10 Industrial Ave,
Suite 3
Mahwah NJ 07430

Phone: 201.684.0055
Fax: 201.684.0066

October 1, 2019

Members of the Siting Council
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Notice of Exempt Modification
280 Morehouse Dr. Fairfield, CT 06825
Latitude: 41.209978
Longitude: -73.261567
Sprint Site#: CT03XC333 – DO Macro

Dear Ms. Bachman:

Sprint currently maintains three (3) antennas at the 104-foot level of the existing 104-foot transmission tower at 280 Morehouse Dr. Fairfield, CT. The 104-foot transmission tower is owned by The Connecticut Light & Power Company, d/b/a Eversource Energy and property is owned by Zhang Chijian and Hu Yuzhi. Sprint now intends to replace three (3) of its existing antennas with three (3) new 800/1900/2500 MHz antennas. The new antennas will be installed at the same 104-foot level of the tower.

Planned Modifications:
Tower:

Remove
N/A

Remove and Replace:
(3) RFS APXVSPP18-C antennas (Remove) - CommScope DHHTT65B-3XR antennas (Replace)
800/1900/2500 MHz

Install New:
(3) RFS KIT-FD9R6004 / 1C-DL diplexers
(3) CCI DPO-7126Y-0-T1 diplexers

Existing to Remain:
(18) 1-5/8" coax cables

Ground:

Install New: (3) RFS KIT-FD9R6004 / 1C-DL diplexers, (3) CCI DPO-7126Y-0-T1 diplexers, (3) 2500 MHz RRHs

This facility was approved by the CSC for Sprint use in Petition No. 383 dated November 19, 1997. This modification complies with this approval. Please see the enclosed.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies§ 16- SOj-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.SA. § 16-SOj-73, a copy of this letter is being sent to First Selectman – Michael C. Tetreau, Elected Official, and Jim Wendt, Planning Director for the Town of Fairfield, as well as the owners.

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

1. The proposed modifications will not result in an increase in the height of the existing structure.

2. The proposed modifications will not require the extension of the site boundary.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The existing structure and its foundation can support the proposed loading.

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

Sincerely,

Jake Shappy
Transcend Wireless
Cell: 845-553-3330
Email: jshappy@transcendwireless.com

Attachments
cc: Michael C. Tetreau – Town of Fairfield Mayor
Jim Wendt – Town of Fairfield Planning Director
Zhang Chijian and Hu Yuzhi – property owner
The Connecticut Light & Power Company, d/b/a Eversource Energy – tower owner

EVERSOURCE ENERGY

56 Prospect Street,
Hartford, CT 06103

P.O. Box 270
Hartford, CT 06141-0270
(860) 665-5000

August 15, 2019

Mr. Jake Shappy
Transcend Mobile
10 Industrial Ave, Suite 3
Mahwah, NJ 07430

RE: Sprint Antenna Site, CT-03XC333, Morehouse Road, Fairfield, CT, structure 876

Dear Mr. Shappy:

Based on the structural report and construction drawings provided by Centek Engineering, as well as a review of the structural report by Paul J. Ford & Company, Eversource accepts the proposed modification of the subject Sprint site.

Please contact Christopher Gelinas of Eversource Real Estate at 860-665-2008 to complete the site lease amendment if needed. Please contact me at 860-728-4503 for other questions regarding this site.

Sincerely,

Joel Szarkowicz
Transmission Line Engineering

REF: 17159.06 - CT03XC333 - Structural Analysis Rev2 18.11.12
17159.06 CT03XC333 Fairfield - CD Rev.1 18.11.29 S&S

Petition No. 383
Sprint Personal Communications System
Fairfield, Connecticut
Staff Report
November 19, 1997

On November 10, 1997, Edward S. Wilensky of the Connecticut Siting Council (Council), and Fred O. Cunliffe of the Council staff met Karen Johnson representing Sprint Personal Communications System (Sprint), and Dorian Hill of the Connecticut Light and Power Company (CL&P) for a field review of this petition in Fairfield, Connecticut. Sprint is petitioning the Council for a determination that no Certificate of Environmental Compatibility and Public Need would be required for proposed modifications to a structure on the existing CL&P Weston to Pequonnock to Devon and Norwalk to Hawthorne double circuit 115 kV electric transmission lines, because the proposed construction would not have a substantial adverse environmental effect.

Sprint proposes to install a 101-foot power mount pole within an existing 86-foot CL&P transmission line structure off of Morehouse Drive in Fairfield, Connecticut. This new monopole with antennas would extend approximately 18 feet above the existing transmission line structure. Sprint would attach nine panel antennas to a platform on the power mount pole, and install communications equipment on an 8-foot by 11-foot concrete pad adjacent to the existing tower. Two supports of the tower and equipment would be surrounded by a 6-foot chain link security fence. An approximate 12-foot by 65-foot stone-covered access drive and staging area is proposed to be constructed off Morehouse Drive to the site. Utilities would run overhead from an existing pole across Morehouse Drive to a new pole placed within the CL&P right-of-way and placed underground to Sprint's equipment. A United Illuminating representative investigated the placement of utilities underground from the existing pole; however, this pole location is not configured to allow for permanent underground utility connection. While clearing of a six-inch cedar tree and shrub vegetation would be required, Sprint proposes to use erosion and sedimentation controls consistent with the Connecticut Guidelines for Soil Erosion and Sediment Control, as amended, and to plant four (six-foot) white pines on the southeast corner of the fenced site.

The existing transmission structure is adjacent to Morehouse Drive and is approximately 125 feet from three homes, one each located north, east, and south of the transmission structure. Sprint has informed these neighbors of the proposed project. Adjacent steel lattice structures on this line are 86- and 81-feet in height but are at lower elevations and do not have short access.

The installation and operation of the proposed PCS antennas would not increase the total radio frequency electromagnetic power density of the proposed site to a level at or above the State standards for the proposed antenna frequencies. Based on conservative assumptions, the power density at the base of the proposed tower would constitute 4.7 percent of the maximum permissible exposure for the proposed frequencies, as defined by the Federal Communications Commission.

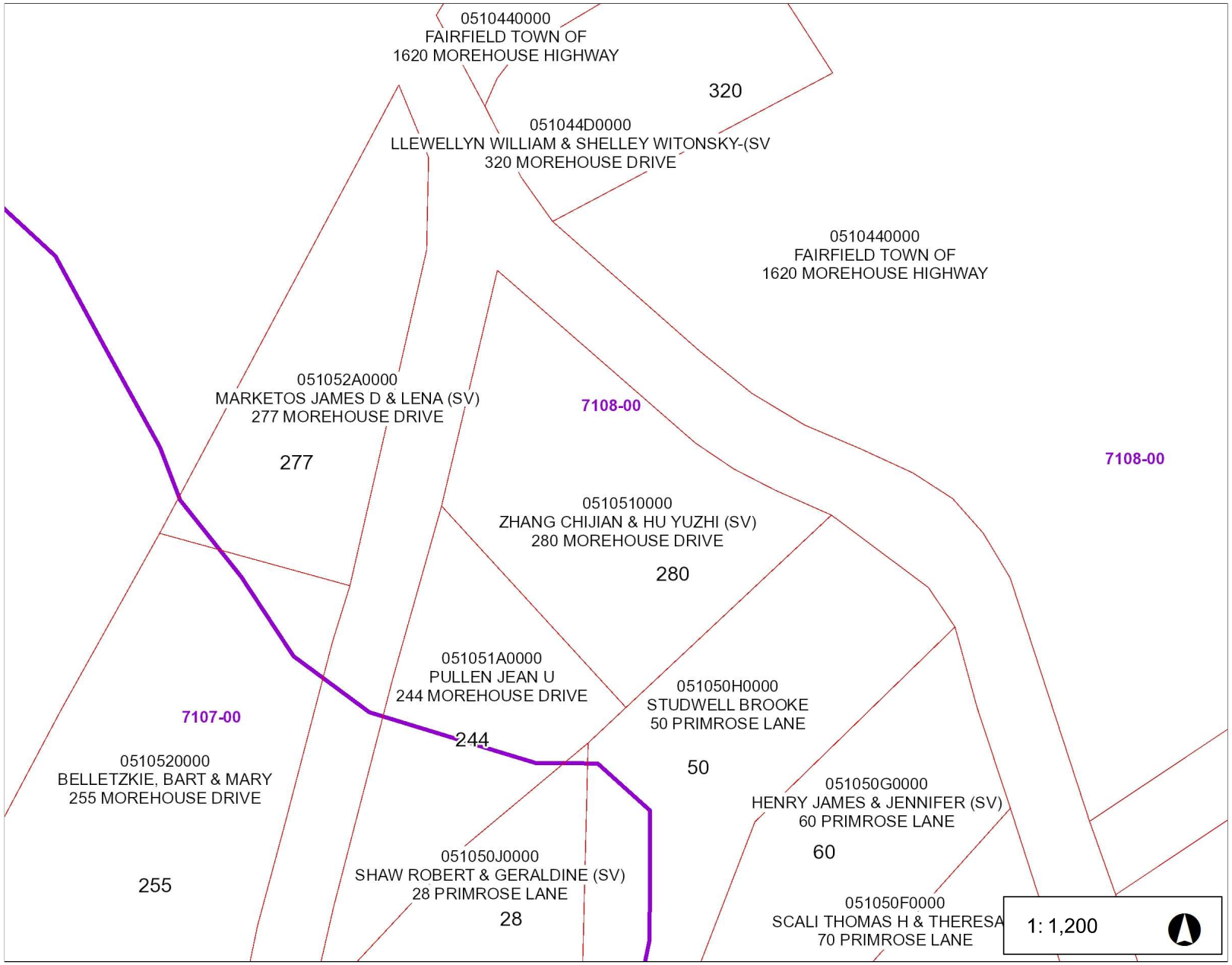
Sprint contends that the proposed project will not result in a substantial adverse effect on the environment, ecology nor will there be damage to existing scenic, historical, or recreational values. Furthermore, Sprint will not have a need to construct a new tower in the project area if the Council determines that no Certificate is required.

Petition 383 Schedule

Petition submitted	November 03, 1997
Field Reviewed	November 10, 1997
Responses to Interrogatories received	November 17, 1997
Council consideration at public meeting	November 19, 1997
Hearing	December 09, 1997
[Optional dates	Dec. 04, or 11, 1997]
Decision	December 16, 1997

Town of Fairfield

Title



Legend

- Parcels
- Local Basin Boundary
  - Major
  - Regional
  - Subregional
  - Local
- Local Basin Area

200.0 0 100.00 200.0 Feet

WGS_1984_Web_Mercator_Auxiliary_Sphere
Created by Greater Bridgeport Regional Council

METROCOG
Connecticut Metropolitan Council of Governments

280 MOREHOUSE DRIVE

Location	280 MOREHOUSE DRIVE	**Mblu**	51/ 51/ / /
Acct#	17416	**Owner**	ZHANG CHIJIAN & HU YUZHI (SV)
Assessment	$362,950	**Appraisal**	$518,500
PID	5101	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$232,900	$285,600	$518,500
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$163,030	$199,920	$362,950

Owner of Record

Owner	ZHANG CHIJIAN & HU YUZHI (SV)	**Sale Price**	$300,000
Co-Owner		**Certificate**	
Address	280 MOREHOUSE DRIVE FAIRFIELD, CT 06824-2374	**Book & Page**	2095/ 192
		Sale Date	03/06/2000
		Instrument	07

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
ZHANG CHIJIAN & HU YUZHI (SV)	$300,000		2095/ 192	07	03/06/2000
FLEET BANK,N.A.	$0		2060/ 112		11/10/1999
STONE WILLIAM & SANDRA	$0		620/ 360		08/06/1976

Building Information

Building 1 : Section 1

Year Built:	1976
Living Area:	2,172
Replacement Cost:	$362,258
Building Percent Good:	63

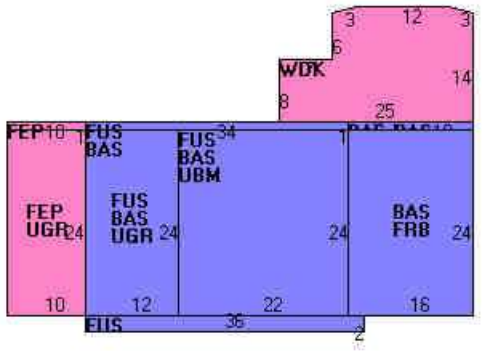
Replacement Cost
Less Depreciation: $228,200

Building Attributes	
Field	**Description**
Style	Colonial
Stories:	2 Stories
Occupancy	1
Exterior Wall 1	Vinyl Siding
Exterior Wall 2	
Roof Structure:	Gable/Hip
Roof Cover	Asphalt
Interior Wall 1	Drywall
Interior Wall 2	
Interior Flr 1	Linoleum
Interior Flr 2	Hardwood
Heat Fuel	Gas
Heat Type:	Hot Water
AC Type:	Central
Total Bedrooms:	4 Bedrooms
Total Bthrms:	2
Total Half Baths:	1
Total Xtra Fixtrs:	
Total Rooms:	9 Rooms
Bath Style:	Average
Kitchen Style:	Average
FCPZ	

Building Photo

(http://images.vgsi.com/photos2/FairfieldCTPhotos//\02\03\80/6

Building Layout



(http://images.vgsi.com/photos2/FairfieldCTPhotos//Sketches/51

Building Sub-Areas (sq ft)			
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	1,250	1,250
FUS	Upper Story, Finished	922	922
FEP	Porch, Enclosed, Finished	250	0
FRB	Finished Raised Bsmt	384	0
UBM	Basement, Unfinished	534	0
UGR	Garage, Under	528	0
WDK	Deck, Wood	323	0
		4,191	2,172

Extra Features

Extra Features				
Code	**Description**	**Size**	**Value**	**Bldg #**
FPL3	2.0 STORY FIREPLACE	1 UNITS	$4,700	1

Land

Land Use

Use Code	1010
Description	Single Fam MDL-01
Zone	R3
Neighborhood	0085
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	0.79
Depth	0
Assessed Value	$199,920
Appraised Value	$285,600

Outbuildings

Outbuildings	Legend
No Data for Outbuildings	

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$232,900	$285,600	$518,500
2017	$232,900	$285,600	$518,500
2016	$232,900	$285,600	$518,500

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$163,030	$199,920	$362,950
2017	$163,030	$199,920	$362,950
2016	$163,030	$199,920	$362,950

UPS Internet Shipping: View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.

2. **Fold the printed label at the solid line below.** Place the label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic shipping tape over the entire label.

3. **GETTING YOUR SHIPMENT TO UPS**
   Customers with a Daily Pickup
   Your driver will pickup your shipment(s) as usual.

   Customers without a Daily Pickup
   Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the 'Find Locations' Quick link at ups.com.
   Schedule a same day or future day Pickup to have a UPS driver pickup all of your Internet Shipping packages. Hand the package to any UPS driver in your area.

UPS Access Point™
MICHAELS STORE # 7773
75 INTERSTATE SHOP CTR
RAMSEY ,NJ 07446

UPS Access Point™
THE UPS STORE
115 FRANKLIN TPKE
MAHWAH ,NJ 07430

UPS Access Point™
THE UPS STORE
120 E MAIN ST
RAMSEY ,NJ 07446

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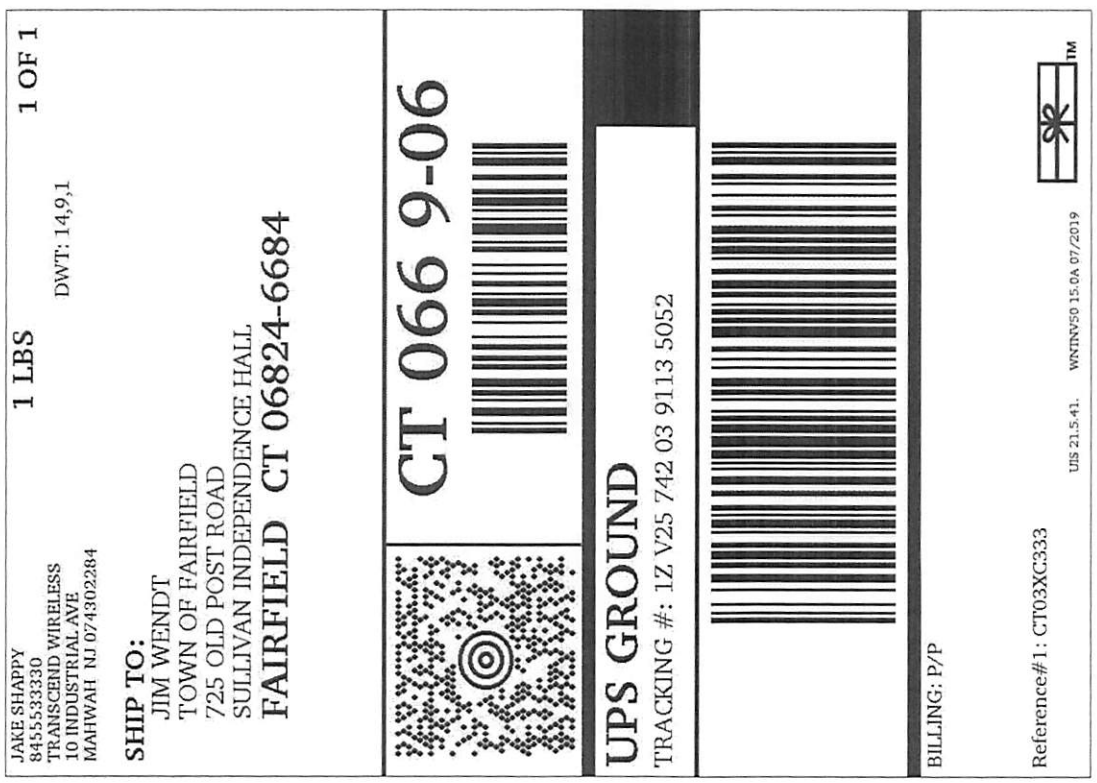

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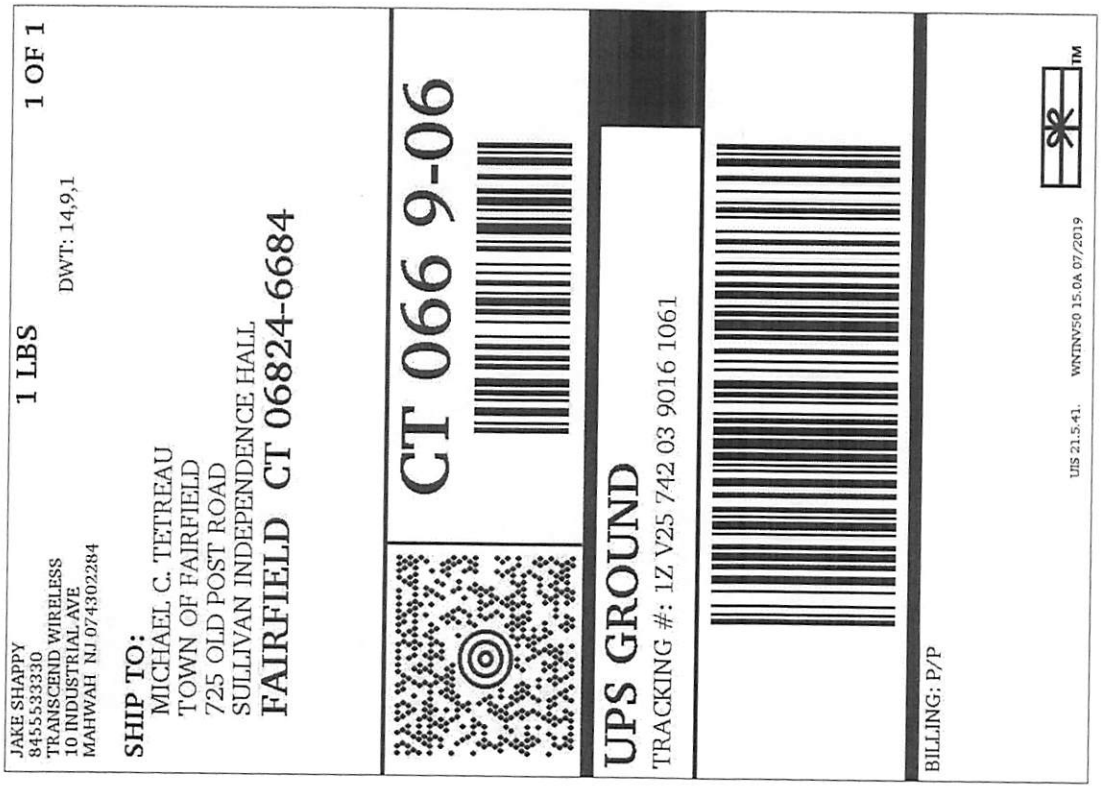

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RAMSEY ,NJ 07446

FOLD HERE

JAKE SHAPPY
8455533330
TRANSCEND WIRELESS
10 INDUSTRIAL AVE
MAHWAH NJ 074302284

1 LBS 1 OF 1

DWT: 14,9,1

SHIP TO:
CHRIS GELINAS
860-665-2008
EVERSOURCE ENERGY
107 SELDEN ST.
BERLIN CT 06037-1616

CT 061 9-02

UPS GROUND
TRACKING #: 1Z V25 742 03 9459 1072

BILLING: P/P

Reference#1: CT03XC333

UPS 21.5.41. WNTNV50 15.0A 07/2019

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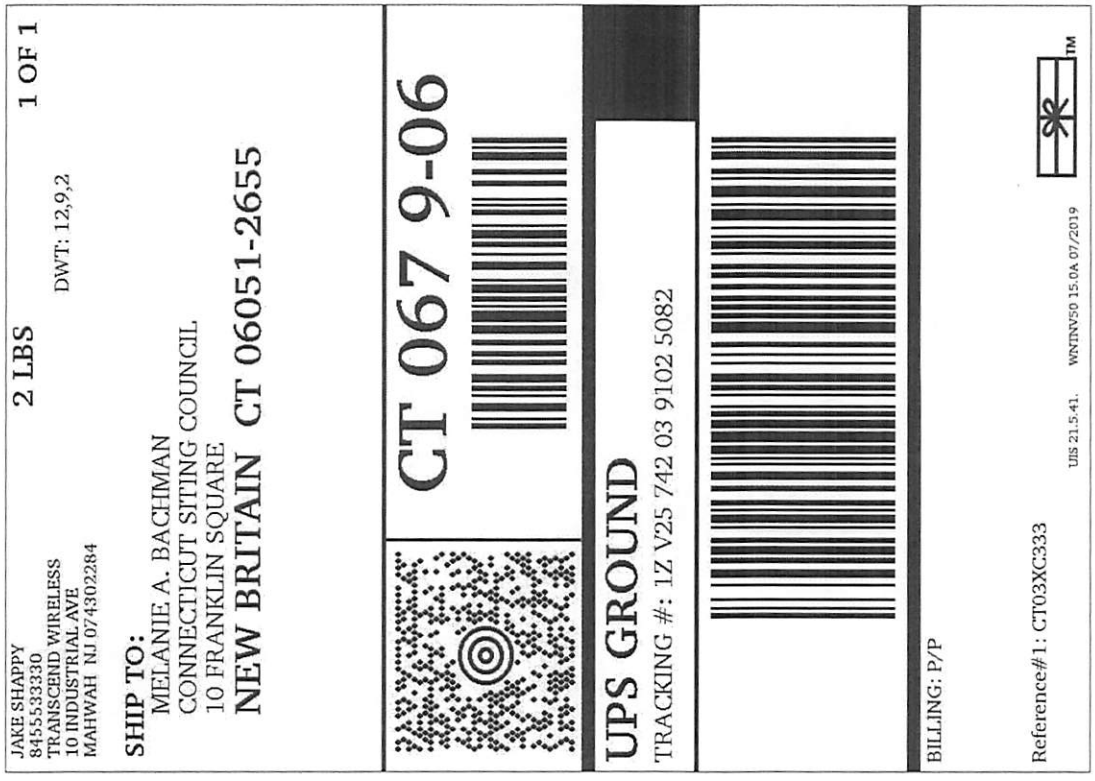


WIRELESS COMMUNICATIONS FACILITY

EVERSOURCE STRUCT. No.: 876

SITE ID: CT03XC333

280 MOREHOUSE DRIVE

FAIRFIELD, CT 06825

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2015 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2018 CONNECTICUT SUPPLEMENT, INCLUDING THE TIA/EIA-222 REVISION "G" "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES." 2016 CONNECTICUT FIRE SAFETY CODE, NATIONAL ELECTRICAL CODE AND LOCAL CODES.
2. CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND ALL RELATED PARTIES. THE SUBCONTRACTORS SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
3. CONTRACTOR SHALL PROVIDE A COMPLETE BUILD-OUT WITH ALL FINISHES, STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS AND PROVIDE ALL ITEMS AS SHOWN OR INDICATED ON THE DRAWINGS OR IN THE WRITTEN SPECIFICATIONS.
4. CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR AND EQUIPMENT TO COMPLETE THE WORK AND FURNISH A COMPLETED JOB ALL IN ACCORDANCE WITH LOCAL AND STATE GOVERNING AUTHORITIES AND OTHER AUTHORITIES HAVING LAWFUL JURISDICTION OVER THE WORK.
5. CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND ALL INSPECTIONS REQUIRED AND SHALL ALSO PAY FEES REQUIRED FOR THE GENERAL CONSTRUCTION, PLUMBING, ELECTRICAL AND HVAC. PERMITS SHALL BE PAID FOR BY THE RESPECTIVE SUBCONTRACTORS.
6. CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS AND SPECIFICATIONS ON SITE AT ALL TIMES AND INSURE DISTRIBUTION OF NEW DRAWINGS TO SUBCONTRACTORS AND OTHER RELEVANT PARTIES AS SOON AS THEY ARE MADE AVAILABLE. ALL OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA. THE CONTRACTOR SHALL FURNISH AN "AS-BUILT" SET OF DRAWINGS TO OWNER UPON COMPLETION OF PROJECT.
7. LOCATION OF EQUIPMENT, AND WORK SUPPLIED BY OTHERS THAT IS DIAGRAMMATICALLY INDICATED ON THE DRAWINGS SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL DETERMINE LOCATIONS AND DIMENSIONS SUBJECT TO STRUCTURAL CONDITIONS AND WORK OF THE SUBCONTRACTORS.
8. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY.
9. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
10. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
11. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUBCONTRACTORS FOR ANY CONDITION PER MFR.'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
12. ANY AND ALL ERRORS, DISCREPANCIES, AND 'MISSED" ITEMS ARE TO BE BROUGHT TO THE ATTENTION OF THE SPRINT CONSTRUCTION MANAGER DURING THE BIDDING PROCESS BY THE CONTRACTOR. ALL THESE ITEMS ARE TO BE INCLUDED IN THE BID. NO 'EXTRA' WILL BE ALLOWED FOR MISSED ITEMS.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON-SITE SAFETY FROM THE TIME THE JOB IS AWARDED UNTIL ALL WORK IS COMPLETE AND ACCEPTED BY THE OWNER.
14. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE CONSTRUCTION MANAGER FOR REVIEW.
15. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES, AND EXISTING CONDITIONS AT THE SITE, PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA.
16. COORDINATION, LAYOUT, FURNISHING AND INSTALLATION OF CONDUIT AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
17. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
18. THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" AT LEAST 48 HOURS PRIOR TO ANY EXCAVATIONS AT 1-800-922-4455. ALL UTILITIES SHALL BE IDENTIFIED AND CLEARLY MARKED. CONTRACTOR SHALL MAINTAIN AND PROTECT MARKED UTILITIES THROUGHOUT PROJECT COMPLETION.
19. CONTRACTOR SHALL COMPLY WITH OWNERS ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR ALL EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.

SITE DIRECTIONS

FROM: 5 WAYSIDE ROAD
BURLINGTON, MA 01803

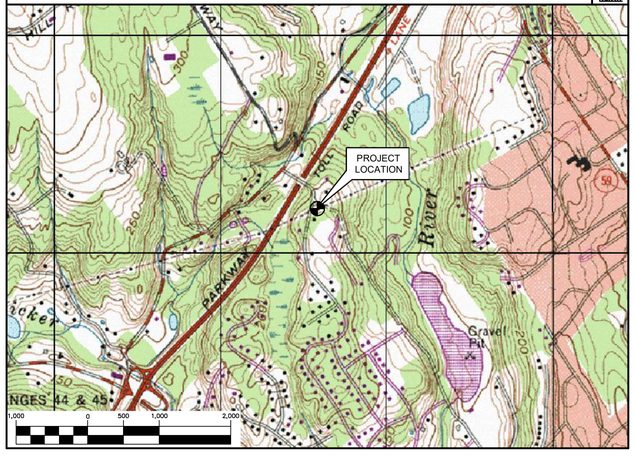
TO: 280 MOREHOUSE DRIVE
FAIRFIELD, CT 06825

1.	START OUT BY GOING TO WAYSIDE ROAD.	0.12 MI.
2.	TURN LEFT ONTO CAMBRIDGE ST/US-3 N/MA	0.12 MI.
3.	MERGE ONTO I-95 S/MA-128 S/YANKEE DIVISION HWY S TOWARD WALTHAM/LOWELL	0.27 MI.
4.	TAKE THE I-90/MASS PIKE EXIT, EXIT 25, TOWARD BOSTON/ALBANY NY.	12.32 MI.
5.	MERGE ONTO I-90 W/MASSACHUSETTS TPKE W TOWARD WORCESTER (PORTIONS TOLL).	0.32 MI.
6.	MERGE ONTO I-84 W/WILBUR CROSS HWY S VIA EXIT 9 TOWARD US-20(PORTIONS TOLL).	44.45 MI.
7.	KEEP LEFT TO TAKE CT-15 S VIA EXIT 57 TOWARD I-91 S/CHARTER OAK BR/NY CITY.	41.73 MI.
8.	MERGE ONTO I-91 S VIA EXIT 86 TOWARD NEW HAVEN/NY CITY.	1.99 MI.
9.	MERGE ONTO CT-15 S VIA EXIT 17 TOWARD E MAIN ST.	17.07 MI.
10.	TAKE EXIT 46 TOWARD CONGRESS ST.	36.30 MI.
11.	TURN LEFT ONTO CONGRESS ST.	0.64 MI.
12.	TURN LEFT ONTO MOREHOUSE DR.	0.10 MI.
13.	THE DESTINATION WILL BE ON THE LEFT.	

VICINITY MAP

SCALE: 1" = 1000'

NORTH



PROJECT SUMMARY

1. THE PROPOSED SCOPE OF WORK CONSISTS OF A MODIFICATION TO THE EXISTING UNMANNED TELECOMMUNICATIONS FACILITY INCLUDING THE FOLLOWING:
   - A. INSTALLATION OF A PROPOSED UNISTRUT EQUIPMENT RACK MOUNTED AT GRADE
   - B. REMOVE (3) EXISTING PANEL ANTENNAS FROM TOWER.
   - C. INSTALL (3) PROPOSED 10-PORT PANEL ANTENNAS, (1) PER SECTOR.
   - D. INSTALL (6) PROPOSED DIPLEXERS ON TOWER.
   - E. INSTALL (6) PROPOSED DIPLEXERS ON PROPOSED UNISTRUT RACK.
   - F. INSTALL (3) PROPOSED RRH'S ON PROPOSED UNISTRUT RACK.

PROJECT INFORMATION

SITE NAME:	EVERSOURCE STRUCT. No.: 876
SITE ID:	CT03XC333
SITE ADDRESS:	280 MOREHOUSE DRIVE FAIRFIELD, CT 06825
APPLICANT:	SPRINT 5 WAYSIDE ROAD BURLINGTON, MA 01803
CONTACT PERSON:	MIKE KITHCART (PROJECT MANAGER) (973)626-5792
ENGINEER:	CENTEK ENGINEERING, INC. 63-2 NORTH BRANFORD RD. BRANFORD, CT 06405
PROJECT COORDINATES:	LATITUDE: 41° 12' 35.92"N LONGITUDE: 73° 15' 41.64"W GROUND ELEVATION: ±230' AMSL SITE COORDINATES REFERENCED AND GROUND ELEVATION REFERENCED FROM GOOGLE EARTH.

SHEET INDEX

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REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
1	11/29/18	TJL	CAG	REVISED PER APPROVED SA
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EVERSOURCE STRUCT No: 876
SITE ID: CT03XC333
280 MOREHOUSE DRIVE
FAIRFIELD, CT 06825

DATE: 01/12/18
SCALE: AS NOTED
JOB NO. 17159.06

TITLE SHEET

T-1

Sheet No. 1 of 6

DESIGN BASIS:

GOVERNING CODE: 2015 INTERNATIONAL BUILDING (IBC) AS MODIFIED BY THE 2018 CT STATE BUILDING CODE AND AMENDMENTS.

1. DESIGN CRITERIA:

- WIND LOAD (UTILITY TOWER): 110 MPH (3 SECOND GUSTS) PER NESC C2-2012 SECTION 25 RULE 250C
- WIND LOAD (ANTENNA MAST): 97 MPH (Vasd) (EXPOSURE C/IMPORTANCE FACTOR 1.15 BASED ON ASCE 7-10) PER 2012 INTERNATIONAL BUILDING CODE (IBC) AS MODIFIED BY THE 2018 CONNECTICUT STATE BUILDING CODE.
- SEISMIC LOAD (DOES NOT CONTROL): PER ASCE 7-10 MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES.

GENERAL NOTES:

1. ALL CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE GOVERNING BUILDING CODE.
2. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
3. BEFORE BEGINNING THE WORK, THE CONTRACTOR IS RESPONSIBLE FOR MAKING SUCH INVESTIGATIONS CONCERNING PHYSICAL CONDITIONS (SURFACE AND SUBSURFACE) AT OR CONTIGUOUS TO THE SITE WHICH MAY AFFECT PERFORMANCE AND COST OF THE WORK.
4. DIMENSIONS AND DETAILS SHALL BE CHECKED AGAINST EXISTING FIELD CONDITIONS.
5. THE CONTRACTOR SHALL VERIFY AND COORDINATE THE SIZE AND LOCATION OF ALL OPENINGS, SLEEVES AND ANCHOR BOLTS AS REQUIRED BY ALL TRADES.
6. ALL DIMENSIONS, ELEVATIONS, AND OTHER REFERENCES TO EXISTING STRUCTURES, SURFACE, AND SUBSURFACE CONDITIONS ARE APPROXIMATE. NO GUARANTEE IS MADE FOR THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. THE CONTRACTOR SHALL VERIFY AND COORDINATE ALL DIMENSIONS, ELEVATIONS, ANGLES WITH EXISTING CONDITIONS AND WITH ARCHITECTURAL AND SITE DRAWINGS BEFORE PROCEEDING WITH ANY WORK.
7. AS THE WORK PROGRESSES, THE CONTRACTOR SHALL NOTIFY THE OWNER OF ANY CONDITIONS WHICH ARE IN CONFLICT OR OTHERWISE NOT CONSISTENT WITH THE CONSTRUCTION DOCUMENTS AND SHALL NOT PROCEED WITH SUCH WORK UNTIL THE CONFLICT IS SATISFACTORILY RESOLVED.
8. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE SAFETY CODES AND REGULATIONS DURING ALL PHASES OF CONSTRUCTION. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR PROVIDING AND MAINTAINING ADEQUATE SHORING, BRACING, AND BARRICADES AS MAY BE REQUIRED FOR THE PROTECTION OF EXISTING PROPERTY, CONSTRUCTION WORKERS, AND FOR PUBLIC SAFETY.
9. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY. MAINTAIN EXISTING SITE OPERATIONS, COORDINATE WORK WITH NORTHEAST UTILITIES
10. THE STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER FOUNDATION REMEDIATION WORK IS COMPLETE. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE AND TO ENSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS DURING ERECTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, TEMPORARY BRACING, GUYS OR TIEDOWNS, WHICH MIGHT BE NECESSARY.
11. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
12. SHOP DRAWINGS, CONCRETE MIX DESIGNS, TEST REPORTS, AND OTHER SUBMITTALS PERTAINING TO STRUCTURAL WORK SHALL BE FORWARDED TO THE OWNER FOR REVIEW BEFORE FABRICATION AND/OR INSTALLATION IS MADE. SHOP DRAWINGS SHALL INCLUDE ERECTION DRAWINGS AND COMPLETE DETAILS OF CONNECTIONS AS WELL AS MANUFACTURER'S SPECIFICATION DATA WHERE APPROPRIATE. SHOP DRAWINGS SHALL BE CHECKED BY THE CONTRACTOR AND BEAR THE CHECKER'S INITIALS BEFORE BEING SUBMITTED FOR REVIEW.
13. NO DRILLING WELDING OR TAPING ON EVERSOURCE OWNED EQUIPMENT.
14. REFER TO DRAWING T1 FOR ADDITIONAL NOTES AND REQUIREMENTS.

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL IS DESIGNED BY ALLOWABLE STRESS DESIGN (ASD)

   A. STRUCTURAL STEEL (W SHAPES)---ASTM A992 (FY = 50 KSI)
   B. STRUCTURAL STEEL (OTHER SHAPES)---ASTM A36 (FY = 36 KSI)
   C. STRUCTURAL HSS (RECTANGULAR SHAPES)---ASTM A500 GRADE B, (FY = 46 KSI)
   D. STRUCTURAL HSS (ROUND SHAPES)---ASTM A500 GRADE B, (FY = 42 KSI)
   E. PIPE---ASTM A53 (FY = 35 KSI)
   F. CONNECTION BOLTS---ASTM A325-N
   G. U-BOLTS---ASTM A36
   H. ANCHOR RODS---ASTM F 1554
   I. WELDING ELECTRODE---ASTM E 70XX

2. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE ENGINEER FOR REVIEW. SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING: SECTION PROFILES, SIZES, CONNECTION ATTACHMENTS, REINFORCING, ANCHORAGE, SIZE AND TYPE OF FASTENERS AND ACCESSORIES. INCLUDE ERECTION DRAWINGS, ELEVATIONS AND DETAILS.
3. STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST PROVISIONS OF AISC MANUAL OF STEEL CONSTRUCTION.
4. PROVIDE ALL PLATES, CLIP ANGLES, CLOSURE PIECES, STRAP ANCHORS, MISCELLANEOUS PIECES AND HOLES REQUIRED TO COMPLETE THE STRUCTURE.
5. FIT AND SHOP ASSEMBLE FABRICATIONS IN THE LARGEST PRACTICAL SECTIONS FOR DELIVERY TO SITE.
6. INSTALL FABRICATIONS PLUMB AND LEVEL, ACCURATELY FITTED, AND FREE FROM DISTORTIONS OR DEFECTS.
7. AFTER ERECTION OF STRUCTURES, TOUCHUP ALL WELDS, ABRASIONS AND NON-GALVANIZED SURFACES WITH A 95% ORGANIC ZINC RICH PAINT IN ACCORDANCE WITH ASTM 780.
8. ALL STEEL MATERIAL (EXPOSED TO WEATHER) SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT DIPPED GALVANIZED) COATINGS" ON IRONS AND STEEL PRODUCTS.
9. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE".
10. THE ENGINEER SHALL BE NOTIFIED OF ANY INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON CONFORMING MATERIALS OR CONDITIONS TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER REVIEW.
11. CONNECTION ANGLES SHALL HAVE A MINIMUM THICKNESS OF 1/4 INCHES.
12. STRUCTURAL CONNECTION BOLTS SHALL CONFORM TO ASTM A325. ALL BOLTS SHALL BE 3/4" DIAMETER MINIMUM AND SHALL HAVE A MINIMUM OF TWO BOLTS, UNLESS OTHERWISE ON THE DRAWINGS.
13. LOCK WASHER ARE NOT PERMITTED FOR A325 STEEL ASSEMBLIES.
14. SHOP CONNECTIONS SHALL BE WELDED OR HIGH STRENGTH BOLTED.
15. MILL BEARING ENDS OF COLUMNS, STIFFENERS, AND OTHER BEARING SURFACES TO TRANSFER LOAD OVER ENTIRE CROSS SECTION.
16. FABRICATE BEAMS WITH MILL CAMBER UP.
17. LEVEL AND PLUMB INDIVIDUAL MEMBERS OF THE STRUCTURE TO AN ACCURACY OF 1:500, BUT NOT TO EXCEED 1/4" IN THE FULL HEIGHT OF THE COLUMN.
18. COMMENCEMENT OF STRUCTURAL STEEL WORK WITHOUT NOTIFYING THE ENGINEER OF ANY DISCREPANCIES WILL BE CONSIDERED ACCEPTANCE OF PRECEDING WORK.
19. INSPECTION AND TESTING OF ALL WELDING AND HIGH STRENGTH BOLTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING LABORATORY.
20. FOUR COPIES OF ALL INSPECTION TEST REPORTS SHALL BE SUBMITTED TO THE ENGINEER WITHIN TEN (10) WORKING DAYS OF THE DATE OF INSPECTION.

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EVERSOURCE STRUCT No: 876
SITE ID: CT03XC333

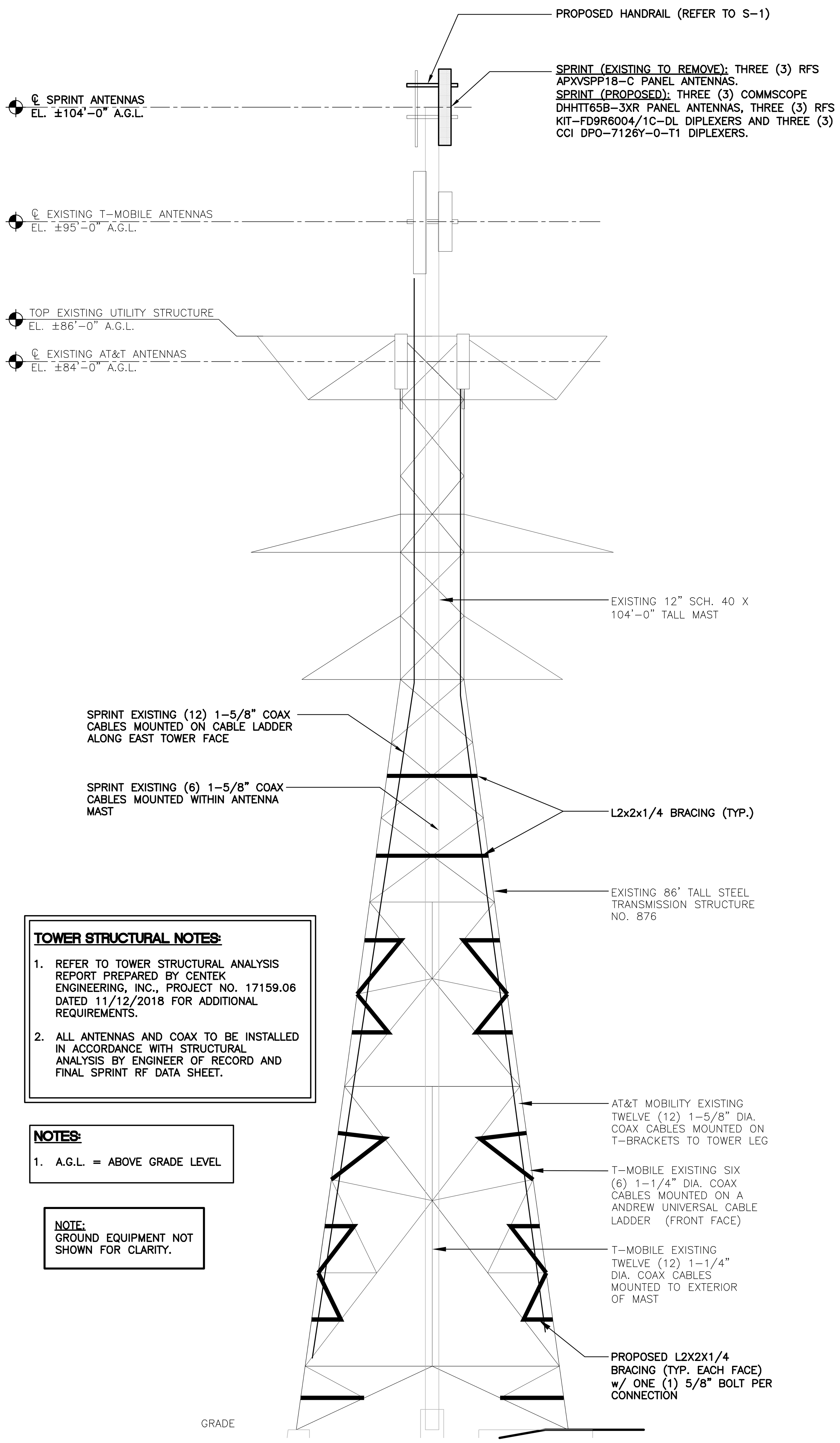
280 MOREHOUSE DRIVE
FAIRFIELD, CT 06825

DATE: 01/12/18
SCALE: AS NOTED
JOB NO. 17159.06

DESIGN BASIS AND SITE NOTES

N-1

Sheet No. 2 of 6



TOWER STRUCTURAL NOTES:

1. REFER TO TOWER STRUCTURAL ANALYSIS REPORT PREPARED BY CENTEK ENGINEERING, INC., PROJECT NO. 17159.06 DATED 11/12/2018 FOR ADDITIONAL REQUIREMENTS.
2. ALL ANTENNAS AND COAX TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS BY ENGINEER OF RECORD AND FINAL SPRINT RF DATA SHEET.

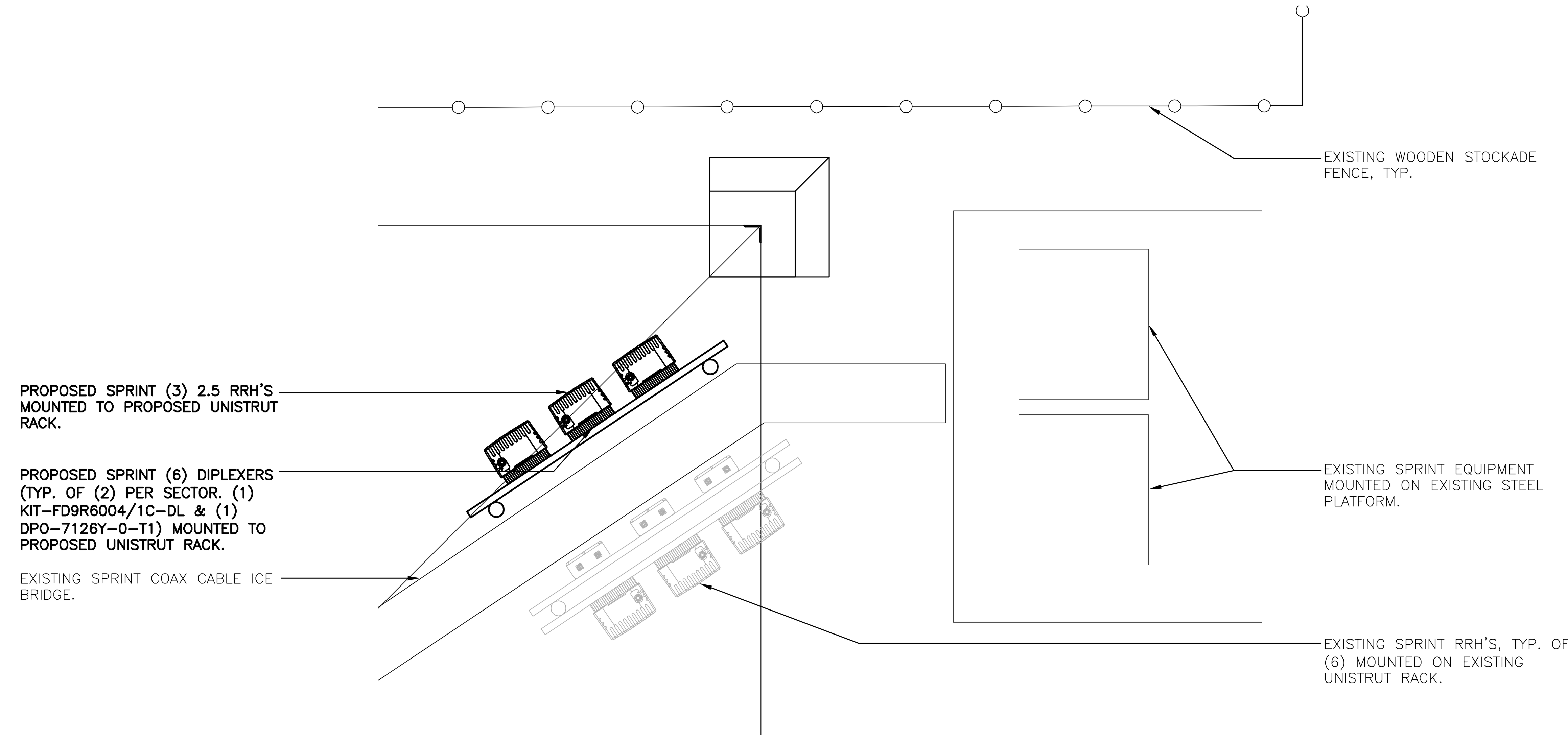
NOTES:

1. A.G.L. = ABOVE GRADE LEVEL

NOTE: GROUND EQUIPMENT NOT SHOWN FOR CLARITY.

1 / C-1 **PROPOSED TOWER ELEVATION**
SCALE: 1" = 6'-0"

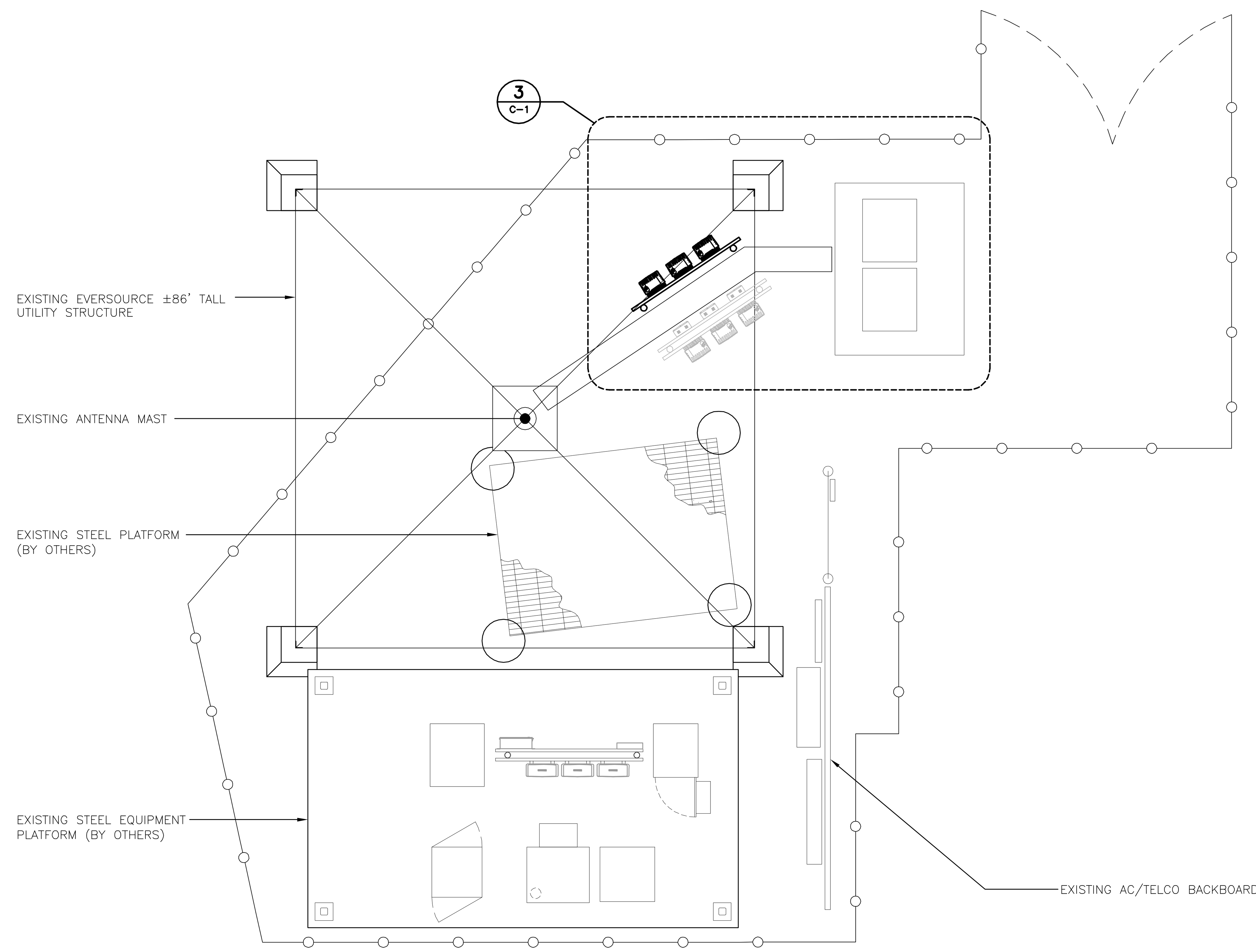
GRAPHIC SCALE (IN FEET) 1 inch = 6 ft.



3 / C-1 **EQUIPMENT PLAN**
SCALE: 1/2" = 1'-0"

APPROX. NORTH

GRAPHIC SCALE (IN FEET) 1/2 inch = 1 ft.



2 / C-1 **COMPOUND PLAN**
SCALE: 1/4" = 1'-0"

APPROX. NORTH

GRAPHIC SCALE (IN FEET) 1/4 inch = 1 ft.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
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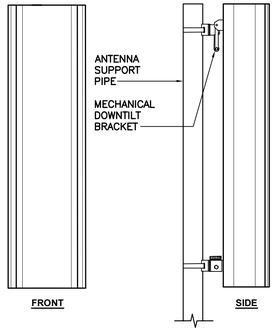
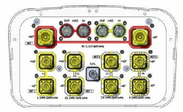
JOB NO. 17159.06

COMPOUND PLANS AND ELEVATION

C-1

Sheet No. 3 of 6





BOTTOM

ALPHA/BETA/GAMMA ANTENNA		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: COMMSCOPE MODEL: DHHTT65B-3XR	71.9"L x 13.8"W x 8.2"D	58 LBS.

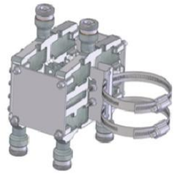
1 / C-2 **PROPOSED ANTENNA DETAIL**
SCALE: 1/2" = 1'-0"

TD-RRH8x20-25

RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ALCATEL-LUCENT MODEL: TD-RRH8x20-25	25.3"L x 17.5"W x 5.7"D	66 LBS.	ABOVE: 16" MIN. BELOW: 12" MIN. FRONT: 36" MIN.
NOTES: 1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH SPRINT CONSTRUCTION MANAGER PRIOR TO ORDERING.			

2 / C-2 **REMOTE RADIO HEAD DETAIL**
SCALE: NOT TO SCALE

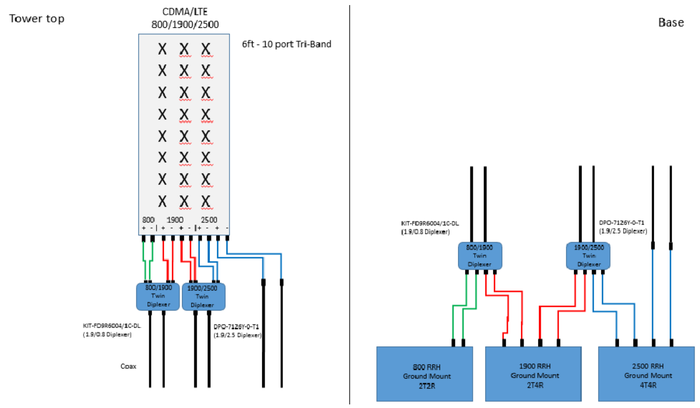
DOP-7126Y-0-T1



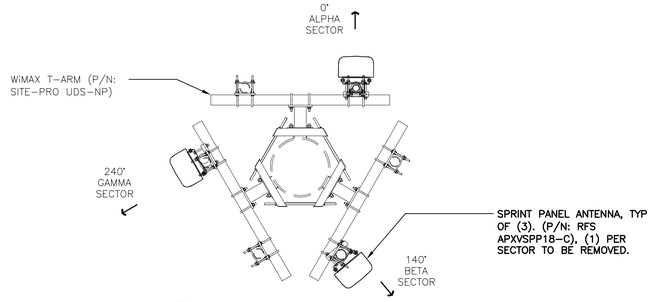
KIT-FD9R6004/1C-DL

DIPLEXERS		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: RFS MODEL: KIT-FD9R6004/1C-DL	5.8"L x 6.5"W x 4.6"D	6.4 LBS.
MAKE: CCI MODEL: DPO-7126Y-0-T1	6.26"L x 7.42"W x 4.07"D	7.3 LBS.
NOTES: 1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH SPRINT CONSTRUCTION MANAGER PRIOR TO ORDERING.		

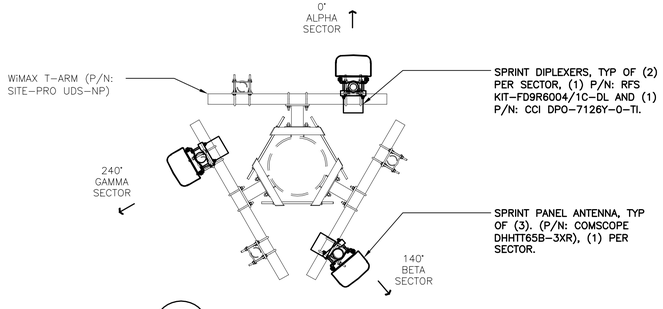
3 / C-2 **DIPLEXER DETAIL**
SCALE: NOT TO SCALE



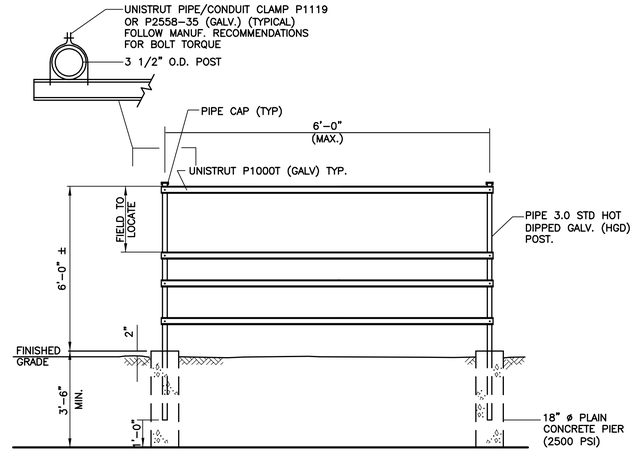
4 / C-2 **PLUMBING DIAGRAM**
NOT TO SCALE



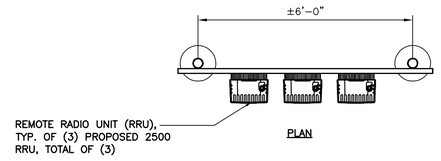
5 / C-2 **EXISTING ANTENNA PLAN**
SCALE: = 1/4" = 1'

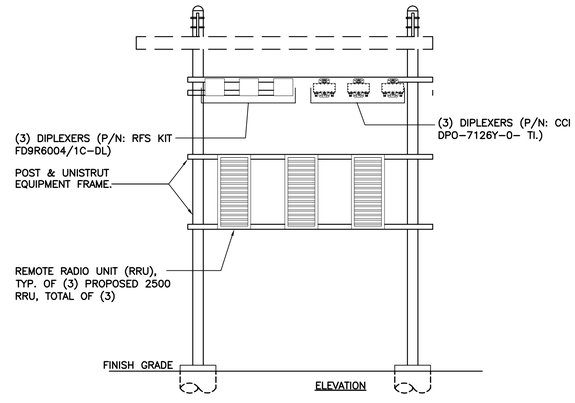


6 / C-2 **PROPOSED ANTENNA PLAN**
SCALE: = 1/4" = 1'



7 / C-2 **UTILITY SUPPORT FRAME (TYP.)**
NOT TO SCALE





8 / C-2 **RRU MOUNTING CONFIG.**
SCALE: 1/2" = 1'- 0"

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TYPICAL DETAILS

C-2

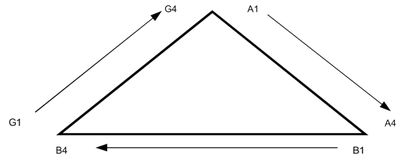
Sheet No. 4 of 6

NV CABLES			
BAND	INDICATOR	PORT	COLOR
800-1	YEL GRN	NV-1	GRN
1900-1	YEL RED	NV-2	BLU
1900-2	YEL BRN	NV-3	BRN
1900-3	YEL BLU	NV-4	WHT
1900-4	YEL SLT	NV-5	RED
800-2	YEL ORG	NV-6	SLT
SPARE	YEL WHT	NV-7	PPL
2500	YEL PPL	NV-8	ORG

HYBRID	
HYBRID	COLOR
1	GRN
2	BLU
3	BRN
4	WHT
5	RED
6	SLT
7	PPL
8	ORG

2.5 Band	
2500 Radio 1	COLOR
YEL WHT	GRN
YEL WHT	BLU
YEL WHT	BRN
YEL WHT	WHT
YEL WHT	RED
YEL WHT	SLT
YEL WHT	PPL
YEL WHT	ORG

Figure 1: Antenna Orientation



NOTES

1. All cables shall be marked at the top and bottom with 2" colored tape, stencil tag colored tape, or colored heat shrink tubing
2. Colored tape may be obtained from Graybar Electronic. UV stabilized tape or heat shrink are preferred.
3. The first ring shall be closest to the end of the cable, and there shall be a 1" space between each ring.
4. The cable color code shall be applied in accordance to Table 19-1.
   A. Table 19-1 only shows 3 sectors, but additional sectors are easily supported by adding the appropriate number of colored rings to the cable color code.
5. After the cable color code is applied, the frequency color code, Table 19-2, must be applied for the specific frequency band in use on a
   A.2" gap shall separate the cable color code from the frequency color code.
   B. The 2" color rings for the frequency code shall be placed next to each other with no spaces.
6. Wrap 2" colored tape a minimum of 3 times around the coax, and keep the tape in the same area as much as possible. This will allow remova
7. Examples of the cable and frequency color codes are shown in Figure 19-1 and Figure 19-2.

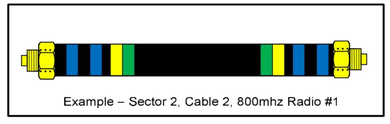
FIGURE 19.1 CABLE COLOR CODE

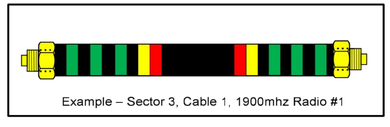
Sector	Cable	First Ring	Second Ring	Third Ring
1 Alpha	1	Green	No Tape	No Tape
1	2	Blue	No Tape	No Tape
1	3	Brown	No Tape	No Tape
1	4	White	No Tape	No Tape
1	5	Red	No Tape	No Tape
1	6	Grey	No Tape	No Tape
1	7	Purple	No Tape	No Tape
1	8	Orange	No Tape	No Tape
2 Beta	1	Green	Green	No Tape
2	2	Blue	Blue	No Tape
2	3	Brown	Brown	No Tape
2	4	White	White	No Tape
2	5	Red	Red	No Tape
2	6	Grey	Grey	No Tape
2	7	Purple	Purple	No Tape
2	8	Orange	Orange	No Tape
3 Gamma	1	Green	Green	Green
3	2	Blue	Blue	Blue
3	3	Brown	Brown	Brown
3	4	White	White	White
3	5	Red	Red	Red
3	6	Grey	Grey	Grey
3	7	Purple	Purple	Purple
3	8	Orange	Orange	Orange

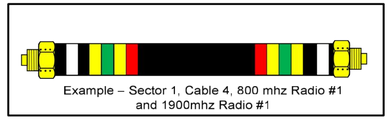
FIGURE 19.2 COLOR CODE

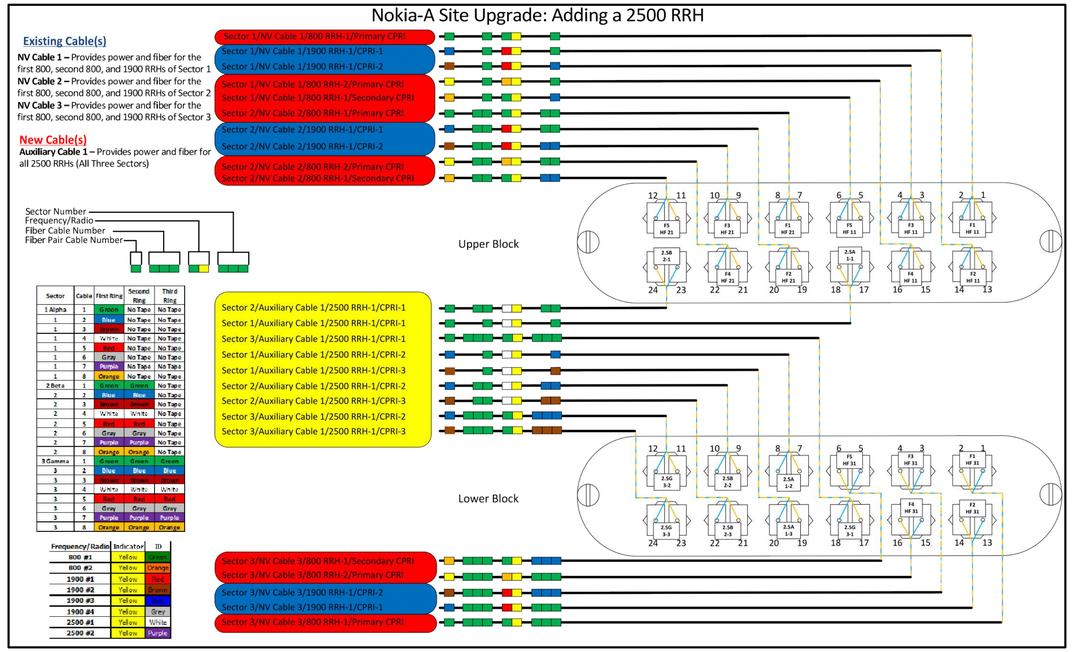
FREQUENC	INDICATOR	ID
800-1	YEL	GRN
1900-1	YEL	RED
1900-2	YEL	BRN
1900-3	YEL	BLU
1900-4	YEL	SLT
800-1	YEL	ORG
RESERVED	YEL	WHT
RESERVED	YEL	PPL

FREQUE	INDICATOR		ID
2500 -1	YEL	WHT	GRN
2500 -2	YEL	WHT	RED
2500 -3	YEL	WHT	BRN
2500 -4	YEL	WHT	BLU
2500 -5	YEL	WHT	SLT
2500 -6	YEL	WHT	ORG
2500 -7	YEL	WHT	WHT
2500 -8	YEL	WHT	PPL









Sector	Cable	First Ring	Second Ring	Third Ring
1 Alpha	1	Green	No Tape	No Tape
1	2	Blue	No Tape	No Tape
1	3	Brown	No Tape	No Tape
1	4	White	No Tape	No Tape
1	5	Red	No Tape	No Tape
1	6	Gray	No Tape	No Tape
1	7	Purple	No Tape	No Tape
1	8	Orange	No Tape	No Tape
2 Beta	1	Green	Green	No Tape
2	2	Blue	Blue	No Tape
2	3	Brown	Brown	No Tape
2	4	White	White	No Tape
2	5	Red	Red	No Tape
2	6	Gray	Gray	No Tape
2	7	Purple	Purple	No Tape
2	8	Orange	Orange	No Tape
3 Gamma	1	Green	Green	Green
3	2	Blue	Blue	Blue
3	3	Brown	Brown	Brown
3	4	White	White	White
3	5	Red	Red	Red
3	6	Gray	Gray	Gray
3	7	Purple	Purple	Purple
3	8	Orange	Orange	Orange

Frequency/Radio	Indicator	ID
800 #1	Yellow	Green
800 #2	Yellow	Orange
1900 #1	Yellow	Red
1900 #2	Yellow	Brown
1900 #3	Yellow	Blue
1900 #4	Yellow	Gray
2500 #1	Yellow	White
2500 #2	Yellow	Purple

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
1	11/29/18	TJL	CAG	REVISED PER APPROVED SA
0	02/02/18	TJL	CAG	REVISED PER CLIENT COMMENTS

PROFESSIONAL ENGINEER SEAL

STATE OF CONNECTICUT — TIMOTHY J. LOUCKS — LICENSED PROFESSIONAL ENGINEER

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SPRINT
WIRELESS COMMUNICATIONS FACILITY

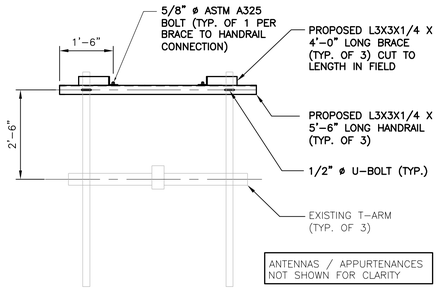
EVERSOURCE STRUCT No: 876
SITE ID: CT03XC333
280 MOREHOUSE DRIVE
FAIRFIELD, CT 06825

DATE: 01/12/18
SCALE: AS NOTED
JOB NO. 17159.06

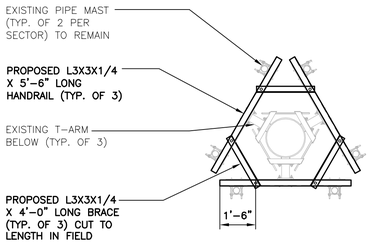
COLOR CODE AND CPRI DETAILS

C-3

Sheet No. 5 of 6



3 S-1 MOUNT MOD ELEVATION
SCALE: NOT TO SCALE



2 S-1 MOUNT MOD PLAN
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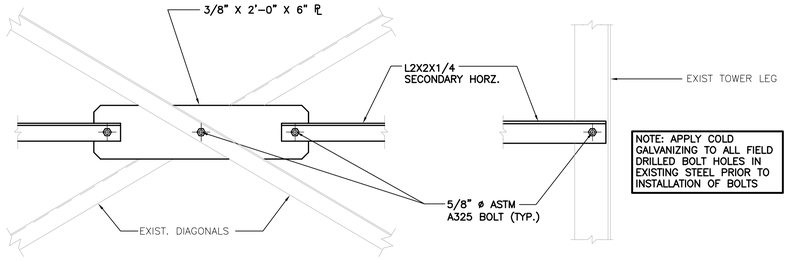

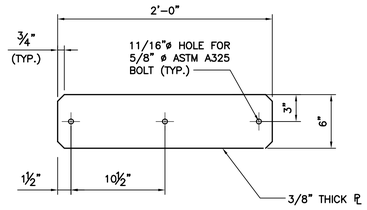

1 S-1 REINFORCEMENT DETAIL
SCALE: NOT TO SCALE

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
1	11/29/18	TJL	CAG	REVISED PER APPROVED SA
0	03/02/18	TJL	CAG	REVISED PER CLIENT COMMENTS

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REINFORCEMENT DETAILS

S-1

Sheet No. 6 of 6

CENTEK engineering

Centered on Solutions℠

Structural Analysis of Antenna Mast and Tower

Sprint Site Ref: CT03XC333

Eversource Structure No. 876

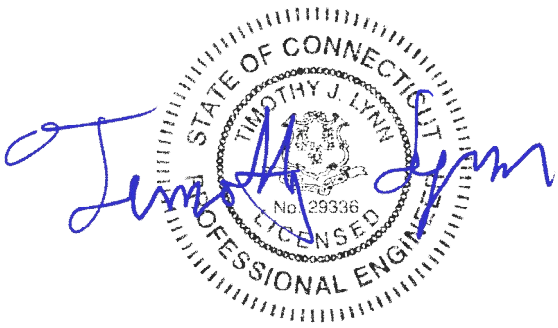
86' Electric Transmission Lattice Tower

280 Morehouse Drive
Fairfield, CT

CENTEK Project No. 17159.06

~~Date: January 17, 2018~~

Rev 2: November 12, 2018



Prepared for:
Transcend Wireless
10 Industrial Ave, Suite 3
Mahwah, NJ 07430

Table of Contents

Introduction

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

The existing and proposed loads consist of the following:

- SPRINT (Existing to Remain):
  Coax Cables: Six (6) 1-5/8" ∅ coax cables running on the inside of the existing mast and twelve (12) 1-5/8" ∅ coax cables mounted on a cable ladder running on a face of the tower.
- SPRINT (Existing to Remove):
  Antennas: Three (3) RFS APXVSPP18-C panel antennas mounted on a Site Pro WiMAX Monopole T-Arm p/n UDS-NP to the existing mast with a RAD center elevation of 104-ft above grade.
- **SPRINT (Proposed):**
  Antennas: Three (3) Commscope DHHTT65B-3XR panel antennas, three (3) RFS KIT-FD9R6004/1C-DL Diplexers and three (3) CCI DPO-7126Y-0-T1 Diplexers mounted on a Site Pro WiMAX Monopole T-Arm p/n UDS-NP to the existing mast with a RAD center elevation of 104-ft above grade. (Handrail to be installed on existing T-Arms. Refer to section 4 for details)
- T-MOBILE (Existing):
  Antennas: Three (3) RFS APX16DWV-16DWVS panel antennas, three (3) Andrew LNX-6515DS panel antennas and three (3) Andrew ATSBT-TOP-FM-4G Smart Bias Tees mounted on a Site Pro WiMAX Monopole T-Arm p/n UDS-NP to the existing mast 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 mast and six (6) 1-1/4" ∅ coax cables mounted on a cable ladder running on a face of the existing tower as indicated in section 4 of this report.
- AT&T (Existing to Remain):
  Antennas: Three (3) Quintel QS46512-2 panel antennas and six (6) Kaelus TMA2117F00V1-1 TMAs leg mounted to the existing utility tower with a RAD center elevation of 84-ft above grade.
  Coax Cables: Twelve (12) 1-5/8" ∅ coax cables running on a leg of the existing utility tower.

Primary assumptions used in the analysis

- Design steel stresses are defined by AISC-LRFD 14th edition for design of the antenna Mast and antenna supporting elements.
- ASCE Manual No. 10-97, "Design of Latticed Steel Transmission Structures", defines allowable steel stresses for evaluation of the 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 antenna mast unless specified otherwise.
- Antenna mast 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.
- Antenna mast 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 antenna mast was independently completed using the current version of RISA-3D computer program licensed to CENTEK Engineering, Inc. The RISA-3D program contains a library of all AISC shapes and corresponding section properties are computed and applied directly within the program. The program's Steel Code Check option was also utilized.

The existing antenna mast 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 TIA-222-G standard. Section 5 of this report details these gravity and lateral wind loads. Load cases and combinations used in RISA-3D for TIA/EIA loading are listed in report Section 6.

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

The existing 86-ft tall lattice tower was analyzed for its ability to resist loads prescribed by the NESC standard. Maximum usage for the tower was calculated considering the additional forces from the antenna mast and associated appurtenances. Section 7 of this report details these gravity and lateral wind loads.

Design Basis

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

- 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)

- MAST ASSEMBLY ANALYSIS

  Mast, appurtenances and connections to the utility tower were analyzed and designed in accordance with the NU Design Criteria Table, TIA-222-G and AISC standards.

  Load cases considered:

  Load Case 1:
  Wind Speed……..... 97 mph (2016 CSBC Appendix-N)
  Radial Ice Thickness…….. 0”

  Load Case 2:
  Wind Pressure…….. 50 mph wind pressure
  Radial Ice Thickness…….. 0.75”

R e s u l t s

- ANTENNA MAST

  The existing antenna mast was determined to be structurally **adequate**.

Component	Design Limit	Stress Ratio (percentage of capacity)	Result
12” Std. Pipe	Bending	70.2%	**PASS**
L3.5x3.5x1/4 Brace	Bending	23.9%	**PASS**
Connection	Shear	76.6%	**PASS**

- UTILITY TOWER

  This analysis finds that the subject utility structure is adequate to support the proposed antenna mast and related appurtenances. The tower stresses meet the requirements set forth by the ASCE Manual No. 10-97, “Design of Latticed Steel Transmission Structures”, for the applied NESC Heavy and Hi-Wind load cases. The detailed analysis results are provided in Section 8 of this report. The analysis results are summarized as follows:

  A maximum usage of **97.15%** occurs in the utility tower under the **NESC Extreme** loading condition **with the reinforcements detailed in section 4 of this report.**

  TOWER SECTION:

  The utility structure was found to be within allowable limits **with the reinforcements detailed in section 4 of this report.**

Tower Member	Stress Ratio (% of capacity)	Result
Angle g6x	97.15%	**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. The foundation was previously reinforced per drawings prepared by Centek job no. 12066.01 dated February 20, 2013.

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	11.33 kips	31.41 kips	52.68 kips
	NESC Extreme Wind	16.78 kips	58.79 kips	70.69 kips
Combined (2) Conc. Pad & Piers	NESC Heavy Wind	17.51 kips	35.90 kips	81.00 kips
	NESC Extreme Wind	30.81 kips	104.99 kips	129.67 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 was found to be within allowable limits.

Foundation	Design Limit	Allowable Limit	Proposed Loading (2)	Result
Northeast Pier	Uplift	1.0 FS (1)	1.13 FS (1)	**PASS**
Northwest Pier	Uplift	1.0 FS (1)	1.12 FS (1)	**PASS**
Combined Southeast and Southwest Piers	Uplift	1.0 FS (1)	1.23 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.

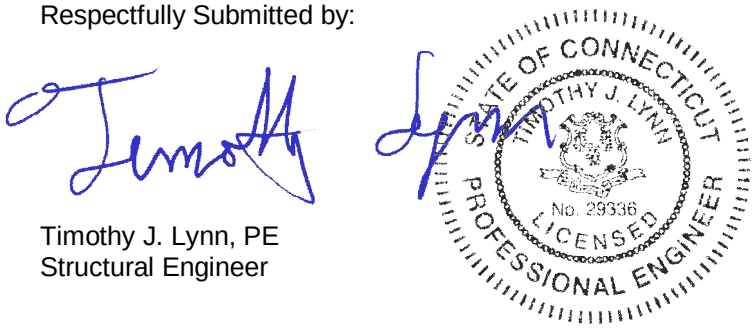
C o n c l u s i o n

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

The analysis is based, in part on the information provided to this office by Eversource 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:



Timothy J. Lynn, PE
Structural Engineer

STANDARD CONDITIONS FOR FURNISHING OF PROFESSIONAL ENGINEERING SERVICES ON EXISTING STRUCTURES

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

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

- Information from the field and/or drawings in the possession of CENTEK engineering, Inc. or generated by field inspections or measurements of the structure.

- It is the responsibility of the client to ensure that the information provided to CENTEK engineering, Inc. and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and are in an un-corroded condition and have not deteriorated. It is therefore assumed that its capacity has not significantly changed from the “as new” condition.

- All services will be performed to the codes specified by the client, and we do not imply to meet any other codes or requirements unless explicitly agreed in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement. In the absence of information to the contrary, all work will be performed in accordance with the latest revision of ANSI/ASCE10 & ANSI/EIA-222.

- All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. CENTEK engineering, Inc. is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAM ~ RISA-3D

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

Modeling Features:

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

Analysis Features:

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

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

Graphics Features:

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

Design Features:

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

Results Features:

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

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 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 Standard 222 with two exceptions:

1. An 85 mph extreme wind speed shall be used for locations in all counties throughout the NU system.
2. The stress increase of TIA Section 3.1.1.1 is disallowed. The combined wind and ice condition shall consider ½" radial ice in combination with the wind load (0.75 Wi) as specified in TIA section 2.3.16.

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

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

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

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

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

Attachment A
Eversource Design Criteria

		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 (0.75Wi)	TIA	TIA	TIA, Section 3.1.1.1 disallowed for connection design	TIA
	NESC Heavy	Tower/Pole Analysis with antennas extending above top of Tower/Pole (Yield Stress)	____	4	1	1	2.50	1.6 Flat Surfaces 1.3 Round Surfaces
		Tower/Pole Analysis with antennas below top of Tower/Pole (on two faces)	____	4	1	1	2.50	1.6 Flat Surfaces 1.3 Round Surfaces
		Conductors:	Conductor Loads Provided by NU					
High Wind Condition	TIA/EIA	Antenna Mount	85	TIA	TIA	TIA	TIA, Section 3.1.1.1 disallowed for connection design	TIA
	NESC Extreme Wind	Tower/Pole Analysis with antennas extending above top of Tower/Pole	For wind speed use OTRM 060 Map 1, Rule 250C: Extreme Wind Loading Apply a 1.25 X Gust Response Factor to all telecommunication equipment projected above top of tower/pole and apply a 1.0 x Gust Response Factor to the tower/pole structure					1.6 Flat Surfaces 1.3 Round Surfaces
		Tower/Pole Analysis with antennas below top of Tower/Pole	For wind speed use OTRM 060 Map 1, Rule 250C: Extreme Wind Loading Height above ground is based on overall height to top of tower/pole					1.6 Flat Surfaces 1.3 Round Surfaces
		Conductors:	Conductor Loads Provided by NU					
NESC Extreme Ice with Wind Condition *		Tower/Pole Analysis with antennas extending above top of Tower/Pole	For wind speed use OTRM 060 Map 1, Rule 250D: Extreme Ice with Wind Loading 4 PSF Wind Load 1.25 X Gust Response Factor Apply a 1.25 X Gust Response Factor to all telecommunication equipment projected above top of tower/pole and apply a 1.0 x Gust Response Factor to the tower/pole structure					1.6 Flat Surfaces 1.3 Round Surfaces
		Tower/Pole Analysis with antennas below top of Tower/Pole	For wind speed use OTRM 060 Map 1, Rule 250D: Extreme Ice with Wind Loading 4 PSF Wind Load Height above ground is based on overall height to top of tower/pole					1.6 Flat Surfaces 1.3 Round Surfaces
		Conductors:	Conductor Loads Provided by NU					
		* Only for structures installed after 2007						

mount as specified below, and shall include the wireless communication mast and antenna loads per NESC criteria)

The strength reduction factor obtained from the field investigation shall be applied to the members or connections that are showing signs of deterioration from their original condition

With the written approval of Eversource Transmission Line Engineering on a case by case the existing structures may be analyzed initially using the current NESC code, then it is permitted to use the original design code with the original conductor load should the existing tower fail the current NESC code.

The structure shall be analyzed using yield stress theory in accordance with Attachment A, "Eversource 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 Eversource).

c) Electric Transmission Structure

   i) The loads from the wireless communication equipment components based on NESC and Eversource 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
Pole with Coaxial Cable	1.6

   iii) When Coaxial Cables are mounted alongside 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	1.6

d) The uniform loadings and factors specified for the above components in Attachment A, "Eversource 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 Eversource will provide these loads).

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

Project: 1714/1720 Lines, Structure 876
Date: 8/2/18
Engineer: JS
Purpose: Recalculate wire loads for Sprint site. AT&T and T-Mobile are also located here.

Shield Wires:
1714: 7#9 Copperweld, sagged in PLS-CADD
1720: FOCAS 0.738" OPGW, sagged in PLS-CADD

Conductors:
1714: 556 Dove ACSR, sagged in PLS-CADD
1720: 556 Dove ACSR, sagged in PLS-CADD
Insulators are strain converted.

NESC 250B

		1714 (Circuit to North)		1720 (Circuit to South)
Shield:	**V**	1350		2325 **V**
	T	875		1100 **T**
	L	1150		0 **L**
Top Phase:	**V**	3600		3600 **V**
	T	1300		1300 **T**
	L	50		2200 **L**
Mid Phase:	**V**	3600		3600 **V**
	T	1300		1300 **T**
	L	600		625 **L**
Bot Phase:	**V**	3600		3600 **V**
	T	1300		1300 **T**
	L	1275		1175 **L**

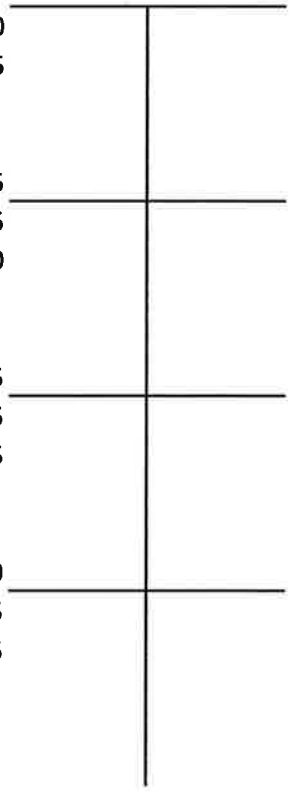
Project: 1714/1720 Lines, Structure 876
Date: 8/2/18
Engineer: JS
Purpose: Recalculate wire loads for Sprint site. AT&T and T-Mobile are also located on this structure.

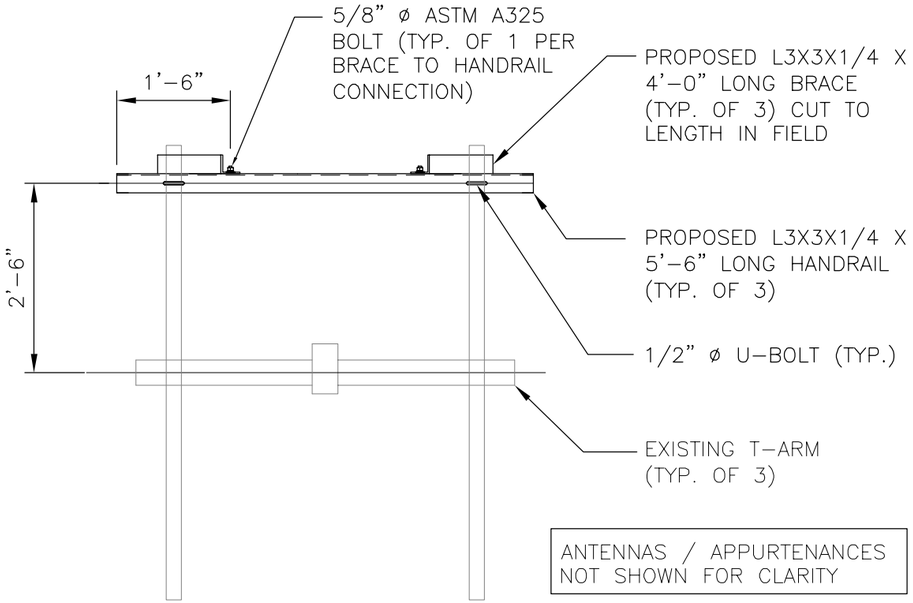
Shield Wires:
1714: 7#9 Copperweld, sagged in PLS-CADD
1720: FOCAS 0.738" OPGW, sagged in PLS-CADD

Conductors:
1714: 556 Dove ACSR, sagged in PLS-CADD
1720: 556 Dove ACSR, sagged in PLS-CADD
Insulators are strain converted.

NESC 250C

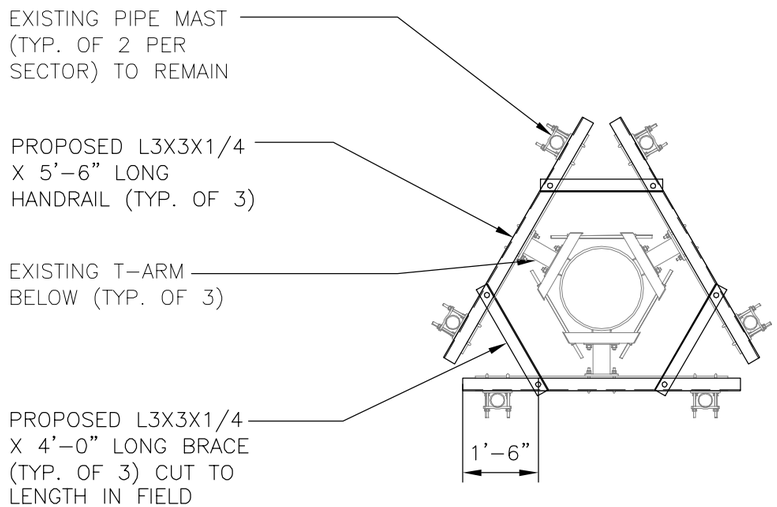
		1714 (Circuit to North)	1720 (Circuit to South)
Shield:	**V**	500	1050 **V**
	T	600	1225 **T**
	L	425	0 **L**
Top Phase:	**V**	1775	1730 **V**
	T	1725	1700 **T**
	L	250	1275 **L**
Mid Phase:	**V**	1775	1725 **V**
	T	1675	1650 **T**
	L	75	500 **L**
Bot Phase:	**V**	1750	1750 **V**
	T	1625	1600 **T**
	L	425	400 **L**





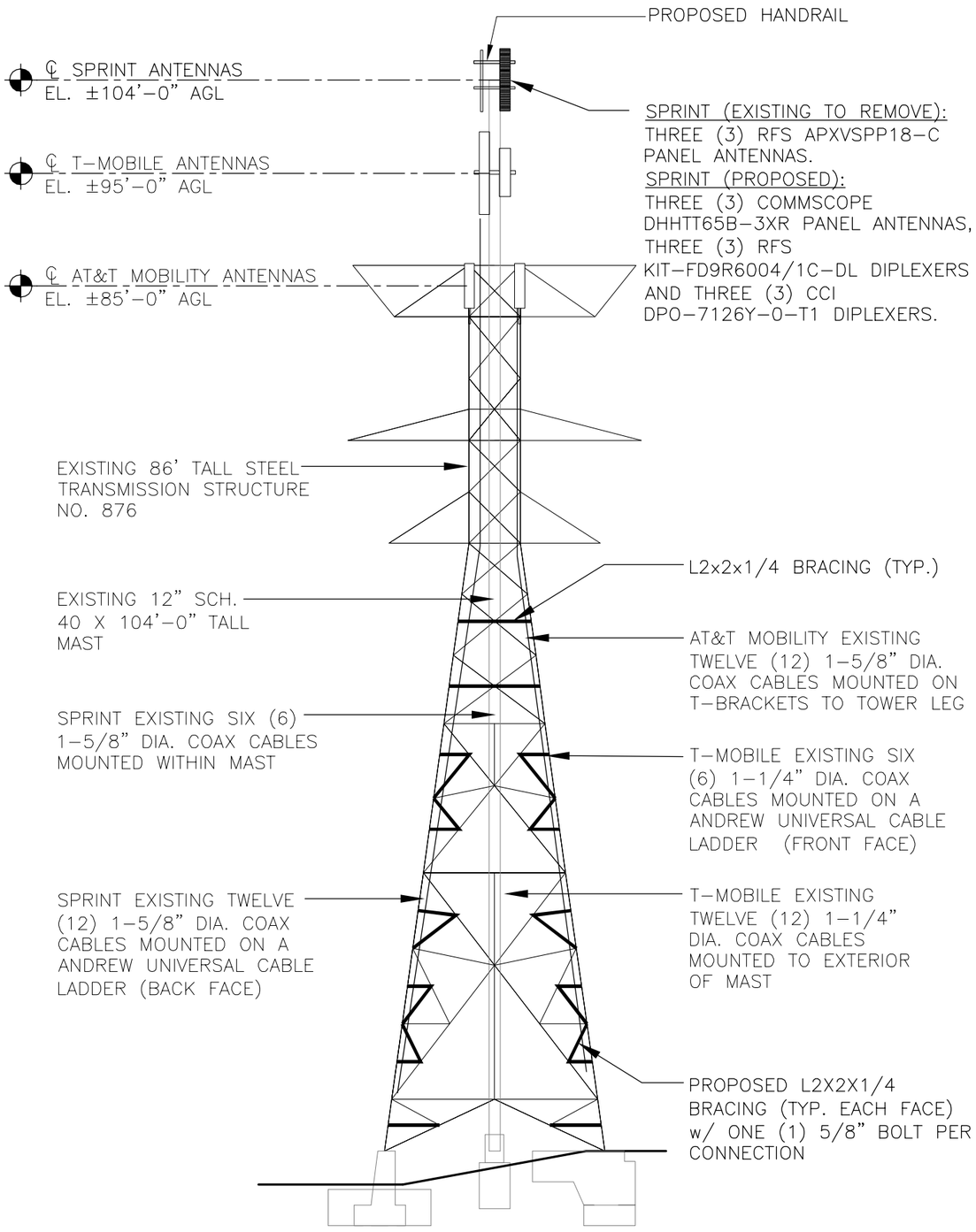
3 / E-1 **MOUNT MOD ELEVATION**

SCALE: NOT TO SCALE



2 / EL-1 **MOUNT MOD PLAN**

SCALE: NOT TO SCALE



1 / EL-1 **TOWER & MAST ELEVATION**

SCALE: NOT TO SCALE

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	11/12/18	TJL	CAG	ISSUED FOR CONSTRUCTION

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CT03XC333

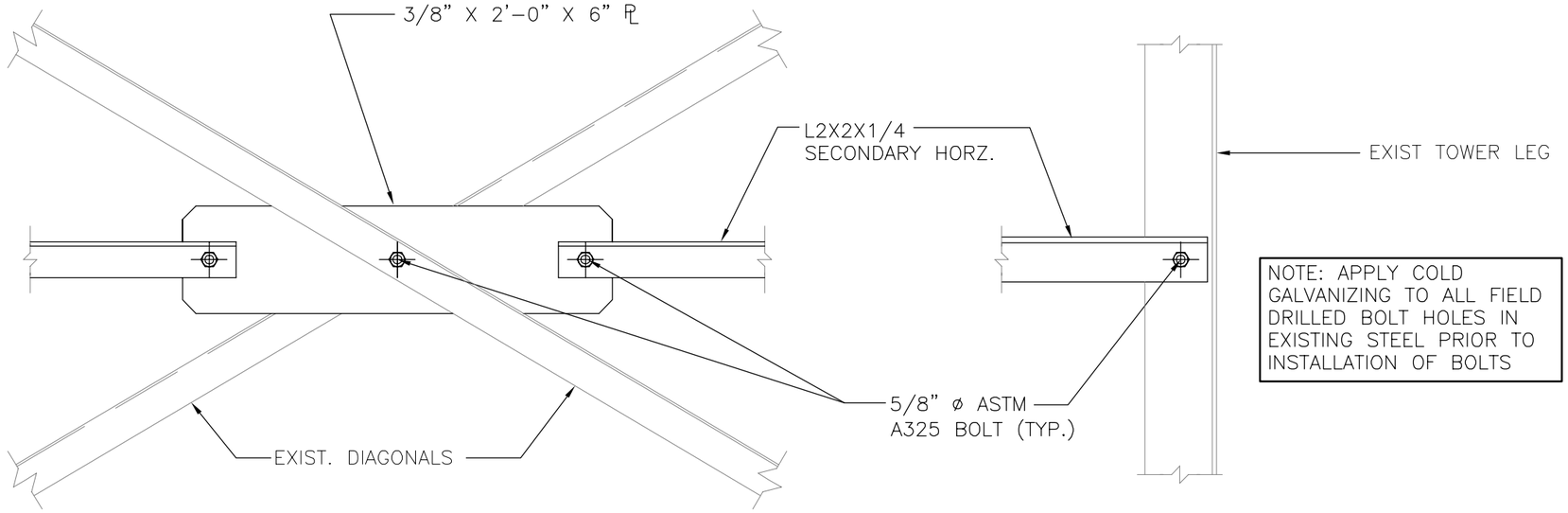
STRUCTURE 876

280 MOREHOUSE DRIVE
FAIRFIELD CT, 06825

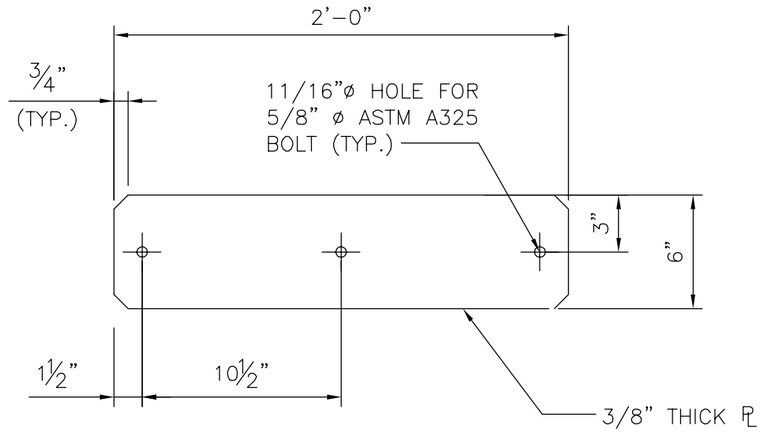
DATE:	11/9/18
SCALE:	AS SHOWN
JOB NO.	17159.06

TOWER / MAST ELEVATION AND FEEDLINE PLANS

SHEET NO.
EL-1
Sheet No. 1 of 2



NOTE: APPLY COLD GALVANIZING TO ALL FIELD DRILLED BOLT HOLES IN EXISTING STEEL PRIOR TO INSTALLATION OF BOLTS



REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	11/12/18	TJL	CAG	ISSUED FOR CONSTRUCTION

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STRUCTURE 876

250 MOREHOUSE DRIVE
FAIRFIELD CT, 06825

DATE:	11/9/18
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TOWER REINFORCEMENT DETAILS

SHEET NO.
SK-1
Sheet No. 2 of 2

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Subject:	Loads on Equipmnet Structure 876
Location:	Fairfield, CT
Rev. 2: 11/12/18	Prepared by: T.J.L. Checked by: C.F.C. Job No. 17159.06

Development of Design Heights, Exposure Coefficients, and Velocity Pressures Per TIA-222-G

Wind Speeds

Basic Wind Speed	$V := 97$	mph	(User Input - 2016 CSBC Appendix N)
Basic Wind Speed with Ice	$V_i := 50$	mph	(User Input per Annex B of TIA-222-G)

Input

Structure Type =	Structure_Type := Lattice		(User Input)	
Structure Category =	SC := III		(User Input)	
Exposure Category =	Exp := C		(User Input)	
Structure Height =	$h := 86$	ft	(User Input)	
Height to Center of Antennas =	$z_{Sprint} := 104$	ft	(User Input)	
Height to Center of Antennas =	$z_{TMo} := 95$	ft	(User Input)	
Height to Center of Mast =	$z_{Mast5} := 90$	ft	(User Input)	
Height to Center of Mast =	$z_{Mast4} := 70$	ft	(User Input)	Mast Based on Max 20-ft Section per 2.6.9.1.3
Height to Center of Mast =	$z_{Mast3} := 50$	ft	(User Input)	
Height to Center of Mast =	$z_{Mast2} := 30$	ft	(User Input)	
Height to Center of Mast =	$z_{Mast1} := 10$	ft	(User Input)	
Radial Ice Thickness =	$t_i := 0.75$	in	(User Input per Annex B of TIA-222-G)	
Radial Ice Density =	Id := 56.00	pcf	(User Input)	
Topograpic Factor =	$K_{zt} := 1.0$		(User Input)	
	$K_a := 1.0$		(User Input)	
Gust Response Factor =	$G_H := 1.35$		(User Input)	

Output

Wind Direction Probability Factor =

$$K_d := \begin{cases} 0.95 & \text{if Structure\_Type = Pole} \\ 0.85 & \text{if Structure\_Type = Lattice} \end{cases} = 0.85$$

(Per Table 2-2 of TIA-222-G)

Importance Factors =

$$I_{Wind} := \begin{cases} 0.87 & \text{if SC = 1} \\ 1.00 & \text{if SC = 2} \\ 1.15 & \text{if SC = 3} \end{cases} = 1.15$$

(Per Table 2-3 of TIA-222-G)

$$I_{Wind\_w\_Ice} := \begin{cases} 0 & \text{if SC = 1} \\ 1.00 & \text{if SC = 2} \\ 1.00 & \text{if SC = 3} \end{cases} = 1$$

$$I_{ice} := \begin{cases} 0 & \text{if SC = 1} \\ 1.00 & \text{if SC = 2} \\ 1.25 & \text{if SC = 3} \end{cases} = 1.25$$

$$K_{iz} := \left(\frac{z_{Sprint}}{33}\right)^{0.1} = 1.122 \qquad t_{izSprint} := 2.0 \cdot t_i \cdot I_{ice} \cdot K_{iz} \cdot K_{zt}^{0.35} = 2.103$$

Velocity Pressure CoefficientAntennas =
$$Kz_{Sprint} := 2.01\left(\left(\frac{z_{Sprint}}{zg}\right)\right)^{\frac{2}{\alpha}} = 1.276$$

Velocity Pressure w/o Ice Antennas =
$$qz_{Sprint} := 0.00256 \cdot K_d \cdot Kz_{Sprint} \cdot V^2 \cdot I_{Wind} = 30.046$$

Velocity Pressure with Ice Antennas =
$$qz_{ice.Sprint} := 0.00256 \cdot K_d \cdot Kz_{Sprint} \cdot V_i^2 \cdot I_{Wind\_w\_Ice} = 6.942$$

$$K_{iz} := \left(\frac{z_{TMo}}{33}\right)^{0.1} = 1.112 \qquad t_{izTMo} := 2.0 \cdot t_i \cdot I_{ice} \cdot K_{iz} \cdot K_{zt}^{0.35} = 2.084$$

Velocity Pressure CoefficientAntennas =
$$Kz_{TMo} := 2.01\left(\left(\frac{z_{TMo}}{zg}\right)\right)^{\frac{2}{\alpha}} = 1.252$$

Velocity Pressure w/o Ice Antennas =
$$qz_{TMo} := 0.00256 \cdot K_d \cdot Kz_{TMo} \cdot V^2 \cdot I_{Wind} = 29.479$$

Velocity Pressure with Ice Antennas =
$$qz_{ice.TMo} := 0.00256 \cdot K_d \cdot Kz_{TMo} \cdot V_i^2 \cdot I_{Wind\_w\_Ice} = 6.811$$

$$K_{izMast5} := \left(\frac{z_{Mast5}}{33}\right)^{0.1} = 1.106 \qquad t_{izMast5} := 2.0 \cdot t_i \cdot I_{ice} \cdot K_{izMast5} \cdot K_{zt}^{0.35} = 2.073$$

Velocity Pressure Coefficient Mast =
$$Kz_{Mast5} := 2.01\left(\left(\frac{z_{Mast5}}{zg}\right)\right)^{\frac{2}{\alpha}} = 1.238$$

Velocity Pressure w/o Ice Mast=
$$qz_{Mast5} := 0.00256 \cdot K_d \cdot Kz_{Mast5} \cdot V^2 \cdot I_{Wind} = 29.145$$

Velocity Pressure with Ice Mast =
$$qz_{ice.Mast5} := 0.00256 \cdot K_d \cdot Kz_{Mast5} \cdot V_i^2 \cdot I_{Wind\_w\_Ice} = 6.734$$

$$K_{izMast4} := \left(\frac{z_{Mast4}}{33}\right)^{0.1} = 1.078 \qquad t_{izMast4} := 2.0 \cdot t_i \cdot I_{ice} \cdot K_{izMast4} \cdot K_{zt}^{0.35} = 2.021$$

Velocity Pressure Coefficient Mast =
$$Kz_{Mast4} := 2.01\left(\left(\frac{z_{Mast4}}{zg}\right)\right)^{\frac{2}{\alpha}} = 1.174$$

Velocity Pressure w/o Ice Mast=
$$qz_{Mast4} := 0.00256 \cdot K_d \cdot Kz_{Mast4} \cdot V^2 \cdot I_{Wind} = 27.643$$

Velocity Pressure with Ice Mast =
$$qz_{ice.Mast4} := 0.00256 \cdot K_d \cdot Kz_{Mast4} \cdot V_i^2 \cdot I_{Wind\_w\_Ice} = 6.387$$

$$K_{izMast3} := \left(\frac{z_{Mast3}}{33}\right)^{0.1} = 1.042 \qquad t_{izMast3} := 2.0 \cdot t_i \cdot I_{ice} \cdot K_{izMast3} \cdot K_{zt}^{0.35} = 1.955$$

Velocity Pressure Coefficient Mast =

$$Kz_{Mast3} := 2.01\left(\left(\frac{z_{Mast3}}{zg}\right)\right)^{\frac{2}{\alpha}} = 1.094$$

Velocity Pressure w/o Ice Mast=

$$qz_{Mast3} := 0.00256 \cdot K_d \cdot Kz_{Mast3} \cdot V^2 \cdot I_{Wind} = 25.753$$

Velocity Pressure with Ice Mast =

$$qz_{ice.Mast3} := 0.00256 \cdot K_d \cdot Kz_{Mast3} \cdot V_i^2 \cdot I_{Wind\_w\_Ice} = 5.95$$

$$K_{izMast2} := \left(\frac{z_{Mast2}}{33}\right)^{0.1} = 0.991 \qquad t_{izMast2} := 2.0 \cdot t_i \cdot I_{ice} \cdot K_{izMast2} \cdot K_{zt}^{0.35} = 1.857$$

Velocity Pressure Coefficient Mast =

$$Kz_{Mast2} := 2.01\left(\left(\frac{z_{Mast2}}{zg}\right)\right)^{\frac{2}{\alpha}} = 0.982$$

Velocity Pressure w/o Ice Mast=

$$qz_{Mast2} := 0.00256 \cdot K_d \cdot Kz_{Mast2} \cdot V^2 \cdot I_{Wind} = 23.127$$

Velocity Pressure with Ice Mast =

$$qz_{ice.Mast2} := 0.00256 \cdot K_d \cdot Kz_{Mast2} \cdot V_i^2 \cdot I_{Wind\_w\_Ice} = 5.343$$

$$K_{izMast1} := \left(\frac{z_{Mast1}}{33}\right)^{0.1} = 0.887 \qquad t_{izMast1} := 2.0 \cdot t_i \cdot I_{ice} \cdot K_{izMast1} \cdot K_{zt}^{0.35} = 1.664$$

Velocity Pressure Coefficient Mast =

$$Kz_{Mast1} := 2.01\left(\left(\frac{z_{Mast1}}{zg}\right)\right)^{\frac{2}{\alpha}} = 0.779$$

Velocity Pressure w/o Ice Mast=

$$qz_{Mast1} := 0.00256 \cdot K_d \cdot Kz_{Mast1} \cdot V^2 \cdot I_{Wind} = 18.352$$

Velocity Pressure with Ice Mast =

$$qz_{ice.Mast1} := 0.00256 \cdot K_d \cdot Kz_{Mast1} \cdot V_i^2 \cdot I_{Wind\_w\_Ice} = 4.24$$

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Subject: Loads on Equipmnet Structure 876

Location: Fairfield, CT

Rev. 2: 11/12/18

Prepared by: T.J.L. Checked by: C.F.C.
Job No. 17159.06

Development of Wind & Ice Load on Mast

Mast Data: (12" Sch. 40 Pipe) (User Input)

Mast Shape = Round (User Input)

Mast Diameter = $D_{mast} := 12.75$ in (User Input)

Mast Length = $L_{mast} := 131.25$ ft (User Input)

Mast Thickness = $t_{mast} := 0.375$ in (User Input)

Velocity Coefficient = $C := \sqrt{I \cdot Kz_{Mast1}} \cdot V \cdot \frac{D_{mast}}{12} = 91$

Mast Force Coefficient = $CF_{mast} = 0.6$

Wind Load (without ice)

Mast Projected Surface Area = $A_{mast} := \frac{D_{mast}}{12} = 1.063$ sf/ft

Total Mast Wind Force =	$qz_{Mast5} \cdot G_H \cdot CF_{mast} \cdot A_{mast} = 25$	plf	BLC 5
Total Mast Wind Force =	$qz_{Mast4} \cdot G_H \cdot CF_{mast} \cdot A_{mast} = 24$	plf	BLC 5
Total Mast Wind Force =	$qz_{Mast3} \cdot G_H \cdot CF_{mast} \cdot A_{mast} = 22$	plf	BLC 5
Total Mast Wind Force =	$qz_{Mast2} \cdot G_H \cdot CF_{mast} \cdot A_{mast} = 20$	plf	BLC 5
Total Mast Wind Force =	$qz_{Mast1} \cdot G_H \cdot CF_{mast} \cdot A_{mast} = 16$	plf	BLC 5

Wind Load (with ice)

Mast Projected Surface Area w/ Ice = $AICE_{mast} := \frac{(D_{mast} + 2 \cdot t_{izMast5})}{12} = 1.408$ sf/ft

Total Mast Wind Force w/ Ice = $qz_{ice.Mast5} \cdot G_H \cdot CF_{mast} \cdot AICE_{mast} = 8$ plf BLC 4

Mast Projected Surface Area w/ Ice = $AICE_{mast} := \frac{(D_{mast} + 2 \cdot t_{izMast4})}{12} = 1.399$ sf/ft

Total Mast Wind Force w/ Ice = $qz_{ice.Mast4} \cdot G_H \cdot CF_{mast} \cdot AICE_{mast} = 7$ plf BLC 4

Mast Projected Surface Area w/ Ice = $AICE_{mast} := \frac{(D_{mast} + 2 \cdot t_{izMast3})}{12} = 1.388$ sf/ft

Total Mast Wind Force w/ Ice = $qz_{ice.Mast3} \cdot G_H \cdot CF_{mast} \cdot AICE_{mast} = 7$ plf BLC 4

Mast Projected Surface Area w/ Ice = $AICE_{mast} := \frac{(D_{mast} + 2 \cdot t_{izMast2})}{12} = 1.372$ sf/ft

Total Mast Wind Force w/ Ice = $qz_{ice.Mast2} \cdot G_H \cdot CF_{mast} \cdot AICE_{mast} = 6$ plf BLC 4

Mast Projected Surface Area w/ Ice = $AICE_{mast} := \frac{(D_{mast} + 2 \cdot t_{izMast1})}{12} = 1.34$ sf/ft

Total Mast Wind Force w/ Ice = $qz_{ice.Mast1} \cdot G_H \cdot CF_{mast} \cdot AICE_{mast} = 5$ plf BLC 4

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Subject: Loads on Equipmnet Structure 876

Location: Fairfield, CT

Rev. 2: 11/12/18

Prepared by: T.J.L. Checked by: C.F.C.
Job No. 17159.06

Gravity Loads (without ice)

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

Gravity Loads (ice only)

Ice Area per Linear Foot =	$Ai_{mast} := \frac{\pi}{4}\left[\left(D_{mast} + t_{izMast5}\cdot 2\right)^2 - D_{mast}^2\right] = 96.5$		sq in	
Weight of Ice on Mast =	$W_{ICEmast5} := Id\cdot\frac{Ai_{mast}}{144} = 38$		plf	**BLC 3**
Ice Area per Linear Foot =	$Ai_{mast} := \frac{\pi}{4}\left[\left(D_{mast} + t_{izMast4}\cdot 2\right)^2 - D_{mast}^2\right] = 93.8$		sq in	
Weight of Ice on Mast =	$W_{ICEmast4} := Id\cdot\frac{Ai_{mast}}{144} = 36$		plf	**BLC 3**
Ice Area per Linear Foot =	$Ai_{mast} := \frac{\pi}{4}\left[\left(D_{mast} + t_{izMast3}\cdot 2\right)^2 - D_{mast}^2\right] = 90.3$		sq in	
Weight of Ice on Mast =	$W_{ICEmast3} := Id\cdot\frac{Ai_{mast}}{144} = 35$		plf	**BLC 3**
Ice Area per Linear Foot =	$Ai_{mast} := \frac{\pi}{4}\left[\left(D_{mast} + t_{izMast2}\cdot 2\right)^2 - D_{mast}^2\right] = 85.2$		sq in	
Weight of Ice on Mast =	$W_{ICEmast2} := Id\cdot\frac{Ai_{mast}}{144} = 33$		plf	**BLC 3**
Ice Area per Linear Foot =	$Ai_{mast} := \frac{\pi}{4}\left[\left(D_{mast} + t_{izMast1}\cdot 2\right)^2 - D_{mast}^2\right] = 75.4$		sq in	
Weight of Ice on Mast =	$W_{ICEmast1} := Id\cdot\frac{Ai_{mast}}{144} = 29$		plf	**BLC 3**

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Subject:	Loads on Equipmnet Structure 876
Location:	Fairfield, CT
Rev. 2: 11/12/18	Prepared by: T.J.L. Checked by: C.F.C. Job No. 17159.06

Development of Wind & Ice Load on Antennas

Antenna Data: (Sprint)

Antenna Model =	Commscope DHHTT65B-3XR		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 72.1$	in	(User Input)
Antenna Width =	$W_{ant} := 11.9$	in	(User Input)
Antenna Thickness =	$T_{ant} := 7.1$	in	(User Input)
Antenna Weight =	$WT_{ant} := 46$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 3$		(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 6.1$		
Antenna Force Coefficient =	$Ca_{ant} = 1.36$		

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 6$	sf	
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 17.9$	sf	
Total Antenna Wind Force =	$F_{ant} := qz_{Sprint} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ant} = 985$	lbs	**BLC 5**

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEant} := \frac{(L_{ant} + 2 \cdot t_{izSprint}) \cdot (W_{ant} + 2 \cdot t_{izSprint})}{144} = 8.5$	sf	
Antenna Projected Surface Area w/ Ice =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 25.6$	sf	
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.Sprint} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ICEant} = 326$	lbs	**BLC 4**

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 138$	lbs	**BLC 2**

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 6092$	cu in	
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot t_{izSprint})(W_{ant} + 2 \cdot t_{izSprint}) \cdot (T_{ant} + 2 \cdot t_{izSprint}) - V_{ant} = 7803$		
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 253$	lbs	
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 759$	lbs	**BLC 3**

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Development of Wind & Ice Load on Antennas

Antenna Data: (Sprint)

Antenna Model =	RFS KIT-FD9R6004/1C-DL Diplexer		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 5.8$	in	(User Input)
Antenna Width =	$W_{ant} := 6.5$	in	(User Input)
Antenna Thickness =	$T_{ant} := 4.6$	in	(User Input)
Antenna Weight =	$WT_{ant} := 7$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 3$		(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 0.9$		
Antenna Force Coefficient =	$Ca_{ant} = 1.2$		

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 0.3$	sf	
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 0.8$	sf	
Total Antenna Wind Force =	$F_{ant} := qz_{Sprint} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ant} = 38$	lbs	**BLC 5**

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEant} := \frac{(L_{ant} + 2 \cdot t_{izSprint}) \cdot (W_{ant} + 2 \cdot t_{izSprint})}{144} = 0.7$	sf	
Antenna Projected Surface Area w/ Ice =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 2.2$	sf	
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.Sprint} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ICEant} = 25$	lbs	**BLC 4**

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 21$	lbs	**BLC 2**

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 173$	cu in	
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot t_{izSprint})(W_{ant} + 2 \cdot t_{izSprint}) \cdot (T_{ant} + 2 \cdot t_{izSprint}) - V_{ant} = 770$		
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 25$	lbs	
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 75$	lbs	**BLC 3**

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Development of Wind & Ice Load on Antennas

Antenna Data: (Sprint)

Antenna Model =	CCI DPO-7126Y-0-T1 Diplexer		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 4.07$	in	(User Input)
Antenna Width =	$W_{ant} := 7.42$	in	(User Input)
Antenna Thickness =	$T_{ant} := 6.26$	in	(User Input)
Antenna Weight =	$WT_{ant} := 8$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 3$		(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 0.5$		
Antenna Force Coefficient =	$Ca_{ant} = 1.2$		

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 0.2$	sf	
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 0.6$	sf	
Total Antenna Wind Force =	$F_{ant} := qz_{Sprint} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ant} = 31$	lbs	**BLC 5**

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEant} := \frac{(L_{ant} + 2 \cdot t_{izSprint}) \cdot (W_{ant} + 2 \cdot t_{izSprint})}{144} = 0.7$	sf	
Antenna Projected Surface Area w/ Ice =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 2$	sf	
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.Sprint} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ICEant} = 23$	lbs	**BLC 4**

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 24$	lbs	**BLC 2**

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 189$	cu in	
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot t_{izSprint})(W_{ant} + 2 \cdot t_{izSprint}) \cdot (T_{ant} + 2 \cdot t_{izSprint}) - V_{ant} = 818$		
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 27$	lbs	
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 80$	lbs	**BLC 3**

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Development of Wind & Ice Load on Antenna Mounts

Mount Data: (Sprint)

Mount Type: WiMax Monopole T-Arm w/ Handrail

Mount Shape =	Flat		(User Input)
Mount Projected Surface Area =	$CaAa := 10$	sf	(User Input)
Mount Projected Surface Area w/ Ice =	$CaAa_{ice} := 12$	sf	(User Input)
Mount Weight =	$WT_{mnt} := 900$	lbs	(User Input)
Mount Weight w/ Ice =	$WT_{mnt.ice} := 1100$	lbs	

Wind Load (without ice)

Total Mount Wind Force = $F_{mnt} := qz_{Sprint} \cdot G_H \cdot CaAa = 406$ lbs **BLC 5**

Wind Load (with ice)

Total Mount Wind Force = $Fi_{mnt} := qz_{ice.Sprint} \cdot G_H \cdot CaAa_{ice} = 112$ lbs **BLC 4**

Gravity Loads (without ice)

Weight of All Mounts = $WT_{mnt} = 900$ lbs **BLC 2**

Gravity Loads (ice only)

Weight of Ice on All Mounts = $WT_{mnt.ice} - WT_{mnt} = 200$ lbs **BLC 3**

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Development of Wind & Ice Load on Antennas

Antenna Data: (T-Mobile)

Antenna Model =	RFS APX16DWV-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 =	$WT_{ant} := 40.7$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 3$		(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 4.3$		
Antenna Force Coefficient =	$Ca_{ant} = 1.28$		

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 5$	sf	
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 15.1$	sf	
Total Antenna Wind Force =	$F_{ant} := qz_{TMo} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ant} = 771$	lbs	**BLC 5**

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEant} := \frac{(L_{ant} + 2 \cdot t_{izTMo}) \cdot (W_{ant} + 2 \cdot t_{izTMo})}{144} = 7.2$	sf	
Antenna Projected Surface Area w/ Ice =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 21.5$	sf	
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.TMo} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ICEant} = 253$	lbs	**BLC 4**

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 122$	lbs	**BLC 2**

Gravity Loads (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 =	$V_{ice} := (L_{ant} + 2 \cdot t_{izTMo})(W_{ant} + 2 \cdot t_{izTMo}) \cdot (T_{ant} + 2 \cdot t_{izTMo}) - V_{ant} = 5258$		
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 170$	lbs	
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 511$	lbs	**BLC 3**

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Development of Wind & Ice Load on Antennas

Antenna Data: (T-Mobile)

Antenna Model =	Andrew LNX-6515DS		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 96.6$	in	(User Input)
Antenna Width =	$W_{ant} := 11.9$	in	(User Input)
Antenna Thickness =	$T_{ant} := 7.1$	in	(User Input)
Antenna Weight =	$WT_{ant} := 44$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 3$		(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 8.1$		
Antenna Force Coefficient =	$Ca_{ant} = 1.44$		

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 8$	sf	
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 23.9$	sf	
Total Antenna Wind Force =	$F_{ant} := qz_{TMo} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ant} = 1370$	lbs	**BLC 5**

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEant} := \frac{(L_{ant} + 2 \cdot t_{izTMo}) \cdot (W_{ant} + 2 \cdot t_{izTMo})}{144} = 11.2$	sf	
Antenna Projected Surface Area w/ Ice =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 33.7$	sf	
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.TMo} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ICEant} = 446$	lbs	**BLC 4**

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 132$	lbs	**BLC 2**

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 8162$	cu in	
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot t_{izTMo})(W_{ant} + 2 \cdot t_{izTMo}) \cdot (T_{ant} + 2 \cdot t_{izTMo}) - V_{ant} = 1 \times 10^4$		
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 327$	lbs	
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 980$	lbs	**BLC 3**

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Development of Wind & Ice Load on Antennas

Antenna Data: (T-Mobile)

Antenna Model = Andrew ATSBT-TOP-FM-4G

Antenna Shape = Flat (User Input)

Antenna Height = $L_{ant} := 5.63$ in (User Input)

Antenna Width = $W_{ant} := 3.7$ in (User Input)

Antenna Thickness = $T_{ant} := 2.0$ in (User Input)

Antenna Weight = $WT_{ant} := 2$ lbs (User Input)

Number of Antennas = $N_{ant} := 3$ (User Input)

Antenna Aspect Ratio = $Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 1.5$

Antenna Force Coefficient = $Ca_{ant} = 1.2$

Wind Load (without ice)

Surface Area for One Antenna = $SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 0.1$ sf

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 0.4$ sf

Total Antenna Wind Force = $F_{ant} := qz_{TMo} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ant} = 21$ lbs **BLC 5**

Wind Load (with ice)

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := \frac{(L_{ant} + 2 \cdot t_{izTMo}) \cdot (W_{ant} + 2 \cdot t_{izTMo})}{144} = 0.5$ sf

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 1.6$ sf

Total Antenna Wind Force w/ Ice = $Fi_{ant} := qz_{ice.TMo} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ICEant} = 18$ lbs **BLC 4**

Gravity Load (without ice)

Weight of All Antennas = $WT_{ant} \cdot N_{ant} = 6$ lbs **BLC 2**

Gravity Loads (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 42$ cu in

Volume of Ice on Each Antenna = $V_{ice} := (L_{ant} + 2 \cdot t_{izTMo})(W_{ant} + 2 \cdot t_{izTMo}) \cdot (T_{ant} + 2 \cdot t_{izTMo}) - V_{ant} = 434$

Weight of Ice on Each Antenna = $W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 14$ lbs

Weight of Ice on All Antennas = $W_{ICEant} \cdot N_{ant} = 42$ lbs **BLC 3**

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Development of Wind & Ice Load on Antenna Mounts

Mount Data: (T-Mobile)

Mount Type: WiMax Monopole T-Arm

Mount Shape =	Flat		(User Input)
Mount Projected Surface Area =	$CaAa := 6.3$	sf	(User Input)
Mount Projected Surface Area w/ Ice =	$CaAa_{ice} := 7.88$	sf	(User Input)
Mount Weight =	$WT_{mnt} := 550$	lbs	(User Input)
Mount Weight w/ Ice =	$WT_{mnt.ice} := 700$	lbs	

Wind Load (without ice)

Total Mount Wind Force = $F_{mnt} := qz_{TMo} \cdot G_H \cdot CaAa = 251$ lbs **BLC 5**

Wind Load (with ice)

Total Mount Wind Force = $Fi_{mnt} := qz_{ice.TMo} \cdot G_H \cdot CaAa_{ice} = 72$ lbs **BLC 4**

Gravity Loads (without ice)

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

Gravity Loads (ice only)

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

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Development of Wind & Ice Load on Coax Cables

Coax Cable Data: (Sprint)

Coax Type = HELIAX 1-5/8"

Shape = Round (User Input)

Coax Outside Diameter = $D_{coax} := 1.98$ in (User Input)

Coax Cable Length = $L_{coax} := 104$ ft (User Input)

Weight of Coax per foot = $Wt_{coax} := 1.04$ plf (User Input)

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

Total Number of Exterior Coax = $Ne_{coax} := 0$ (User Input) (6 coax within mast)

No. of Coax Projecting Outside Face of Mast = $NP_{coax} := 0$ (User Input)

Coax aspect ratio, $Ar_{coax} := \frac{(L_{coax} \cdot 12)}{D_{coax}} = 630.3$

Coax Cable Force Factor Coefficient = $Ca_{coax} = 1.2$

Wind Load (without ice)

Coax projected surface area = $A_{coax} := \frac{(NP_{coax} D_{coax})}{12} = 0$ sf/ft

Total Coax Wind Force =	$F_{coax} := Ca_{coax} \cdot qz_{Mast5} \cdot G_H \cdot A_{coax} = 0$	plf	**BLC 5,7**
Total Coax Wind Force =	$F_{coax} := Ca_{coax} \cdot qz_{Mast4} \cdot G_H \cdot A_{coax} = 0$	plf	**BLC 5,7**
Total Coax Wind Force =	$F_{coax} := Ca_{coax} \cdot qz_{Mast3} \cdot G_H \cdot A_{coax} = 0$	plf	**BLC 5,7**
Total Coax Wind Force =	$F_{coax} := Ca_{coax} \cdot qz_{Mast2} \cdot G_H \cdot A_{coax} = 0$	plf	**BLC 5,7**
Total Coax Wind Force =	$F_{coax} := Ca_{coax} \cdot qz_{Mast1} \cdot G_H \cdot A_{coax} = 0$	plf	**BLC 5,7**

Wind Load (with ice)

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

Total Coax Wind Force w/ Ice = $Fi_{coax} := Ca_{coax} \cdot qz_{ice.Mast5} \cdot G_H \cdot AICE_{coax} = 0$ plf **BLC 4,6**

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

Total Coax Wind Force w/ Ice = $Fi_{coax} := Ca_{coax} \cdot qz_{ice.Mast4} \cdot G_H \cdot AICE_{coax} = 0$ plf **BLC 4,6**

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

Total Coax Wind Force w/ Ice = $Fi_{coax} := Ca_{coax} \cdot qz_{ice.Mast3} \cdot G_H \cdot AICE_{coax} = 0$ plf **BLC 4,6**

Coax projected surface area w/ Ice =	$AICE_{coax} := 0$	sf/ft	
Total Coax Wind Force w/ Ice =	$Fi_{coax} := Ca_{coax} \cdot qz_{ice.Mast2} \cdot G_H \cdot AICE_{coax} = 0$	plf	**BLC 4,6**
Coax projected surface area w/ Ice =	$AICE_{coax} := 0$	sf/ft	
Total Coax Wind Force w/ Ice =	$Fi_{coax} := Ca_{coax} \cdot qz_{ice.Mast1} \cdot G_H \cdot AICE_{coax} = 0$	plf	**BLC 4,6**
Gravity Loads (without ice)			
Weight of all cables w/o ice	$WT_{coax} := Wt_{coax} \cdot N_{coax} = 6$	plf	**BLC 2**
Gravity Loads (ice only)			
Ice Area per Linear Foot =	$Ai_{coax} := \frac{\pi}{4}\left[\left(D_{coax} + 2 \cdot t_{izMast5}\right)^2 - D_{coax}^2\right] = 26.4$	sq in	
Ice Weight All Coax per foot =	$WTi_{coax} := Ne_{coax} \cdot Id \cdot \frac{Ai_{coax}}{144} = 0$	plf	**BLC 3**
Ice Area per Linear Foot =	$Ai_{coax} := \frac{\pi}{4}\left[\left(D_{coax} + 2 \cdot t_{izMast4}\right)^2 - D_{coax}^2\right] = 25.4$	sq in	
Ice Weight All Coax per foot =	$WTi_{coax} := Ne_{coax} \cdot Id \cdot \frac{Ai_{coax}}{144} = 0$	plf	**BLC 3**
Ice Area per Linear Foot =	$Ai_{coax} := \frac{\pi}{4}\left[\left(D_{coax} + 2 \cdot t_{izMast3}\right)^2 - D_{coax}^2\right] = 24.2$	sq in	
Ice Weight All Coax per foot =	$WTi_{coax} := Ne_{coax} \cdot Id \cdot \frac{Ai_{coax}}{144} = 0$	plf	**BLC 3**
Ice Area per Linear Foot =	$Ai_{coax} := \frac{\pi}{4}\left[\left(D_{coax} + 2 \cdot t_{izMast2}\right)^2 - D_{coax}^2\right] = 22.4$	sq in	
Ice Weight All Coax per foot =	$WTi_{coax} := Ne_{coax} \cdot Id \cdot \frac{Ai_{coax}}{144} = 0$	plf	**BLC 3**
Ice Area per Linear Foot =	$Ai_{coax} := \frac{\pi}{4}\left[\left(D_{coax} + 2 \cdot t_{izMast1}\right)^2 - D_{coax}^2\right] = 19$	sq in	
Ice Weight All Coax per foot =	$WTi_{coax} := Ne_{coax} \cdot Id \cdot \frac{Ai_{coax}}{144} = 0$	plf	**BLC 3**

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Subject: Loads on Equipmnet Structure 876

Location: Fairfield, CT

Rev. 2: 11/12/18

Prepared by: T.J.L. Checked by: C.F.C.
Job No. 17159.06

Development of Wind & Ice Load on Coax Cables

Coax Cable Data: (T-Mobile)

Coax Type =	HELIAX 1-1/4"			
Shape =	Round		(User Input)	
Coax Outside Diameter =	$D_{coax} := 1.55$	in	(User Input)	
Coax Cable Length =	$L_{coax} := 95$	ft	(User Input)	
Weight of Coax per foot =	$Wt_{coax} := 0.66$	plf	(User Input)	
Total Number of Coax =	$N_{coax} := 12$		(User Input)	
Total Number of Exterior Coax =	$Ne_{coax} := 12$		(User Input)	
No. of Coax Projecting Outside Face of Mast =	$NP_{coax} := 6$		(User Input)	

Coax aspect ratio, $Ar_{coax} := \frac{(L_{coax} \cdot 12)}{D_{coax}} = 735.5$

Coax Cable Force Factor Coefficient = $Ca_{coax} = 1.2$

Wind Load (without ice)

Coax projected surface area = $A_{coax} := \frac{(NP_{coax} D_{coax})}{12} = 0.8$ sf/ft

Total Coax Wind Force =	$F_{coax} := Ca_{coax} \cdot qz_{Mast5} \cdot G_H \cdot A_{coax} = 37$	plf	**BLC 5,7**
Total Coax Wind Force =	$F_{coax} := Ca_{coax} \cdot qz_{Mast4} \cdot G_H \cdot A_{coax} = 35$	plf	**BLC 5,7**
Total Coax Wind Force =	$F_{coax} := Ca_{coax} \cdot qz_{Mast3} \cdot G_H \cdot A_{coax} = 32$	plf	**BLC 5,7**
Total Coax Wind Force =	$F_{coax} := Ca_{coax} \cdot qz_{Mast2} \cdot G_H \cdot A_{coax} = 29$	plf	**BLC 5,7**
Total Coax Wind Force =	$F_{coax} := Ca_{coax} \cdot qz_{Mast1} \cdot G_H \cdot A_{coax} = 23$	plf	**BLC 5,7**

Wind Load (with ice)

Coax projected surface area w/ Ice = $AICE_{coax} := \frac{(NP_{coax} \cdot D_{coax} + 2 \cdot t_{izMast5})}{12} = 1.1$ sf/ft

Total Coax Wind Force w/ Ice = $Fi_{coax} := Ca_{coax} \cdot qz_{ice.Mast5} \cdot G_H \cdot AICE_{coax} = 12$ plf **BLC 4,6**

Coax projected surface area w/ Ice = $AICE_{coax} := \frac{(NP_{coax} \cdot D_{coax} + 2 \cdot t_{izMast4})}{12} = 1.1$ sf/ft

Total Coax Wind Force w/ Ice = $Fi_{coax} := Ca_{coax} \cdot qz_{ice.Mast4} \cdot G_H \cdot AICE_{coax} = 12$ plf **BLC 4,6**

Coax projected surface area w/ Ice = $AICE_{coax} := \frac{(NP_{coax} \cdot D_{coax} + 2 \cdot t_{izMast3})}{12} = 1.1$ sf/ft

Total Coax Wind Force w/ Ice = $Fi_{coax} := Ca_{coax} \cdot qz_{ice.Mast3} \cdot G_H \cdot AICE_{coax} = 11$ plf **BLC 4,6**

Coax projected surface area w/ Ice =	$AICE_{coax} := \frac{\left(NP_{coax} \cdot D_{coax} + 2 \cdot t_{izMast2}\right)}{12} = 1.1$	sf/ft	
Total Coax Wind Force w/ Ice =	$Fi_{coax} := Ca_{coax} \cdot qz_{ice.Mast2} \cdot G_H \cdot AICE_{coax} = 9$	plf	**BLC 4,6**
Coax projected surface area w/ Ice =	$AICE_{coax} := \frac{\left(NP_{coax} \cdot D_{coax} + 2 \cdot t_{izMast1}\right)}{12} = 1.1$	sf/ft	
Total Coax Wind Force w/ Ice =	$Fi_{coax} := Ca_{coax} \cdot qz_{ice.Mast1} \cdot G_H \cdot AICE_{coax} = 7$	plf	**BLC 4,6**
Gravity Loads (without ice)			
Weight of all cables w/o ice	$WT_{coax} := Wt_{coax} \cdot N_{coax} = 8$	plf	**BLC 2**
Gravity Loads (ice only)			
Ice Area per Linear Foot =	$Ai_{coax} := \frac{\pi}{4}\left[\left(D_{coax} + 2 \cdot t_{izMast5}\right)^2 - D_{coax}^2\right] = 23.6$	sq in	
Ice Weight All Coax per foot =	$WTi_{coax} := Ne_{coax} \cdot Id \cdot \frac{Ai_{coax}}{144} = 110$	plf	**BLC 3**
Ice Area per Linear Foot =	$Ai_{coax} := \frac{\pi}{4}\left[\left(D_{coax} + 2 \cdot t_{izMast4}\right)^2 - D_{coax}^2\right] = 22.7$	sq in	
Ice Weight All Coax per foot =	$WTi_{coax} := Ne_{coax} \cdot Id \cdot \frac{Ai_{coax}}{144} = 106$	plf	**BLC 3**
Ice Area per Linear Foot =	$Ai_{coax} := \frac{\pi}{4}\left[\left(D_{coax} + 2 \cdot t_{izMast3}\right)^2 - D_{coax}^2\right] = 21.5$	sq in	
Ice Weight All Coax per foot =	$WTi_{coax} := Ne_{coax} \cdot Id \cdot \frac{Ai_{coax}}{144} = 100$	plf	**BLC 3**
Ice Area per Linear Foot =	$Ai_{coax} := \frac{\pi}{4}\left[\left(D_{coax} + 2 \cdot t_{izMast2}\right)^2 - D_{coax}^2\right] = 19.9$	sq in	
Ice Weight All Coax per foot =	$WTi_{coax} := Ne_{coax} \cdot Id \cdot \frac{Ai_{coax}}{144} = 93$	plf	**BLC 3**
Ice Area per Linear Foot =	$Ai_{coax} := \frac{\pi}{4}\left[\left(D_{coax} + 2 \cdot t_{izMast1}\right)^2 - D_{coax}^2\right] = 16.8$	sq in	
Ice Weight All Coax per foot =	$WTi_{coax} := Ne_{coax} \cdot Id \cdot \frac{Ai_{coax}}{144} = 78$	plf	**BLC 3**

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Subject:	Loads on Equipmnet Structure 876
Location:	Fairfield, CT
Rev. 2: 11/12/18	Prepared by: T.J.L. Checked by: C.F.C. Job No. 17159.06

Development of Wind & Ice Load on Brace Member

Member Data: L3.5x3.5x1/4

Antenna Shape = Flat (User Input)

Height = $H_{mem} := 3.5$ in (User Input)

Width = $W_{mem} := 3.5$ in (User Input)

Thickness = $t_{mem} := 0.25$ in (User Input)

Length = $L_{mem} := 120$ in (User Input)

Member Aspect Ratio = $Ar_{mem} := \frac{L_{mem}}{W_{mem}} = 34.3$

Member Force Coefficient = $Ca_{mem} = 2$

Wind Load (without ice)

Member Projected Surface Area = $A_{mem} := \frac{H_{mem}}{12} = 0.3$ sf/ft

Total Member Wind Force = $F_{mem} := qz_{Mast5} \cdot G_H \cdot Ca_{mem} \cdot A_{mem} = 23$ plf **BLC 5,7**

Wind Load (with ice)

Member Projected Surface Area w/ Ice = $A_{ICEmem} := \frac{\left(H_{mem} + 2 \cdot t_{izMast5}\right)}{12} = 0.6$ sf/ft

Total Member Wind Force w/ Ice = $Fi_{mem} := qz_{ice.Mast5} \cdot G_H \cdot Ca_{mem} \cdot A_{ICEmem} = 12$ plf **BLC 4,6**

Gravity Load (without ice)

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

Gravity Loads (ice only)

Ice Area per Linear foot =

$$Ai_{mem} := \left[\left(H_{mem} + 2 \cdot t_{izMast5}\right) + \left(W_{mem} - t_{mem}\right)\right] \cdot \left(t_{mem} + 2 \cdot t_{izMast5}\right) - \left[H_{mem} + \left(W_{mem} + t_{mem}\right)\right] \cdot t_{mem} = 46 \text{ sq in}$$

Weight of Ice on Member = $W_{ICE.mem} := Id \cdot \frac{Ai_{mem}}{144} = 18$ plf **BLC 3**

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	No
Max Iterations for Wall Stiffness	3
Gravity Acceleration (ft/sec^2)	32.2
Wall Mesh Size (in)	12
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 14th(360-10): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 14th(360-10): ASD
Cold Formed Steel Code	AISI 1999: ASD
Wood Code	AF&PA NDS-91/97: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-02
Masonry Code	ACI 530-05: ASD
Aluminum Code	AA ADM1-05: ASD - Building
Stainless Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	PCA Load Contour
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	Yes
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

(Global) Model Settings, Continued

Seismic Code	UBC 1997
Seismic Base Elevation (ft)	Not Entered
Add Base Weight?	No
Ct X	.035
Ct Z	.035
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	8.5
R Z	8.5
Ca	.36
Cv	.54
Nv	1
Occupancy Category	4
Seismic Zone	3
Om Z	1
Om X	1
Rho Z	1
Rho X	1
Footing Overturning Safety Factor	1.5
Optimize for OTM/Sliding	No
Check Concrete Bearing	No
Footing Concrete Weight (k/ft^3)	0
Footing Concrete f'c (ksi)	3
Footing Concrete Ec (ksi)	4000
Lambda	1
Footing Steel fy (ksi)	60
Minimum Steel	0.0018
Maximum Steel	0.0075
Footing Top Bar	#3
Footing Top Bar Cover (in)	3.5
Footing Bottom Bar	#3
Footing Bottom Bar Cover (in)	3.5
Pedestal Bar	#3
Pedestal Bar Cover (in)	1.5
Pedestal Ties	#3

Hot Rolled Steel Properties

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

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Powermount	PIPE_12.0	Column	Pipe	A500 Gr. C 50	Typical	13.7	262	262	523
2	L3.5x3.5x1/4	L3.5X3.5X4	Beam	Single Angle	A36 Gr.36	Typical	1.7	2	2	.039
3	L2.5x2.5x3/16	L2.5x2.5x3	Beam	Single Angle	A36 Gr.36	Typical	.901	.535	.535	.011

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torqu...	Kyy	Kzz	Cb	Function
1	M1	Powermount	104			Lbyy						Lateral
2	M2	L3.5x3.5x1/4	9.758			Lbyy						Lateral
3	M3	L3.5x3.5x1/4	9.758			Lbyy						Lateral
4	M4	L3.5x3.5x1/4	9.758			Lbyy						Lateral
5	M5	L3.5x3.5x1/4	9.758			Lbyy						Lateral
6	M6	L3.5x3.5x1/4	3.536			Lbyy						Lateral
7	M7	L3.5x3.5x1/4	3.536			Lbyy						Lateral
8	M8	L3.5x3.5x1/4	3.536			Lbyy						Lateral
9	M9	L3.5x3.5x1/4	3.536			Lbyy						Lateral
10	M10	L3.5x3.5x1/4	3.536			Lbyy						Lateral
11	M11	L3.5x3.5x1/4	3.536			Lbyy						Lateral
12	M12	L3.5x3.5x1/4	3.536			Lbyy						Lateral
13	M13	L3.5x3.5x1/4	3.536			Lbyy						Lateral
14	M14	L3.5x3.5x1/4	3.536			Lbyy						Lateral
15	M15	L3.5x3.5x1/4	3.536			Lbyy						Lateral
16	M16	L3.5x3.5x1/4	3.536			Lbyy						Lateral
17	M17	L3.5x3.5x1/4	3.536			Lbyy						Lateral
18	M18	L3.5x3.5x1/4	3.536			Lbyy						Lateral
19	M19	L3.5x3.5x1/4	3.536			Lbyy						Lateral
20	M20	L3.5x3.5x1/4	3.536			Lbyy						Lateral
21	M21	L3.5x3.5x1/4	3.536			Lbyy						Lateral

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Rul...
1	M1	N1	N7			Powermount	Column	Pipe	A500 Gr....	Typical
2	M2	N2	N8			L3.5x3.5x1/4	Beam	Single Angle	A36 Gr.36	Typical
3	M3	N2	N9			L3.5x3.5x1/4	Beam	Single Angle	A36 Gr.36	Typical
4	M4	N2	N10			L3.5x3.5x1/4	Beam	Single Angle	A36 Gr.36	Typical
5	M5	N2	N11			L3.5x3.5x1/4	Beam	Single Angle	A36 Gr.36	Typical
6	M6	N3	N12			L3.5x3.5x1/4	Beam	Single Angle	A36 Gr.36	Typical
7	M7	N3	N13			L3.5x3.5x1/4	Beam	Single Angle	A36 Gr.36	Typical
8	M8	N3	N14			L3.5x3.5x1/4	Beam	Single Angle	A36 Gr.36	Typical
9	M9	N3	N15			L3.5x3.5x1/4	Beam	Single Angle	A36 Gr.36	Typical
10	M10	N4	N16			L3.5x3.5x1/4	Beam	Single Angle	A36 Gr.36	Typical
11	M11	N4	N17			L3.5x3.5x1/4	Beam	Single Angle	A36 Gr.36	Typical
12	M12	N4	N18			L3.5x3.5x1/4	Beam	Single Angle	A36 Gr.36	Typical
13	M13	N4	N19			L3.5x3.5x1/4	Beam	Single Angle	A36 Gr.36	Typical
14	M14	N5	N20			L3.5x3.5x1/4	Beam	Single Angle	A36 Gr.36	Typical
15	M15	N5	N21			L3.5x3.5x1/4	Beam	Single Angle	A36 Gr.36	Typical
16	M16	N5	N22			L3.5x3.5x1/4	Beam	Single Angle	A36 Gr.36	Typical
17	M17	N5	N23			L3.5x3.5x1/4	Beam	Single Angle	A36 Gr.36	Typical
18	M18	N6	N24			L3.5x3.5x1/4	Beam	Single Angle	A36 Gr.36	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Rul...
19	M19	N6	N25			L3.5x3.5x1/4	Beam	Single Angle	A36 Gr.36	Typical
20	M20	N6	N26			L3.5x3.5x1/4	Beam	Single Angle	A36 Gr.36	Typical
21	M21	N6	N27			L3.5x3.5x1/4	Beam	Single Angle	A36 Gr.36	Typical

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Dia...
1	N1	0	0	0	0	
2	N2	0	27	0	0	
3	N3	0	59	0	0	
4	N4	0	69	0	0	
5	N5	0	81	0	0	
6	N6	0	86	0	0	
7	N7	0	104	0	0	
8	N8	6.9	27	6.9	0	
9	N9	6.9	27	-6.9	0	
10	N10	-6.9	27	6.9	0	
11	N11	-6.9	27	-6.9	0	
12	N12	2.5	59	2.5	0	
13	N13	2.5	59	-2.5	0	
14	N14	-2.5	59	2.5	0	
15	N15	-2.5	59	-2.5	0	
16	N16	2.5	69	2.5	0	
17	N17	2.5	69	-2.5	0	
18	N18	-2.5	69	2.5	0	
19	N19	-2.5	69	-2.5	0	
20	N20	2.5	81	2.5	0	
21	N21	2.5	81	-2.5	0	
22	N22	-2.5	81	2.5	0	
23	N23	-2.5	81	-2.5	0	
24	N24	2.5	86	2.5	0	
25	N25	2.5	86	-2.5	0	
26	N26	-2.5	86	2.5	0	
27	N27	-2.5	86	-2.5	0	

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N1	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N26	Reaction	Reaction	Reaction			
3	N27	Reaction	Reaction	Reaction			
4	N25	Reaction	Reaction	Reaction			
5	N24	Reaction	Reaction	Reaction			
6	N21	Reaction	Reaction	Reaction			
7	N20	Reaction	Reaction	Reaction			
8	N22	Reaction	Reaction	Reaction			
9	N23	Reaction	Reaction	Reaction			
10	N19	Reaction	Reaction	Reaction			
11	N18	Reaction	Reaction	Reaction			
12	N17	Reaction	Reaction	Reaction			
13	N16	Reaction	Reaction	Reaction			

Joint Boundary Conditions (Continued)

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
14	N14	Reaction	Reaction	Reaction			
15	N15	Reaction	Reaction	Reaction			
16	N12	Reaction	Reaction	Reaction			
17	N13	Reaction	Reaction	Reaction			
18	N10	Reaction	Reaction	Reaction			
19	N11	Reaction	Reaction	Reaction			
20	N8	Reaction	Reaction	Reaction			
21	N9	Reaction	Reaction	Reaction			

Member Point Loads (BLC 2 : Weight of Appurtenances)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	Y	-.138	104
2	M1	Y	-.021	104
3	M1	Y	-.024	104
4	M1	Y	-.9	104
5	M1	Y	-.122	95
6	M1	Y	-.132	95
7	M1	Y	-.006	95
8	M1	Y	-.55	95

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	Y	-.759	104
2	M1	Y	-.075	104
3	M1	Y	-.08	104
4	M1	Y	-.2	104
5	M1	Y	-.511	95
6	M1	Y	-.98	95
7	M1	Y	-.042	95
8	M1	Y	-.15	95

Member Point Loads (BLC 4 : (x) TIA Wind with Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	X	.326	104
2	M1	X	.025	104
3	M1	X	.023	104
4	M1	X	.112	104
5	M1	X	.253	95
6	M1	X	.446	95
7	M1	X	.018	95
8	M1	X	.072	95

Member Point Loads (BLC 5 : (x) TIA Wind)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	X	.985	104
2	M1	X	.038	104
3	M1	X	.031	104
4	M1	X	.406	104
5	M1	X	.771	95

Member Point Loads (BLC 5 : (x) TIA Wind) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
6	M1	X	1.37	95
7	M1	X	.021	95
8	M1	X	.251	95

Member Point Loads (BLC 6 : (z) TIA Wind with Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	Z	.326	104
2	M1	Z	.025	104
3	M1	Z	.023	104
4	M1	Z	.112	104
5	M1	Z	.253	95
6	M1	Z	.446	95
7	M1	Z	.018	95
8	M1	Z	.072	95

Member Point Loads (BLC 7 : (z) TIA Wind)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	Z	.985	104
2	M1	Z	.038	104
3	M1	Z	.031	104
4	M1	Z	.406	104
5	M1	Z	.771	95
6	M1	Z	1.37	95
7	M1	Z	.021	95
8	M1	Z	.251	95

Member Distributed Loads (BLC 2 : Weight of Appurtenances)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-.006	-.006	0	0
2	M1	Y	-.008	-.008	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-.038	-.038	80	104
2	M1	Y	-.036	-.036	60	80
3	M1	Y	-.035	-.035	40	60
4	M1	Y	-.033	-.033	20	40
5	M1	Y	-.029	-.029	0	20
6	M1	Y	-.11	-.11	80	95
7	M1	Y	-.106	-.106	60	80
8	M1	Y	-.1	-.1	40	60
9	M1	Y	-.093	-.093	20	40
10	M1	Y	-.078	-.078	0	20
11	M2	Y	-.018	-.018	0	0
12	M3	Y	-.018	-.018	0	0
13	M4	Y	-.018	-.018	0	0
14	M5	Y	-.018	-.018	0	0
15	M6	Y	-.018	-.018	0	0
16	M7	Y	-.018	-.018	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
17	M8	Y	-.018	-.018	0	0
18	M9	Y	-.018	-.018	0	0
19	M10	Y	-.018	-.018	0	0
20	M11	Y	-.018	-.018	0	0
21	M12	Y	-.018	-.018	0	0
22	M13	Y	-.018	-.018	0	0
23	M14	Y	-.018	-.018	0	0
24	M15	Y	-.018	-.018	0	0
25	M16	Y	-.018	-.018	0	0
26	M17	Y	-.018	-.018	0	0
27	M18	Y	-.018	-.018	0	0
28	M19	Y	-.018	-.018	0	0
29	M20	Y	-.018	-.018	0	0
30	M21	Y	-.018	-.018	0	0

Member Distributed Loads (BLC 4 : (x) TIA Wind with Ice)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	.008	.008	80	104
2	M1	X	.007	.007	60	80
3	M1	X	.007	.007	40	60
4	M1	X	.006	.006	20	40
5	M1	X	.005	.005	0	20
6	M1	X	.012	.012	80	95
7	M1	X	.012	.012	60	80
8	M1	X	.011	.011	40	60
9	M1	X	.009	.009	20	40
10	M1	X	.007	.007	0	20
11	M2	X	.012	.012	0	0
12	M3	X	.012	.012	0	0
13	M4	X	.012	.012	0	0
14	M5	X	.012	.012	0	0
15	M6	X	.012	.012	0	0
16	M7	X	.012	.012	0	0
17	M8	X	.012	.012	0	0
18	M9	X	.012	.012	0	0
19	M10	X	.012	.012	0	0
20	M11	X	.012	.012	0	0
21	M12	X	.012	.012	0	0
22	M13	X	.012	.012	0	0
23	M14	X	.012	.012	0	0
24	M15	X	.012	.012	0	0
25	M16	X	.012	.012	0	0
26	M17	X	.012	.012	0	0
27	M18	X	.012	.012	0	0
28	M19	X	.012	.012	0	0
29	M20	X	.012	.012	0	0
30	M21	X	.012	.012	0	0

Member Distributed Loads (BLC 5 : (x) TIA Wind)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	.025	.025	80	104

Member Distributed Loads (BLC 5 : (x) TIA Wind) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
2	M1	X	.024	.024	60	80
3	M1	X	.022	.022	40	60
4	M1	X	.02	.02	20	40
5	M1	X	.016	.016	0	20
6	M1	X	.037	.037	80	95
7	M1	X	.035	.035	60	80
8	M1	X	.032	.032	40	60
9	M1	X	.029	.029	20	40
10	M1	X	.023	.023	0	20
11	M2	X	.023	.023	0	0
12	M3	X	.023	.023	0	0
13	M4	X	.023	.023	0	0
14	M5	X	.023	.023	0	0
15	M6	X	.023	.023	0	0
16	M7	X	.023	.023	0	0
17	M8	X	.023	.023	0	0
18	M9	X	.023	.023	0	0
19	M10	X	.023	.023	0	0
20	M11	X	.023	.023	0	0
21	M12	X	.023	.023	0	0
22	M13	X	.023	.023	0	0
23	M14	X	.023	.023	0	0
24	M15	X	.023	.023	0	0
25	M16	X	.023	.023	0	0
26	M17	X	.023	.023	0	0
27	M18	X	.023	.023	0	0
28	M19	X	.023	.023	0	0
29	M20	X	.023	.023	0	0
30	M21	X	.023	.023	0	0

Member Distributed Loads (BLC 6 : (z) TIA Wind with Ice)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	.008	.008	80	104
2	M1	Z	.007	.007	60	80
3	M1	Z	.007	.007	40	60
4	M1	Z	.006	.006	20	40
5	M1	Z	.005	.005	0	20
6	M1	Z	.012	.012	80	95
7	M1	Z	.012	.012	60	80
8	M1	Z	.011	.011	40	60
9	M1	Z	.009	.009	20	40
10	M1	Z	.007	.007	0	20
11	M2	Z	.012	.012	0	0
12	M3	Z	.012	.012	0	0
13	M4	Z	.012	.012	0	0
14	M5	Z	.012	.012	0	0
15	M6	Z	.012	.012	0	0
16	M7	Z	.012	.012	0	0
17	M8	Z	.012	.012	0	0
18	M9	Z	.012	.012	0	0
19	M10	Z	.012	.012	0	0

Member Distributed Loads (BLC 6 : (z) TIA Wind with Ice) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
20	M11	Z	.012	.012	0	0
21	M12	Z	.012	.012	0	0
22	M13	Z	.012	.012	0	0
23	M14	Z	.012	.012	0	0
24	M15	Z	.012	.012	0	0
25	M16	Z	.012	.012	0	0
26	M17	Z	.012	.012	0	0
27	M18	Z	.012	.012	0	0
28	M19	Z	.012	.012	0	0
29	M20	Z	.012	.012	0	0
30	M21	Z	.012	.012	0	0

Member Distributed Loads (BLC 7 : (z) TIA Wind)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	.025	.025	80	104
2	M1	Z	.024	.024	60	80
3	M1	Z	.022	.022	40	60
4	M1	Z	.02	.02	20	40
5	M1	Z	.016	.016	0	20
6	M1	Z	.037	.037	80	95
7	M1	Z	.035	.035	60	80
8	M1	Z	.032	.032	40	60
9	M1	Z	.029	.029	20	40
10	M1	Z	.023	.023	0	20
11	M2	Z	.023	.023	0	0
12	M3	Z	.023	.023	0	0
13	M4	Z	.023	.023	0	0
14	M5	Z	.023	.023	0	0
15	M6	Z	.023	.023	0	0
16	M7	Z	.023	.023	0	0
17	M8	Z	.023	.023	0	0
18	M9	Z	.023	.023	0	0
19	M10	Z	.023	.023	0	0
20	M11	Z	.023	.023	0	0
21	M12	Z	.023	.023	0	0
22	M13	Z	.023	.023	0	0
23	M14	Z	.023	.023	0	0
24	M15	Z	.023	.023	0	0
25	M16	Z	.023	.023	0	0
26	M17	Z	.023	.023	0	0
27	M18	Z	.023	.023	0	0
28	M19	Z	.023	.023	0	0
29	M20	Z	.023	.023	0	0
30	M21	Z	.023	.023	0	0

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribu...	Area(M...	Surface...
1	Self Weight	None		-1						
2	Weight of Appurtenances	None					8	2		
3	Weight of Ice Only	None					8	30		

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribu...	Area(M...	Surface...
4	(x) TIA Wind with Ice	None					8	30		
5	(x) TIA Wind	None					8	30		
6	(z) TIA Wind with Ice	None					8	30		
7	(z) TIA Wind	None					8	30		

Load Combinations

	Description	So...	P...	S...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...
1	1.2D + 1.6W (X-d..	Yes	Y		1	1.2	2	1.2	5	1.6														
2	0.9D + 1.6W (X-d..	Yes	Y		1	.9	2	.9	5	1.6														
3	1.2D + 1.0Di + 1....	Yes	Y		1	1.2	2	1.2	3	1	4	1												
4	1.2D + 1.6W (Z-d..	Yes	Y		1	1.2	2	1.2	7	1.6														
5	0.9D + 1.6W (Z-d..	Yes	Y		1	.9	2	.9	7	1.6														
6	1.2D + 1.0Di + 1....	Yes	Y		1	1.2	2	1.2	3	1	6	1												

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N1	max	0	6	26.588	6	0	3	0	3	0	6	2.853	2
2		min	-.733	2	7.626	2	-.733	5	-2.853	5	0	1	0	4
3	N26	max	6.637	4	.047	3	6.634	1	0	6	0	6	0	6
4		min	-6.702	1	.005	5	-6.699	4	0	1	0	1	0	1
5	N27	max	-1.38	6	.047	6	-1.38	3	0	6	0	6	0	6
6		min	-6.702	1	.013	2	-6.702	4	0	1	0	1	0	1
7	N25	max	6.634	4	.047	6	6.637	1	0	6	0	6	0	6
8		min	-6.699	1	.005	2	-6.702	4	0	1	0	1	0	1
9	N24	max	-1.38	6	.041	6	-1.38	3	0	6	0	6	0	6
10		min	-6.699	1	.005	2	-6.699	4	0	1	0	1	0	1
11	N21	max	4.481	1	.046	3	4.48	4	0	6	0	6	0	6
12		min	-4.546	4	.007	5	-4.545	1	0	1	0	1	0	1
13	N20	max	4.545	4	.046	6	4.545	1	0	6	0	6	0	6
14		min	.916	3	.012	2	.916	6	0	1	0	1	0	1
15	N22	max	4.48	1	.046	6	4.481	4	0	6	0	6	0	6
16		min	-4.545	4	.007	2	-4.546	1	0	1	0	1	0	1
17	N23	max	4.546	4	.042	6	4.546	1	0	6	0	6	0	6
18		min	.916	3	.007	2	.916	6	0	1	0	1	0	1
19	N19	max	-.086	6	.044	6	-.086	3	0	6	0	6	0	6
20		min	-.449	1	.009	2	-.449	4	0	1	0	1	0	1
21	N18	max	.384	4	.044	3	.384	1	0	6	0	6	0	6
22		min	-.449	1	.009	5	-.449	4	0	1	0	1	0	1
23	N17	max	.384	4	.044	6	.384	1	0	6	0	6	0	6
24		min	-.449	1	.009	2	-.449	4	0	1	0	1	0	1
25	N16	max	-.086	6	.044	6	-.086	3	0	6	0	6	0	6
26		min	-.449	1	.009	2	-.449	4	0	1	0	1	0	1
27	N14	max	.63	5	.044	3	.63	2	0	6	0	6	0	6
28		min	-.695	2	.009	5	-.695	5	0	1	0	1	0	1
29	N15	max	-.138	6	.044	6	-.138	3	0	6	0	6	0	6
30		min	-.695	2	.009	2	-.695	5	0	1	0	1	0	1
31	N12	max	-.138	6	.044	6	-.138	3	0	6	0	6	0	6
32		min	-.695	2	.009	2	-.695	5	0	1	0	1	0	1
33	N13	max	.63	5	.044	6	.63	2	0	6	0	6	0	6

Envelope Joint Reactions (Continued)

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
34		min	-.695	2	.009	2	-.695	5	0	1	0	1	0	1
35	N10	max	.772	4	.122	3	.772	1	0	6	0	6	0	6
36		min	-.952	1	.025	5	-.952	4	0	1	0	1	0	1
37	N11	max	-.174	6	.122	6	-.174	3	0	6	0	6	0	6
38		min	-.952	1	.025	2	-.952	4	0	1	0	1	0	1
39	N8	max	-.174	6	.122	6	-.174	3	0	6	0	6	0	6
40		min	-.952	1	.025	2	-.952	4	0	1	0	1	0	1
41	N9	max	.772	4	.122	6	.772	1	0	6	0	6	0	6
42		min	-.952	1	.025	2	-.952	4	0	1	0	1	0	1
43	Totals:	max	0	6	27.78	6	0	3						
44		min	-17.995	1	7.875	2	-17.995	4						

Envelope Joint Displacements

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...	LC	Y Rotation [...	LC	Z Rotation [...	LC
1	N1	max	0	6	0	6	0	6	0	6	0	6	0	6
2		min	0	1	0	1	0	1	0	1	0	1	0	1
3	N2	max	.005	1	-.007	5	.005	4	3.641e-04	4	0	6	0	6
4		min	0	4	-.025	3	0	1	0	1	0	1	-3.641e-04	1
5	N3	max	.001	2	-.013	5	.001	5	0	3	0	6	4.446e-04	1
6		min	0	4	-.046	3	0	1	-4.446e-04	4	0	1	0	4
7	N4	max	0	1	-.015	5	0	4	2.502e-04	4	0	6	0	6
8		min	0	4	-.051	3	0	1	0	1	0	1	-2.502e-04	1
9	N5	max	0	6	-.016	5	0	3	0	3	0	6	7.997e-04	1
10		min	-.01	1	-.056	3	-.01	4	-7.997e-04	4	0	1	0	4
11	N6	max	.014	1	-.017	5	.014	4	3.894e-03	4	0	6	0	6
12		min	0	4	-.058	3	0	1	0	1	0	1	-3.894e-03	1
13	N7	max	3.026	1	-.018	5	3.026	4	1.779e-02	4	0	6	0	6
14		min	0	4	-.061	3	0	1	0	1	0	1	-1.779e-02	1
15	N8	max	0	6	0	6	0	6	1.506e-03	5	4.314e-03	5	4.08e-03	3
16		min	0	1	0	1	0	1	-4.156e-03	3	-5.671e-03	1	-1.142e-03	5
17	N9	max	0	6	0	6	0	6	2.816e-03	6	4.314e-03	5	2.739e-03	6
18		min	0	1	0	1	0	1	-1.142e-03	2	-1.193e-03	3	-1.506e-03	2
19	N10	max	0	6	0	6	0	6	-2.605e-03	5	-4.38e-03	6	-2.969e-03	5
20		min	0	1	0	1	0	1	-4.08e-03	3	-5.671e-03	1	-4.156e-03	3
21	N11	max	0	6	0	6	0	6	4.156e-03	6	4.314e-03	2	1.142e-03	2
22		min	0	1	0	1	0	1	-1.506e-03	2	-5.671e-03	4	-4.08e-03	6
23	N12	max	0	6	0	6	0	6	-1.298e-04	2	2.277e-04	5	1.006e-03	3
24		min	0	1	0	1	0	1	-9.421e-04	6	-2.922e-04	1	-6.577e-05	5
25	N13	max	0	6	0	6	0	6	8.503e-04	6	2.277e-04	5	9.421e-04	6
26		min	0	1	0	1	0	1	-6.577e-05	2	-5.17e-05	3	3.788e-04	2
27	N14	max	0	6	0	6	0	6	-5.743e-04	5	-2.134e-04	6	-1.298e-04	5
28		min	0	1	0	1	0	1	-1.006e-03	3	-2.922e-04	1	-9.14e-04	3
29	N15	max	0	6	0	6	0	6	9.421e-04	3	2.277e-04	2	6.577e-05	2
30		min	0	1	0	1	0	1	1.298e-04	5	-2.922e-04	4	-1.006e-03	6
31	N16	max	0	6	0	6	0	6	-5.665e-05	5	2.188e-04	5	1.018e-03	3
32		min	0	1	0	1	0	1	-1.07e-03	3	-2.834e-04	1	2.522e-04	2
33	N17	max	0	6	0	6	0	6	1.006e-03	6	2.188e-04	5	9.543e-04	6
34		min	0	1	0	1	0	1	3.066e-04	2	-5.355e-05	3	5.665e-05	2
35	N18	max	0	6	0	6	0	6	-2.522e-04	5	-2.115e-04	6	-5.022e-04	5
36		min	0	1	0	1	0	1	-1.018e-03	3	-2.834e-04	1	-1.07e-03	3

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...	LC	Y Rotation [...	LC	Z Rotation [...	LC
37	N19	max	0	6	0	6	0	6	1.07e-03	6	2.188e-04	2	-2.522e-04	5
38		min	0	1	0	1	0	1	5.665e-05	2	-2.834e-04	4	-1.018e-03	6
39	N20	max	0	6	0	6	0	6	-3.383e-06	2	4.241e-05	5	1.208e-03	3
40		min	0	1	0	1	0	1	-1.145e-03	6	-1.748e-04	3	-1.921e-04	5
41	N21	max	0	6	0	6	0	6	9.788e-04	6	4.241e-05	5	1.145e-03	6
42		min	0	1	0	1	0	1	-1.921e-04	2	-9.023e-05	3	6.062e-04	2
43	N22	max	0	6	0	6	0	6	-8.017e-04	5	-9.774e-05	5	-3.383e-06	5
44		min	0	1	0	1	0	1	-1.208e-03	3	-1.748e-04	3	-1.043e-03	3
45	N23	max	0	6	0	6	0	6	1.145e-03	3	4.241e-05	2	1.921e-04	2
46		min	0	1	0	1	0	1	3.383e-06	5	-1.748e-04	6	-1.208e-03	6
47	N24	max	0	6	0	6	0	6	1.727e-03	5	4.427e-04	5	2.267e-03	4
48		min	0	1	0	1	0	1	-2.463e-03	1	-5.076e-04	1	-1.532e-03	2
49	N25	max	0	6	0	6	0	6	2.267e-03	4	4.427e-04	5	6.854e-04	6
50		min	0	1	0	1	0	1	1.493e-03	3	-7.145e-06	3	-1.727e-03	2
51	N26	max	0	6	0	6	0	6	1.532e-03	5	-2.579e-04	6	-1.557e-03	6
52		min	0	1	0	1	0	1	-7.492e-04	3	-5.076e-04	1	-2.463e-03	1
53	N27	max	0	6	0	6	0	6	2.463e-03	4	4.427e-04	2	1.532e-03	5
54		min	0	1	0	1	0	1	-1.727e-03	2	-5.076e-04	4	-2.267e-03	1

Envelope AISC 14th(360-10): LRFD Steel Code Checks

	Member	Shape	Code Check	Loc...	LC	Shea...	Loc.....	L...		phi*Pn...	phi*Pn...	phi*M...	phi*M...	...	Eqn
1	M1	PIPE_12.0	.702	0	6	.102	85....		4	38.002	616.5	201.375	201.375	1	H1-1a
2	M2	L3.5X3.5X4	.239	4.9...	1	.007	0	z	5	13.258	55.08	2.416	3.9	1...	H2-1
3	M3	L3.5X3.5X4	.222	5.0...	2	.007	0	z	5	13.258	55.08	2.416	3.9	1...	H2-1
4	M4	L3.5X3.5X4	.239	4.9...	4	.007	0	z	5	13.258	55.08	2.416	3.9	1...	H2-1
5	M5	L3.5X3.5X4	.176	4.8...	4	.007	0	z	5	13.258	55.08	2.416	3.9	1...	H2-1
6	M6	L3.5X3.5X4	.040	1.8...	1	.003	3.5...	z	5	43.819	55.08	2.416	5.012	1...	H2-1
7	M7	L3.5X3.5X4	.037	1.8...	2	.003	3.5...	z	5	43.819	55.08	2.416	5.012	1...	H2-1
8	M8	L3.5X3.5X4	.040	1.8...	4	.003	3.5...	z	5	43.819	55.08	2.416	5.012	1...	H2-1
9	M9	L3.5X3.5X4	.035	1.8...	4	.003	3.5...	z	5	43.819	55.08	2.416	5.012	1...	H2-1
10	M10	L3.5X3.5X4	.032	1.8...	1	.003	3.5...	z	5	43.819	55.08	2.416	5.012	1...	H2-1
11	M11	L3.5X3.5X4	.029	1.8...	2	.003	3.5...	z	5	43.819	55.08	2.416	5.012	1...	H2-1
12	M12	L3.5X3.5X4	.032	1.8...	4	.003	3.5...	z	5	43.819	55.08	2.416	5.012	1...	H2-1
13	M13	L3.5X3.5X4	.029	1.8...	4	.003	3.5...	z	5	43.819	55.08	2.416	5.012	1...	H2-1
14	M14	L3.5X3.5X4	.136	1.7...	1	.003	0	z	5	43.819	55.08	2.416	5.012	1...	H2-1
15	M15	L3.5X3.5X4	.163	1.6...	5	.003	0	z	5	43.819	55.08	2.416	5.012	1...	H2-1
16	M16	L3.5X3.5X4	.166	1.7...	1	.003	0	z	5	43.819	55.08	2.416	5.012	1...	H2-1
17	M17	L3.5X3.5X4	.166	1.7...	4	.003	0	z	5	43.819	55.08	2.416	5.012	1...	H2-1
18	M18	L3.5X3.5X4	.233	1.8...	1	.003	0	z	5	43.819	55.08	2.416	5.012	1...	H2-1
19	M19	L3.5X3.5X4	.230	1.8...	2	.003	3.5...	z	5	43.819	55.08	2.416	5.012	1...	H2-1
20	M20	L3.5X3.5X4	.233	1.8...	4	.003	3.5...	z	5	43.819	55.08	2.416	5.012	1...	H2-1
21	M21	L3.5X3.5X4	.190	1.8...	4	.003	3.5...	z	5	43.819	55.08	2.416	5.012	1...	H2-1

Joint Reactions

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	1	N1	-.733	10.169	0	0	0	2.853
2	1	N26	-6.702	.017	6.634	0	0	0
3	1	N27	-6.702	.017	-6.634	0	0	0
4	1	N25	-6.699	.007	6.637	0	0	0
5	1	N24	-6.699	.007	-6.637	0	0	0
6	1	N21	4.481	.016	-4.545	0	0	0
7	1	N20	4.481	.016	4.545	0	0	0
8	1	N22	4.48	.009	-4.546	0	0	0
9	1	N23	4.48	.009	4.546	0	0	0
10	1	N19	-.449	.013	-.384	0	0	0
11	1	N18	-.449	.013	.384	0	0	0
12	1	N17	-.449	.012	.384	0	0	0
13	1	N16	-.449	.012	-.384	0	0	0
14	1	N14	-.695	.013	.63	0	0	0
15	1	N15	-.695	.013	-.63	0	0	0
16	1	N12	-.695	.012	-.63	0	0	0
17	1	N13	-.695	.012	.63	0	0	0
18	1	N10	-.952	.034	.772	0	0	0
19	1	N11	-.952	.034	-.772	0	0	0
20	1	N8	-.952	.034	-.772	0	0	0
21	1	N9	-.952	.034	.772	0	0	0
22	1	Totals:	-17.995	10.5	0			
23	1	COG (ft):	X: 0	Y: 62.585	Z: 0			

Joint Reactions

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	2	N1	-.733	7.626	0	0	0	2.853
2	2	N26	-6.694	.013	6.625	0	0	0
3	2	N27	-6.694	.013	-6.625	0	0	0
4	2	N25	-6.69	.005	6.628	0	0	0
5	2	N24	-6.69	.005	-6.628	0	0	0
6	2	N21	4.472	.012	-4.536	0	0	0
7	2	N20	4.472	.012	4.536	0	0	0
8	2	N22	4.471	.007	-4.538	0	0	0
9	2	N23	4.471	.007	4.538	0	0	0
10	2	N19	-.448	.009	-.383	0	0	0
11	2	N18	-.448	.009	.383	0	0	0
12	2	N17	-.448	.009	.383	0	0	0
13	2	N16	-.448	.009	-.383	0	0	0
14	2	N14	-.695	.009	.63	0	0	0
15	2	N15	-.695	.009	-.63	0	0	0
16	2	N12	-.695	.009	-.63	0	0	0
17	2	N13	-.695	.009	.63	0	0	0
18	2	N10	-.952	.025	.772	0	0	0
19	2	N11	-.952	.025	-.772	0	0	0
20	2	N8	-.952	.025	-.772	0	0	0
21	2	N9	-.952	.025	.772	0	0	0
22	2	Totals:	-17.995	7.875	0			
23	2	COG (ft):	X: 0	Y: 62.585	Z: 0			

Joint Reactions

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	3	N1	-.139	26.588	0	0	0	.534
2	3	N26	-1.401	.047	1.38	0	0	0
3	3	N27	-1.401	.047	-1.38	0	0	0
4	3	N25	-1.401	.041	1.38	0	0	0
5	3	N24	-1.401	.041	-1.38	0	0	0
6	3	N21	.916	.046	-.937	0	0	0
7	3	N20	.916	.046	.937	0	0	0
8	3	N22	.916	.042	-.937	0	0	0
9	3	N23	.916	.042	.937	0	0	0
10	3	N19	-.107	.044	-.086	0	0	0
11	3	N18	-.107	.044	.086	0	0	0
12	3	N17	-.107	.044	.086	0	0	0
13	3	N16	-.107	.044	-.086	0	0	0
14	3	N14	-.159	.044	.138	0	0	0
15	3	N15	-.159	.044	-.138	0	0	0
16	3	N12	-.159	.044	-.138	0	0	0
17	3	N13	-.159	.044	.138	0	0	0
18	3	N10	-.233	.122	.174	0	0	0
19	3	N11	-.233	.122	-.174	0	0	0
20	3	N8	-.233	.122	-.174	0	0	0
21	3	N9	-.233	.122	.174	0	0	0
22	3	Totals:	-4.074	27.78	0			
23	3	COG (ft):	X: 0	Y: 60.692	Z: 0			

Joint Reactions

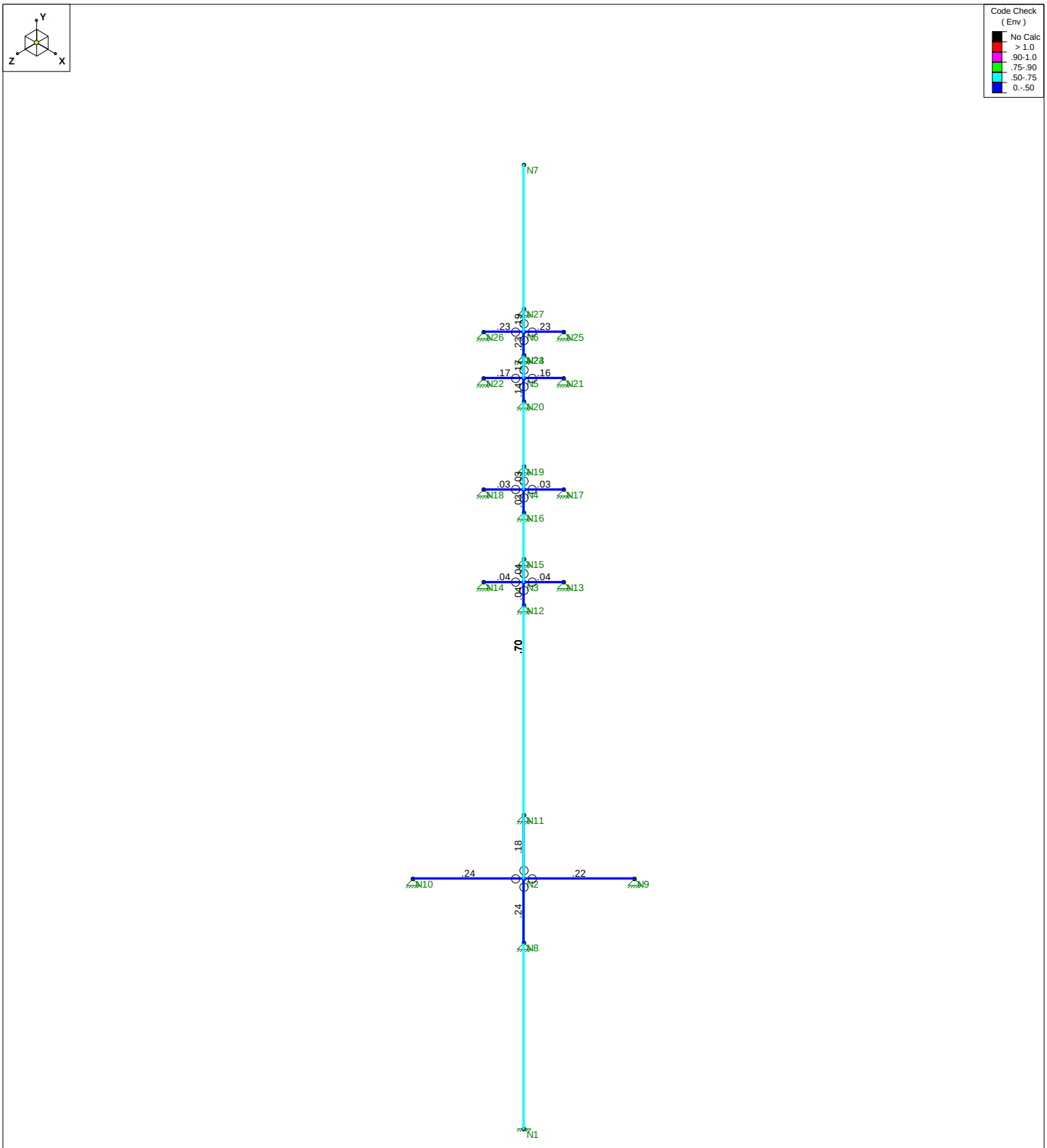
	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	4	N1	0	10.169	-.733	-2.853	0	0
2	4	N26	6.637	.007	-6.699	0	0	0
3	4	N27	-6.634	.017	-6.702	0	0	0
4	4	N25	6.634	.017	-6.702	0	0	0
5	4	N24	-6.637	.007	-6.699	0	0	0
6	4	N21	-4.546	.009	4.48	0	0	0
7	4	N20	4.545	.016	4.481	0	0	0
8	4	N22	-4.545	.016	4.481	0	0	0
9	4	N23	4.546	.009	4.48	0	0	0
10	4	N19	-.384	.013	-.449	0	0	0
11	4	N18	.384	.012	-.449	0	0	0
12	4	N17	.384	.013	-.449	0	0	0
13	4	N16	-.384	.012	-.449	0	0	0
14	4	N14	.63	.012	-.695	0	0	0
15	4	N15	-.63	.013	-.695	0	0	0
16	4	N12	-.63	.012	-.695	0	0	0
17	4	N13	.63	.013	-.695	0	0	0
18	4	N10	.772	.034	-.952	0	0	0
19	4	N11	-.772	.034	-.952	0	0	0
20	4	N8	-.772	.034	-.952	0	0	0
21	4	N9	.772	.034	-.952	0	0	0
22	4	Totals:	0	10.5	-17.995			
23	4	COG (ft):	X: 0	Y: 62.585	Z: 0			

Joint Reactions

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	5	N1	0	7.626	-.733	-2.853	0	0
2	5	N26	6.628	.005	-6.69	0	0	0
3	5	N27	-6.625	.013	-6.694	0	0	0
4	5	N25	6.625	.013	-6.694	0	0	0
5	5	N24	-6.628	.005	-6.69	0	0	0
6	5	N21	-4.538	.007	4.471	0	0	0
7	5	N20	4.536	.012	4.472	0	0	0
8	5	N22	-4.536	.012	4.472	0	0	0
9	5	N23	4.538	.007	4.471	0	0	0
10	5	N19	-.383	.009	-.448	0	0	0
11	5	N18	.383	.009	-.448	0	0	0
12	5	N17	.383	.009	-.448	0	0	0
13	5	N16	-.383	.009	-.448	0	0	0
14	5	N14	.63	.009	-.695	0	0	0
15	5	N15	-.63	.009	-.695	0	0	0
16	5	N12	-.63	.009	-.695	0	0	0
17	5	N13	.63	.009	-.695	0	0	0
18	5	N10	.772	.025	-.952	0	0	0
19	5	N11	-.772	.025	-.952	0	0	0
20	5	N8	-.772	.025	-.952	0	0	0
21	5	N9	.772	.025	-.952	0	0	0
22	5	Totals:	0	7.875	-17.995			
23	5	COG (ft):	X: 0	Y: 62.585	Z: 0			

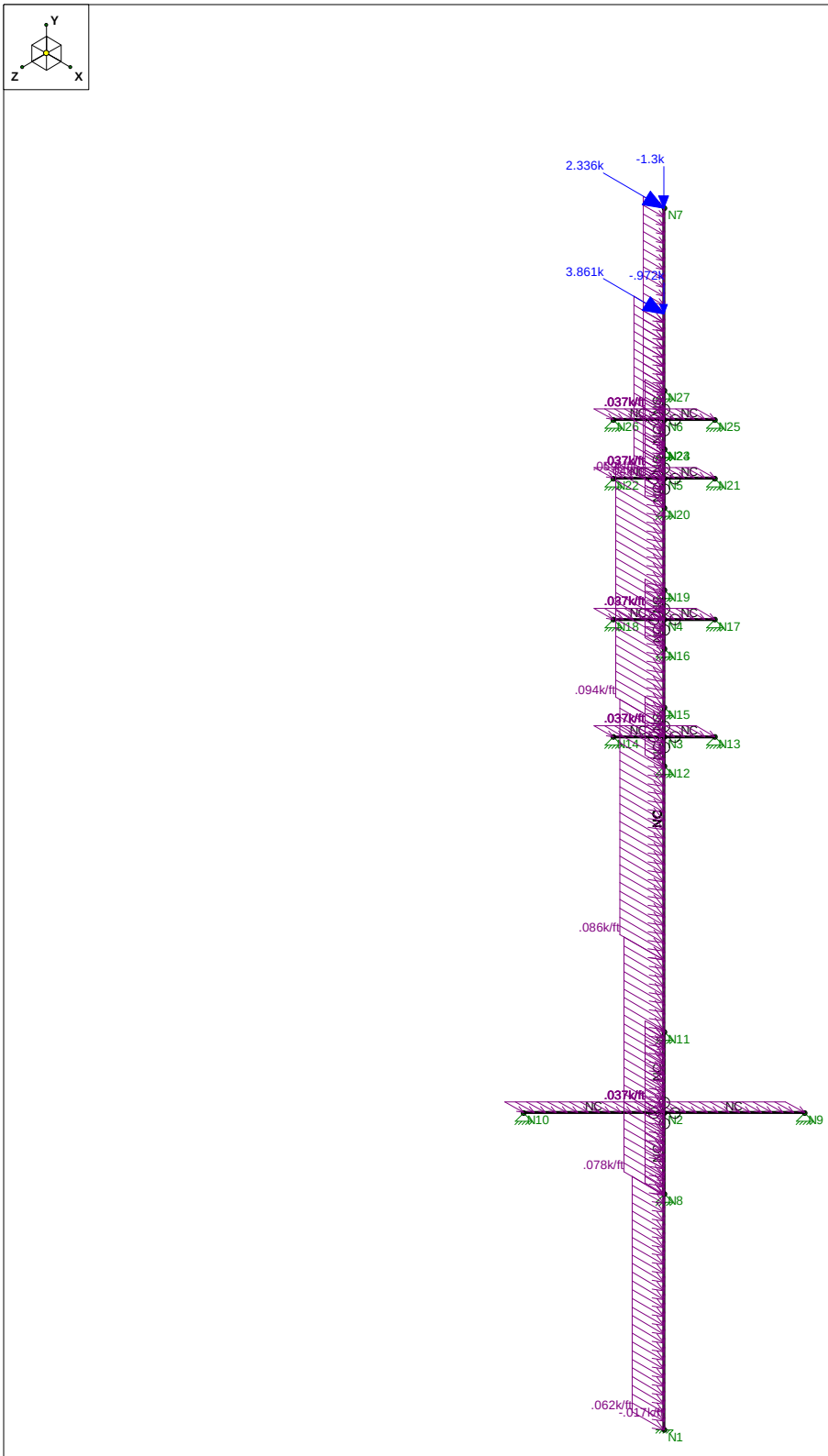
Joint Reactions

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	6	N1	0	26.588	-.139	-.534	0	0
2	6	N26	1.38	.041	-1.401	0	0	0
3	6	N27	-1.38	.047	-1.401	0	0	0
4	6	N25	1.38	.047	-1.401	0	0	0
5	6	N24	-1.38	.041	-1.401	0	0	0
6	6	N21	-.937	.042	.916	0	0	0
7	6	N20	.937	.046	.916	0	0	0
8	6	N22	-.937	.046	.916	0	0	0
9	6	N23	.937	.042	.916	0	0	0
10	6	N19	-.086	.044	-.107	0	0	0
11	6	N18	.086	.044	-.107	0	0	0
12	6	N17	.086	.044	-.107	0	0	0
13	6	N16	-.086	.044	-.107	0	0	0
14	6	N14	.138	.044	-.159	0	0	0
15	6	N15	-.138	.044	-.159	0	0	0
16	6	N12	-.138	.044	-.159	0	0	0
17	6	N13	.138	.044	-.159	0	0	0
18	6	N10	.174	.122	-.233	0	0	0
19	6	N11	-.174	.122	-.233	0	0	0
20	6	N8	-.174	.122	-.233	0	0	0
21	6	N9	.174	.122	-.233	0	0	0
22	6	Totals:	0	27.78	-4.074			
23	6	COG (ft):	X: 0	Y: 60.692	Z: 0			



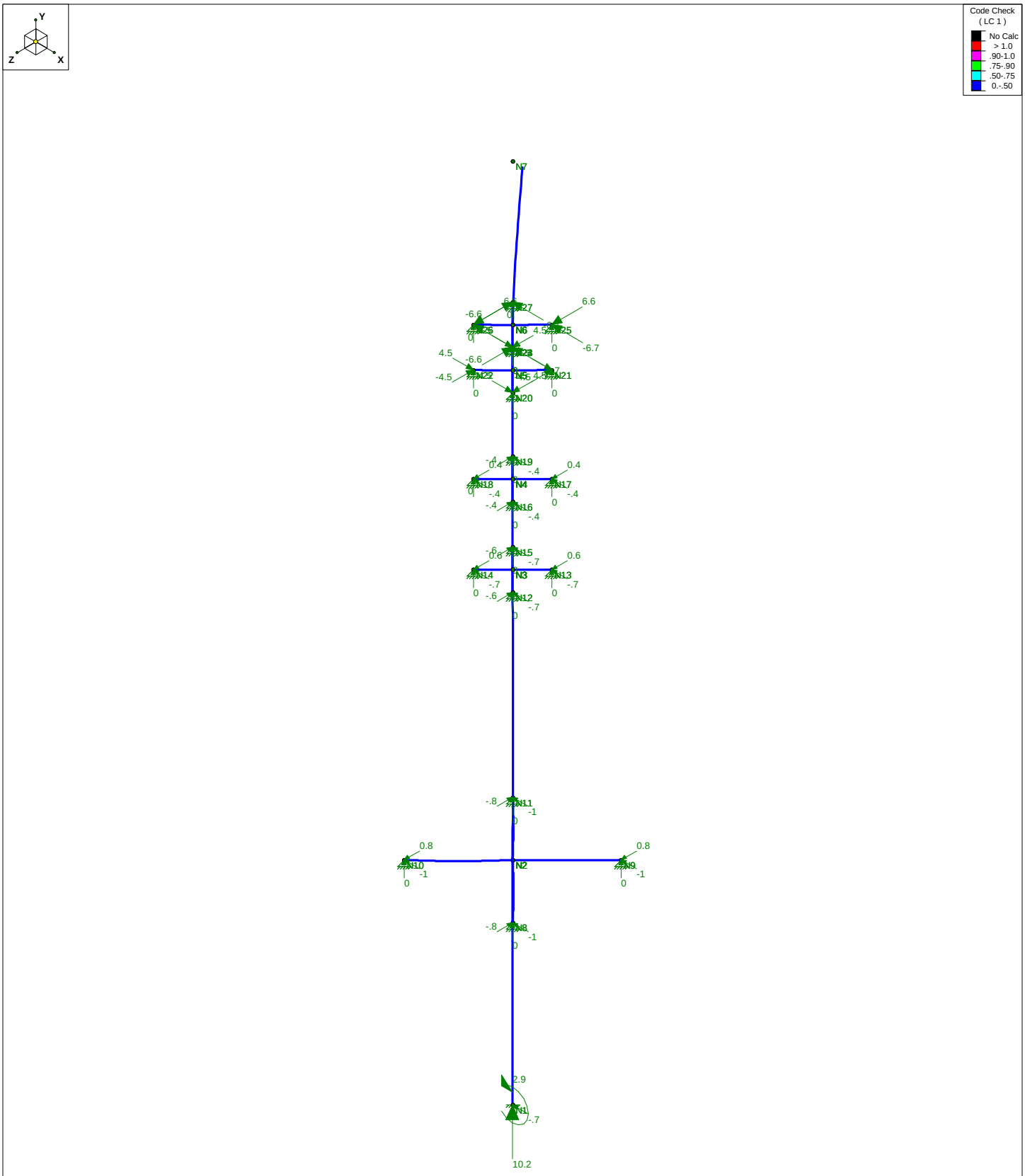
Member Code Checks Displayed (Enveloped)
Envelope Only Solution

CENTEK Engineering, INC.		
TJL	Tower # 876 - Mast	Nov 12, 2018 at 10:03 AM
17159.06 - CT03XC333	Unity Check	TIA-222-G - Mast.r3d



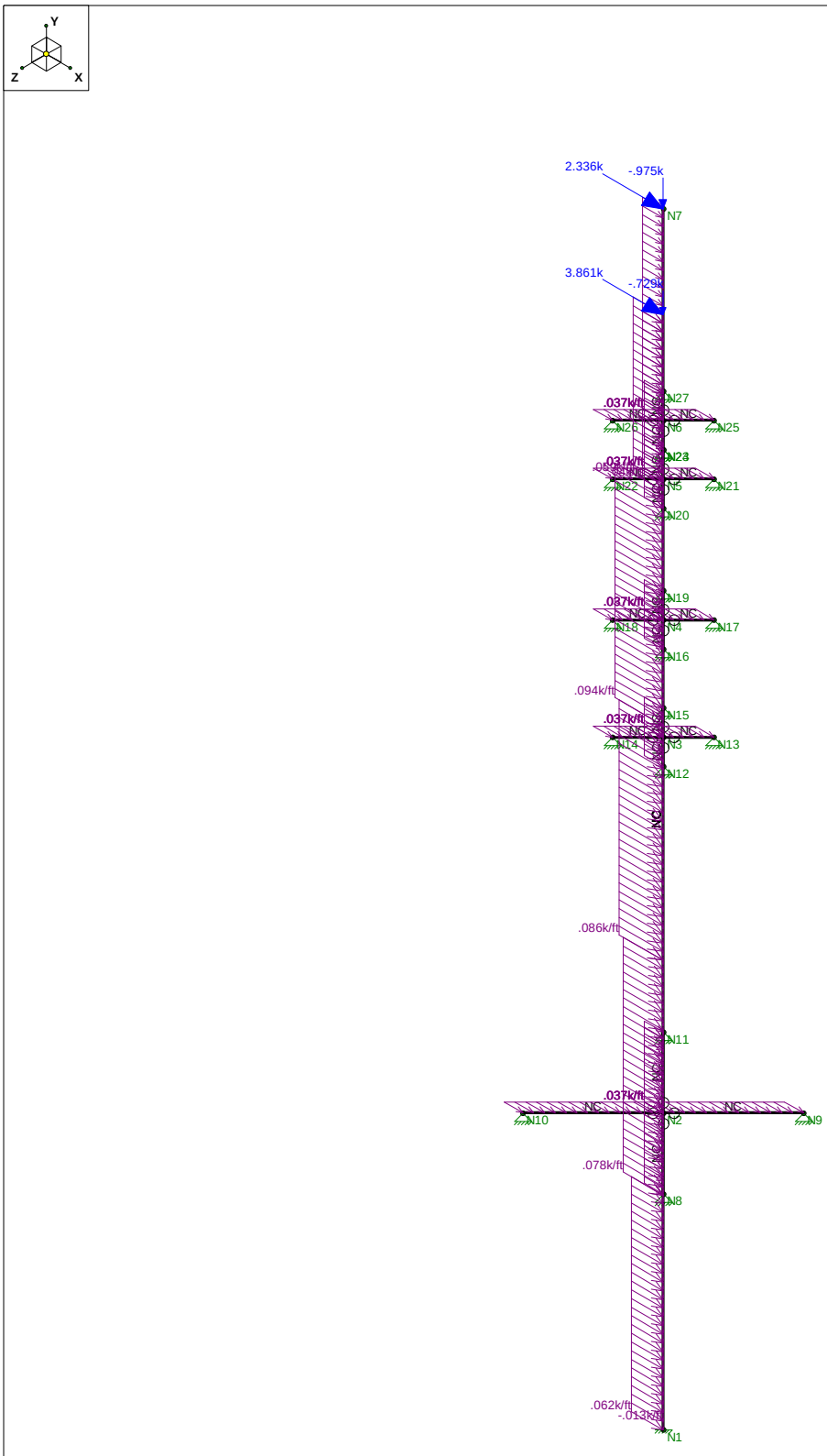
Member Code Checks Displayed
Loads: LC 1, 1.2D + 1.6W (X-direction)

CENTEK Engineering, INC.		
TJL	Tower # 876 - Mast	Nov 12, 2018 at 10:04 AM
17159.06 - CT03XC333	LC #1 Loads	TIA-222-G - Mast.r3d



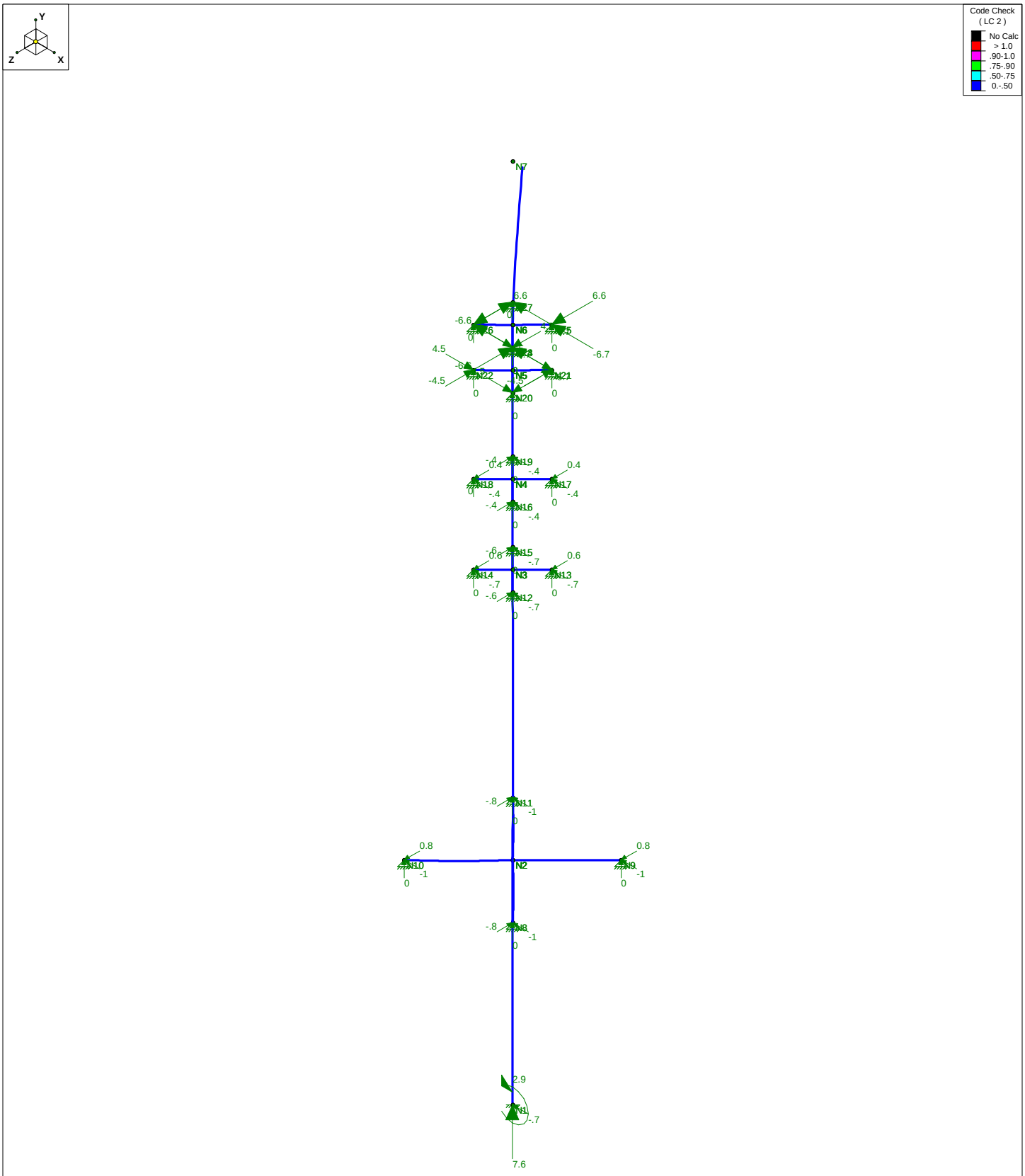
Member Code Checks Displayed
Results for LC 1, 1.2D + 1.6W (X-direction)
Reaction and Moment Units are k and k-ft

CENTEK Engineering, INC.		
TJL	Tower # 876 - Mast	Nov 12, 2018 at 10:05 AM
17159.06 - CT03XC333	LC #1 Reactions and Deflected Shape	TIA-222-G - Mast.r3d



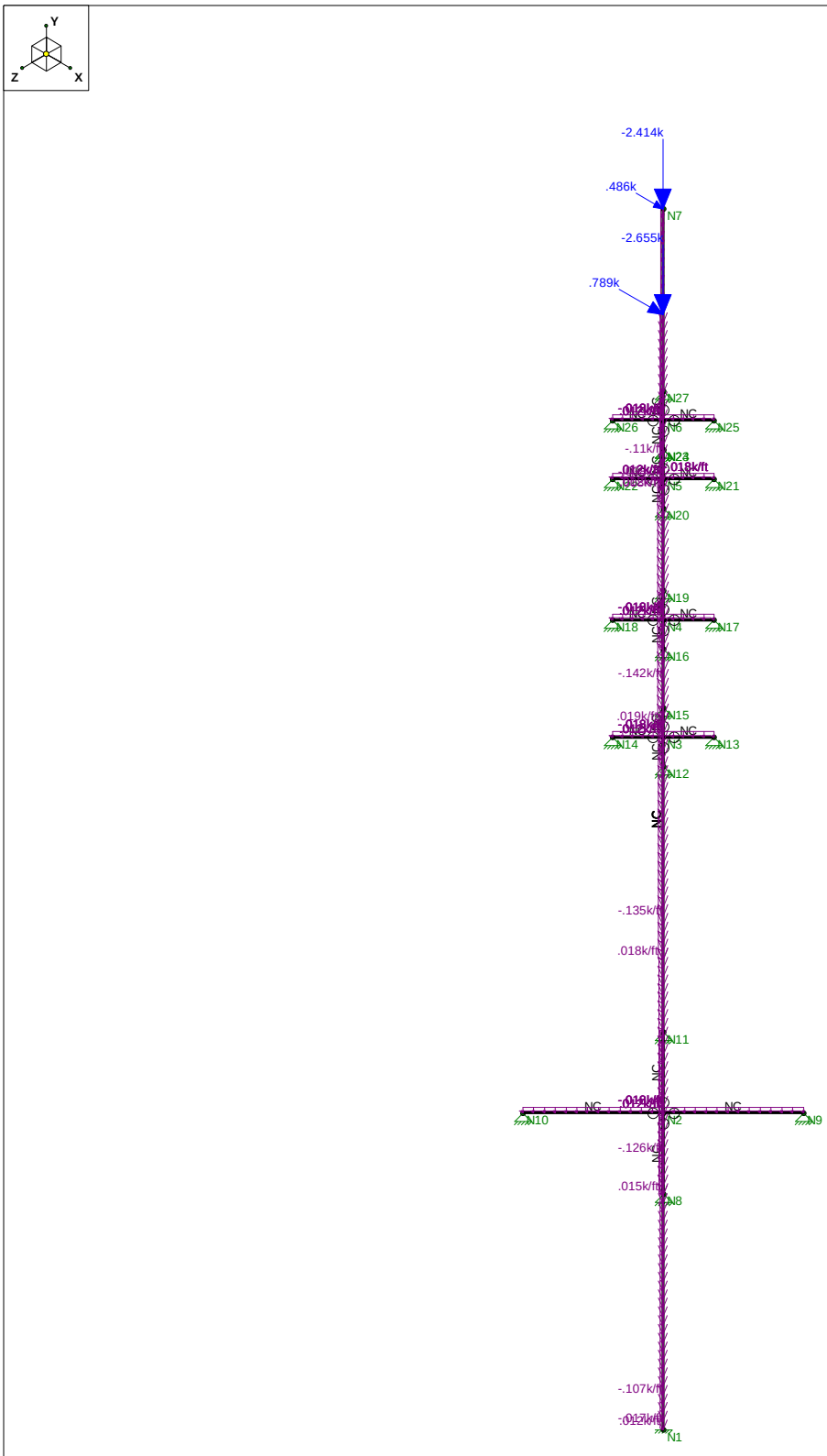
Member Code Checks Displayed
Loads: LC 2, 0.9D + 1.6W (X-direction)

CENTEK Engineering, INC.		
TJL	Tower # 876 - Mast	Nov 12, 2018 at 10:04 AM
17159.06 - CT03XC333	LC #2 Loads	TIA-222-G - Mast.r3d



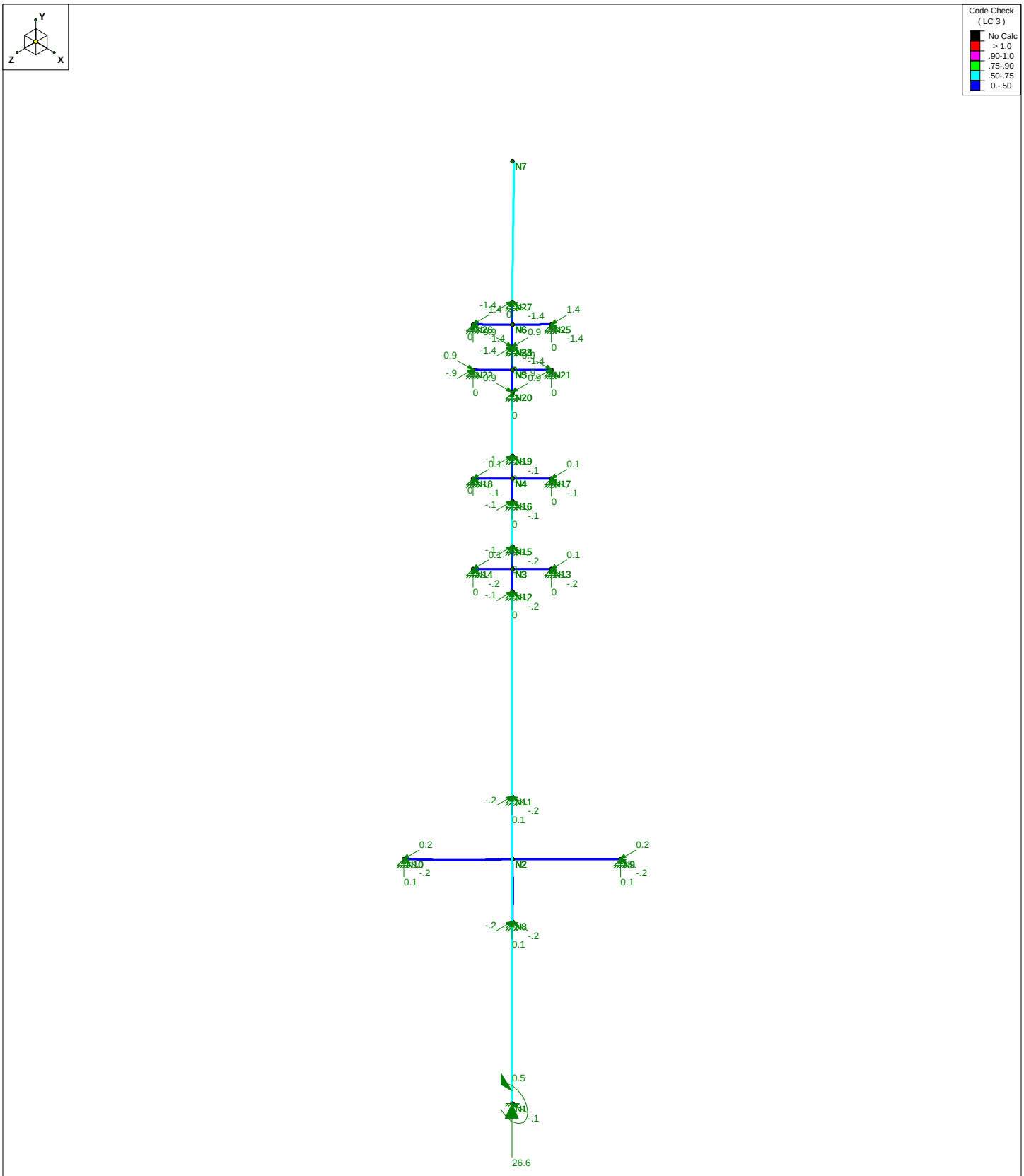
Member Code Checks Displayed
Results for LC 2, 0.9D + 1.6W (X-direction)
Reaction and Moment Units are k and k-ft

CENTEK Engineering, INC.		
TJL	Tower # 876 - Mast	Nov 12, 2018 at 10:06 AM
17159.06 - CT03XC333	LC #2 Reactions and Deflected Shape	TIA-222-G - Mast.r3d



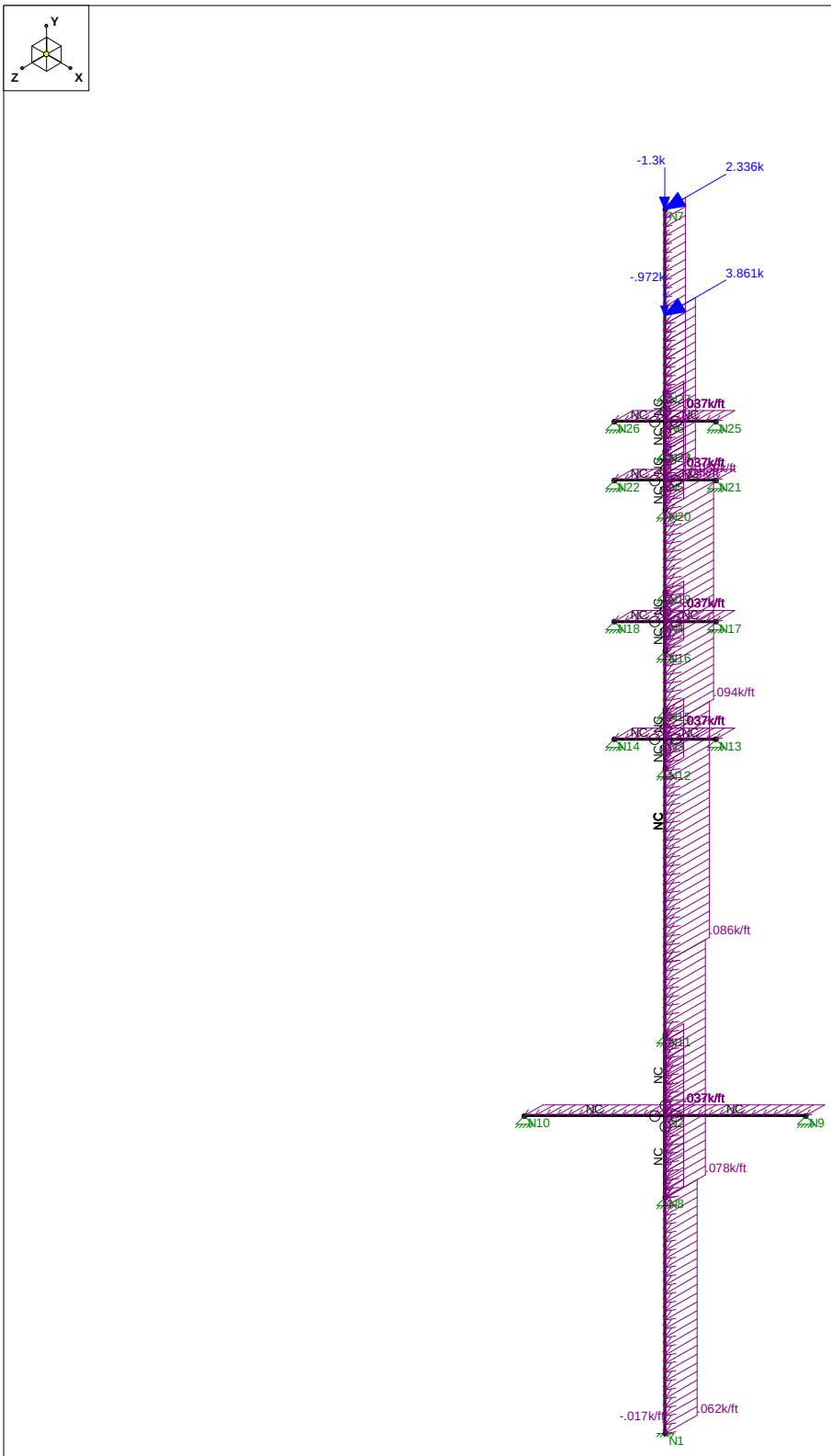
Member Code Checks Displayed
Loads: LC 3, 1.2D + 1.0Di + 1.0Wi (X-direction)

CENTEK Engineering, INC.		
TJL	Tower # 876 - Mast	Nov 12, 2018 at 10:04 AM
17159.06 - CT03XC333	LC #3 Loads	TIA-222-G - Mast.r3d



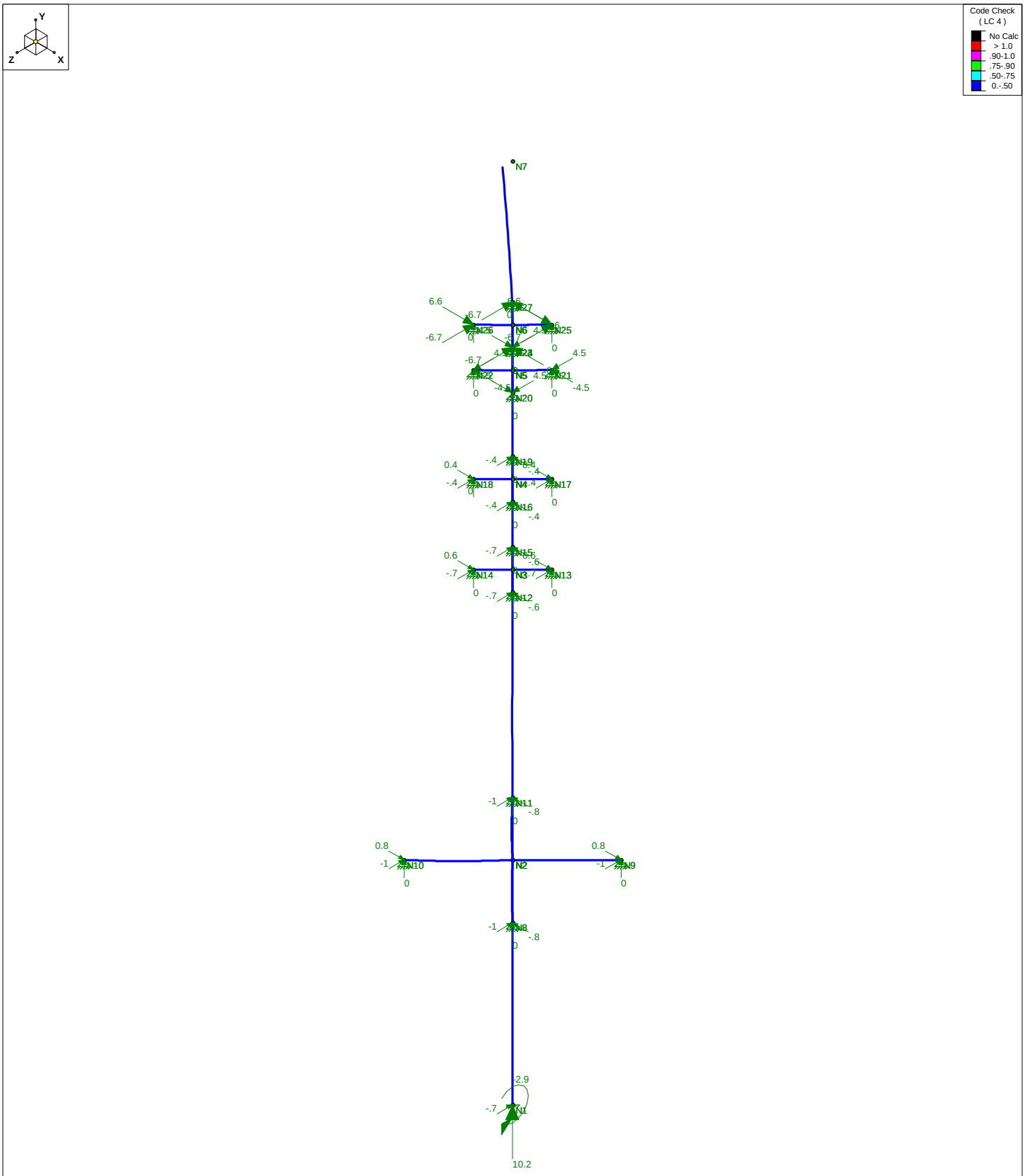
Member Code Checks Displayed
Results for LC 3, 1.2D + 1.0Di + 1.0Wi (X-direction)
Reaction and Moment Units are k and k-ft

CENTEK Engineering, INC.		
TJL	Tower # 876 - Mast	Nov 12, 2018 at 10:06 AM
17159.06 - CT03XC333	LC #3 Reactions and Deflected Shape	TIA-222-G - Mast.r3d



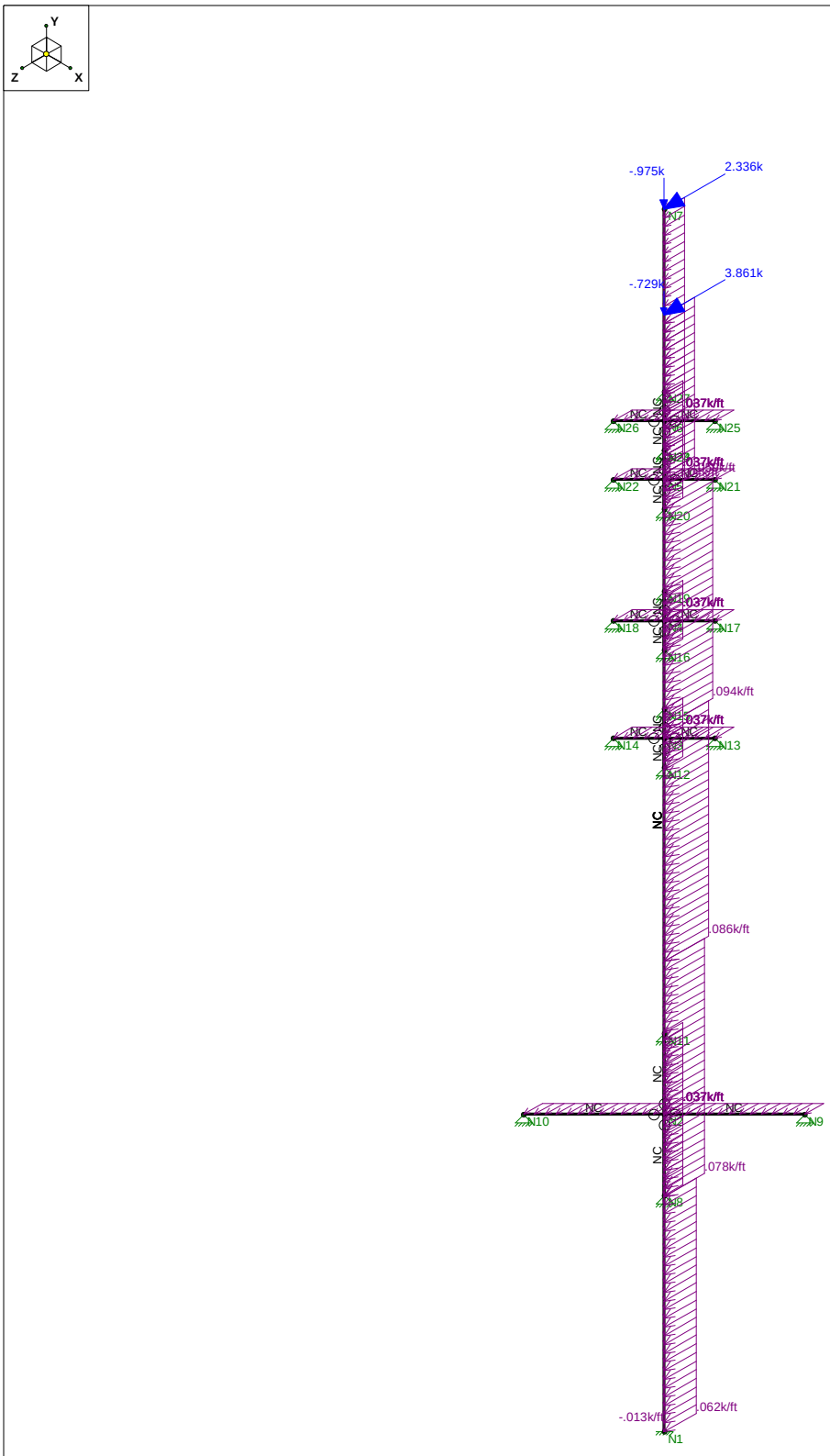
Member Code Checks Displayed
Loads: LC 4, 1.2D + 1.6W (Z-direction)

CENTEK Engineering, INC.		
TJL	Tower # 876 - Mast	Nov 12, 2018 at 10:04 AM
17159.06 - CT03XC333	LC #4 Loads	TIA-222-G - Mast.r3d



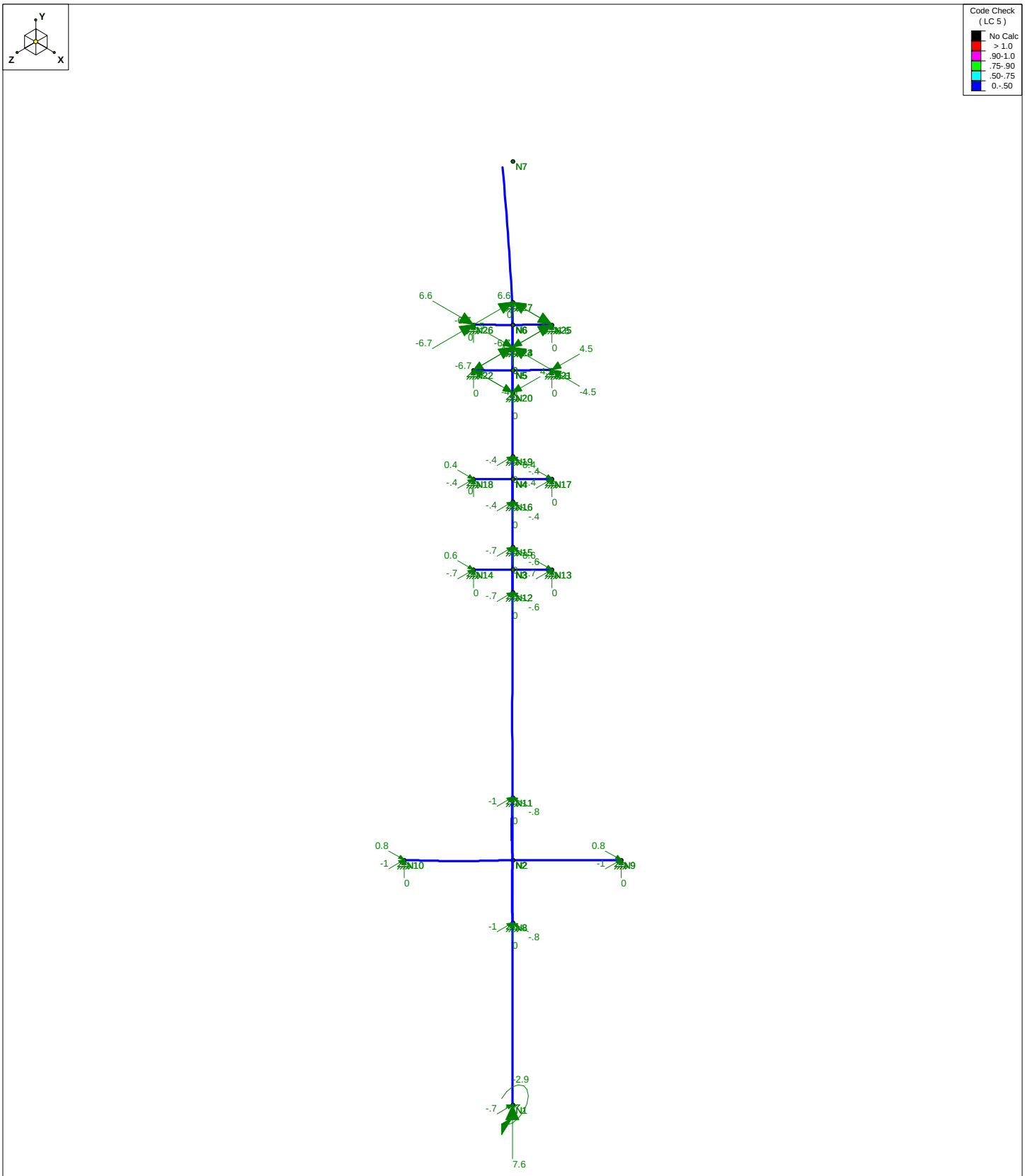
Member Code Checks Displayed
Results for LC 4, 1.2D + 1.6W (Z-direction)
Reaction and Moment Units are k and k-ft

CENTEK Engineering, INC.		
TJL	Tower # 876 - Mast	Nov 12, 2018 at 10:07 AM
17159.06 - CT03XC333	LC #4 Reactions and Deflected Shape	TIA-222-G - Mast.r3d



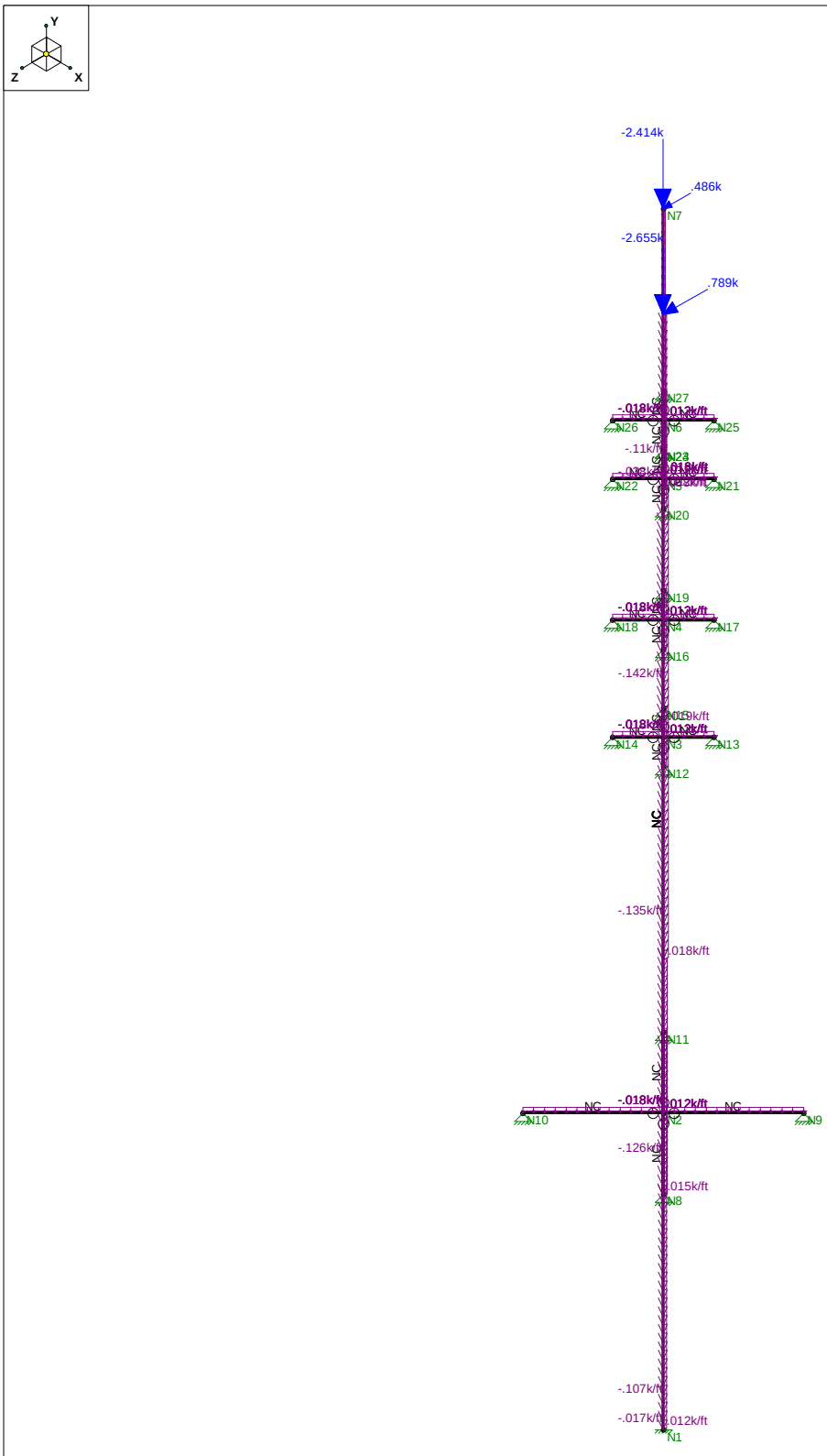
Member Code Checks Displayed
Loads: LC 5, 0.9D + 1.6W (Z-direction)

CENTEK Engineering, INC.		
TJL	Tower # 876 - Mast	Nov 12, 2018 at 10:04 AM
17159.06 - CT03XC333	LC #5 Loads	TIA-222-G - Mast.r3d



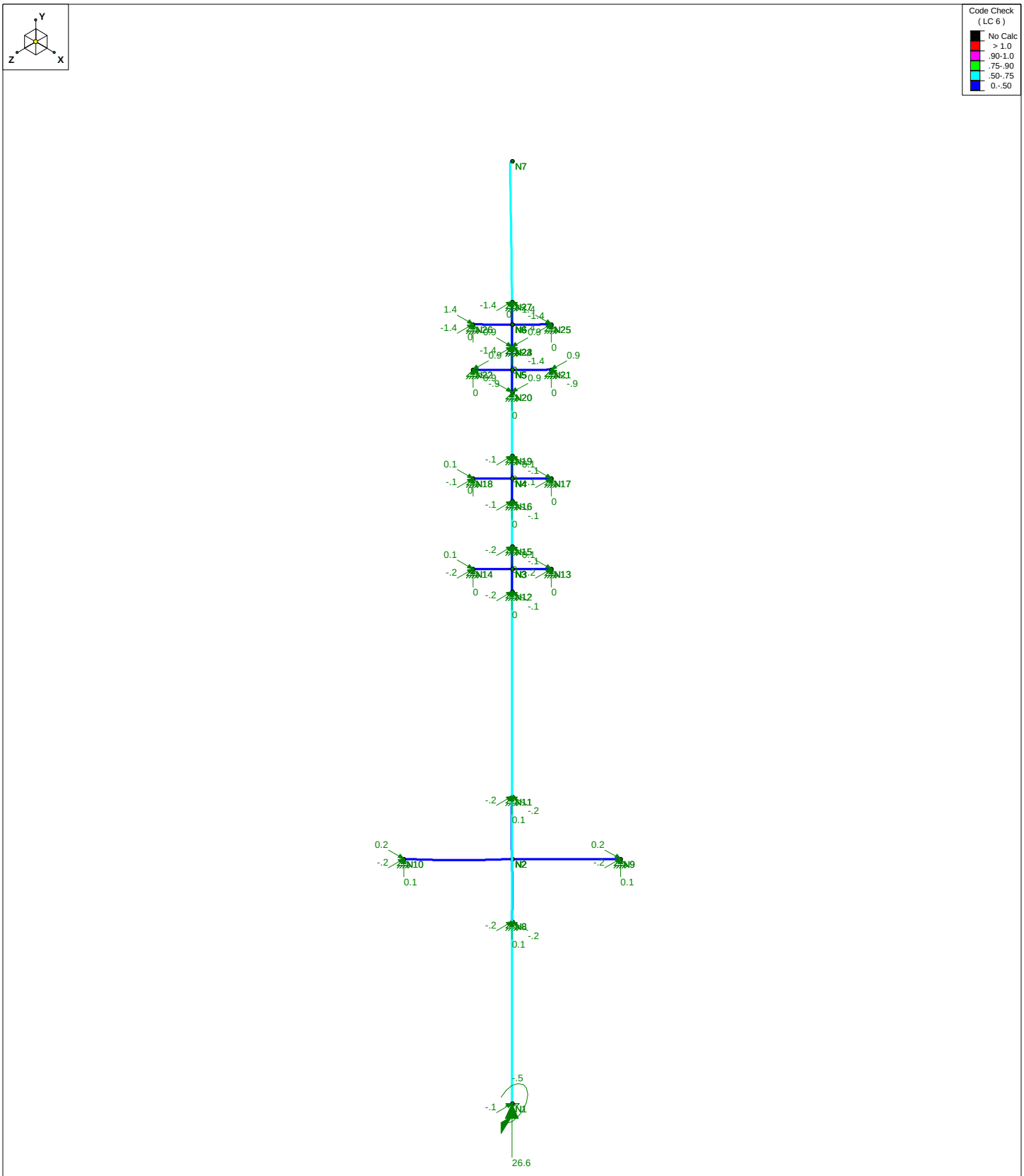
Member Code Checks Displayed
Results for LC 5, 0.9D + 1.6W (Z-direction)
Reaction and Moment Units are k and k-ft

CENTEK Engineering, INC.		
TJL	Tower # 876 - Mast	Nov 12, 2018 at 10:07 AM
17159.06 - CT03XC333	LC #5 Reactions and Deflected Shape	TIA-222-G - Mast.r3d



Member Code Checks Displayed
Loads: LC 6, 1.2D + 1.0Di + 1.0Wi (Z-direction)

CENTEK Engineering, INC.		
TJL	Tower # 876 - Mast	Nov 12, 2018 at 10:04 AM
17159.06 - CT03XC333	LC #6 Loads	TIA-222-G - Mast.r3d



Member Code Checks Displayed
Results for LC 6, 1.2D + 1.0Di + 1.0Wi (Z-direction)
Reaction and Moment Units are k and k-ft

CENTEK Engineering, INC.		
TJL	Tower # 876 - Mast	Nov 12, 2018 at 10:07 AM
17159.06 - CT03XC333	LC #6 Reactions and Deflected Shape	TIA-222-G - Mast.r3d

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

Subject:	Connection of Antenna Mast to Tower # 876
Location:	Fairfield, CT
Rev. 2: 11/12/18	Prepared by: T.J.L. Checked by: C.F.C. Job No. 17159.06

Antenna Mast Connection to Tower:

Pipe Collar:

Reactions:

Horz = $Horz := 26.9 \cdot kips$ (User Input)

Bolt Data:

Bolt Type = ASTMA325 (User Input)

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

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

Design Tensile Strength = $F_t := 20.7 \cdot kips$ (User Input)

Design Shear Strength = $F_v := 12.4 \cdot kips$ (User Input)

Check Pipe Collar Bolts:

Tension Force = $f_t := \frac{Horz}{N_b} = 6.7 \cdot kips$

Bolt Tenison % of Capacity = $\frac{f_t}{F_t} = 32.49 \cdot \%$

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

$Bolt\_Tension = "OK"$

Angle Brace

Reactions:

Force = $Fab := 9.5 \cdot kips$ (User Input)

Bolt Data:

Bolt Type = ASTMA325 (User Input)

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

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

Design Tensile Strength = $F_t := 20.7 \cdot kips$ (User Input)

Design Shear Strength = $F_v := 12.4 \cdot kips$ (User Input)

Check Angle Brace Bolts:

Shear Force = $f_v := \frac{Fab}{N_b} = 9.5 \cdot kips$

Bolt Shear % of Capacity = $\frac{f_v}{F_v} = 76.61 \cdot \%$

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

$Bolt\_Shear = "OK"$

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Location: Fairfield, CT

Rev. 2: 11/12/18

Prepared by: T.J.L Checked by: C.F.C.
Job No. 17159.06

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 Mast Above Grade =	TME := 104	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 = $Kz := 2.01 \cdot \left(\frac{TME}{900}\right)^{\frac{2}{9.5}} = 1.276$ (NESC 2007 Table 250-2)

Exposure Factor = $Es := 0.346 \left[\frac{33}{(0.67 \cdot TME)}\right]^{\frac{1}{7}} = 0.311$ (NESC 2007 Table 250-3)

Response Term = $Bs := \frac{1}{\left(1 + 0.375 \cdot \frac{TME}{220}\right)} = 0.849$ (NESC 2007 Table 250-3)

Gust Response Factor = $Grf := \frac{\left[1 + \left(2.7 \cdot Es \cdot Bs^{\frac{1}{2}}\right)\right]}{kv^2} = 0.867$ (NESC 2007 Table 250-3)

Wind Pressure = $qz := 0.00256 \cdot Kz \cdot V^2 \cdot Grf \cdot I = 34.3$ psf (NESC 2007 Section 250.C.2)

Shape Factors

NUS Design Criteria Issued April 12, 2007

Shape Factor for Round Members =	$Cd_R := 1.3$	(User Input)
Shape Factor for Flat Members =	$Cd_F := 1.6$	(User Input)
Shape Factor for Coax Cables Attached to Outside of Pole =	$Cd_{coax} := 1.45$	(User Input)

Overload Factors

NU Design Criteria Table

Overload Factors for Wind Loads:

NESC Heavy Loading =	**2.5**	(User Input)	Apply in Risa-3D Analysis
NESC Extreme Loading =	**1.0**	(User Input)	Apply in Risa-3D Analysis

Overload Factors for Vertical Loads:

NESC Heavy Loading =	**1.5**	(User Input)	Apply in Risa-3D Analysis
NESC Extreme Loading =	**1.0**	(User Input)	Apply in Risa-3D Analysis

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Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	Commscope DHHTT65B-3XR		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 72.1$	in	(User Input)
Antenna Width =	$W_{ant} := 11.9$	in	(User Input)
Antenna Thickness =	$T_{ant} := 7.1$	in	(User Input)
Antenna Weight =	$WT_{ant} := 46$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 3$		(User Input)

Gravity Load (without ice)

Weight of All Antennas = $Wt_{ant1} := WT_{ant} \cdot N_{ant} = 138$ lbs

Gravity Load (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 6092$ cu in

Volume of Ice on Each Antenna = $V_{ice} := \left(L_{ant} + 2 \cdot Ir\right)\left(W_{ant} + 2 \cdot Ir\right)\left(T_{ant} + 2 \cdot Ir\right) - V_{ant} = 1546$ cu in

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

Weight of Ice on All Antennas = $Wt_{ice.ant1} := W_{ICEant} \cdot N_{ant} = 150$ lbs

Wind Load (NESC Heavy)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := \frac{\left(L_{ant} + 2 \cdot Ir\right) \cdot \left(W_{ant} + 2 \cdot Ir\right)}{144} = 6.5$ sf

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 19.6$ sf

Total Antenna Wind Force w/ Ice = $Fi_{ant1} := p \cdot Cd_F \cdot A_{ICEant} = 126$ lbs

Wind Load (NESC Extreme)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna = $SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 6$ sf

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 17.9$ sf

Total Antenna Wind Force = $F_{ant1} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 1226$ lbs

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Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	RFS KIT-FD9R6004/1C-DL Diplexer		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 5.8$	in	(User Input)
Antenna Width =	$W_{ant} := 6.5$	in	(User Input)
Antenna Thickness =	$T_{ant} := 4.6$	in	(User Input)
Antenna Weight =	$WT_{ant} := 7$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 3$		(User Input)

Gravity Load (without ice)

Weight of All Antennas = $Wt_{ant2} := WT_{ant} \cdot N_{ant} = 21$ lbs

Gravity Load (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 173$ cu in

Volume of Ice on Each Antenna = $V_{ice} := \left(L_{ant} + 2 \cdot Ir\right)\left(W_{ant} + 2 \cdot Ir\right)\left(T_{ant} + 2 \cdot Ir\right) - V_{ant} = 112$ cu in

Weight of Ice on Each Antenna = $W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 4$ lbs

Weight of Ice on All Antennas = $Wt_{ice.ant2} := W_{ICEant} \cdot N_{ant} = 11$ lbs

Wind Load (NESC Heavy)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := \frac{\left(L_{ant} + 2 \cdot Ir\right) \cdot \left(W_{ant} + 2 \cdot Ir\right)}{144} = 0.4$ sf

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 1.1$ sf

Total Antenna Wind Force w/ Ice = $Fi_{ant2} := p \cdot Cd_F \cdot A_{ICEant} = 7$ lbs

Wind Load (NESC Extreme)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

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

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 0.8$ sf

Total Antenna Wind Force = $F_{ant2} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 54$ lbs

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Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	CCI DPO-7126Y-0-T1 Diplexer		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 4.07$	in	(User Input)
Antenna Width =	$W_{ant} := 7.42$	in	(User Input)
Antenna Thickness =	$T_{ant} := 6.26$	in	(User Input)
Antenna Weight =	$WT_{ant} := 8$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 3$		(User Input)

Gravity Load (without ice)

Weight of All Antennas = $Wt_{ant3} := WT_{ant} \cdot N_{ant} = 24$ lbs

Gravity Load (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 189$ cu in

Volume of Ice on Each Antenna = $V_{ice} := \left(L_{ant} + 2 \cdot Ir\right)\left(W_{ant} + 2 \cdot Ir\right)\left(T_{ant} + 2 \cdot Ir\right) - V_{ant} = 121$ cu in

Weight of Ice on Each Antenna = $W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 4$ lbs

Weight of Ice on All Antennas = $Wt_{ice.ant3} := W_{ICEant} \cdot N_{ant} = 12$ lbs

Wind Load (NESC Heavy)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := \frac{\left(L_{ant} + 2 \cdot Ir\right) \cdot \left(W_{ant} + 2 \cdot Ir\right)}{144} = 0.3$ sf

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 0.9$ sf

Total Antenna Wind Force w/ Ice = $Fi_{ant3} := p \cdot Cd_F \cdot A_{ICEant} = 6$ lbs

Wind Load (NESC Extreme)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna = $SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 0.2$ sf

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 0.6$ sf

Total Antenna Wind Force = $F_{ant3} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 43$ lbs

Development of Wind & Ice Load on Antenna Mounts

Mount Data: (Sprint)

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

Mount Shape = Flat

Mount Projected Surface Area = $CdAa := 10$ sf (User Input)

Mount Projected Surface Area w/ Ice = $CdAa_{ice} := 12$ sf (User Input)

Mount Weight = $WT_{mnt} := 900$ lbs (User Input)

Mount Weight w/ Ice = $WT_{mnt.ice} := 1100$ lbs (User Input)

Gravity Loads (without ice)

Weight of All Mounts = $Wt_{mnt1} := WT_{mnt} = 900$ lbs **BLC 2**

Gravity Load (ice only)

Weight of Ice on All Mounts = $Wt_{ice.mnt1} := WT_{mnt.ice} - WT_{mnt} = 200$ lbs **BLC 3**

Wind Load (NESC Heavy)

Total Mount Wind Force w/ Ice = $Fi_{mnt1} := p \cdot CdAa_{ice} = 48$ lbs **BLC 4**

Wind Load (NESC Extreme)

Total Mount Wind Force = $F_{mnt1} := qz \cdot CdAa \cdot m = 429$ lbs **BLC 5**

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Development of Wind & Ice Load on Antennas

Antenna Data: (T-Mobile)

Antenna Model =	RFSAPX16DWV-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 =	$WT_{ant} := 40.7$	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 =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 5$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 15.1$	sf
Total Antenna Wind Force =	$F_{ant4} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 1038$	lbs

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 =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 16.6$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant4} := p \cdot Cd_F \cdot A_{ICEant} = 106$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$Wt_{ant4} := (WT_{ant} \cdot N_{ant}) = 122.1$	lbs

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 =	$Wt_{ice.ant4} := W_{ICEant} \cdot N_{ant} = 99$	lbs

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Development of Wind & Ice Load on Antennas

Antenna Data: (T-Mobile)

Antenna Model =	Andrew LNX-6515DS		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 96.6$	in	(User Input)
Antenna Width =	$W_{ant} := 11.9$	in	(User Input)
Antenna Thickness =	$T_{ant} := 7.1$	in	(User Input)
Antenna Weight =	$WT_{ant} := 44$	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 =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 8$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 23.9$	sf
Total Antenna Wind Force =	$F_{ant5} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 1642$	lbs

Wind Load (NESC Heavy)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna w/ Ice =	$SA_{ICEant} := \frac{(L_{ant} + 1) \cdot (W_{ant} + 1)}{144} = 8.7$	sf
Antenna Projected Surface Area w/ Ice =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 26.2$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant5} := p \cdot Cd_F \cdot A_{ICEant} = 168$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$Wt_{ant5} := (WT_{ant} \cdot N_{ant}) = 132$	lbs

Gravity Load (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 8162$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 1)(W_{ant} + 1) \cdot (T_{ant} + 1) - V_{ant} = 2036$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 66$	lbs
Weight of Ice on All Antennas =	$Wt_{ice.ant5} := W_{ICEant} \cdot N_{ant} = 198$	lbs

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Development of Wind & Ice Load on Antennas

Antenna Data: (T-Mobile)

Antenna Model =	Andrew ATSBT-TOP-FM-4G		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 5.63$	in	(User Input)
Antenna Width =	$W_{ant} := 3.7$	in	(User Input)
Antenna Thickness =	$T_{ant} := 2.0$	in	(User Input)
Antenna Weight =	$WT_{ant} := 2$	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 =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 0.1$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 0.4$	sf
Total Antenna Wind Force =	$F_{ant6} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 30$	lbs

Wind Load (NESC Heavy)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna w/ Ice =	$SA_{ICEant} := \frac{(L_{ant} + 1) \cdot (W_{ant} + 1)}{144} = 0.2$	sf
Antenna Projected Surface Area w/ Ice =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 0.6$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant6} := p \cdot Cd_F \cdot A_{ICEant} = 4$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$Wt_{ant6} := (WT_{ant} \cdot N_{ant}) = 6$	lbs

Gravity Load (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 42$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 1)(W_{ant} + 1) \cdot (T_{ant} + 1) - V_{ant} = 52$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 2$	lbs
Weight of Ice on All Antennas =	$Wt_{ice.ant6} := W_{ICEant} \cdot N_{ant} = 5$	lbs

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 = $Wt_{mnt2} := WT_{mnt} = 550$ 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 = $F_{mnt2} := qz \cdot CdAa \cdot m = 270$ lbs **BLC 5**

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	Qunitel QS46512-2		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 52$	in	(User Input)
Antenna Width =	$W_{ant} := 12$	in	(User Input)
Antenna Thickness =	$T_{ant} := 10.8$	in	(User Input)
Antenna Weight =	$WT_{ant} := 75$	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 = $SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 4.3$ sf

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 13$ sf

Total Antenna Wind Force = $F_{ant7} := qz \cdot Cd_F \cdot A_{ant} = 713$ lbs

Wind Load (NESC Heavy)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := \frac{(L_{ant} + 1) \cdot (W_{ant} + 1)}{144} = 4.8$ sf

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 14.4$ sf

Total Antenna Wind Force w/ Ice = $Fi_{ant7} := p \cdot Cd_F \cdot A_{ICEant} = 92$ lbs

Gravity Load (without ice)

Weight of All Antennas = $Wt_{ant7} := WT_{ant} \cdot N_{ant} = 225$ lbs

Gravity Load (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 6739$ cu in

Volume of Ice on Each Antenna = $V_{ice} := (L_{ant} + 1)(W_{ant} + 1) \cdot (T_{ant} + 1) - V_{ant} = 1391$ cu in

Weight of Ice on Each Antenna = $W_{ICEant} := \frac{V_{ice}}{1728} \cdot ld = 45$ lbs

Weight of Ice on All Antennas = $Wt_{ice.ant7} := W_{ICEant} \cdot N_{ant} = 135$ lbs

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	Kaelus TMA2117F00V1-1		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 8.46$	in	(User Input)
Antenna Width =	$W_{ant} := 11.81$	in	(User Input)
Antenna Thickness =	$T_{ant} := 4.21$	in	(User Input)
Antenna Weight =	$WT_{ant} := 18$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 6$		(User Input)

Wind Load (NESC Extreme)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna = $SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 0.7$ sf

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 4.2$ sf

Total Antenna Wind Force = $F_{ant8} := qz \cdot Cd_F \cdot A_{ant} = 228$ lbs

Wind Load (NESC Heavy)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := \frac{(L_{ant} + 1) \cdot (W_{ant} + 1)}{144} = 0.8$ sf

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 5$ sf

Total Antenna Wind Force w/ Ice = $Fi_{ant8} := p \cdot Cd_F \cdot A_{ICEant} = 32$ lbs

Gravity Load (without ice)

Weight of All Antennas = $Wt_{ant8} := WT_{ant} \cdot N_{ant} = 108$ lbs

Gravity Load (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 421$ cu in

Volume of Ice on Each Antenna = $V_{ice} := (L_{ant} + 1)(W_{ant} + 1) \cdot (T_{ant} + 1) - V_{ant} = 211$ cu in

Weight of Ice on Each Antenna = $W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 7$ lbs

Weight of Ice on All Antennas = $Wt_{ice.ant8} := W_{ICEant} \cdot N_{ant} = 41$ lbs

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)

Mount Projected Surface Area = $A_{mnt} := \frac{D_{mnt} \cdot L_{mnt}}{144} \cdot N_{mnt} = 5.25$ sf

Total Mount Wind Force = $F_{mnt3} := qz \cdot Cd_R \cdot A_{mnt} = 234$ lbs

Wind Load (NESC Heavy)

Mount Projected Surface Area w/ Ice = $A_{ICEmnt} := \frac{(L_{ant} + 1) \cdot (W_{ant} + 1)}{144} \cdot N_{mnt} = 2.525$ sf

Total Mount Wind Force = $Fi_{mnt3} := p \cdot Cd_R \cdot A_{ICEmnt} = 13$ lbs

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 = $Wt_{mnt3} := WT_{mnt} \cdot N_{mnt} = 136$ lbs

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 = $V_{ice} := \left[\frac{\pi}{4} \cdot \left[(D_{mnt} + 1)^2\right] \cdot (L_{mnt} + 1)\right] - V_{mnt} = 468$ 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 = $Wt_{ice.mnt3} := (W_{ICEmnt} \cdot N_{mnt} + 5) = 51$ lbs

Total Equipment Loads:

Sprint @ 104-ft AGL

NESC Heavy Wind Vertical = $\left(Wt_{ant1} + Wt_{ice.ant1} + Wt_{ant2} + Wt_{ice.ant2} + Wt_{ant3} + Wt_{ice.ant3} + Wt_{mnt1} + Wt_{ice.mnt1}\right)\cdot 1.5 = 2184$

NESC Heavy Wind Trasnsverse = $\left(Fi_{ant1} + Fi_{ant2} + Fi_{ant3} + Fi_{mnt1}\right)\cdot 2.5 = 466$

NESC Extreme Wind Vertical = $\left(Wt_{ant1} + Wt_{ant2} + Wt_{ant3} + Wt_{mnt1}\right) = 1083$

NESC Extreme Wind Trasnsverse = $\left(F_{ant1} + F_{ant2} + F_{ant3} + F_{mnt1}\right) = 1751$

T-Mobile @ 95-ft AGL

NESC Heavy Wind Vertical = $\left(Wt_{ant4} + Wt_{ice.ant4} + Wt_{ant5} + Wt_{ice.ant5} + Wt_{ant6} + Wt_{ice.ant6} + Wt_{mnt2} + Wt_{ice.mnt2}\right)\cdot 1.5 = 1893$

NESC Heavy Wind Trasnsverse = $\left(Fi_{ant4} + Fi_{ant5} + Fi_{ant6} + Fi_{mnt2}\right)\cdot 2.5 = 774$

NESC Extreme Wind Vertical = $\left(Wt_{ant4} + Wt_{ant5} + Wt_{ant6} + Wt_{mnt2}\right) = 810$

NESC Extreme Wind Trasnsverse = $\left(F_{ant4} + F_{ant5} + F_{ant6} + F_{mnt2}\right) = 2980$

AT&T @ 84-ft AGL / Per Leg

NESC Heavy Wind Vertical = $\frac{\left[\left(Wt_{ant7} + Wt_{ice.ant7} + Wt_{ant8} + Wt_{ice.ant8} + Wt_{mnt3} + Wt_{ice.mnt3}\right)\cdot 1.5\right]}{3} = 348$

NESC Heavy Wind Trasnsverse = $\frac{\left[\left(Fi_{ant7} + Fi_{ant8} + Fi_{mnt3}\right)\cdot 2.5\right]}{3} = 114$

NESC Extreme Wind Vertical = $\frac{\left(Wt_{ant7} + Wt_{ant8} + Wt_{mnt3}\right)}{3} = 156$

NESC Extreme Wind Trasnsverse = $\frac{\left(F_{ant7} + F_{ant8} + F_{mnt3}\right)}{3} = 392$

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Subject:	Coax Cable Loads Tower # 876
Location:	Fairfield, CT
Rev. 0: 1/16/18	Prepared by: T.J.L Checked by: C.F.C. Job No. 17159.06

Coax Cable on Tower

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)*
Basic Windspeed =	$V := 110$	mph	(User Input NESC 2007 Figure 250-2(e))
Height to Top of Coax Above Grade =	$TC := 104$	ft	(User Input)
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 =	$Kz := 2.01 \cdot \left(\frac{0.67TC}{900}\right)^{\frac{2}{9.5}} = 1.173$		(NESC 2007 Table 250-2)
Exposure Factor =	$Es := 0.346\left[\frac{33}{(0.67 \cdot TC)}\right]^{\frac{1}{7}} = 0.311$		(NESC 2007 Table 250-3)
Response Term =	$Bs := \frac{1}{\left(1 + 0.375 \cdot \frac{TC}{220}\right)} = 0.849$		(NESC 2007 Table 250-3)
Gust Response Factor =	$Grf := \frac{\left[1 + \left(2.7 \cdot Es \cdot Bs^{\frac{1}{2}}\right)\right]}{kv^2} = 0.867$		(NESC 2007 Table 250-3)
Wind Pressure =	$qz := 0.00256 \cdot Kz \cdot V^2 \cdot Grf \cdot I = 31.5$	psf	(NESC 2007 Section 250.C.2)

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Coax Cable within Powermount

(Sprint)

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)*

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 = $W_{ice} := 0$

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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 =

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

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

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Coax Cable on CL&P Tower

(Sprint - NE Leg)

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)*

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 =

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

Extreme Longitudinal Load =

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

$$Extreme_{Vert} = \begin{pmatrix} 137 \\ 137 \\ 168 \\ 200 \\ 231 \\ 200 \end{pmatrix} lb \qquad Extreme_{Trans} = \begin{pmatrix} 92 \\ 92 \\ 112 \\ 133 \\ 154 \\ 133 \end{pmatrix} lb$$

$$Extreme_{Long} = \begin{pmatrix} 1098 \\ 1098 \\ 1348 \\ 1597 \\ 1847 \\ 1597 \end{pmatrix} lb$$

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Coax Cable on Powermount

(T-Mobile)

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 = $NP_{Tcoax} := 0$ *(User Input)*

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

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

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

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

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

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

Wind Area with Ice Transverse = $A_{Tice} := (0) = 0 \cdot in$

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

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 =

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

$$Heavy_{Vert} = \begin{pmatrix} 172 \\ 241 \\ 293 \\ 379 \\ 723 \\ 1480 \end{pmatrix} lb \qquad Heavy_{Trans} = \begin{pmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \end{pmatrix}$$

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

Extreme Vertical Load =

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

Extreme Transverse Load =

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

Extreme Longitudinal Load =

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

$$Extreme_{Vert} = \begin{pmatrix} 40 \\ 55 \\ 67 \\ 87 \\ 166 \\ 341 \end{pmatrix} lb \qquad Extreme_{Trans} = \begin{pmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \end{pmatrix}$$

$$Extreme_{Long} = \begin{pmatrix} 195 \\ 274 \\ 332 \\ 430 \\ 821 \\ 1680 \end{pmatrix} lb$$

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Location:	Fairfield, CT
Rev. 0: 1/16/18	Prepared by: T.J.L Checked by: C.F.C. Job No. 17159.06

Coax Cable on CL&P Tower

(T-Mobile - SW Leg)

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)*

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 =

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

Extreme Longitudinal Load =

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

$$Extreme_{Vert} = \begin{pmatrix} 44 \\ 44 \\ 53 \\ 63 \\ 73 \\ 63 \end{pmatrix} lb \qquad Extreme_{Trans} = \begin{pmatrix} 72 \\ 72 \\ 88 \\ 104 \\ 120 \\ 104 \end{pmatrix} lb$$

$$Extreme_{Long} = \begin{pmatrix} 430 \\ 430 \\ 528 \\ 625 \\ 723 \\ 625 \end{pmatrix} lb$$

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Coax Cable on CL&P Tower

(AT&T - SE Leg)

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 = $N_{coax} := 12$ *(User Input)*

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

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

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

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

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

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

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

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

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

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

Wind Area without Ice Longitudinal = $A_L := \left(NP_{Lcoax} \cdot D_{coax}\right) = 11.88 \cdot in$

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

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

Heavy Vertical Load =

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

Heavy Transverse Load =

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

Heavy Longitudinal Load =

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

$$Heavy_{Vert} = \begin{pmatrix} 276 \\ 506 \\ 621 \\ 736 \\ 851 \\ 736 \end{pmatrix} lb \qquad Heavy_{Trans} = \begin{pmatrix} 103 \\ 189 \\ 232 \\ 275 \\ 318 \\ 275 \end{pmatrix} lb$$

$$Heavy_{Long} = \begin{pmatrix} 103 \\ 189 \\ 232 \\ 275 \\ 318 \\ 275 \end{pmatrix} lb$$

Extreme Vertical Load =

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

Extreme Transverse Load =

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

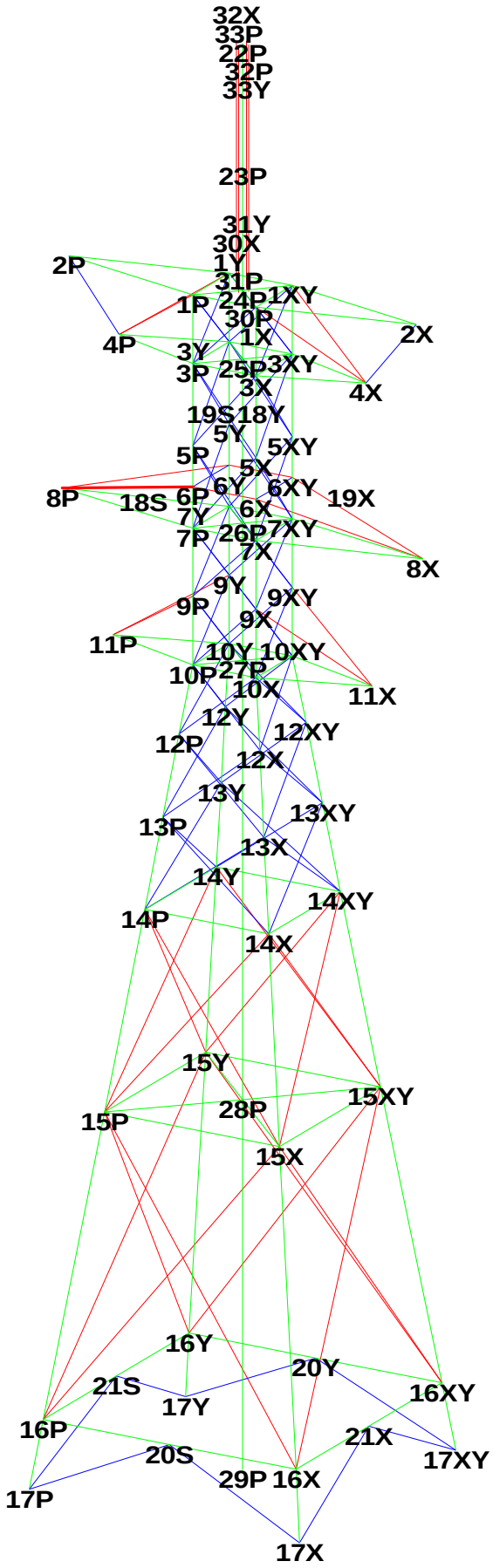
Extreme Longitudinal Load =

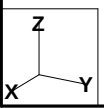
$$Extreme_{Long} := \overrightarrow{\left[\left(qz \cdot psf \cdot A_L \cdot Cd_{coax}\right) \cdot Coax_{Span} \cdot OF_{EW}\right]}$$

$$Extreme_{Vert} = \begin{pmatrix} 75 \\ 137 \\ 168 \\ 200 \\ 231 \\ 200 \end{pmatrix} lb \qquad Extreme_{Trans} = \begin{pmatrix} 300 \\ 549 \\ 674 \\ 799 \\ 924 \\ 799 \end{pmatrix} lb$$

$$Extreme_{Long} = \begin{pmatrix} 300 \\ 549 \\ 674 \\ 799 \\ 924 \\ 799 \end{pmatrix} lb$$

Centek Engineering Inc, Project: "cl&p # 876 w_powermnt"
Tower Version 12.50, 10:12:17 AM Tuesday, January 16, 2018
Undeformed geometry displayed





Project Name : 17159.06 - Fairfield, CT
Project Notes: Structure # 876 / Sprint CT03XC333
Project File : J:\Jobs\1715900.WI\06_CT03XC333 Fairfield\04_Structural\Backup Documentation\Calcs\Rev (2)\PLS Tower\cl&p # 876 w_powermnt rein.tow
Date run   : 9:04:10 AM Monday, November 12, 2018
by   : Tower Version 12.50
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. ??
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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. ??
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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. ??
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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. ??
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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. ??
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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. ??
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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. ??
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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. ??
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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 "g58X" 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. ??
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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. ??
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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
Climbing load check: None
Redundant members checked with: Actual Force

Loads from file: j:\jobs\1715900.wi\06_ct03xc333 fairfield\04_structural\backup documentation\calcs\rev (2)\pls tower\876 w_ powermnt.lca

*** Analysis Results:

Maximum element usage is 97.15% for Angle "g6X" in load case "Extreme Wind - Transverse"
Maximum insulator usage is 15.43% for Clamp "30" in load case "NESC Heavy - Longitudinal"

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)	Bending Moment (ft-k)	Vert. Moment (ft-k)	Found. Usage %
NESC Heavy - Transverse	17P	0.47	-1.39	4.49	1.47	-0.01	0.03	0.03	0.26	0.00
NESC Heavy - Transverse	29P	0.11	-0.64	-19.87	0.65	5.29	0.47	5.31	-0.28	0.00
NESC Heavy - Transverse	17X	-7.43	-8.31	-52.68	11.15	-0.07	0.08	0.10	-0.04	0.00
NESC Heavy - Transverse	17XY	4.11	-4.85	-28.32	6.36	-0.01	-0.07	0.07	0.03	0.00
NESC Heavy - Transverse	17Y	-4.33	-5.07	31.41	6.67	-0.05	0.01	0.05	-0.28	0.00
Extreme Wind - Transverse	17P	6.27	-9.43	46.20	11.33	-0.04	0.09	0.10	0.70	0.00
Extreme Wind - Transverse	29P	0.10	-0.88	-7.66	0.88	9.34	0.89	9.38	-0.07	0.00
Extreme Wind - Transverse	17X	-10.19	-13.33	-70.69	16.78	-0.12	0.12	0.16	0.62	0.00
Extreme Wind - Transverse	17XY	8.57	-11.10	-58.98	14.03	-0.12	-0.15	0.19	-0.63	0.00
Extreme Wind - Transverse	17Y	-8.10	-10.57	58.79	13.32	-0.12	-0.07	0.14	-0.70	0.00
NESC Heavy - Longitudinal	17P	-5.14	4.12	-29.91	6.58	-0.02	0.03	0.04	0.26	0.00
NESC Heavy - Longitudinal	29P	-0.14	-0.60	-19.78	0.62	2.89	-4.17	5.07	-0.15	0.00
NESC Heavy - Longitudinal	17X	-5.86	-5.71	-39.15	8.19	-0.08	0.06	0.10	-0.04	0.00
NESC Heavy - Longitudinal	17XY	-0.50	-0.79	2.60	0.94	0.08	0.00	0.08	0.02	0.00
NESC Heavy - Longitudinal	17Y	-3.74	-3.90	21.27	5.40	-0.00	-0.06	0.06	-0.27	0.00
Extreme Wind - Longitudinal	17P	-6.41	2.73	-29.64	6.96	-0.06	0.03	0.07	0.67	0.00
Extreme Wind - Longitudinal	29P	-0.31	-0.80	-7.48	0.86	5.54	-7.58	9.38	0.02	0.00
Extreme Wind - Longitudinal	17X	-10.13	-10.53	-61.73	14.61	-0.20	0.05	0.20	0.60	0.00
Extreme Wind - Longitudinal	17XY	-2.04	-2.47	8.57	3.20	0.06	-0.06	0.09	-0.64	0.00
Extreme Wind - Longitudinal	17Y	-10.10	-11.22	57.94	15.10	-0.01	-0.19	0.19	-0.66	0.00

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

Load Case	Support Joint	Origin Joint	Leg Member	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	-4.659	0.780	0.784	0.154	0.769	0.47	-1.39	4.49
NESC Heavy - Transverse	17X	16X	g12X	53.841	0.990	1.001	0.117	0.994	-7.43	-8.31	-52.68
NESC Heavy - Transverse	17XY	16XY	g12XY	29.007	0.926	0.938	-0.180	0.921	4.11	-4.85	-28.32
NESC Heavy - Transverse	17Y	16Y	g12Y	-32.099	0.701	0.707	-0.031	0.707	-4.33	-5.07	31.41
Extreme Wind - Transverse	17P	16P	g12P	-47.474	2.995	3.021	0.146	3.017	6.27	-9.43	46.20
Extreme Wind - Transverse	17X	16X	g12X	72.575	3.496	3.536	0.374	3.516	-10.19	-13.33	-70.69
Extreme Wind - Transverse	17XY	16XY	g12XY	60.560	2.902	2.936	-0.377	2.912	8.57	-11.10	-58.98
Extreme Wind - Transverse	17Y	16Y	g12Y	-60.229	2.383	2.405	-0.064	2.404	-8.10	-10.57	58.79
NESC Heavy - Longitudinal	17P	16P	g12P	30.614	0.973	0.981	0.980	0.035	-5.14	4.12	-29.91
NESC Heavy - Longitudinal	17X	16X	g12X	39.997	0.496	0.506	0.423	0.277	-5.86	-5.71	-39.15
NESC Heavy - Longitudinal	17XY	16XY	g12XY	-2.507	1.153	1.161	0.137	1.153	-0.50	-0.79	2.60
NESC Heavy - Longitudinal	17Y	16Y	g12Y	-21.916	1.206	1.229	0.788	0.943	-3.74	-3.90	21.27
Extreme Wind - Longitudinal	17P	16P	g12P	30.326	2.674	2.676	2.289	1.386	-6.41	2.73	-29.64
Extreme Wind - Longitudinal	17X	16X	g12X	63.392	2.453	2.500	1.557	1.956	-10.13	-10.53	-61.73
Extreme Wind - Longitudinal	17XY	16XY	g12XY	-8.348	3.734	3.753	0.846	3.657	-2.04	-2.47	8.57
Extreme Wind - Longitudinal	17Y	16Y	g12Y	-59.758	3.713	3.781	2.055	3.173	-10.10	-11.22	57.94

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	86.000	17	26	1.00	5.00	36.000	1.00	27.50	137.250
2	86.000	41.500	56	173	5.00	9.81	264.882	27.50	9.81	431.382
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 Angle Desc.	Angle Type	Steel Size	Strength (ksi)	Max Usage %	Comp. Control	Max Usage In Comp. %	Comp. 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	Length (ft)	Curve No.	Comp. No.	No. Of Bolts
LEG1	L4x4x1/4	SAE	4X4X0.25	33.0	97.15	Comp	97.15	g6X	-51.984	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	92.21	Comp	92.21	g12X	-69.885	Extreme	75.789	104.700	175.781	0.500	0.500	0.500	38.65	38.65	5.096	1	10	

```
     LEG3        L4x4x3/8   SAE        4X4X0.375     33.0 81.25  Comp 81.25    g11X -69.493Extreme    85.526  104.700  210.937 0.167 0.167 0.167
57.05      57.05 22.432     1    10
     XBR1 L1.75x1.75x3/16   SAE 1.75X1.75X0.1875     33.0 66.63  Comp 66.63    g13P  -7.702Extreme    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 49.86 Cross 49.86   g16XY  -6.103Extreme    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 39.54  Comp 39.54   g19XY  -6.823Extreme    17.255   31.410   31.641 1.000 1.500 1.000
120.57     120.57  3.905     4     3
     XBR4       L2x2x3/16   SAE       2X2X0.1875     33.0 27.62 Cross 27.62    g26Y  -3.000Extreme    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 20.90 Cross 20.90    g30Y  -1.444Extreme     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 53.36  Comp 53.36   g32XY  -1.204NESC 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 50.08  Tens 43.60    g33Y  -0.463NESC Hea    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 60.91  Tens 53.77    g60P  -5.482Extreme    21.670   10.470   10.195 1.000 1.000 1.000
85.71     102.85  3.536     3     1 A potentially damaging moment exists in the following members (make sure your system is well triangulated to
minimize moments): g60P g60XY g60Y  ??
    PMBR2    L3.5x3.5x1/4   SAE     3.5X3.5X0.25     36.0 29.78  Comp 29.78    g64P  -3.118Extreme    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 82.67  Comp 82.67    g37P  -4.794Extreme     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 47.57  Comp 47.57    g41P  -4.981Extreme    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 50.17  Comp 50.17    g43P  -5.253Extreme    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 44.32  Comp 44.32    g45Y  -4.640Extreme    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 29.28  Comp 29.28    g49X  -8.349NESC 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 37.08  Comp 37.08    g53P  -9.096NESC 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 29.47  Comp 29.47    g55X  -3.086NESC 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 93.34  Tens  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 16.28  Comp 16.28    g65P -18.768NESC Hea  115.298    0.000    0.000 1.000 1.000 1.000
73.97      73.97 27.000     1     0
     fic1     Fictitious1   Bar               fic     36.0  0.00        0.00    g72P   0.000            0.000    0.000    0.000 1.000 1.000 1.000
2160000.00 2160000.00 18.000     4     0
      fic     Fictitious2   Bar               fic     36.0  0.00        0.00    g74P   0.000            0.000    0.000    0.000 1.000 1.000 1.000
60000.00   60000.00  0.500     4     0
     HBR5 L1.75x1.75x3/16   SAE 1.75X1.75X0.1875     33.0 14.01  Comp 14.01   g78XY  -1.467NESC Hea   14.114   10.470   10.547 1.000 1.000 1.000
87.46     103.73  2.500     3     1
  ArmBR2R   L1.75x3/8x3/8   BAR 1.75X0.375X0.375     33.0 77.59  Tens  0.00    g57Y   0.000            0.100   10.470   21.094 1.000 1.000 1.000
1372.59    1372.59 12.382     4     1
```

Group Summary (Tension Portion):

Group No.	Group Label	Angle Desc.	Angle Type	Angle Size	Steel Strength	Max Usage Cont-rol	Max Tension Use In Tens.	Tension Control Member	Tension Force Control Load Case	Net Section Capacity	Tension Connect. Shear Capacity	Tension Connect. Bearing Capacity	Tension Connect. Rupture Capacity	Tension Member Length	No. Of Tens. Bolts	Hole Diameter Of Holes

				(ksi)	%		%		(kips)	(kips)	(kips)	(kips)	(kips)	(ft)	(in)
LEG1	L4x4x1/4	SAE	4X4X0.25	33.0	97.15	Comp	77.43	g6Y	40.787Extreme	52.676	125.640	168.750	220.588	5.000	12 2.000 0.6875
LEG2	L4x4x5/16	SAE	4X4X0.3125	33.0	92.21	Comp	91.23	g12Y	59.319Extreme	65.020	104.700	175.781	103.401	5.096	10 2.000 0.6875
LEG3	L4x4x3/8	SAE	4X4X0.375	33.0	81.25	Comp	67.56	g11Y	52.268Extreme	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	66.63	Comp	47.11	g13X	6.871Extreme	14.585	20.940	21.094	16.189	7.071	2 1.000 0.6875
XBR2	L3x2x3/16	SAU	3X2X0.1875	33.0	49.86	Cross	37.73	g23XY	8.640Extreme	22.901	31.410	31.641	28.125	7.071	3 1.000 0.6875
XBR3	L3x2x3/16	SAU	3X2X0.1875	33.0	39.54	Comp	39.06	g35Y	3.015Extreme	17.333	10.470	10.547	7.717	11.826	1 1.000 0.6875
XBR4	L2x2x3/16	SAE	2X2X0.1875	33.0	27.62	Cross	17.38	g25XY	2.648Extreme	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	20.90	Cross	11.36	g28Y	2.131Extreme	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	53.36	Comp	31.65	g32X	6.026Extreme	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	50.08	Tens	50.08	g33XY	7.304Extreme	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**	**60.91**	**Tens**	**60.91**	**g60Y**	**6.210Extreme**	**25.048**	**10.470**	**10.195**	**0.000**	**3.536**	**1 1.000 0.6875 A potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize moments): g60P g60XY g60Y ??**
PMBR2	L3.5x3.5x1/4	SAE	3.5X3.5X0.25	36.0	29.78	Comp	4.43	g64Y	0.464NESC 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	82.67	Comp	55.36	g38P	4.272Extreme	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	47.57	Comp	10.57	g41X	0.816Extreme	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	50.17	Comp	11.82	g43X	1.237Extreme	30.090	10.470	14.062	12.500	13.804	1 1.000 0.6875
HBR4	**L4x3x1/4**	**SAU**	**4X3X0.25**	**33.0**	**44.32**	**Comp**	**16.06**	**g46X**	**1.681Extreme**	**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	29.28	Comp	15.12	g48P	6.538Extreme	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	37.08	Comp	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	29.47	Comp	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	93.34	Tens	93.34	g58XY	7.364NESC Hea	7.889	10.470	14.062	0.000	2.500	1 1.000 0.6875
Powermnt	12" Std. Pipe	PIP	12.75X0.375	50.0	16.28	Comp	0.00	g71P	0.000	729.999	0.000	0.000	0.000	9.000	0 0.000 0
fic1	Fictitious1	Bar	fic	36.0	0.00		0.00	g72P	0.000NESC Hea	3.600	0.000	0.000	0.000	18.000	0 0.000 0
fic	Fictitious2	Bar	fic	36.0	0.00		0.00	g75P	0.072Extreme	3.600	0.000	0.000	0.000	0.500	0 0.000 0
HBR5	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	33.0	14.01	Comp	0.00	g78Y	0.000	14.585	10.470	10.547	7.717	2.500	1 1.000 0.6875
ArmBR2R	L1.75x3/8x3/8	BAR	1.75X0.375X0.375	33.0	77.59	Tens	77.59	g57Y	8.124NESC Hea	11.834	10.470	21.094	0.000	12.382	1 1.000 0.6875

*** 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	93.34	g58XY	Angle
Extreme Wind - Transverse	97.15	g6X	Angle
NESC Heavy - Longitudinal	92.99	g58Y	Angle
Extreme Wind - Longitudinal	87.75	g12Y	Angle

Summary of Insulator Usages:

Insulator Label	Insulator Type	Maximum Usage %	Load Case	Weight (lbs)
1	Clamp	6.86	NESC Heavy - Transverse	0.0
2	Clamp	8.86	NESC Heavy - Transverse	0.0
3	Clamp	13.12	NESC Heavy - Transverse	0.0
4	Clamp	14.97	NESC Heavy - Transverse	0.0
5	Clamp	13.38	NESC Heavy - Transverse	0.0
6	Clamp	13.35	NESC Heavy - Transverse	0.0
7	Clamp	13.74	NESC Heavy - Transverse	0.0
8	Clamp	13.59	NESC Heavy - Transverse	0.0
14	Clamp	4.83	Extreme Wind - Transverse	0.0
15	Clamp	5.44	NESC Heavy - Transverse	0.0
16	Clamp	5.47	Extreme Wind - Transverse	0.0
17	Clamp	2.95	Extreme Wind - Transverse	0.0
18	Clamp	2.52	Extreme Wind - Transverse	0.0
19	Clamp	4.47	Extreme Wind - Longitudinal	0.0
20	Clamp	1.50	Extreme Wind - Transverse	0.0
21	Clamp	2.37	Extreme Wind - Transverse	0.0
22	Clamp	1.50	Extreme Wind - Transverse	0.0
23	Clamp	1.50	Extreme Wind - Transverse	0.0
24	Clamp	1.35	Extreme Wind - Transverse	0.0
25	Clamp	11.05	Extreme Wind - Longitudinal	0.0
26	Clamp	2.92	NESC Heavy - Longitudinal	0.0
27	Clamp	3.65	NESC Heavy - Longitudinal	0.0
28	Clamp	4.78	NESC Heavy - Longitudinal	0.0
29	Clamp	9.21	NESC Heavy - Longitudinal	0.0
30	Clamp	15.43	NESC Heavy - Longitudinal	0.0
31	Clamp	8.54	NESC Heavy - Transverse	0.0
32	Clamp	3.79	Extreme Wind - Longitudinal	0.0
33	Clamp	4.62	Extreme Wind - Longitudinal	0.0
34	Clamp	6.19	Extreme Wind - Longitudinal	0.0
35	Clamp	6.68	Extreme Wind - Longitudinal	0.0
36	Clamp	5.89	Extreme Wind - Longitudinal	0.0
37	Clamp	1.61	Extreme Wind - Longitudinal	0.0
38	Clamp	1.92	Extreme Wind - Longitudinal	0.0
39	Clamp	3.56	Extreme Wind - Longitudinal	0.0
40	Clamp	3.50	NESC Heavy - Longitudinal	0.0
41	Clamp	3.06	Extreme Wind - Longitudinal	0.0
42	Clamp	1.61	Extreme Wind - Longitudinal	0.0

*** Weight of structure (lbs):

Weight of Angles*Section DLF:	14156.8
Total:	14156.8

*** End of Report

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*****************************************************************************
*                                                                           *
* TOWER - Analysis and Design -  Copyright Power Line Systems, Inc. 1986-2011 *
*                                                                           *
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Project Name : 17159.06 - Fairfield, CT
Project Notes: Structure # 876 / Sprint CT03XC333
Project File : J:\Jobs\1715900.WI\06_CT03XC333 Fairfield\04_Structural\Backup Documentation\Calcs\Rev (2)\PLS Tower\cl&p # 876 w_powermnt rein.tow
Date run     : 9:04:09 AM Monday, November 12, 2018
by           : Tower Version 12.50
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
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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
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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
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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
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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
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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
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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
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and spacing distances will be checked. ??
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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. ??
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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. ??
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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
Tension only member maximum compression load as a percent of compression capacity: 100%
Member check option: ASCE 10
Connection rupture check: ASCE 10
Crossing diagonal check: ASCE 10 [Alternate Unsupported RLOUT = 1]
Included angle check: None
Climbing load check: None
Redundant members checked with: Actual Force

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
30P	X-Symmetry	0	0.5	86	Free	Free	Free	Free	Free	Free
31P	Y-Symmetry	0.5	0	86	Free	Free	Free	Free	Free	Free
32P	X-Symmetry	0	0.5	104	Free	Free	Free	Free	Free	Free
33P	Y-Symmetry	0.5	0	104	Free	Free	Free	Free	Free	Free
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
30X	X-Gen	0	-0.5	86	Free	Free	Free	Free	Free	Free
31Y	Y-Gen	-0.5	0	86	Free	Free	Free	Free	Free	Free
32X	X-Gen	0	-0.5	104	Free	Free	Free	Free	Free	Free
33Y	Y-Gen	-0.5	0	104	Free	Free	Free	Free	Free	Free

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 76 primary and 8 secondary joints for a total of 84 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
A 36	2.9e+004	36	58	0	0	0	0	0	0
A572-50	2.9e+004	50	65	0	0	0	0	0	0

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	546

Angle Properties:

Angle Type	Angle Size	Long Leg (in)	Short Leg (in)	Thick. (in)	Unit Weight (lbs/ft)	Gross Area (in^2)	w/t Ratio	Radius of Gyration Rx (in)	Radius of Gyration Ry (in)	Radius of Gyration Rz (in)	Number of Angles	Wind Width (in)	Short Edge Dist. (in)	Long Edge Dist. (in)	Optimize Cost Factor	Section Modulus (in^3)
SAE	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
BAR	1.75X0.375X0.375	1.75	0.375	0.375	2.233	0.6563	4.666	0.5052	0.1083	0.1497	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
Bar	fic	1	0	0.1	0.005	0.1	1	0.0001	0.0001	0.0001	1	0.1	0	0	0.0000	0

Angle Groups:

Group Label	Group Description	Angle Type	Angle Size	Material Type	Element Type	Group Type	Optimize Group	Allow. Add. Angle Width For Optimize (in)
LEG1	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
fic1	Fictitious1	Bar	fic	A 36	T-Only	Other	None	0.000
fic	Fictitious2	Bar	fic	A 36	T-Only	Fictitious	None	0.000
HBR5	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	A7	Truss	Other	None	0.000
ArmBR2R	L1.75x3/8x3/8	BAR	1.75X0.375X0.375	A7	T-Only	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	329.89	192.44	699.37
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	84.84	28.28	126.42
BAR	1.75X0.375X0.375	A7	49.53	17.54	110.60
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
Bar	fic	A 36	76.00	12.67	0.38

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	24P	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	1.050	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	1.050	1.050	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)	Shear Path Length (in)	Tension Path Length (in)	Rest. Coef.

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    g1P     LEG1          XY-Symmetry     1P    3P    1     4     1     1     1 5/8 A7     0      4       0                0      0      0       0
0       0     0
    g1X     LEG1              X-GenXY     1X    3X    1     4     1     1     1 5/8 A7     0      4       0                0      0      0       0
0       0     0
   g1XY     LEG1             XY-GenXY    1XY   3XY    1     4     1     1     1 5/8 A7     0      4       0                0      0      0       0
0       0     0
    g1Y     LEG1              Y-GenXY     1Y    3Y    1     4     1     1     1 5/8 A7     0      4       0                0      0      0       0
0       0     0
    g2P     LEG1          XY-Symmetry     3P    5P    1     4     1     1     1 5/8 A7     0      4       0                0      0      0       0
0       0     0
    g2X     LEG1              X-GenXY     3X    5X    1     4     1     1     1 5/8 A7     0      4       0                0      0      0       0
0       0     0
   g2XY     LEG1             XY-GenXY    3XY   5XY    1     4     1     1     1 5/8 A7     0      4       0                0      0      0       0
0       0     0
    g2Y     LEG1              Y-GenXY     3Y    5Y    1     4     1     1     1 5/8 A7     0      4       0                0      0      0       0
0       0     0
    g3P     LEG1          XY-Symmetry     5P    6P    1     4     1     1     1 5/8 A7     0      2       0                0      0      0       0
0       0     0
    g3X     LEG1              X-GenXY     5X    6X    1     4     1     1     1 5/8 A7     0      2       0                0      0      0       0
0       0     0
   g3XY     LEG1             XY-GenXY    5XY   6XY    1     4     1     1     1 5/8 A7     0      2       0                0      0      0       0
0       0     0
    g3Y     LEG1              Y-GenXY     5Y    6Y    1     4     1     1     1 5/8 A7     0      2       0                0      0      0       0
0       0     0
    g4P     LEG1          XY-Symmetry     6P    7P    1     4     1     1     1 5/8 A7     0      4       0                0      0      0       0
0       0     0
    g4X     LEG1              X-GenXY     6X    7X    1     4     1     1     1 5/8 A7     0      4       0                0      0      0       0
0       0     0
   g4XY     LEG1             XY-GenXY    6XY   7XY    1     4     1     1     1 5/8 A7     0      4       0                0      0      0       0
0       0     0
    g4Y     LEG1              Y-GenXY     6Y    7Y    1     4     1     1     1 5/8 A7     0      4       0                0      0      0       0
0       0     0
    g5P     LEG1          XY-Symmetry     7P    9P    1     4     1     1     1 5/8 A7     0      2       0                0      0      0       0
0       0     0
    g5X     LEG1              X-GenXY     7X    9X    1     4     1     1     1 5/8 A7     0      2       0                0      0      0       0
0       0     0
   g5XY     LEG1             XY-GenXY    7XY   9XY    1     4     1     1     1 5/8 A7     0      2       0                0      0      0       0
0       0     0
    g5Y     LEG1              Y-GenXY     7Y    9Y    1     4     1     1     1 5/8 A7     0      2       0                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
0       0     0
    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
0       0     0
   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
0       0     0
    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
0       0     0
    g7P     LEG2          XY-Symmetry    10P   12P    1     4     1     1     1 5/8 A7     0      2       0                0      0      0       0
0       0     0
    g7X     LEG2              X-GenXY    10X   12X    1     4     1     1     1 5/8 A7     0      2       0                0      0      0       0
0       0     0
   g7XY     LEG2             XY-GenXY   10XY  12XY    1     4     1     1     1 5/8 A7     0      2       0                0      0      0       0
0       0     0
    g7Y     LEG2              Y-GenXY    10Y   12Y    1     4     1     1     1 5/8 A7     0      2       0                0      0      0       0
0       0     0
    g8P     LEG2          XY-Symmetry    12P   13P    1     4   0.5   0.5   0.5 5/8 A7     0      2       0                0      0      0       0
0       0     0
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g8X	LEG2	X-GenXY	12X	13X	1	4	0.5	0.5	0.5	5/8	A7	0	2	0			0	0	0	0	0	0
g8XY	LEG2	XY-GenXY	12XY	13XY	1	4	0.5	0.5	0.5	5/8	A7	0	2	0			0	0	0	0	0	0
g8Y	LEG2	Y-GenXY	12Y	13Y	1	4	0.5	0.5	0.5	5/8	A7	0	2	0			0	0	0	0	0	0
g9P	LEG2	XY-Symmetry	13P	14P	1	4	0.5	0.5	0.5	5/8	A7	10	2.02	1	Both	0.875	2	1.5	3.5	0	0	0
g9X	LEG2	X-GenXY	13X	14X	1	4	0.5	0.5	0.5	5/8	A7	10	2.02	1	Both	0.875	2	1.5	3.5	0	0	0
g9XY	LEG2	XY-GenXY	13XY	14XY	1	4	0.5	0.5	0.5	5/8	A7	10	2.02	1	Both	0.875	2	1.5	3.5	0	0	0
g9Y	LEG2	Y-GenXY	13Y	14Y	1	4	0.5	0.5	0.5	5/8	A7	10	2.02	1	Both	0.875	2	1.5	3.5	0	0	0
g10P	LEG3	XY-Symmetry	14P	15P	1	4	0.25	0.25	0.25	5/8	A7	10	2	1	Both	1.3125	2.375	1.5	3.5	0	0	0
g10X	LEG3	X-GenXY	14X	15X	1	4	0.25	0.25	0.25	5/8	A7	10	2	1	Both	1.3125	2.375	1.5	3.5	0	0	0
g10XY	LEG3	XY-GenXY	14XY	15XY	1	4	0.25	0.25	0.25	5/8	A7	10	2	1	Both	1.3125	2.375	1.5	3.5	0	0	0
g10Y	LEG3	Y-GenXY	14Y	15Y	1	4	0.25	0.25	0.25	5/8	A7	10	2	1	Both	1.3125	2.375	1.5	3.5	0	0	0
g11P	LEG3	XY-Symmetry	15P	16P	1	4	0.167	0.167	0.167	5/8	A7	10	2	1	Both	0.875	1.9375	1.5	3.75	0	0	0
g11X	LEG3	X-GenXY	15X	16X	1	4	0.167	0.167	0.167	5/8	A7	10	2	1	Both	0.875	1.9375	1.5	3.75	0	0	0
g11XY	LEG3	XY-GenXY	15XY	16XY	1	4	0.167	0.167	0.167	5/8	A7	10	2	1	Both	0.875	1.9375	1.5	3.75	0	0	0
g11Y	LEG3	Y-GenXY	15Y	16Y	1	4	0.167	0.167	0.167	5/8	A7	10	2	1	Both	0.875	1.9375	1.5	3.75	0	0	0
g12P	LEG2	XY-Symmetry	16P	17P	1	4	0.5	0.5	0.5	5/8	A7	10	2	1	Both	0.5625	1.625	1.5625	3.75	0	0	0
g12X	LEG2	X-GenXY	16X	17X	1	4	0.5	0.5	0.5	5/8	A7	10	2	1	Both	0.5625	1.625	1.5625	3.75	0	0	0
g12XY	LEG2	XY-GenXY	16XY	17XY	1	4	0.5	0.5	0.5	5/8	A7	10	2	1	Both	0.5625	1.625	1.5625	3.75	0	0	0
g12Y	LEG2	Y-GenXY	16Y	17Y	1	4	0.5	0.5	0.5	5/8	A7	10	2	1	Both	0.5625	1.625	1.5625	3.75	0	0	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	0	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	0	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	0	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	0	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	0	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	0	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	0	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	0	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	0	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	0	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	0	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	0	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	0	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	0	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	0	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	0	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	0	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	0	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	0	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	0	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	0	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
0	0	0																		
	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
0	0	0																		
	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
0	0	0																		
	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
0	0	0																		
	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
0	0	0																		
	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
0	0	0																		
	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
0	0	0																		
	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
0	0	0																		
	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
0	0	0																		
	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
0	0	0																		
	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
0	0	0																		
	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
0	0	0																		
	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
0	0	0																		
	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
0	0	0																		
	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
0	0	0																		
	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
0	0	0																		
	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
0	0	0																		
	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
0	0	0																		
	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
0	0	0																		

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	0	0	0
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	0	0	0
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	0	0	0
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	0	0	0
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	0	0	0
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	0	0	0
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	0	0	0
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	0	0	0
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	0	0	0
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	0	0	0
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	0	0	0
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	0	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	0	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	0	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	0	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	0	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	0	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	0	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	0	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	0	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	0	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	0	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	0	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	0	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	0	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	0	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	0	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	0	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	0	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	0	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	0	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	0	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	0	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	0	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	0	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	0	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	0	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	0	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	0	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	0	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	
0	0	0																			
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	
0	0	0																			
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	
0	0	0																			
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	
0	0	0																			
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	
0	0	0																			
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	
0	0	0																			
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	
0	0	0																			
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	
0	0	0																			
g35P	XBR3	XY-Symmetry	17P	20S	3	4	1	0.5	0.5	5/8	A7	1	1	1	Short	only	0.875	0	1	0	
0	0	0																			
g35X	XBR3	X-GenXY	17X	20S	3	4	1	0.5	0.5	5/8	A7	1	1	1	Short	only	0.875	0	1	0	
0	0	0																			
g35XY	XBR3	XY-GenXY	17XY	20Y	3	4	1	0.5	0.5	5/8	A7	1	1	1	Short	only	0.875	0	1	0	
0	0	0																			
g35Y	XBR3	Y-GenXY	17Y	20Y	3	4	1	0.5	0.5	5/8	A7	1	1	1	Short	only	0.875	0	1	0	
0	0	0																			
g36P	XBR3	XY-Symmetry	17X	21X	3	4	1	0.5	0.5	5/8	A7	1	1	1	Short	only	0.875	0	1	0	
0	0	0																			
g36X	XBR3	X-GenXY	17P	21S	3	4	1	0.5	0.5	5/8	A7	1	1	1	Short	only	0.875	0	1	0	
0	0	0																			
g36XY	XBR3	XY-GenXY	17Y	21S	3	4	1	0.5	0.5	5/8	A7	1	1	1	Short	only	0.875	0	1	0	
0	0	0																			
g36Y	XBR3	Y-GenXY	17XY	21X	3	4	1	0.5	0.5	5/8	A7	1	1	1	Short	only	0.875	0	1	0	
0	0	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	
0	0	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	
0	0	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	
0	0	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	0	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	0	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	0	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	0	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	0	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	0	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	0	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	0	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	0	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	0	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	0	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	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	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	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	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	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	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	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	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	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	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	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	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	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	0
g48P	Arm1	Y-Symmetry	1P	1X	3	6	1	1	1	5/8	A7	0	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	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	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	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	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	0	0																		
	g50P	Arm1	Y-Symmetry	3P	3X	3	6	1	1	1	5/8	A7	0	0	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	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	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	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	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	0	0																		
	g52P	Arm1	Y-Symmetry	10P	10X	3	6	1	1	1	5/8	A7	0	0	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	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	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	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
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
0	0	0																		
	g54P	Arm2	Y-Symmetry	7P	7X	3	6	1	1	1	5/8	A7	0	0	0		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
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
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
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
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
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
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
0	0	0																		
	g57P	ArmBR2R	XY-Symmetry	8P	6P	3	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0
0	0	0																		
	g57X	ArmBR2R	X-GenXY	8X	6X	3	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0
0	0	0																		
	g57XY	ArmBR2R	XY-GenXY	8X	6XY	3	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0
0	0	0																		
	g57Y	ArmBR2R	Y-GenXY	8P	6Y	3	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	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
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
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
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
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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	0
g65P	Powermnt	None	29P	28P	1	4	1	1	1	0	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	0
g67P	Powermnt	None	27P	26P	1	4	1	1	1	0	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	0
g69P	Powermnt	None	25P	24P	1	4	1	1	1	0	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	0

0	0	0																		
	g71P	Powermnt	None	23P	22P	1	4	1	1	1		0	0	0		0	0	0	0	
0	0	0																		
	g72P	fic1	X-Symmetry	30X	32X	1	4	1	1	1		0	0	0		0	0	0	0	
0	0	0																		
	g72X	fic1	X-Gen	30P	32P	1	4	1	1	1		0	0	0		0	0	0	0	
0	0	0																		
	g73P	fic1	Y-Symmetry	33P	31P	1	4	1	1	1		0	0	0		0	0	0	0	
0	0	0																		
	g73Y	fic1	Y-Gen	33Y	31Y	1	4	1	1	1		0	0	0		0	0	0	0	
0	0	0																		
	g74P	fic	X-Symmetry	32X	22P	1	4	1	1	1		0	0	0		0	0	0	0	
0	0	0																		
	g74X	fic	X-Gen	32P	22P	1	4	1	1	1		0	0	0		0	0	0	0	
0	0	0																		
	g75P	fic	X-Symmetry	30X	24P	1	4	1	1	1		0	0	0		0	0	0	0	
0	0	0																		
	g75X	fic	X-Gen	30P	24P	1	4	1	1	1		0	0	0		0	0	0	0	
0	0	0																		
	g76P	fic	Y-Symmetry	31P	24P	1	4	1	1	1		0	0	0		0	0	0	0	
0	0	0																		
	g76Y	fic	Y-Gen	31Y	24P	1	4	1	1	1		0	0	0		0	0	0	0	
0	0	0																		
	g77P	fic	Y-Symmetry	33P	22P	1	4	1	1	1		0	0	0		0	0	0	0	
0	0	0																		
	g77Y	fic	Y-Gen	33Y	22P	1	4	1	1	1		0	0	0		0	0	0	0	
0	0	0																		
	g78P	HBR5	XY-Symmetry	6X	19X	3	4	1	1	1	5/8 A7	1	1	1	Short only	0.875	0	1	0	
0	0	0																		
	g78X	HBR5	X-GenXY	6P	19S	3	4	1	1	1	5/8 A7	1	1	1	Short only	0.875	0	1	0	
0	0	0																		
	g78XY	HBR5	XY-GenXY	6Y	19S	3	4	1	1	1	5/8 A7	1	1	1	Short only	0.875	0	1	0	
0	0	0																		
	g78Y	HBR5	Y-GenXY	6XY	19X	3	4	1	1	1	5/8 A7	1	1	1	Short only	0.875	0	1	0	
0	0	0																		

Member Capacities and Overrides:

Member Label	Group Label	Design Comp. Override	Comp. Control Override	Design Tension Override	Tension Control	L/r Length (ft)	L/r Comp.	Connection Shear Capacity (kips)	Connection Bearing Capacity (kips)	Net Section Tension Capacity (kips)	Rupture Tension Capacity (kips)	RTE End Dist. Capacity (kips)	RTE Edge Dist. Capacity (kips)	Override Comp. Capacity (kips)	Warnings or Errors
		Capacity Control	Criterion Capacity	Criterion Control	Member Criterion										
g1P	LEG1	53.509	L/r 41.332	Net Sect	75	5.00	53.509	0.000	0.000	41.332	0.000	0.000	0.000	0.000	
		0.000	Automatic												
g1X	LEG1	53.509	L/r 41.332	Net Sect	75	5.00	53.509	0.000	0.000	41.332	0.000	0.000	0.000	0.000	
		0.000	Automatic												
g1XY	LEG1	53.509	L/r 41.332	Net Sect	75	5.00	53.509	0.000	0.000	41.332	0.000	0.000	0.000	0.000	
		0.000	Automatic												

g1Y	LEG1	53.509	L/r	41.332	Net Sect	75	5.00	53.509	0.000	0.000	41.332	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g2P	LEG1	48.884	L/r	41.332	Net Sect	91	6.00	48.884	0.000	0.000	41.332	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g2X	LEG1	48.884	L/r	41.332	Net Sect	91	6.00	48.884	0.000	0.000	41.332	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g2XY	LEG1	48.884	L/r	41.332	Net Sect	91	6.00	48.884	0.000	0.000	41.332	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g2Y	LEG1	48.884	L/r	41.332	Net Sect	91	6.00	48.884	0.000	0.000	41.332	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g3P	LEG1	60.236	L/r	52.676	Net Sect	45	3.00	60.236	0.000	0.000	52.676	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g3X	LEG1	60.236	L/r	52.676	Net Sect	45	3.00	60.236	0.000	0.000	52.676	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g3XY	LEG1	60.236	L/r	52.676	Net Sect	45	3.00	60.236	0.000	0.000	52.676	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g3Y	LEG1	60.236	L/r	52.676	Net Sect	45	3.00	60.236	0.000	0.000	52.676	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g4P	LEG1	60.236	L/r	41.332	Net Sect	45	3.00	60.236	0.000	0.000	41.332	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g4X	LEG1	60.236	L/r	41.332	Net Sect	45	3.00	60.236	0.000	0.000	41.332	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g4XY	LEG1	60.236	L/r	41.332	Net Sect	45	3.00	60.236	0.000	0.000	41.332	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g4Y	LEG1	60.236	L/r	41.332	Net Sect	45	3.00	60.236	0.000	0.000	41.332	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g5P	LEG1	53.509	L/r	52.676	Net Sect	75	5.00	53.509	0.000	0.000	52.676	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g5X	LEG1	53.509	L/r	52.676	Net Sect	75	5.00	53.509	0.000	0.000	52.676	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g5XY	LEG1	53.509	L/r	52.676	Net Sect	75	5.00	53.509	0.000	0.000	52.676	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g5Y	LEG1	53.509	L/r	52.676	Net Sect	75	5.00	53.509	0.000	0.000	52.676	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	65.020	Net Sect	77	5.05	65.816	0.000	0.000	65.020	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g7X	LEG2	65.816	L/r	65.020	Net Sect	77	5.05	65.816	0.000	0.000	65.020	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g7XY	LEG2	65.816	L/r	65.020	Net Sect	77	5.05	65.816	0.000	0.000	65.020	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g7Y	LEG2	65.816	L/r	65.020	Net Sect	77	5.05	65.816	0.000	0.000	65.020	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g8P	LEG2	74.382	L/r	65.020	Net Sect	46	6.06	74.382	0.000	0.000	65.020	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g8X	LEG2	74.382	L/r	65.020	Net Sect	46	6.06	74.382	0.000	0.000	65.020	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g8XY	LEG2	74.382	L/r	65.020	Net Sect	46	6.06	74.382	0.000	0.000	65.020	0.000	0.000	0.000	0.000

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0.000             0.000          Automatic
    g8Y     LEG2   74.382       L/r   65.020  Net Sect      46   6.06   74.382      0.000      0.000   65.020    0.000    0.000    0.000    0.000
0.000             0.000          Automatic
    g9P     LEG2   73.260       L/r   64.878  Net Sect      51   6.72   73.260    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   73.260       L/r   64.878  Net Sect      51   6.72   73.260    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   73.260       L/r   64.878  Net Sect      51   6.72   73.260    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   73.260       L/r   64.878  Net Sect      51   6.72   73.260    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   85.776       L/r   77.364  Net Sect      56  14.77   85.776    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   85.776       L/r   77.364  Net Sect      56  14.77   85.776    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   85.776       L/r   77.364  Net Sect      56  14.77   85.776    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   85.776       L/r   77.364  Net Sect      56  14.77   85.776    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   85.526       L/r   77.364  Net Sect      57  22.43   85.526    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   85.526       L/r   77.364  Net Sect      57  22.43   85.526    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   85.526       L/r   77.364  Net Sect      57  22.43   85.526    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   85.526       L/r   77.364  Net Sect      57  22.43   85.526    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   75.789       L/r   65.020  Net Sect      39   5.10   75.789    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   75.789       L/r   65.020  Net Sect      39   5.10   75.789    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   75.789       L/r   65.020  Net Sect      39   5.10   75.789    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   75.789       L/r   65.020  Net Sect      39   5.10   75.789    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
   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
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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
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
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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.  ??
  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
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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
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											
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
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**

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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.  ??
   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
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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  ArmBR2R    0.100       L/r   10.470     Shear    1373  12.38    0.100     10.470     21.094   11.834    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  ArmBR2R    0.100       L/r   10.470     Shear    1373  12.38    0.100     10.470     21.094   11.834    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  ArmBR2R    0.100       L/r   10.470     Shear    1373  12.38    0.100     10.470     21.094   11.834    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  ArmBR2R    0.100       L/r   10.470     Shear    1373  12.38    0.100     10.470     21.094   11.834    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
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.  ??
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  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
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
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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. ??
g72P fic1 0.000 L/r 3.600 Net Sect 2160000 18.00 0.000 0.000 0.000 3.600 0.000 0.000 0.000 0.000
0.000 0.000 Automatic
g72X fic1 0.000 L/r 3.600 Net Sect 2160000 18.00 0.000 0.000 0.000 3.600 0.000 0.000 0.000 0.000
0.000 0.000 Automatic
g73P fic1 0.000 L/r 3.600 Net Sect 2160000 18.00 0.000 0.000 0.000 3.600 0.000 0.000 0.000 0.000
0.000 0.000 Automatic
g73Y fic1 0.000 L/r 3.600 Net Sect 2160000 18.00 0.000 0.000 0.000 3.600 0.000 0.000 0.000 0.000
0.000 0.000 Automatic
g74P fic 0.000 L/r 3.600 Net Sect 60000 0.50 0.000 0.000 0.000 3.600 0.000 0.000 0.000 0.000
0.000 0.000 Automatic
g74X fic 0.000 L/r 3.600 Net Sect 60000 0.50 0.000 0.000 0.000 3.600 0.000 0.000 0.000 0.000
0.000 0.000 Automatic
g75P fic 0.000 L/r 3.600 Net Sect 60000 0.50 0.000 0.000 0.000 3.600 0.000 0.000 0.000 0.000
0.000 0.000 Automatic
g75X fic 0.000 L/r 3.600 Net Sect 60000 0.50 0.000 0.000 0.000 3.600 0.000 0.000 0.000 0.000
0.000 0.000 Automatic
g76P fic 0.000 L/r 3.600 Net Sect 60000 0.50 0.000 0.000 0.000 3.600 0.000 0.000 0.000 0.000
0.000 0.000 Automatic
g76Y fic 0.000 L/r 3.600 Net Sect 60000 0.50 0.000 0.000 0.000 3.600 0.000 0.000 0.000 0.000
0.000 0.000 Automatic
g77P fic 0.000 L/r 3.600 Net Sect 60000 0.50 0.000 0.000 0.000 3.600 0.000 0.000 0.000 0.000
0.000 0.000 Automatic
g77Y fic 0.000 L/r 3.600 Net Sect 60000 0.50 0.000 0.000 0.000 3.600 0.000 0.000 0.000 0.000
0.000 0.000 Automatic
g78P HBR5 10.470 Shear 7.717 Rupture 87 2.50 14.114 10.470 10.547 14.585 7.717 0.000 0.000 0.000
0.000 0.000 Automatic
g78X HBR5 10.470 Shear 7.717 Rupture 87 2.50 14.114 10.470 10.547 14.585 7.717 0.000 0.000 0.000
0.000 0.000 Automatic
g78XY HBR5 10.470 Shear 7.717 Rupture 87 2.50 14.114 10.470 10.547 14.585 7.717 0.000 0.000 0.000
0.000 0.000 Automatic
g78Y HBR5 10.470 Shear 7.717 Rupture 87 2.50 14.114 10.470 10.547 14.585 7.717 0.000 0.000 0.000
0.000 0.000 Automatic

The model contains 253 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	0.0381	2.067	1.467
7P	0.113	6.408	4.695
8P	0.0865	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	4.785	4.785
23P	0.446	9.563	9.563
24P	0.369	8.483	8.483
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
30P	4.62e-005	0.077	0.075
31P	4.62e-005	0.075	0.077
32P	4.62e-005	0.077	0.075
33P	4.62e-005	0.075	0.077
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	0.0381	2.067	1.467
6XY	0.0381	2.067	1.467
6Y	0.0381	2.067	1.467
7X	0.113	6.408	4.695
7XY	0.113	6.408	4.695
7Y	0.113	6.408	4.695
8X	0.0865	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

30X	4.62e-005	0.077	0.075
31Y	4.62e-005	0.075	0.077
32X	4.62e-005	0.077	0.075
33Y	4.62e-005	0.075	0.077
18S	0.0277	2.317	1.500
19S	0.0293	1.500	2.317
20S	0.0943	6.285	1.262
21S	0.0943	1.262	6.285
18Y	0.0277	2.317	1.500
19X	0.0293	1.500	2.317
20Y	0.0943	6.285	1.262
21X	0.0943	1.262	6.285
Total	13.2	499.536	456.034

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	1.210	35.575	25.783	7.325	1.700
2	5.344	251.672	217.963	118.987	93.298
3	6.669	212.288	212.288	120.189	120.189
Total	13.223	499.536	456.034	246.500	215.187

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	1.210	1.210	165.438	165.438
2	5.344	5.611	1027.681	1079.065
3	6.669	7.336	962.726	1058.999
Total	13.223	14.157	2155.845	2303.502

Section Joint Information:

Section Label	Joint Label	Joint Elevation (ft)
1	1P	86.000
1	1Y	86.000
1	1X	86.000
1	1XY	86.000
1	2P	86.000
1	2X	86.000
1	24P	86.000
1	23P	95.000
1	22P	104.000
1	30X	86.000
1	32X	104.000
1	30P	86.000
1	32P	104.000
1	33P	104.000
1	31P	86.000
1	33Y	104.000
1	31Y	86.000

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2    1P    86.000
2    3P    81.000
2    1X    86.000
2    3X    81.000
2   1XY    86.000
2   3XY    81.000
2    1Y    86.000
2    3Y    81.000
2    5P    75.000
2    5X    75.000
2   5XY    75.000
2    5Y    75.000
2    6P    72.000
2    6X    72.000
2   6XY    72.000
2    6Y    72.000
2    7P    69.000
2    7X    69.000
2   7XY    69.000
2    7Y    69.000
2    9P    64.000
2    9X    64.000
2   9XY    64.000
2    9Y    64.000
2   10P    59.000
2   10X    59.000
2  10XY    59.000
2   10Y    59.000
2   12P    54.047
2   12X    54.047
2  12XY    54.047
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
2   18S    72.000
2   18Y    72.000
2   19X    72.000
2   19S    72.000
2    4P    81.000
2    4X    81.000
2   11P    59.000
2   11X    59.000
2    8P    69.000
2    8X    69.000
2    2P    86.000
2    2X    86.000
2   25P    81.000
2   26P    69.000
2   27P    59.000
2   24P    86.000
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	86.000	17	26	1.00	5.00	36.000	1.00	27.50	137.250
2	86.000	41.500	56	173	5.00	9.81	264.882	27.50	9.81	431.382
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\1715900.wi\06_ct03xc333 fairfield\04_structural\backup documentation\calcs\rev (2)\pls tower\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	

Load distributed evenly among joints in section for section based load cases

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 2012	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 2012	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
2P	1350	875	1150	Shield Wire
2X	2325	1100	0	Shield Wire
4P	3600	1300	50	Conductor
4X	3600	1300	2200	Conductor
8P	3600	1300	600	Conductor
8X	3600	1300	625	Conductor
11P	3600	1300	1275	Conductor
11X	3600	1300	1175	Conductor
1P	174	57	0	AT&T Antennas
3P	174	57	0	AT&T Antennas
1X	174	57	0	AT&T Antennas
3X	174	57	0	AT&T Antennas
1XY	174	57	0	AT&T Antennas
3XY	174	57	0	AT&T Antennas
3P	276	103	0	AT&T Coax (on tower leg)

7P	506	189	0	AT&T Coax (on tower leg)
10P	621	232	0	AT&T Coax (on tower leg)
14P	736	275	0	AT&T Coax (on tower leg)
15P	851	318	0	AT&T Coax (on tower leg)
16P	736	275	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	0	0	T-Mobile Coax (on powermount exterior)
24P	241	0	0	T-Mobile Coax (on powermount exterior)
25P	293	0	0	T-Mobile Coax (on powermount exterior)
26P	379	0	0	T-Mobile Coax (on powermount exterior)
27P	723	0	0	T-Mobile Coax (on powermount exterior)
28P	1480	0	0	T-Mobile Coax (on powermount exterior)
22P	2184	466	0	Sprint Antennas
23P	1893	774	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	86.00	95.00	10.00	10.00	3.200	54.4	0.00	3.200	0.0	0	1814
2	86.00	41.50	63.75	10.00	10.00	3.200	2985.5	0.00	3.200	0.0	0	8417
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
2P	500	600	425	Shield Wire
2X	1050	1225	0	Shield Wire
4P	1775	1725	250	Conductor
4X	1730	1700	1275	Conductor
8P	1775	1675	75	Conductor
8X	1725	1650	500	Conductor
11P	1750	1625	425	Conductor
11X	1750	1600	400	Conductor
1P	78	196	0	AT&T Antennas

3P	78	196	0	AT&T Antennas
1X	78	196	0	AT&T Antennas
3X	78	196	0	AT&T Antennas
1XY	78	196	0	AT&T Antennas
3XY	78	196	0	AT&T Antennas
3P	75	300	0	AT&T Coax (on tower leg)
7P	137	549	0	AT&T Coax (on tower leg)
10P	168	674	0	AT&T Coax (on tower leg)
14P	200	799	0	AT&T Coax (on tower leg)
15P	231	924	0	AT&T Coax (on tower leg)
16P	200	799	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	0	0	T-Mobile Coax (on powermount exterior)
24P	55	0	0	T-Mobile Coax (on powermount exterior)
25P	67	0	0	T-Mobile Coax (on powermount exterior)
26P	87	0	0	T-Mobile Coax (on powermount exterior)
27P	166	0	0	T-Mobile Coax (on powermount exterior)
28P	341	0	0	T-Mobile Coax (on powermount exterior)
22P	1083	1751	0	Sprint Antennas
23P	810	2980	0	T-Mobile Antennas
3X	137	92	0	Sprint Coax (on tower leg)
7X	137	92	0	Sprint Coax (on tower leg)
10X	168	112	0	Sprint Coax (on tower leg)
14X	200	133	0	Sprint Coax (on tower leg)
15X	231	154	0	Sprint Coax (on tower leg)
16X	200	133	0	Sprint Coax (on tower leg)
3Y	44	72	0	T-Mobile Coax (on tower leg)
7Y	44	72	0	T-Mobile Coax (on tower leg)
10Y	53	88	0	T-Mobile Coax (on tower leg)
14Y	63	104	0	T-Mobile Coax (on tower leg)
15Y	73	120	0	T-Mobile Coax (on tower leg)
16Y	63	104	0	T-Mobile Coax (on tower leg)

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

Section Label	Z Top (ft)	Z Bottom (ft)	Ave. Elev. Above Ground (ft)	Res. Wind Pres. (psf)	Tran Wind Pres. (psf)	Tran Angle Face Area (ft^2)	Tran Round Face Area (ft^2)	Tran Gross Area (ft^2)	Tran Soli- dity Ratio	Tran Drag Coef	Tran Round Drag Coef	Tran Wind Load (lbs)	Long Wind Pres. (psf)	Long Angle Face Area (ft^2)	Long Round Face Area (ft^2)	Long Gross Area (ft^2)	Long Soli- dity Ratio	Long Drag Coef	Long Round Drag Coef	Long Wind Load (lbs)	Ice Weight (lbs)	Total Weight (lbs)
1	104.00	86.00	95.00	31.51	31.51	1.25	0.45	36.00	0.047	3.200	2.000	154.4	0.00	6.88	0.45	137.25	0.053	3.200	2.000	0.0	0	1210
2	86.00	41.50	63.75	31.51	31.51	93.30	0.00	264.88	0.352	3.200	2.000	9407.9	0.00	118.99	0.00	431.38	0.276	3.200	2.000	0.0	0	5611
3	41.50	0.00	20.75	31.51	31.51	126.20	0.00	646.56	0.195	3.200	2.000	12725.5	0.00	126.20	0.00	646.56	0.195	3.200	2.000	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
2P	1350	0	1150	Shield Wire
2X	2325	0	0	Shield Wire
4P	3600	0	50	Conductor
4X	3600	0	2200	Conductor
8P	3600	0	600	Conductor
8X	3600	0	625	Conductor
11P	3600	0	1275	Conductor
11X	3600	0	1175	Conductor
1P	174	0	57	AT&T Antennas
3P	174	0	57	AT&T Antennas
1X	174	0	57	AT&T Antennas
3X	174	0	57	AT&T Antennas
1XY	174	0	57	AT&T Antennas
3XY	174	0	57	AT&T Antennas
3P	276	0	103	AT&T Coax (on tower leg)
7P	506	0	189	AT&T Coax (on tower leg)
10P	621	0	232	AT&T Coax (on tower leg)
14P	736	0	275	AT&T Coax (on tower leg)
15P	851	0	318	AT&T Coax (on tower leg)
16P	736	0	275	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	2184	0	466	Sprint Antennas
23P	1893	0	774	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	86.00	95.00	10.00	10.00	3.200	54.4	0.00	3.200	0.0	0	1814
2	86.00	41.50	63.75	10.00	10.00	3.200	2985.5	0.00	3.200	0.0	0	8417
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":

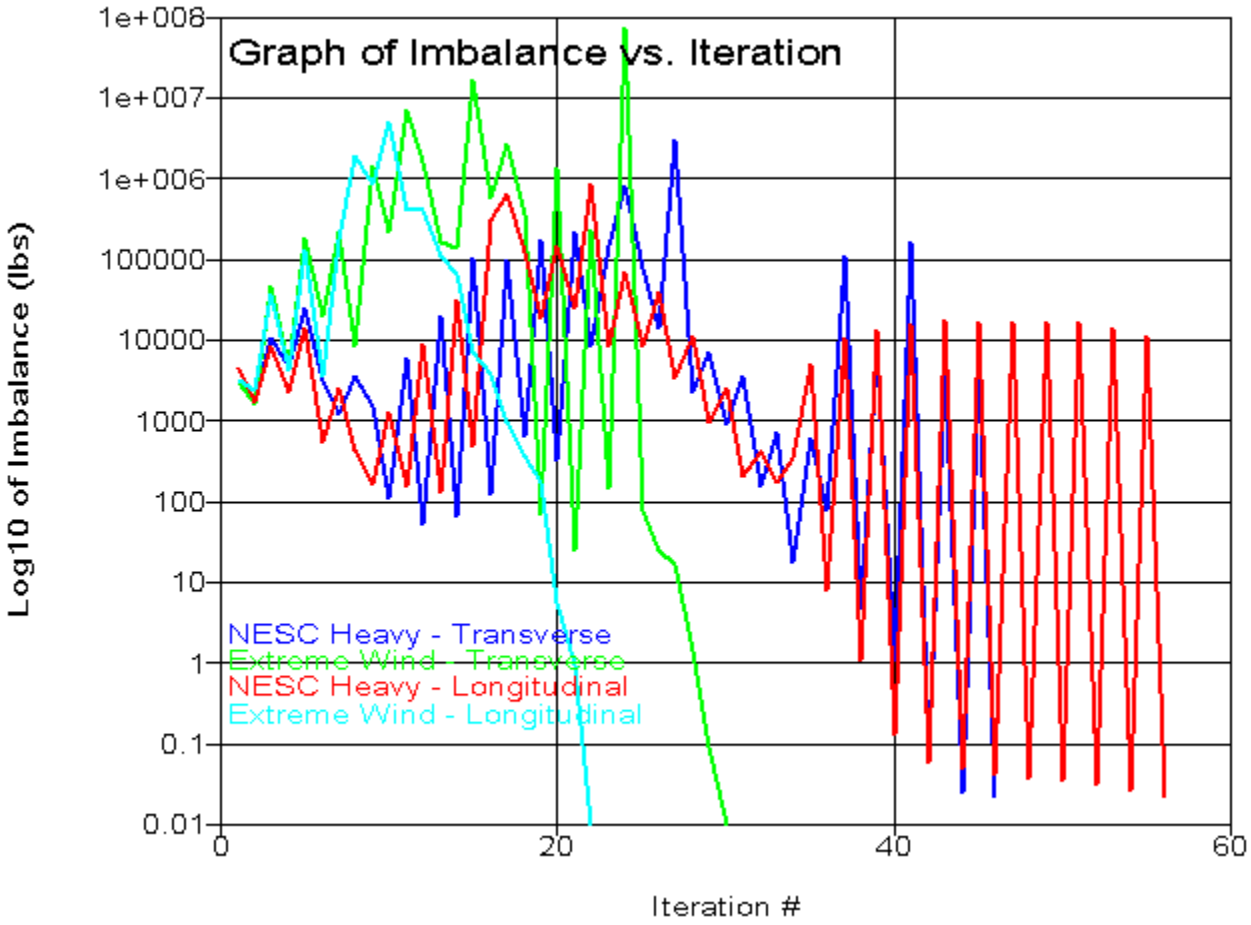
Joint Label	Vertical Load (lbs)	Transverse Load (lbs)	Longitudinal Load (lbs)	Load Comment
2P	500	0	425	Shield Wire
2X	1050	0	0	Shield Wire
4P	1775	0	250	Conductor
4X	1730	0	1275	Conductor
8P	1775	0	75	Conductor
8X	1725	0	500	Conductor
11P	1750	0	425	Conductor
11X	1750	0	400	Conductor
1P	78	0	196	AT&T Antennas
3P	78	0	196	AT&T Antennas
1X	78	0	196	AT&T Antennas
3X	78	0	196	AT&T Antennas
1XY	78	0	196	AT&T Antennas
3XY	78	0	196	AT&T Antennas
3P	75	0	300	AT&T Coax (on tower leg)
7P	137	0	549	AT&T Coax (on tower leg)
10P	168	0	674	AT&T Coax (on tower leg)
14P	200	0	799	AT&T Coax (on tower leg)
15P	231	0	924	AT&T Coax (on tower leg)
16P	200	0	799	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	195	T-Mobile Coax (on powermount exterior)
24P	55	0	274	T-Mobile Coax (on powermount exterior)
25P	67	0	332	T-Mobile Coax (on powermount exterior)
26P	87	0	430	T-Mobile Coax (on powermount exterior)
27P	166	0	821	T-Mobile Coax (on powermount exterior)
28P	341	0	1680	T-Mobile Coax (on powermount exterior)
22P	1083	0	1751	Sprint Antennas
23P	810	0	2980	T-Mobile Antennas
3X	137	0	1098	Sprint Coax (on tower leg)
7X	137	0	1098	Sprint Coax (on tower leg)
10X	168	0	1348	Sprint Coax (on tower leg)
14X	200	0	1597	Sprint Coax (on tower leg)
15X	231	0	1847	Sprint Coax (on tower leg)
16X	200	0	1597	Sprint Coax (on tower leg)
3Y	44	0	430	T-Mobile Coax (on tower leg)
7Y	44	0	430	T-Mobile Coax (on tower leg)
10Y	53	0	528	T-Mobile Coax (on tower leg)
14Y	63	0	625	T-Mobile Coax (on tower leg)
15Y	73	0	723	T-Mobile Coax (on tower leg)
16Y	63	0	625	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 Round Face Area (ft^2)	Tran Gross Area (ft^2)	Tran Soli- dity Ratio	Tran Angle Drag Coef	Tran Round Drag Coef	Tran Wind Load (lbs)	Long Adj. Wind Pres. (psf)	Long Angle Face Area (ft^2)	Long Round Face Area (ft^2)	Long Gross Area (ft^2)	Long Soli- dity Ratio	Long Angle Drag Coef	Long Round Drag Coef	Long Wind Load (lbs)	Ice Weight (lbs)	Total Weight
1	104.00	86.00	95.00	31.51	31.51	1.25	0.45	36.00	0.047	3.200	2.000	154.4	0.00	6.88	0.45	137.25	0.053	3.200	2.000	0.0	0	1210
2	86.00	41.50	63.75	31.51	31.51	93.30	0.00	264.88	0.352	3.200	2.000	9407.9	0.00	118.99	0.00	431.38	0.276	3.200	2.000	0.0	0	5611
3	41.50	0.00	20.75	31.51	31.51	126.20	0.00	646.56	0.195	3.200	2.000	12725.5	0.00	126.20	0.00	646.56	0.195	3.200	2.000	0.0	0	7336

*** Analysis Results:

Maximum element usage is 97.15% for Angle "g6X" in load case "Extreme Wind - Transverse"
Maximum insulator usage is 15.43% for Clamp "30" in load case "NESC Heavy - Longitudinal"



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	8.83	3.640	-4.726	-0.518	3.640	-3.093	-4.726
LEG1	g1X	11.48	0.000	-6.145	-4.475	-6.145	-4.150	-6.089
LEG1	g1XY	12.09	1.865	-6.467	-4.841	-6.467	-2.280	1.865
LEG1	g1Y	9.13	3.775	-0.308	0.062	3.775	-0.308	3.571

LEG1	g2P	32.97	13.626	-9.968	2.790	13.626	-5.319	-9.968
LEG1	g2X	31.60	0.000	-15.449	-11.192	-15.449	-9.334	-14.354
LEG1	g2XY	27.81	9.835	-13.594	-7.318	-13.594	0.687	9.835
LEG1	g2Y	37.32	15.424	0.000	6.576	15.424	4.646	14.278
LEG1	g3P	34.09	17.960	-16.762	2.751	17.960	-10.323	-16.762
LEG1	g3X	46.35	0.000	-27.921	-18.190	-27.921	-13.891	-24.623
LEG1	g3XY	39.66	10.607	-23.891	-10.945	-23.891	2.066	10.607
LEG1	g3Y	40.74	21.462	0.000	9.952	21.462	5.745	18.237
LEG1	g4P	41.04	16.964	-17.744	0.938	16.964	-12.130	-17.744
LEG1	g4X	47.90	0.000	-28.853	-20.031	-28.853	-15.737	-25.562
LEG1	g4XY	41.42	9.535	-24.949	-12.951	-24.949	0.054	9.535
LEG1	g4Y	49.37	20.407	0.000	7.908	20.407	3.694	17.153
LEG1	g5P	52.91	27.872	-20.339	4.037	27.872	-15.319	-20.339
LEG1	g5X	76.02	0.000	-40.679	-29.089	-40.679	-21.726	-34.762
LEG1	g5XY	62.44	14.762	-33.409	-16.316	-33.409	2.691	14.762
LEG1	g5Y	63.08	33.228	0.000	15.095	33.228	7.968	27.115
LEG1	g6P	66.97	35.279	-23.097	5.785	35.279	-18.579	-23.097
LEG1	g6X	97.15	0.000	-51.984	-37.483	-51.984	-27.499	-44.044
LEG1	g6XY	76.40	17.279	-40.882	-19.727	-40.882	3.895	17.279
LEG1	g6Y	77.43	40.787	0.000	18.631	40.787	9.296	32.829
LEG2	g7P	62.88	40.885	-24.464	7.646	40.885	-20.452	-24.464
LEG2	g7X	88.31	0.000	-58.119	-42.268	-58.119	-30.938	-50.121
LEG2	g7XY	68.20	20.629	-44.887	-19.744	-44.887	7.773	20.629
LEG2	g7Y	74.62	48.519	0.000	24.931	48.519	13.869	39.670
LEG2	g8P	64.91	42.203	-25.644	6.711	42.203	-23.102	-25.644
LEG2	g8X	83.89	0.000	-62.401	-46.475	-62.401	-34.133	-53.832
LEG2	g8XY	67.22	19.609	-49.999	-22.801	-49.999	7.469	19.609
LEG2	g8Y	80.94	52.628	0.000	28.049	52.628	15.271	42.356
LEG2	g9P	63.21	41.012	-23.660	6.494	41.012	-22.482	-23.660
LEG2	g9X	81.78	0.000	-59.911	-45.099	-59.911	-33.294	-52.317
LEG2	g9XY	67.08	17.880	-49.141	-22.621	-49.141	7.341	17.880
LEG2	g9Y	80.99	52.542	0.000	28.834	52.542	15.789	42.029
LEG3	g10P	46.75	36.165	-25.587	3.240	36.165	-24.073	-25.587
LEG3	g10X	75.57	0.000	-64.822	-48.611	-64.822	-36.682	-58.056
LEG3	g10XY	63.54	12.339	-54.505	-24.847	-54.505	5.232	12.339
LEG3	g10Y	63.24	48.924	0.000	28.528	48.924	16.076	41.053
LEG3	g11P	49.86	38.577	-28.863	2.471	38.577	-28.531	-28.863
LEG3	g11X	81.25	0.000	-69.493	-51.864	-69.493	-38.268	-60.523
LEG3	g11XY	67.88	9.284	-58.051	-27.772	-58.051	3.865	9.284
LEG3	g11Y	67.56	52.268	0.000	29.117	52.268	17.047	46.793
LEG2	g12P	71.12	46.241	-29.862	4.392	46.241	-29.862	-29.148
LEG2	g12X	92.21	0.000	-69.885	-52.974	-69.885	-39.392	-60.924
LEG2	g12XY	76.85	10.257	-58.247	-28.158	-58.247	3.252	10.257
LEG2	g12Y	91.23	59.319	0.000	31.775	59.319	20.935	57.057
XBR1	g13P	66.63	0.000	-7.702	-4.366	-7.702	-2.312	-1.992
XBR1	g13X	47.11	6.871	0.000	2.895	6.871	0.596	0.261
XBR1	g13XY	45.89	6.693	0.000	2.122	6.693	0.074	1.003
XBR1	g13Y	59.09	0.000	-6.830	-2.320	-6.830	-0.064	-0.358
XBR1	g14P	40.24	5.870	-0.362	-0.362	-0.296	1.388	5.870
XBR1	g14X	42.35	6.177	0.000	1.072	0.864	2.424	6.177
XBR1	g14XY	51.09	0.059	-5.905	-0.817	0.059	-2.509	-5.905
XBR1	g14Y	49.86	0.000	-5.764	-0.558	-0.448	-1.914	-5.764
XBR2	g15P	27.80	0.781	-4.803	-1.817	-4.803	0.781	0.277
XBR2	g15X	25.76	5.900	0.000	2.964	5.900	0.465	1.258
XBR2	g15XY	26.39	6.044	0.000	3.447	6.044	1.042	1.652
XBR2	g15Y	30.18	0.000	-5.214	-2.746	-5.214	-0.450	-1.190
XBR2	g16P	13.16	2.087	-1.611	0.340	-1.611	1.505	2.087
XBR2	g16X	15.23	1.177	-1.865	-1.099	-1.865	-0.213	1.177
XBR2	g16XY	49.86	0.000	-6.103	-2.973	-2.899	-3.911	-6.103

XBR2 g16Y	40.53	0.000	-7.001	-2.932	-3.467	-3.896	-7.001
XBR3 g17P	35.40	0.000	-6.108	-3.117	-6.108	-0.802	-2.056
XBR3 g17X	21.64	4.957	-0.991	1.660	4.957	-0.991	-0.181
XBR3 g17XY	23.66	5.418	0.000	2.879	5.418	0.773	1.843
XBR3 g17Y	35.54	0.000	-6.133	-3.368	-6.133	-0.886	-1.387
XBR3 g18P	29.22	6.692	0.000	2.569	2.884	3.673	6.692
XBR3 g18X	25.85	5.919	0.000	3.021	3.334	3.734	5.919
XBR3 g18XY	10.13	2.320	-1.065	1.187	2.320	0.150	-1.065
XBR3 g18Y	12.07	1.034	-2.082	-0.698	1.034	-1.647	-2.082
XBR3 g19P	23.29	5.334	-0.853	1.869	5.334	-0.853	0.029
XBR3 g19X	38.39	0.000	-6.624	-3.389	-6.624	-1.002	-2.400
XBR3 g19XY	39.54	0.000	-6.823	-3.446	-6.823	-0.847	-1.787
XBR3 g19Y	26.07	5.969	0.000	2.895	5.969	0.677	2.115
XBR3 g20P	14.11	0.874	-2.435	-0.851	0.874	-1.848	-2.435
XBR3 g20X	9.64	2.208	-1.380	0.982	2.208	-0.108	-1.380
XBR3 g20XY	26.64	6.102	0.000	3.168	3.323	3.932	6.102
XBR3 g20Y	30.18	6.911	0.000	2.661	2.915	3.812	6.911
XBR2 g21P	32.45	1.088	-6.161	-2.108	-6.161	1.088	-0.813
XBR2 g21X	34.03	7.793	0.000	5.079	7.793	1.620	1.887
XBR2 g21XY	37.06	8.487	0.000	5.816	8.487	3.026	3.914
XBR2 g21Y	33.81	1.334	-6.419	-1.745	-6.419	1.334	-1.117
XBR2 g22P	24.95	5.713	0.000	2.405	2.510	3.047	5.713
XBR2 g22X	12.59	2.883	-1.156	0.154	-1.156	1.674	2.883
XBR2 g22XY	21.19	0.000	-4.024	-2.046	-1.566	-2.616	-4.024
XBR2 g22Y	30.13	0.000	-5.720	-1.919	-0.764	-3.526	-5.720
XBR2 g23P	36.86	0.011	-6.999	-2.882	-6.999	0.011	-2.500
XBR2 g23X	34.55	7.912	0.000	4.873	7.912	1.143	0.771
XBR2 g23XY	37.73	8.640	0.000	6.279	8.640	3.775	5.363
XBR2 g23Y	32.56	2.334	-6.181	-1.077	-6.181	2.334	-0.009
XBR2 g24P	24.48	5.607	-0.147	0.732	-0.147	2.658	5.607
XBR2 g24X	17.97	4.115	0.000	1.436	1.751	1.959	4.115
XBR2 g24XY	21.25	0.889	-4.035	-1.528	0.889	-3.431	-4.035
XBR2 g24Y	36.87	0.000	-7.001	-4.092	-3.526	-4.728	-7.001
XBR4 g25P	18.55	0.000	-2.015	-1.666	-0.697	-1.587	-2.015
XBR4 g25X	21.98	0.000	-2.388	-1.209	-1.017	-2.026	-2.388
XBR4 g25XY	17.38	2.648	0.000	1.008	0.943	0.806	2.648
XBR4 g25Y	11.03	0.000	-1.382	-1.342	-1.382	-0.471	-0.365
XBR4 g26P	27.27	0.278	-2.962	-1.269	-2.962	0.278	-0.307
XBR4 g26X	17.24	2.627	-0.347	1.685	2.627	0.387	-0.347
XBR4 g26XY	14.38	2.192	-0.310	0.414	2.192	-0.310	1.266
XBR4 g26Y	27.62	0.000	-3.000	-2.003	-3.000	-1.173	-1.140
XBR5 g27P	8.15	1.528	0.000	0.657	0.513	1.262	1.528
XBR5 g27X	8.25	1.547	0.000	1.052	0.488	1.014	1.547
XBR5 g27XY	5.83	1.093	0.000	0.894	1.093	0.284	0.534
XBR5 g27Y	18.85	0.000	-2.198	-1.031	-0.998	-0.839	-2.198
XBR5 g28P	11.17	2.095	0.000	1.392	2.095	0.816	0.727
XBR5 g28X	16.41	0.174	-1.459	-0.259	-1.459	0.174	-1.039
XBR5 g28XY	20.28	0.272	-1.803	-1.243	-1.803	-0.336	0.272
XBR5 g28Y	11.36	2.131	-0.247	0.885	2.131	-0.247	0.204
XBR5 g29P	19.13	0.000	-1.322	-1.026	-0.845	-0.864	-1.322
XBR5 g29X	11.86	0.000	-0.820	-0.336	-0.022	-0.820	-0.751
XBR5 g29XY	9.51	1.783	0.000	0.862	1.090	0.602	1.783
XBR5 g29Y	15.38	0.000	-1.357	-0.978	-1.357	-0.448	-0.816
XBR5 g30P	19.41	0.285	-1.341	-0.503	-1.341	0.285	0.011
XBR5 g30X	6.09	1.141	-0.159	0.872	1.141	0.307	-0.159
XBR5 g30XY	4.37	0.820	-0.232	0.018	0.820	-0.232	0.570
XBR5 g30Y	20.90	0.000	-1.444	-1.034	-1.444	-0.722	-0.709
XBR6 g31P	0.00	0.000	0.000	0.000	0.000	0.000	0.000
XBR6 g31X	19.03	3.623	0.000	1.214	3.623	0.280	2.358

XBR6 g31XY	31.06	5.914	0.000	1.249	4.173	2.132	5.914
XBR6 g31Y	38.08	1.430	-0.859	-0.859	0.000	0.750	1.430
XBR6 g32P	13.30	2.532	0.000	0.229	0.002	1.386	2.532
XBR6 g32X	31.65	6.026	-0.186	2.519	6.026	-0.186	1.511
XBR6 g32XY	53.36	5.735	-1.204	1.802	5.735	-1.204	0.461
XBR6 g32Y	0.00	0.000	0.000	0.000	0.000	0.000	0.000
XBR7 g33P	0.00	0.000	0.000	0.000	0.000	0.000	0.000
XBR7 g33X	34.32	5.006	-0.203	2.094	5.006	-0.203	0.402
XBR7 g33XY	50.08	7.304	0.000	2.199	3.954	3.009	7.304
XBR7 g33Y	43.60	0.000	-0.463	0.000	0.000	-0.463	-0.302
XBR7 g34P	12.74	1.859	0.000	0.000	0.000	0.231	1.859
XBR7 g34X	42.05	6.134	0.000	2.064	5.518	2.757	6.134
XBR7 g34XY	36.84	5.374	0.000	1.789	5.374	0.000	0.000
XBR7 g34Y	0.00	0.000	0.000	0.000	0.000	0.000	0.000
XBR3 g35P	37.38	2.884	-0.045	0.824	2.884	-0.045	1.006
XBR3 g35X	37.01	0.000	-3.649	-1.242	-3.649	-0.389	-1.827
XBR3 g35XY	37.34	0.000	-3.682	-1.122	-2.922	-1.353	-3.682
XBR3 g35Y	39.06	3.015	0.000	0.761	2.186	1.014	3.015
XBR3 g36P	20.09	0.000	-1.981	-0.176	-0.566	-0.549	-1.981
XBR3 g36X	27.67	0.000	-2.728	-0.184	-0.191	-1.181	-2.728
XBR3 g36XY	30.68	2.368	-0.085	-0.017	-0.085	0.933	2.368
XBR3 g36Y	11.64	0.898	-0.603	-0.264	-0.603	0.158	0.898
HBR1 g37P	82.67	0.000	-4.794	-2.575	-4.794	-1.542	-0.847
HBR1 g37X	37.99	2.932	-1.836	-0.838	2.932	-1.836	-0.925
HBR1 g38P	55.36	4.272	0.000	3.232	4.272	2.460	1.765
HBR1 g38X	36.81	2.840	-0.388	1.975	-0.388	2.840	2.491
HBR1 g39P	19.92	1.537	0.000	1.537	0.662	1.146	0.099
HBR1 g39X	24.69	1.906	-0.804	1.322	-0.804	1.906	0.277
HBR1 g40P	42.33	3.267	0.000	2.330	3.267	1.034	0.843
HBR1 g40X	39.17	1.173	-2.272	-0.204	-2.272	1.173	0.526
HBR2 g41P	47.57	0.383	-4.981	-1.976	-4.981	0.383	-0.860
HBR2 g41X	10.57	0.816	-0.206	0.310	0.816	-0.206	0.009
HBR2 g42P	14.17	0.186	-1.484	-0.364	-1.484	0.186	-0.273
HBR2 g42Y	29.02	0.000	-3.039	-0.320	-1.589	-1.267	-3.039
HBR3 g43P	50.17	0.000	-5.253	-2.062	-5.253	-0.562	-1.701
HBR3 g43X	11.82	1.237	0.000	0.479	1.237	0.267	0.518
HBR3 g44P	16.22	0.275	-1.698	-0.940	-1.698	-0.015	0.275
HBR3 g44Y	34.20	0.000	-3.581	-0.543	-1.166	-1.543	-3.581
HBR4 g45P	41.97	0.000	-4.394	-1.881	-4.394	-0.382	-1.107
HBR4 g45X	9.18	0.961	-0.071	-0.013	0.961	-0.071	0.901
HBR4 g45XY	8.24	0.862	-0.021	-0.021	0.852	0.133	0.862
HBR4 g45Y	44.32	0.000	-4.640	-1.724	-3.214	-2.008	-4.640
HBR4 g46P	27.81	0.648	-2.912	-1.088	-2.912	0.134	0.648
HBR4 g46X	16.06	1.681	-0.047	-0.047	0.163	0.445	1.681
HBR4 g46XY	8.81	0.197	-0.923	0.033	0.197	-0.195	-0.923
HBR4 g46Y	37.83	0.000	-3.960	-1.239	-3.008	-1.778	-3.960
Arm1 g47P	13.31	0.000	-2.543	-2.543	-1.111	-2.095	-0.809
Arm1 g47X	4.92	1.544	0.000	1.544	1.215	0.967	0.569
Arm1 g47XY	4.99	1.567	0.000	1.567	1.219	1.011	0.613
Arm1 g47Y	10.29	3.231	0.000	2.773	0.848	3.231	1.171
Arm1 g48P	15.12	6.538	0.000	3.568	2.044	4.763	6.538
Arm1 g48Y	14.21	6.141	-1.603	6.141	3.182	4.844	-1.603
Arm1 g49P	20.10	0.000	-5.731	-5.731	-3.685	-5.143	-3.142
Arm1 g49X	29.28	0.000	-8.349	-7.518	-3.316	-8.349	-4.680
Arm1 g49XY	10.46	0.000	-2.982	-2.391	-0.274	-2.982	-0.797
Arm1 g49Y	16.68	0.000	-4.755	-4.755	-2.748	-3.961	-1.478
Arm1 g50P	27.16	0.000	-7.122	-6.407	-3.848	-7.122	-6.550
Arm1 g50Y	14.30	0.656	-3.750	-3.750	-1.928	-3.053	0.656
Arm1 g51P	17.65	0.000	-4.886	-4.886	-2.615	-3.793	-0.800

Arm1	g51X	14.18	0.000	-3.926	-3.592	-1.044	-3.926	-0.661
Arm1	g51XY	7.74	0.000	-2.144	-0.956	-0.013	-2.026	-2.144
Arm1	g51Y	9.09	0.000	-2.516	-2.516	-2.304	-2.218	-2.392
Arm1	g52P	21.02	0.000	-5.512	-5.512	-2.694	-5.397	-2.735
Arm1	g52Y	10.27	0.000	-2.694	-2.656	-1.422	-2.694	-1.255
Arm2	g53P	37.08	0.000	-9.096	-9.096	-4.707	-8.414	-3.816
Arm2	g53X	35.08	0.000	-8.605	-7.895	-3.581	-8.605	-4.488
Arm2	g53XY	25.21	0.000	-6.183	-5.507	-1.674	-6.183	-2.548
Arm2	g53Y	28.88	0.000	-7.083	-7.083	-4.575	-6.424	-3.791
Arm2	g54P	26.77	0.000	-7.860	-7.860	-3.574	-7.662	-2.974
Arm2	g54Y	22.76	0.000	-6.681	-6.448	-2.758	-6.681	-3.450
ArmBR1	g55P	17.52	0.000	-1.835	-1.832	-0.847	-1.835	-0.852
ArmBR1	g55X	29.47	0.000	-3.086	-3.075	-1.535	-3.086	-1.559
ArmBR2	g56P	66.65	5.258	0.000	5.143	2.398	5.258	2.821
ArmBR2	g56X	59.58	4.700	0.000	4.558	2.212	4.700	2.723
ArmBR2	g56XY	82.67	6.522	0.000	6.522	3.250	6.406	2.810
ArmBR2	g56Y	53.10	4.189	0.000	4.189	2.198	4.086	1.807
ArmBR2R	g57P	68.37	7.158	0.000	7.158	3.682	7.134	3.625
ArmBR2R	g57X	69.67	7.295	0.000	7.271	3.420	7.295	3.450
ArmBR2R	g57XY	76.04	7.962	0.000	7.944	3.934	7.962	3.986
ArmBR2R	g57Y	77.59	8.124	0.000	8.096	3.925	8.124	4.036
ArmBR2	g58P	84.14	6.638	0.000	6.531	3.103	6.638	3.422
ArmBR2	g58X	86.88	6.854	0.000	6.837	3.504	6.854	3.607
ArmBR2	g58XY	93.34	7.364	0.000	7.364	3.913	7.249	3.582
ArmBR2	g58Y	92.99	7.336	0.000	7.305	3.288	7.336	3.319
ArmBR2	g59P	31.02	2.447	0.000	2.447	1.140	1.966	0.000
ArmBR2	g59X	35.13	2.771	0.000	2.771	1.558	2.345	0.097
ArmBR2	g59XY	58.90	4.647	0.000	4.191	1.881	4.647	3.407
ArmBR2	g59Y	63.81	5.034	0.000	4.566	2.405	5.034	3.535
PMBR1	g60P	54.94	5.602	-5.482	1.542	5.602	-1.434	-5.482
PMBR1	g60X	53.66	0.000	-5.470	-0.593	-5.108	-0.701	-5.470
PMBR1	g60XY	55.71	5.680	-5.354	-1.175	-5.354	1.782	5.680
PMBR1	g60Y	60.91	6.210	0.000	2.192	5.884	2.284	6.210
PMBR1	g61P	43.63	4.449	-3.140	-0.352	-3.140	1.713	4.449
PMBR1	g61X	42.26	4.309	0.000	0.889	4.129	0.873	4.309
PMBR1	g61XY	41.91	4.273	-3.172	1.316	4.273	-0.709	-3.172
PMBR1	g61Y	33.96	0.000	-3.462	-1.034	-3.462	-0.950	-3.342
PMBR1	g62P	9.43	0.000	-0.961	-0.961	-0.866	-0.815	-0.271
PMBR1	g62X	13.69	0.000	-1.396	-1.395	-1.288	-1.323	-1.396
PMBR1	g62XY	10.09	0.000	-1.028	-0.922	-0.379	-1.028	-0.317
PMBR1	g62Y	14.98	0.000	-1.527	-1.322	-1.527	-1.188	-1.396
PMBR1	g63P	6.22	0.069	-0.634	-0.414	0.069	-0.634	-0.523
PMBR1	g63X	11.34	0.000	-1.156	-0.835	-0.638	-1.092	-1.156
PMBR1	g63XY	15.73	0.035	-1.604	-1.410	-1.604	-0.638	0.035
PMBR1	g63Y	9.46	0.965	0.000	0.274	0.876	0.139	0.965
PMBR2	g64P	29.78	0.000	-3.118	-0.787	-2.332	-1.100	-3.118
PMBR2	g64X	21.07	0.000	-2.206	-1.247	-2.206	-0.237	-0.422
PMBR2	g64XY	24.84	0.000	-2.601	-1.086	-2.000	-1.510	-2.601
PMBR2	g64Y	22.26	0.464	-2.331	-0.827	-2.331	0.464	0.354
Powermnt	g65P	16.28	0.000	-18.768	-18.768	-7.337	-18.672	-7.165
Powermnt	g66P	12.56	0.000	-14.238	-14.238	-6.372	-14.145	-6.205
Powermnt	g67P	9.21	0.000	-10.988	-10.988	-5.182	-10.917	-5.054
Powermnt	g68P	7.44	0.000	-8.859	-8.859	-4.339	-8.811	-4.250
Powermnt	g69P	5.82	0.000	-6.972	-6.972	-3.551	-6.947	-3.501
Powermnt	g70P	4.43	0.000	-5.292	-5.290	-2.303	-5.292	-2.318
Powermnt	g71P	2.11	0.000	-2.515	-2.515	-1.399	-2.515	-1.407
fic1	g72P	0.00	0.000	0.000	0.000	0.000	0.000	0.000
fic1	g72X	0.00	0.000	0.000	0.000	0.000	0.000	0.000
fic1	g73P	0.00	0.000	0.000	0.000	0.000	0.000	0.000

fic1	g73Y	0.00	0.000	0.000	0.000	0.000	0.000	0.000
fic	g74P	0.00	0.072	0.000	0.002	0.072	0.002	0.072
fic	g74X	0.00	0.072	0.000	0.000	0.072	0.000	0.072
fic	g75P	0.00	0.072	0.000	0.002	0.072	0.002	0.072
fic	g75X	0.00	0.072	0.000	0.000	0.072	0.000	0.072
fic	g76P	0.00	0.072	0.000	0.002	0.072	0.002	0.072
fic	g76Y	0.00	0.072	0.000	0.002	0.072	0.002	0.072
fic	g77P	0.00	0.072	0.000	0.002	0.072	0.002	0.072
fic	g77Y	0.00	0.072	0.000	0.002	0.072	0.002	0.072
HBR5	g78P	11.13	0.000	-1.165	-1.099	-0.196	-1.165	-0.317
HBR5	g78X	11.86	0.000	-1.242	-1.242	-0.755	-1.124	-0.419
HBR5	g78XY	14.01	0.000	-1.467	-1.467	-0.821	-1.416	-0.738
HBR5	g78Y	13.21	0.000	-1.384	-1.256	-0.317	-1.384	-0.683

*** Analysis Results for Load Case No. 1 "NESC Heavy - Transverse" - Number of iterations in SAPS 46

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	0.1004	0.2303	-0.002836	-0.3072	0.1520	0.0123	2.6	-2.27	86
2P	0.108	0.2296	0.05845	-0.2692	0.1379	0.0441	0.108	-13.52	86.06
3P	0.08889	0.2009	-0.00269	-0.3197	0.1571	0.0151	2.589	-2.299	81
4P	0.08996	0.2019	0.03704	-0.2411	0.1324	0.0107	0.08996	-9.548	81.04
5P	0.07212	0.1656	-0.002861	-0.3355	0.1416	0.0181	2.572	-2.334	75
6P	0.06583	0.1492	-0.002956	-0.2792	0.0969	0.0197	2.566	-2.351	72
7P	0.06068	0.1359	-0.002972	-0.2527	0.1275	0.0210	2.561	-2.364	69
8P	0.06508	0.1377	0.02383	-0.0339	0.1204	0.0241	0.06508	-14.11	69.02
9P	0.0485	0.1092	-0.003245	-0.2775	0.1135	0.0204	2.548	-2.391	64
10P	0.04062	0.09103	-0.00372	-0.1780	0.1091	0.0195	2.541	-2.409	59
11P	0.04417	0.09103	0.02374	-0.1652	0.1015	0.0305	0.04417	-10.16	59.02
12P	0.03141	0.07455	-0.00324	-0.1788	0.0966	0.0155	3.219	-3.113	54.04
13P	0.02392	0.06021	-0.002861	-0.1101	0.0667	0.0223	4.037	-3.953	48.1
14P	0.01694	0.04927	-0.002951	-0.0948	0.0570	0.0183	4.924	-4.858	41.5
15P	0.006251	0.02595	-0.001777	-0.0706	0.0441	0.0122	6.908	-6.876	27
16P	-0.0002889	0.0009019	0.0001622	-0.0063	-0.0278	-0.1324	10	-9.999	5
17P	0	0	0	0.0000	0.0000	0.0000	10.69	-10.69	0
22P	0.1439	0.3744	-0.004204	-0.4910	0.1401	0.0129	0.1439	0.3744	104
23P	0.122	0.2983	-0.003802	-0.4707	0.1399	0.0129	0.122	0.2983	95
24P	0.1001	0.2302	-0.003405	-0.3770	0.1388	0.0126	0.1001	0.2302	86
25P	0.08798	0.1999	-0.003217	-0.3304	0.1385	0.0124	0.08798	0.1999	81
26P	0.05976	0.1348	-0.002755	-0.2882	0.1273	0.0126	0.05976	0.1348	69
27P	0.03939	0.08972	-0.002374	-0.2194	0.1049	0.0125	0.03939	0.08972	59
28P	0.003088	0.02256	-0.001206	-0.0709	0.0262	0.0098	0.003088	0.02256	27
29P	0	0	0	0.0000	0.0000	0.0000	0	0	0
30P	0.04012	-0.1052	-0.4717	0.0000	0.0000	0.0000	0.04012	0.3948	85.53
31P	-0.3999	0.73	-0.01785	0.0000	0.0000	0.0000	0.1001	0.73	85.98
32P	0.03923	-0.03211	-0.4841	0.0000	0.0000	0.0000	0.03923	0.4679	103.5
33P	-0.3561	0.8742	-0.01865	0.0000	0.0000	0.0000	0.1439	0.8742	104
1X	0.09937	0.2307	-0.03102	-0.3680	0.1483	0.0112	2.599	2.731	85.97
1XY	0.09961	0.2295	-0.01928	-0.3608	0.1208	0.0113	-2.4	2.73	85.98
1Y	0.1011	0.2288	0.008998	-0.3032	0.1303	0.0236	-2.399	-2.271	86.01
2X	0.09668	0.2303	-0.1047	-0.4270	0.1371	0.0144	0.09668	13.98	85.9
3X	0.08795	0.2	-0.03052	-0.3450	0.1385	0.0051	2.588	2.7	80.97
3XY	0.08741	0.1996	-0.01874	-0.3490	0.1366	0.0052	-2.413	2.7	80.98
3Y	0.08801	0.2001	0.009092	-0.3095	0.1211	0.0089	-2.412	-2.3	81.01
4X	0.08852	0.1984	-0.07805	-0.4574	0.1348	-0.0119	0.08852	9.948	80.92
5X	0.07333	0.168	-0.02922	-0.2979	0.1660	0.0078	2.573	2.668	74.97
5XY	0.07274	0.1663	-0.01785	-0.2934	0.1130	0.0103	-2.427	2.666	74.98
5Y	0.07613	0.1655	0.008503	-0.3501	0.1293	0.0118	-2.424	-2.335	75.01
6X	0.06471	0.1518	-0.0282	-0.3228	0.1348	0.0095	2.565	2.652	71.97
6XY	0.06701	0.1508	-0.01722	-0.3137	0.1319	0.0129	-2.433	2.651	71.98
6Y	0.0684	0.1479	0.008033	-0.2943	0.1643	0.0129	-2.432	-2.352	72.01
7X	0.05926	0.1349	-0.02707	-0.3091	0.1013	0.0111	2.559	2.635	68.97
7XY	0.0589	0.1337	-0.01647	-0.3200	0.1518	0.0154	-2.441	2.634	68.98
7Y	0.06027	0.1345	0.007653	-0.2443	0.1205	0.0144	-2.44	-2.365	69.01
8X	0.05775	0.1319	-0.1184	-0.5445	0.1211	0.0021	0.05775	14.38	68.88
9X	0.05015	0.1135	-0.02444	-0.2488	0.1258	0.0166	2.55	2.614	63.98
9XY	0.04631	0.1111	-0.01495	-0.2468	0.1155	0.0147	-2.454	2.611	63.99
9Y	0.05136	0.1087	0.006386	-0.2830	0.1211	0.0200	-2.449	-2.391	64.01

10X	0.0386	0.09027	-0.02104	-0.2308	0.1052	0.0222	2.539	2.59	58.98
10XY	0.03867	0.08871	-0.01315	-0.2405	0.0828	0.0142	-2.461	2.589	58.99
10Y	0.03998	0.08909	0.004781	-0.1849	0.0922	0.0254	-2.46	-2.411	59
11X	0.03706	0.08887	-0.05987	-0.3568	0.0880	0.0087	0.03706	10.34	58.94
12X	0.03262	0.07639	-0.02065	-0.1310	0.0460	0.0266	3.22	3.264	54.03
12XY	0.02984	0.07187	-0.01276	-0.1653	0.1000	0.0143	-3.158	3.26	54.03
12Y	0.03346	0.07202	0.006249	-0.1787	0.0758	0.0310	-3.154	-3.116	54.05
13X	0.0259	0.06214	-0.01942	-0.1283	0.0589	0.0271	4.039	4.075	48.09
13XY	0.02236	0.05509	-0.012	-0.1427	0.0465	0.0138	-3.991	4.068	48.09
13Y	0.02511	0.05548	0.007246	-0.1337	0.0766	0.0295	-3.988	-3.958	48.11
14X	0.01806	0.04911	-0.01779	-0.1006	0.0640	0.0298	4.925	4.957	41.48
14XY	0.01793	0.04054	-0.01113	-0.1028	0.0513	0.0197	-4.889	4.948	41.49
14Y	0.01777	0.04069	0.007425	-0.1062	0.0575	0.0340	-4.89	-4.867	41.51
15X	-0.0003145	0.0256	-0.01471	-0.0817	0.0344	0.0304	6.902	6.928	26.99
15XY	-0.0004846	0.01868	-0.007069	-0.0688	0.0419	0.0300	-6.903	6.921	26.99
15Y	0.007005	0.01888	0.00675	-0.0519	0.0277	0.0481	-6.895	-6.883	27.01
16X	-3.366e-005	0.0005137	-0.003886	-0.0165	-0.0076	0.0179	10	10	4.996
16XY	-2.719e-005	0.0004667	-0.002032	-0.0112	-0.0023	-0.0164	-10	10	4.998
16Y	0.0004055	0.0008244	0.0022	-0.0012	0.0317	0.1397	-10	-9.999	5.002
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
30X	0.1001	1.23	-0.01785	0.0000	0.0000	0.0000	0.1001	0.73	85.98
31Y	0.6001	0.73	-0.01785	0.0000	0.0000	0.0000	0.1001	0.73	85.98
32X	0.1439	1.374	-0.01865	0.0000	0.0000	0.0000	0.1439	0.8742	104
33Y	0.6439	0.8742	-0.01865	0.0000	0.0000	0.0000	0.1439	0.8742	104
18S	0.06547	0.1505	-0.01482	0.0000	0.0000	0.0000	2.565	0.1505	71.99
19S	0.06708	0.2224	0.001292	0.0000	0.0000	0.0000	0.06708	-2.278	72
20S	0.002754	0.0005176	0.0001579	-0.0117	-0.0177	0.0275	10	0.0005176	5
21S	4.188e-005	0.04702	-0.006865	-0.0045	0.0078	-0.0015	4.188e-005	-9.953	4.993
18Y	0.06747	0.1493	-0.00419	0.0000	0.0000	0.0000	-2.433	0.1493	72
19X	0.06587	0.08126	-0.02223	0.0000	0.0000	0.0000	0.06587	2.581	71.98
20Y	-0.003501	0.0004718	0.0002913	-0.0151	0.0147	-0.0289	-10	0.0004718	5
21X	-2.209e-005	-0.004977	-0.0009292	-0.0139	0.0104	-0.0002	-2.209e-005	9.995	4.999

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

Joint Label	X Force (kips)	X Usage %(kips)	Y Force	Y Usage %	H-Shear 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 %	H-Bend-M Usage %	Z Moment (ft-k)	Z-M. Usage %	Max. Usage %
17P	0.47	0.0	-1.39	0.0	0.0	4.49	0.0	0.0	4.72	0.0	-0.01	0.0	0.0	0.0	0.0	0.26	0.0	0.0
29P	0.11	0.0	-0.64	0.0	0.0	-19.87	0.0	0.0	19.88	0.0	5.29	0.0	0.5	0.0	0.0	-0.28	0.0	0.0
17X	-7.43	0.0	-8.31	0.0	0.0	-52.68	0.0	0.0	53.85	0.0	-0.07	0.0	0.1	0.0	0.0	-0.04	0.0	0.0
17XY	4.11	0.0	-4.85	0.0	0.0	-28.32	0.0	0.0	29.02	0.0	-0.01	0.0	-0.1	0.0	0.0	0.03	0.0	0.0
17Y	-4.33	0.0	-5.07	0.0	0.0	31.41	0.0	0.0	32.11	0.0	-0.05	0.0	0.0	0.0	0.0	-0.28	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	0.1232	-0.3062	-0.0000	-0.1232	0.3062	0.1004	0.2303	-0.0028
2P	1.1500	0.9117	-1.4433	-1.1500	-0.9117	1.4433	0.1080	0.2296	0.0584
3P	0.0000	0.2764	-0.6303	-0.0000	-0.2764	0.6303	0.0889	0.2009	-0.0027
4P	0.0500	1.3628	-3.6913	-0.0500	-1.3628	3.6913	0.0900	0.2019	0.0370
5P	0.0000	0.0949	-0.1034	0.0000	-0.0949	0.1034	0.0721	0.1656	-0.0029

6P	0.0000	0.0469	-0.0601	-0.0000	-0.0469	0.0601	0.0658	0.1492	-0.0030
7P	0.0000	0.2872	-0.6832	-0.0000	-0.2872	0.6832	0.0607	0.1359	-0.0030
8P	0.6000	1.3416	-3.7363	-0.6000	-1.3416	3.7363	0.0651	0.1377	0.0238
9P	0.0000	0.1229	-0.1316	0.0000	-0.1229	0.1316	0.0485	0.1092	-0.0032
10P	0.0000	0.3437	-0.8063	-0.0000	-0.3437	0.8063	0.0406	0.0910	-0.0037
11P	1.2750	1.3461	-3.6801	-1.2750	-1.3461	3.6801	0.0442	0.0910	0.0237
12P	0.0000	0.1099	-0.1414	-0.0000	-0.1099	0.1414	0.0314	0.0746	-0.0032
13P	0.0000	0.1357	-0.1714	-0.0000	-0.1357	0.1714	0.0239	0.0602	-0.0029
14P	0.0000	0.5020	-1.0756	-0.0000	-0.5020	1.0756	0.0169	0.0493	-0.0030
15P	0.0000	0.6781	-1.4846	-0.0000	-0.6781	1.4846	0.0063	0.0259	-0.0018
16P	0.0000	0.5385	-1.1452	0.0000	-0.5385	1.1452	-0.0003	0.0009	0.0002
17P	0.0000	0.0741	-0.0944	-0.4695	1.3185	4.5840	0.0000	0.0000	0.0000
22P	0.0000	0.4660	-2.5185	-0.0000	-0.4660	2.5185	0.1439	0.3744	-0.0042
23P	0.0000	0.7740	-2.7811	-0.0000	-0.7740	2.7811	0.1220	0.2983	-0.0038
24P	0.0000	0.0000	-0.8692	-0.0000	0.0000	0.8693	0.1001	0.2302	-0.0034
25P	0.0000	0.2040	-1.0707	-0.0000	-0.2040	1.0707	0.0880	0.1999	-0.0032
26P	0.0000	0.3740	-1.3748	-0.0000	-0.3740	1.3748	0.0598	0.1348	-0.0028
27P	0.0000	0.7140	-2.6529	-0.0000	-0.7140	2.6529	0.0394	0.0897	-0.0024
28P	0.0000	1.0030	-4.4812	0.0000	-1.0030	4.4812	0.0031	0.0226	-0.0012
29P	0.0000	0.4590	-1.1039	-0.1074	0.1845	-18.7679	0.0000	0.0000	0.0000
30P	0.0000	0.0000	-0.0001	0.0000	-0.0000	0.0001	0.0401	-0.1052	-0.4717
31P	0.0000	0.0024	-0.0001	0.0000	-0.0024	0.0001	-0.3999	0.7300	-0.0179
32P	0.0000	0.0000	-0.0001	0.0000	-0.0000	0.0001	0.0392	-0.0321	-0.4841
33P	0.0000	0.0024	-0.0001	0.0000	-0.0024	0.0001	-0.3561	0.8742	-0.0187
1X	0.0000	0.0570	-0.3062	-0.0000	-0.0570	0.3062	0.0994	0.2307	-0.0310
1XY	0.0000	0.0570	-0.3062	0.0000	-0.0570	0.3062	0.0996	0.2295	-0.0193
1Y	0.0000	0.0662	-0.1322	0.0000	-0.0662	0.1322	0.1011	0.2288	0.0090
2X	0.0000	1.1000	-2.4183	0.0000	-1.1000	2.4183	0.0967	0.2303	-0.1047
3X	0.0000	0.1010	-0.8603	0.0000	-0.1010	0.8603	0.0879	0.2000	-0.0305
3XY	0.0000	0.0570	-0.3543	0.0000	-0.0570	0.3543	0.0874	0.1996	-0.0187
3Y	0.0000	0.1534	-0.3693	-0.0000	-0.1534	0.3693	0.0880	0.2001	0.0091
4X	2.2000	1.3000	-3.6913	-2.2000	-1.3000	3.6913	0.0885	0.1984	-0.0780
5X	0.0000	0.0000	-0.1034	0.0000	0.0000	0.1034	0.0733	0.1680	-0.0292
5XY	0.0000	0.0000	-0.1034	0.0000	0.0000	0.1034	0.0727	0.1663	-0.0179
5Y	0.0000	0.0949	-0.1034	0.0000	-0.0949	0.1034	0.0761	0.1655	0.0085
6X	0.0000	0.0000	-0.0601	0.0000	0.0000	0.0601	0.0647	0.1518	-0.0282
6XY	0.0000	0.0000	-0.0601	0.0000	-0.0000	0.0601	0.0670	0.1508	-0.0172
6Y	0.0000	0.0469	-0.0601	0.0000	-0.0469	0.0601	0.0684	0.1479	0.0080
7X	0.0000	0.0440	-0.6832	-0.0000	-0.0440	0.6832	0.0593	0.1349	-0.0271
7XY	0.0000	0.0000	-0.1772	0.0000	0.0000	0.1772	0.0589	0.1337	-0.0165
7Y	0.0000	0.1352	-0.3662	-0.0000	-0.1352	0.3662	0.0603	0.1345	0.0077
8X	0.6250	1.3000	-3.7363	-0.6250	-1.3000	3.7363	0.0578	0.1319	-0.1184
9X	0.0000	0.0000	-0.1316	0.0000	-0.0000	0.1316	0.0501	0.1135	-0.0244
9XY	0.0000	0.0000	-0.1316	-0.0000	0.0000	0.1316	0.0463	0.1111	-0.0150
9Y	0.0000	0.1229	-0.1316	0.0000	-0.1229	0.1316	0.0514	0.1087	0.0064
10X	0.0000	0.0540	-0.8063	0.0000	-0.0540	0.8063	0.0386	0.0903	-0.0210
10XY	0.0000	0.0000	-0.1853	0.0000	0.0000	0.1853	0.0387	0.0887	-0.0131
10Y	0.0000	0.1577	-0.4173	-0.0000	-0.1577	0.4173	0.0400	0.0891	0.0048
11X	1.1750	1.3000	-3.6801	-1.1750	-1.3000	3.6801	0.0371	0.0889	-0.0599
12X	0.0000	0.0000	-0.1414	-0.0000	-0.0000	0.1414	0.0326	0.0764	-0.0207
12XY	0.0000	0.0000	-0.1414	0.0000	0.0000	0.1414	0.0298	0.0719	-0.0128
12Y	0.0000	0.1099	-0.1414	0.0000	-0.1099	0.1414	0.0335	0.0720	0.0062
13X	0.0000	0.0000	-0.1714	-0.0000	-0.0000	0.1714	0.0259	0.0621	-0.0194
13XY	0.0000	0.0000	-0.1714	0.0000	-0.0000	0.1714	0.0224	0.0551	-0.0120
13Y	0.0000	0.1357	-0.1714	0.0000	-0.1357	0.1714	0.0251	0.0555	0.0072
14X	0.0000	0.0640	-1.0756	-0.0000	-0.0640	1.0756	0.0181	0.0491	-0.0178
14XY	0.0000	0.0000	-0.3396	0.0000	-0.0000	0.3396	0.0179	0.0405	-0.0111
14Y	0.0000	0.2810	-0.6146	0.0000	-0.2810	0.6146	0.0178	0.0407	0.0074
15X	0.0000	0.0740	-1.4846	0.0000	-0.0740	1.4846	-0.0003	0.0256	-0.0147

15XY	0.0000	0.0000	-0.6336	0.0000	0.0000	0.6336	-0.0005	0.0187	-0.0071
15Y	0.0000	0.4231	-0.9516	0.0000	-0.4231	0.9516	0.0070	0.0189	0.0067
16X	0.0000	0.0640	-1.1452	-0.0000	-0.0640	1.1452	-0.0000	0.0005	-0.0039
16XY	0.0000	0.0000	-0.4092	0.0000	-0.0000	0.4092	-0.0000	0.0005	-0.0020
16Y	0.0000	0.3175	-0.6842	-0.0000	-0.3175	0.6842	0.0004	0.0008	0.0022
17X	0.0000	0.0000	-0.0944	7.4341	8.3115	-52.5880	0.0000	0.0000	0.0000
17XY	0.0000	0.0000	-0.0944	-4.1128	4.8535	-28.2218	0.0000	0.0000	0.0000
17Y	0.0000	0.0741	-0.0944	4.3305	4.9947	31.5011	0.0000	0.0000	0.0000
30X	0.0000	0.0024	-0.0001	0.0000	-0.0024	0.0001	0.1001	1.2300	-0.0179
31Y	0.0000	0.0024	-0.0001	0.0000	-0.0024	0.0001	0.6001	0.7300	-0.0179
32X	0.0000	0.0024	-0.0001	0.0000	-0.0024	0.0001	0.1439	1.3742	-0.0187
33Y	0.0000	0.0024	-0.0001	0.0000	-0.0024	0.0001	0.6439	0.8742	-0.0187
18S	0.0000	0.0000	-0.0436	0.0000	-0.0000	0.0436	0.0655	0.1505	-0.0148
19S	0.0000	0.0741	-0.0461	0.0000	-0.0741	0.0461	0.0671	0.2224	0.0013
20S	0.0000	0.0000	-0.1556	0.0000	0.0000	0.1556	0.0028	0.0005	0.0002
21S	0.0000	0.2011	-0.1556	0.0000	-0.2011	0.1556	0.0000	0.0470	-0.0069
18Y	0.0000	0.0000	-0.0436	0.0000	-0.0000	0.0436	0.0675	0.1493	-0.0042
19X	0.0000	0.0000	-0.0461	0.0000	-0.0000	0.0461	0.0659	0.0813	-0.0222
20Y	0.0000	0.0000	-0.1556	-0.0000	0.0000	0.1556	-0.0035	0.0005	0.0003
21X	0.0000	0.0000	-0.1556	-0.0000	-0.0000	0.1556	-0.0000	-0.0050	-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	-0.36	-0.56	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	-0.56	-0.36	11.56	0.750	0.500	0.500	123.69	122.85	5	8.63	1.000	158.01	143.38	6
g16X	g16XY	Long only	-1.10	-2.97	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	-2.97	-1.10	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	-2.93	0.34	17.27	0.500	0.750	0.500	120.57	120.47	5	12.24	1.000	160.76	145.07	6
g22XY	g22X	Long only	-2.05	0.15	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	-4.09	0.73	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	-1.67	-1.21	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	-1.21	-1.67	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	-1.27	-2.00	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	-2.00	-1.27	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	-0.26	-1.24	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	-1.24	-0.26	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	-1.03	-0.34	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	-0.34	-1.03	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	-0.50	-1.03	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	-1.03	-0.50	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	2.058	30.00	30.00	6.86
2	2.657	30.00	30.00	8.86
3	3.935	30.00	30.00	13.12

4	4.490	30.00	30.00	14.97
5	4.015	30.00	30.00	13.38
6	4.005	30.00	30.00	13.35
7	4.121	30.00	30.00	13.74
8	4.076	30.00	30.00	13.59
14	1.265	30.00	30.00	4.22
15	1.632	30.00	30.00	5.44
16	1.187	30.00	30.00	3.96
17	0.877	30.00	30.00	2.92
18	0.741	30.00	30.00	2.47
19	0.866	30.00	30.00	2.89
20	0.330	30.00	30.00	1.10
21	0.688	30.00	30.00	2.29
22	0.311	30.00	30.00	1.04
23	0.311	30.00	30.00	1.04
24	0.359	30.00	30.00	1.20
25	2.887	30.00	30.00	9.62
26	0.869	30.00	30.00	2.90
27	1.090	30.00	30.00	3.63
28	1.425	30.00	30.00	4.75
29	2.747	30.00	30.00	9.16
30	4.592	30.00	30.00	15.31
31	2.561	30.00	30.00	8.54
32	0.685	30.00	30.00	2.28
33	0.808	30.00	30.00	2.69
34	1.077	30.00	30.00	3.59
35	1.486	30.00	30.00	4.95
36	1.147	30.00	30.00	3.82
37	0.390	30.00	30.00	1.30
38	0.446	30.00	30.00	1.49
39	0.676	30.00	30.00	2.25
40	1.041	30.00	30.00	3.47
41	0.754	30.00	30.00	2.51
42	0.400	30.00	30.00	1.33

*** Analysis Results for Load Case No. 2 "Extreme Wind - Transverse" - Number of iterations in SAPS 30

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	0.04797	0.4594	0.01755	-0.6681	0.0721	-0.0300	2.548	-2.041	86.02
2P	0.04726	0.4607	0.1518	-0.6695	0.0654	-0.0044	0.04726	-13.29	86.15
3P	0.04342	0.3983	0.0176	-0.6728	0.0903	-0.0111	2.543	-2.102	81.02
4P	0.04102	0.4005	0.1044	-0.6566	0.0623	-0.0144	0.04102	-9.35	81.1
5P	0.03244	0.3284	0.01656	-0.6610	0.0560	-0.0109	2.532	-2.172	75.02
6P	0.03134	0.2948	0.01579	-0.6068	0.0073	-0.0104	2.531	-2.205	72.02
7P	0.02963	0.2648	0.01504	-0.5547	0.0779	-0.0111	2.53	-2.235	69.02
8P	0.0267	0.2673	0.1194	-0.4666	0.0566	-0.0146	0.0267	-13.98	69.12
9P	0.02135	0.2149	0.01282	-0.5404	0.0436	-0.0088	2.521	-2.285	64.01
10P	0.02068	0.1742	0.009848	-0.3955	0.0542	-0.0067	2.521	-2.326	59.01
11P	0.01963	0.1754	0.07371	-0.4831	0.0503	-0.0040	0.01963	-10.07	59.07
12P	0.01381	0.1426	0.01037	-0.3254	0.0719	-0.0091	3.202	-3.045	54.06
13P	0.01061	0.1126	0.01042	-0.2396	0.0235	-0.0014	4.024	-3.901	48.12
14P	0.007685	0.08825	0.009335	-0.1897	0.0283	-0.0074	4.915	-4.819	41.51
15P	0.002379	0.04385	0.008218	-0.1268	0.0308	-0.0161	6.905	-6.858	27.01
16P	-0.001443	0.002535	0.002897	-0.0103	-0.0852	-0.3551	9.999	-9.997	5.003
17P	0	0	0	0.0000	0.0000	0.0000	10.69	-10.69	0
22P	0.07004	0.8217	-0.006839	-1.2657	0.0660	-0.0090	0.07004	0.8217	104
23P	0.05964	0.6268	-0.004692	-1.1905	0.0659	-0.0091	0.05964	0.6268	95
24P	0.04928	0.4617	-0.003123	-0.8416	0.0657	-0.0095	0.04928	0.4617	86
25P	0.04353	0.3978	-0.002669	-0.6765	0.0659	-0.0094	0.04353	0.3978	81
26P	0.0301	0.2651	-0.001805	-0.5839	0.0594	-0.0075	0.0301	0.2651	69
27P	0.02054	0.1741	-0.001264	-0.4420	0.0511	-0.0053	0.02054	0.1741	59
28P	0.0002123	0.04102	-0.000499	-0.1328	0.0137	0.0025	0.0002123	0.04102	27
29P	0	0	0	0.0000	0.0000	0.0000	0	0	0
30P	0.04928	0.02504	-0.4991	0.0000	0.0000	0.0000	0.04928	0.525	85.5
31P	-0.4507	0.525	-0.4991	0.0000	0.0000	0.0000	0.04928	0.525	85.5
32P	0.07004	0.3851	-0.5028	0.0000	0.0000	0.0000	0.07004	0.8851	103.5
33P	-0.43	0.8851	-0.5028	0.0000	0.0000	0.0000	0.07004	0.8851	103.5
1X	0.05038	0.4594	-0.04031	-0.7123	0.0745	-0.0289	2.55	2.959	85.96
1XY	0.04957	0.4608	-0.03477	-0.7087	0.0525	-0.0078	-2.45	2.961	85.97
1Y	0.0493	0.4607	0.02312	-0.6675	0.0606	-0.0006	-2.451	-2.039	86.02
2X	0.05304	0.4594	-0.1813	-0.7443	0.0648	-0.0154	0.05304	14.21	85.82
3X	0.04431	0.3975	-0.03938	-0.6886	0.0611	-0.0162	2.544	2.898	80.96
3XY	0.04442	0.3993	-0.03381	-0.6910	0.0697	-0.0262	-2.456	2.899	80.97
3Y	0.04224	0.3999	0.02316	-0.6678	0.0406	-0.0227	-2.458	-2.1	81.02
4X	0.04776	0.3974	-0.1305	-0.7656	0.0638	-0.0296	0.04776	10.15	80.87
5X	0.03807	0.3294	-0.03734	-0.6425	0.1087	-0.0154	2.538	2.829	74.96
5XY	0.03662	0.3305	-0.03196	-0.6385	0.0249	-0.0220	-2.463	2.83	74.97
5Y	0.03958	0.3304	0.02191	-0.6666	0.0726	-0.0198	-2.46	-2.17	75.02
6X	0.032	0.2958	-0.03566	-0.6272	0.0776	-0.0144	2.532	2.796	71.96
6XY	0.0358	0.2974	-0.03051	-0.6222	0.0491	-0.0204	-2.464	2.797	71.97
6Y	0.03401	0.2962	0.02097	-0.6154	0.1164	-0.0189	-2.466	-2.204	72.02
7X	0.03056	0.2642	-0.03395	-0.5879	0.0093	-0.0130	2.531	2.764	68.97
7XY	0.03079	0.2655	-0.029	-0.5954	0.1110	-0.0192	-2.469	2.766	68.97
7Y	0.02944	0.2661	0.02004	-0.5519	0.0377	-0.0166	-2.471	-2.234	69.02
8X	0.03512	0.2633	-0.1718	-0.7221	0.0565	-0.0250	0.03512	14.51	68.83
9X	0.02915	0.2169	-0.03012	-0.5232	0.0694	-0.0092	2.529	2.717	63.97
9XY	0.02168	0.2174	-0.02579	-0.5248	0.0471	-0.0155	-2.478	2.717	63.97
9Y	0.02801	0.2164	0.01733	-0.5455	0.0631	-0.0115	-2.472	-2.284	64.02

10X	0.02063	0.1737	-0.0253	-0.4298	0.0527	-0.0051	2.521	2.674	58.97
10XY	0.02126	0.1744	-0.02198	-0.4409	0.0269	-0.0120	-2.479	2.674	58.98
10Y	0.01978	0.1747	0.01389	-0.4052	0.0397	-0.0065	-2.48	-2.325	59.01
11X	0.02227	0.1737	-0.09518	-0.5757	0.0344	-0.0105	0.02227	10.42	58.9
12X	0.02072	0.1432	-0.02514	-0.2975	-0.0164	-0.0034	3.209	3.331	54.02
12XY	0.0157	0.1418	-0.0223	-0.3271	0.0705	-0.0049	-3.172	3.33	54.03
12Y	0.01883	0.1422	0.01505	-0.3380	0.0103	0.0036	-3.169	-3.046	54.06
13X	0.01863	0.1138	-0.02391	-0.2497	0.0259	-0.0004	4.032	4.127	48.08
13XY	0.01319	0.1105	-0.02179	-0.2671	-0.0028	-0.0022	-4	4.124	48.08
13Y	0.01405	0.1104	0.01556	-0.2612	0.0454	0.0058	-3.999	-3.903	48.12
14X	0.01438	0.08757	-0.02209	-0.1989	0.0449	-0.0010	4.922	4.995	41.48
14XY	0.01404	0.08253	-0.0208	-0.2092	0.0247	0.0161	-4.893	4.99	41.48
14Y	0.009769	0.08326	0.01469	-0.2052	0.0281	0.0205	-4.898	-4.824	41.51
15X	-0.002619	0.04321	-0.0187	-0.1330	0.0317	-0.0078	6.9	6.945	26.98
15XY	-0.003067	0.03716	-0.01472	-0.1291	0.0353	0.0621	-6.905	6.939	26.99
15Y	0.00429	0.03762	0.01292	-0.1182	0.0082	0.0686	-6.898	-6.865	27.01
16X	-0.0005103	0.001831	-0.005031	-0.0022	0.0414	-0.3090	9.999	10	4.995
16XY	0.0004874	0.001452	-0.004212	0.0062	-0.0525	0.3098	-10	10	4.996
16Y	0.001526	0.001938	0.003945	0.0001	0.0876	0.3611	-9.998	-9.998	5.004
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
30X	0.04928	1.025	-0.4991	0.0000	0.0000	0.0000	0.04928	0.525	85.5
31Y	0.5493	0.525	-0.4991	0.0000	0.0000	0.0000	0.04928	0.525	85.5
32X	0.07004	1.385	-0.5028	0.0000	0.0000	0.0000	0.07004	0.8851	103.5
33Y	0.57	0.8851	-0.5028	0.0000	0.0000	0.0000	0.07004	0.8851	103.5
18S	0.03467	0.2953	-0.009566	0.0000	0.0000	0.0000	2.535	0.2953	71.99
19S	0.03269	0.3736	0.01605	0.0000	0.0000	0.0000	0.03269	-2.126	72.02
20S	-0.006118	0.001637	-0.001263	-0.0309	-0.0217	0.1618	9.994	0.001637	4.999
21S	2.654e-005	0.1328	-0.02039	-0.0118	0.0039	0.0011	2.654e-005	-9.867	4.98
18Y	0.03252	0.2967	-0.00459	0.0000	0.0000	0.0000	-2.467	0.2967	72
19X	0.03392	0.3931	-0.03376	0.0000	0.0000	0.0000	0.03392	2.893	71.97
20Y	0.005548	0.00128	-0.001168	-0.0366	0.0173	-0.1631	-9.994	0.00128	4.999
21X	-9.275e-006	0.1037	0.01268	0.0067	0.0063	0.0014	-9.275e-006	10.1	5.013

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

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	H-Shear Usage %	Z Force (kips)	Comp. Uplift Usage %	Result. Usage %	Result. Force (kips)	X Moment (ft-k)	X-M. Usage %	Y Moment (ft-k)	Y-M. Usage %	H-Bend-M Usage %	Z Moment (ft-k)	Z-M. Usage %	Max. Usage %
17P	6.27	0.0	-9.43	0.0	0.0	46.20	0.0	0.0	47.57	0.0	-0.04	0.0	0.1	0.0	0.0	0.70	0.0	0.0
29P	0.10	0.0	-0.88	0.0	0.0	-7.66	0.0	0.0	7.71	0.0	9.34	0.0	0.9	0.0	0.0	-0.07	0.0	0.0
17X	-10.19	0.0	-13.33	0.0	0.0	-70.69	0.0	0.0	72.66	0.0	-0.12	0.0	0.1	0.0	0.0	0.62	0.0	0.0
17XY	8.57	0.0	-11.10	0.0	0.0	-58.98	0.0	0.0	60.63	0.0	-0.12	0.0	-0.1	0.0	0.0	-0.63	0.0	0.0
17Y	-8.10	0.0	-10.57	0.0	0.0	58.79	0.0	0.0	60.28	0.0	-0.12	0.0	-0.1	0.0	0.0	-0.70	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	0.3731	-0.2493	-0.0000	-0.3731	0.2493	0.0480	0.4594	0.0175
2P	0.4250	0.7771	-0.6713	-0.4250	-0.7771	0.6713	0.0473	0.4607	0.1518
3P	0.0000	0.6640	-0.2532	-0.0000	-0.6640	0.2532	0.0434	0.3983	0.0176
4P	0.2500	1.8930	-1.8752	-0.2500	-1.8930	1.8752	0.0410	0.4005	0.1044
5P	0.0000	0.1680	-0.1002	-0.0000	-0.1680	0.1002	0.0324	0.3284	0.0166

6P	0.0000	0.1680	-0.1002	0.0000	-0.1680	0.1002	0.0313	0.2948	0.0158
7P	0.0000	0.7170	-0.2372	-0.0000	-0.7170	0.2372	0.0296	0.2648	0.0150
8P	0.0750	1.8430	-1.8752	-0.0750	-1.8430	1.8752	0.0267	0.2673	0.1194
9P	0.0000	0.1680	-0.1002	0.0000	-0.1680	0.1002	0.0214	0.2149	0.0128
10P	0.0000	0.8420	-0.2682	0.0000	-0.8420	0.2682	0.0207	0.1742	0.0098
11P	0.4250	1.7930	-1.8502	-0.4250	-1.7930	1.8502	0.0196	0.1754	0.0737
12P	0.0000	0.1680	-0.1002	-0.0000	-0.1680	0.1002	0.0138	0.1426	0.0104
13P	0.0000	0.1680	-0.1002	-0.0000	-0.1680	0.1002	0.0106	0.1126	0.0104
14P	0.0000	1.5203	-0.6192	-0.0000	-1.5203	0.6192	0.0077	0.0882	0.0093
15P	0.0000	1.4773	-0.5500	-0.0000	-1.4773	0.5500	0.0024	0.0439	0.0082
16P	0.0000	1.3523	-0.5190	0.0000	-1.3523	0.5190	-0.0014	0.0025	0.0029
17P	0.0000	0.5533	-0.3190	-6.2704	8.8804	46.5192	0.0000	0.0000	0.0000
22P	0.0000	1.7601	-1.1541	-0.0000	-1.7601	1.1541	0.0700	0.8217	-0.0068
23P	0.0000	2.9891	-0.9521	-0.0000	-2.9891	0.9521	0.0596	0.6268	-0.0047
24P	0.0000	0.1771	-0.2703	-0.0000	-0.1771	0.2703	0.0493	0.4617	-0.0031
25P	0.0000	0.1680	-0.2202	0.0000	-0.1680	0.2202	0.0435	0.3978	-0.0027
26P	0.0000	0.1680	-0.2562	-0.0000	-0.1680	0.2562	0.0301	0.2651	-0.0018
27P	0.0000	0.7213	-0.7162	0.0000	-0.7213	0.7162	0.0205	0.1741	-0.0013
28P	0.0000	0.5533	-0.9280	-0.0000	-0.5533	0.9280	0.0002	0.0410	-0.0005
29P	0.0000	0.5533	-0.3190	-0.1034	0.3219	-7.3376	0.0000	0.0000	0.0000
30P	0.0000	0.0091	-0.0711	-0.0000	-0.0091	0.0711	0.0493	0.0250	-0.4991
31P	0.0000	0.0091	-0.0711	-0.0000	-0.0091	0.0711	-0.4507	0.5250	-0.4991
32P	0.0000	0.0091	-0.0711	0.0000	-0.0091	0.0711	0.0700	0.3851	-0.5028
33P	0.0000	0.0091	-0.0711	0.0000	-0.0091	0.0711	-0.4300	0.8851	-0.5028
1X	0.0000	0.3731	-0.2493	-0.0000	-0.3731	0.2493	0.0504	0.4594	-0.0403
1XY	0.0000	0.3731	-0.2493	0.0000	-0.3731	0.2493	0.0496	0.4608	-0.0348
1Y	0.0000	0.1771	-0.1713	0.0000	-0.1771	0.1713	0.0493	0.4607	0.0231
2X	0.0000	1.4021	-1.2213	0.0000	-1.4021	1.2213	0.0530	0.4594	-0.1813
3X	0.0000	0.4560	-0.3152	-0.0000	-0.4560	0.3152	0.0443	0.3975	-0.0394
3XY	0.0000	0.3640	-0.1782	0.0000	-0.3640	0.1782	0.0444	0.3993	-0.0338
3Y	0.0000	0.2400	-0.1442	-0.0000	-0.2400	0.1442	0.0422	0.3999	0.0232
4X	1.2750	1.8680	-1.8302	-1.2750	-1.8680	1.8302	0.0478	0.3974	-0.1305
5X	0.0000	0.1680	-0.1002	-0.0000	-0.1680	0.1002	0.0381	0.3294	-0.0373
5XY	0.0000	0.1680	-0.1002	-0.0000	-0.1680	0.1002	0.0366	0.3305	-0.0320
5Y	0.0000	0.1680	-0.1002	-0.0000	-0.1680	0.1002	0.0396	0.3304	0.0219
6X	0.0000	0.1680	-0.1002	-0.0000	-0.1680	0.1002	0.0320	0.2958	-0.0357
6XY	0.0000	0.1680	-0.1002	0.0000	-0.1680	0.1002	0.0358	0.2974	-0.0305
6Y	0.0000	0.1680	-0.1002	-0.0000	-0.1680	0.1002	0.0340	0.2962	0.0210
7X	0.0000	0.2600	-0.2372	0.0000	-0.2600	0.2372	0.0306	0.2642	-0.0340
7XY	0.0000	0.1680	-0.1002	0.0000	-0.1680	0.1002	0.0308	0.2655	-0.0290
7Y	0.0000	0.2400	-0.1442	0.0000	-0.2400	0.1442	0.0294	0.2661	0.0200
8X	0.5000	1.8180	-1.8252	-0.5000	-1.8180	1.8252	0.0351	0.2633	-0.1718
9X	0.0000	0.1680	-0.1002	0.0000	-0.1680	0.1002	0.0291	0.2169	-0.0301
9XY	0.0000	0.1680	-0.1002	-0.0000	-0.1680	0.1002	0.0217	0.2174	-0.0258
9Y	0.0000	0.1680	-0.1002	-0.0000	-0.1680	0.1002	0.0280	0.2164	0.0173
10X	0.0000	0.2800	-0.2682	-0.0000	-0.2800	0.2682	0.0206	0.1737	-0.0253
10XY	0.0000	0.1680	-0.1002	0.0000	-0.1680	0.1002	0.0213	0.1744	-0.0220
10Y	0.0000	0.2560	-0.1532	-0.0000	-0.2560	0.1532	0.0198	0.1747	0.0139
11X	0.4000	1.7680	-1.8502	-0.4000	-1.7680	1.8502	0.0223	0.1737	-0.0952
12X	0.0000	0.1680	-0.1002	0.0000	-0.1680	0.1002	0.0207	0.1432	-0.0251
12XY	0.0000	0.1680	-0.1002	0.0000	-0.1680	0.1002	0.0157	0.1418	-0.0223
12Y	0.0000	0.1680	-0.1002	0.0000	-0.1680	0.1002	0.0188	0.1422	0.0151
13X	0.0000	0.1680	-0.1002	-0.0000	-0.1680	0.1002	0.0186	0.1138	-0.0239
13XY	0.0000	0.1680	-0.1002	0.0000	-0.1680	0.1002	0.0132	0.1105	-0.0218
13Y	0.0000	0.1680	-0.1002	0.0000	-0.1680	0.1002	0.0141	0.1104	0.0156
14X	0.0000	0.8543	-0.6192	-0.0000	-0.8543	0.6192	0.0144	0.0876	-0.0221
14XY	0.0000	0.7213	-0.4192	0.0000	-0.7213	0.4192	0.0140	0.0825	-0.0208
14Y	0.0000	0.8253	-0.4822	0.0000	-0.8253	0.4822	0.0098	0.0833	0.0147
15X	0.0000	0.7073	-0.5500	-0.0000	-0.7073	0.5500	-0.0026	0.0432	-0.0187

15XY	0.0000	0.5533	-0.3190	0.0000	-0.5533	0.3190	-0.0031	0.0372	-0.0147
15Y	0.0000	0.6733	-0.3920	0.0000	-0.6733	0.3920	0.0043	0.0376	0.0129
16X	0.0000	0.6863	-0.5190	0.0000	-0.6863	0.5190	-0.0005	0.0018	-0.0050
16XY	0.0000	0.5533	-0.3190	0.0000	-0.5533	0.3190	0.0005	0.0015	-0.0042
16Y	0.0000	0.6573	-0.3820	0.0000	-0.6573	0.3820	0.0015	0.0019	0.0039
17X	0.0000	0.5533	-0.3190	10.1926	12.7810	-70.3752	0.0000	0.0000	0.0000
17XY	0.0000	0.5533	-0.3190	-8.5698	10.5508	-58.6658	0.0000	0.0000	0.0000
17Y	0.0000	0.5533	-0.3190	8.1010	10.0151	59.1053	0.0000	0.0000	0.0000
30X	0.0000	0.0091	-0.0711	-0.0000	-0.0091	0.0711	0.0493	1.0250	-0.4991
31Y	0.0000	0.0091	-0.0711	-0.0000	-0.0091	0.0711	0.5493	0.5250	-0.4991
32X	0.0000	0.0091	-0.0711	0.0000	-0.0091	0.0711	0.0700	1.3851	-0.5028
33Y	0.0000	0.0091	-0.0711	0.0000	-0.0091	0.0711	0.5700	0.8851	-0.5028
18S	0.0000	0.1680	-0.1002	-0.0000	-0.1680	0.1002	0.0347	0.2953	-0.0096
19S	0.0000	0.1680	-0.1002	0.0000	-0.1680	0.1002	0.0327	0.3736	0.0160
20S	0.0000	0.5533	-0.3190	-0.0000	-0.5533	0.3190	-0.0061	0.0016	-0.0013
21S	0.0000	0.5533	-0.3190	-0.0000	-0.5533	0.3190	0.0000	0.1328	-0.0204
18Y	0.0000	0.1680	-0.1002	0.0000	-0.1680	0.1002	0.0325	0.2967	-0.0046
19X	0.0000	0.1680	-0.1002	-0.0000	-0.1680	0.1002	0.0339	0.3931	-0.0338
20Y	0.0000	0.5533	-0.3190	-0.0000	-0.5533	0.3190	0.0055	0.0013	-0.0012
21X	0.0000	0.5533	-0.3190	-0.0000	-0.5533	0.3190	-0.0000	0.1037	0.0127

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)	Original Supported RLX	Original Supported RLY	Original Supported RLZ	Original Supported L/R	Original Supported KL/R	Original Supported Curve No.	Alternate Unsupported L/R Cap. (kips)	Alternate Unsupported RLOUT	Alternate Unsupported L/R	Alternate Unsupported KL/R	Alternate Unsupported Curve No.
g14P	g14Y	Short only	-0.30	-0.45	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	-0.45	-0.30	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	-1.61	-3.47	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	-2.90	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	-2.90	-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	-3.47	-1.61	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	-1.16	-1.57	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	-1.57	-1.16	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	-0.15	-3.53	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	-3.53	-0.15	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	-0.70	-1.02	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	-1.02	-0.70	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	-2.96	-3.00	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	-3.00	-2.96	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	-1.46	-1.80	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	-1.80	-1.46	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	-0.84	-0.02	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	-0.02	-0.84	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	-1.34	-1.44	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	-1.44	-1.34	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	1.111	30.00	30.00	3.70
2	1.859	30.00	30.00	6.20
3	2.676	30.00	30.00	8.92
4	2.909	30.00	30.00	9.70
5	2.630	30.00	30.00	8.77
6	2.624	30.00	30.00	8.75
7	2.611	30.00	30.00	8.70
8	2.590	30.00	30.00	8.63
14	1.448	30.00	30.00	4.83
15	1.576	30.00	30.00	5.25
16	1.642	30.00	30.00	5.47
17	0.884	30.00	30.00	2.95
18	0.755	30.00	30.00	2.52
19	0.554	30.00	30.00	1.85
20	0.449	30.00	30.00	1.50
21	0.711	30.00	30.00	2.37
22	0.449	30.00	30.00	1.50
23	0.449	30.00	30.00	1.50
24	0.405	30.00	30.00	1.35
25	3.137	30.00	30.00	10.46
26	0.323	30.00	30.00	1.08
27	0.277	30.00	30.00	0.92
28	0.306	30.00	30.00	1.02
29	1.016	30.00	30.00	3.39
30	1.080	30.00	30.00	3.60
31	2.105	30.00	30.00	7.02
32	0.352	30.00	30.00	1.17
33	0.388	30.00	30.00	1.29
34	1.055	30.00	30.00	3.52
35	0.896	30.00	30.00	2.99
36	0.860	30.00	30.00	2.87
37	0.280	30.00	30.00	0.93
38	0.298	30.00	30.00	0.99
39	0.956	30.00	30.00	3.19
40	0.779	30.00	30.00	2.60
41	0.760	30.00	30.00	2.53
42	0.280	30.00	30.00	0.93

*** Analysis Results for Load Case No. 3 "NESC Heavy - Longitudinal" - Number of iterations in SAPS 56

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	0.1776	0.04403	-0.01896	-0.0305	0.2707	0.0038	2.678	-2.456	85.98
2P	0.1828	0.04352	-0.007925	0.0131	0.2525	0.0339	0.1828	-13.71	85.99
3P	0.1554	0.03944	-0.01863	-0.0460	0.2656	0.0056	2.655	-2.461	80.98
4P	0.1556	0.04048	-0.009709	0.0410	0.2415	0.0037	0.1556	-9.71	80.99
5P	0.1281	0.03219	-0.018	-0.0603	0.2576	0.0091	2.628	-2.468	74.98
6P	0.1155	0.03015	-0.01742	-0.0165	0.2090	0.0107	2.615	-2.47	71.98
7P	0.1055	0.02968	-0.01676	-0.0184	0.2039	0.0124	2.605	-2.47	68.98
8P	0.1083	0.03157	-0.0361	0.2113	0.2088	0.0169	0.1083	-14.22	68.96
9P	0.08704	0.02308	-0.01536	-0.0515	0.2025	0.0125	2.587	-2.477	63.98
10P	0.071	0.0231	-0.01368	-0.0009	0.1711	0.0122	2.571	-2.477	58.99
11P	0.07364	0.0231	-0.01151	0.0556	0.1635	0.0223	0.07364	-10.23	58.99
12P	0.0584	0.01978	-0.01344	-0.0456	0.1269	0.0090	3.246	-3.168	54.03
13P	0.04626	0.01854	-0.01289	0.0031	0.1060	0.0147	4.06	-3.995	48.09
14P	0.03545	0.01929	-0.01224	-0.0102	0.0783	0.0125	4.943	-4.888	41.49
15P	0.01949	0.01207	-0.009063	-0.0248	0.0630	-0.0004	6.922	-6.89	26.99
16P	0.0004482	0.0001649	-0.002189	0.0054	-0.0136	-0.1332	10	-10	4.998
17P	0	0	0	0.0000	0.0000	0.0000	10.69	-10.69	0
22P	0.2964	0.06249	-0.003696	-0.0593	0.4093	0.0053	0.2964	0.06249	104
23P	0.2331	0.05319	-0.003415	-0.0589	0.3894	0.0053	0.2331	0.05319	95
24P	0.1779	0.04403	-0.003129	-0.0575	0.2944	0.0054	0.1779	0.04403	86
25P	0.1548	0.03911	-0.002991	-0.0543	0.2500	0.0054	0.1548	0.03911	81
26P	0.1049	0.02896	-0.002633	-0.0435	0.2219	0.0062	0.1049	0.02896	69
27P	0.07023	0.02218	-0.002313	-0.0325	0.1694	0.0066	0.07023	0.02218	59
28P	0.01781	0.01008	-0.001198	-0.0243	0.0561	0.0055	0.01781	0.01008	27
29P	0	0	0	0.0000	0.0000	0.0000	0	0	0
30P	0.1521	-0.2914	-0.4746	0.0000	0.0000	0.0000	0.1521	0.2086	85.53
31P	-0.3221	0.5438	-0.01758	0.0000	0.0000	0.0000	0.1779	0.5438	85.98
32P	0.2553	-0.276	-0.4751	0.0000	0.0000	0.0000	0.2553	0.224	103.5
33P	-0.2036	0.5623	-0.01814	0.0000	0.0000	0.0000	0.2964	0.5623	104
1X	0.1771	0.04465	-0.02357	-0.0885	0.2644	0.0075	2.677	2.545	85.98
1XY	0.1776	0.04409	-0.002166	-0.0827	0.2410	0.0018	-2.322	2.544	86
1Y	0.1781	0.04346	0.002529	-0.0253	0.2471	0.0080	-2.322	-2.457	86
2X	0.176	0.04471	-0.03735	-0.1455	0.2521	0.0071	0.176	13.79	85.96
3X	0.1555	0.0385	-0.02315	-0.0657	0.2583	-0.0075	2.656	2.539	80.98
3XY	0.1548	0.03893	-0.001908	-0.0752	0.2459	-0.0029	-2.345	2.539	81
3Y	0.1548	0.03933	0.002612	-0.0314	0.2410	0.0027	-2.345	-2.461	81
4X	0.1573	0.03735	-0.03045	-0.1766	0.2435	-0.0223	0.1573	9.787	80.97
5X	0.1286	0.03558	-0.02209	-0.0319	0.2634	-0.0029	2.629	2.536	74.98
5XY	0.1294	0.03361	-0.001926	-0.0195	0.2303	0.0035	-2.371	2.534	75
5Y	0.1307	0.03361	0.002168	-0.0850	0.2264	0.0058	-2.369	-2.466	75
6X	0.1154	0.03281	-0.02132	-0.0732	0.2230	-0.0003	2.615	2.533	71.98
6XY	0.1173	0.03238	-0.002011	-0.0520	0.2447	0.0070	-2.383	2.532	72
6Y	0.1183	0.02951	0.001889	-0.0449	0.2514	0.0071	-2.382	-2.47	72
7X	0.1048	0.02876	-0.02046	-0.0659	0.2078	0.0020	2.605	2.529	68.98
7XY	0.1043	0.02815	-0.001983	-0.0856	0.2291	0.0105	-2.396	2.528	69
7Y	0.1052	0.02895	0.001721	-0.0022	0.2264	0.0083	-2.395	-2.471	69
8X	0.1047	0.02613	-0.05787	-0.3005	0.2094	-0.0044	0.1047	14.28	68.94
9X	0.08641	0.02832	-0.01849	-0.0251	0.2069	0.0092	2.586	2.528	63.98
9XY	0.08546	0.02552	-0.002186	-0.0223	0.2044	0.0109	-2.415	2.526	64
9Y	0.08709	0.02399	0.001048	-0.0604	0.2006	0.0145	-2.413	-2.476	64

10X	0.06977	0.02239	-0.01602	-0.0536	0.1699	0.0168	2.57	2.522	58.98
10XY	0.06947	0.0213	-0.002505	-0.0612	0.1516	0.0118	-2.431	2.521	59
10Y	0.07073	0.02166	0.0002494	-0.0065	0.1553	0.0202	-2.429	-2.478	59
11X	0.06856	0.02111	-0.02408	-0.1363	0.1543	0.0049	0.06856	10.27	58.98
12X	0.05748	0.02243	-0.01542	0.0125	0.1142	0.0215	3.245	3.21	54.03
12XY	0.05672	0.01797	-0.001754	-0.0285	0.1351	0.0105	-3.131	3.206	54.05
12Y	0.05826	0.01892	0.001354	-0.0318	0.1351	0.0254	-3.13	-3.169	54.05
13X	0.04597	0.02127	-0.01414	-0.0178	0.0959	0.0190	4.059	4.035	48.09
13XY	0.04443	0.01483	-0.001132	-0.0274	0.0940	0.0113	-3.969	4.028	48.1
13Y	0.04592	0.01584	0.002154	-0.0212	0.1070	0.0264	-3.967	-3.997	48.11
14X	0.03505	0.01937	-0.01259	-0.0182	0.0814	0.0216	4.942	4.927	41.49
14XY	0.03514	0.0122	-0.0009467	-0.0174	0.0740	0.0144	-4.872	4.92	41.5
14Y	0.03531	0.01272	0.002468	-0.0206	0.0826	0.0282	-4.872	-4.895	41.5
15X	0.01576	0.01206	-0.009583	-0.0265	0.0522	0.0205	6.918	6.914	26.99
15XY	0.01566	0.007498	0.0001517	-0.0234	0.0556	0.0192	-6.887	6.91	27
15Y	0.0197	0.008059	0.002349	-0.0004	0.0481	0.0322	-6.882	-6.894	27
16X	0.0002665	7.106e-005	-0.002892	-0.0090	0.0042	0.0172	10	10	4.997
16XY	0.0002182	0.0006196	0.0002984	-0.0099	0.0096	-0.0144	-10	10	5
16Y	0.0009994	0.001003	0.001284	-0.0019	0.0427	0.1360	-9.999	-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
30X	0.1779	1.044	-0.01758	0.0000	0.0000	0.0000	0.1779	0.5438	85.98
31Y	0.6779	0.5438	-0.01758	0.0000	0.0000	0.0000	0.1779	0.5438	85.98
32X	0.2964	1.062	-0.01814	0.0000	0.0000	0.0000	0.2964	0.5623	104
33Y	0.7964	0.5623	-0.01814	0.0000	0.0000	0.0000	0.2964	0.5623	104
18S	0.1152	0.03146	-0.01842	0.0000	0.0000	0.0000	2.615	0.03146	71.98
19S	0.1169	0.1089	-0.008357	0.0000	0.0000	0.0000	0.1169	-2.391	71.99
20S	0.00306	8.631e-005	0.0001914	-0.0021	-0.0048	0.0297	10	8.631e-005	5
21S	0.0005296	0.04657	-0.006822	0.0012	0.0076	-0.0043	0.0005296	-9.953	4.993
18Y	0.1179	0.03096	0.0001561	0.0000	0.0000	0.0000	-2.382	0.03096	72
19X	0.1163	-0.02935	-0.01183	0.0000	0.0000	0.0000	0.1163	2.471	71.99
20Y	-0.003035	0.000593	0.0002385	-0.0013	0.0261	-0.0270	-10	0.000593	5
21X	0.0001771	-0.00454	-0.0008418	-0.0094	0.0103	-0.0030	0.0001771	9.995	4.999

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

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	H-Shear 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 %	H-Bend-M Usage %	Z Moment (ft-k)	Z-M. Usage %	Max. Usage %
17P	-5.14	0.0	4.12	0.0	0.0	-29.91	0.0	0.0	30.63	0.0	-0.02	0.0	0.0	0.0	0.0	0.26	0.0	0.0
29P	-0.14	0.0	-0.60	0.0	0.0	-19.78	0.0	0.0	19.79	0.0	2.89	0.0	-4.2	0.0	0.0	-0.15	0.0	0.0
17X	-5.86	0.0	-5.71	0.0	0.0	-39.15	0.0	0.0	40.00	0.0	-0.08	0.0	0.1	0.0	0.0	-0.04	0.0	0.0
17XY	-0.50	0.0	-0.79	0.0	0.0	2.60	0.0	0.0	2.76	0.0	0.08	0.0	0.0	0.0	0.0	0.02	0.0	0.0
17Y	-3.74	0.0	-3.90	0.0	0.0	21.27	0.0	0.0	21.95	0.0	-0.00	0.0	-0.1	0.0	0.0	-0.27	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	0.0570	0.0662	-0.3062	-0.0570	-0.0662	0.3062	0.1776	0.0440	-0.0190
2P	1.1500	0.0367	-1.4433	-1.1500	-0.0367	1.4433	0.1828	0.0435	-0.0079
3P	0.1600	0.1164	-0.6303	-0.1600	-0.1164	0.6303	0.1554	0.0394	-0.0186
4P	0.0500	0.0628	-3.6913	-0.0500	-0.0628	3.6913	0.1556	0.0405	-0.0097
5P	0.0000	0.0949	-0.1034	0.0000	-0.0949	0.1034	0.1281	0.0322	-0.0180

6P	0.0000	0.0469	-0.0601	0.0000	-0.0469	0.0601	0.1155	0.0302	-0.0174
7P	0.1890	0.0982	-0.6832	-0.1890	-0.0982	0.6832	0.1055	0.0297	-0.0168
8P	0.6000	0.0416	-3.7363	-0.6000	-0.0416	3.7363	0.1083	0.0316	-0.0361
9P	0.0000	0.1229	-0.1316	-0.0000	-0.1229	0.1316	0.0870	0.0231	-0.0154
10P	0.2320	0.1117	-0.8063	-0.2320	-0.1117	0.8063	0.0710	0.0231	-0.0137
11P	1.2750	0.0461	-3.6801	-1.2750	-0.0461	3.6801	0.0736	0.0231	-0.0115
12P	0.0000	0.1099	-0.1414	-0.0000	-0.1099	0.1414	0.0584	0.0198	-0.0134
13P	0.0000	0.1357	-0.1714	-0.0000	-0.1357	0.1714	0.0463	0.0185	-0.0129
14P	0.2750	0.2270	-1.0756	-0.2750	-0.2270	1.0756	0.0355	0.0193	-0.0122
15P	0.3180	0.3601	-1.4846	-0.3180	-0.3601	1.4846	0.0195	0.0121	-0.0091
16P	0.2750	0.2635	-1.1452	-0.2750	-0.2635	1.1452	0.0004	0.0002	-0.0022
17P	0.0000	0.0741	-0.0944	5.1351	-4.1941	-29.8190	0.0000	0.0000	0.0000
22P	0.4660	0.0000	-2.5185	-0.4660	0.0000	2.5185	0.2964	0.0625	-0.0037
23P	0.8430	0.0000	-2.7811	-0.8430	-0.0000	2.7811	0.2331	0.0532	-0.0034
24P	0.0960	0.0000	-0.8692	-0.0960	0.0000	0.8692	0.1779	0.0440	-0.0031
25P	0.1170	0.2040	-1.0707	-0.1170	-0.2040	1.0707	0.1548	0.0391	-0.0030
26P	0.1510	0.3740	-1.3748	-0.1510	-0.3740	1.3748	0.1049	0.0290	-0.0026
27P	0.2880	0.7140	-2.6529	-0.2880	-0.7140	2.6529	0.0702	0.0222	-0.0023
28P	0.5910	1.0030	-4.4812	-0.5910	-1.0030	4.4812	0.0178	0.0101	-0.0012
29P	0.0000	0.4590	-1.1039	0.1448	0.1417	-18.6725	0.0000	0.0000	0.0000
30P	0.0000	0.0000	-0.0001	0.0000	-0.0000	0.0001	0.1521	-0.2914	-0.4746
31P	0.0000	0.0024	-0.0001	0.0000	-0.0024	0.0001	-0.3221	0.5438	-0.0176
32P	0.0000	0.0000	-0.0001	0.0000	-0.0000	0.0001	0.2553	-0.2760	-0.4751
33P	0.0000	0.0024	-0.0001	0.0000	-0.0024	0.0001	-0.2036	0.5623	-0.0181
1X	0.0570	0.0000	-0.3062	-0.0570	0.0000	0.3062	0.1771	0.0447	-0.0236
1XY	0.0570	0.0000	-0.3062	-0.0570	-0.0000	0.3062	0.1776	0.0441	-0.0022
1Y	0.0000	0.0662	-0.1322	-0.0000	-0.0662	0.1322	0.1781	0.0435	0.0025
2X	0.0000	0.0000	-2.4183	0.0000	-0.0000	2.4183	0.1760	0.0447	-0.0373
3X	0.4200	0.0000	-0.8603	-0.4200	-0.0000	0.8603	0.1555	0.0385	-0.0231
3XY	0.0570	0.0000	-0.3543	-0.0570	0.0000	0.3543	0.1548	0.0389	-0.0019
3Y	0.1510	0.1164	-0.3693	-0.1510	-0.1164	0.3693	0.1548	0.0393	0.0026
4X	2.2000	0.0000	-3.6913	-2.2000	-0.0000	3.6913	0.1573	0.0373	-0.0304
5X	0.0000	0.0000	-0.1034	0.0000	0.0000	0.1034	0.1286	0.0356	-0.0221
5XY	0.0000	0.0000	-0.1034	0.0000	0.0000	0.1034	0.1294	0.0336	-0.0019
5Y	0.0000	0.0949	-0.1034	0.0000	-0.0949	0.1034	0.1307	0.0336	0.0022
6X	0.0000	0.0000	-0.0601	-0.0000	0.0000	0.0601	0.1154	0.0328	-0.0213
6XY	0.0000	0.0000	-0.0601	0.0000	0.0000	0.0601	0.1173	0.0324	-0.0020
6Y	0.0000	0.0469	-0.0601	0.0000	-0.0469	0.0601	0.1183	0.0295	0.0019
7X	0.3630	0.0000	-0.6832	-0.3630	-0.0000	0.6832	0.1048	0.0288	-0.0205
7XY	0.0000	0.0000	-0.1772	0.0000	0.0000	0.1772	0.1043	0.0282	-0.0020
7Y	0.1510	0.0982	-0.3662	-0.1510	-0.0982	0.3662	0.1052	0.0290	0.0017
8X	0.6250	0.0000	-3.7363	-0.6250	-0.0000	3.7363	0.1047	0.0261	-0.0579
9X	0.0000	0.0000	-0.1316	0.0000	0.0000	0.1316	0.0864	0.0283	-0.0185
9XY	0.0000	0.0000	-0.1316	0.0000	0.0000	0.1316	0.0855	0.0255	-0.0022
9Y	0.0000	0.1229	-0.1316	-0.0000	-0.1229	0.1316	0.0871	0.0240	0.0010
10X	0.4460	0.0000	-0.8063	-0.4460	-0.0000	0.8063	0.0698	0.0224	-0.0160
10XY	0.0000	0.0000	-0.1853	0.0000	0.0000	0.1853	0.0695	0.0213	-0.0025
10Y	0.1850	0.1117	-0.4173	-0.1850	-0.1117	0.4173	0.0707	0.0217	0.0002
11X	1.1750	0.0000	-3.6801	-1.1750	-0.0000	3.6801	0.0686	0.0211	-0.0241
12X	0.0000	0.0000	-0.1414	0.0000	0.0000	0.1414	0.0575	0.0224	-0.0154
12XY	0.0000	0.0000	-0.1414	0.0000	-0.0000	0.1414	0.0567	0.0180	-0.0018
12Y	0.0000	0.1099	-0.1414	-0.0000	-0.1099	0.1414	0.0583	0.0189	0.0014
13X	0.0000	0.0000	-0.1714	0.0000	-0.0000	0.1714	0.0460	0.0213	-0.0141
13XY	0.0000	0.0000	-0.1714	0.0000	-0.0000	0.1714	0.0444	0.0148	-0.0011
13Y	0.0000	0.1357	-0.1714	-0.0000	-0.1357	0.1714	0.0459	0.0158	0.0022
14X	0.5280	0.0000	-1.0756	-0.5280	-0.0000	1.0756	0.0350	0.0194	-0.0126
14XY	0.0000	0.0000	-0.3396	0.0000	-0.0000	0.3396	0.0351	0.0122	-0.0009
14Y	0.2200	0.2270	-0.6146	-0.2200	-0.2270	0.6146	0.0353	0.0127	0.0025
15X	0.6110	0.0000	-1.4846	-0.6110	-0.0000	1.4846	0.0158	0.0121	-0.0096

15XY	0.0000	0.0000	-0.6336	0.0000	0.0000	0.6336	0.0157	0.0075	0.0002
15Y	0.2540	0.3601	-0.9516	-0.2540	-0.3601	0.9516	0.0197	0.0081	0.0023
16X	0.5280	0.0000	-1.1452	-0.5280	-0.0000	1.1452	0.0003	0.0001	-0.0029
16XY	0.0000	0.0000	-0.4092	0.0000	0.0000	0.4092	0.0002	0.0006	0.0003
16Y	0.2200	0.2635	-0.6842	-0.2200	-0.2635	0.6842	0.0010	0.0010	0.0013
17X	0.0000	0.0000	-0.0944	5.8608	5.7149	-39.0588	0.0000	0.0000	0.0000
17XY	0.0000	0.0000	-0.0944	0.4976	0.7923	2.6901	0.0000	0.0000	0.0000
17Y	0.0000	0.0741	-0.0944	3.7427	3.8239	21.3674	0.0000	0.0000	0.0000
30X	0.0000	0.0024	-0.0001	0.0000	-0.0024	0.0001	0.1779	1.0438	-0.0176
31Y	0.0000	0.0024	-0.0001	0.0000	-0.0024	0.0001	0.6779	0.5438	-0.0176
32X	0.0000	0.0024	-0.0001	0.0000	-0.0024	0.0001	0.2964	1.0623	-0.0181
33Y	0.0000	0.0024	-0.0001	0.0000	-0.0024	0.0001	0.7964	0.5623	-0.0181
18S	0.0000	0.0000	-0.0436	0.0000	-0.0000	0.0436	0.1152	0.0315	-0.0184
19S	0.0000	0.0741	-0.0461	0.0000	-0.0741	0.0461	0.1169	0.1089	-0.0084
20S	0.0000	0.0000	-0.1556	0.0000	0.0000	0.1556	0.0031	0.0001	0.0002
21S	0.0000	0.2011	-0.1556	0.0000	-0.2011	0.1556	0.0005	0.0466	-0.0068
18Y	0.0000	0.0000	-0.0436	0.0000	-0.0000	0.0436	0.1179	0.0310	0.0002
19X	0.0000	0.0000	-0.0461	0.0000	-0.0000	0.0461	0.1163	-0.0293	-0.0118
20Y	0.0000	0.0000	-0.1556	-0.0000	-0.0000	0.1556	-0.0030	0.0006	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)	Original Supported RLX	Original Supported RLY	Original Supported RLZ	Original Supported L/R	Original Supported KL/R	Original Supported Curve No.	Alternate Unsupported L/R Cap. (kips)	Alternate Unsupported RLOUT	Alternate Unsupported L/R	Alternate Unsupported KL/R	Alternate Unsupported Curve No.
g16X	g16XY	Long only	-0.21	-3.91	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	-3.91	-0.21	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	-1.59	-2.03	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	-2.03	-1.59	12.53	0.780	0.560	0.560	129.17	127.02	5	10.86	1.000	147.29	136.78	6
g29P	g29X	Long only	-0.86	-0.82	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	-0.82	-0.86	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	1.846	30.00	30.00	6.15
2	2.418	30.00	30.00	8.06
3	3.692	30.00	30.00	12.31
4	4.297	30.00	30.00	14.32
5	3.784	30.00	30.00	12.61
6	3.788	30.00	30.00	12.63
7	3.895	30.00	30.00	12.98
8	3.863	30.00	30.00	12.88
14	1.207	30.00	30.00	4.02
15	1.560	30.00	30.00	5.20
16	1.133	30.00	30.00	3.78
17	0.846	30.00	30.00	2.82
18	0.716	30.00	30.00	2.39
19	0.957	30.00	30.00	3.19

20	0.318	30.00	30.00	1.06
21	0.661	30.00	30.00	2.20
22	0.311	30.00	30.00	1.04
23	0.311	30.00	30.00	1.04
24	0.359	30.00	30.00	1.20
25	2.906	30.00	30.00	9.69
26	0.875	30.00	30.00	2.92
27	1.096	30.00	30.00	3.65
28	1.433	30.00	30.00	4.78
29	2.762	30.00	30.00	9.21
30	4.630	30.00	30.00	15.43
31	2.561	30.00	30.00	8.54
32	0.774	30.00	30.00	2.58
33	0.921	30.00	30.00	3.07
34	1.198	30.00	30.00	3.99
35	1.605	30.00	30.00	5.35
36	1.261	30.00	30.00	4.20
37	0.408	30.00	30.00	1.36
38	0.470	30.00	30.00	1.57
39	0.691	30.00	30.00	2.30
40	1.049	30.00	30.00	3.50
41	0.765	30.00	30.00	2.55
42	0.416	30.00	30.00	1.39

*** Analysis Results for Load Case No. 4 "Extreme Wind - Longitudinal" - Number of iterations in SAPS 22

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	0.3131	0.1207	-0.02133	-0.1301	0.5022	-0.0335	2.813	-2.379	85.98
2P	0.3093	0.1218	0.02239	-0.1137	0.4813	-0.0163	0.3093	-13.63	86.02
3P	0.27	0.1085	-0.02071	-0.1469	0.4920	-0.0175	2.77	-2.391	80.98
4P	0.268	0.11	0.01335	-0.0966	0.4548	-0.0143	0.268	-9.64	81.01
5P	0.2202	0.09102	-0.01941	-0.1334	0.4591	-0.0149	2.72	-2.409	74.98
6P	0.1974	0.08536	-0.01843	-0.1028	0.3964	-0.0138	2.697	-2.415	71.98
7P	0.1779	0.07932	-0.01741	-0.1277	0.3787	-0.0123	2.678	-2.421	68.98
8P	0.1748	0.08115	0.0074	-0.0049	0.3741	-0.0172	0.1748	-14.17	69.01
9P	0.1448	0.06543	-0.01547	-0.1243	0.3564	-0.0076	2.645	-2.435	63.98
10P	0.1171	0.05901	-0.01334	-0.0745	0.2857	-0.0031	2.617	-2.441	58.99
11P	0.1168	0.05934	0.01096	-0.0923	0.2839	-0.0027	0.1168	-10.19	59.01
12P	0.0954	0.05035	-0.01329	-0.0995	0.2181	-0.0037	3.283	-3.137	54.03
13P	0.07506	0.04393	-0.01292	-0.0340	0.1716	0.0036	4.088	-3.969	48.09
14P	0.05755	0.04117	-0.01256	-0.0428	0.1268	-0.0000	4.965	-4.866	41.49
15P	0.03112	0.02238	-0.008935	-0.0571	0.0986	-0.0283	6.933	-6.88	26.99
16P	0.0006158	0.0009374	-0.00222	0.0104	-0.0490	-0.3378	10	-9.999	4.998
17P	0	0	0	0.0000	0.0000	0.0000	10.69	-10.69	0
22P	0.6104	0.1708	-0.004775	-0.1582	1.0563	-0.0142	0.6104	0.1708	104
23P	0.4482	0.1461	-0.003249	-0.1561	0.9832	-0.0140	0.4482	0.1461	95
24P	0.3156	0.1221	-0.002192	-0.1496	0.6330	-0.0132	0.3156	0.1221	86
25P	0.2699	0.1092	-0.001925	-0.1458	0.4692	-0.0123	0.2699	0.1092	81
26P	0.1786	0.07985	-0.001421	-0.1326	0.3980	-0.0096	0.1786	0.07985	69
27P	0.1171	0.05886	-0.001091	-0.1041	0.2946	-0.0068	0.1171	0.05886	59
28P	0.03072	0.02111	-0.0004826	-0.0582	0.0913	-0.0006	0.03072	0.02111	27
29P	0	0	0	0.0000	0.0000	0.0000	0	0	0
30P	0.3156	-0.3146	-0.4982	0.0000	0.0000	0.0000	0.3156	0.1854	85.5
31P	-0.1844	0.1854	-0.4982	0.0000	0.0000	0.0000	0.3156	0.1854	85.5
32P	0.6104	-0.2658	-0.5008	0.0000	0.0000	0.0000	0.6104	0.2342	103.5
33P	0.1104	0.2342	-0.5008	0.0000	0.0000	0.0000	0.6104	0.2342	103.5
1X	0.315	0.1215	-0.03378	-0.1644	0.4986	-0.0144	2.815	2.622	85.97
1XY	0.3154	0.1229	0.006656	-0.1667	0.4841	-0.0159	-2.185	2.623	86.01
1Y	0.3135	0.1231	0.01915	-0.1254	0.4855	-0.0315	-2.187	-2.377	86.02
2X	0.3181	0.1224	-0.04936	-0.1918	0.4805	-0.0168	0.3181	13.87	85.95
3X	0.2721	0.1076	-0.03304	-0.1434	0.4878	-0.0343	2.772	2.608	80.97
3XY	0.2716	0.1103	0.006699	-0.1649	0.4708	-0.0294	-2.228	2.61	81.01
3Y	0.2696	0.1102	0.01904	-0.1253	0.4646	-0.0196	-2.23	-2.39	81.02
4X	0.2767	0.1082	-0.03734	-0.2108	0.4555	-0.0420	0.2767	9.858	80.96
5X	0.2223	0.09569	-0.03129	-0.1479	0.4742	-0.0257	2.722	2.596	74.97
5XY	0.2249	0.0936	0.005855	-0.1145	0.4343	-0.0216	-2.275	2.594	75.01
5Y	0.2237	0.09657	0.01771	-0.1746	0.4365	-0.0166	-2.276	-2.403	75.02
6X	0.1985	0.08673	-0.02987	-0.1708	0.4089	-0.0209	2.699	2.587	71.97
6XY	0.2019	0.08829	0.005381	-0.1206	0.4431	-0.0176	-2.298	2.588	72.01
6Y	0.2005	0.08695	0.01684	-0.1594	0.4458	-0.0155	-2.3	-2.413	72.02
7X	0.1791	0.07896	-0.02843	-0.1297	0.3692	-0.0168	2.679	2.579	68.97
7XY	0.1791	0.0803	0.004971	-0.1681	0.4137	-0.0131	-2.321	2.58	69
7Y	0.178	0.08073	0.01601	-0.0953	0.3949	-0.0146	-2.322	-2.419	69.02
8X	0.1833	0.07849	-0.05852	-0.2640	0.3752	-0.0250	0.1833	14.33	68.94
9X	0.1465	0.07108	-0.02523	-0.1152	0.3694	-0.0070	2.646	2.571	63.97
9XY	0.1449	0.06793	0.003791	-0.1140	0.3630	-0.0051	-2.355	2.568	64
9Y	0.1459	0.07018	0.01372	-0.1417	0.3578	-0.0061	-2.354	-2.43	64.01

10X	0.117	0.05864	-0.02121	-0.1104	0.2852	0.0031	2.617	2.559	58.98
10XY	0.117	0.05869	0.002342	-0.1207	0.2690	0.0033	-2.383	2.559	59
10Y	0.117	0.05886	0.0109	-0.0900	0.2709	0.0019	-2.383	-2.441	59.01
11X	0.1165	0.0583	-0.03005	-0.1717	0.2689	0.0029	0.1165	10.31	58.97
12X	0.0966	0.05381	-0.02098	-0.0338	0.1963	0.0042	3.284	3.242	54.03
12XY	0.09547	0.04869	0.002468	-0.1038	0.2209	0.0082	-3.092	3.236	54.05
12Y	0.09635	0.05163	0.01188	-0.0767	0.2117	0.0110	-3.091	-3.136	54.06
13X	0.07734	0.04794	-0.01966	-0.0555	0.1611	0.0000	4.091	4.061	48.08
13XY	0.07548	0.0402	0.002367	-0.0705	0.1547	0.0110	-3.938	4.053	48.11
13Y	0.0758	0.04261	0.01227	-0.0762	0.1755	0.0192	-3.937	-3.971	48.12
14X	0.06003	0.04105	-0.01777	-0.0594	0.1328	-0.0003	4.967	4.948	41.48
14XY	0.06005	0.0327	0.001703	-0.0591	0.1205	0.0229	-4.847	4.94	41.5
14Y	0.05795	0.03397	0.01176	-0.0606	0.1345	0.0264	-4.849	-4.873	41.51
15X	0.02921	0.02248	-0.01399	-0.0457	0.0910	-0.0166	6.931	6.925	26.99
15XY	0.02903	0.01868	0.001843	-0.0471	0.0892	0.0509	-6.873	6.921	27
15Y	0.03175	0.01999	0.009863	-0.0235	0.0777	0.0441	-6.87	-6.882	27.01
16X	0.0005237	0.0008911	-0.004349	0.0107	0.0659	-0.3070	10	10	4.996
16XY	0.001433	0.001851	0.0008228	0.0067	-0.0270	0.3131	-9.999	10	5.001
16Y	0.002868	0.002627	0.003493	-0.0080	0.1064	0.3358	-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
30X	0.3156	0.6854	-0.4982	0.0000	0.0000	0.0000	0.3156	0.1854	85.5
31Y	0.8156	0.1854	-0.4982	0.0000	0.0000	0.0000	0.3156	0.1854	85.5
32X	0.6104	0.7342	-0.5008	0.0000	0.0000	0.0000	0.6104	0.2342	103.5
33Y	1.11	0.2342	-0.5008	0.0000	0.0000	0.0000	0.6104	0.2342	103.5
18S	0.1971	0.08603	-0.02307	0.0000	0.0000	0.0000	2.697	0.08603	71.98
19S	0.1989	0.1698	-0.001666	0.0000	0.0000	0.0000	0.1989	-2.33	72
20S	-0.005534	0.0007096	-0.001212	-0.0144	0.0085	0.1613	9.994	0.0007096	4.999
21S	0.001277	0.1257	-0.01927	-0.0038	0.0102	-0.0067	0.001277	-9.874	4.981
18Y	0.2015	0.08759	0.0106	0.0000	0.0000	0.0000	-2.299	0.08759	72.01
19X	0.2002	0.1764	-0.01296	0.0000	0.0000	0.0000	0.2002	2.676	71.99
20Y	0.007465	0.001678	-0.0014	-0.0112	0.0397	-0.1559	-9.993	0.001678	4.999
21X	0.0007213	0.1035	0.0127	0.0123	0.0125	-0.0056	0.0007213	10.1	5.013

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

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	H-Shear 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 %	H-Bend-M Usage %	Z Moment (ft-k)	Z-M. Usage %	Max. Usage %
17P	-6.41	0.0	2.73	0.0	0.0	-29.64	0.0	0.0	30.44	0.0	-0.06	0.0	0.0	0.0	0.0	0.67	0.0	0.0
29P	-0.31	0.0	-0.80	0.0	0.0	-7.48	0.0	0.0	7.53	0.0	5.54	0.0	-7.6	0.0	0.0	0.02	0.0	0.0
17X	-10.13	0.0	-10.53	0.0	0.0	-61.73	0.0	0.0	63.44	0.0	-0.20	0.0	0.0	0.0	0.0	0.60	0.0	0.0
17XY	-2.04	0.0	-2.47	0.0	0.0	8.57	0.0	0.0	9.14	0.0	0.06	0.0	-0.1	0.0	0.0	-0.64	0.0	0.0
17Y	-10.10	0.0	-11.22	0.0	0.0	57.94	0.0	0.0	59.87	0.0	-0.01	0.0	-0.2	0.0	0.0	-0.66	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	0.1960	0.1771	-0.2493	-0.1960	-0.1771	0.2493	0.3131	0.1207	-0.0213
2P	0.4250	0.1771	-0.6713	-0.4250	-0.1771	0.6713	0.3093	0.1218	0.0224
3P	0.4960	0.1680	-0.2532	-0.4960	-0.1680	0.2532	0.2700	0.1085	-0.0207
4P	0.2500	0.1680	-1.8752	-0.2500	-0.1680	1.8752	0.2680	0.1100	0.0133
5P	0.0000	0.1680	-0.1002	0.0000	-0.1680	0.1002	0.2202	0.0910	-0.0194

6P	0.0000	0.1680	-0.1002	-0.0000	-0.1680	0.1002	0.1974	0.0854	-0.0184
7P	0.5490	0.1680	-0.2372	-0.5490	-0.1680	0.2372	0.1779	0.0793	-0.0174
8P	0.0750	0.1680	-1.8752	-0.0750	-0.1680	1.8752	0.1748	0.0811	0.0074
9P	0.0000	0.1680	-0.1002	-0.0000	-0.1680	0.1002	0.1448	0.0654	-0.0155
10P	0.6740	0.1680	-0.2682	-0.6740	-0.1680	0.2682	0.1171	0.0590	-0.0133
11P	0.4250	0.1680	-1.8502	-0.4250	-0.1680	1.8502	0.1168	0.0593	0.0110
12P	0.0000	0.1680	-0.1002	-0.0000	-0.1680	0.1002	0.0954	0.0504	-0.0133
13P	0.0000	0.1680	-0.1002	-0.0000	-0.1680	0.1002	0.0751	0.0439	-0.0129
14P	0.7990	0.7213	-0.6192	-0.7990	-0.7213	0.6192	0.0576	0.0412	-0.0126
15P	0.9240	0.5533	-0.5500	-0.9240	-0.5533	0.5500	0.0311	0.0224	-0.0089
16P	0.7990	0.5533	-0.5190	-0.7990	-0.5533	0.5190	0.0006	0.0009	-0.0022
17P	0.0000	0.5533	-0.3190	6.4056	-3.2833	-29.3174	0.0000	0.0000	0.0000
22P	1.7510	0.0091	-1.1541	-1.7510	-0.0091	1.1541	0.6104	0.1708	-0.0048
23P	3.1750	0.0091	-0.9521	-3.1750	-0.0091	0.9521	0.4482	0.1461	-0.0032
24P	0.2740	0.1771	-0.2703	-0.2740	-0.1771	0.2703	0.3156	0.1221	-0.0022
25P	0.3320	0.1680	-0.2202	-0.3320	-0.1680	0.2202	0.2699	0.1092	-0.0019
26P	0.4300	0.1680	-0.2562	-0.4300	-0.1680	0.2562	0.1786	0.0799	-0.0014
27P	0.8210	0.7213	-0.7162	-0.8210	-0.7213	0.7162	0.1171	0.0589	-0.0011
28P	1.6800	0.5533	-0.9280	-1.6800	-0.5533	0.9280	0.0307	0.0211	-0.0005
29P	0.0000	0.5533	-0.3190	0.3064	0.2474	-7.1657	0.0000	0.0000	0.0000
30P	0.0000	0.0091	-0.0711	-0.0000	-0.0091	0.0711	0.3156	-0.3146	-0.4982
31P	0.0000	0.0091	-0.0711	-0.0000	-0.0091	0.0711	-0.1844	0.1854	-0.4982
32P	0.0000	0.0091	-0.0711	0.0000	-0.0091	0.0711	0.6104	-0.2658	-0.5008
33P	0.0000	0.0091	-0.0711	-0.0000	-0.0091	0.0711	0.1104	0.2342	-0.5008
1X	0.1960	0.1771	-0.2493	-0.1960	-0.1771	0.2493	0.3150	0.1215	-0.0338
1XY	0.1960	0.1771	-0.2493	-0.1960	-0.1771	0.2493	0.3154	0.1229	0.0067
1Y	0.0000	0.1771	-0.1713	-0.0000	-0.1771	0.1713	0.3135	0.1231	0.0191
2X	0.0000	0.1771	-1.2213	-0.0000	-0.1771	1.2213	0.3181	0.1224	-0.0494
3X	1.2940	0.1680	-0.3152	-1.2940	-0.1680	0.3152	0.2721	0.1076	-0.0330
3XY	0.1960	0.1680	-0.1782	-0.1960	-0.1680	0.1782	0.2716	0.1103	0.0067
3Y	0.4300	0.1680	-0.1442	-0.4300	-0.1680	0.1442	0.2696	0.1102	0.0190
4X	1.2750	0.1680	-1.8302	-1.2750	-0.1680	1.8302	0.2767	0.1082	-0.0373
5X	0.0000	0.1680	-0.1002	0.0000	-0.1680	0.1002	0.2223	0.0957	-0.0313
5XY	0.0000	0.1680	-0.1002	-0.0000	-0.1680	0.1002	0.2249	0.0936	0.0059
5Y	0.0000	0.1680	-0.1002	-0.0000	-0.1680	0.1002	0.2237	0.0966	0.0177
6X	0.0000	0.1680	-0.1002	-0.0000	-0.1680	0.1002	0.1985	0.0867	-0.0299
6XY	0.0000	0.1680	-0.1002	-0.0000	-0.1680	0.1002	0.2019	0.0883	0.0054
6Y	0.0000	0.1680	-0.1002	-0.0000	-0.1680	0.1002	0.2005	0.0869	0.0168
7X	1.0980	0.1680	-0.2372	-1.0980	-0.1680	0.2372	0.1791	0.0790	-0.0284
7XY	0.0000	0.1680	-0.1002	-0.0000	-0.1680	0.1002	0.1791	0.0803	0.0050
7Y	0.4300	0.1680	-0.1442	-0.4300	-0.1680	0.1442	0.1780	0.0807	0.0160
8X	0.5000	0.1680	-1.8252	-0.5000	-0.1680	1.8252	0.1833	0.0785	-0.0585
9X	0.0000	0.1680	-0.1002	-0.0000	-0.1680	0.1002	0.1465	0.0711	-0.0252
9XY	0.0000	0.1680	-0.1002	-0.0000	-0.1680	0.1002	0.1449	0.0679	0.0038
9Y	0.0000	0.1680	-0.1002	-0.0000	-0.1680	0.1002	0.1459	0.0702	0.0137
10X	1.3480	0.1680	-0.2682	-1.3480	-0.1680	0.2682	0.1170	0.0586	-0.0212
10XY	0.0000	0.1680	-0.1002	-0.0000	-0.1680	0.1002	0.1170	0.0587	0.0023
10Y	0.5280	0.1680	-0.1532	-0.5280	-0.1680	0.1532	0.1170	0.0589	0.0109
11X	0.4000	0.1680	-1.8502	-0.4000	-0.1680	1.8502	0.1165	0.0583	-0.0301
12X	0.0000	0.1680	-0.1002	-0.0000	-0.1680	0.1002	0.0966	0.0538	-0.0210
12XY	0.0000	0.1680	-0.1002	0.0000	-0.1680	0.1002	0.0955	0.0487	0.0025
12Y	0.0000	0.1680	-0.1002	-0.0000	-0.1680	0.1002	0.0963	0.0516	0.0119
13X	0.0000	0.1680	-0.1002	-0.0000	-0.1680	0.1002	0.0773	0.0479	-0.0197
13XY	0.0000	0.1680	-0.1002	-0.0000	-0.1680	0.1002	0.0755	0.0402	0.0024
13Y	0.0000	0.1680	-0.1002	-0.0000	-0.1680	0.1002	0.0758	0.0426	0.0123
14X	1.5970	0.7213	-0.6192	-1.5970	-0.7213	0.6192	0.0600	0.0411	-0.0178
14XY	0.0000	0.7213	-0.4192	0.0000	-0.7213	0.4192	0.0600	0.0327	0.0017
14Y	0.6250	0.7213	-0.4822	-0.6250	-0.7213	0.4822	0.0579	0.0340	0.0118
15X	1.8470	0.5533	-0.5500	-1.8470	-0.5533	0.5500	0.0292	0.0225	-0.0140

15XY	0.0000	0.5533	-0.3190	-0.0000	-0.5533	0.3190	0.0290	0.0187	0.0018
15Y	0.7230	0.5533	-0.3920	-0.7230	-0.5533	0.3920	0.0317	0.0200	0.0099
16X	1.5970	0.5533	-0.5190	-1.5970	-0.5533	0.5190	0.0005	0.0009	-0.0043
16XY	0.0000	0.5533	-0.3190	-0.0000	-0.5533	0.3190	0.0014	0.0019	0.0008
16Y	0.6250	0.5533	-0.3820	-0.6250	-0.5533	0.3820	0.0029	0.0026	0.0035
17X	0.0000	0.5533	-0.3190	10.1309	9.9764	-61.4149	0.0000	0.0000	0.0000
17XY	0.0000	0.5533	-0.3190	2.0354	1.9138	8.8864	0.0000	0.0000	0.0000
17Y	0.0000	0.5533	-0.3190	10.1017	10.6671	58.2575	0.0000	0.0000	0.0000
30X	0.0000	0.0091	-0.0711	-0.0000	-0.0091	0.0712	0.3156	0.6854	-0.4982
31Y	0.0000	0.0091	-0.0711	0.0000	-0.0091	0.0711	0.8156	0.1854	-0.4982
32X	0.0000	0.0091	-0.0711	-0.0000	-0.0091	0.0711	0.6104	0.7342	-0.5008
33Y	0.0000	0.0091	-0.0711	-0.0000	-0.0091	0.0711	1.1104	0.2342	-0.5008
18S	0.0000	0.1680	-0.1002	-0.0000	-0.1680	0.1002	0.1971	0.0860	-0.0231
19S	0.0000	0.1680	-0.1002	-0.0000	-0.1680	0.1002	0.1989	0.1698	-0.0017
20S	0.0000	0.5533	-0.3190	0.0000	-0.5533	0.3190	-0.0055	0.0007	-0.0012
21S	0.0000	0.5533	-0.3190	0.0000	-0.5533	0.3190	0.0013	0.1257	-0.0193
18Y	0.0000	0.1680	-0.1002	-0.0000	-0.1680	0.1002	0.2015	0.0876	0.0106
19X	0.0000	0.1680	-0.1002	-0.0000	-0.1680	0.1002	0.2002	0.1764	-0.0130
20Y	0.0000	0.5533	-0.3190	0.0000	-0.5533	0.3190	0.0075	0.0017	-0.0014
21X	0.0000	0.5533	-0.3190	-0.0000	-0.5533	0.3190	0.0007	0.1035	0.0127

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)	Original Supported RLX	Original Supported RLY	Original Supported RLZ	Original Supported L/R	Original Supported KL/R	Original Supported Curve No.	Alternate Unsupported L/R Cap. (kips)	Alternate Unsupported RLOUT	Alternate Unsupported L/R	Alternate Unsupported KL/R	Alternate Unsupported Curve No.
g13P	g13X	Short only	-1.99	0.26	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	-6.10	1.18	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	-2.02	-2.39	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	-2.39	-2.02	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	-0.31	-1.14	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	-1.14	-0.31	12.53	0.780	0.560	0.560	129.17	127.02	5	10.86	1.000	147.29	136.78	6
g29P	g29X	Long only	-1.32	-0.75	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	-0.75	-1.32	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	-0.71	0.01	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	0.814	30.00	30.00	2.71
2	1.234	30.00	30.00	4.11
3	1.899	30.00	30.00	6.33
4	2.237	30.00	30.00	7.46
5	1.884	30.00	30.00	6.28
6	1.900	30.00	30.00	6.33
7	1.906	30.00	30.00	6.35
8	1.900	30.00	30.00	6.33
14	1.102	30.00	30.00	3.67
15	1.209	30.00	30.00	4.03
16	1.242	30.00	30.00	4.14

17	0.745	30.00	30.00	2.48
18	0.621	30.00	30.00	2.07
19	1.342	30.00	30.00	4.47
20	0.363	30.00	30.00	1.21
21	0.582	30.00	30.00	1.94
22	0.363	30.00	30.00	1.21
23	0.363	30.00	30.00	1.21
24	0.314	30.00	30.00	1.05
25	3.315	30.00	30.00	11.05
26	0.424	30.00	30.00	1.41
27	0.432	30.00	30.00	1.44
28	0.528	30.00	30.00	1.76
29	1.307	30.00	30.00	4.36
30	1.997	30.00	30.00	6.66
31	2.097	30.00	30.00	6.99
32	1.136	30.00	30.00	3.79
33	1.385	30.00	30.00	4.62
34	1.858	30.00	30.00	6.19
35	2.005	30.00	30.00	6.68
36	1.768	30.00	30.00	5.89
37	0.484	30.00	30.00	1.61
38	0.575	30.00	30.00	1.92
39	1.069	30.00	30.00	3.56
40	0.991	30.00	30.00	3.30
41	0.918	30.00	30.00	3.06
42	0.484	30.00	30.00	1.61

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

Group Summary (Compression Portion):

Group Label	Group Desc.	Angle Type	Angle Size	Steel Strength (ksi)	Max Usage %	Usage Control	Max Cont-rol Use In Comp. %	Comp. Member	Comp. Force (kips)	Comp. Control Load Case	L/R Capacity (kips)	Comp. Connect. Shear Capacity (kips)	Comp. Connect. Bearing Capacity (kips)	RLX	RLY	RLZ	L/R Comp. (ft)	KL/R	Length	Curve No.	No. Of Member Bolts	Comp.
LEG1	L4x4x1/4	SAE	4X4X0.25	33.0	97.15	Comp	97.15	g6X	-51.984	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	92.21	Comp	92.21	g12X	-69.885	Extreme	75.789	104.700	175.781	0.500	0.500	0.500	38.65	38.65	5.096	1	10	
LEG3	L4x4x3/8	SAE	4X4X0.375	33.0	81.25	Comp	81.25	g11X	-69.493	Extreme	85.526	104.700	210.937	0.167	0.167	0.167	57.05	57.05	22.432	1	10	
XBR1	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	33.0	66.63	Comp	66.63	g13P	-7.702	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	49.86	Cross	49.86	g16XY	-6.103	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	39.54	Comp	39.54	g19XY	-6.823	Extreme	17.255	31.410	31.641	1.000	1.500	1.000	120.57	120.57	3.905	4	3	
XBR4	L2x2x3/16	SAE	2X2X0.1875	33.0	27.62	Cross	27.62	g26Y	-3.000	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	20.90	Cross	20.90	g30Y	-1.444	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	53.36	Comp	53.36	g32XY	-1.204	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	50.08	Tens	43.60	g33Y	-0.463	NESC Hea	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**	**60.91**	**Tens**	**53.77**	**g60P**	**-5.482**	**Extreme**	**21.670**	**10.470**	**10.195**	**1.000**	**1.000**	**1.000**	**85.71**	**102.85**	**3.536**	**3**	**1**	**A potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize moments): g60P g60XY g60Y ??**
PMBR2	L3.5x3.5x1/4	SAE	3.5X3.5X0.25	36.0	29.78	Comp	29.78	g64P	-3.118	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	82.67	Comp	82.67	g37P	-4.794	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	47.57	Comp	47.57	g41P	-4.981	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	50.17	Comp	50.17	g43P	-5.253	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**	**44.32**	**Comp**	**44.32**	**g45Y**	**-4.640**	**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	29.28	Comp	29.28	g49X	-8.349	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	37.08	Comp	37.08	g53P	-9.096	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 29.47 Comp 29.47 g55X -3.086NESC 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 93.34 Tens 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 16.28 Comp 16.28 g65P -18.768NESC Hea 115.298 0.000 0.000 1.000 1.000 1.000
73.97 73.97 27.000 1 0
fic1 Fictitious1 Bar fic 36.0 0.00 0.00 g72P 0.000 0.000 0.000 0.000 1.000 1.000 1.000
2160000.00 2160000.00 18.000 4 0
fic Fictitious2 Bar fic 36.0 0.00 0.00 g74P 0.000 0.000 0.000 0.000 1.000 1.000 1.000
60000.00 60000.00 0.500 4 0
HBR5 L1.75x1.75x3/16 SAE 1.75X1.75X0.1875 33.0 14.01 Comp 14.01 g78XY -1.467NESC Hea 14.114 10.470 10.547 1.000 1.000 1.000
87.46 103.73 2.500 3 1
ArmBR2R L1.75x3/8x3/8 BAR 1.75X0.375X0.375 33.0 77.59 Tens 0.00 g57Y 0.000 0.100 10.470 21.094 1.000 1.000 1.000
1372.59 1372.59 12.382 4 1

Group Summary (Tension Portion):

Group No.	Group Label	Angle Desc.	Angle Type	Angle Size	Steel Strength (ksi)	Max Usage %	Usage Control	Max Tens. %	Tension Member	Tension Force (kips)	Tension Control Load Case	Net Section Capacity (kips)	Tension Connect. Shear Capacity (kips)	Tension Connect. Bearing Capacity (kips)	Tension Connect. Rupture Capacity (kips)	Length Tens. Member (ft)	No. Of Bolts	Hole Diameter (in)
LEG1	L4x4x1/4	SAE	4X4X0.25	33.0	97.15	Comp	77.43	g6Y	40.787Extreme	52.676	125.640	168.750	220.588	5.000	12	2.000	0.6875	
LEG2	L4x4x5/16	SAE	4X4X0.3125	33.0	92.21	Comp	91.23	g12Y	59.319Extreme	65.020	104.700	175.781	103.401	5.096	10	2.000	0.6875	
LEG3	L4x4x3/8	SAE	4X4X0.375	33.0	81.25	Comp	67.56	g11Y	52.268Extreme	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	66.63	Comp	47.11	g13X	6.871Extreme	14.585	20.940	21.094	16.189	7.071	2	1.000	0.6875	
XBR2	L3x2x3/16	SAU	3X2X0.1875	33.0	49.86	Cross	37.73	g23XY	8.640Extreme	22.901	31.410	31.641	28.125	7.071	3	1.000	0.6875	
XBR3	L3x2x3/16	SAU	3X2X0.1875	33.0	39.54	Comp	39.06	g35Y	3.015Extreme	17.333	10.470	10.547	7.717	11.826	1	1.000	0.6875	
XBR4	L2x2x3/16	SAE	2X2X0.1875	33.0	27.62	Cross	17.38	g25XY	2.648Extreme	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	20.90	Cross	11.36	g28Y	2.131Extreme	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	53.36	Comp	31.65	g32X	6.026Extreme	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	50.08	Tens	50.08	g33XY	7.304Extreme	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**	**60.91**	**Tens**	**60.91**	**g60Y**	**6.210Extreme**	**25.048**	**10.470**	**10.195**	**0.000**	**3.536**	**1**	**1.000**	**0.6875**	**A potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize moments): g60P g60XY g60Y ??**
PMBR2	L3.5x3.5x1/4	SAE	3.5X3.5X0.25	36.0	29.78	Comp	4.43	g64Y	0.464NESC 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	82.67	Comp	55.36	g38P	4.272Extreme	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	47.57	Comp	10.57	g41X	0.816Extreme	17.444	10.470	10.547	7.717	9.815	1	1.000	0.6875	

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     HBR3      L3x2.5x1/4   SAU       3X2.5X0.25     33.0 50.17  Comp 11.82    g43X   1.237Extreme    30.090   10.470   14.062   12.500 13.804     1
1.000   0.6875
     HBR4        L4x3x1/4   SAU         4X3X0.25     33.0 44.32  Comp 16.06    g46X   1.681Extreme    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 29.28  Comp 15.12    g48P   6.538Extreme    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 37.08  Comp  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 29.47  Comp  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 93.34  Tens 93.34    g58XY  7.364NESC Hea    7.889   10.470   14.062    0.000  2.500     1
1.000   0.6875
 Powermnt   12" Std. Pipe   PIP      12.75X0.375     50.0 16.28  Comp  0.00    g71P   0.000          729.999    0.000    0.000    0.000  9.000     0
0.000         0
     fic1     Fictitious1   Bar              fic     36.0  0.00        0.00    g72P   0.000NESC Hea    3.600    0.000    0.000    0.000 18.000     0
0.000         0
      fic     Fictitious2   Bar              fic     36.0  0.00        0.00    g75P   0.072Extreme     3.600    0.000    0.000    0.000  0.500     0
0.000         0
     HBR5 L1.75x1.75x3/16   SAE 1.75X1.75X0.1875     33.0 14.01  Comp  0.00    g78Y   0.000           14.585   10.470   10.547    7.717  2.500     1
1.000   0.6875
  ArmBR2R   L1.75x3/8x3/8   BAR 1.75X0.375X0.375     33.0 77.59  Tens 77.59    g57Y   8.124NESC Hea   11.834   10.470   21.094    0.000 12.382     1
1.000   0.6875
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*** 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	93.34	g58XY	Angle
Extreme Wind - Transverse	97.15	g6X	Angle
NESC Heavy - Longitudinal	92.99	g58Y	Angle
Extreme Wind - Longitudinal	87.75	g12Y	Angle

Summary of Insulator Usages:

Insulator Label	Insulator Type	Maximum Usage %	Load Case	Weight (lbs)
1	Clamp	6.86	NESC Heavy - Transverse	0.0
2	Clamp	8.86	NESC Heavy - Transverse	0.0
3	Clamp	13.12	NESC Heavy - Transverse	0.0
4	Clamp	14.97	NESC Heavy - Transverse	0.0
5	Clamp	13.38	NESC Heavy - Transverse	0.0
6	Clamp	13.35	NESC Heavy - Transverse	0.0
7	Clamp	13.74	NESC Heavy - Transverse	0.0
8	Clamp	13.59	NESC Heavy - Transverse	0.0
14	Clamp	4.83	Extreme Wind - Transverse	0.0
15	Clamp	5.44	NESC Heavy - Transverse	0.0
16	Clamp	5.47	Extreme Wind - Transverse	0.0
17	Clamp	2.95	Extreme Wind - Transverse	0.0
18	Clamp	2.52	Extreme Wind - Transverse	0.0

19	Clamp	4.47	Extreme Wind - Longitudinal	0.0
20	Clamp	1.50	Extreme Wind - Transverse	0.0
21	Clamp	2.37	Extreme Wind - Transverse	0.0
22	Clamp	1.50	Extreme Wind - Transverse	0.0
23	Clamp	1.50	Extreme Wind - Transverse	0.0
24	Clamp	1.35	Extreme Wind - Transverse	0.0
25	Clamp	11.05	Extreme Wind - Longitudinal	0.0
26	Clamp	2.92	NESC Heavy - Longitudinal	0.0
27	Clamp	3.65	NESC Heavy - Longitudinal	0.0
28	Clamp	4.78	NESC Heavy - Longitudinal	0.0
29	Clamp	9.21	NESC Heavy - Longitudinal	0.0
30	Clamp	15.43	NESC Heavy - Longitudinal	0.0
31	Clamp	8.54	NESC Heavy - Transverse	0.0
32	Clamp	3.79	Extreme Wind - Longitudinal	0.0
33	Clamp	4.62	Extreme Wind - Longitudinal	0.0
34	Clamp	6.19	Extreme Wind - Longitudinal	0.0
35	Clamp	6.68	Extreme Wind - Longitudinal	0.0
36	Clamp	5.89	Extreme Wind - Longitudinal	0.0
37	Clamp	1.61	Extreme Wind - Longitudinal	0.0
38	Clamp	1.92	Extreme Wind - Longitudinal	0.0
39	Clamp	3.56	Extreme Wind - Longitudinal	0.0
40	Clamp	3.50	NESC Heavy - Longitudinal	0.0
41	Clamp	3.06	Extreme Wind - Longitudinal	0.0
42	Clamp	1.61	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	1.150	0.912	1.443	2.058
NESC Heavy - Transverse	2	Clamp	2X	0.000	1.100	2.418	2.657
NESC Heavy - Transverse	3	Clamp	4P	0.050	1.363	3.691	3.935
NESC Heavy - Transverse	4	Clamp	4X	2.200	1.300	3.691	4.490
NESC Heavy - Transverse	5	Clamp	8P	0.600	1.342	3.736	4.015
NESC Heavy - Transverse	6	Clamp	8X	0.625	1.300	3.736	4.005
NESC Heavy - Transverse	7	Clamp	11P	1.275	1.346	3.680	4.121
NESC Heavy - Transverse	8	Clamp	11X	1.175	1.300	3.680	4.076
NESC Heavy - Transverse	14	Clamp	16P	0.000	0.538	1.145	1.265
NESC Heavy - Transverse	15	Clamp	15P	0.000	0.678	1.485	1.632
NESC Heavy - Transverse	16	Clamp	14P	0.000	0.502	1.076	1.187
NESC Heavy - Transverse	17	Clamp	10P	0.000	0.344	0.806	0.877
NESC Heavy - Transverse	18	Clamp	7P	0.000	0.287	0.683	0.741
NESC Heavy - Transverse	19	Clamp	3X	0.000	0.101	0.860	0.866
NESC Heavy - Transverse	20	Clamp	1P	0.000	0.123	0.306	0.330
NESC Heavy - Transverse	21	Clamp	3P	0.000	0.276	0.630	0.688
NESC Heavy - Transverse	22	Clamp	1X	0.000	0.057	0.306	0.311
NESC Heavy - Transverse	23	Clamp	1XY	0.000	0.057	0.306	0.311
NESC Heavy - Transverse	24	Clamp	3XY	0.000	0.057	0.354	0.359
NESC Heavy - Transverse	25	Clamp	23P	0.000	0.774	2.781	2.887
NESC Heavy - Transverse	26	Clamp	24P	0.000	0.000	0.869	0.869
NESC Heavy - Transverse	27	Clamp	25P	0.000	0.204	1.071	1.090
NESC Heavy - Transverse	28	Clamp	26P	0.000	0.374	1.375	1.425
NESC Heavy - Transverse	29	Clamp	27P	0.000	0.714	2.653	2.747
NESC Heavy - Transverse	30	Clamp	28P	0.000	1.003	4.481	4.592
NESC Heavy - Transverse	31	Clamp	22P	0.000	0.466	2.519	2.561
NESC Heavy - Transverse	32	Clamp	7X	0.000	0.044	0.683	0.685

NESC Heavy - Transverse	33	Clamp	10X	0.000	0.054	0.806	0.808
NESC Heavy - Transverse	34	Clamp	14X	0.000	0.064	1.076	1.077
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	0.366	0.390
NESC Heavy - Transverse	38	Clamp	10Y	0.000	0.158	0.417	0.446
NESC Heavy - Transverse	39	Clamp	14Y	0.000	0.281	0.615	0.676
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	0.369	0.400
Extreme Wind - Transverse	1	Clamp	2P	0.425	0.777	0.671	1.111
Extreme Wind - Transverse	2	Clamp	2X	0.000	1.402	1.221	1.859
Extreme Wind - Transverse	3	Clamp	4P	0.250	1.893	1.875	2.676
Extreme Wind - Transverse	4	Clamp	4X	1.275	1.868	1.830	2.909
Extreme Wind - Transverse	5	Clamp	8P	0.075	1.843	1.875	2.630
Extreme Wind - Transverse	6	Clamp	8X	0.500	1.818	1.825	2.624
Extreme Wind - Transverse	7	Clamp	11P	0.425	1.793	1.850	2.611
Extreme Wind - Transverse	8	Clamp	11X	0.400	1.768	1.850	2.590
Extreme Wind - Transverse	14	Clamp	16P	0.000	1.352	0.519	1.448
Extreme Wind - Transverse	15	Clamp	15P	0.000	1.477	0.550	1.576
Extreme Wind - Transverse	16	Clamp	14P	0.000	1.520	0.619	1.642
Extreme Wind - Transverse	17	Clamp	10P	0.000	0.842	0.268	0.884
Extreme Wind - Transverse	18	Clamp	7P	0.000	0.717	0.237	0.755
Extreme Wind - Transverse	19	Clamp	3X	0.000	0.456	0.315	0.554
Extreme Wind - Transverse	20	Clamp	1P	0.000	0.373	0.249	0.449
Extreme Wind - Transverse	21	Clamp	3P	0.000	0.664	0.253	0.711
Extreme Wind - Transverse	22	Clamp	1X	0.000	0.373	0.249	0.449
Extreme Wind - Transverse	23	Clamp	1XY	0.000	0.373	0.249	0.449
Extreme Wind - Transverse	24	Clamp	3XY	0.000	0.364	0.178	0.405
Extreme Wind - Transverse	25	Clamp	23P	0.000	2.989	0.952	3.137
Extreme Wind - Transverse	26	Clamp	24P	0.000	0.177	0.270	0.323
Extreme Wind - Transverse	27	Clamp	25P	0.000	0.168	0.220	0.277
Extreme Wind - Transverse	28	Clamp	26P	0.000	0.168	0.256	0.306
Extreme Wind - Transverse	29	Clamp	27P	0.000	0.721	0.716	1.016
Extreme Wind - Transverse	30	Clamp	28P	0.000	0.553	0.928	1.080
Extreme Wind - Transverse	31	Clamp	22P	0.000	1.760	1.154	2.105
Extreme Wind - Transverse	32	Clamp	7X	0.000	0.260	0.237	0.352
Extreme Wind - Transverse	33	Clamp	10X	0.000	0.280	0.268	0.388
Extreme Wind - Transverse	34	Clamp	14X	0.000	0.854	0.619	1.055
Extreme Wind - Transverse	35	Clamp	15X	0.000	0.707	0.550	0.896
Extreme Wind - Transverse	36	Clamp	16X	0.000	0.686	0.519	0.860
Extreme Wind - Transverse	37	Clamp	7Y	0.000	0.240	0.144	0.280
Extreme Wind - Transverse	38	Clamp	10Y	0.000	0.256	0.153	0.298
Extreme Wind - Transverse	39	Clamp	14Y	0.000	0.825	0.482	0.956
Extreme Wind - Transverse	40	Clamp	15Y	0.000	0.673	0.392	0.779
Extreme Wind - Transverse	41	Clamp	16Y	0.000	0.657	0.382	0.760
Extreme Wind - Transverse	42	Clamp	3Y	0.000	0.240	0.144	0.280
NESC Heavy - Longitudinal	1	Clamp	2P	1.150	0.037	1.443	1.846
NESC Heavy - Longitudinal	2	Clamp	2X	0.000	0.000	2.418	2.418
NESC Heavy - Longitudinal	3	Clamp	4P	0.050	0.063	3.691	3.692
NESC Heavy - Longitudinal	4	Clamp	4X	2.200	0.000	3.691	4.297
NESC Heavy - Longitudinal	5	Clamp	8P	0.600	0.042	3.736	3.784
NESC Heavy - Longitudinal	6	Clamp	8X	0.625	0.000	3.736	3.788
NESC Heavy - Longitudinal	7	Clamp	11P	1.275	0.046	3.680	3.895
NESC Heavy - Longitudinal	8	Clamp	11X	1.175	0.000	3.680	3.863
NESC Heavy - Longitudinal	14	Clamp	16P	0.275	0.263	1.145	1.207
NESC Heavy - Longitudinal	15	Clamp	15P	0.318	0.360	1.485	1.560
NESC Heavy - Longitudinal	16	Clamp	14P	0.275	0.227	1.076	1.133
NESC Heavy - Longitudinal	17	Clamp	10P	0.232	0.112	0.806	0.846

NESC Heavy - Longitudinal	18	Clamp	7P	0.189	0.098	0.683	0.716
NESC Heavy - Longitudinal	19	Clamp	3X	0.420	0.000	0.860	0.957
NESC Heavy - Longitudinal	20	Clamp	1P	0.057	0.066	0.306	0.318
NESC Heavy - Longitudinal	21	Clamp	3P	0.160	0.116	0.630	0.661
NESC Heavy - Longitudinal	22	Clamp	1X	0.057	0.000	0.306	0.311
NESC Heavy - Longitudinal	23	Clamp	1XY	0.057	0.000	0.306	0.311
NESC Heavy - Longitudinal	24	Clamp	3XY	0.057	0.000	0.354	0.359
NESC Heavy - Longitudinal	25	Clamp	23P	0.843	0.000	2.781	2.906
NESC Heavy - Longitudinal	26	Clamp	24P	0.096	0.000	0.869	0.875
NESC Heavy - Longitudinal	27	Clamp	25P	0.117	0.204	1.071	1.096
NESC Heavy - Longitudinal	28	Clamp	26P	0.151	0.374	1.375	1.433
NESC Heavy - Longitudinal	29	Clamp	27P	0.288	0.714	2.653	2.762
NESC Heavy - Longitudinal	30	Clamp	28P	0.591	1.003	4.481	4.630
NESC Heavy - Longitudinal	31	Clamp	22P	0.466	0.000	2.519	2.561
NESC Heavy - Longitudinal	32	Clamp	7X	0.363	0.000	0.683	0.774
NESC Heavy - Longitudinal	33	Clamp	10X	0.446	0.000	0.806	0.921
NESC Heavy - Longitudinal	34	Clamp	14X	0.528	0.000	1.076	1.198
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	0.366	0.408
NESC Heavy - Longitudinal	38	Clamp	10Y	0.185	0.112	0.417	0.470
NESC Heavy - Longitudinal	39	Clamp	14Y	0.220	0.227	0.615	0.691
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	0.369	0.416
Extreme Wind - Longitudinal	1	Clamp	2P	0.425	0.177	0.671	0.814
Extreme Wind - Longitudinal	2	Clamp	2X	0.000	0.177	1.221	1.234
Extreme Wind - Longitudinal	3	Clamp	4P	0.250	0.168	1.875	1.899
Extreme Wind - Longitudinal	4	Clamp	4X	1.275	0.168	1.830	2.237
Extreme Wind - Longitudinal	5	Clamp	8P	0.075	0.168	1.875	1.884
Extreme Wind - Longitudinal	6	Clamp	8X	0.500	0.168	1.825	1.900
Extreme Wind - Longitudinal	7	Clamp	11P	0.425	0.168	1.850	1.906
Extreme Wind - Longitudinal	8	Clamp	11X	0.400	0.168	1.850	1.900
Extreme Wind - Longitudinal	14	Clamp	16P	0.799	0.553	0.519	1.102
Extreme Wind - Longitudinal	15	Clamp	15P	0.924	0.553	0.550	1.209
Extreme Wind - Longitudinal	16	Clamp	14P	0.799	0.721	0.619	1.242
Extreme Wind - Longitudinal	17	Clamp	10P	0.674	0.168	0.268	0.745
Extreme Wind - Longitudinal	18	Clamp	7P	0.549	0.168	0.237	0.621
Extreme Wind - Longitudinal	19	Clamp	3X	1.294	0.168	0.315	1.342
Extreme Wind - Longitudinal	20	Clamp	1P	0.196	0.177	0.249	0.363
Extreme Wind - Longitudinal	21	Clamp	3P	0.496	0.168	0.253	0.582
Extreme Wind - Longitudinal	22	Clamp	1X	0.196	0.177	0.249	0.363
Extreme Wind - Longitudinal	23	Clamp	1XY	0.196	0.177	0.249	0.363
Extreme Wind - Longitudinal	24	Clamp	3XY	0.196	0.168	0.178	0.314
Extreme Wind - Longitudinal	25	Clamp	23P	3.175	0.009	0.952	3.315
Extreme Wind - Longitudinal	26	Clamp	24P	0.274	0.177	0.270	0.424
Extreme Wind - Longitudinal	27	Clamp	25P	0.332	0.168	0.220	0.432
Extreme Wind - Longitudinal	28	Clamp	26P	0.430	0.168	0.256	0.528
Extreme Wind - Longitudinal	29	Clamp	27P	0.821	0.721	0.716	1.307
Extreme Wind - Longitudinal	30	Clamp	28P	1.680	0.553	0.928	1.997
Extreme Wind - Longitudinal	31	Clamp	22P	1.751	0.009	1.154	2.097
Extreme Wind - Longitudinal	32	Clamp	7X	1.098	0.168	0.237	1.136
Extreme Wind - Longitudinal	33	Clamp	10X	1.348	0.168	0.268	1.385
Extreme Wind - Longitudinal	34	Clamp	14X	1.597	0.721	0.619	1.858
Extreme Wind - Longitudinal	35	Clamp	15X	1.847	0.553	0.550	2.005
Extreme Wind - Longitudinal	36	Clamp	16X	1.597	0.553	0.519	1.768
Extreme Wind - Longitudinal	37	Clamp	7Y	0.430	0.168	0.144	0.484
Extreme Wind - Longitudinal	38	Clamp	10Y	0.528	0.168	0.153	0.575
Extreme Wind - Longitudinal	39	Clamp	14Y	0.625	0.721	0.482	1.069

Extreme Wind - Longitudinal	40	Clamp	15Y	0.723	0.553	0.392	0.991
Extreme Wind - Longitudinal	41	Clamp	16Y	0.625	0.553	0.382	0.918
Extreme Wind - Longitudinal	42	Clamp	3Y	0.430	0.168	0.144	0.484

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)	Torsional Moment (ft-k)
NESC Heavy - Transverse	13.384	7.075	43.739	954.514	544.557	3.688
Extreme Wind - Transverse	23.028	3.350	18.192	1641.503	258.226	13.953
NESC Heavy - Longitudinal	0.000	15.381	43.739	7.032	991.675	-5.930
Extreme Wind - Longitudinal	0.000	28.980	18.192	5.161	1690.722	-16.472

*** Weight of structure (lbs):
Weight of Angles*Section DLF: 14156.8
Total: 14156.8

*** End of Report

CENTEK engineering
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63-2 North Branford Road P: (203) 488-0580
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Subject:	Foundation Analysis Tower # 876
Location:	Fairfield, CT
Rev. 2: 11/12/18	Prepared by: T.J.L. Checked by: C.F.C. Job No. 17159.06

Foundation Analysis

Input Data:

Northeast Pier

Max. Reactions at Tower Leg:

Shear =	Shear := 16.78·1.1·kips = 18.5·kips	(User Input)
Compression =	Comp := 70.69·1.1·kips = 77.8·kips	(User Input)
Uplift =	Uplift := 58.79·1.1·kips = 64.7·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 =	$P_P := 2.083 \cdot ft$	(User Input)
Pad Width =	$Pd_w := 10 \cdot ft$	(User Input)
Pad Thickness =	$Pd_t := 3.5 \cdot ft$	(User Input)
Mat Width =	$Mat_w := 0 \cdot ft$	(User Input)
Mat Thickness =	$Mat_t := 0 \cdot ft$	(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)

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 = $B_2 := \left[2 \cdot \tan(\psi) \cdot (P_H - P_P) + Pd_w \right]^2 = 142 ft^2$

Volume of Soil = $V_{soil} := \left[\frac{(P_H - P_P)}{3} \cdot \left(B_1 + B_2 + \sqrt{B_1 \cdot B_2} \right) \right] - V_{pier} = 187.17 \cdot ft^3$

Total Vdume 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 = $Mass_{Soil} := V_{soil} \cdot \gamma s = 19 \cdot kips$

Total Mass = $Mass_{tot} := Mass_{Conc} + Mass_{Soil} = 73 \cdot kips$

Check Uplift:

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"

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

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

Check Bearing:

$Bearing := \frac{Comp + Mass_{Conc}}{A_{pad}} + \frac{Shear \cdot (P_H + Pd_t)}{S_{pad}} = 2.13 \cdot ksf$

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

Bearing_Check = "OK"

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Subject:	Foundation Analysis Tower # 876
Location:	Fairfield, CT
Rev. 2: 11/12/18	Prepared by: T.J.L. Checked by: C.F.C. Job No. 17159.06

Foundation Analysis

Input Data:

Northwest Pier

Max. Reactions at Tower Leg:

Shear =	Shear := 16.78·1.1·kips = 18.5·kips	(User Input)
Compression =	Comp := 70.69·1.1·kips = 77.8·kips	(User Input)
Uplift =	Uplift := 58.79·1.1·kips = 64.7·kips	(User Input)

Tower Properties:

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

Foundation Properties:

Pier Height =	$P_H := 1.75 \cdot ft$	(User Input)
Pier Width Top =	$P_{w1} := 1.67 \cdot ft$	(User Input)
Pier Width Botttom =	$P_{w2} := 1.89 \cdot ft$	(User Input)
Pier Projection Above Grade =	$P_P := 1.75 \cdot ft$	(User Input)
Pad Width =	$Pd_w := 10 \cdot ft$	(User Input)
Pad Thickness =	$Pd_t := 3.5 \cdot ft$	(User Input)
Mat Width =	$Mat_w := 8 \cdot ft$	(User Input)
Mat Thickness =	$Mat_t := 2 \cdot ft$	(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)

Calculated Data:

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

Volume of the Concrete Pier = $V_{pier} := \frac{(P_H)}{3} \cdot \left(P_{w1}^{2} + P_{w2}^{2} + \sqrt{P_{w1}^{2} \cdot P_{w2}^{2}} \right) = 5.55 \cdot ft^3$

Volume of the Concrete Mat = $V_{mat} := Mat_w^{2} \cdot Mat_t = 128 \cdot ft^3$

Volume of Soil = $V_{soil} := 0$

Total Vdume of Concrete = $V_{Conc} := V_{pad} + V_{pier} + V_{mat} = 484 \cdot ft^3$

Mass of Concrete = $Mass_{Conc} := V_{Conc} \cdot \gamma c = 72.5 \cdot kips$

Mass of Soil = $Mass_{Soil} := V_{soil} \cdot \gamma s = 0 \cdot kips$

Total Mass = $Mass_{tot} := Mass_{Conc} + Mass_{Soil} = 72.5 \cdot kips$

Check Uplift:

Required Factor of Safety = $F_S := 1.0$

$ActualFS := \frac{Mass_{tot}}{Uplift} = 1.12$

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

Uplift_Check = "OK"

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

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

Check Bearing:

$Bearing := \frac{Comp + Mass_{Conc}}{A_{pad}} + \frac{Shear \cdot (P_H + Pd_t)}{S_{pad}} = 2.08 \cdot ksf$

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

Bearing_Check = "OK"

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Location:	Fairfield, CT
Rev. 2: 11/12/18	Prepared by: T.J.L. Checked by: C.F.C. Job No. 17159.06

Foundation Analysis

Input Data:

Southeast & Southwest Piers

Max. Reactions at Tower Leg:

Shear =	Shear := 30.81·1.1·kips = 33.9·kips	(User Input)	Combined Reactions from Two Adjacents Legs
Compression =	Comp := 129.67·1.1·kips = 142.6·kips	(User Input)	
Uplift =	Uplift := 104.99·1.1·kips = 115.5·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 Top =	$P_{w1} := 2.0 \cdot ft$	(User Input)
Pier Width Botttom =	$P_{w2} := 2.33 \cdot ft$	(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)
Mat Width =	$Mat_w := 10 \cdot ft$	(User Input)
Mat Width =	$Mat_L := 24 \cdot ft$	(User Input)
Mat 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 =	$BC_{soil} := 9000 \cdot psf$	(User Input)
Coefficient of Friction =	$\mu := 0.45$	(User Input)

Calculated Data:

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

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

Volume of the Concrete Pier = $V_{pier} := \frac{(P_H)}{3} \cdot \left(P_{w1}^2 + P_{w2}^2 + \sqrt{P_{w1}^2 \cdot P_{w2}^2} \right) = 10.57 \cdot ft^3$

Resisting Pyramid Base 1 = $B_1 := Pd_w^2 = 25 ft^2$

Resisting Pyramid Base 2 = $B_2 := \left[2 \cdot \tan(\psi) \cdot (P_H - P_P) + Pd_w \right]^2 = 58 ft^2$

Volume of Soil = $V_{soil} := \left[\left[\frac{(P_H - P_P)}{3} \cdot \left(B_1 + B_2 + \sqrt{B_1 \cdot B_2} \right) \right] - V_{pier} \right] \cdot 2 = 159.95 \cdot ft^3$

Total Vdume of Concrete = $V_{Conc} := V_{pad} \cdot 2 + V_{mat} + V_{pier} \cdot 2 = 841 \cdot ft^3$

Mass of Concrete = $Mass_{Conc} := V_{Conc} \cdot \gamma c = 126.2 \cdot kips$

Mass of Soil = $Mass_{Soil} := V_{soil} \cdot \gamma s = 16 \cdot kips$

Total Mass = $Mass_{tot} := Mass_{Conc} + Mass_{Soil} = 142 \cdot kips$

Check Uplift:

Required Factor of Safety = $F_S := 1.0$

$ActualFS := \frac{Mass_{tot}}{Uplift} = 1.23$

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

Uplift_Check = "OK"

Check Sliding:

Sliding Resistance = $S_R := \mu \cdot (Mass_{Conc}) = 56.777 \cdot kips$

$Sliding\_Check := if(Shear \leq S_R, "OK", "No Good")$

Sliding_Check = "OK"

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Location:	Fairfield, CT
Rev. 2: 11/12/18	Prepared by: T.J.L. Checked by: C.F.C. Job No. 17159.06

Check Bearing:

Cross Sectional Area of Pad = $A_{pad} := Pd_w^{2} = 25\,ft^2$

Section Modulus of Pad = $S_{pad} := \frac{(Pd_w)^3}{6} = 21 \cdot ft^3$

Mass of Pad and Pier = $Mass_{pad.pier} := (V_{pad} \cdot 2 + V_{pier} \cdot 2) \cdot \gamma c = 18.2 \cdot kips$

$$Bearing := \frac{Comp + Mass_{pad.pier}}{A_{pad} \cdot 2} + \frac{Shear \cdot (P_H + Pd_t)}{S_{pad} \cdot 2} = 6.67 \cdot ksf$$

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

Bearing_Check = "OK"

Product Specifications

DHHTT65B-3XR

Multiband Antenna, 790–960, 2 x 1710–2180 and 2 x 2490-2690 MHz, 65° horizontal beamwidth, internal electrical tilt with individual tilt available for the 850 MHz band, 1900 MHz bands and 2500 MHz bands.

Electrical Specifications

Frequency Band, MHz	790–896	870–960	1710–1880	1850–1990	1920–2180	2490–2690
Connector Interface	7-16 DIN Female	7-16 DIN Female	7-16 DIN Female	7-16 DIN Female	7-16 DIN Female	4.1-9.5 DIN Female
Connector Location	Bottom	Bottom	Bottom	Bottom	Bottom	Bottom
Gain, dBi	15.5	15.5	17.3	17.4	17.5	17.2
Beamwidth, Horizontal, degrees	64	63	71	69	66	60
Beamwidth, Vertical, degrees	11.2	10.3	5.6	5.4	5.1	4.3
Beam Tilt, degrees	0–10	0–10	0–8	0–8	0–8	0–8
USLS (First Lobe), dB	15	16	15	16	15	18
Front-to-Back Ratio at 180°, dB	28	31	31	29	25	26
CPR at Boresight, dB	20	19	20	20	18	16
CPR at Sector, dB	9	9	9	9	7	4
Isolation, dB	25	25	25	25	25	25
Isolation, Intersystem, dB	30	30	30	30	30	30
VSWR | Return Loss, dB	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153	-153	-153	-150
Input Power per Port, maximum, watts	350	350	300	300	300	250
Polarization	±45°	±45°	±45°	±45°	±45°	±45°
Impedance	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm

Electrical Specifications, BASTA*

Frequency Band, MHz	790–896	870–960	1710–1880	1850–1990	1920–2180	2490–2690
Gain by all Beam Tilts, average, dBi	15.0	15.1	17.0	17.1	17.1	17.1
Gain by all Beam Tilts Tolerance, dB	±0.4	±0.3	±0.3	±0.3	±0.3	±0.6
Gain by Beam Tilt, average, dBi	0 ° | 15.0	0 ° | 15.0	0 ° | 16.8	0 ° | 17.0	0 ° | 17.0	0 ° | 17.1
	5 ° | 15.1	5 ° | 15.1	4 ° | 17.0	4 ° | 17.1	4 ° | 17.1	4 ° | 17.2
	10 ° | 15.0	10 ° | 15.0	8 ° | 17.0	8 ° | 17.1	8 ° | 17.1	8 ° | 17.0
Beamwidth, Horizontal Tolerance, degrees	±2.5	±1.8	±3.2	±2.7	±5	±6.6
Beamwidth, Vertical Tolerance, degrees	±0.8	±0.6	±0.2	±0.2	±0.4	±0.3
USLS, beampeak to 20° above beampeak, dB	16	17	16	17	16	19
Front-to-Back Total Power at 180° ± 30°, dB	24	26	26	25	23	23
CPR at Boresight, dB	21	20	22	22	21	16
CPR at Sector, dB	9	10	13	10	8	5

* CommScope® supports NGMN recommendations on Base Station Antenna Standards (BASTA). To learn more about the benefits of BASTA, download the whitepaper Time to Raise the Bar on BSAs.

General Specifications

Antenna Brand	Andrew®
Antenna Type	DualPol® multiband with internal RET
Band	Multiband
Brand	DualPol®

Product Specifications

DHHTT65B-3XR

Operating Frequency Band	1710 – 2180 MHz | 2490 – 2690 MHz | 790 – 960 MHz
Performance Note	Outdoor usage

Mechanical Specifications

Color	Light gray
Lightning Protection	dc Ground
Radiator Material	Copper | Low loss circuit board
Radome Material	ASA, UV stabilized
Reflector Material	Aluminum
RF Connector Interface	4.1-9.5 DIN Female | 7-16 DIN Female
RF Connector Location	Bottom
RF Connector Quantity, total	10
Wind Loading, frontal	618.0 N @ 150 km/h 138.9 lbf @ 150 km/h
Wind Speed, maximum	241 km/h | 150 mph

Dimensions

Depth	181.0 mm | 7.1 in
Length	1832.0 mm | 72.1 in
Width	301.0 mm | 11.9 in
Net Weight	20.6 kg | 45.4 lb

Remote Electrical Tilt (RET) Information

Input Voltage	10–30 Vdc
Power Consumption, idle state, maximum	2.0 W
Power Consumption, normal conditions, maximum	13.0 W
Protocol	3GPP/AISG 2.0 (Multi-RET)
RET Interface	8-pin DIN Female | 8-pin DIN Male
RET Interface, quantity	1 female | 1 male

Packed Dimensions

Depth	299.0 mm | 11.8 in
Length	1954.0 mm | 76.9 in
Width	409.0 mm | 16.1 in
Shipping Weight	33.2 kg | 73.2 lb

Regulatory Compliance/Certifications

Agency	Classification
RoHS 2011/65/EU	Compliant by Exemption
China RoHS SJ/T 11364-2006	Above Maximum Concentration Value (MCV)
ISO 9001:2008	

DATA SHEET

Outdoor Diplexer

DPO-7126Y-0x1

- Combines the frequencies covering PCS/AWS (1695-2180 MHz) with BRS (2496-2690 MHz)
- High power 250 W per port with low insertion loss in a small, lightweight enclosure
- Low intermodulation with isolation of >50 dB port to port
- High reliability of >500K Hours MTBF and multi-strike lightning protection
- Designed and produced to ISO 9001:2008 certification standards
- Weatherproof enclosure (IP67) with available outdoor pole or wall mounting options

Overview

The CCI Outdoor Diplexer passes the PCS and AWS bands covering 1695-2180 MHz on its low band input port and the full BRS band which covers 2496-2690 MHz on its high band input port. The Diplexer combines the low band and high band signals on to a common port and is specifically intended for use in multi-band systems with limited feeder lines. The Diplexer facilitates the addition of new technologies including LTE and new spectrum to existing sites while providing a high degree of isolation between systems. Decreasing the number of feeder lines lowers tower loading, leasing and installation expenditures and significantly reduces the total cost to upgrade a site.
The CCI Outdoor Diplexer provides full band performance for each band with low insertion loss, low Intermodulation, and high 250 W per port power handling. Excellent return loss performance delivers the best match to the antennas and base station, saving precious transmit power. The CCI Diplexer is available in a single, twin or quad unit configuration.

Technical Description:

The CCI Outdoor Diplexer consists of multiple filters and can be used as either a splitter or combiner to aggregate the PCS/AWS with the BRS bands on to a common feeder line. The fully weatherproof tower mount Diplexer has internal multi-strike lightning protection using a multi-stage surge protection circuit.
The unit has been designed to minimize insertion loss while maximizing isolation. Particular attention has been given to the intermodulation performance of the Diplexer to minimize any passive intermodulation products from occurring. The Diplexer housing is constructed from die cast aluminum and consists of an IP67 moisture proof enclosure, with IP68 immersion proof connectors suited to long-life masthead mounting. The Diplexer can be pole or wall mounted with the included bracket. The RF ports are configured with DIN 7-16.
CCI filter and combiner products are designed and produced to ISO 9001:2008 certification standards for reliability and quality at our state-of-the-art engineering and manufacturing facilities.

SPECIFICATIONS

Outdoor Diplexer

DPO-7126Y-0x1

Electrical

RF Parameters	Ports	Frequency(MHz)	Specification
Return Loss	COMMON	1695 - 2180	18 dB minimum, 20 dB typical
		2496 - 2690	18 dB minimum, 20 dB typical
	PCS/AWS	1695 - 2180	18 dB minimum, 20 dB typical
	BRS	2496 - 2690	18 dB minimum, 20 dB typical
Insertion Loss	COMMON to PCS/AWS	1695 - 2180	0.2 dB typical, 0.25 dB maximum
	COMMON to BRS	2496 - 2690	0.2 dB typical, 0.25 dB maximum
Rejection	COMMON to PCS/AWS	2496 - 2690	50 dB minimum
	COMMON to BRS	1695 - 2180	50 dB minimum
Isolation	PCS/AWS to BRS	1695 - 2180	50 dB minimum
	BRS to PCS/AWS	2496 - 2690	50 dB minimum

General Characteristics	
General Impedance	50 ohms
Continuous Average Power	250 W maximum (input ports), 500 W maximum (Common port)
Peak Envelope Power	1 kW maximum (input ports), 3 kW maximum (Common port)
Intermodulation Performance	<-117 dBm (-160 dBc) at 2 × +43 dBm tones all bands

Environmental

Operating Temperature	-40˚C to +65˚C
Enclosure	Enclosure IP67, Connectors IP68
MTBF	>500,000 hours
Lightning Protection	8/20us, ±20KA maximum, 10 strikes per IEC61000-4-5

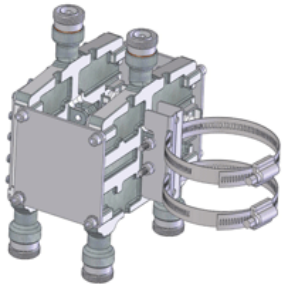
Mechanical

Model	DPO-7126Y-0-S1	DPO-7126Y-0-T1	DPO-7126Y-0-Q1
Modularity	Single	Twin	Quad
Weight with brackets	3.7 lbs (1.6 Kg)	7.3 lbs (3.3 Kg)	14.4 lbs (6.6 Kg)
Dimensions with brackets	6.26 x 7.42 x 2.02 in. (159 x 188.5 x 51.4 mm)	6.26 x 7.42 x 4.07 in. (159 x 188.5 x 103.4 mm)	6.26x 7.42 x 8.17 in. (159 x 188.5 x 207.4 mm)
Dimensions enclosure only	2.95 x 7.42 x 1.95 in. (75 x 188.5 x 48.8 mm)		
Connectors	3 x 7-16 DIN female long neck		
Mounting	Pole/Wall mounting bracket		

RADIO FREQUENCY SYSTEMS
The Clear Choice®

ShareLite™ Wideband Diplexer Kit – In-line 698-960 MHz/1710-2200 MHz, full DC/AISG pass

The ShareLite FD9R6004 Series of diplexers are designed to enable feeder sharing between systems in the 698-960 MHz range and in the 1710-2200 MHz range, including all the new AWS-3 paired spectrum blocks (G, H, I, J).. The diplexer is equipped with in-line connector placement so it can be installed in the BTS cabinet or at the tower top. This is especially valuable in crowded sites or when the feeders are not easily accessible. Due to its wideband design, the FD9R6004 Series can accommodate many combining solutions between 698-960 MHz and 1710-2200 MHz systems such as LTE 700 MHz, Cellular 800 MHz with PCS, GSM900 with GSM1800, or GSM900 with UMTS. This diplexer features a highly selective filter. It provides a high level of isolation between ports, while keeping the insertion loss on both paths at an extremely low level. The FD9R6004 diplexers are available with various DC pass options, helpful in configurations with or without the Tower Mount Amplifiers installed.



FEATURES / BENEFITS

- LTE and AWS-3 ready design
- Extremely Low Insertion Loss
- High level of Rejection between bands – Protection against interferences
- Extremely High Power Handling Capability
- DC/AISG 1.1/2.0 pass through all ports
- Very compact & small size design – Easy installation and reduced tower load
- In-line long-neck connectors for easy connection & waterproofing
- Exceptional reliability & environmental protection (IP 67)
- Equipped with 1 * Breathable Vent – Prevent any humidity inside the product
- Mounting hardware for Wall and Pole mount provided (P/N SEM2-1A)
- Grounding already provided through the mounting bracket

Technical Features

GENERAL SPECIFICATIONS		
Product Type		Diplexer/Cross Band Combiner
Application		LTE700, GSM900, UMTS, GSM1800, Cellular 800, PCS, AWS-1, AWS-3
Configuration		ShareLite Kit consisting of (2) in-line long neck connector diplexers (Full DC Pass), (1) mounting hardware SEM2-1A, & (1) assembly kit SEM2-3 disassembled
ELECTRICAL SPECIFICATIONS		
Frequency Range 1	MHz	698 - 960
Frequency Range 2	MHz	1710 - 2200
Return Loss All Ports	dB	19 Min/23 Typ.
Power Handling Continuous, Max	W	1250 at common port; 750 in low frequency path & 500 in high frequency path
Power Handling Peak, Max	W	15000 in low frequency path & 8000 in high frequency path
Impedance	Ω	50.0
Insertion Loss, Path 1	dB	0.07 typ.
Insertion Loss, Path 2	dB	0.13 typ.
Rejection Between Bands Min/Typ	dB	58/64@698-960MHz 57/70@1710-2200MHz
Group Delay, Path 1	ns	3 Max.
Group Delay, Path 2	ns	3 Max.
IMP Level at the COM Port	dBm (dBc)	-112 (-155) @2x43 typ.
DC Pass in Path 1		Yes
DC Pass in Path 2		Yes

MECHANICAL SPECIFICATIONS		
Mounting		Wall Mounting: With 4 screws (maximum 6mm diameter) Pole Mounting: With included clamp set 40-110mm (1.57-4.33)
RF Connectors		In-line long-neck 7-16-Female
Weight	kg (lb)	2.9 (6.4)
Dimensions, H x W x D	mm (in)	147 x 164 x 118 (5.8 x 6.5 x 4.6)
Shipping Dimensions, H x W x D	mm (in)	254 x 406 x 82 (10 x 16 x 3.2) for 1 * Dual unit in 1 * box, 280 x 406 x 241 (11 x 16 x 9.5) for 3 * Dual units = 3 * Boxes in 1 * overwrap
Housing		Aluminum
TESTING AND ENVIRONMENTAL		
Temperature Range	°C (°F)	-40 to 60 (-40 to 140)
Environmental		ETSI 300-019-2-4 Class 4.1E
Ingress Protection		IP 67
Lightning Protection		EN/IEC61000-4-5 Level 4

External Document Links

RFS Diplexer Field Test Procedure□□

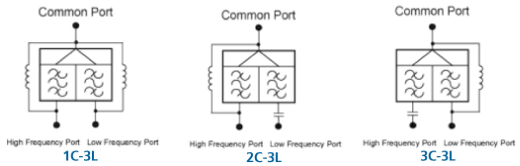
KIT-FD9R6004/1C-DL Installation Instructions

Notes

RADIO FREQUENCY SYSTEMS
The Clear Choice®

ShareLite™ Wideband Diplexer Kit – In-line 698-960 MHz/1710-2200 MHz, full DC/AISG pass

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



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

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