26P	0.4690	0.1931	-0.2491	-0.4690	-0.1931	0.2491	0.1301	0.0928	-0.0011
27P	0.8960	0.7727	-0.7291	-0.8960	-0.7727	0.7291	0.0872	0.0679	-0.0008
28P	1.8340	0.5796	-0.9280	-1.8340	-0.5796	0.9280	0.0263	0.0234	-0.0004
29P	0.0000	0.5796	-0.3190	0.3062	0.2660	-5.7897	0.0000	0.0000	0.0000
1X	0.0680	0.1931	-0.1431	-0.0680	-0.1931	0.1431	0.2264	0.1414	-0.0271
1XY	0.0680	0.1931	-0.1431	-0.0680	-0.1931	0.1431	0.2265	0.1419	0.0016
1Y	0.0000	0.1931	-0.1131	0.0000	-0.1931	0.1131	0.2257	0.1422	0.0159
2X	0.0000	0.1931	-0.4561	0.0000	-0.1931	0.4561	0.2274	0.1417	-0.0491
3X	1.2670	0.1931	-0.2801	-1.2670	-0.1931	0.2801	0.1957	0.1261	-0.0265
3XY	0.0680	0.1931	-0.1431	-0.0680	-0.1931	0.1431	0.1952	0.1274	0.0016
3Y	0.4690	0.1931	-0.1571	-0.4690	-0.1931	0.1571	0.1943	0.1274	0.0158
4X	0.0000	0.1931	-1.1371	0.0000	-0.1931	1.1371	0.1974	0.1264	-0.0366
5X	0.0000	0.1931	-0.1131	0.0000	-0.1931	0.1131	0.1602	0.1108	-0.0253
5XY	0.0000	0.1931	-0.1131	0.0000	-0.1931	0.1131	0.1629	0.1089	0.0008
5Y	0.0000	0.1931	-0.1131	0.0000	-0.1931	0.1131	0.1625	0.1112	0.0146
6X	0.0000	0.1931	-0.1131	0.0000	-0.1931	0.1131	0.1429	0.1011	-0.0242
6XY	0.0000	0.1931	-0.1131	0.0000	-0.1931	0.1131	0.1481	0.1018	0.0005
6Y	0.0000	0.1931	-0.1131	0.0000	-0.1931	0.1131	0.1474	0.1011	0.0139
7X	1.1990	0.1931	-0.2501	-1.1990	-0.1931	0.2501	0.1304	0.0923	-0.0231
7XY	0.0000	0.1931	-0.1131	0.0000	-0.1931	0.1131	0.1305	0.0930	0.0003
7Y	0.4690	0.1931	-0.1571	-0.4690	-0.1931	0.1571	0.1298	0.0933	0.0133
8X	0.0000	0.1931	-1.1371	0.0000	-0.1931	1.1371	0.1320	0.0919	-0.0602
9X	0.0000	0.1931	-0.1131	0.0000	-0.1931	0.1131	0.1081	0.0811	-0.0206
9XY	0.0000	0.1931	-0.1131	0.0000	-0.1931	0.1131	0.1063	0.0791	-0.0004
9Y	0.0000	0.1931	-0.1131	0.0000	-0.1931	0.1131	0.1074	0.0808	0.0114
10X	1.4710	0.3497	-0.3619	-1.4710	-0.3497	0.3619	0.0874	0.0675	-0.0175
10XY	0.0000	0.3497	-0.1939	0.0000	-0.3497	0.1939	0.0873	0.0680	-0.0011
10Y	0.5760	0.3497	-0.2469	-0.5760	-0.3497	0.2469	0.0868	0.0681	0.0091
11X	0.0000	0.1931	-1.1371	0.0000	-0.1931	1.1371	0.0874	0.0675	-0.0307
12X	0.0000	0.1566	-0.0807	0.0000	-0.1566	0.0807	0.0737	0.0599	-0.0174
12XY	0.0000	0.1566	-0.0807	0.0000	-0.1566	0.0807	0.0725	0.0570	-0.0013
12Y	0.0000	0.1566	-0.0807	0.0000	-0.1566	0.0807	0.0723	0.0591	0.0100
13X	0.0000	0.1566	-0.0807	0.0000	-0.1566	0.0807	0.0609	0.0520	-0.0163
13XY	0.0000	0.1566	-0.0807	0.0000	-0.1566	0.0807	0.0590	0.0471	-0.0015
13Y	0.0000	0.1566	-0.0807	0.0000	-0.1566	0.0807	0.0576	0.0488	0.0103
14X	1.7440	0.7362	-0.5997	-1.7440	-0.7362	0.5997	0.0493	0.0434	-0.0148
14XY	0.0000	0.7362	-0.3997	0.0000	-0.7362	0.3997	0.0492	0.0383	-0.0020
14Y	0.6820	0.7362	-0.4627	-0.6820	-0.7362	0.4627	0.0447	0.0392	0.0098
15X	2.0160	0.5796	-0.5500	-2.0160	-0.5796	0.5500	0.0266	0.0229	-0.0117
15XY	0.0000	0.5796	-0.3190	0.0000	-0.5796	0.3190	0.0264	0.0229	-0.0013
15Y	0.7890	0.5796	-0.3920	-0.7890	-0.5796	0.3920	0.0256	0.0240	0.0081
16X	1.7440	0.5796	-0.5190	-1.7440	-0.5796	0.5190	0.0006	0.0010	-0.0038
16XY	0.0000	0.5796	-0.3190	-0.0000	-0.5796	0.3190	0.0016	0.0018	-0.0000
16Y	0.6820	0.5796	-0.3820	-0.6820	-0.5796	0.3820	0.0028	0.0027	0.0030
17X	0.0000	0.5796	-0.3190	9.3156	9.2441	-54.3357	0.0000	0.0000	0.0000
17XY	0.0000	0.5796	-0.3190	0.6883	3.4248	-1.9733	0.0000	0.0000	0.0000
17Y	0.0000	0.5796	-0.3190	9.1040	9.8396	52.2983	0.0000	0.0000	0.0000
18S	0.0000	0.1931	-0.1131	0.0000	-0.1931	0.1131	0.1412	0.1006	-0.0168
19S	0.0000	0.1931	-0.1131	0.0000	-0.1931	0.1131	0.1444	0.1842	0.0006
20S	0.0000	0.5796	-0.3190	0.0000	-0.5796	0.3190	-0.0052	0.0009	-0.0012
21S	0.0000	0.5796	-0.3190	0.0000	-0.5796	0.3190	0.0012	0.1323	-0.0203

18Y	0.0000	0.1931	-0.1131	0.0000	-0.1931	0.1131	0.1480	0.1014	0.0068
19X	0.0000	0.1931	-0.1131	0.0000	-0.1931	0.1131	0.1451	0.1902	-0.0126
20Y	0.0000	0.5796	-0.3190	-0.0000	-0.5796	0.3190	0.0076	0.0017	-0.0014
21X	0.0000	0.5796	-0.3190	-0.0000	-0.5796	0.3190	0.0008	0.1088	0.0133

Crossing Diagonal Check for Load Case "Extreme Wind - Longitudinal" (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.
g13P	g13X	Short only	-1.22	0.13	11.56	0.750	0.500	0.500	123.69	122.85	5	8.63	1.000	158.01	143.38	6
g16XY	g16X	Long only	-5.16	0.04	17.27	0.500	0.750	0.500	120.57	120.47	5	12.24	1.000	160.76	145.07	6
g16Y	g16P	Long only	-5.37	0.30	17.27	0.500	0.750	0.500	120.57	120.47	5	12.24	1.000	160.76	145.07	6
g25P	g25X	Short only	-2.21	-0.94	12.53	0.780	0.560	0.560	129.17	127.02	5	10.86	1.000	147.29	136.78	6
g25X	g25P	Short only	-0.94	-2.21	12.53	0.780	0.560	0.560	129.17	127.02	5	10.86	1.000	147.29	136.78	6
g26P	g26Y	Short only	-0.78	-0.75	12.53	0.780	0.560	0.560	129.17	127.02	5	10.86	1.000	147.29	136.78	6
g26Y	g26P	Short only	-0.75	-0.78	12.53	0.780	0.560	0.560	129.17	127.02	5	10.86	1.000	147.29	136.78	6
g28X	g28XY	Long only	-0.53	-0.24	11.66	0.560	0.780	0.560	147.51	141.00	5	8.89	1.000	187.46	161.49	6
g28XY	g28X	Long only	-0.24	-0.53	11.66	0.560	0.780	0.560	147.51	141.00	5	8.89	1.000	187.46	161.49	6
g29P	g29X	Long only	-1.52	0.00	8.82	0.560	0.780	0.560	175.25	162.14	5	6.91	1.000	222.71	183.17	6
g30P	g30Y	Long only	-0.29	-0.44	8.82	0.560	0.780	0.560	175.25	162.14	5	6.91	1.000	222.71	183.17	6
g30Y	g30P	Long only	-0.44	-0.29	8.82	0.560	0.780	0.560	175.25	162.14	5	6.91	1.000	222.71	183.17	6

Summary of Clamp Capacities and Usages for Load Case "Extreme Wind - Longitudinal":

Clamp Label	Force (kips)	Input Holding Capacity (kips)	Factored Holding Capacity (kips)	Usage %
1	0.844	30.00	30.00	2.81
2	0.495	30.00	30.00	1.65
3	1.153	30.00	30.00	3.84
4	1.153	30.00	30.00	3.84
5	1.153	30.00	30.00	3.84
6	1.153	30.00	30.00	3.84
7	1.153	30.00	30.00	3.84
8	1.153	30.00	30.00	3.84
14	0.838	30.00	30.00	2.79
15	0.882	30.00	30.00	2.94
16	0.991	30.00	30.00	3.30
17	0.579	30.00	30.00	1.93
18	0.401	30.00	30.00	1.34
19	1.312	30.00	30.00	4.37
20	0.250	30.00	30.00	0.83
21	0.351	30.00	30.00	1.17
22	0.250	30.00	30.00	0.83
23	0.250	30.00	30.00	0.83
24	0.250	30.00	30.00	0.83
25	2.708	30.00	30.00	9.03
26	0.414	30.00	30.00	1.38
27	0.473	30.00	30.00	1.58
28	0.565	30.00	30.00	1.88
29	1.390	30.00	30.00	4.63

30	2.136	30.00	30.00	7.12
31	1.716	30.00	30.00	5.72
32	1.240	30.00	30.00	4.13
33	1.555	30.00	30.00	5.18
34	1.986	30.00	30.00	6.62
35	2.169	30.00	30.00	7.23
36	1.910	30.00	30.00	6.37
37	0.531	30.00	30.00	1.77
38	0.718	30.00	30.00	2.39
39	1.105	30.00	30.00	3.68
40	1.055	30.00	30.00	3.52
41	0.973	30.00	30.00	3.24
42	0.531	30.00	30.00	1.77

*** 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 KL/R Comp.	Length Member (ft)	Curve No. Comp.	Of Bolts
LEG1	L4x4x1/4	SAE		4X4X0.25	33.0	74.54	74.54	g6XY	-39.887	Extreme	53.509	125.640	168.750	1.000	1.000	1.000	75.47	75.47	5.000	1	12
LEG2	L4x4x5/16	SAE		4X4X0.3125	33.0	90.52	90.52	g12X	-59.340	Extreme	65.558	104.700	175.781	1.000	1.000	1.000	77.30	77.30	5.096	1	10
LEG3	L4x4x3/8	SAE		4X4X0.375	33.0	98.55	98.55	g11X	-58.943	Extreme	59.809	104.700	210.937	0.330	0.330	0.330	112.73	112.73	22.432	1	10
XBR1	L1.75x1.75x3/16	SAE		1.75X1.75X0.1875	33.0	51.09	51.09	g13P	-5.906	Extreme	11.559	20.940	21.094	0.750	0.500	0.500	123.69	122.85	7.071	5	2
XBR2	L3x2x3/16	SAU		3X2X0.1875	33.0	43.86	43.86	g16Y	-5.368	Extreme	12.241	31.410	31.641	0.500	1.000	0.500	160.76	145.07	7.810	6	3
XBR3	L3x2x3/16	SAU		3X2X0.1875	33.0	39.15	37.99	g35X	-3.746	Extreme	9.860	10.470	10.547	1.000	0.500	0.500	161.63	161.63	11.826	4	1
XBR4	L2x2x3/16	SAE		2X2X0.1875	33.0	23.85	23.85	g26Y	-2.590	Extreme	10.862	20.940	21.094	1.000	0.560	0.560	147.29	136.78	7.573	6	2
XBR5	L2.5x2x3/16	SAU		2.5X2X0.1875	33.0	22.02	22.02	g29P	-1.522	Extreme	6.910	20.940	21.094	0.560	1.000	0.560	222.71	183.17	11.135	6	2
XBR6	L1.75x1.75x1/4	SAE		1.75X1.75X0.25	33.0	89.26	89.26	g32Y	-2.015	NESC Hea	2.257	20.940	28.125	0.790	0.580	0.580	383.86	321.10	18.807	5	2
XBR7	L1.75x1.75x3/16	SAE		1.75X1.75X0.1875	33.0	50.62	0.00	g34XY	0.000		1.061	20.940	21.094	0.800	0.410	0.410	499.05	408.88	27.916	5	2
PMBR1	L2.5x2.5x3/16	SAE		2.5X2.5X0.1875	36.0	53.55	50.65	g60X	-5.164	Extreme	21.670	10.470	10.195	1.000	1.000	1.000	85.71	102.85	3.536	3	1
PMBR2	L3.5x3.5x1/4	SAE		3.5X3.5X0.25	36.0	30.73	30.73	g64P	-3.217	Extreme	16.980	10.470	13.594	1.000	1.000	1.000	168.78	168.78	9.761	4	1
HBR1	L1.75x1.75x3/16	SAE		1.75X1.75X0.1875	33.0	72.68	72.68	g37P	-4.215	Extreme	5.799	10.470	10.547	1.000	1.000	1.000	174.93	174.93	5.000	4	1
HBR2	2.5x2x3/16	SAU		2.5X2X0.1875	33.0	42.97	42.97	g41P	-4.499	Extreme	10.510	10.470	10.547	1.000	0.500	0.500	148.52	148.52	9.815	4	1
HBR3	L3x2.5x1/4	SAU		3X2.5X0.25	33.0	46.51	46.51	g43P	-4.870	Extreme	12.202	10.470	14.062	1.000	0.500	0.500	175.29	175.29	13.804	4	1
HBR4	**L4x3x1/4**	**SAU**		**4X3X0.25**	**33.0**	**45.08**	**45.08**	**g45Y**	**-4.719**	**Extreme**	**13.759**	**10.470**	**14.062**	**2.000**	**1.000**	**1.000**	**187.50**	**187.50**	**10.000**	**4**	**1**
Arm1	L3x2.5x1/4	SAU		3X2.5X0.25	33.0	20.18	20.18	g49P	-5.754	NESC Hea	28.509	31.410	42.187	1.000	0.500	0.500	97.38	108.69	7.669	3	3
Arm2	L3.5x2.5x1/4	SAU		3.5X2.5X0.25	33.0	26.71	26.71	g53P	-6.551	NESC Hea	24.527	31.410	42.187	1.000	0.500	0.500	132.50	129.56	12.013	5	3

A potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize moments): g46P g46X g46XY g46Y ??

```
   ArmBR1   L2.5x2.5x3/16   SAE   2.5X2.5X0.1875     33.0 29.15 29.15    g55P  -3.052NESC Hea   10.714   10.470   10.547 1.000 1.000 1.000  155.23
155.23  6.403     4     1
   ArmBR2   L1.75x1/4x1/4   BAR   1.75X0.25X0.25     33.0 77.43  0.00    g59Y   0.000            0.050   10.470   14.062 1.000 1.000 1.000 1588.21
1588.21  9.556     4     1
 Powermnt   12" Std. Pipe   PIP      12.75X0.375     50.0 14.97 14.97    g65P -17.263NESC Hea  115.298    0.000    0.000 1.000 1.000 1.000   73.97
73.97 27.000     1     0
```

Group Summary (Tension Portion):

Group Label	Group Desc.	Angle Type	Angle Size	Steel Strength (ksi)	Max Usage %	Max 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 Member (ft)	No. Of Bolts Tens.	No. Of Holes	Hole Diameter (in)
LEG1	L4x4x1/4	SAE	4X4X0.25	33.0	74.54	65.10	g6Y	34.292	Extreme	52.676	125.640	168.750	220.588	5.000	12	2.000	0.6875
LEG2	L4x4x5/16	SAE	4X4X0.3125	33.0	90.52	78.54	g12Y	51.068	Extreme	65.020	104.700	175.781	103.401	5.096	10	2.000	0.6875
LEG3	L4x4x3/8	SAE	4X4X0.375	33.0	98.55	54.37	g11P	42.059	Extreme	77.364	104.700	210.937	193.014	22.432	10	2.000	0.6875
XBR1	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	33.0	51.09	37.69	g13X	5.497	Extreme	14.585	20.940	21.094	16.189	7.071	2	1.000	0.6875
XBR2	L3x2x3/16	SAU	3X2X0.1875	33.0	43.86	31.84	g23XY	7.292	Extreme	22.901	31.410	31.641	28.125	7.071	3	1.000	0.6875
XBR3	L3x2x3/16	SAU	3X2X0.1875	33.0	39.15	39.15	g35Y	3.021	Extreme	17.333	10.470	10.547	7.717	11.826	1	1.000	0.6875
XBR4	L2x2x3/16	SAE	2X2X0.1875	33.0	23.85	14.63	g25XY	2.229	Extreme	17.258	20.940	21.094	15.240	7.573	2	1.000	0.6875
XBR5	L2.5x2x3/16	SAU	2.5X2X0.1875	33.0	22.02	9.90	g28P	1.855	Extreme	20.228	20.940	21.094	18.750	9.373	2	1.000	0.6875
XBR6	L1.75x1.75x1/4	SAE	1.75X1.75X0.25	33.0	89.26	28.22	g32XY	5.373	Extreme	19.041	20.940	28.125	24.820	18.807	2	1.000	0.6875
XBR7	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	33.0	50.62	50.62	g33XY	7.382	Extreme	14.585	20.940	21.094	17.420	27.916	2	1.000	0.6875
PMBR1	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	36.0	53.55	53.55	g60Y	5.460	Extreme	25.048	10.470	10.195	0.000	3.536	1	1.000	0.6875
PMBR2	L3.5x3.5x1/4	SAE	3.5X3.5X0.25	36.0	30.73	4.01	g64Y	0.420	NESC Hea	49.187	10.470	13.594	0.000	9.761	1	1.000	0.6875
HBR1	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	33.0	72.68	51.66	g38P	3.986	Extreme	14.585	10.470	10.547	7.717	5.000	1	1.000	0.6875
HBR2	2.5x2x3/16	SAU	2.5X2X0.1875	33.0	42.97	19.11	g41X	1.475	NESC Hea	17.444	10.470	10.547	7.717	9.815	1	1.000	0.6875
HBR3	L3x2.5x1/4	SAU	3X2.5X0.25	33.0	46.51	13.18	g43X	1.380	Extreme	30.090	10.470	14.062	12.500	13.804	1	1.000	0.6875
HBR4	**L4x3x1/4**	**SAU**	**4X3X0.25**	**33.0**	**45.08**	**17.48**	**g46X**	**1.831**	**Extreme**	**37.663**	**10.470**	**14.062**	**12.500**	**10.000**	**1**	**1.000**	**0.6875**

A potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize moments): g46P g46X g46XY g46Y ??

Arm1	L3x2.5x1/4	SAU	3X2.5X0.25	33.0	20.18	12.57	g48P	5.435	Extreme	43.230	0.000	0.000	0.000	5.000	0	0.000	0.6875
Arm2	L3.5x2.5x1/4	SAU	3.5X2.5X0.25	33.0	26.71	0.00	g54Y	0.000		47.520	0.000	0.000	0.000	5.000	0	0.000	0.6875
ArmBR1	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	33.0	29.15	0.00	g55X	0.000		22.961	10.470	10.547	0.000	6.403	1	1.000	0.6875

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   ArmBR2   L1.75x1/4x1/4   BAR   1.75X0.25X0.25     33.0 77.43 77.43    g57Y   6.108NESC Hea    7.889   10.470   14.062    0.000 12.382     1 1.000
0.6875
 Powermnt   12" Std. Pipe   PIP      12.75X0.375     50.0 14.97  0.00    g71P   0.000          729.999    0.000    0.000    0.000  9.000     0 0.000
0
```

*** Maximum Stress Summary for Each Load Case

Summary of Maximum Usages by Load Case:

Load Case	Maximum Usage %	Element Label	Element Type
NESC Heavy - Transverse	88.05	g31Y	Angle
Extreme Wind - Transverse	98.55	g11X	Angle
NESC Heavy - Longitudinal	89.26	g32Y	Angle
Extreme Wind - Longitudinal	88.78	g11X	Angle

Summary of Insulator Usages:

Insulator Label	Insulator Type	Maximum Usage %	Load Case	Weight (lbs)
1	Clamp	8.78	NESC Heavy - Transverse	0.0
2	Clamp	5.57	NESC Heavy - Transverse	0.0
3	Clamp	10.73	NESC Heavy - Transverse	0.0
4	Clamp	10.65	NESC Heavy - Transverse	0.0
5	Clamp	10.79	NESC Heavy - Transverse	0.0
6	Clamp	10.74	NESC Heavy - Transverse	0.0
7	Clamp	10.67	NESC Heavy - Transverse	0.0
8	Clamp	10.62	NESC Heavy - Transverse	0.0
14	Clamp	3.66	Extreme Wind - Transverse	0.0
15	Clamp	3.95	NESC Heavy - Transverse	0.0
16	Clamp	4.25	Extreme Wind - Transverse	0.0
17	Clamp	2.57	Extreme Wind - Transverse	0.0
18	Clamp	1.75	Extreme Wind - Transverse	0.0
19	Clamp	4.37	Extreme Wind - Longitudinal	0.0
20	Clamp	0.99	Extreme Wind - Transverse	0.0
21	Clamp	1.54	Extreme Wind - Transverse	0.0
22	Clamp	0.99	Extreme Wind - Transverse	0.0
23	Clamp	0.99	Extreme Wind - Transverse	0.0
24	Clamp	0.99	Extreme Wind - Transverse	0.0
25	Clamp	9.17	Extreme Wind - Transverse	0.0
26	Clamp	2.94	NESC Heavy - Transverse	0.0
27	Clamp	3.56	NESC Heavy - Transverse	0.0
28	Clamp	4.67	NESC Heavy - Transverse	0.0
29	Clamp	9.20	NESC Heavy - Transverse	0.0
30	Clamp	15.50	NESC Heavy - Transverse	0.0
31	Clamp	6.47	NESC Heavy - Transverse	0.0
32	Clamp	4.13	Extreme Wind - Longitudinal	0.0
33	Clamp	5.18	Extreme Wind - Longitudinal	0.0
34	Clamp	6.62	Extreme Wind - Longitudinal	0.0
35	Clamp	7.23	Extreme Wind - Longitudinal	0.0
36	Clamp	6.37	Extreme Wind - Longitudinal	0.0
37	Clamp	1.77	Extreme Wind - Longitudinal	0.0

38	Clamp	2.39	Extreme Wind - Longitudinal	0.0
39	Clamp	3.68	Extreme Wind - Longitudinal	0.0
40	Clamp	3.52	Extreme Wind - Longitudinal	0.0
41	Clamp	3.24	Extreme Wind - Longitudinal	0.0
42	Clamp	1.77	Extreme Wind - Longitudinal	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 - Transverse	1	Clamp	2P	0.000	1.104	2.392	2.634
NESC Heavy - Transverse	2	Clamp	2X	0.000	0.821	1.455	1.670
NESC Heavy - Transverse	3	Clamp	4P	0.000	1.242	2.969	3.218
NESC Heavy - Transverse	4	Clamp	4X	0.000	1.179	2.969	3.194
NESC Heavy - Transverse	5	Clamp	8P	0.000	1.221	2.998	3.237
NESC Heavy - Transverse	6	Clamp	8X	0.000	1.179	2.998	3.221
NESC Heavy - Transverse	7	Clamp	11P	0.000	1.225	2.958	3.202
NESC Heavy - Transverse	8	Clamp	11X	0.000	1.179	2.958	3.185
NESC Heavy - Transverse	14	Clamp	16P	0.000	0.411	0.777	0.879
NESC Heavy - Transverse	15	Clamp	15P	0.000	0.531	1.059	1.184
NESC Heavy - Transverse	16	Clamp	14P	0.000	0.375	0.701	0.795
NESC Heavy - Transverse	17	Clamp	10P	0.000	0.237	0.487	0.541
NESC Heavy - Transverse	18	Clamp	7P	0.000	0.200	0.422	0.467
NESC Heavy - Transverse	19	Clamp	3X	0.000	0.062	0.750	0.752
NESC Heavy - Transverse	20	Clamp	1P	0.000	0.084	0.201	0.218
NESC Heavy - Transverse	21	Clamp	3P	0.000	0.190	0.382	0.427
NESC Heavy - Transverse	22	Clamp	1X	0.000	0.018	0.201	0.202
NESC Heavy - Transverse	23	Clamp	1XY	0.000	0.018	0.201	0.202
NESC Heavy - Transverse	24	Clamp	3XY	0.000	0.018	0.244	0.244
NESC Heavy - Transverse	25	Clamp	23P	0.000	0.943	2.406	2.584
NESC Heavy - Transverse	26	Clamp	24P	0.000	0.191	0.860	0.881
NESC Heavy - Transverse	27	Clamp	25P	0.000	0.250	1.037	1.067
NESC Heavy - Transverse	28	Clamp	26P	0.000	0.434	1.332	1.401
NESC Heavy - Transverse	29	Clamp	27P	0.000	0.829	2.633	2.760
NESC Heavy - Transverse	30	Clamp	28P	0.000	1.238	4.481	4.649
NESC Heavy - Transverse	31	Clamp	22P	0.000	0.543	1.864	1.941
NESC Heavy - Transverse	32	Clamp	7X	0.000	0.044	0.675	0.676
NESC Heavy - Transverse	33	Clamp	10X	0.000	0.054	0.798	0.799
NESC Heavy - Transverse	34	Clamp	14X	0.000	0.064	1.069	1.071
NESC Heavy - Transverse	35	Clamp	15X	0.000	0.074	1.485	1.486
NESC Heavy - Transverse	36	Clamp	16X	0.000	0.064	1.145	1.147
NESC Heavy - Transverse	37	Clamp	7Y	0.000	0.135	0.358	0.382
NESC Heavy - Transverse	38	Clamp	10Y	0.000	0.158	0.409	0.438
NESC Heavy - Transverse	39	Clamp	14Y	0.000	0.281	0.608	0.670
NESC Heavy - Transverse	40	Clamp	15Y	0.000	0.423	0.952	1.041
NESC Heavy - Transverse	41	Clamp	16Y	0.000	0.317	0.684	0.754
NESC Heavy - Transverse	42	Clamp	3Y	0.000	0.153	0.361	0.392
Extreme Wind - Transverse	1	Clamp	2P	0.000	1.235	0.822	1.484
Extreme Wind - Transverse	2	Clamp	2X	0.000	0.676	0.456	0.816
Extreme Wind - Transverse	3	Clamp	4P	0.000	1.497	1.137	1.880
Extreme Wind - Transverse	4	Clamp	4X	0.000	1.497	1.137	1.880
Extreme Wind - Transverse	5	Clamp	8P	0.000	1.497	1.137	1.880
Extreme Wind - Transverse	6	Clamp	8X	0.000	1.497	1.137	1.880
Extreme Wind - Transverse	7	Clamp	11P	0.000	1.497	1.137	1.880
Extreme Wind - Transverse	8	Clamp	11X	0.000	1.497	1.137	1.880
Extreme Wind - Transverse	14	Clamp	16P	0.000	1.016	0.419	1.099

Extreme Wind - Transverse	15	Clamp	15P	0.000	1.084	0.434	1.167
Extreme Wind - Transverse	16	Clamp	14P	0.000	1.172	0.500	1.274
Extreme Wind - Transverse	17	Clamp	10P	0.000	0.718	0.278	0.770
Extreme Wind - Transverse	18	Clamp	7P	0.000	0.493	0.182	0.526
Extreme Wind - Transverse	19	Clamp	3X	0.000	0.361	0.280	0.457
Extreme Wind - Transverse	20	Clamp	1P	0.000	0.261	0.143	0.298
Extreme Wind - Transverse	21	Clamp	3P	0.000	0.424	0.180	0.461
Extreme Wind - Transverse	22	Clamp	1X	0.000	0.261	0.143	0.298
Extreme Wind - Transverse	23	Clamp	1XY	0.000	0.261	0.143	0.298
Extreme Wind - Transverse	24	Clamp	3XY	0.000	0.261	0.143	0.298
Extreme Wind - Transverse	25	Clamp	23P	0.000	2.616	0.848	2.750
Extreme Wind - Transverse	26	Clamp	24P	0.000	0.293	0.212	0.362
Extreme Wind - Transverse	27	Clamp	25P	0.000	0.314	0.233	0.391
Extreme Wind - Transverse	28	Clamp	26P	0.000	0.349	0.249	0.429
Extreme Wind - Transverse	29	Clamp	27P	0.000	1.072	0.729	1.296
Extreme Wind - Transverse	30	Clamp	28P	0.000	1.191	0.928	1.510
Extreme Wind - Transverse	31	Clamp	22P	0.000	1.680	0.834	1.876
Extreme Wind - Transverse	32	Clamp	7X	0.000	0.293	0.250	0.385
Extreme Wind - Transverse	33	Clamp	10X	0.000	0.473	0.362	0.595
Extreme Wind - Transverse	34	Clamp	14X	0.000	0.881	0.600	1.066
Extreme Wind - Transverse	35	Clamp	15X	0.000	0.748	0.550	0.928
Extreme Wind - Transverse	36	Clamp	16X	0.000	0.725	0.519	0.891
Extreme Wind - Transverse	37	Clamp	7Y	0.000	0.271	0.157	0.313
Extreme Wind - Transverse	38	Clamp	10Y	0.000	0.446	0.247	0.510
Extreme Wind - Transverse	39	Clamp	14Y	0.000	0.850	0.463	0.968
Extreme Wind - Transverse	40	Clamp	15Y	0.000	0.712	0.392	0.812
Extreme Wind - Transverse	41	Clamp	16Y	0.000	0.694	0.382	0.792
Extreme Wind - Transverse	42	Clamp	3Y	0.000	0.271	0.157	0.313
NESC Heavy - Longitudinal	1	Clamp	2P	0.000	0.037	2.392	2.392
NESC Heavy - Longitudinal	2	Clamp	2X	0.000	0.000	1.455	1.455
NESC Heavy - Longitudinal	3	Clamp	4P	0.000	0.063	2.969	2.970
NESC Heavy - Longitudinal	4	Clamp	4X	0.000	0.000	2.969	2.969
NESC Heavy - Longitudinal	5	Clamp	8P	0.000	0.042	2.998	2.998
NESC Heavy - Longitudinal	6	Clamp	8X	0.000	0.000	2.998	2.998
NESC Heavy - Longitudinal	7	Clamp	11P	0.000	0.046	2.958	2.959
NESC Heavy - Longitudinal	8	Clamp	11X	0.000	0.000	2.958	2.958
NESC Heavy - Longitudinal	14	Clamp	16P	0.148	0.263	0.777	0.834
NESC Heavy - Longitudinal	15	Clamp	15P	0.171	0.360	1.059	1.131
NESC Heavy - Longitudinal	16	Clamp	14P	0.148	0.227	0.701	0.752
NESC Heavy - Longitudinal	17	Clamp	10P	0.125	0.112	0.487	0.515
NESC Heavy - Longitudinal	18	Clamp	7P	0.102	0.098	0.422	0.445
NESC Heavy - Longitudinal	19	Clamp	3X	0.381	0.000	0.750	0.841
NESC Heavy - Longitudinal	20	Clamp	1P	0.018	0.066	0.201	0.213
NESC Heavy - Longitudinal	21	Clamp	3P	0.074	0.116	0.382	0.406
NESC Heavy - Longitudinal	22	Clamp	1X	0.018	0.000	0.201	0.202
NESC Heavy - Longitudinal	23	Clamp	1XY	0.018	0.000	0.201	0.202
NESC Heavy - Longitudinal	24	Clamp	3XY	0.018	0.000	0.244	0.244
NESC Heavy - Longitudinal	25	Clamp	23P	0.679	0.306	2.406	2.519
NESC Heavy - Longitudinal	26	Clamp	24P	0.096	0.153	0.860	0.879
NESC Heavy - Longitudinal	27	Clamp	25P	0.117	0.204	1.037	1.064
NESC Heavy - Longitudinal	28	Clamp	26P	0.151	0.374	1.332	1.392
NESC Heavy - Longitudinal	29	Clamp	27P	0.288	0.714	2.633	2.743
NESC Heavy - Longitudinal	30	Clamp	28P	0.591	1.003	4.481	4.630
NESC Heavy - Longitudinal	31	Clamp	22P	0.390	0.153	1.864	1.910
NESC Heavy - Longitudinal	32	Clamp	7X	0.363	0.000	0.675	0.766
NESC Heavy - Longitudinal	33	Clamp	10X	0.446	0.000	0.798	0.914
NESC Heavy - Longitudinal	34	Clamp	14X	0.528	0.000	1.069	1.192
NESC Heavy - Longitudinal	35	Clamp	15X	0.611	0.000	1.485	1.605
NESC Heavy - Longitudinal	36	Clamp	16X	0.528	0.000	1.145	1.261

NESC Heavy - Longitudinal	37	Clamp	7Y	0.151	0.098	0.358	0.401
NESC Heavy - Longitudinal	38	Clamp	10Y	0.185	0.112	0.409	0.462
NESC Heavy - Longitudinal	39	Clamp	14Y	0.220	0.227	0.608	0.685
NESC Heavy - Longitudinal	40	Clamp	15Y	0.254	0.360	0.952	1.049
NESC Heavy - Longitudinal	41	Clamp	16Y	0.220	0.263	0.684	0.765
NESC Heavy - Longitudinal	42	Clamp	3Y	0.151	0.116	0.361	0.408
Extreme Wind - Longitudinal	1	Clamp	2P	0.000	0.193	0.822	0.844
Extreme Wind - Longitudinal	2	Clamp	2X	0.000	0.193	0.456	0.495
Extreme Wind - Longitudinal	3	Clamp	4P	0.000	0.193	1.137	1.153
Extreme Wind - Longitudinal	4	Clamp	4X	0.000	0.193	1.137	1.153
Extreme Wind - Longitudinal	5	Clamp	8P	0.000	0.193	1.137	1.153
Extreme Wind - Longitudinal	6	Clamp	8X	0.000	0.193	1.137	1.153
Extreme Wind - Longitudinal	7	Clamp	11P	0.000	0.193	1.137	1.153
Extreme Wind - Longitudinal	8	Clamp	11X	0.000	0.193	1.137	1.153
Extreme Wind - Longitudinal	14	Clamp	16P	0.436	0.580	0.419	0.838
Extreme Wind - Longitudinal	15	Clamp	15P	0.504	0.580	0.434	0.882
Extreme Wind - Longitudinal	16	Clamp	14P	0.436	0.736	0.500	0.991
Extreme Wind - Longitudinal	17	Clamp	10P	0.368	0.350	0.278	0.579
Extreme Wind - Longitudinal	18	Clamp	7P	0.300	0.193	0.182	0.401
Extreme Wind - Longitudinal	19	Clamp	3X	1.267	0.193	0.280	1.312
Extreme Wind - Longitudinal	20	Clamp	1P	0.068	0.193	0.143	0.250
Extreme Wind - Longitudinal	21	Clamp	3P	0.231	0.193	0.180	0.351
Extreme Wind - Longitudinal	22	Clamp	1X	0.068	0.193	0.143	0.250
Extreme Wind - Longitudinal	23	Clamp	1XY	0.068	0.193	0.143	0.250
Extreme Wind - Longitudinal	24	Clamp	3XY	0.068	0.193	0.143	0.250
Extreme Wind - Longitudinal	25	Clamp	23P	2.565	0.193	0.848	2.708
Extreme Wind - Longitudinal	26	Clamp	24P	0.299	0.193	0.212	0.414
Extreme Wind - Longitudinal	27	Clamp	25P	0.363	0.193	0.233	0.473
Extreme Wind - Longitudinal	28	Clamp	26P	0.469	0.193	0.249	0.565
Extreme Wind - Longitudinal	29	Clamp	27P	0.896	0.773	0.729	1.390
Extreme Wind - Longitudinal	30	Clamp	28P	1.834	0.580	0.928	2.136
Extreme Wind - Longitudinal	31	Clamp	22P	1.487	0.193	0.834	1.716
Extreme Wind - Longitudinal	32	Clamp	7X	1.199	0.193	0.250	1.240
Extreme Wind - Longitudinal	33	Clamp	10X	1.471	0.350	0.362	1.555
Extreme Wind - Longitudinal	34	Clamp	14X	1.744	0.736	0.600	1.986
Extreme Wind - Longitudinal	35	Clamp	15X	2.016	0.580	0.550	2.169
Extreme Wind - Longitudinal	36	Clamp	16X	1.744	0.580	0.519	1.910
Extreme Wind - Longitudinal	37	Clamp	7Y	0.469	0.193	0.157	0.531
Extreme Wind - Longitudinal	38	Clamp	10Y	0.576	0.350	0.247	0.718
Extreme Wind - Longitudinal	39	Clamp	14Y	0.682	0.736	0.463	1.105
Extreme Wind - Longitudinal	40	Clamp	15Y	0.789	0.580	0.392	1.055
Extreme Wind - Longitudinal	41	Clamp	16Y	0.682	0.580	0.382	0.973
Extreme Wind - Longitudinal	42	Clamp	3Y	0.469	0.193	0.157	0.531

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 - Transverse	11.976	0.000	35.911	837.644	23.641
Extreme Wind - Transverse	18.554	0.000	12.011	1303.931	6.795
NESC Heavy - Longitudinal	0.000	7.190	35.911	-9.587	401.739
Extreme Wind - Longitudinal	0.000	23.568	12.011	-3.757	1278.060

*** Weight of structure (lbs):

```
    Weight of Angles*Section DLF:     13831.2
    Total:                            13831.2

*** End of Report
```

Foundation Analysis

Input Data:

Max. Reactions at Tower Leg:

Shear =	$Shear := 28.7 \cdot 1.1 \cdot kips = 31.6 \cdot kips$	(User Input)	Combined Reactions from Two Adjacents Legs
Compression =	$Comp := 118.1 \cdot 1.1 \cdot kips = 129.9 \cdot kips$	(User Input)	
Uplift =	$Uplift := 98.5 \cdot 1.1 \cdot kips = 108.4 \cdot kips$	(User Input)	

Tower Properties:

Tower Height =	$H_t := 86 \cdot ft$	(User Input)

Foundation Properties:

Pier Height =	$P_H := 2.25 \cdot ft$	(User Input)
Pier Width =	$P_W := 5 \cdot ft$	(User Input)
Pier Length =	$P_l := 3.33 \cdot ft$	(User Input)
Pier Projection Above Grade =	$P_P := 0 \cdot ft$	(User Input)
Pad Width =	$Pd_W := 5 \cdot ft$	(User Input)
Pad Thickness =	$Pd_t := 2 \cdot ft$	(User Input)
Matt Width =	$Mat_W := 10 \cdot ft$	(User Input)
Matt Length =	$Mat_l := 24 \cdot ft$	(User Input)
Matt Thickness =	$Mat_t := 3 \cdot ft$	(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 =	$\psi := 30.0 \cdot deg$	(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 = $K_p := \frac{1 + \sin(\psi)}{1 - \sin(\psi)} = 3$

Calculated Data:

Volume of the Concrete Pad = $V_{pad} := Pd_w^2 \cdot Pd_t = 50 \cdot ft^3$

Volume of the Concrete Pier = $V_{pier} := P_w \cdot P_l \cdot P_H = 37.46 \cdot ft^3$

Volume of Mat = $V_{mat} := Mat_w \cdot Mat_l \cdot Mat_t = 720 \cdot ft^3$

Total Volume of Concrete = $V_{Conc} := V_{pad} \cdot 2 + V_{pier} \cdot 2 + V_{mat} = 895 \cdot ft^3$

Volume of Soil = $V_{soil} := 2 \cdot P_w \cdot (P_w - P_l) \cdot (P_H + Mat_t) = 88 \cdot ft^3$

Mass of Concrete = $Mass_{Conc} := V_{Conc} \cdot \gamma c = 134.2 \cdot kips$

Mass of Soil = $Mass_{Soil} := V_{soil} \cdot \gamma s = 9 \cdot kips$

Total Mass = $Mass_{tot} := Mass_{Conc} + Mass_{Soil} = 143 \cdot kips$

Check Uplift:

Required Factor of Safety = $F_S := 1.0$

$$ActualFS := \frac{Mass_{tot}}{Uplift} = 1.32$$

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

Uplift_Check = "OK"

Check Bearing:

Cross Sectional Area of Pad = $A_{pad} := Mat_w \cdot Mat_l = 240 ft^2$

Section Modulus of Pad = $S_{pad} := \frac{Mat_l \cdot Mat_w^2}{6} = 400 \cdot ft^3$

Residual Mass of Concrete = $Mass_{Concr} := V_{Conc} \cdot (\gamma c - \gamma s) = 44.7 \cdot kips$

$$Bearing := \frac{Comp + Mass_{Concr}}{A_{pad}} + \frac{Shear \cdot (Mat_t + P_H + Pd_t)}{S_{pad}} = 1.3 \cdot ksf$$

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

Bearing_Check = "OK"

Check Sliding:

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

Sliding_Check = "OK"

Foundation Analysis

Input Data:

Max. Reactions at Tower Leg:

Shear =	$Shear := 14.9 \cdot 1.1 \cdot kips = 16.4 \cdot kips$	(User Input)
Compression =	$Comp := 60.4 \cdot 1.1 \cdot kips = 66.4 \cdot kips$	(User Input)
Uplift =	$Uplift := 52.0 \cdot 1.1 \cdot kips = 57.2 \cdot kips$	(User Input)

Tower Properties:

Tower Height =	$H_t := 86 \cdot ft$	(User Input)

Foundation Properties:

Pier Height =	$P_H := 3.75 \cdot ft$	(User Input)
Pier Width Top =	$P_{w1} := 1.67 \cdot ft$	(User Input)
Pier Width Botttom =	$P_{w2} := 2.14 \cdot ft$	(User Input)
Pier Projection Above Grade =	$P_P := 2.75 \cdot ft$	(User Input)
Pad Width =	$Pd_w := 10 \cdot ft$	(User Input)
Pad Thickness =	$Pd_t := 3.5 \cdot ft$	(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 =	$\psi := 30.0 \cdot deg$	(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 = $K_p := \frac{1 + \sin(\psi)}{1 - \sin(\psi)} = 3$

Calculated Data:

Volume of the Concrete Pad = $V_{pad} := Pd_w^2 \cdot Pd_t = 350 \cdot ft^3$

Volume of the Concrete Pier = $V_{pier} := \frac{(P_H)}{3} \cdot \left(P_{w1}^2 + P_{w2}^2 + \sqrt{P_{w1}^2 \cdot P_{w2}^2}\right) = 13.68 \cdot ft^3$

Resisting Pyramid Base 1 = $B_1 := Pd_w^2 = 100 ft^2$

Resisting Pyramid Base 2 = $B_2 := \left[2 \cdot \tan(\psi) \cdot (P_H - P_P) + Pd_w\right]^2 = 124 ft^2$

Volume of Soil = $V_{soil} := \left[\frac{(P_H - P_P)}{3} \cdot \left(B_1 + B_2 + \sqrt{B_1 \cdot B_2}\right)\right] - V_{pier} = 98 \cdot ft^3$

Total Volume of Concrete = $V_{Conc} := V_{pad} + V_{pier} = 364 \cdot ft^3$

Mass of Concrete = $Mass_{Conc} := V_{Conc} \cdot \gamma c = 54.6 \cdot kips$

Mass of Soil = $Mass_{Soil} := V_{soil} \cdot \gamma s = 10 \cdot kips$

Total Mass = $Mass_{tot} := Mass_{Conc} + Mass_{Soil} = 64 \cdot kips$

<u>Check Uplift:</u>

Required Factor of Safety = $F_S := 1.0$

$ActualFS := \frac{Mass_{tot}}{Uplift} = 1.13$

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

Uplift_Check = "OK"

<u>Check Bearing:</u>

Cross Sectional Area of Pad = $A_{pad} := Pd_w^2 = 100 ft^2$

Section Modulus of Pad = $S_{pad} := \frac{(Pd_w)^3}{6} = 167 \cdot ft^3$

Residual Mass of Concrete = $Mass_{Concr} := V_{Conc} \cdot (\gamma c - \gamma s) = 18.2 \cdot kips$

$Bearing := \frac{Comp + Mass_{Concr}}{A_{pad}} + \frac{Shear \cdot (P_H + Pd_t)}{S_{pad}} = 1.56 \cdot ksf$

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

Bearing_Check = "OK"

Check Overturning:

Passive Pressure on Pad =

$P_{top1} := K_p \cdot \gamma s \cdot (P_H - P_P) = 0.3 \cdot ksf$

$P_{bot1} := K_p \cdot \gamma s \cdot (P_H - P_P + Pd_t) = 1.35 \cdot ksf$

$P_{ave1} := \frac{P_{top1} + P_{bot1}}{2} = 0.825 \cdot ksf$

$A_{p1} := Pd_w \cdot Pd_t = 35 ft^2$

Ultimate Shear on Pad=

$S_{u1} := P_{ave1} \cdot A_{p1} = 28.875 \cdot kip$

Mass of Soil Above Footing =

$Mass_{sAF} := \left(Pd_w^{\,2} \cdot P_H - V_{pier}\right) \cdot \gamma s = 36 \cdot k$

Mass of Soil at Back Face of Footing =

$Mass_{sBF} := \left(\frac{1}{2} \cdot \tan(\psi) \cdot P_H^{\,2} \cdot Pd_w\right) \cdot \gamma s = 4 \cdot k$

Overturning Moment =

$OM := Uplift \cdot \left(\frac{Pd_w}{2}\right) + Shear \cdot (P_H + Pd_t) = 405 \cdot k \cdot ft$

Resisting Moment =

$$MR := \left(Mass_{Conc} + Mass_{sAF}\right) \cdot \left(\frac{Pd_w}{2}\right) + Mass_{sBF} \cdot \left(Pd_w + \tan(\psi) \cdot \frac{P_H}{3}\right) + S_{u1} \cdot \frac{Pd_t}{3} = 531 \cdot k \cdot ft$$

$Overturing := \frac{MR}{OM} = 1.31$

Overturning_Check := if(OM ≤ MR, "OK", "No Good")

Overturning_Check = "OK"

Check Sliding:

Sliding_Check := if(Shear ≤ μ·Comp, "OK", "No Good")

Sliding_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)

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

EBI Consulting

environmental | engineering | due diligence

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

Sprint Existing Facility

Site ID: CT03XC333

NU - Fairfield (CL&P)
280 Morehead Avenue
Fairfield, CT 06825

June 4, 2013

EBI Project Number: 62136518

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

June 4, 2013

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

Re: Emissions Values for Site: **CT03XC333 – NU - Fairfield (CL&P)**

EBI Consulting was directed to analyze the proposed upgrades to the existing Sprint facility located at 280 Morehead Avenue, Fairfield, 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 280 Morehead Avenue, Fairfield, 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) 4 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 antenna used in this modeling is the RFS APXVSPP18-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. 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 **104 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	CT03XC333 - NU - Fairfield (CL&P)
Site Addresss	281 Morehead Avenue, Fairfield, CT, 06825
Site Type	Utility Transmission Tower

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	APXVSPP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	4	80	15.9	104	98	1/2 "	0.5	0	2773.8948	103.835	10.384%
1a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	104	98	1/2 "	0.5	0	389.96892	14.59768	2.575%
														Sector total Power Density Value:		12.958%	

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	4	80	15.9	104	98	1/2 "	0.5	0	2773.8948	103.835	10.384%
2a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	104	98	1/2 "	0.5	0	389.96892	14.59768	2.575%
														Sector total Power Density Value:		12.958%	

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	4	80	15.9	104	98	1/2 "	0.5	0	2773.8948	103.835	10.384%
3a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	104	98	1/2 "	0.5	0	389.96892	14.59768	2.575%
														Sector total Power Density Value:		12.958%	

Site Composite MPE %	
Carrier	MPE %
Sprint	38.874%
AT&T	30.390%
T-Mobile	0.290%
Total Site MPE %	**69.554%**

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 **38.874% (12.958% from each sector individually)** 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 **69.554%** 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

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

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Burlington, MA 01803