Transcend Wireless

10 Industrial Ave,
Suite 3
Mahwah NJ 07430

Phone: 201.684.0055
Fax: 201.684.0066

September 27, 2019

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

RE: Notice of Exempt Modification
494 Windsor Ave. Windsor, CT 06095
Latitude: 41.822
Longitude: - 72.654722
Sprint Site#: CT03XC055 – DO Macro

Dear Ms. Bachman:

Sprint currently maintains three (3) antennas at the 131.25-foot level of the existing 131.25-foot transmission tower at 242 Pent Rd. Beacon Falls, CT. The 131.25-foot lattice tower is owned by The Connecticut Light & Power Company, d/b/a Eversource Energy and property is owned by Windsor Shopping Center LLP c/o Sprint Spectrum LLP. 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 131.25-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. 371 dated April 23, 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 Mayor - Donald S. Trinks, Elected Official, and Robert Ruzzo, Zoning Enforcement Officer for the Town of Windsor, as well as the owner.

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: Donald S. Trinks – Town of Windsor Mayor
Robert Ruzzo– Town of Beacon Falls Zoning Enforcement Officer
Windsor Shopping Center LLP c/o Sprint Spectrum LLP – property owner
The Connecticut Light & Power Company, d/b/a Eversource Energy – tower owner

Petition No. 371
Sprint Personal Communications System
Windsor, Connecticut
Staff Report
April 23, 1997

On April 17, 1997, William H. Smith and Edward S. Wilensky of the Connecticut Siting Council (Council), Executive Director Joel M. Rinebold and Robert K. Erling of the Council staff met Stephen M. Howard and Scott Chasse of Sprint Personal Communications System (Sprint), Kevin Washburn of Clough, Harbour and Associates, and Richard Madej of the Connecticut Light and Power Company (CL&P) for a field review of this petition in Windsor, Connecticut. Sprint is petitioning the Council for a determination that no Certificate of Environmental Compatibility and Public Need would be required for the proposed modifications to the existing CL&P Manchester-North Bloomfield-Northwest Hartford 115 kV electric transmission line, because the proposed construction would not have a substantial adverse environmental effect.

Sprint proposes to install a 123-foot power mount pole within an existing 110-foot CL&P transmission line structure off of Windsor Avenue in Windsor, Connecticut. This new monopole would extend approximately 12 feet three inches above the existing transmission line structure. Other existing steel lattice structures on this line are 116- and 99- feet in height, and the steel monopoles on an existing 345 kV line immediately north of this line are 125 and 120 feet in height. To the west are wood pole structures 75 feet in height. Sprint would attach its antennas to a 14-foot wide platform approximately 123 feet above ground level on the power mount pole, and install communication equipment on an 8-foot by 11-foot concrete pad adjacent to the existing tower. Both the tower and equipment would be surrounded by a 6-foot chain link fence. Access to the proposed site would be via the parking lot of an existing service station adjacent to the proposed site. No clearing of vegetation would be required.

A potential alternate site, structure # 10133, is approximately 500 feet east of the proposed tower on the same line. This structure is approximately 6 feet higher than the proposed tower and is located immediately north of the Windsor Shopping Plaza. The alternate site is adjacent to the dumpsters of a food store and is partially within a paved area. The Town of Windsor has recommended approval of the alternate site.

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 2.44 percent of the maximum permissible exposure for the proposed frequencies, as defined by the Federal Communications Commission. As mitigation measures during construction, staff recommends the use of erosion and sedimentation measures consistent with the Connecticut Guidelines for Soil Erosion and Sediment Control, as amended, the placement of vegetative screening on all sides of the fence, and the installation of a gate to control access.

EVERSOURCE
ENERGY

56 Prospect Street,
Hartford, CT 06103

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

August 9, 2019

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

RE: Sprint Antenna Site, CT-03XC055, Windsor Ave, Windsor, CT, structure 10133

Dear Mr. Shappy:

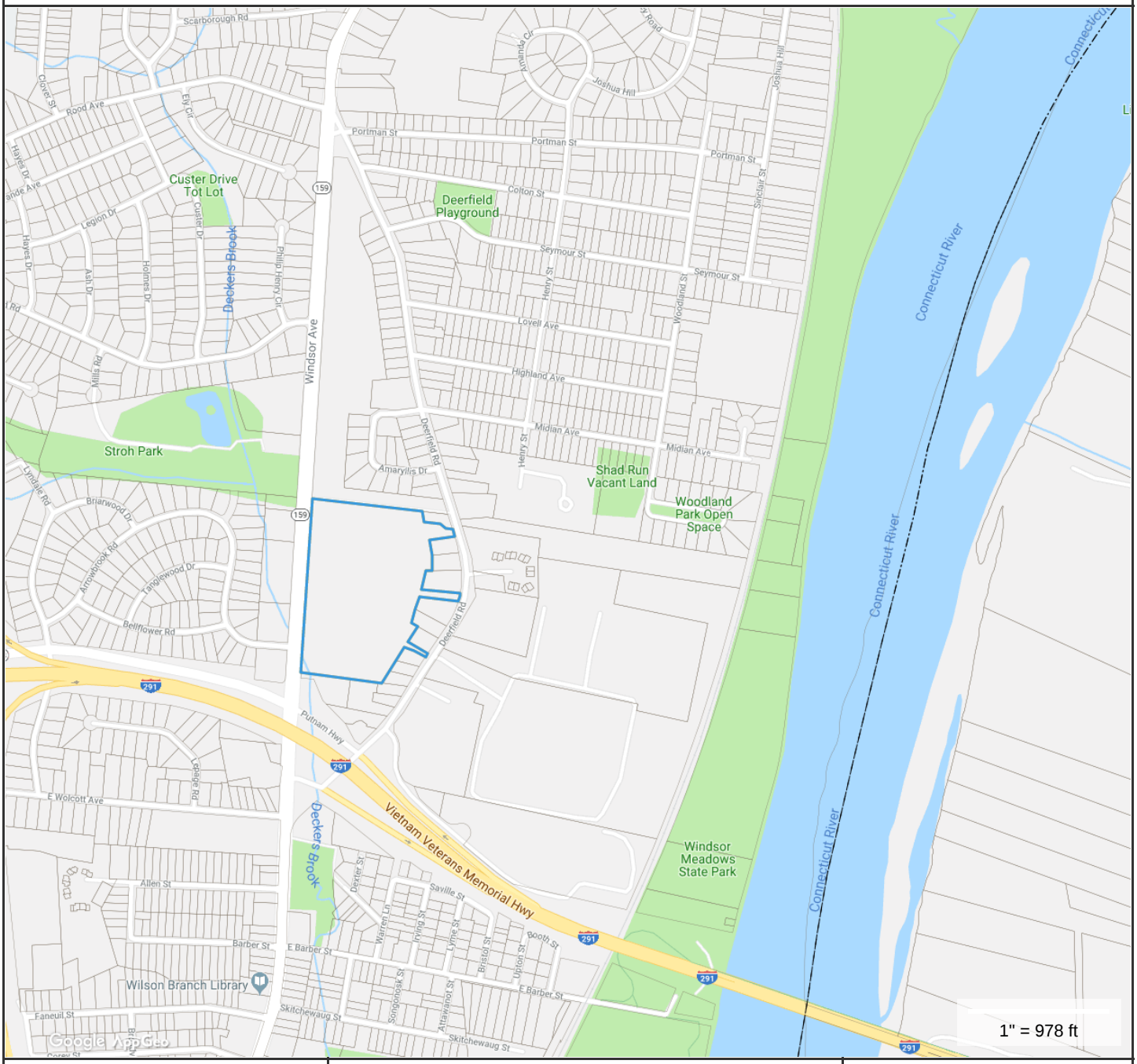
Based on the structural report and construction drawings provided by Centek Engineering, as well as a review of the structural report by Paul J. Ford & Company, Eversource accepts the proposed modification of the subject site.

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: 17159.03 - CT03XC055 - Structural Analysis Rev1 18.07.05
17159.03 CT03XC055 Windsor - CD Rev.1 18.10.11 S&S



Property Information

Property ID	09003164-1308
Location	494 WINDSOR AVE
Owner	WINDSOR SHOPPING CENTER LLP

CRCOG CAPITOL REGION COUNCIL OF GOVERNMENTS
Working together for a better region.

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

Property Location: 494 WINDSOR AVE | **MAP ID:** 79/ 25/ 30/T / | **Bldg Name:** | **State Use:** 4340

Vision ID: 184171 | **Account #** 01308.02 | **Bldg #:** 1 of 1 | **Sec #:** 1 of 1 | **Card** 1 of 1 | **Print Date:** 06/18/2019 13:10

CURRENT OWNER

WINDSOR SHOPPING CENTER LLP
C/O SPRINT SPECTRUM LLP
TAX DEPT PO BOX 8430

KANSAS CITY, MO 64114
Additional Owners:

TOPO.	UTILITIES	STRT./ROAD	LOCATION

SUPPLEMENTAL DATA

Account #	01308.02	CTRACT	4737.00
INC:		CBLOCK	705
GH		DIST	
		HEART	
2007	204680	GL YEAR	
GIS ID:	1308	ASSOC PID#	

CURRENT ASSESSMENT

Description	Code	Appraised Value	Assessed Value
IND LAND	3-1	147,600	103,320
IND BLDG	3-2	114,300	80,010
	Total	261,900	183,330

6164
WINDSOR, CT

VISION

RECORD OF OWNERSHIP

RECORD OF OWNERSHIP	BK-VOL/PAGE	SALE DATE	q/u	v/i	SALE PRICE	V.C.
WINDSOR SHOPPING CENTER LLP	1137/ 274	12/12/1997	U	V	0	

PREVIOUS ASSESSMENTS (HISTORY)

Yr.	Code	Assessed Value	Yr.	Code	Assessed Value	Yr.	Code	Assessed Value
2018	3-1	103,320	2017	3-1	103,320	2016	3-1	103,320
2018	3-2	80,010	2017	3-2	83,790	2016	3-2	83,790
	Total:	183,330		Total:	187,110		Total:	187,110

EXEMPTIONS

Year	Type	Description	Amount
		Total:	

This signature acknowledges a visit by a Data Collector or Assessor

APPRAISED VALUE SUMMARY

Appraised Bldg. Value (Card)	0
Appraised XF (B) Value (Bldg)	0
Appraised OB (L) Value (Bldg)	0
Appraised Land Value (Bldg)	147,600
Special Land Value	0
Total Appraised Parcel Value	261,900
Valuation Method:	I
Adjustment:	0
Net Total Appraised Parcel Value	**261,900**

NOTES

01308.02 LAND VALUE=INC APPR
0079-0025-0030-T
SPRING SPECTRUM
CELLULAR TOWER
123' POWER MOUNT POLE
WITHIN CL&P EASEMENT

BUILDING PERMIT RECORD

Permit ID	Issue Date	Type	Description	Amount	Insp. Date	% Comp.	Date Comp.	Comments

VISIT/ CHANGE HISTORY

Type	Date	IS	ID	Cd.	Purpose/Result

LAND LINE VALUATION SECTION

B#	Use Code	Description	Zone	D	Frontage	Depth	Units		Unit Price	I. Factor	S.A.	S.O.	C. Factor	ST. Idx	Adj.	Notes- Adj	Special Pricing	Land Value
1	4340	Cell Tower	B2				0.05	AC	82,000.00	40.0000	0		0.90		0.00	CELL TOWER SITE		147,600
						Total Card Land Units:	0.05	AC	Parcel Total Land Area:	0.05 AC							Total Land Value:	147,600

Property Location: 494 WINDSOR AVE **MAP ID:** 79/ 25/ 30/T / **Bldg Name:** **State Use:** 4340

Vision ID: 184171 **Account #** 01308.02 **Bldg #:** 1 of 1 **Sec #:** 1 of 1 **Card** 1 of 1 **Print Date:** 06/18/2019 13:10

CONSTRUCTION DETAIL

Element	Cd.	Ch.	Description
Model	00		Vacant

CONSTRUCTION DETAIL (CONTINUED)

Element	Cd.	Ch.	Description

MIXED USE

Code	Description	Percentage
4340	Cell Tower	100

COST/MARKET VALUATION

Unadj. Base Rate	0
Net Other Adj:	0.00
Bldg Value New	0
Year Built	
Eff. Year Built	
Dep Code	
Remodel Rating	
Year Remodeled	
Nrml Physc Dep	
Functional Obslnc	
External Obslnc	
Condition	
% Complete	
Overall % Cond	
Depr Bldg Value	

PHOTO & SKETCH

No Photo On Record

OB-OUTBUILDING && YARD ITEMS(L) / XF-BUILDING EXTRA FEATURES(B)

Code	Description	L/B	Units	Unit Price	Yr	Dp Rt	%Cnd	Apr Value

BUILDING SUB-AREA SUMMARY SECTION

Code	Description	Living Area	Gross Area
	Ttl. Gross Liv/Lease Area:	0	0

Bldg Val:

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.
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MICHAELS STORE # 7773
75 INTERSTATE SHOP CTR
RAMSEY ,NJ 07446

UPS Access Point™
THE UPS STORE
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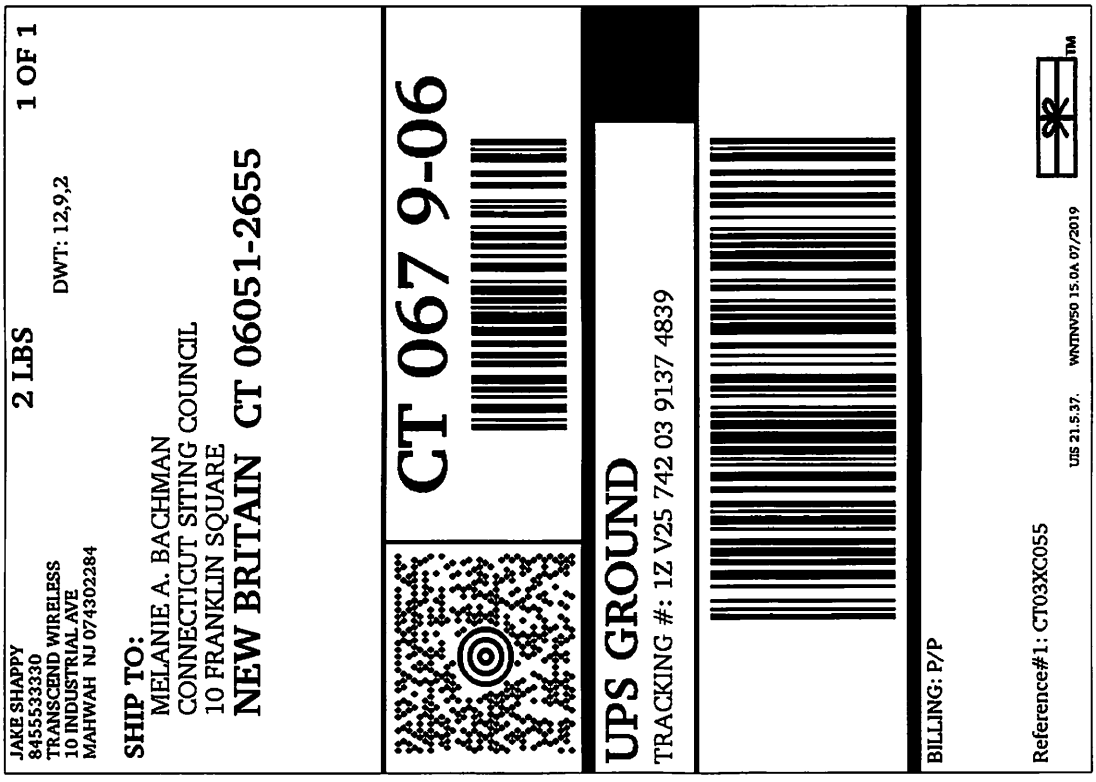

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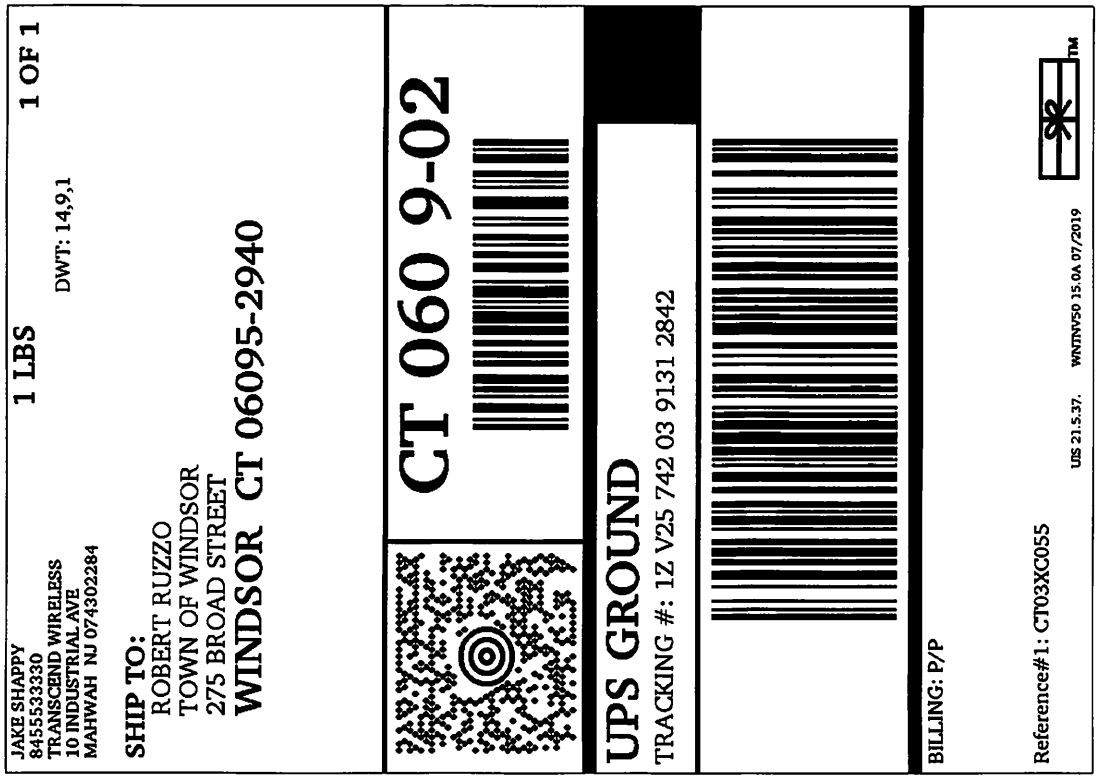

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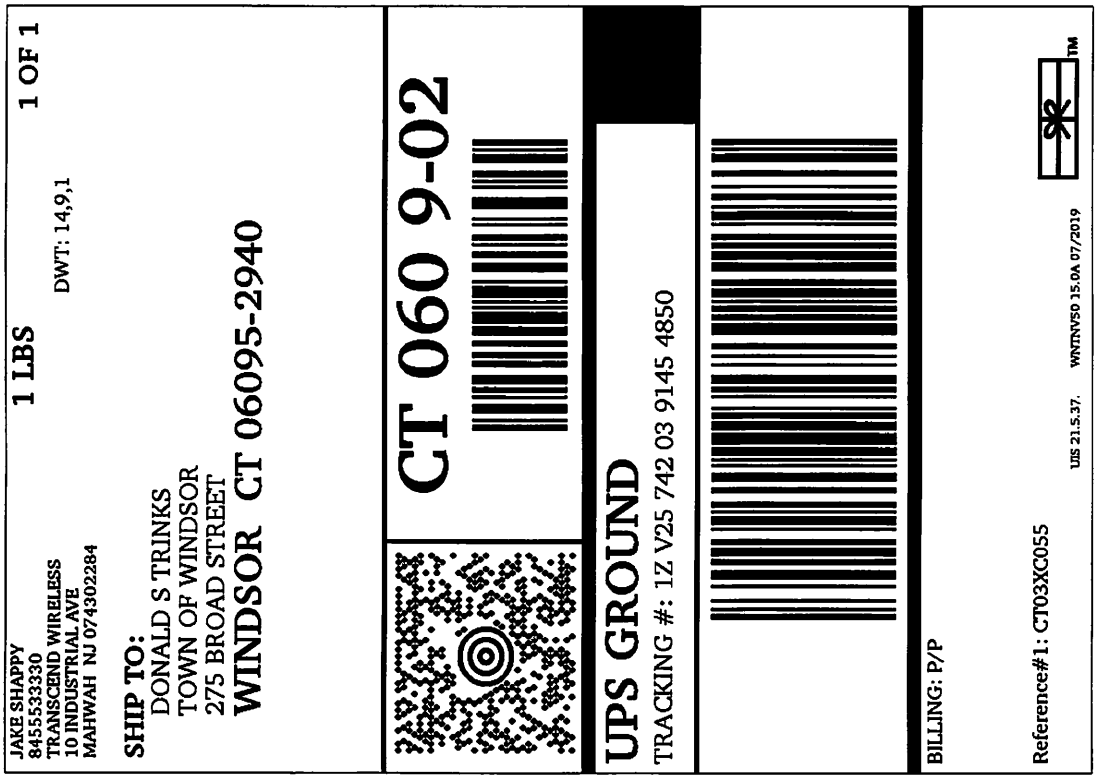

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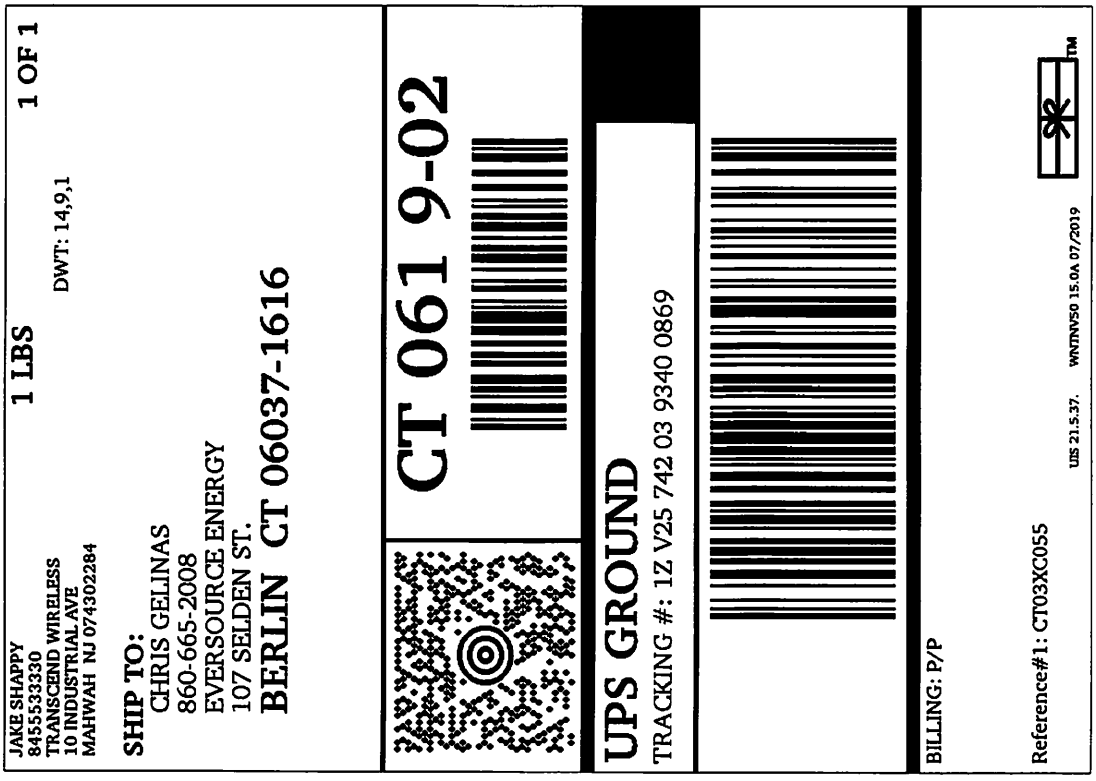

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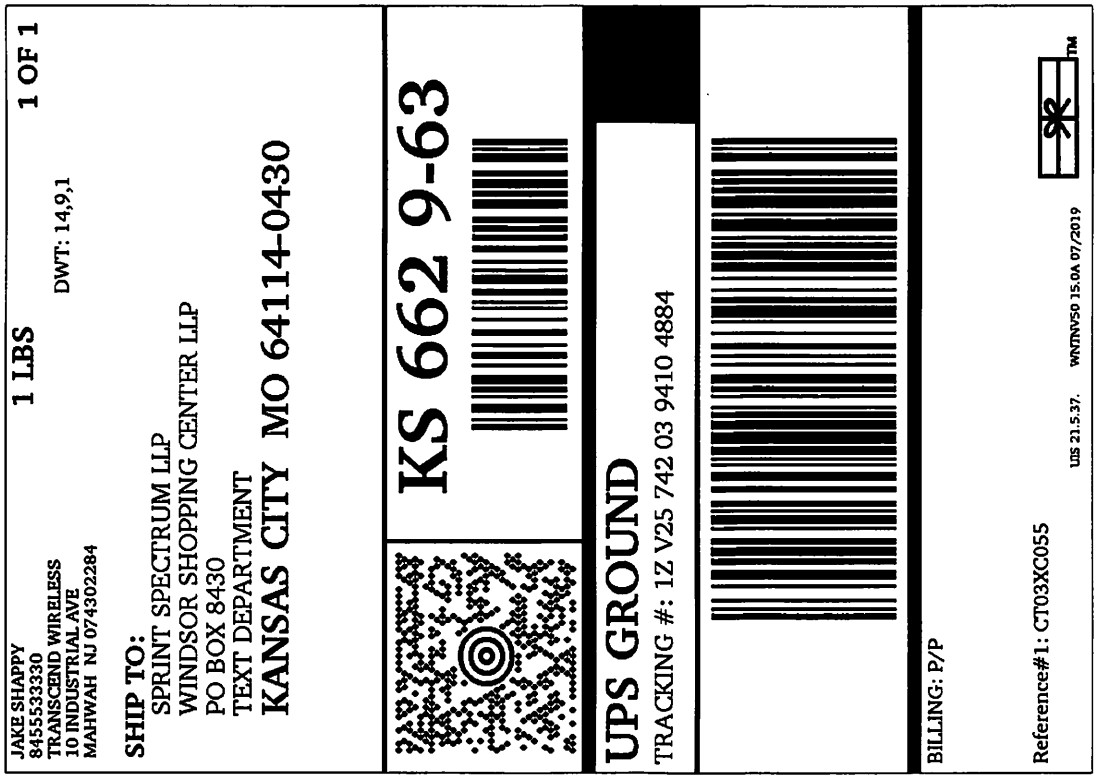

Sprint

WIRELESS COMMUNICATIONS FACILITY

EVERSOURCE STRUCT.: 10133
SITE ID: CT03XC055
490 WINDSOR AVE
WINDSOR, CT 06095

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2012 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2016 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: 490 WINDSOR AVE
WINDSOR, CT 06095

1.	START OUT BY GOING TO WAYSIDE ROAD.	0.10 MI.
2.	TURN LEFT ONTO CAMBRIDGE ST/US-3 N/MA	0.10 MI.
3.	MERGE ONTO I-95 S/US-3 N TOWARD WALTHAM/LOWELL	0.30 MI.
4.	TAKE THE I-90/MASS PIKE EXIT, EXIT 25, TOWARD BOSTON/ALBANY NY.	12.10 MI.
5.	MERGE ONTO I-90 W/MASSACHUSETTS TPKE W TOWARD WORCESTER.	44.45 MI.
6.	MERGE ONTO I-84 W/WILBUR CROSS HWY S VIA EXIT 9 TOWARD US-20.	37.40 MI.
7.	TAKE EXIT 61 FOR I-291 W TOWARD WINDSOR.	4.8 MI.
8.	TAKE EXIT 3 TOWARD CT-159/WINDSOR.	0.10 MI.
9.	TURN RIGHT ONTO CT159 N.	<0.10 MI.

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 EXISTING TOWER MOUNT.
   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.: 10133
SITE ID:	CT03XC055
SITE ADDRESS:	490 WINDSOR AVE WINDSOR, CT 06095
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° 49' 19.20"N LONGITUDE: 72° 39' 17.00"W GROUND ELEVATION: 65' AMSL SITE COORDINATES REFERENCED AND GROUND ELEVATION REFERENCED FROM GOOGLE EARTH.

SHEET INDEX

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N-1	DESIGN BASIS AND SITE NOTES	1
C-1	COMPOUND PLANS AND ELEVATION	1
C-2	TYPICAL DETAILS	1
C-3	COLOR CODE AND CPRI DETAILS	1

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
1	10/11/18	TJL	CAG	ISSUED FOR CONSTRUCTION - ADDED COLOR CODE AND CPRI DETAILS
0	07/05/18	TJL	CAG	ISSUED FOR CONSTRUCTION
A	02/19/18	TJL	CAG	PRELIMINARY DRAWINGS - ISSUED FOR CLIENT REVIEW

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EVERSOURCE STRUCT.: 10133
SITE ID: CT03XC055
490 WINDSOR AVE
WINDSOR, CT 06095

DATE:	02/19/18
SCALE:	AS NOTED
JOB NO.	17159.03

TITLE SHEET

T-1

Sheet No. 1 of 5

DESIGN BASIS:

GOVERNING CODE: 2012 INTERNATIONAL BUILDING (IBC) AS MODIFIED BY THE 2016 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 2016 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.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
1	10/11/18	TJL	CAG	ISSUED FOR CONSTRUCTION – ADDED COLOR CODE AND CPRI DETAILS
0	07/05/18	TJL	CAG	ISSUED FOR CONSTRUCTION
A	02/19/18	TJL	CAG	PRELIMINARY DRAWINGS – ISSUED FOR CLIENT REVIEW

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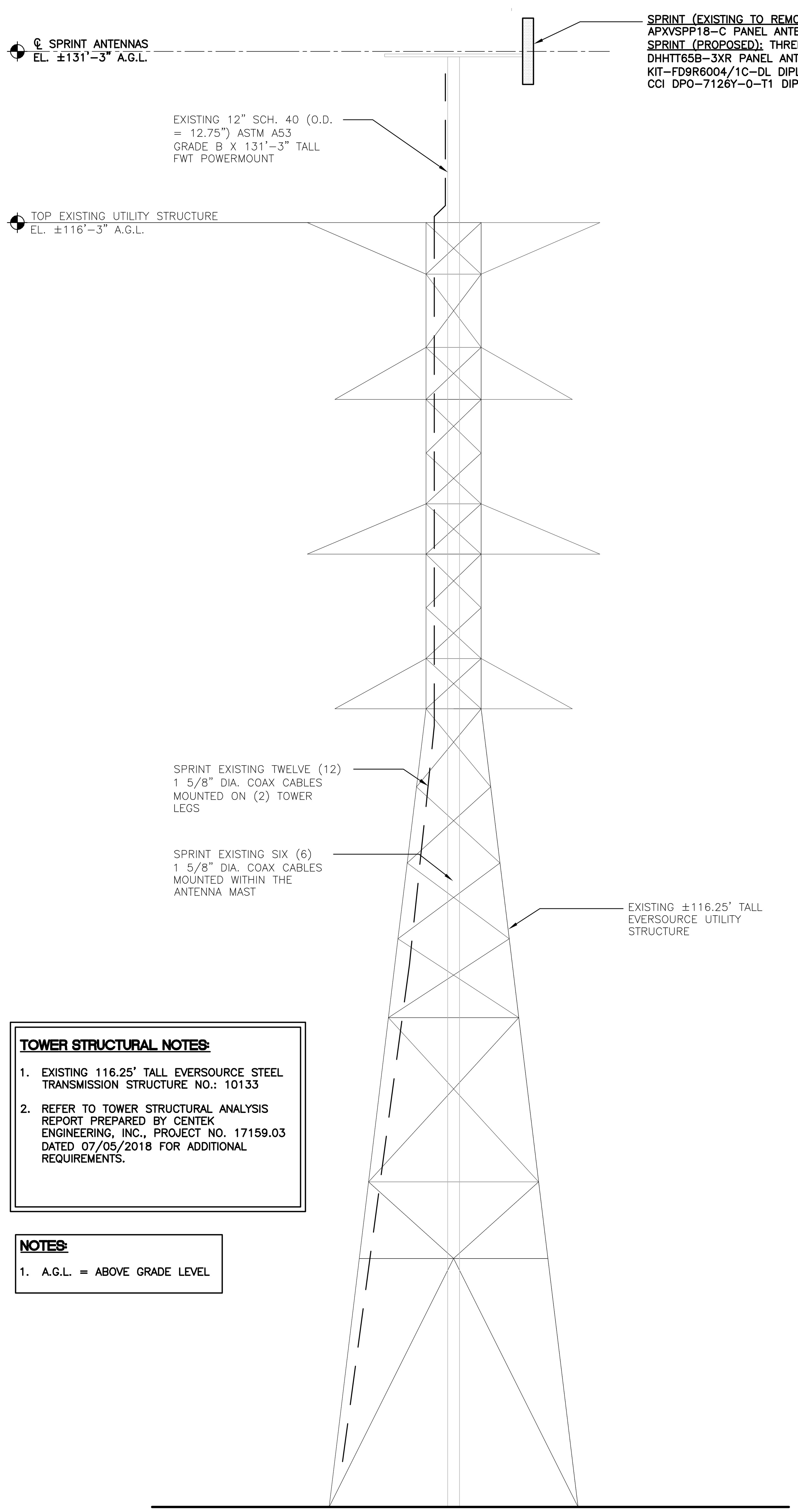
WINDSOR, CT 06095

DATE: 02/19/18
SCALE: AS NOTED
JOB NO. 17159.03

DESIGN BASIS AND SITE NOTES

N-1



TOWER STRUCTURAL NOTES:

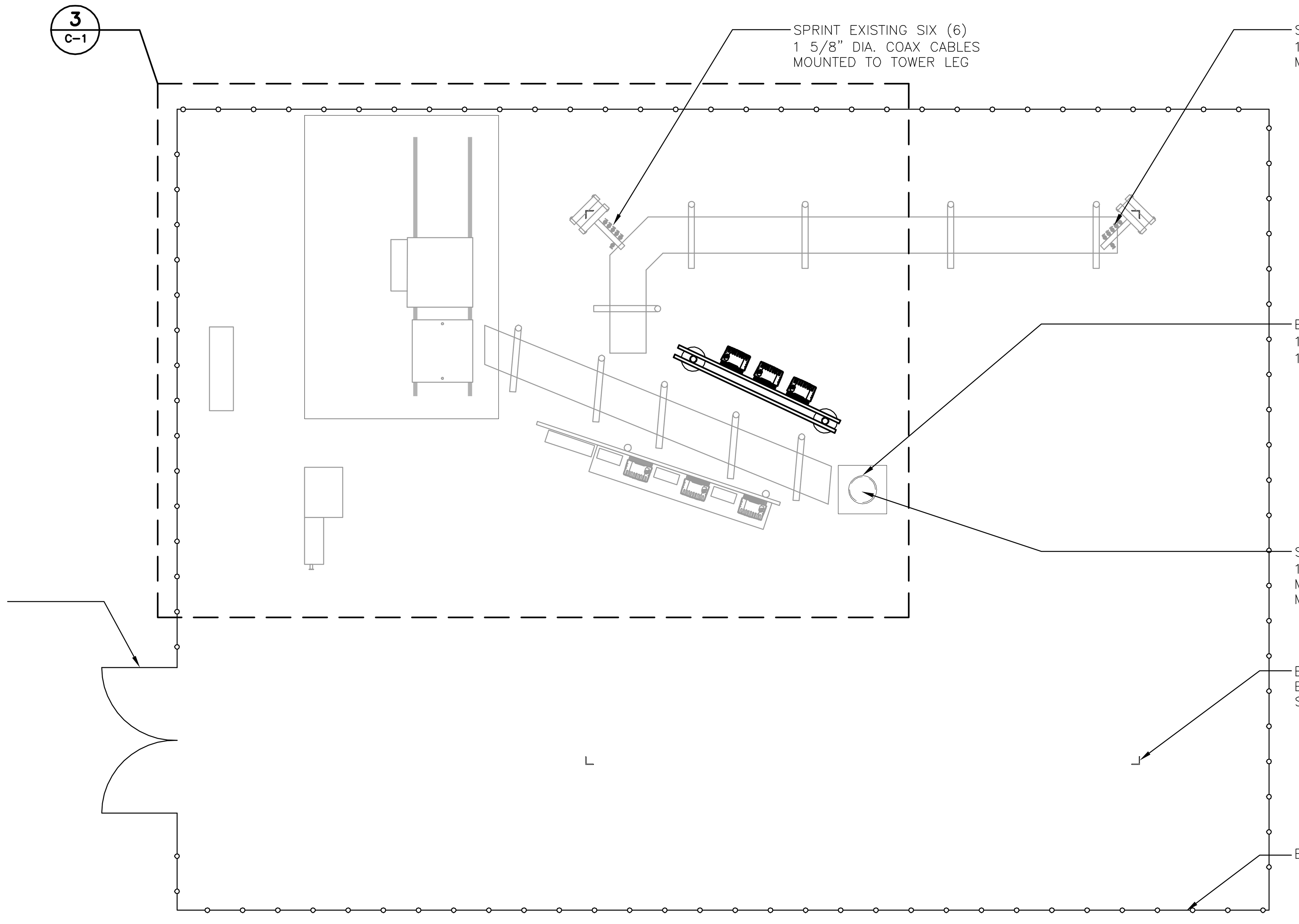
1. EXISTING 116.25' TALL EVERSOURCE STEEL TRANSMISSION STRUCTURE NO.: 10133
2. REFER TO TOWER STRUCTURAL ANALYSIS REPORT PREPARED BY CENTEK ENGINEERING, INC., PROJECT NO. 17159.03 DATED 07/05/2018 FOR ADDITIONAL REQUIREMENTS.

NOTES:

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

1 / C-1 **TOWER ELEVATION**

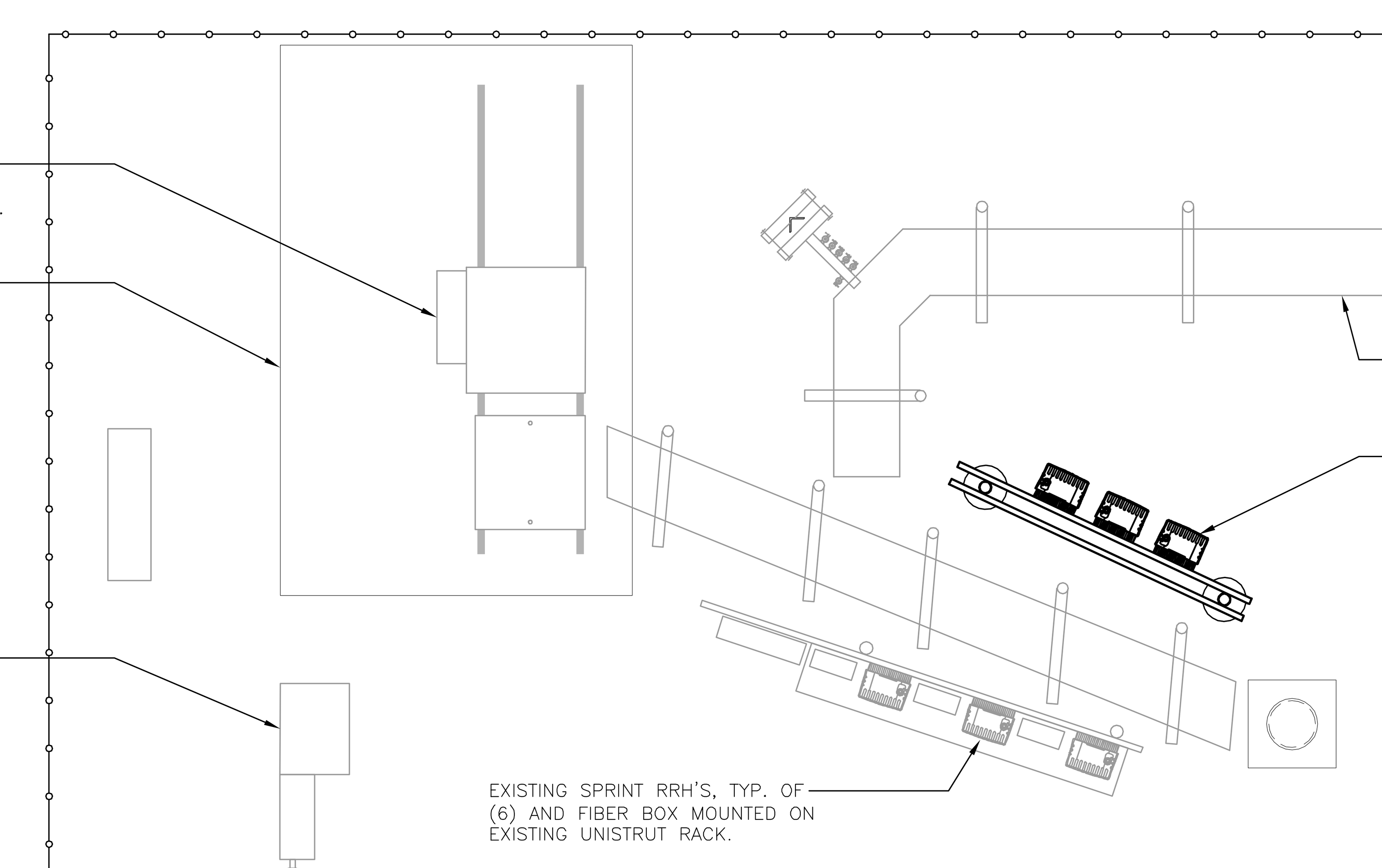
SCALE: 1" = 7'-0"



2 / C-1 **COMPOUND PLAN**

SCALE: 1" = 4'-0"

TRUE NORTH



3 / C-1 **EQUIPMENT PLAN**

SCALE: 1 = 3'-0"

TRUE NORTH

GRAPHIC SCALE

3 0 1.5 3 6 12

(IN FEET)
1 inch = 3 ft.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
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EVERSOURCE STRUCT.: 10133

SITE ID: CT03XC055

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WINDSOR, CT 06095

DATE: 02/19/18

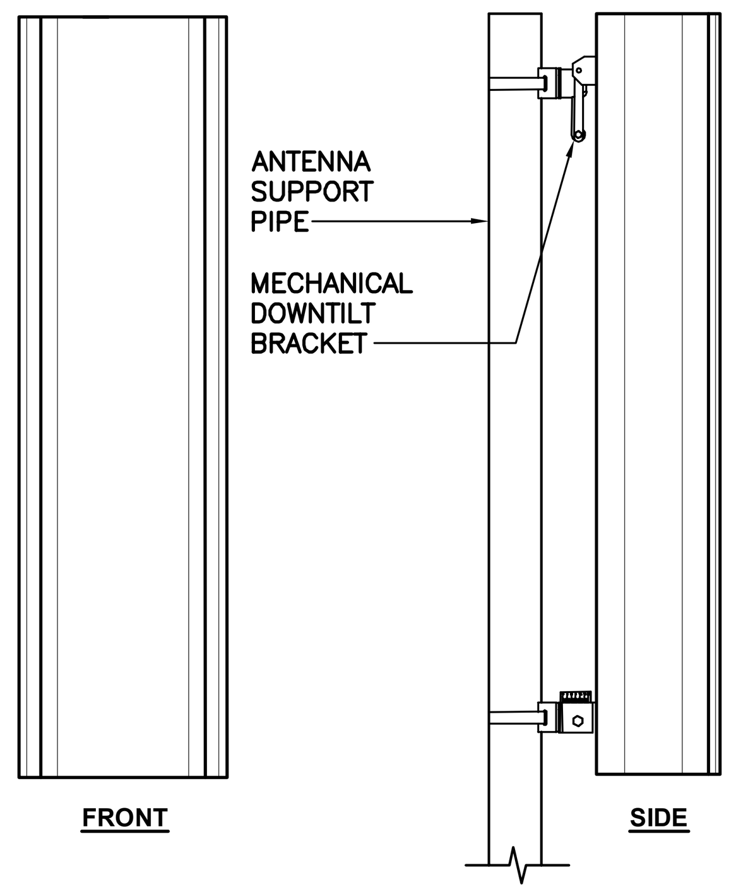
SCALE: AS NOTED

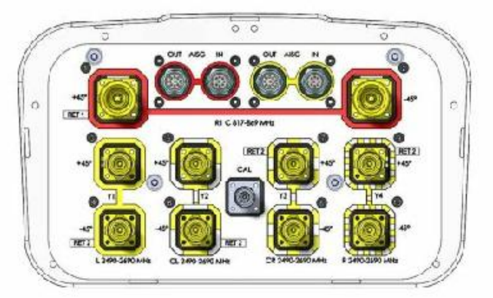
JOB NO. 17159.03

COMPOUND PLANS AND ELEVATION

C-1

Sheet No. 3 of 5





BOTTOM

ALPHA/BETA/GAMMA ANTENNA		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: COMMSCOPE MODEL: DHHT65B-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"

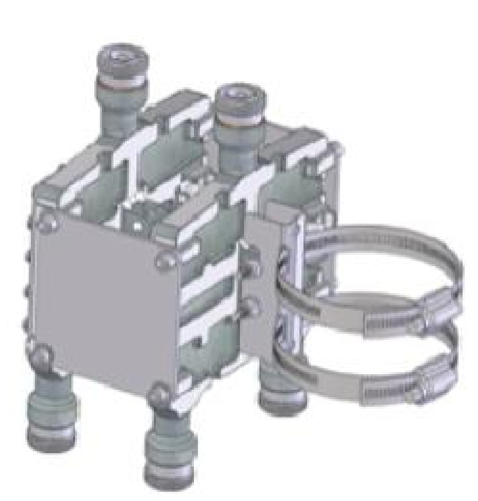
TD-RRH8x20-25

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

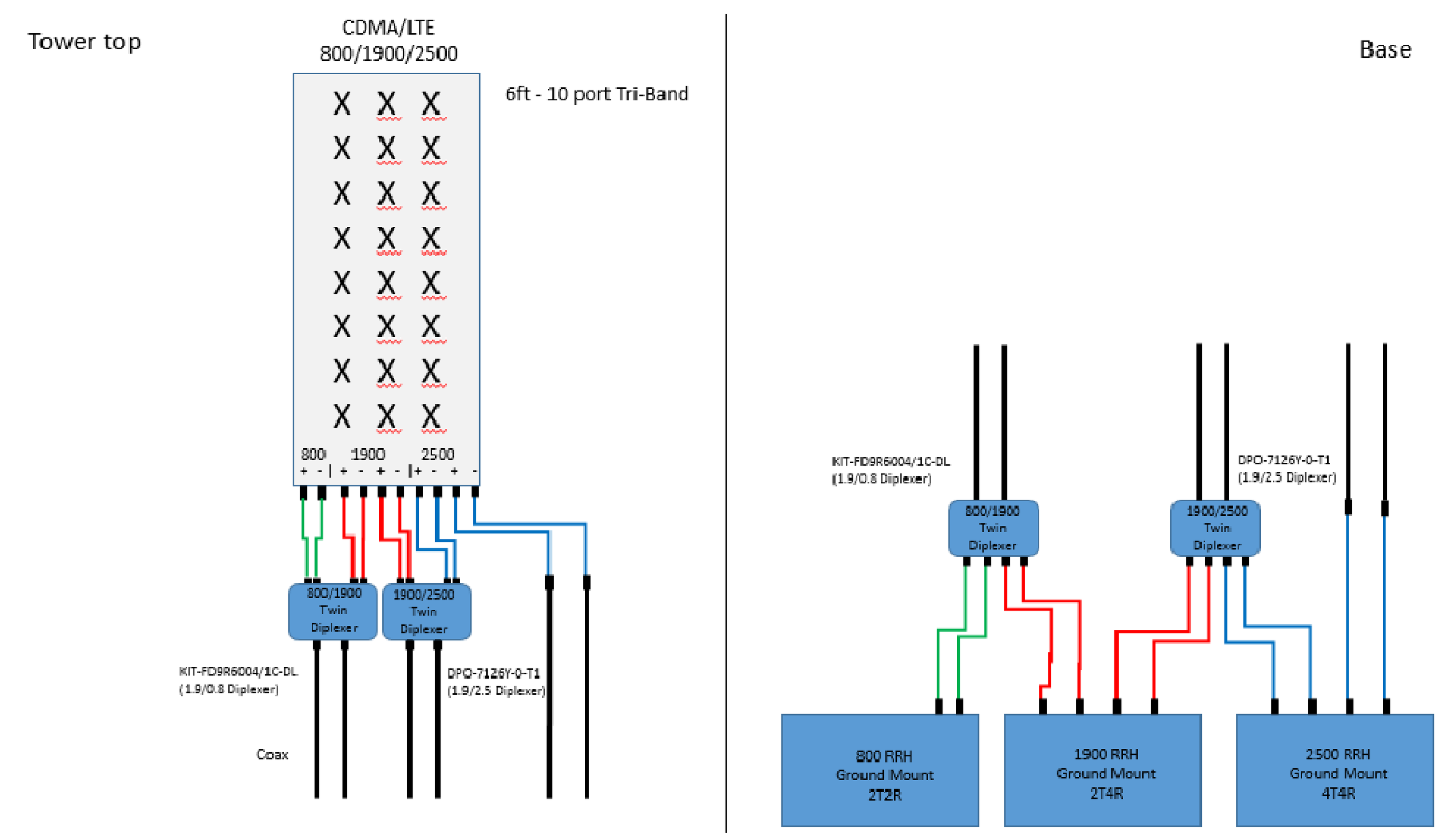


KIT-FD9R6004/1C-DL

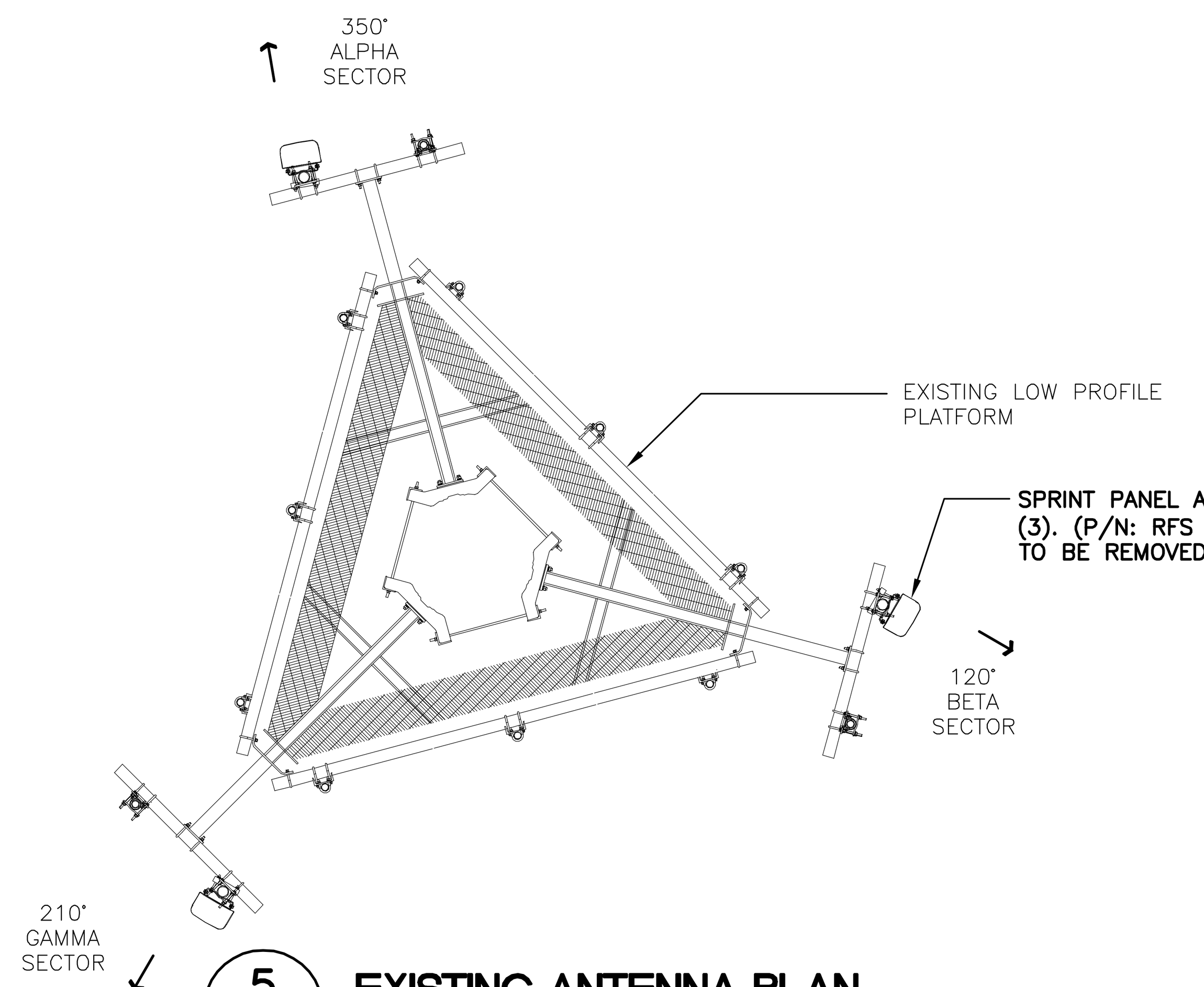
DIPLEXERS		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: RFS MODEL: KIT-FD9R6004/1C-DL	5.8"L x 6.5"W x 4.6"D	6.4 LBS.
MAKE: CCI MODEL: DPO-7126Y-0-T1	6.26"L x 7.42"W x 4.07"D	7.3 LBS.

NOTES:
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH SPRINT CONSTRUCTION MANAGER PRIOR TO ORDERING.

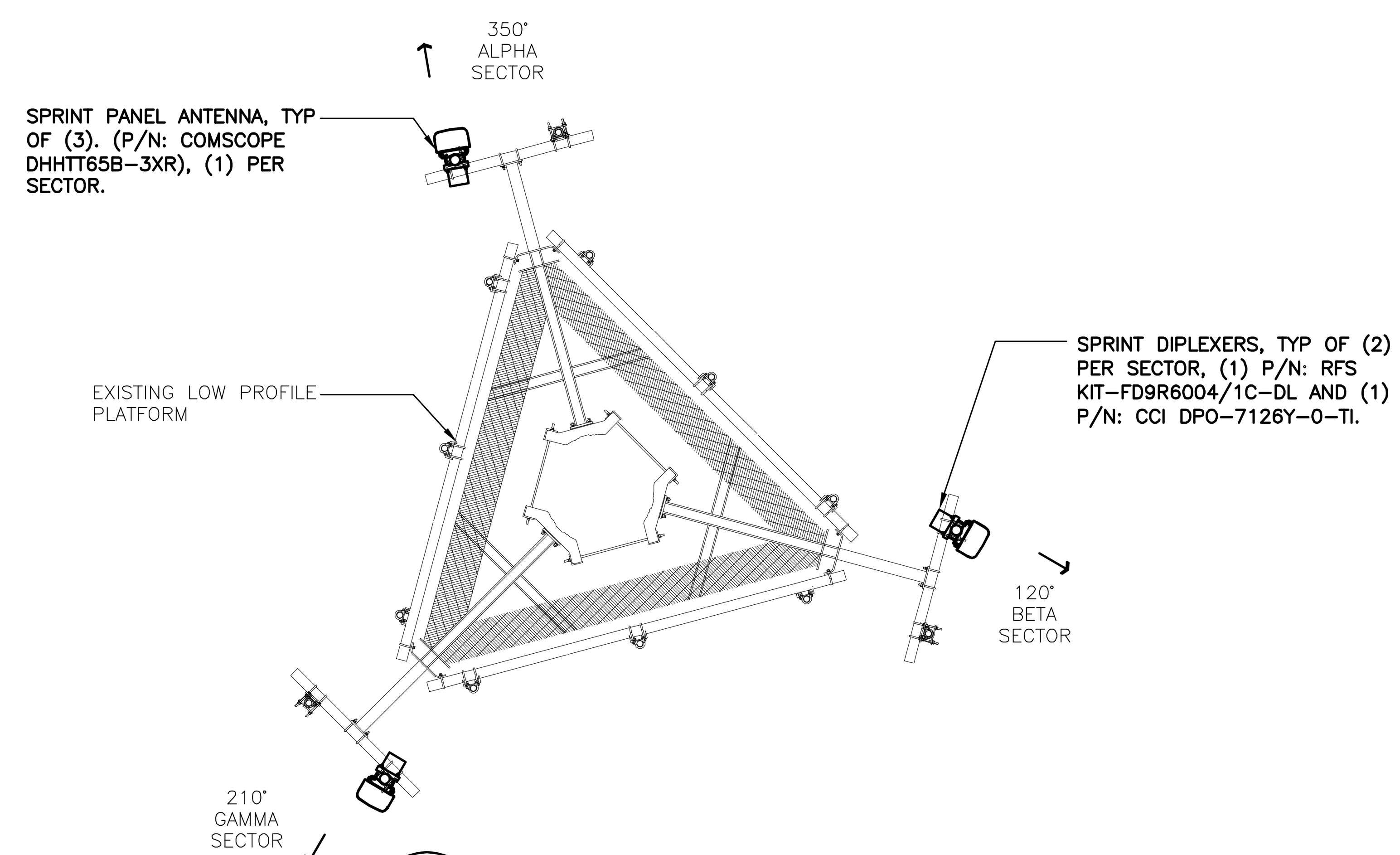
3 C-2 DIPLEXER DETAIL
SCALE: NOT TO SCALE



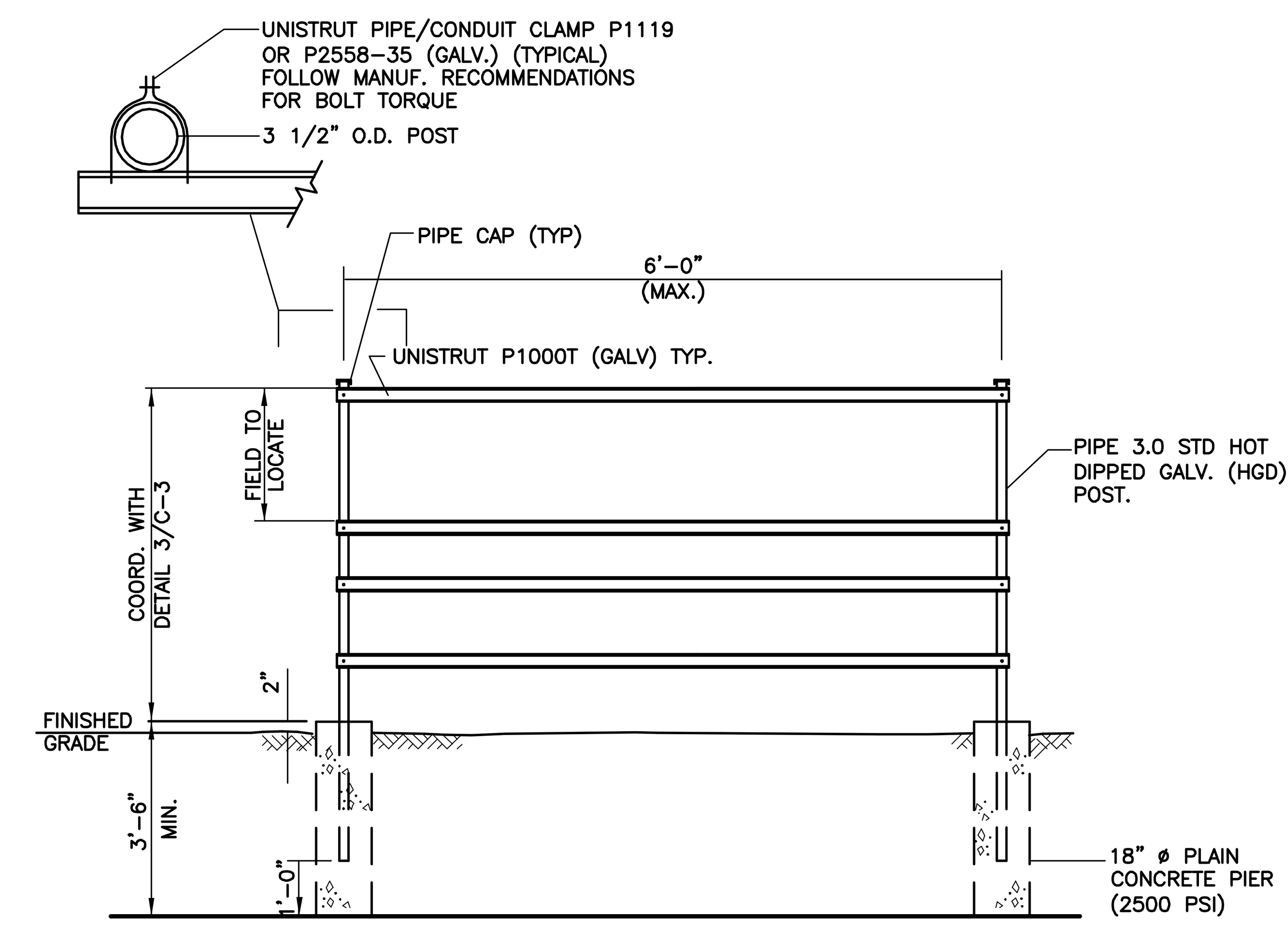
4 C-2 PLUMBING DIAGRAM
NOT TO SCALE



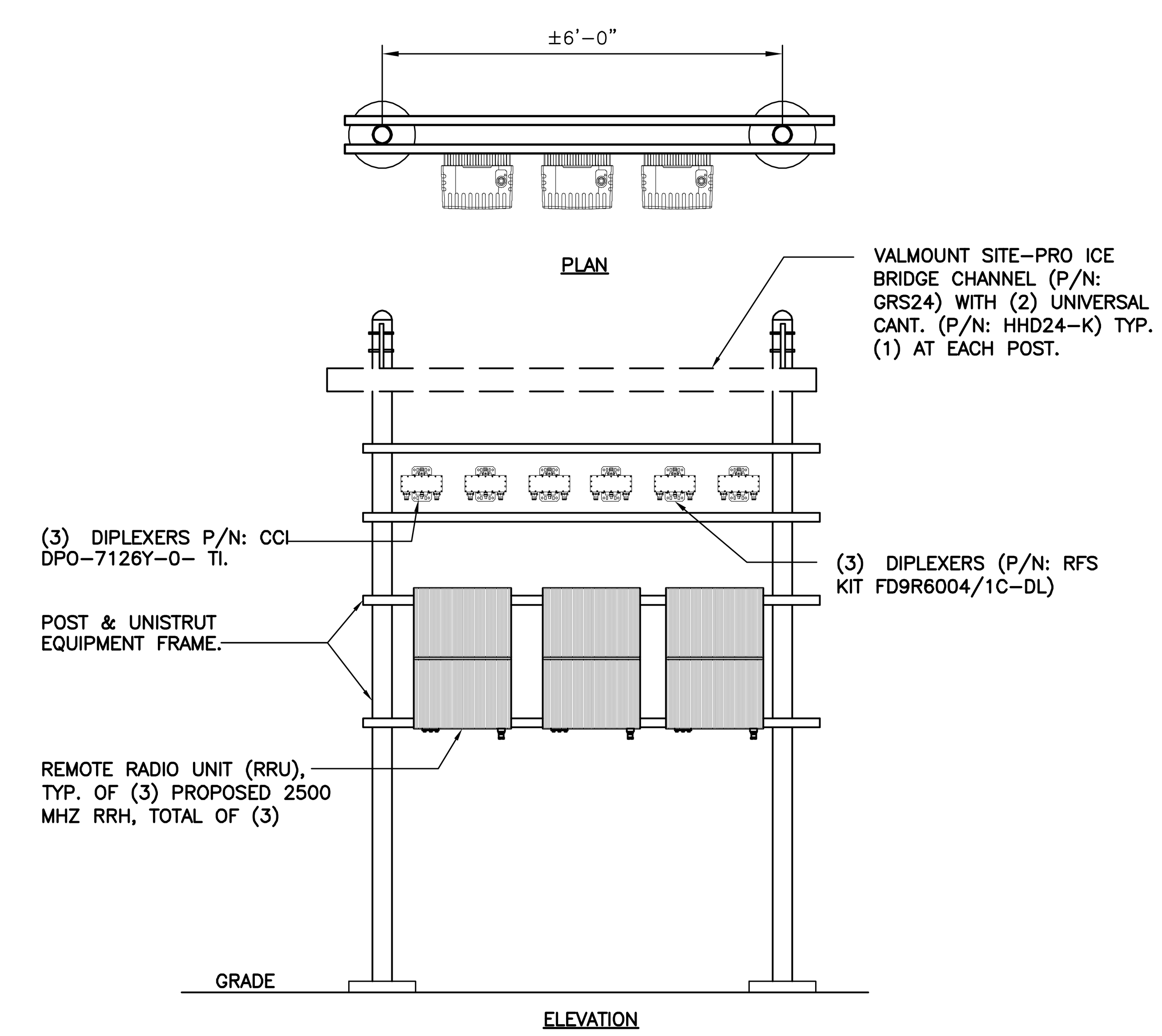
5 C-2 EXISTING ANTENNA PLAN
SCALE: = 1/4" = 1'



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



7 C-2 PROPOSED EQUIPMENT MOUNTING FRAME DETAIL
SCALE: NOT TO SCALE



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

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
A	02/19/18	TJL	CAG	PRELIMINARY DRAWINGS - ISSUED FOR CLIENT REVIEW
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1	10/11/18	TJL	CAG	ISSUED FOR CONSTRUCTION - ADDED COLOR CODE AND CPRI DETAILS

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TYPICAL DETAILS

C-2

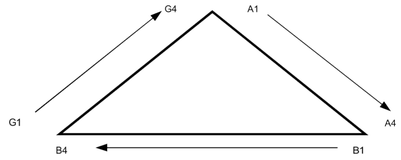
Sheet No. 4 of 5

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.

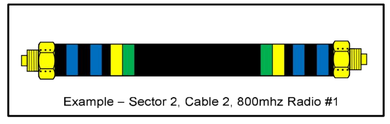
FIGURE 19.1 CABLE COLOR CODE

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

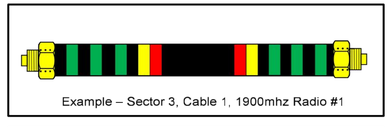
FIGURE 19.2 COLOR CODE

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

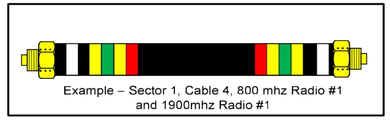
FREQUE	INDICATOR		ID
2500 -1	YEL	WHT	GRN
2500 -2	YEL	WHT	RED
2500 -3	YEL	WHT	BRN
2500 -4	YEL	WHT	BLU
2500 -5	YEL	WHT	SLT
2500 -6	YEL	WHT	ORG
2500 -7	YEL	WHT	WHT
2500 -8	YEL	WHT	PPL



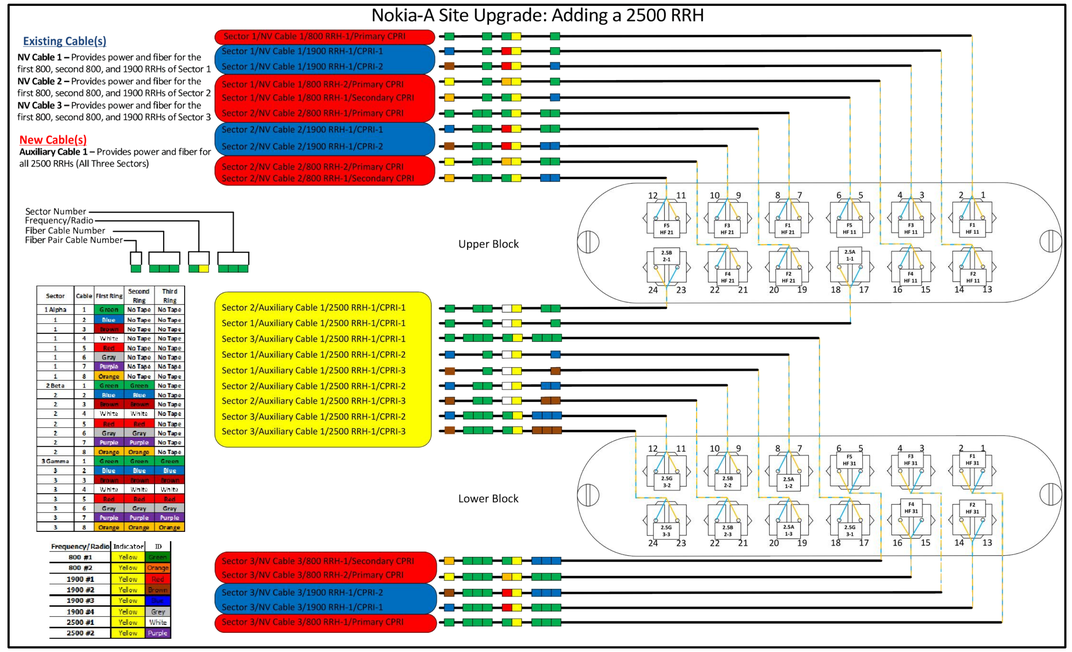
Example – Sector 2, Cable 2, 800mhz Radio #1



Example – Sector 3, Cable 1, 1900mhz Radio #1



Example – Sector 1, Cable 4, 800 mhz Radio #1 and 1900mhz Radio #1



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	10/11/18	TJL	CAG	ISSUED FOR CONSTRUCTION – ADDED COLOR CODE AND CPRI DETAILS
0	07/05/18	TJL	CAG	ISSUED FOR CONSTRUCTION
A	02/19/18	TJL	CAG	PRELIMINARY DRAWINGS – ISSUED FOR CLIENT REVIEW

PROFESSIONAL ENGINEER SEAL

STATE OF CONNECTICUT – TIMOTHY J. LAWLOR – REGISTERED PROFESSIONAL ENGINEER

Sprint

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63-2 North Branford Road
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SPRINT
WIRELESS COMMUNICATIONS FACILITY

EVERSOURCE STRUCT.: 10133
SITE ID: CT03XC055

490 WINDSOR AVE
WINDSOR, CT 06095

DATE: 02/19/18
SCALE: AS NOTED
JOB NO. 17159.03

COLOR CODE AND CPRI DETAILS

C-3

Sheet No. 5 of 5

CENTEK engineering

Centered on Solutions℠

Structural Analysis of Antenna Mast and Tower

Sprint Site Ref: CT03XC055

Eversource Structure No. 10133

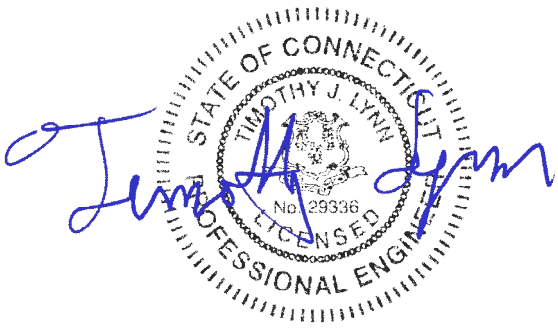
116' Electric Transmission Lattice Tower

490 Windsor Ave
Windsor, CT

CENTEK Project No. 17159.03

~~Date: January 4, 2018~~

Rev 1: July 5, 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 131' FWT Powermount job no. 13933 dated June 26, 1997 and 116' CL&P tower located at 490 Windsor Ave in Windsor, CT for the proposed antenna and equipment upgrade by Sprint.

The proposed loads consist of the following:

- SPRINT (Existing to Remain)
  Coax Cables: Six (6) 1-5/8" ∅ coax cables mounted within the existing powermount and twelve (12) 1-5/8" ∅ coax cables mounted on a universal t-brackets running on a leg of the existing tower as indicated in section 4 of this report.
  Mast: 12" Sch. 40 (O.D. = 12.75") x 131'-0" tall ASTM A53 Gr. B FWT powermount.
- SPRINT (Existing to Remove):
  Antennas: Three (3) RFS APXVSPP18-C panel antennas mounted on the existing low profile platform to the powermount with a RAD center elevation of 131.25-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 the existing low profile platform to the powermount with a RAD center elevation of 131.25-ft above grade.

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 as indicated in Section 4 of this report.
- 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 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" Sch. 40 pipe connected at six elevations 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 Eversource 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 Eversource 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…….. 1.00”

R e s u l t s

- POWERMOUNT

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

Component	Design Limit	Stress Ratio (percentage of capacity)	Result
12” Sch. 40 Pipe	Bending	31.5%	**PASS**
L2.5x2.5x3/16 Brace	Bending	24.0%	**PASS**
Connection	Shear	54.8%	**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 **95.76%** occurs in the utility structure under the **NESC Extreme** loading condition.

  TOWER SECTION:

  The utility structure was found to be within allowable limits.

Tower Member	Stress Ratio (% of capacity)	Result
Angle g47P	95.76%	**PASS**

- FOUNDATION AND ANCHORS

The existing foundation consists of four (4) 6-ft square steel grillage assemblies. Foundation information was obtained from NUSCO drawing # 01169-50015 sheet E2.

BASE REACTIONS:

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

Load Case	Shear	Uplift	Compression
NESC Heavy Wind	7.58 kips	26.35 kips	42.44 kips
NESC Extreme Wind	16.65 kips	68.49 kips	78.49 kips

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

FOUNDATION:

The foundation was found to be within allowable limits.

Foundation	Design Limit	Allowable Limit	Proposed Loading (2)	Result
Steel Grillage	Uplift	1.0 FS (1)	1.47 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.

Conclusion

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

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

		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	Antenna Mount	TIA SUB 090	TIA SUB 090	TIA SUB 090	TIA SUB 090	TIA SUB 090	TIA SUB 090
	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	Antenna Mount	TIA SUB 090	TIA SUB 090	TIA SUB 090	TIA SUB 090	TIA SUB 090	TIA SUB 090
	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						

Project: 1448 Line, Structure 10133 Wire Load Recalculation
Date: 6/8/2018
Engineer: JS
Purpose: Recalculate wire loads for Sprint site. Existing lattice tower is spaced too close to adjacent 345 kV. Assume one circuit to remain open and unloaded. Two shield wires

Shield Wires:
1448: 0.453" Taihan TFO-8631 OPGW, 4300# @ NESC 250B Final
Open: 7#8 Alumoweld, 4200# @ NESC 250 Final

Conductors:
1448: 1272 Bittern ACSR @ 10000# NESC 250B Final
Open: None. Spacing too close to adjacent 345 kV line

NESC 250B

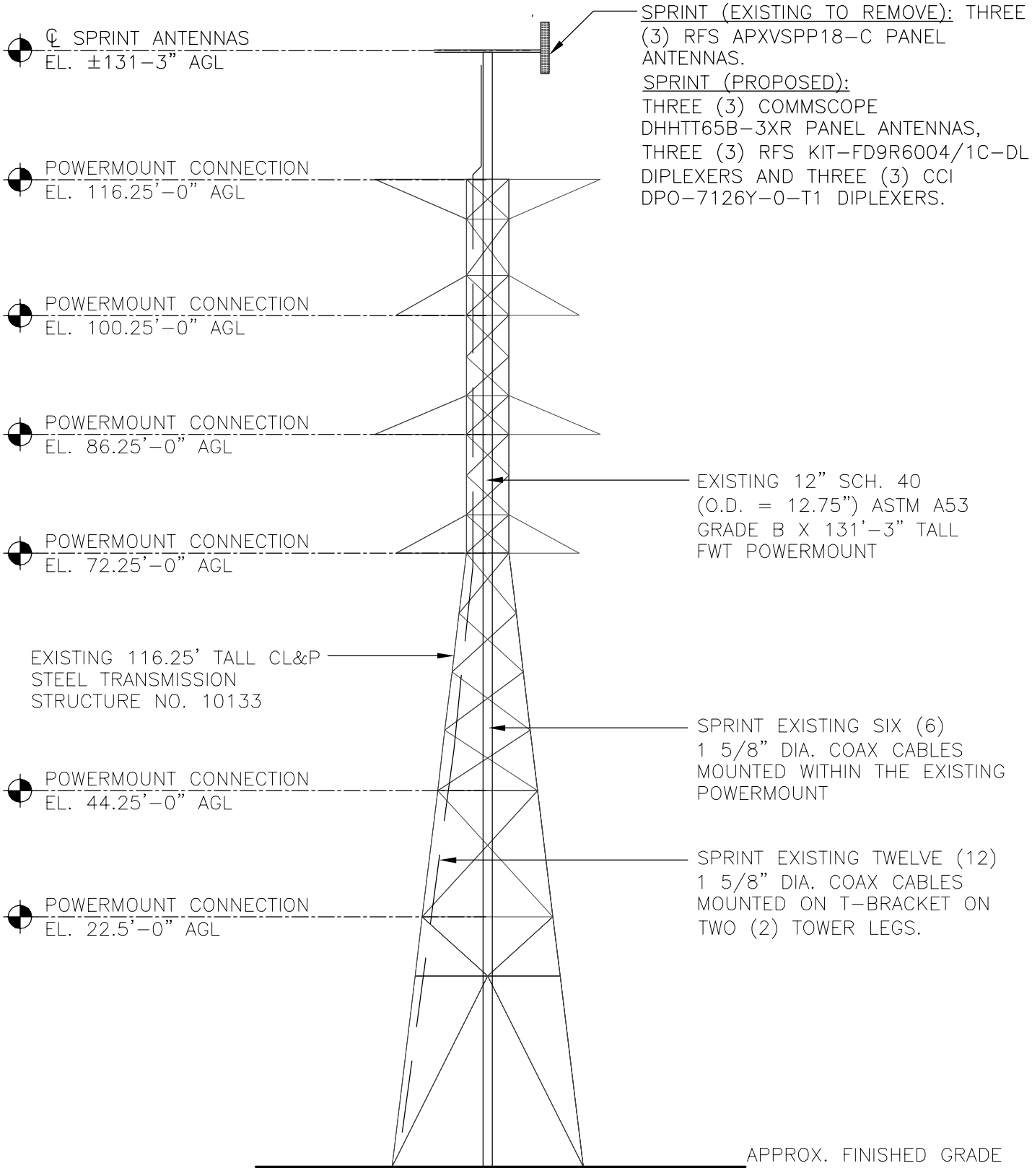
	Vertical	Transverse	Longitudinal
7#8	**710**	**626**	**0**
OPGW	**805**	**656**	**0**
Cond.	**2750**	**1169**	**0**
	2750	**1169**	**0**
	2750	**1169**	**0**

NESC 250C

	Vertical	Transverse	Longitudinal
7#8	**153**	**521**	**0**
OPGW	**185**	**655**	**0**
Cond.	**1164**	**2153**	**0**
	1164	**2153**	**0**
	1164	**2153**	**0**

60 deg F

	Vertical	Transverse	Longitudinal
7#8	**153**	**0**	**0**
OPGW	**185**	**0**	**0**
Cond.	**1164**	**0**	**0**
	1164	**0**	**0**
	1164	**0**	**0**



1 / EL–1

TOWER & POWERMOUNT ELEVATION

SCALE: NOT TO SCALE

REVISIONS		
00	1/4/18	CONSTRUCTION
01	7/3/18	CONSTRUCTION

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CT03XC055
EVERSOURCE 10133

490 WINDSOR AVE
WINDSOR, CT 06095

PROJECT NO:	17159.03
DRAWN BY:	TJL
CHECKED BY:	CFC
SCALE:	AS NOTED
DATE:	1/4/18

TOWER AND MAST ELEVATION

EL-1

DWG. 1 OF 1

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Branford, CT 06405 F: (203) 488-8587

Subject:	Loads on Equipmnet Structure 10133
Location:	Windsor, CT
Rev. 0: 1/4/18	Prepared by: T.J.L. Checked by: C.F.C. Job No. 17159.03

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 = $h := 116.25$ ft (User Input)

Height to Center of Antennas = $z_{ant} := 131.25$ ft (User Input)

Height to Center of Mast = $z_{Mast7} := 126$ ft (User Input)

Height to Center of Mast = $z_{Mast6} := 110$ 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)

Height to Center of Mast = $z_{Mast3} := 50$ ft (User Input)

Mast Based on Max 20-ft Section per 2.6.9.1.3

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 = $t_i := 1.00$ 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)

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

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

$$K_{iz} := \left(\frac{z_{ant}}{33}\right)^{0.1} = 1.148 \qquad t_{iz} := 2.0 \cdot t_i \cdot I_{ice} \cdot K_{iz} \cdot K_{zt}^{0.35} = 2.87$$

Velocity Pressure Coefficient Antennas =

$$Kz_{ant} := 2.01\left(\left(\frac{z_{ant}}{zg}\right)\right)^{\frac{2}{\alpha}} = 1.34$$

Velocity Pressure w/o Ice Antennas =

$$qz_{ant} := 0.00256 \cdot K_d \cdot Kz_{ant} \cdot V^2 \cdot I_{Wind} = 31.555$$

Velocity Pressure with Ice Antennas =

$$qz_{ice.ant} := 0.00256 \cdot K_d \cdot Kz_{ant} \cdot V_i^2 \cdot I_{Wind\_w\_Ice} = 7.291$$

$$K_{izMast7} := \left(\frac{z_{Mast7}}{33}\right)^{0.1} = 1.143 \qquad t_{izMast7} := 2.0 \cdot t_i \cdot I_{ice} \cdot K_{izMast7} \cdot K_{zt}^{0.35} = 2.858$$

Velocity Pressure Coefficient Mast =

$$Kz_{Mast7} := 2.01\left(\left(\frac{z_{Mast7}}{zg}\right)\right)^{\frac{2}{\alpha}} = 1.329$$

Velocity Pressure w/o Ice Mast=

$$qz_{Mast7} := 0.00256 \cdot K_d \cdot Kz_{Mast7} \cdot V^2 \cdot I_{Wind} = 31.285$$

Velocity Pressure with Ice Mast =

$$qz_{ice.Mast7} := 0.00256 \cdot K_d \cdot Kz_{Mast7} \cdot V_i^2 \cdot I_{Wind\_w\_Ice} = 7.228$$

$$K_{izMast6} := \left(\frac{z_{Mast6}}{33}\right)^{0.1} = 1.128 \qquad t_{izMast6} := 2.0 \cdot t_i \cdot I_{ice} \cdot K_{izMast6} \cdot K_{zt}^{0.35} = 2.82$$

Velocity Pressure Coefficient Mast =

$$Kz_{Mast6} := 2.01\left(\left(\frac{z_{Mast6}}{zg}\right)\right)^{\frac{2}{\alpha}} = 1.291$$

Velocity Pressure w/o Ice Mast=

$$qz_{Mast6} := 0.00256 \cdot K_d \cdot Kz_{Mast6} \cdot V^2 \cdot I_{Wind} = 30.403$$

Velocity Pressure with Ice Mast =

$$qz_{ice.Mast6} := 0.00256 \cdot K_d \cdot Kz_{Mast6} \cdot V_i^2 \cdot I_{Wind\_w\_Ice} = 7.025$$

$$K_{izMast5} := \left(\frac{z_{Mast5}}{33}\right)^{0.1} = 1.106 \qquad t_{izMast5} := 2.0 \cdot t_i \cdot I_{ice} \cdot K_{izMast5} \cdot K_{zt}^{0.35} = 2.764$$

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 =

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

$K_{izMast4} := \left(\frac{z_{Mast4}}{33}\right)^{0.1} = 1.078$ $t_{izMast4} := 2.0 \cdot t_i \cdot I_{ice} \cdot K_{izMast4} \cdot K_{zt}^{0.35} = 2.695$

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

$K_{izMast3} := \left(\frac{z_{Mast3}}{33}\right)^{0.1} = 1.042$ $t_{izMast3} := 2.0 \cdot t_i \cdot I_{ice} \cdot K_{izMast3} \cdot K_{zt}^{0.35} = 2.606$

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

$K_{izMast2} := \left(\frac{z_{Mast2}}{33}\right)^{0.1} = 0.991$ $t_{izMast2} := 2.0 \cdot t_i \cdot I_{ice} \cdot K_{izMast2} \cdot K_{zt}^{0.35} = 2.476$

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

$K_{izMast1} := \left(\frac{z_{Mast1}}{33}\right)^{0.1} = 0.887$ $t_{izMast1} := 2.0 \cdot t_i \cdot I_{ice} \cdot K_{izMast1} \cdot K_{zt}^{0.35} = 2.219$

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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Location: Windsor, CT

Rev. 0: 1/4/18

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Job No. 17159.03

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 =	$qz_{Mast7} \cdot G_H \cdot CF_{mast} \cdot A_{mast} = 27$	plf	BLC 5
Total Mast Wind Force =	$qz_{Mast6} \cdot G_H \cdot CF_{mast} \cdot A_{mast} = 26$	plf	BLC 5
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 = $AICE_{mast} := \frac{(D_{mast} + 2 \cdot t_{izMast7})}{12} = 1.539$ sf/ft

Total Mast Wind Force w/ Ice = $qz_{ice.Mast7} \cdot G_H \cdot CF_{mast} \cdot AICE_{mast} = 9$ plf BLC 4

Mast Projected Surface Area w/ Ice = $AICE_{mast} := \frac{(D_{mast} + 2 \cdot t_{izMast6})}{12} = 1.532$ sf/ft

Total Mast Wind Force w/ Ice = $qz_{ice.Mast6} \cdot G_H \cdot CF_{mast} \cdot AICE_{mast} = 9$ plf BLC 4

Mast Projected Surface Area w/ Ice = $AICE_{mast} := \frac{(D_{mast} + 2 \cdot t_{izMast5})}{12} = 1.523$ 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 = $AICE_{mast} := \frac{(D_{mast} + 2 \cdot t_{izMast4})}{12} = 1.512$ sf/ft

Total Mast Wind Force w/ Ice = $qz_{ice.Mast4} \cdot G_H \cdot CF_{mast} \cdot AICE_{mast} = 8$ plf BLC 4

Mast Projected Surface Area w/ Ice = $AICE_{mast} := \frac{(D_{mast} + 2 \cdot t_{izMast3})}{12} = 1.497$ sf/ft

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

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Mast Projected Surface Area w/ Ice =	$AICE_{mast} := \frac{(D_{mast} + 2 \cdot t_{izMast2})}{12} = 1.475$	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 =	$AICE_{mast} := \frac{(D_{mast} + 2 \cdot t_{izMast1})}{12} = 1.432$	sf/ft		
Total Mast Wind Force w/ Ice =	$qz_{ice.Mast1} \cdot G_H \cdot CF_{mast} \cdot AICE_{mast} = 5$	plf	BLC 4	
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 =	$Ai_{mast} := \frac{\pi}{4}\left[(D_{mast} + t_{izMast7} \cdot 2)^2 - D_{mast}^2\right] = 140.2$	sq in		
Weight of Ice on Mast =	$W_{ICEmast7} := Id \cdot \frac{Ai_{mast}}{144} = 55$	plf	BLC 3	
Ice Area per Linear Foot =	$Ai_{mast} := \frac{\pi}{4}\left[(D_{mast} + t_{izMast6} \cdot 2)^2 - D_{mast}^2\right] = 137.9$	sq in		
Weight of Ice on Mast =	$W_{ICEmast6} := Id \cdot \frac{Ai_{mast}}{144} = 54$	plf	BLC 3	
Ice Area per Linear Foot =	$Ai_{mast} := \frac{\pi}{4}\left[(D_{mast} + t_{izMast5} \cdot 2)^2 - D_{mast}^2\right] = 134.7$	sq in		
Weight of Ice on Mast =	$W_{ICEmast5} := Id \cdot \frac{Ai_{mast}}{144} = 52$	plf	BLC 3	
Ice Area per Linear Foot =	$Ai_{mast} := \frac{\pi}{4}\left[(D_{mast} + t_{izMast4} \cdot 2)^2 - D_{mast}^2\right] = 130.8$	sq in		
Weight of Ice on Mast =	$W_{ICEmast4} := Id \cdot \frac{Ai_{mast}}{144} = 51$	plf	BLC 3	
Ice Area per Linear Foot =	$Ai_{mast} := \frac{\pi}{4}\left[(D_{mast} + t_{izMast3} \cdot 2)^2 - D_{mast}^2\right] = 125.7$	sq in		
Weight of Ice on Mast =	$W_{ICEmast3} := Id \cdot \frac{Ai_{mast}}{144} = 49$	plf	BLC 3	
Ice Area per Linear Foot =	$Ai_{mast} := \frac{\pi}{4}\left[(D_{mast} + t_{izMast2} \cdot 2)^2 - D_{mast}^2\right] = 118.5$	sq in		
Weight of Ice on Mast =	$W_{ICEmast2} := Id \cdot \frac{Ai_{mast}}{144} = 46$	plf	BLC 3	
Ice Area per Linear Foot =	$Ai_{mast} := \frac{\pi}{4}\left[(D_{mast} + t_{izMast1} \cdot 2)^2 - D_{mast}^2\right] = 104.3$	sq in		
Weight of Ice on Mast =	$W_{ICEmast1} := Id \cdot \frac{Ai_{mast}}{144} = 41$	plf	BLC 3	

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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)	
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 =	$F_{ant} := qz_{ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ant} = 1034$	lbs	**BLC 5**

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEant} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz})}{144} = 9.5$	sf	
Antenna Projected Surface Area w/ Ice =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 28.6$	sf	
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ICEant} = 382$	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 =	$V_{ice} := (L_{ant} + 2 \cdot t_{iz})(W_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 1 \times 10^4$	cu in	
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 374$	lbs	
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 1122$	lbs	**BLC 3**

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Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	RFS KIT-F D9R6004/1C-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 =	$F_{ant} := qz_{ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ant} = 40$	lbs	**BLC 5**	

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEant} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz})}{144} = 1$	sf		
Antenna Projected Surface Area w/ Ice =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 2.9$	sf		
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ICEant} = 35$	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 =	$V_{ice} := (L_{ant} + 2 \cdot t_{iz})(W_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 1287$			cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 42$	lbs		
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 125$	lbs	**BLC 3**	

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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)	
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 =	$F_{ant} := qz_{ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ant} = 32$	lbs	**BLC 5**

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEant} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz})}{144} = 0.9$	sf	
Antenna Projected Surface Area w/ Ice =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 2.7$	sf	
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ICEant} = 32$	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 =	$V_{ice} := (L_{ant} + 2 \cdot t_{iz})(W_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 1360$		cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 44$	lbs	
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 132$	lbs	**BLC 3**

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Development of Wind & Ice Load on Antenna Mounts

Mount Data:

Mount Type:	FWT Low Profile Platform		
Mount Shape =	Flat		(User Input)
Mount Projected Surface Area =	$CaAa := 9.67$	sf	(User Input)
Mount Projected Surface Area w/ Ice =	$CaAa_{ice} := 10.83$	sf	(User Input)
Mount Weight =	$WT_{mnt} := 1430$	lbs	(User Input)
Mount Weight w/ Ice =	$WT_{mnt.ice} := 2000$	lbs	

Wind Load (without ice)

Total Mount Wind Force =	$F_{mnt} := qz_{ant} \cdot G_H \cdot CaAa = 412$	lbs	**BLC 5**

Wind Load (with ice)

Total Mount Wind Force =	$Fi_{mnt} := qz_{ice.ant} \cdot G_H \cdot CaAa_{ice} = 107$	lbs	**BLC 4**

Gravity Loads (without ice)

Weight of All Mounts =	$WT_{mnt} = 1430$	lbs	**BLC 2**

Gravity Loads (ice only)

Weight of Ice on All Mounts =	$WT_{mnt.ice} - WT_{mnt} = 570$	lbs	**BLC 3**

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Subject:	Loads on Equipmnet Structure 10133
Location:	Windsor, CT
Rev. 0: 1/4/18	Prepared by: T.J.L. Checked by: C.F.C. Job No. 17159.03

Development of Wind & Ice Load on Coax Cables

Coax Cable Data: (Above Top of Tower)

Coax Type =	HELIAX 1-5/8"		
Shape =	Round		(User Input)
Coax Outside Diameter =	$D_{coax} := 1.98$	in	(User Input)
Coax Cable Length =	$L_{coax} := 15$	ft	(User Input)
Weight of Coax per foot =	$Wt_{coax} := 1.04$	plf	(User Input)
Total Number of Coax =	$N_{coax} := 18$		(User Input)
Total Number of Exterior Coax =	$Ne_{coax} := 12$		(User Input)
No. of Coax Projecting Outside Face of Mast =	$NP_{coax} := 4$		(User Input)
Coax aspect ratio,	$Ar_{coax} := \frac{(L_{coax} \cdot 12)}{D_{coax}} = 90.9$		
Coax Cable Force Factor Coefficient =	$Ca_{coax} = 1.2$		

Wind Load (without ice)

Coax projected surface area =	$A_{coax} := \frac{(NP_{coax} D_{coax})}{12} = 0.7$	sf/ft	
Total Coax Wind Force =	$F_{coax} := Ca_{coax} \cdot qz_{Mast4} \cdot G_H \cdot A_{coax} = 30$	plf	**BLC 5**

Wind Load (with ice)

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

Gravity Loads (without ice)

Weight of all cables w/o ice	$WT_{coax} := Wt_{coax} \cdot N_{coax} = 19$	plf	**BLC 2**

Gravity Loads (ice only)

Ice Area per Linear Foot =	$Ai_{coax} := \frac{\pi}{4}\left[(D_{coax} + 2 \cdot t_{iz})^2 - D_{coax}^2\right] = 43.7$	sq in	
Ice Weight All Coax per foot =	$WTi_{coax} := N_{coax} \cdot Id \cdot \frac{Ai_{coax}}{144} = 306$	plf	**BLC 3**

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Development of Wind & Ice Load on Brace Member

Member Data: L2x2x3/16

Antenna Shape = Flat (User Input)

Height = $H_{mem} := 2$ in (User Input)

Width = $W_{mem} := 2$ in (User Input)

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

Length = $L_{mem} := 30$ in (User Input)

Member Aspect Ratio = $Ar_{mem} := \frac{L_{mem}}{W_{mem}} = 15.0$

Member Force Coefficient = $Ca_{mem} = 1.67$

Wind Load (without ice)

Member Projected Surface Area = $A_{mem} := \frac{H_{mem}}{12} = 0.2$ sf/ft

Total Member Wind Force = $F_{mem} := qz_{Mast4} \cdot G_H \cdot Ca_{mem} \cdot A_{mem} = 10$ plf **BLC 5**

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 = $Fi_{mem} := qz_{ice.Mast4} \cdot G_H \cdot Ca_{mem} \cdot A_{ICEmem} = 9$ plf **BLC 4**

Gravity Load (without ice)

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

Gravity Loads (ice only)

Ice Area per Linear foot = $Ai_{mem} := \left[\left(H_{mem} + 2 \cdot t_{izMast5}\right) + \left(W_{mem} - t_{mem}\right)\right] \cdot \left(t_{mem} + 2 \cdot t_{izMast5}\right) - \left[H_{mem} + \left(W_{mem} + t_{mem}\right)\right] \cdot t_{mem} = 53$ sq in

Weight of Ice on Member = $W_{ICE.mem} := Id \cdot \frac{Ai_{mem}}{144} = 20$ plf **BLC 3**

Development of Wind & Ice Load on Brace Member

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

Antenna Shape = Flat (User Input)

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

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

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

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

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

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

Wind Load (without ice)

Member Projected Surface Area = $A_{mem} := \frac{H_{mem}}{12} = 0.2$ sf/ft

Total Member Wind Force = $F_{mem} := qz_{Mast4} \cdot G_H \cdot Ca_{mem} \cdot A_{mem} = 16$ plf **BLC 5**

Wind Load (with ice)

Member Projected Surface Area w/ Ice = $A_{ICEmem} := \frac{\left(H_{mem} + 2 \cdot t_{izMast5}\right)}{12} = 0.7$ sf/ft

Total Member Wind Force w/ Ice = $Fi_{mem} := qz_{ice.Mast4} \cdot G_H \cdot Ca_{mem} \cdot A_{ICEmem} = 12$ plf **BLC 4**

Gravity Load (without ice)

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

Gravity Loads (ice only)

Ice Area per Linear foot =

$$Ai_{mem} := \left[\left(H_{mem} + 2 \cdot t_{izMast5}\right) + \left(W_{mem} - t_{mem}\right)\right] \cdot \left(t_{mem} + 2 \cdot t_{izMast5}\right) - \left[H_{mem} + \left(W_{mem} + t_{mem}\right)\right] \cdot t_{mem} = 58 \text{ sq in}$$

Weight of Ice on Member = $W_{ICE.mem} := Id \cdot \frac{Ai_{mem}}{144} = 23$ plf **BLC 3**

Development of Wind & Ice Load on Brace Member

Member Data: L3x3x1/4

Antenna Shape = Flat (User Input)

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

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

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

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

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

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

Wind Load (without ice)

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

Total Member Wind Force = $F_{mem} := qz_{Mast4} \cdot G_H \cdot Ca_{mem} \cdot A_{mem} = 19$ plf **BLC 5**

Wind Load (with ice)

Member Projected Surface Area w/ Ice = $A_{ICEmem} := \frac{\left(H_{mem} + 2 \cdot t_{izMast5}\right)}{12} = 0.7$ sf/ft

Total Member Wind Force w/ Ice = $Fi_{mem} := qz_{ice.Mast4} \cdot G_H \cdot Ca_{mem} \cdot A_{ICEmem} = 12$ plf **BLC 4**

Gravity Load (without ice)

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

Gravity Loads (ice only)

Ice Area per Linear foot =

$$Ai_{mem} := \left[\left(H_{mem} + 2 \cdot t_{izMast5}\right) + \left(W_{mem} - t_{mem}\right)\right] \cdot \left(t_{mem} + 2 \cdot t_{izMast5}\right) - \left[H_{mem} + \left(W_{mem} + t_{mem}\right)\right] \cdot t_{mem} = 64 \text{ sq in}$$

Weight of Ice on Member = $W_{ICE.mem} := Id \cdot \frac{Ai_{mem}}{144} = 25$ plf **BLC 3**

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 = $L_{mem} := 90$ in (User Input)

Member Aspect Ratio = $Ar_{mem} := \frac{L_{mem}}{W_{mem}} = 25.7$

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 = $F_{mem} := qz_{Mast4} \cdot G_H \cdot Ca_{mem} \cdot A_{mem} = 22$ plf **BLC 5**

Wind Load (with ice)

Member Projected Surface Area w/ Ice = $A_{ICEmem} := \frac{\left(H_{mem} + 2 \cdot t_{izMast5}\right)}{12} = 0.8$ sf/ft

Total Member Wind Force w/ Ice = $Fi_{mem} := qz_{ice.Mast4} \cdot G_H \cdot Ca_{mem} \cdot A_{ICEmem} = 13$ plf **BLC 4**

Gravity Load (without ice)

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

Gravity Loads (ice only)

Ice Area per Linear foot =

$$Ai_{mem} := \left[\left(H_{mem} + 2 \cdot t_{izMast5}\right) + \left(W_{mem} - t_{mem}\right)\right] \cdot \left(t_{mem} + 2 \cdot t_{izMast5}\right) - \left[H_{mem} + \left(W_{mem} + t_{mem}\right)\right] \cdot t_{mem} = 69 \text{ sq in}$$

Weight of Ice on Member = $W_{ICE.mem} := Id \cdot \frac{Ai_{mem}}{144} = 27$ plf **BLC 3**

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Development of Wind & Ice Load on Brace Member

Member Data: L4x4x1/4

Antenna Shape =	Flat		(User Input)	
Height =	$H_{mem} := 4$	in	(User Input)	
Width =	$W_{mem} := 4$	in	(User Input)	
Thickness =	$t_{mem} := 0.25$	in	(User Input)	
Length =	$L_{mem} := 112$	in	(User Input)	
Member Aspect Ratio =	$Ar_{mem} := \frac{L_{mem}}{W_{mem}} = 28.0$			
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 =	$F_{mem} := qz_{Mast4} \cdot G_H \cdot Ca_{mem} \cdot A_{mem} = 25$	plf		**BLC 5**

Wind Load (with ice)

Member Projected Surface Area w/ Ice =	$A_{ICEmem} := \frac{\left(H_{mem} + 2 \cdot t_{izMast5}\right)}{12} = 0.8$	sf/ft		
Total Member Wind Force w/ Ice =	$Fi_{mem} := qz_{ice.Mast4} \cdot G_H \cdot Ca_{mem} \cdot A_{ICEmem} = 14$	plf		**BLC 4**

Gravity Load (without ice)

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

Gravity Loads (ice only)

Ice Area per Linear foot =

$$Ai_{mem} := \left[\left(H_{mem} + 2 \cdot t_{izMast5}\right) + \left(W_{mem} - t_{mem}\right)\right] \cdot \left(t_{mem} + 2 \cdot t_{izMast5}\right) - \left[H_{mem} + \left(W_{mem} + t_{mem}\right)\right] \cdot t_{mem} = 75 \quad \text{sq in}$$

Weight of Ice on Member =	$W_{ICE.mem} := Id \cdot \frac{Ai_{mem}}{144} = 29$	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
	AISC 14th(360-10): ASD

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	PCA Load Contour
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
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. 50	29000	11154	.3	.65	.49	50	1.1	58	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Powermount	12" FWT Powe..	Beam	Pipe	A53 Gr. B	Typical	14.579	279.335	279.335	558.67
2	Brace 1	L2x2x3	Beam	Single Angle	A36 Gr.36	Typical	.722	.271	.271	.009
3	Brace 2	L3.5x3.5x4	Beam	Single Angle	A36 Gr.36	Typical	1.7	2	2	.039
4	Brace 3	L4x4x4	Beam	Single Angle	A36 Gr.36	Typical	1.93	3	3	.044
5	Brace 4	L2.5x2.5x3	Beam	Single Angle	A36 Gr.36	Typical	.901	.535	.535	.011
6	Brace 5	L3x3x4	Beam	Single Angle	A36 Gr.36	Typical	1.44	1.23	1.23	.031

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	131.25	Segment	Segment	Lbyy						Lateral
2	M2	Brace 5	8.664			Lbyy						Lateral
3	M3	Brace 4	7.082			Lbyy						Lateral
4	M4	Brace 5	8.664			Lbyy						Lateral
5	M5	Brace 2	9.998			Lbyy						Lateral
6	M6	Brace 3	9.423			Lbyy						Lateral
7	M7	Brace 2	7.377			Lbyy						Lateral
8	M8	Brace 2	7.377			Lbyy						Lateral
9	M9	Brace 1	2.708			Lbyy						Lateral
10	M10	Brace 1	2.708			Lbyy						Lateral
11	M11	Brace 1	1.458			Lbyy						Lateral
12	M12	Brace 1	2.708			Lbyy						Lateral
13	M13	Brace 1	2.708			Lbyy						Lateral
14	M14	Brace 1	1.458			Lbyy						Lateral
15	M15	Brace 1	2.708			Lbyy						Lateral
16	M16	Brace 1	2.708			Lbyy						Lateral
17	M17	Brace 1	1.458			Lbyy						Lateral
18	M18	Brace 3	9.423			Lbyy						Lateral
19	M19	Brace 1	2.708			Lbyy						Lateral
20	M20	Brace 1	1.458			Lbyy						Lateral
21	M21	Brace 1	2.708			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	N8			Powermount	Beam	Pipe	A53 Gr. B	Typical
2	M2	N9	N2			Brace 5	Beam	Single Angle	A36 Gr.36	Typical
3	M3	N2	N10			Brace 4	Beam	Single Angle	A36 Gr.36	Typical
4	M4	N11	N2			Brace 5	Beam	Single Angle	A36 Gr.36	Typical
5	M5	N2	N12			Brace 2	Beam	Single Angle	A36 Gr.36	Typical
6	M6	N14	N3			Brace 3	Beam	Single Angle	A36 Gr.36	Typical
7	M7	N3	N15			Brace 2	Beam	Single Angle	A36 Gr.36	Typical
8	M8	N3	N13			Brace 2	Beam	Single Angle	A36 Gr.36	Typical
9	M9	N18	N4			Brace 1	Beam	Single Angle	A36 Gr.36	Typical
10	M10	N4	N19			Brace 1	Beam	Single Angle	A36 Gr.36	Typical
11	M11	N4	N17			Brace 1	Beam	Single Angle	A36 Gr.36	Typical
12	M12	N21	N5			Brace 1	Beam	Single Angle	A36 Gr.36	Typical
13	M13	N5	N22			Brace 1	Beam	Single Angle	A36 Gr.36	Typical
14	M14	N5	N20			Brace 1	Beam	Single Angle	A36 Gr.36	Typical
15	M15	N24	N6			Brace 1	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...
16	M16	N6	N25			Brace 1	Beam	Single Angle	A36 Gr.36	Typical
17	M17	N6	N23			Brace 1	Beam	Single Angle	A36 Gr.36	Typical
18	M18	N3	N16			Brace 3	Beam	Single Angle	A36 Gr.36	Typical
19	M19	N7	N28			Brace 1	Beam	Single Angle	A36 Gr.36	Typical
20	M20	N7	N26			Brace 1	Beam	Single Angle	A36 Gr.36	Typical
21	M21	N7	N27			Brace 1	Beam	Single Angle	A36 Gr.36	Typical

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	N1	0	0	0	0	
2	N2	0	22.5	0	0	
3	N3	0	44.29	0	0	
4	N4	0	72.25	0	0	
5	N5	0	86.25	0	0	
6	N6	0	100.25	0	0	
7	N7	0	116.25	0	0	
8	N8	0	131.25	0	0	
9	N9	8.54	22.5	-1.458	0	
10	N10	0	22.5	7.082	0	
11	N11	-8.54	22.5	-1.458	0	
12	N12	0	22.5	-9.998	0	
13	N13	5.894	44.29	4.436	0	
14	N14	5.894	44.29	-7.352	0	
15	N15	-5.894	44.29	4.436	0	
16	N16	-5.894	44.29	-7.352	0	
17	N17	0	72.25	-1.458	0	
18	N18	-2.5	72.25	1.042	0	
19	N19	2.5	72.25	1.042	0	
20	N20	0	86.25	-1.458	0	
21	N21	-2.5	86.25	1.042	0	
22	N22	2.5	86.25	1.042	0	
23	N23	0	100.25	-1.458	0	
24	N24	-2.5	100.25	1.042	0	
25	N25	2.5	100.25	1.042	0	
26	N26	0	116.25	-1.458	0	
27	N27	-2.5	116.25	1.042	0	
28	N28	2.5	116.25	1.042	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	N2						
3	N3						
4	N4						
5	N5						
6	N6						
7	N7	Reaction	Reaction	Reaction			
8	N9	Reaction	Reaction	Reaction			
9	N10	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]
10	N11	Reaction	Reaction	Reaction			
11	N12	Reaction	Reaction	Reaction			
12	N13	Reaction	Reaction	Reaction			
13	N14	Reaction	Reaction	Reaction			
14	N15	Reaction	Reaction	Reaction			
15	N17	Reaction	Reaction	Reaction			
16	N18	Reaction	Reaction	Reaction			
17	N20	Reaction	Reaction	Reaction			
18	N21	Reaction	Reaction	Reaction			
19	N23	Reaction	Reaction	Reaction			
20	N24	Reaction	Reaction	Reaction			
21	N19	Reaction	Reaction	Reaction			
22	N22	Reaction	Reaction	Reaction			
23	N25	Reaction	Reaction	Reaction			
24	N16	Reaction	Reaction	Reaction			
25	N27	Reaction	Reaction	Reaction			
26	N28	Reaction	Reaction	Reaction			
27	N26	Reaction	Reaction	Reaction			

Member Point Loads (BLC 2 : Weight of Appurtenances)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	Y	-.138	131.25
2	M1	Y	-.021	131.25
3	M1	Y	-.024	131.25
4	M1	Y	-1.43	131.25

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	Y	-1.122	131.25
2	M1	Y	-.125	131.25
3	M1	Y	-.132	131.25
4	M1	Y	-.57	131.25

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	X	.382	131.25
2	M1	X	.035	131.25
3	M1	X	.032	131.25
4	M1	X	.107	131.25

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	X	1.034	131.25
2	M1	X	.04	131.25
3	M1	X	.032	131.25
4	M1	X	.412	131.25

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

Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	Z	.382	131.25
2	M1	Z	.035	131.25
3	M1	Z	.032	131.25
4	M1	Z	.107	131.25

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	Z	1.034	131.25
2	M1	Z	.04	131.25
3	M1	Z	.032	131.25
4	M1	Z	.412	131.25

Member Distributed Loads (BLC 2 : Weight of Appurtenances)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-.006	-.006	0	116
2	M1	Y	-.019	-.019	116	0

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-.055	-.055	120	0
2	M1	Y	-.054	-.054	100	120
3	M1	Y	-.052	-.052	80	100
4	M1	Y	-.051	-.051	60	80
5	M1	Y	-.049	-.049	40	60
6	M1	Y	-.046	-.046	20	40
7	M1	Y	-.041	-.041	0	20
8	M1	Y	-.306	-.306	116	0
9	M21	Y	-.02	-.02	0	0
10	M20	Y	-.02	-.02	0	0
11	M19	Y	-.02	-.02	0	0
12	M15	Y	-.02	-.02	0	0
13	M17	Y	-.02	-.02	0	0
14	M16	Y	-.02	-.02	0	0
15	M12	Y	-.02	-.02	0	0
16	M14	Y	-.02	-.02	0	0
17	M13	Y	-.02	-.02	0	0
18	M9	Y	-.02	-.02	0	0
19	M11	Y	-.02	-.02	0	0
20	M10	Y	-.02	-.02	0	0
21	M3	Y	-.023	-.023	0	0
22	M4	Y	-.025	-.025	0	0
23	M2	Y	-.025	-.025	0	0
24	M7	Y	-.027	-.027	0	0
25	M8	Y	-.027	-.027	0	0
26	M5	Y	-.027	-.027	0	0
27	M18	Y	-.029	-.029	0	0
28	M6	Y	-.029	-.029	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	.009	.009	120	0
2	M1	X	.009	.009	100	120
3	M1	X	.008	.008	80	100
4	M1	X	.008	.008	60	80
5	M1	X	.007	.007	40	60
6	M1	X	.006	.006	20	40
7	M1	X	.005	.005	0	20
8	M1	X	.012	.012	116	0
9	M20	X	.009	.009	0	0
10	M17	X	.009	.009	0	0
11	M14	X	.009	.009	0	0
12	M11	X	.009	.009	0	0
13	M3	X	.012	.012	0	0
14	M5	X	.013	.013	0	0
15	M7	X	.013	.013	0	0
16	M8	X	.013	.013	0	0
17	M18	X	.014	.014	0	0
18	M6	X	.014	.014	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	.027	.027	120	0
2	M1	X	.026	.026	100	120
3	M1	X	.025	.025	80	100
4	M1	X	.024	.024	60	80
5	M1	X	.022	.022	40	60
6	M1	X	.02	.02	20	40
7	M1	X	.016	.016	0	20
8	M1	X	.03	.03	116	0
9	M20	X	.01	.01	0	0
10	M17	X	.01	.01	0	0
11	M14	X	.01	.01	0	0
12	M11	X	.01	.01	0	0
13	M3	X	.016	.016	0	0
14	M5	X	.022	.022	0	0
15	M7	X	.022	.022	0	0
16	M8	X	.022	.022	0	0
17	M18	X	.025	.025	0	0
18	M6	X	.025	.025	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	.009	.009	120	0
2	M1	Z	.009	.009	100	120
3	M1	Z	.008	.008	80	100
4	M1	Z	.008	.008	60	80
5	M1	Z	.007	.007	40	60
6	M1	Z	.006	.006	20	40
7	M1	Z	.005	.005	0	20
8	M1	Z	.012	.012	116	0
9	M21	Z	.009	.009	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
10	M19	Z	.009	.009	0	0
11	M15	Z	.009	.009	0	0
12	M16	Z	.009	.009	0	0
13	M12	Z	.009	.009	0	0
14	M13	Z	.009	.009	0	0
15	M9	Z	.009	.009	0	0
16	M10	Z	.009	.009	0	0
17	M4	Z	.012	.012	0	0
18	M2	Z	.012	.012	0	0
19	M7	Z	.013	.013	0	0
20	M8	Z	.013	.013	0	0
21	M18	Z	.014	.014	0	0
22	M6	Z	.014	.014	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	.027	.027	120	0
2	M1	Z	.026	.026	100	120
3	M1	Z	.025	.025	80	100
4	M1	Z	.024	.024	60	80
5	M1	Z	.022	.022	40	60
6	M1	Z	.02	.02	20	40
7	M1	Z	.016	.016	0	20
8	M1	Z	.03	.03	116	0
9	M21	Z	.01	.01	0	0
10	M19	Z	.01	.01	0	0
11	M15	Z	.01	.01	0	0
12	M16	Z	.01	.01	0	0
13	M12	Z	.01	.01	0	0
14	M13	Z	.01	.01	0	0
15	M9	Z	.01	.01	0	0
16	M10	Z	.01	.01	0	0
17	M4	Z	.019	.019	0	0
18	M2	Z	.019	.019	0	0
19	M7	Z	.022	.022	0	0
20	M8	Z	.022	.022	0	0
21	M18	Z	.025	.025	0	0
22	M6	Z	.025	.025	0	0

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(...
1	Self Weight	None		-1						
2	Weight of Appurtenances	None					4	2		
3	Weight of Ice Only	None					4	28		
4	(x) TIA Wind with Ice	None					4	18		
5	(x) TIA Wind	None					4	18		
6	(z) TIA Wind with Ice	None					4	22		
7	(z) TIA Wind	None					4	22		

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-dire...	Yes	Y		1	1.2	2	1.2	5	1.6														
2	0.9D + 1.6W (X-dire...	Yes	Y		1	.9	2	.9	5	1.6														
3	1.2D + 1.0Di + 1.0...	Yes	Y		1	1.2	2	1.2	3	1	4	1												
4	1.2D + 1.6W (Z-dire...	Yes	Y		1	1.2	2	1.2	7	1.6														
5	0.9D + 1.6W (Z-dire...	Yes	Y		1	.9	2	.9	7	1.6														
6	1.2D + 1.0Di + 1.0...	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	5	7.431	3	0	3	0	3	0	1	1.2	1
2		min	-.301	1	3.033	5	-.301	4	-1.201	4	0	1	0	5
3	N7	max	0	6	18.04	6	0	1	0	1	0	1	0	1
4		min	-7.813	1	5.365	2	-7.849	4	0	1	0	1	0	1
5	N9	max	.076	5	.134	6	.073	2	0	1	0	1	0	1
6		min	-.425	2	.019	2	-.145	5	0	1	0	1	0	1
7	N10	max	0	6	.094	3	0	3	0	1	0	1	0	1
8		min	-.091	1	.01	5	-.351	5	0	1	0	1	0	1
9	N11	max	-.019	6	.134	3	-.018	3	0	1	0	1	0	1
10		min	-.425	2	.019	5	-.145	5	0	1	0	1	0	1
11	N12	max	0	4	.17	6	0	3	0	1	0	1	0	1
12		min	-.178	2	.026	2	-.469	5	0	1	0	1	0	1
13	N13	max	-.111	6	.125	6	-.101	3	0	1	0	1	0	1
14		min	-.644	1	.019	2	-.449	4	0	1	0	1	0	1
15	N14	max	.381	4	.174	6	.349	1	0	1	0	1	0	1
16		min	-.468	1	.028	2	-.664	4	0	1	0	1	0	1
17	N15	max	.422	4	.125	3	.386	1	0	1	0	1	0	1
18		min	-.644	1	.019	5	-.449	4	0	1	0	1	0	1
19	N17	max	0	5	.017	6	0	2	0	1	0	1	0	1
20		min	-.012	1	.002	2	-.588	5	0	1	0	1	0	1
21	N18	max	.112	5	.031	3	.137	2	0	1	0	1	0	1
22		min	-.328	2	.003	5	-.069	5	0	1	0	1	0	1
23	N20	max	0	5	.017	6	0	1	0	1	0	1	0	1
24		min	-.012	2	.002	2	-1.549	4	0	1	0	1	0	1
25	N21	max	.296	4	.031	3	.364	1	0	1	0	1	0	1
26		min	-.874	1	.003	5	-.145	4	0	1	0	1	0	1
27	N23	max	0	5	.017	3	3.52	4	0	1	0	1	0	1
28		min	-.012	1	.001	5	0	3	0	1	0	1	0	1
29	N24	max	2.049	1	.031	6	.259	4	0	1	0	1	0	1
30		min	-.673	4	.003	2	-.854	1	0	1	0	1	0	1
31	N19	max	-.025	6	.031	6	-.022	6	0	1	0	1	0	1
32		min	-.328	2	.003	2	-.137	2	0	1	0	1	0	1
33	N22	max	-.069	6	.031	6	-.041	6	0	1	0	1	0	1
34		min	-.874	1	.003	2	-.364	1	0	1	0	1	0	1
35	N25	max	2.049	1	.031	3	.854	1	0	1	0	1	0	1
36		min	.157	6	.003	5	.053	6	0	1	0	1	0	1
37	N16	max	-.1	6	.174	6	-.091	3	0	1	0	1	0	1
38		min	-.468	1	.028	2	-.664	4	0	1	0	1	0	1
39	N27	max	0	4	.031	6	0	2	0	1	0	1	0	1
40		min	0	1	.003	5	-.022	4	0	1	0	1	0	1

Envelope Joint Reactions (Continued)

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
41	N28	max	0	6	.031	3	0	3	0	1	0	1	0	1
42		min	0	2	.003	5	-.022	4	0	1	0	1	0	1
43	N26	max	0	4	.017	3	0	1	0	1	0	1	0	1
44		min	-.012	1	.002	5	0	4	0	1	0	1	0	1
45	Totals:	max	0	4	26.916	6	0	2						
46		min	-9.81	1	8.596	2	-10.054	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	1	0	5	0	4	0	4	0	1	0	5
2		min	0	5	0	3	0	3	0	3	0	1	0	1
3	N2	max	.001	2	-.002	5	.001	5	0	3	0	1	1.494e-05	1
4		min	0	4	-.005	3	0	3	-1.457e-05	4	0	1	0	5
5	N3	max	.002	1	-.003	5	.002	4	1.222e-04	4	0	1	0	5
6		min	0	6	-.007	3	0	1	0	1	0	1	-1.218e-04	1
7	N4	max	0	2	-.003	5	0	5	0	1	0	1	2.117e-04	1
8		min	0	6	-.007	3	0	2	-2.152e-04	4	0	1	0	5
9	N5	max	.002	1	-.002	5	.002	4	3.234e-04	4	0	1	0	5
10		min	0	6	-.006	3	0	1	0	1	0	1	-3.185e-04	1
11	N6	max	0	5	-.001	2	0	3	0	3	0	1	1.19e-03	1
12		min	-.005	1	-.004	6	-.004	4	-1.186e-03	4	0	1	0	6
13	N7	max	0	1	0	2	0	4	4.789e-03	4	0	1	0	5
14		min	0	6	0	6	0	1	0	3	0	1	-4.798e-03	1
15	N8	max	1.76	1	-.001	2	1.758	4	1.206e-02	4	0	1	0	5
16		min	0	5	-.004	3	0	3	0	3	0	1	-1.207e-02	1
17	N9	max	0	2	0	2	0	5	1.369e-03	6	7.164e-03	4	8.038e-03	6
18		min	0	5	0	6	0	2	1.592e-04	2	5.662e-04	2	9.473e-04	2
19	N10	max	0	1	0	5	0	5	-7.765e-04	5	-4.582e-04	5	1.494e-05	1
20		min	0	6	0	3	0	3	-9.334e-03	3	-7.71e-03	3	0	5
21	N11	max	0	2	0	5	0	5	1.118e-03	3	3.95e-03	3	2.828e-03	5
22		min	0	6	0	3	0	3	-4.974e-04	5	-5.848e-03	5	-6.547e-03	3
23	N12	max	0	2	0	2	0	5	6.87e-03	6	6.532e-03	2	1.494e-05	1
24		min	0	4	0	6	0	3	-3.204e-03	2	-4.078e-03	6	0	5
25	N13	max	0	1	0	2	0	4	6.283e-04	5	2.062e-03	5	2.552e-03	3
26		min	0	6	0	6	0	3	-1.941e-03	3	-2.273e-03	3	-6.725e-04	5
27	N14	max	0	1	0	2	0	4	3.933e-03	3	4.115e-03	1	3.127e-03	3
28		min	0	4	0	6	0	1	1.941e-03	5	3.271e-03	5	1.458e-03	5
29	N15	max	0	1	0	5	0	4	-8.347e-04	2	-1.991e-03	2	-1.231e-03	2
30		min	0	4	0	3	0	1	-1.986e-03	6	-2.648e-03	4	-2.674e-03	6
31	N16	max	0	1	0	2	0	4	3.814e-03	6	3.163e-03	2	8.343e-04	2
32		min	0	6	0	6	0	3	-1.193e-03	2	-3.545e-03	6	-3.036e-03	6
33	N17	max	0	1	0	2	0	5	5.204e-04	6	1.11e-04	2	2.117e-04	1
34		min	0	5	0	6	0	2	1.331e-04	2	-6.293e-05	6	0	5
35	N18	max	0	2	0	5	0	5	-1.348e-04	2	4.016e-04	3	1.729e-04	5
36		min	0	5	0	3	0	2	-3.629e-04	3	-4.15e-04	5	-8.247e-04	3
37	N19	max	0	2	0	2	0	2	1.547e-05	2	4.15e-04	5	8.383e-04	3
38		min	0	6	0	6	0	6	-3.303e-04	6	-4.052e-04	3	-1.729e-04	5
39	N20	max	0	2	0	2	0	4	4.418e-04	6	1.819e-04	2	0	5
40		min	0	5	0	6	0	1	1.016e-04	2	-6.293e-05	6	-3.185e-04	1
41	N21	max	0	1	0	5	0	4	3.217e-04	5	3.981e-04	3	-2.453e-06	5

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...	LC	Y Rotation [...	LC	Z Rotation [...	LC
42		min	0	4	0	3	0	1	-3.043e-04	3	-4.434e-04	5	-8.033e-04	3
43	N22	max	0	1	0	2	0	1	3.217e-04	5	4.434e-04	5	7.816e-04	3
44		min	0	6	0	6	0	6	-3.563e-04	3	-4.088e-04	3	2.453e-06	5
45	N23	max	0	1	0	5	0	3	3.138e-04	6	-6.063e-06	5	1.19e-03	1
46		min	0	5	0	3	0	4	4.997e-05	2	-2.004e-04	1	0	6
47	N24	max	0	4	0	2	0	1	-4.02e-04	3	4.164e-04	3	5.58e-04	5
48		min	0	1	0	6	0	4	-9.67e-04	4	-2.934e-04	5	-6.879e-04	3
49	N25	max	0	6	0	5	0	6	3.791e-04	2	2.934e-04	5	7.698e-04	3
50		min	0	1	0	3	0	1	-9.67e-04	4	-3.904e-04	3	-5.58e-04	5
51	N26	max	0	1	0	5	0	4	1.066e-04	6	6.828e-05	2	0	5
52		min	0	4	0	3	0	1	-3.36e-05	2	-6.293e-05	6	-4.798e-03	1
53	N27	max	0	1	0	5	0	4	3.947e-03	5	-3.887e-05	2	-7.69e-04	2
54		min	0	4	0	6	0	2	1.36e-04	3	-6.489e-04	6	-2.021e-03	4
55	N28	max	0	2	0	5	0	4	4.146e-03	5	3.975e-04	5	1.541e-03	4
56		min	0	6	0	3	0	3	-1.737e-03	1	-4.034e-04	3	-6.484e-04	2

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

	Member	Shape	Code Check	Loc...	LC	Shea...	Loc.....		L...	phi*Pn...	phi*Pn...	phi*Mn...	phi*Mn.....		Eqn
1	M1	12" FWT ...	.315	116...	1	.029	116...		4	416.171	459.239	150.793	150.793	3...	H1-1b
2	M2	L3x3x4	.211	4.332	6	.009	8.664	y	3	10.3	46.656	1.688	2.938	1...	H2-1
3	M3	L2.5x2.5x3	.240	3.541	3	.010	0	y	3	6.548	29.192	.873	1.495	1...	H2-1
4	M4	L3x3x4	.193	4.332	3	.009	8.664	y	6	10.3	46.656	1.688	2.938	1...	H2-1
5	M5	L3.5x3.5x4	.204	4.999	2	.010	9.998	z	2	12.629	55.08	2.416	3.866	1...	H2-1
6	M6	L4x4x4	.164	4.711	3	.009	0	y	3	20.907	62.532	3.138	5.19	1...	H2-1
7	M7	L3.5x3.5x4	.121	3.688	6	.007	7.377	y	3	22.924	55.08	2.416	4.265	1...	H2-1
8	M8	L3.5x3.5x4	.120	3.688	3	.007	7.377	y	3	22.924	55.08	2.416	4.265	1...	H2-1
9	M9	L2x2x3	.042	1.354	3	.004	2.708	y	6	16.199	23.393	.558	1.19	1...	H2-1
10	M10	L2x2x3	.044	1.354	3	.004	2.708	y	3	16.199	23.393	.558	1.19	1...	H2-1
11	M11	L2x2x3	.027	.729	4	.002	1.458	y	3	21.03	23.393	.558	1.239	1...	H2-1
12	M12	L2x2x3	.048	1.354	3	.004	2.708	y	6	16.199	23.393	.558	1.19	1...	H2-1
13	M13	L2x2x3	.064	1.354	1	.004	2.708	y	6	16.199	23.393	.558	1.19	1...	H2-1
14	M14	L2x2x3	.068	.729	4	.002	0	y	3	21.03	23.393	.558	1.239	1...	H2-1
15	M15	L2x2x3	.142	1.354	1	.004	2.708	y	6	16.199	23.393	.558	1.19	1...	H2-1
16	M16	L2x2x3	.100	1.354	1	.004	2.708	y	3	16.199	23.393	.558	1.19	1...	H2-1
17	M17	L2x2x3	.169	.729	4	.002	0	y	3	21.03	23.393	.558	1.239	1...	H2-1
18	M18	L4x4x4	.159	4.711	6	.009	0	y	3	20.907	62.532	3.138	5.19	1...	H2-1
19	M19	L2x2x3	.039	1.354	3	.004	2.708	y	3	16.199	23.393	.558	1.19	1...	H2-1
20	M20	L2x2x3	.011	.729	6	.002	0	y	3	21.03	23.393	.558	1.239	1...	H2-1
21	M21	L2x2x3	.044	1.354	6	.004	2.708	y	3	16.199	23.393	.558	1.19	1...	H2-1

Joint Reactions (By Combination)

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	1	N1	-.301	4.044	0	0	0	1.2
2	1	N7	-7.813	7.153	0	0	0	0
3	1	N9	-.425	.025	.073	0	0	0
4	1	N10	-.091	.013	0	0	0	0
5	1	N11	-.425	.025	-.073	0	0	0
6	1	N12	-.178	.035	0	0	0	0
7	1	N13	-.644	.026	-.386	0	0	0
8	1	N14	-.468	.037	.349	0	0	0
9	1	N15	-.644	.026	.386	0	0	0
10	1	N17	-.012	.002	0	0	0	0
11	1	N18	-.328	.004	.137	0	0	0
12	1	N20	-.012	.002	0	0	0	0
13	1	N21	-.874	.004	.364	0	0	0
14	1	N23	-.012	.002	0	0	0	0
15	1	N24	2.049	.004	-.854	0	0	0
16	1	N19	-.328	.004	-.137	0	0	0
17	1	N22	-.874	.004	-.364	0	0	0
18	1	N25	2.049	.004	.854	0	0	0
19	1	N16	-.468	.037	-.349	0	0	0
20	1	N27	0	.004	0	0	0	0
21	1	N28	0	.004	0	0	0	0
22	1	N26	-.012	.002	0	0	0	0
23	1	Totals:	-9.81	11.461	0			
24	1	COG (ft):	X: 0	Y: 76.901	Z: -.055			

Joint Reactions (By Combination)

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	2	N1	-.301	3.033	0	0	0	1.2
2	2	N7	-7.805	5.365	0	0	0	0
3	2	N9	-.425	.019	.073	0	0	0
4	2	N10	-.091	.01	0	0	0	0
5	2	N11	-.425	.019	-.073	0	0	0
6	2	N12	-.178	.026	0	0	0	0
7	2	N13	-.644	.019	-.386	0	0	0
8	2	N14	-.468	.028	.349	0	0	0
9	2	N15	-.644	.019	.386	0	0	0
10	2	N17	-.012	.002	0	0	0	0
11	2	N18	-.328	.003	.137	0	0	0
12	2	N20	-.012	.002	0	0	0	0
13	2	N21	-.873	.003	.364	0	0	0
14	2	N23	-.012	.002	0	0	0	0
15	2	N24	2.044	.003	-.852	0	0	0
16	2	N19	-.328	.003	-.137	0	0	0
17	2	N22	-.873	.003	-.364	0	0	0
18	2	N25	2.044	.003	.852	0	0	0
19	2	N16	-.468	.028	-.349	0	0	0
20	2	N27	0	.003	0	0	0	0
21	2	N28	0	.003	0	0	0	0
22	2	N26	-.012	.002	0	0	0	0
23	2	Totals:	-9.81	8.596	0			
24	2	COG (ft):	X: 0	Y: 76.901	Z: -.055			

Joint Reactions (By Combination)

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	3	N1	-.06	7.431	0	0	0	.241
2	3	N7	-1.807	18.04	0	0	0	0
3	3	N9	-.108	.134	.018	0	0	0
4	3	N10	-.042	.094	0	0	0	0
5	3	N11	-.108	.134	-.018	0	0	0
6	3	N12	-.065	.17	0	0	0	0
7	3	N13	-.182	.125	-.101	0	0	0
8	3	N14	-.139	.174	.091	0	0	0
9	3	N15	-.182	.125	.101	0	0	0
10	3	N17	-.007	.017	0	0	0	0
11	3	N18	-.067	.031	.028	0	0	0
12	3	N20	-.007	.017	0	0	0	0
13	3	N21	-.198	.031	.083	0	0	0
14	3	N23	-.007	.017	0	0	0	0
15	3	N24	.483	.031	-.201	0	0	0
16	3	N19	-.067	.031	-.028	0	0	0
17	3	N22	-.198	.031	-.083	0	0	0
18	3	N25	.483	.031	.201	0	0	0
19	3	N16	-.139	.174	-.091	0	0	0
20	3	N27	0	.031	0	0	0	0
21	3	N28	0	.031	0	0	0	0
22	3	N26	-.007	.017	0	0	0	0
23	3	Totals:	-2.423	26.916	0			
24	3	COG (ft):	X: 0	Y: 84.458	Z: -.1			

Joint Reactions (By Combination)

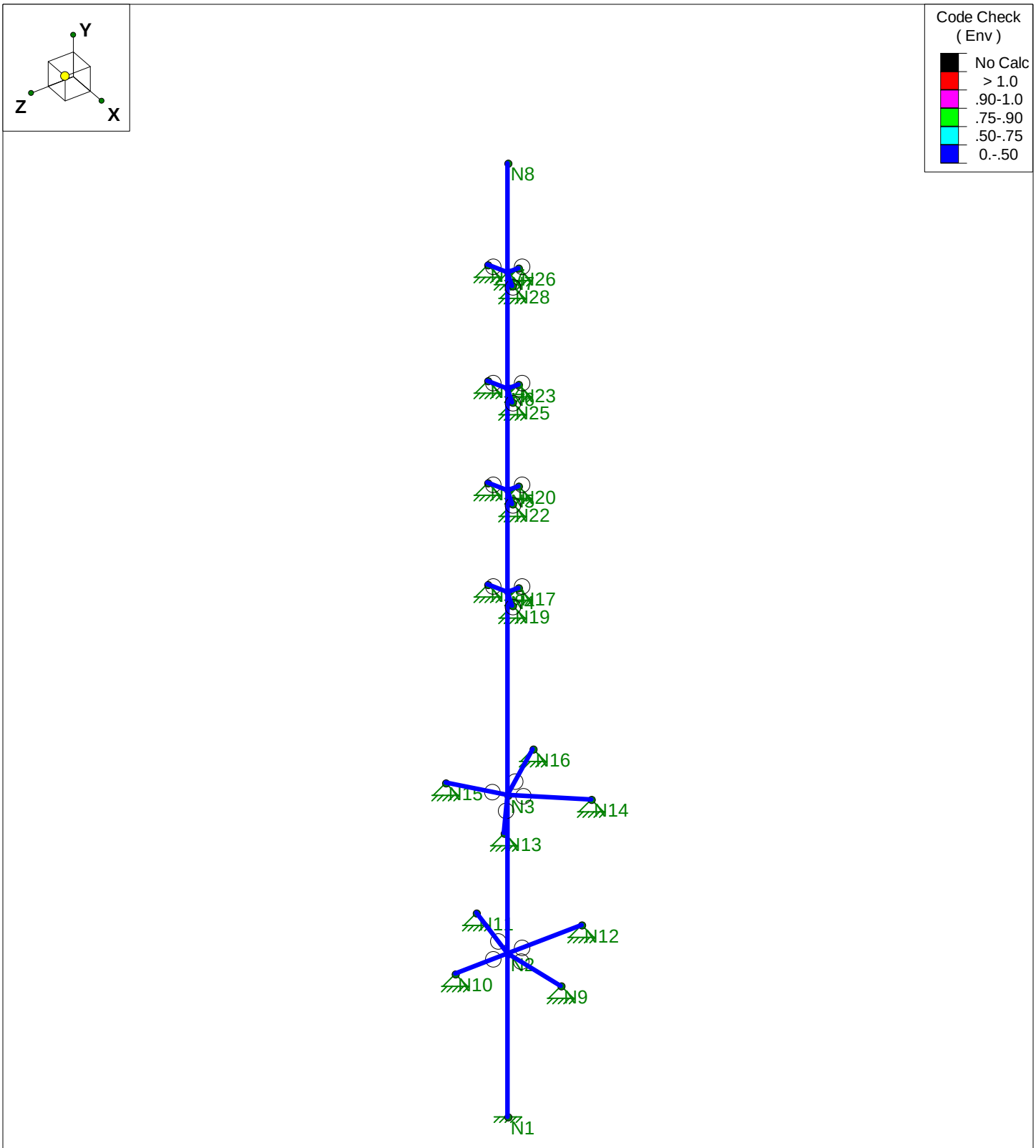
	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	4	N1	0	4.044	-.301	-1.201	0	0
2	4	N7	0	7.153	-7.849	0	0	0
3	4	N9	.076	.025	-.145	0	0	0
4	4	N10	0	.013	-.351	0	0	0
5	4	N11	-.076	.025	-.145	0	0	0
6	4	N12	0	.035	-.469	0	0	0
7	4	N13	-.422	.026	-.449	0	0	0
8	4	N14	.381	.037	-.664	0	0	0
9	4	N15	.422	.026	-.449	0	0	0
10	4	N17	0	.002	-.588	0	0	0
11	4	N18	.112	.004	-.069	0	0	0
12	4	N20	0	.002	-1.549	0	0	0
13	4	N21	.296	.004	-.145	0	0	0
14	4	N23	0	.002	3.52	0	0	0
15	4	N24	-.673	.004	.259	0	0	0
16	4	N19	-.112	.004	-.069	0	0	0
17	4	N22	-.296	.004	-.145	0	0	0
18	4	N25	.673	.004	.259	0	0	0
19	4	N16	-.381	.037	-.664	0	0	0
20	4	N27	0	.004	-.022	0	0	0
21	4	N28	0	.004	-.022	0	0	0
22	4	N26	0	.002	0	0	0	0
23	4	Totals:	0	11.461	-10.054			
24	4	COG (ft):	X: 0	Y: 76.901	Z: -.055			

Joint Reactions (By Combination)

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	5	N1	0	3.033	-.301	-1.201	0	0
2	5	N7	0	5.365	-7.842	0	0	0
3	5	N9	.076	.019	-.145	0	0	0
4	5	N10	0	.01	-.351	0	0	0
5	5	N11	-.076	.019	-.145	0	0	0
6	5	N12	0	.026	-.469	0	0	0
7	5	N13	-.422	.019	-.449	0	0	0
8	5	N14	.381	.028	-.664	0	0	0
9	5	N15	.422	.019	-.449	0	0	0
10	5	N17	0	.002	-.588	0	0	0
11	5	N18	.112	.003	-.069	0	0	0
12	5	N20	0	.002	-1.547	0	0	0
13	5	N21	.296	.003	-.145	0	0	0
14	5	N23	0	.001	3.511	0	0	0
15	5	N24	-.671	.003	.258	0	0	0
16	5	N19	-.112	.003	-.069	0	0	0
17	5	N22	-.296	.003	-.145	0	0	0
18	5	N25	.671	.003	.258	0	0	0
19	5	N16	-.381	.028	-.664	0	0	0
20	5	N27	0	.003	-.022	0	0	0
21	5	N28	0	.003	-.022	0	0	0
22	5	N26	0	.002	0	0	0	0
23	5	Totals:	0	8.596	-10.054			
24	5	COG (ft):	X: 0	Y: 76.901	Z: -.055			

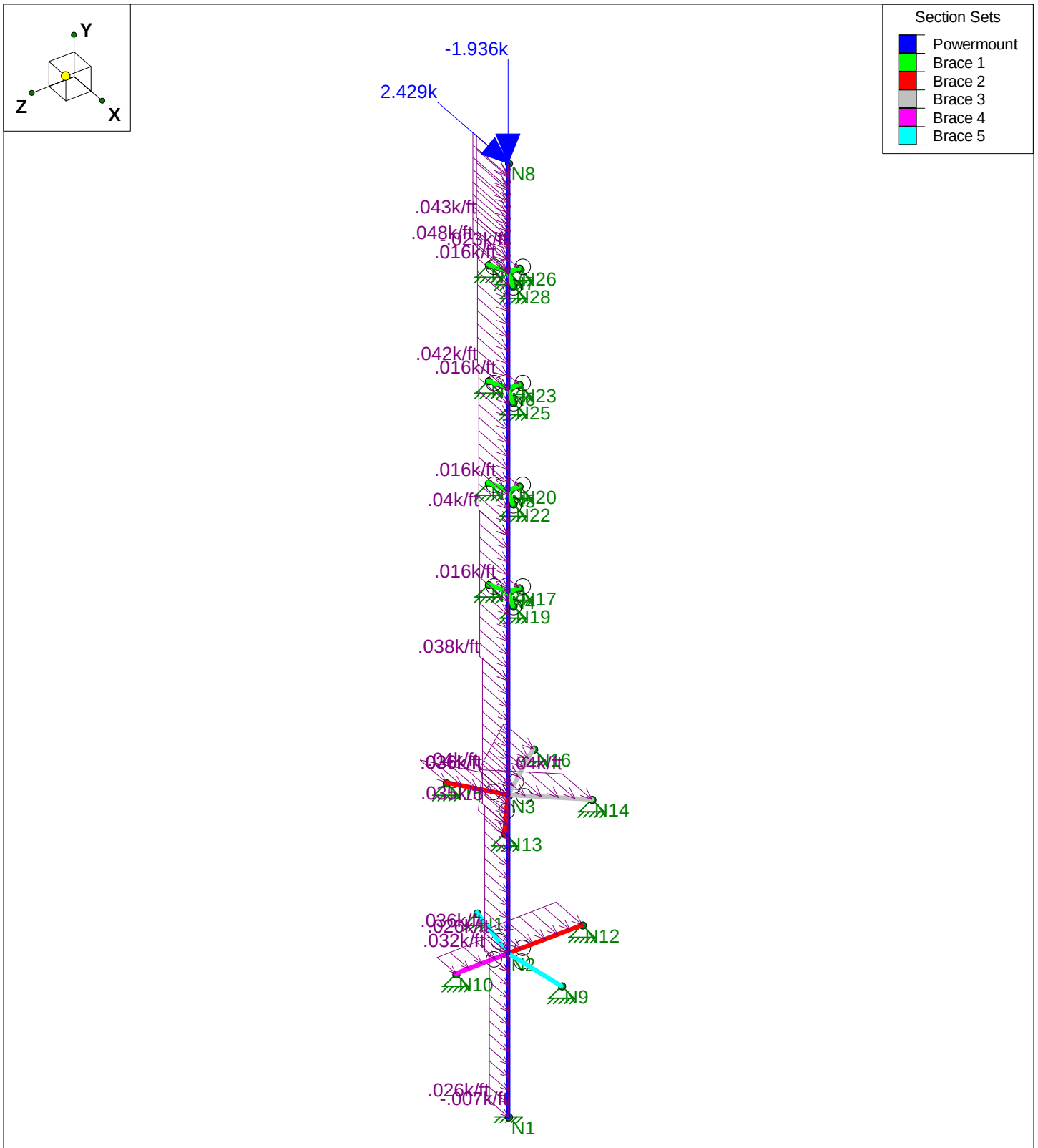
Joint Reactions (By Combination)

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	6	N1	0	7.431	-.06	-.241	0	0
2	6	N7	0	18.04	-1.826	0	0	0
3	6	N9	.019	.134	-.055	0	0	0
4	6	N10	0	.094	-.088	0	0	0
5	6	N11	-.019	.134	-.055	0	0	0
6	6	N12	0	.17	-.118	0	0	0
7	6	N13	-.111	.125	-.131	0	0	0
8	6	N14	.1	.174	-.19	0	0	0
9	6	N15	.111	.125	-.131	0	0	0
10	6	N17	0	.017	-.129	0	0	0
11	6	N18	.025	.031	-.022	0	0	0
12	6	N20	0	.017	-.361	0	0	0
13	6	N21	.069	.031	-.041	0	0	0
14	6	N23	0	.017	.821	0	0	0
15	6	N24	-.157	.031	.053	0	0	0
16	6	N19	-.025	.031	-.022	0	0	0
17	6	N22	-.069	.031	-.041	0	0	0
18	6	N25	.157	.031	.053	0	0	0
19	6	N16	-.1	.174	-.19	0	0	0
20	6	N27	0	.031	-.012	0	0	0
21	6	N28	0	.031	-.012	0	0	0
22	6	N26	0	.017	0	0	0	0
23	6	Totals:	0	26.916	-2.559			
24	6	COG (ft):	X: 0	Y: 84.458	Z: -.1			



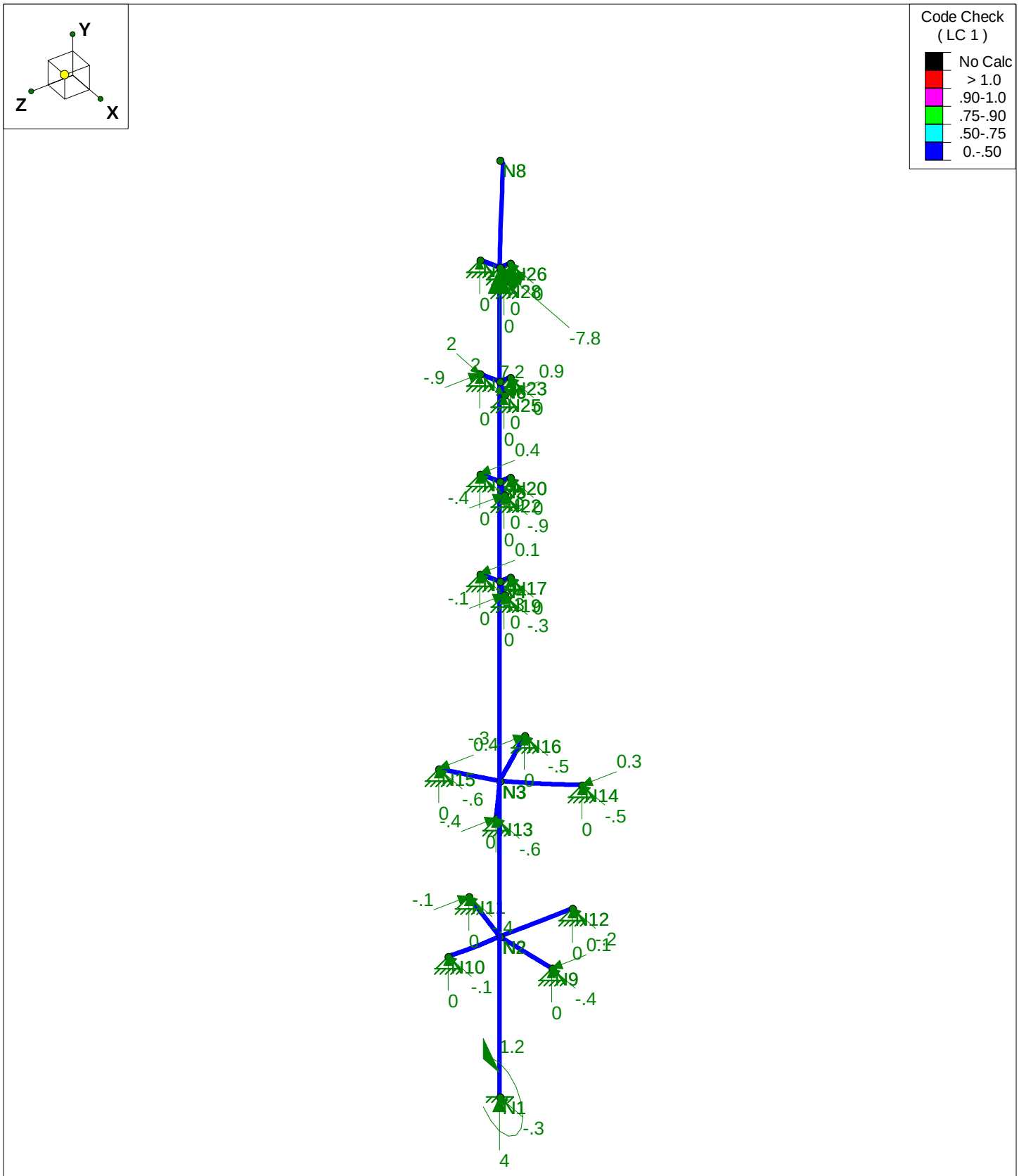
Envelope Only Solution

CENTEK Engineering, INC.		
tjl, cfc	Struct. #10133 - Antenna Mast	Jan 4, 2018 at 2:08 PM
17159.03 - CT03XC055	Unity Check	Antenna Mast.r3d



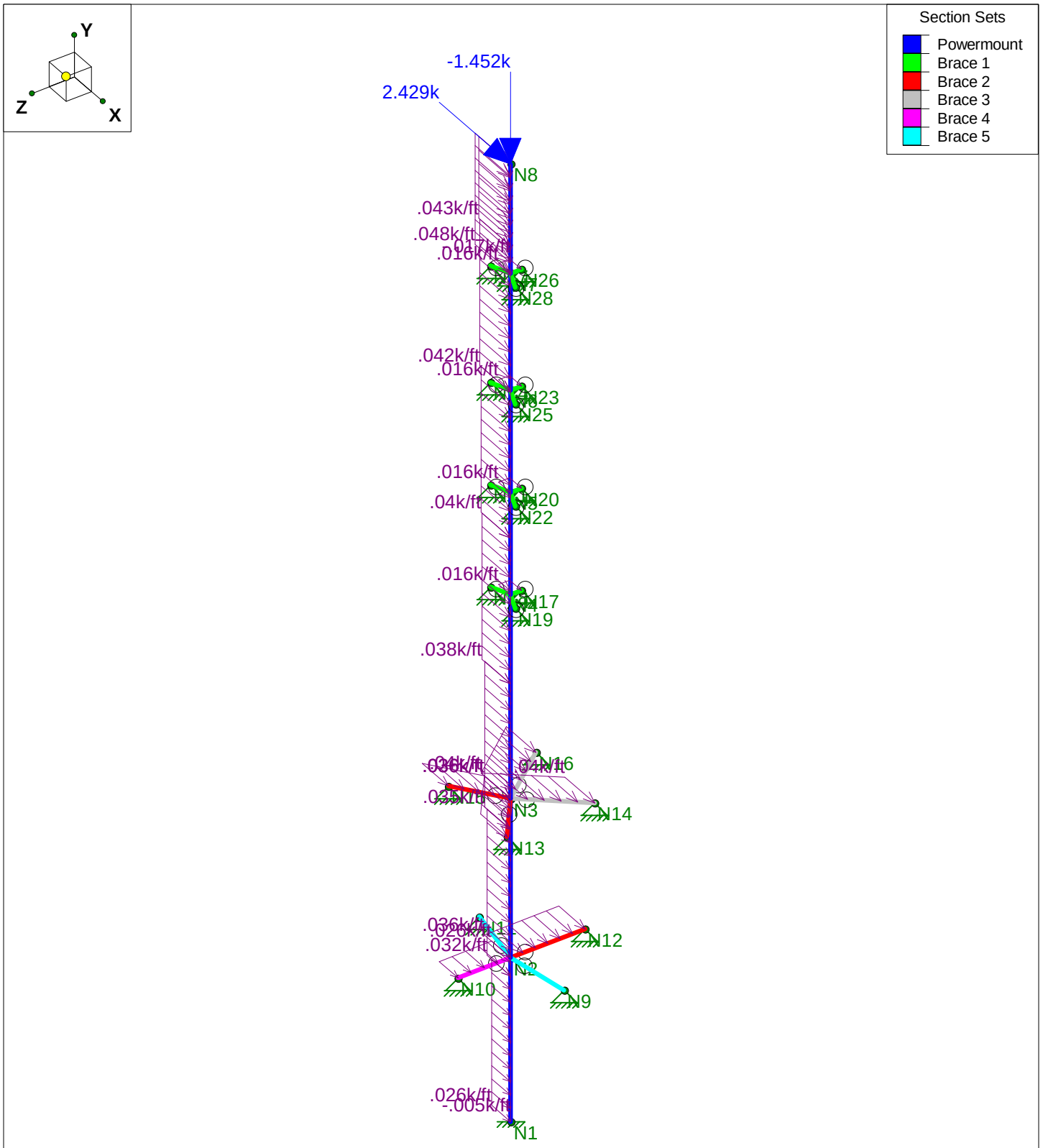
Loads: LC 1, 1.2D + 1.6W (X-direction)

CENTEK Engineering, INC.		
tjl, cfc	Struct. #10133 - Antenna Mast	Jan 4, 2018 at 2:06 PM
17159.03 - CT03XC055	LC #1 Loads	Antenna Mast.r3d



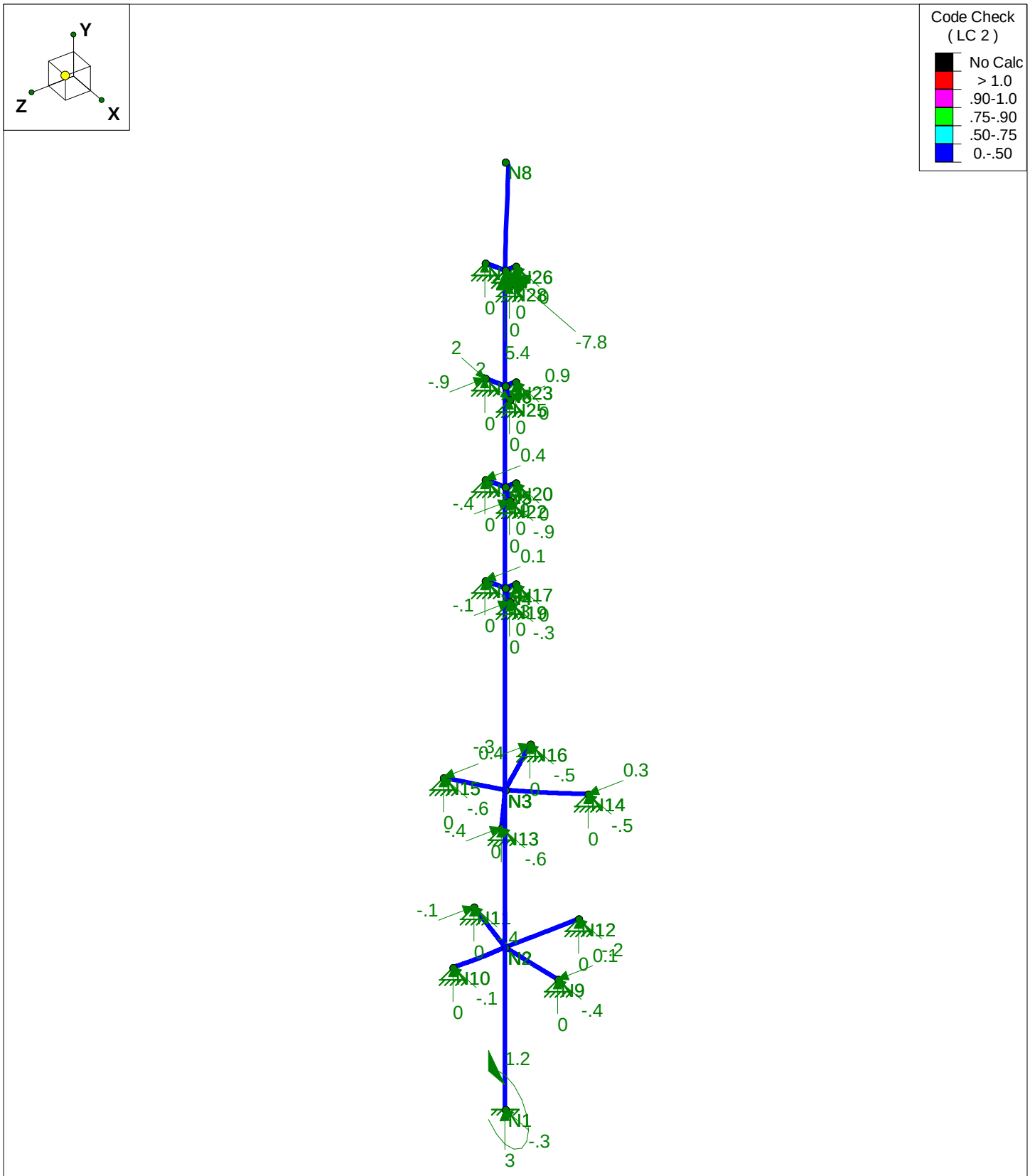
Results for LC 1, 1.2D + 1.6W (X-direction)
Reaction and Moment Units are k and k-ft

CENTEK Engineering, INC.		
tjl, cfc	Struct. #10133 - Antenna Mast	Jan 4, 2018 at 2:10 PM
17159.03 - CT03XC055	LC #1 Reactions and Deflected Shape	Antenna Mast.r3d



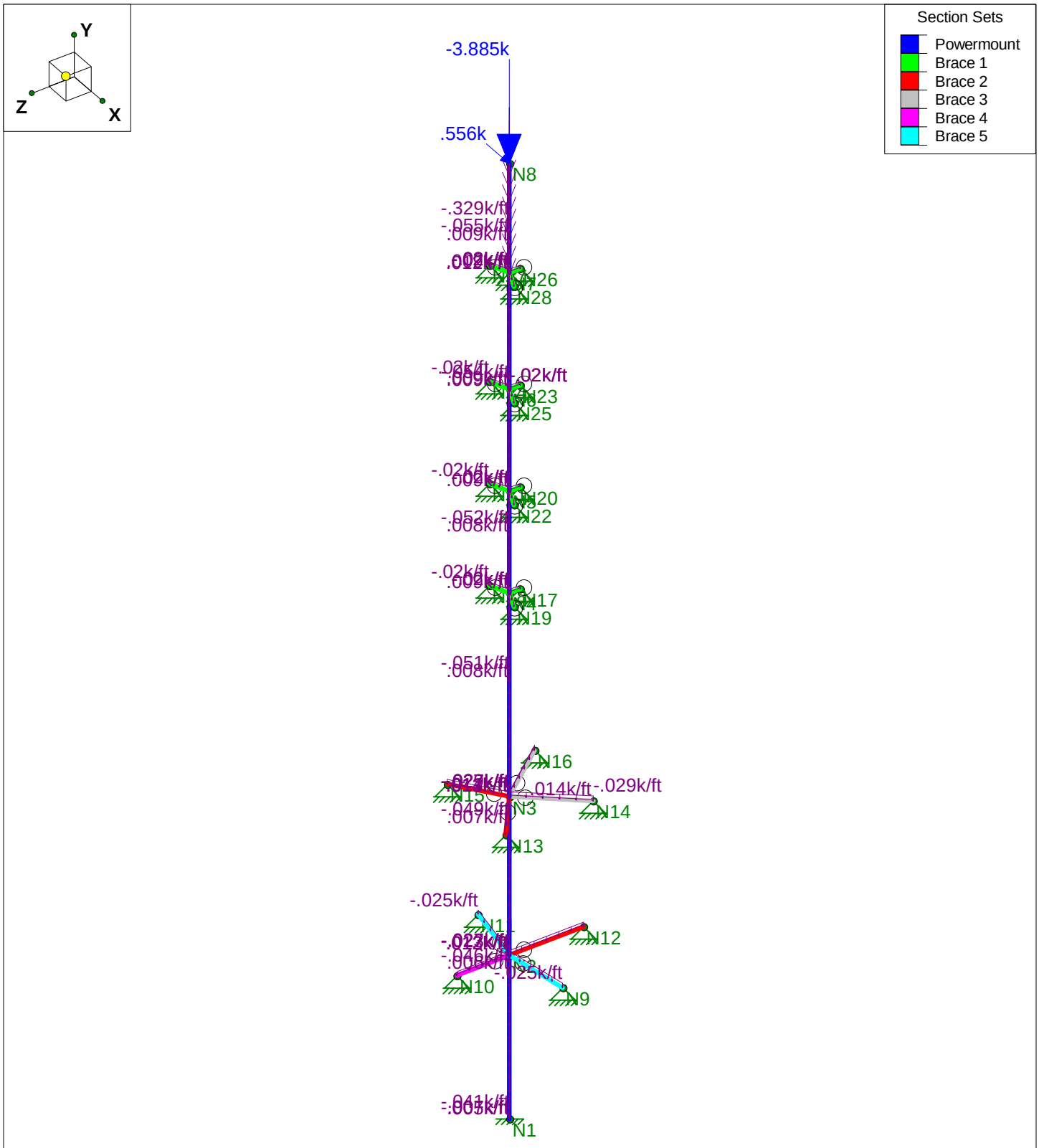
Loads: LC 2, 0.9D + 1.6W (X-direction)

CENTEK Engineering, INC.		
tjl, cfc	Struct. #10133 - Antenna Mast	Jan 4, 2018 at 2:06 PM
17159.03 - CT03XC055	LC #2 Loads	Antenna Mast.r3d



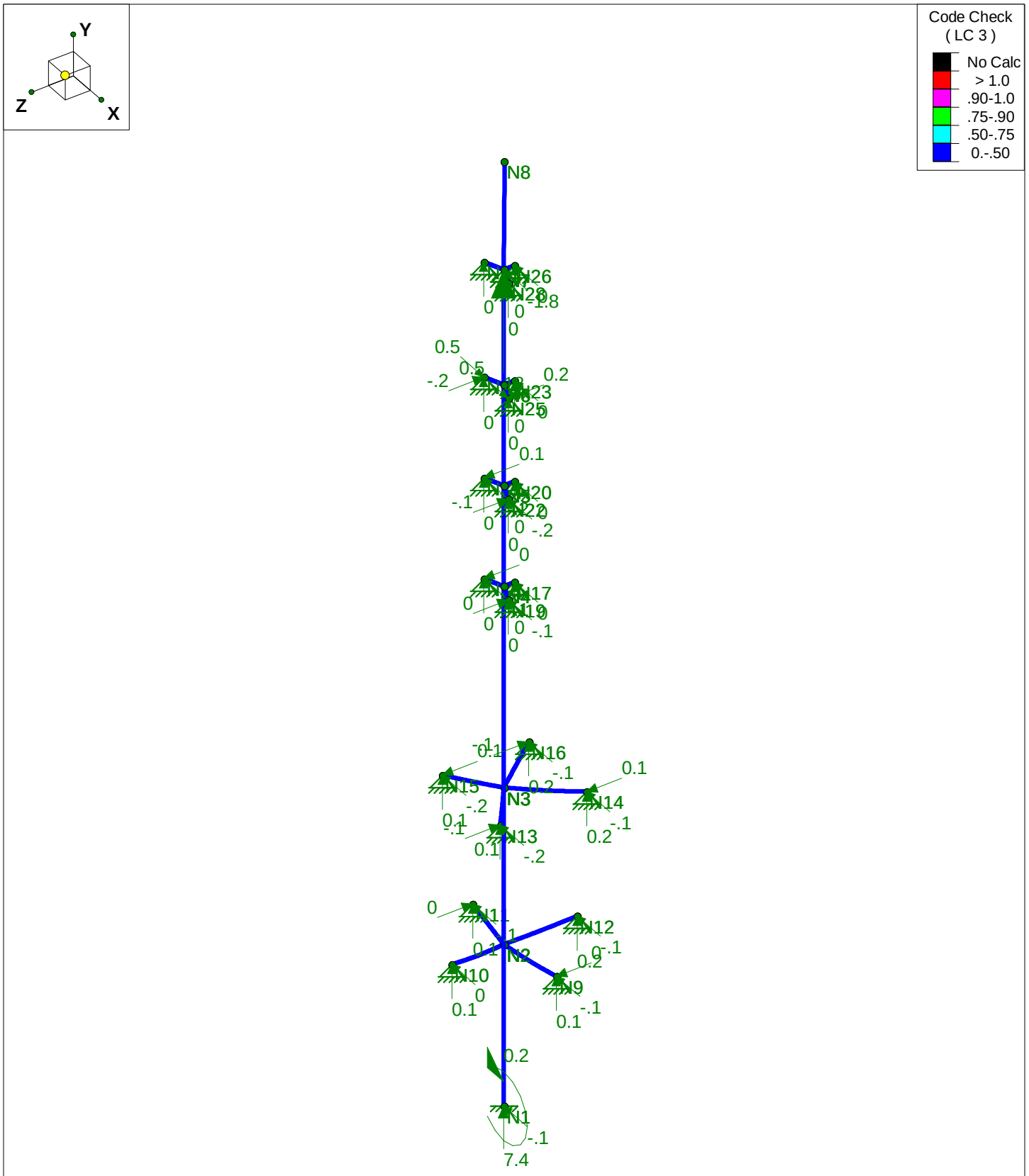
Results for LC 2, 0.9D + 1.6W (X-direction)
Reaction and Moment Units are k and k-ft

CENTEK Engineering, INC.		
tjl, cfc	Struct. #10133 - Antenna Mast	Jan 4, 2018 at 2:10 PM
17159.03 - CT03XC055	LC #2 Reactions and Deflected Shape	Antenna Mast.r3d



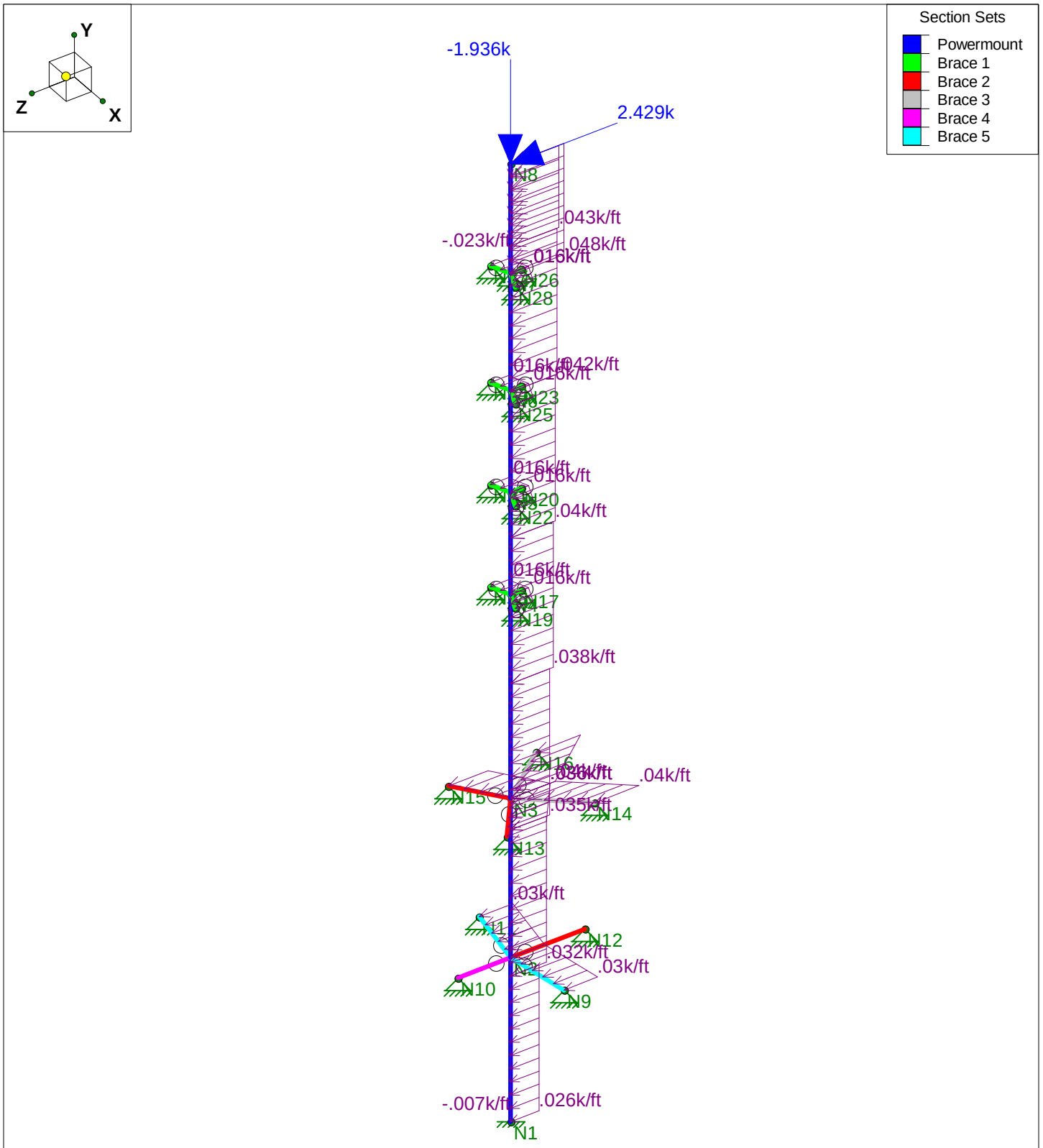
Loads: LC 3, 1.2D + 1.0Di + 1.0Wi (X-direction)

CENTEK Engineering, INC.		
tjl, cfc	Struct. #10133 - Antenna Mast	Jan 4, 2018 at 2:07 PM
17159.03 - CT03XC055	LC #3 Loads	Antenna Mast.r3d



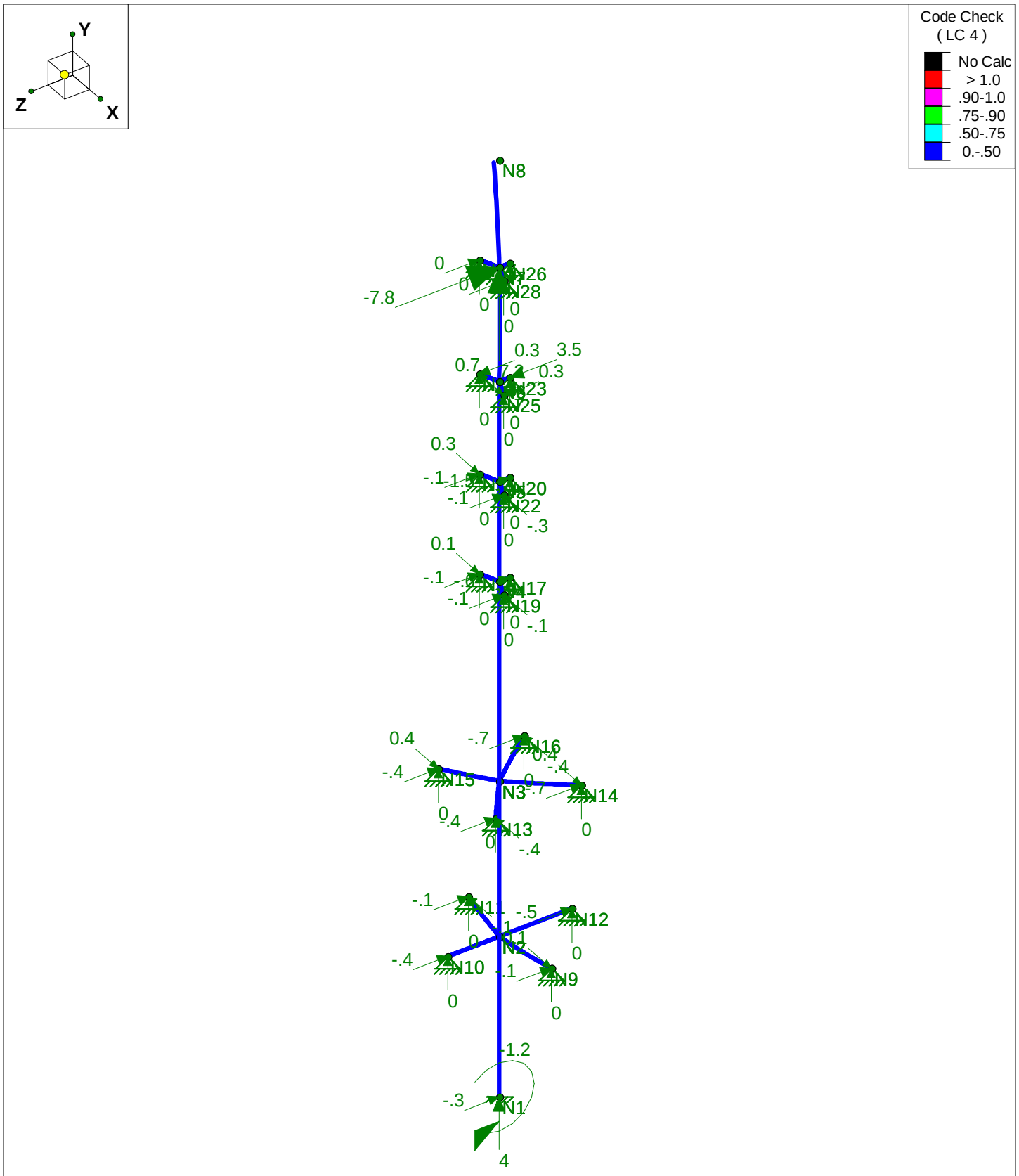
Results for LC 3, 1.2D + 1.0Di + 1.0Wi (X-direction)
Reaction and Moment Units are k and k-ft

CENTEK Engineering, INC.		
tjl, cfc	Struct. #10133 - Antenna Mast	Jan 4, 2018 at 2:11 PM
17159.03 - CT03XC055	LC #3 Reactions and Deflected Shape	Antenna Mast.r3d



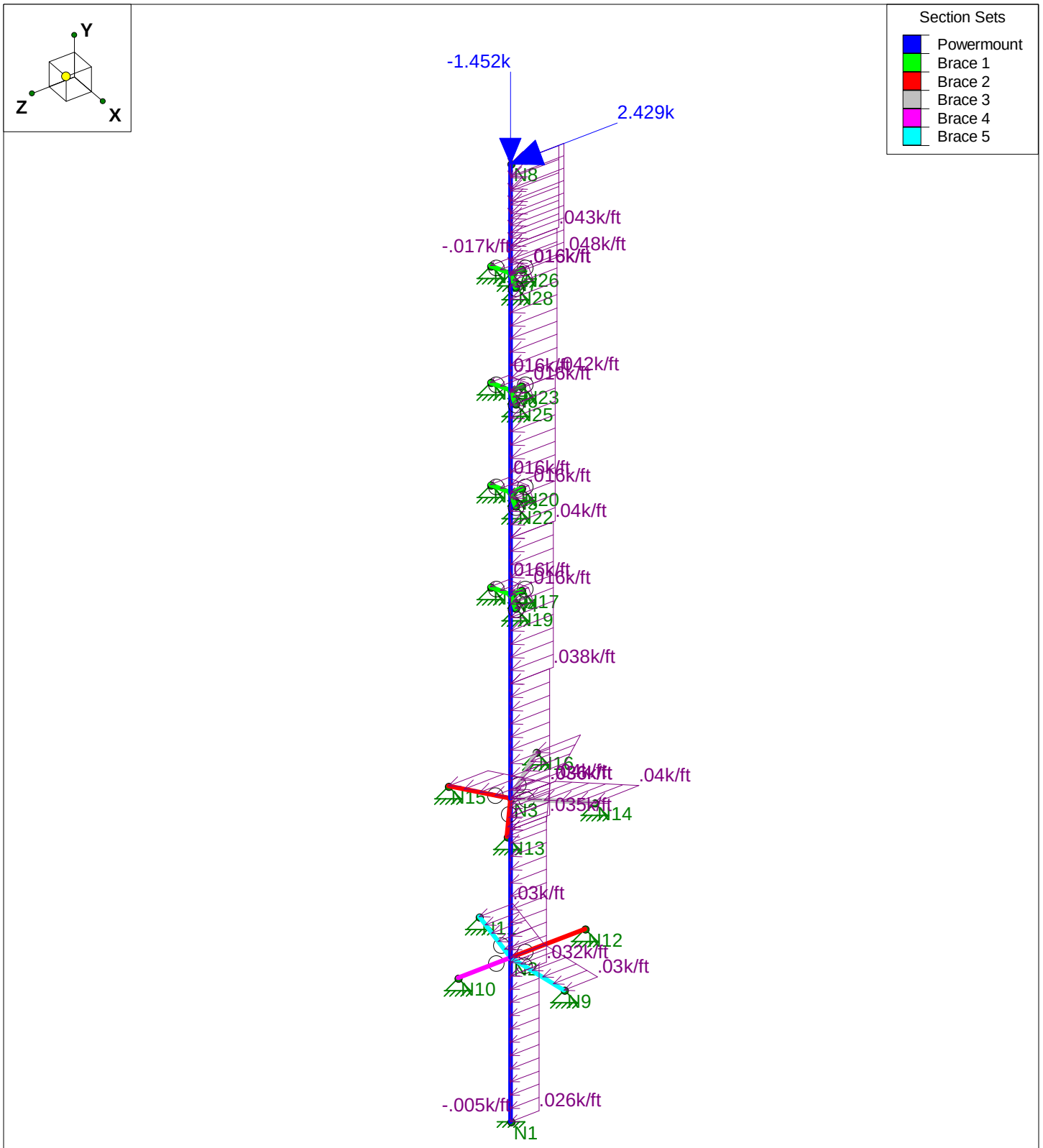
Loads: LC 4, 1.2D + 1.6W (Z-direction)

CENTEK Engineering, INC.		
tjl, cfc	Struct. #10133 - Antenna Mast	Jan 4, 2018 at 2:07 PM
17159.03 - CT03XC055	LC #4 Loads	Antenna Mast.r3d



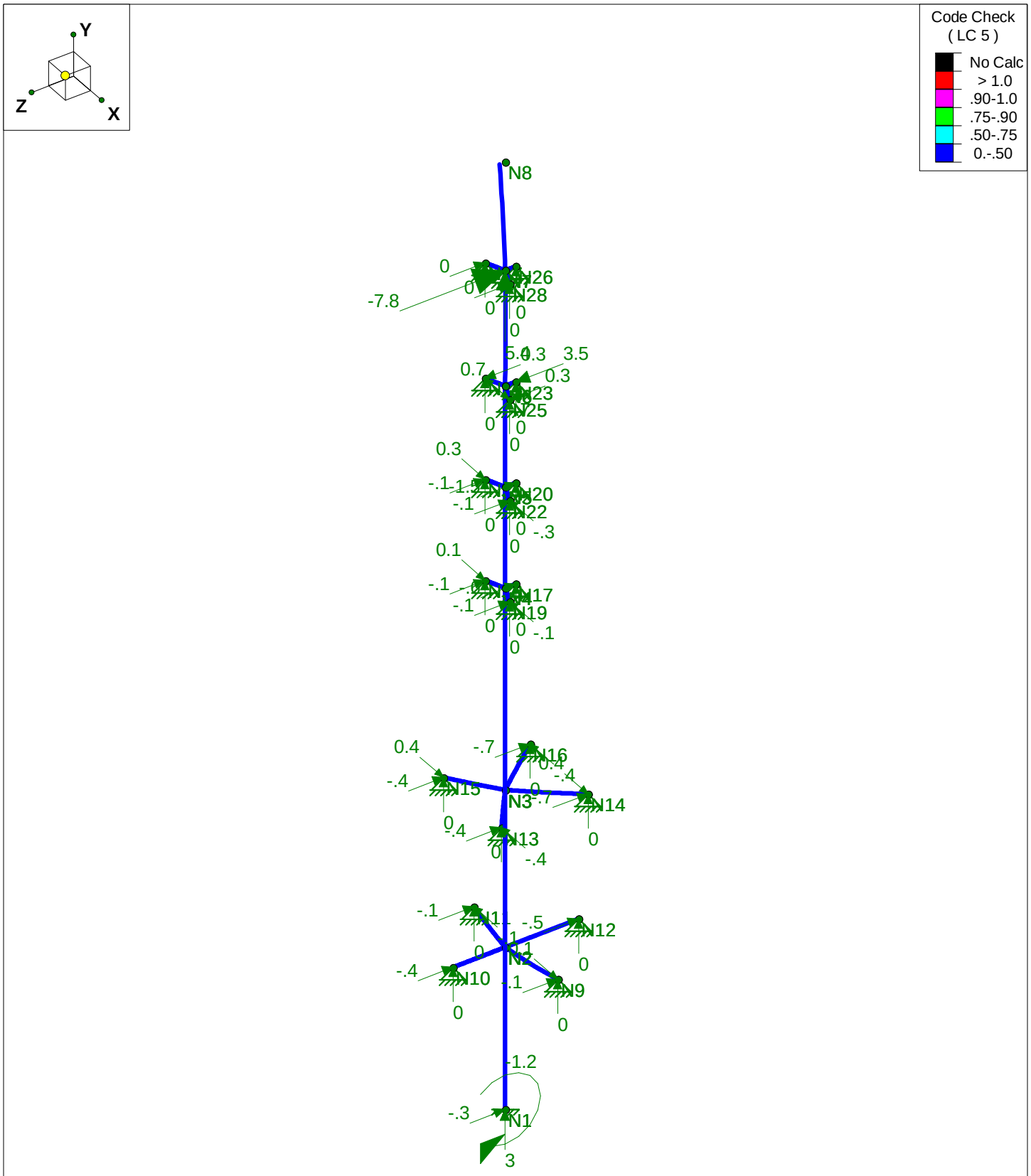
Results for LC 4, 1.2D + 1.6W (Z-direction)
Reaction and Moment Units are k and k-ft

CENTEK Engineering, INC.		
tjl, cfc	Struct. #10133 - Antenna Mast	Jan 4, 2018 at 2:11 PM
17159.03 - CT03XC055	LC #4 Reactions and Deflected Shape	Antenna Mast.r3d



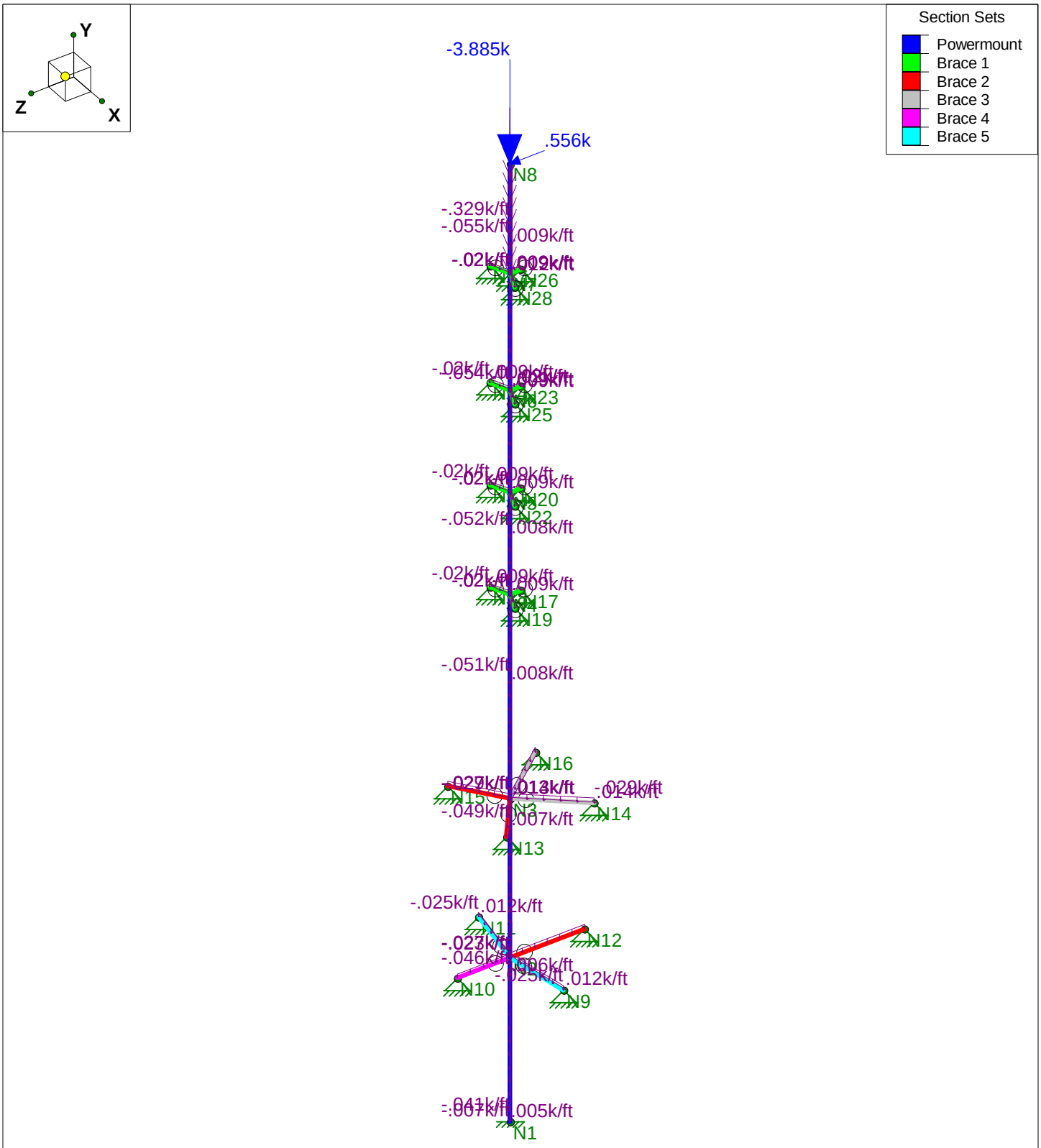
Loads: LC 5, 0.9D + 1.6W (Z-direction)

CENTEK Engineering, INC.		
tjl, cfc	Struct. #10133 - Antenna Mast	Jan 4, 2018 at 2:07 PM
17159.03 - CT03XC055	LC #5 Loads	Antenna Mast.r3d



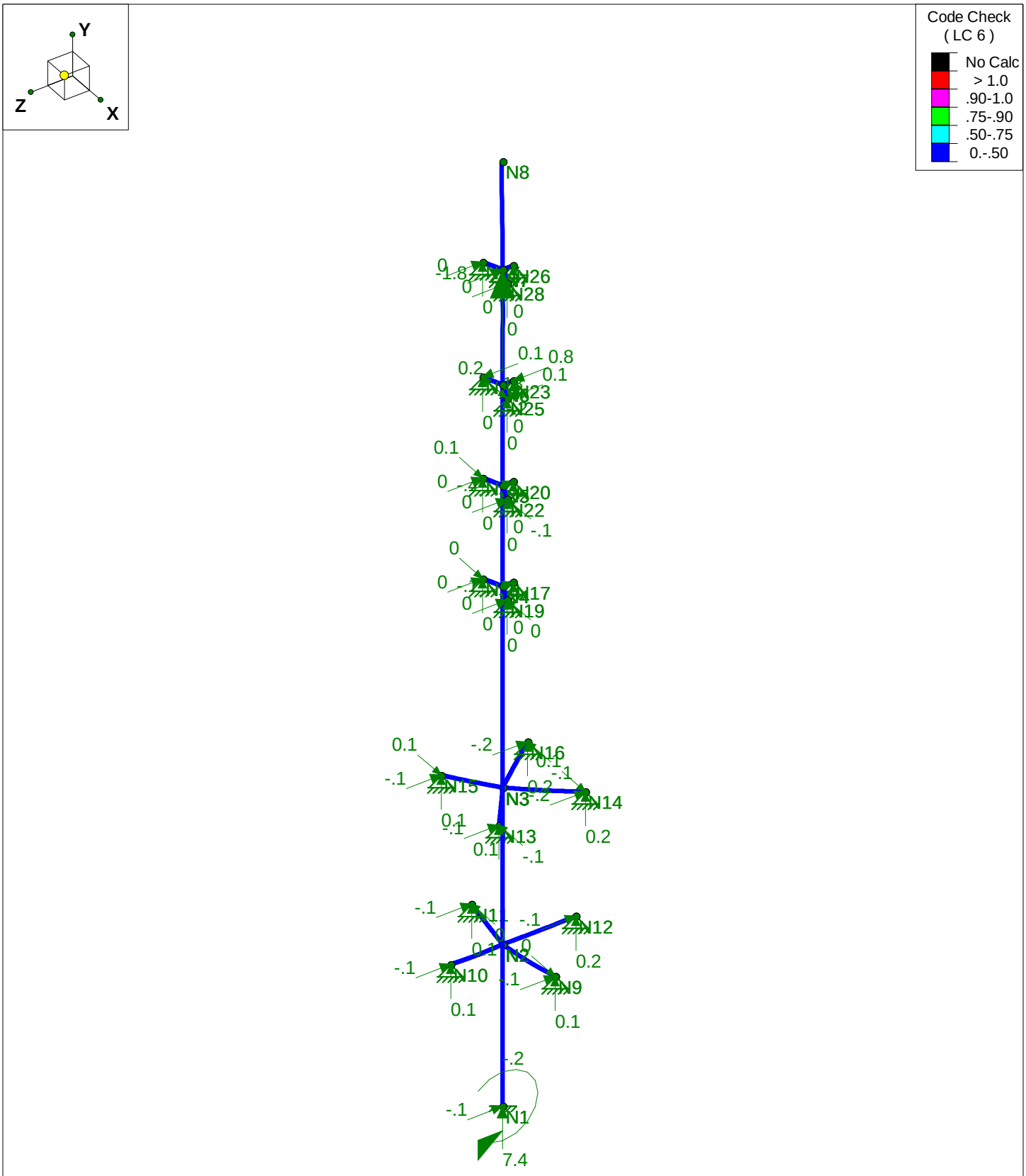
Results for LC 5, 0.9D + 1.6W (Z-direction)
Reaction and Moment Units are k and k-ft

CENTEK Engineering, INC.		
tjl, cfc	Struct. #10133 - Antenna Mast	Jan 4, 2018 at 2:12 PM
17159.03 - CT03XC055	LC #5 Reactions and Deflected Shape	Antenna Mast.r3d



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

CENTEK Engineering, INC.		
tjl, cfc	Struct. #10133 - Antenna Mast	Jan 4, 2018 at 2:08 PM
17159.03 - CT03XC055	LC #6 Loads	Antenna Mast.r3d



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, cfc	Struct. #10133 - Antenna Mast	Jan 4, 2018 at 2:12 PM
17159.03 - CT03XC055	LC #6 Reactions and Deflected Shape	Antenna 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 # 10133
Location:	Windsor, CT
Rev. 0: 1/4/18	Prepared by: T.J.L. Checked by: C.F.C. Job No. 17159.03

Antenna Mast Connection to Tower:

Pipe Collar:

Reactions:

Horz = $Horz := 7.9 \cdot kips$ (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 = $f_t := \frac{Horz}{N_b} = 2 \cdot kips$

Bolt Tenison % of Capacity = $\frac{f_t}{F_t} = 9.54 \cdot \%$

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 = $Fab := 6.8 \cdot kips$ (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 = $f_v := \frac{Fab}{N_b} = 6.8 \cdot kips$

Bolt Shear % of Capacity = $\frac{f_v}{F_v} = 54.84 \cdot \%$

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

$Bolt\_Shear = "OK"$

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

Subject: Load Analysis of Antenna Mast Structure # 10133

Location: Windsor, CT

Rev. 0: 1/4/18

Prepared by: T.J.L Checked by: C.F.C.
Job No. 17159.03

Basic Components

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

Factors for Extreme Wind Calculation

Elevation of Top of PCS Mast Above Grade =	TME := 132	ft	(User Input)
Multiplier Gust Response Factor =	m := 1.25		(User Input - Only for NESC Extreme wind case)
NESC Factor =	kv := 1.43		(User Input from NESC 2007 Table 250-3 equation)
Importance Factor =	I := 1.0		(User Input from NESC 2007 Section 250.C.2)

Velocity Pressure Coefficient = $Kz := 2.01 \cdot \left(\frac{TME}{900}\right)^{\frac{2}{9.5}} = 1.342$ (NESC 2007 Table 250-2)

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

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

Gust Response Factor = $Grf := \frac{\left[1 + \left(2.7 \cdot Es \cdot Bs^{\frac{1}{2}}\right)\right]}{kv^2} = 0.848$ (NESC 2007 Table 250-3)

Wind Pressure = $qz := 0.00256 \cdot Kz \cdot V^2 \cdot Grf \cdot I = 35.2$ psf (NESC 2007 Section 250.C.2)

Shape Factors

NUS Design Criteria Issued April 12, 2007

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

Overload Factors

NU Design Criteria Table

Overload Factors for Wind Loads:

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

Overload Factors for Vertical Loads:

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

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Subject:	Load Analysis of Antenna Mast Structure # 10133
Location:	Windsor, CT
Rev. 0: 1/4/18	Prepared by: T.J.L Checked by: C.F.C. Job No. 17159.03

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 = $F_{ant1} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 1259$ lbs

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Subject:	Load Analysis of Antenna Mast Structure # 10133
Location:	Windsor, CT
Rev. 0: 1/4/18	Prepared by: T.J.L Checked by: C.F.C. Job No. 17159.03

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 = $F_{ant2} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 55$ lbs

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Subject:	Load Analysis of Antenna Mast Structure # 10133
Location:	Windsor, CT
Rev. 0: 1/4/18	Prepared by: T.J.L Checked by: C.F.C. Job No. 17159.03

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 = $F_{ant3} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 44$ lbs

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Subject:	Load Analysis of Antenna Mast Structure # 10133
Location:	Windsor, CT
Rev. 0: 1/4/18	Prepared by: T.J.L Checked by: C.F.C. Job No. 17159.03

Development of Wind & Ice Load on Platform

Platform Data:

Platform Model =	FWT Low Profile Platform		
Mount Shape =	Flat		
Mount Projected Surface Area =	$CdAa := 9.67$	sf	(User Input)
Mount Projected Surface Area w/ Ice =	$CdAa_{ice} := 10.83$	sf	(User Input)
Mount Weight =	$WT_{mnt} := 1430$	lbs	(User Input)
Mount Weight w/ Ice =	$WT_{mnt.ice} := 2000$	lbs	(User Input)

Gravity Loads (without ice)

Weight of All Mounts = $Wt_{mnt1} := WT_{mnt} = 1430$ lbs

Gravity Load (ice only)

Weight of Ice on All Mounts = $Wt_{ice.mnt1} := \left(WT_{mnt.ice} - WT_{mnt}\right) = 570$ lbs

Wind Load (NESC Heavy)

Total Mount Wind Force w/ Ice = $Fi_{mnt1} := p \cdot CdAa_{ice} = 43$ lbs

Wind Load (NESC Extreme)

Total Mount Wind Force = $F_{mnt1} := qz \cdot CdAa \cdot m = 426$ lbs

Total Equipment Loads:

NESC Heavy Wind Vertical =

$$\left(Wt_{ant1} + Wt_{ice.ant1} + Wt_{ant2} + Wt_{ice.ant2} + Wt_{ant3} + Wt_{ice.ant3} + Wt_{mnt1} + Wt_{ice.mnt1}\right)\cdot 1.5 = 3534$$

NESC Heavy Wind Trasnsverse =

$$\left(Fi_{ant1} + Fi_{ant2} + Fi_{ant3} + Fi_{mnt1}\right)\cdot 2.5 = 454$$

NESC Extreme Wind Vertical =

$$\left(Wt_{ant1} + Wt_{ant2} + Wt_{ant3} + Wt_{mnt1}\right) = 1613$$

NESC Extreme Wind Trasnsverse =

$$\left(F_{ant1} + F_{ant2} + F_{ant3} + F_{mnt1}\right) = 1785$$

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Subject:	Coax Cable on Antenna Mast Tower # 10133
Location:	Windsor, CT
Rev. 0: 1/4/18	Prepared by: T.J.L Checked by: C.F.C. Job No. 17159.04

Coax Cable on Antenna Mast

Basic Components

Heavy Wind Pressure =	$p := 4.00 \cdot psf$		(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 =	$Ir := 0.50in$		(User Input)
Radial Ice Density =	$Id := 56.0 \cdot pcf$		(User Input)

Factors for Extreme Wind Calculation

Elevation of Top of Pole Above Grade =	$TME := 132$	ft	(User Input)
Multiplier Gust Response Factor =	$m := 1.25$		(User Input - Only for NESC Extreme wind case)
NESC Factor =	$kv := 1.43$		(User Input from NESC 2007 Table 250-3 equation)
Importance Factor =	$I := 1.0$		(User Input from NESC 2007 Section 250.C.2)
Velocity Pressure Coefficient =	$Kz := 2.01 \cdot \left(\frac{0.67TME}{900}\right)^{\frac{2}{9.5}} = 1.233$		(NESC 2007 Table 250-2)
Exposure Factor =	$Es := 0.346 \left[\frac{33}{(0.67 \cdot TME)}\right]^{\frac{1}{7}} = 0.301$		(NESC 2007 Table 250-3)
Response Term =	$Bs := \frac{1}{\left(1 + 0.375 \cdot \frac{TME}{220}\right)} = 0.816$		(NESC 2007 Table 250-3)
Gust Response Factor =	$Grf := \frac{\left[1 + \left(2.7 \cdot Es \cdot Bs^{\frac{1}{2}}\right)\right]}{kv^2} = 0.848$		(NESC 2007 Table 250-3)
Wind Pressure =	$qz := 0.00256 \cdot Kz \cdot V^2 \cdot Grf \cdot I = 32.4$	psf	(NESC 2007 Section 250.C.1

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 Factor for NESC Heavy Wind Transverse Load =	$OF_{HWT} := 2.5$	*(User Input)*
Overload Factor for NESC Heavy Wind Vertical Load =	$OF_{HWV} := 1.5$	*(User Input)*
Overload Factor for NESC Extreme Wind Transverse Load =	$OF_{EWT} := 1.0$	*(User Input)*
Overload Factor for NESC Extreme Wind Vertical Load =	$OF_{EWV} := 1.0$	*(User Input)*

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Subject:	Coax Cable on Antenna Mast Tower # 10133
Location:	Windsor, CT
Rev. 0: 1/4/18	Prepared by: T.J.L Checked by: C.F.C. Job No. 17159.04

Distance Between Coax Cable Attach Points =

$$Coax_{Span} := \begin{pmatrix} 7.5 \\ 15.5 \\ 15 \\ 14 \\ 21 \\ 26 \\ 33 \end{pmatrix} \cdot ft$$ *(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)*

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

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

Wind Area with Ice = $A_{ice} := 0$

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 = $W_{ice} := Ai_{coax} \cdot Id \cdot NX_{coax} = 0 \cdot plf$

Heavy Wind Vertical Load =

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

Heavy Wind Transverse Load =

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

$$Heavy\_WInd_{Vert} = \begin{pmatrix} 70 \\ 145 \\ 140 \\ 131 \\ 197 \\ 243 \\ 309 \end{pmatrix} lb \qquad Heavy\_Wind_{Trans} = \begin{pmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \end{pmatrix}$$

Extreme Wind Vertical Load =

$$\overrightarrow{Extreme\_Wind_{Vert} := \left(N_{coax} \cdot W_{coax} \cdot Coax_{Span} \cdot OF_{EWV}\right)}$$

Extreme Wind Transverse Load =

$$\overrightarrow{Extreme\_Wind_{Trans} := \left[\left(qz \cdot psf \cdot A \cdot Cd_{coax}\right) \cdot Coax_{Span} \cdot OF_{EWT}\right]}$$

$$Extreme\_WInd_{Vert} = \begin{pmatrix} 47 \\ 97 \\ 94 \\ 87 \\ 131 \\ 162 \\ 206 \end{pmatrix} lb \qquad Extreme\_Wind_{Trans} = \begin{pmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \end{pmatrix}$$

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Subject:	Coax Cable on Tower # 10133
Location:	Windsor, CT
Rev. 0: 1/4/18	Prepared by: T.J.L Checked by: C.F.C. Job No. 17159.03

Coax Cable on Antenna Mast

Basic Components

Heavy Wind Pressure =	$p := 4.00 \cdot psf$		(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 =	$Ir := 0.50in$		(User Input)
Radial Ice Density =	$Id := 56.0 \cdot pcf$		(User Input)

Factors for Extreme Wind Calculation

Elevation of Top of Pole Above Grade =	$TME := 132$	ft	(User Input)
Multiplier Gust Response Factor =	$m := 1.25$		(User Input - Only for NESC Extreme wind case)
NESC Factor =	$kv := 1.43$		(User Input from NESC 2007 Table 250-3 equation)
Importance Factor =	$I := 1.0$		(User Input from NESC 2007 Section 250.C.2)
Velocity Pressure Coefficient =	$Kz := 2.01 \cdot \left(\frac{0.67TME}{900}\right)^{\frac{2}{9.5}} = 1.233$		(NESC 2007 Table 250-2)
Exposure Factor =	$Es := 0.346 \left[\frac{33}{(0.67 \cdot TME)}\right]^{\frac{1}{7}} = 0.301$		(NESC 2007 Table 250-3)
Response Term =	$Bs := \frac{1}{\left(1 + 0.375 \cdot \frac{TME}{220}\right)} = 0.816$		(NESC 2007 Table 250-3)
Gust Response Factor =	$Grf := \frac{\left[1 + \left(2.7 \cdot Es \cdot Bs^{\frac{1}{2}}\right)\right]}{kv^2} = 0.848$		(NESC 2007 Table 250-3)
Wind Pressure =	$qz := 0.00256 \cdot Kz \cdot V^2 \cdot Grf \cdot I = 32.4$	psf	(NESC 2007 Section 250.C.

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 Factor for NESC Heavy Wind Transverse Load =	$OF_{HWT} := 2.5$	*(User Input)*
Overload Factor for NESC Heavy Wind Vertical Load =	$OF_{HWV} := 1.5$	*(User Input)*
Overload Factor for NESC Extreme Wind Transverse Load =	$OF_{EWT} := 1.0$	*(User Input)*
Overload Factor for NESC Extreme Wind Vertical Load =	$OF_{EWV} := 1.0$	*(User Input)*

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Subject:	Coax Cable on Tower # 10133
Location:	Windsor, CT
Rev. 0: 1/4/18	Prepared by: T.J.L Checked by: C.F.C. Job No. 17159.03

Distance Between Coax Cable Attach Points = $Coax_{Span} := \begin{pmatrix} 15.5 \\ 10.5 \\ 9.5 \\ 9.25 \\ 11.5 \\ 14 \\ 18 \\ 33 \end{pmatrix} \cdot ft$ *(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 = $NP_{coax} := 6$ *(User Input)*

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

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

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

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

Heavy Wind Vertical Load =

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

Heavy Wind Transverse Load =

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

$Heavy\_WInd_{Vert} = \begin{pmatrix} 356 \\ 241 \\ 218 \\ 213 \\ 264 \\ 322 \\ 414 \\ 759 \end{pmatrix} lb$ $Heavy\_Wind_{Trans} = \begin{pmatrix} 241 \\ 163 \\ 148 \\ 144 \\ 179 \\ 218 \\ 280 \\ 514 \end{pmatrix} lb$

Extreme Wind Vertical Load =

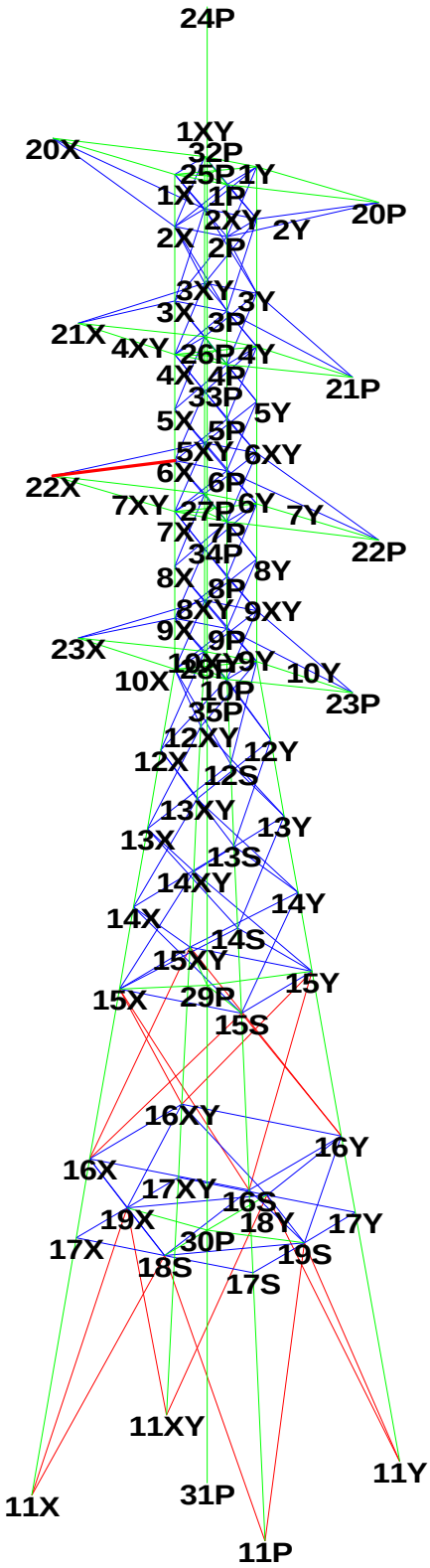
$$\overrightarrow{Extreme\_Wind_{Vert} := \left(N_{coax} \cdot W_{coax} \cdot Coax_{Span} \cdot OF_{EWV}\right)}$$

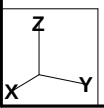
Extreme Wind Transverse Load =

$$\overrightarrow{Extreme\_Wind_{Trans} := \left[\left(qz \cdot psf \cdot A \cdot Cd_{coax}\right) \cdot Coax_{Span} \cdot OF_{EWT}\right]}$$

$Extreme\_Wind_{Vert} = \begin{pmatrix} 97 \\ 66 \\ 59 \\ 58 \\ 72 \\ 87 \\ 112 \\ 206 \end{pmatrix} lb$ $Extreme\_Wind_{Trans} = \begin{pmatrix} 720 \\ 488 \\ 442 \\ 430 \\ 535 \\ 651 \\ 837 \\ 1534 \end{pmatrix} lb$

Centek Engineering Inc, Project: "CL&P # 10133"
Tower Version 12.50, 8:51:30 AM Tuesday, July 03, 2018
Undeformed geometry displayed





Project Name : 17159.03 - Windsor, CT
Project Notes: Structure #10133 / Sprint - CT03XC055
Project File : J:\Jobs\1715900.WI\03_CT03XC055 Windsor\04_Structural\Calcs\Rev (1)\PLS Tower\CL&P # 10133.tow
Date run   : 8:20:46 AM Thursday, July 05, 2018
by   : Tower Version 12.50
Licensed to : Centek Engineering Inc

Successfully performed nonlinear analysis

Member "g13P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g13X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g13XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g13Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g15P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g15X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g15XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g15Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g16P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g16X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g16XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g16Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
KL/R value of 316.33 exceeds maximum of 200.00 for member "g45P" ??
KL/R value of 316.33 exceeds maximum of 200.00 for member "g45X" ??
KL/R value of 316.33 exceeds maximum of 200.00 for member "g45XY" ??
KL/R value of 316.33 exceeds maximum of 200.00 for member "g45Y" ??
KL/R value of 316.33 exceeds maximum of 200.00 for member "g46P" ??
KL/R value of 316.33 exceeds maximum of 200.00 for member "g46X" ??
KL/R value of 316.33 exceeds maximum of 200.00 for member "g46XY" ??
KL/R value of 316.33 exceeds maximum of 200.00 for member "g46Y" ??
KL/R value of 204.78 exceeds maximum of 200.00 for member "g50P" ??
KL/R value of 204.78 exceeds maximum of 200.00 for member "g50X" ??
KL/R value of 204.78 exceeds maximum of 200.00 for member "g51P" ??
KL/R value of 204.78 exceeds maximum of 200.00 for member "g51Y" ??
KL/R value of 204.78 exceeds maximum of 200.00 for member "g52P" ??
KL/R value of 204.78 exceeds maximum of 200.00 for member "g52Y" ??
KL/R value of 204.78 exceeds maximum of 200.00 for member "g53P" ??
KL/R value of 204.78 exceeds maximum of 200.00 for member "g53Y" ??
KL/R value of 204.78 exceeds maximum of 200.00 for member "g54P" ??
KL/R value of 204.78 exceeds maximum of 200.00 for member "g54Y" ??
KL/R value of 204.78 exceeds maximum of 200.00 for member "g55P" ??
KL/R value of 204.78 exceeds maximum of 200.00 for member "g55X" ??
KL/R value of 204.78 exceeds maximum of 200.00 for member "g56P" ??
KL/R value of 204.78 exceeds maximum of 200.00 for member "g56X" ??
KL/R value of 204.78 exceeds maximum of 200.00 for member "g57P" ??
KL/R value of 204.78 exceeds maximum of 200.00 for member "g57X" ??
Member "g62P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge

and spacing distances will be checked. ??
Member "g62X" will not be checked for block 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 "g62XY" will not be checked for block 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 "g62Y" will not be checked for block 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 "g63P" will not be checked for block 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 "g63X" will not be checked for block 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 "g63XY" will not be checked for block 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 "g63Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
KL/R value of 243.16 exceeds maximum of 200.00 for member "g68P" ??
KL/R value of 243.16 exceeds maximum of 200.00 for member "g68X" ??
KL/R value of 243.16 exceeds maximum of 200.00 for member "g68XY" ??
KL/R value of 243.16 exceeds maximum of 200.00 for member "g68Y" ??
Member "g69P" will not be checked for block 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 "g69X" will not be checked for block 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 "g69XY" will not be checked for block 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 "g69Y" will not be checked for block 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 "g70P" will not be checked for block 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 "g70Y" will not be checked for block 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 "g71P" will not be checked for block 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 "g71X" will not be checked for block 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 "g71XY" will not be checked for block 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 "g71Y" will not be checked for block 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 "g72P" will not be checked for block 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 "g72Y" will not be checked for block 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 "g73P" will not be checked for block 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 "g73X" will not be checked for block 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 "g73XY" will not be checked for block 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 "g73Y" will not be checked for block 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 "g74P" will not be checked for block 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 "g74Y" will not be checked for block 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 "g75P" will not be checked for block 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 "g75X" will not be checked for block 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 "g75XY" will not be checked for block 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 "g75Y" will not be checked for block 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 "g76P" will not be checked for block 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 "g76Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Unusual number of fixed joints found: 5. Towers normally have from between 1 and 4 fixed joints. ??
The model has 73 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\03_ct03xc055 windsor\04_structural\calcs\rev (1)\pls tower\cl&p # 10133.lca

*** Analysis Results:

Maximum element usage is 95.76% for Angle "g47P" in load case "NESC Extreme"
Maximum insulator usage is 8.44% for Clamp "9" in load case "NESC Heavy"

Summary of Joint Support Reactions For All Load Cases:

Load Case	Joint Label	Long. Force (kips)	Tran. Force (kips)	Vert. Force (kips)	Shear Force (kips)	Tran. Moment (ft-k)	Long. Moment (ft-k)	Bending Moment (ft-k)	Vert. Moment (ft-k)	Found. Usage %
NESC Heavy	11P	-5.61	-5.09	-42.44	7.58	0.42	0.36	0.55	0.05	0.00
NESC Heavy	31P	0.29	-0.88	-16.39	0.93	8.24	4.06	9.19	-0.81	0.00
NESC Heavy	11X	3.99	-5.23	26.35	6.58	0.42	-0.00	0.42	0.01	0.00
NESC Heavy	11XY	-3.29	-3.56	22.44	4.84	0.13	0.03	0.13	-0.05	0.00
NESC Heavy	11Y	4.62	-4.60	-38.32	6.52	0.13	0.33	0.35	-0.01	0.00
NESC Extreme	11P	-9.50	-9.76	-78.49	13.62	0.98	0.08	0.98	0.11	0.00
NESC Extreme	31P	0.03	-1.89	-6.39	1.89	24.18	0.53	24.19	-0.26	0.00
NESC Extreme	11X	10.06	-13.27	68.49	16.65	0.94	-0.05	0.94	0.10	0.00
NESC Extreme	11XY	-10.01	-12.92	67.66	16.34	0.88	0.03	0.88	-0.11	0.00
NESC Extreme	11Y	9.42	-9.69	-77.89	13.52	0.91	0.05	0.91	-0.11	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	11P	17S	g16P	43.106	0.460	0.462	0.459	-0.058	-5.61	-5.09	-42.44
NESC Heavy	11X	17X	g16X	-27.069	2.155	2.182	-0.796	2.031	3.99	-5.23	26.35
NESC Heavy	11XY	17XY	g16XY	-22.933	0.992	1.006	0.565	0.833	-3.29	-3.56	22.44
NESC Heavy	11Y	17Y	g16Y	38.865	0.062	0.063	0.036	-0.051	4.62	-4.60	-38.32
NESC Extreme	11P	17S	g16P	79.662	0.231	0.232	-0.026	0.231	-9.50	-9.76	-78.49
NESC Extreme	11X	17X	g16X	-70.294	5.192	5.253	-1.741	4.957	10.06	-13.27	68.49
NESC Extreme	11XY	17XY	g16XY	-69.431	4.972	5.032	1.791	4.703	-10.01	-12.92	67.66
NESC Extreme	11Y	17Y	g16Y	79.054	0.240	0.241	0.036	0.239	9.42	-9.69	-77.89

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	131.250	72.250	57	198	0.00	5.00	257.500	0.00	26.50	677.720
2	72.250	0.000	40	115	5.00	22.54	994.955	5.00	22.54	994.955

*** 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 Curve Type	Angle No. Size	Steel Strength (ksi)	Max Usage %	Usage Control	Max Cont-rol Use In Comp. %	Comp. Control Member	Comp. Force (kips)	Comp. Control Load Case	L/R Capacity (kips)	Comp. Connect. Shear Capacity (kips)	Comp. Connect. Bearing Capacity (kips)	RLX	RLY	RLZ	L/R (ft)	KL/R Comp.	Length Member	No. Of Bolts
Leg1	L3.5x3.5x1/4	SAE	3.5X3.5X0.25	36.0	70.54	Tens	62.24	g6Y	-30.527	NESC Ext	49.051	54.600	81.562	1.000	1.000	1.000	78.50	78.50	4.540	1	6
Leg2	L4x4x3/8	SAE	4X4X0.375	36.0	73.59	Tens	65.47	g9Y	-57.274	NESC Ext	87.485	91.000	203.906	1.000	1.000	1.000	69.14	69.14	4.540	1	10
Leg3	L5x5x3/8	SAE	5X5X0.375	36.0	83.29	Comp	83.29	g16P	-79.340	NESC Ext	95.261	109.200	244.687	0.333	0.333	0.333	92.15	92.15	22.829	1	12
Diag1	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	36.0	46.34	Comp	46.34	g19X	-4.245	NESC Ext	9.161	18.200	20.391	0.750	0.500	0.500	145.12	139.18	8.296	5	2
Diag2	L1.75x1.75x1/4	SAE	1.75X1.75X0.25	36.0	35.59	Comp	35.59	g27X	-5.748	NESC Ext	16.148	18.200	27.187	0.750	0.500	0.500	118.83	119.12	6.754	2	2
Diag3	L2x2x1/4	SAE	2X2X0.25	36.0	42.85	Comp	42.85	g33X	-7.798	NESC Ext	21.491	18.200	27.187	0.750	0.500	0.500	103.64	107.73	6.754	2	2
Diag4	L3x2x3/16	SAU	3X2X0.1875	36.0	30.35	Tens	28.16	g36P	-3.736	NESC Ext	13.267	18.200	20.391	0.788	0.576	0.576	145.33	139.34	9.230	5	2
Diag5	L2.5x2x3/16	SAU	2.5X2X0.1875	36.0	19.38	Comp	19.38	g41X	-1.150	NESC Ext	5.934	9.100	10.195	0.769	0.538	0.538	197.65	197.65	13.073	4	1
Diag6	L2x2x3/16	SAE	2X2X0.1875	36.0	79.75	Tens	43.45	g46Y	-0.882	NESC Hea	2.031	18.200	20.391	1.000	1.000	1.000	316.33	316.33	10.386	4	2
Diag7	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	36.0	95.76	Tens	52.89	g48P	-1.463	NESC Hea	2.765	18.200	20.391	0.333	0.333	0.333	294.90	253.31	25.313	5	2
Horz1	L2.5x1.5x3/16	SAU	2.5X1.5X0.1875	36.0	10.18	Comp	10.18	g49X	-0.614	NESC Ext	6.036	9.100	10.195	1.000	1.000	1.000	183.49	183.49	5.000	4	1
Horz2	L1.5x1.5x3/16	SAE	1.5X1.5X0.1875	36.0	66.55	Comp	66.55	g56X	-2.407	NESC Ext	3.617	9.100	10.195	1.000	1.000	1.000	204.78	204.78	5.000	4	1
Horz3	L2.5x2x3/16	SAU	2.5X2X0.1875	36.0	40.23	Comp	40.23	g58X	-2.931	NESC Ext	7.285	9.100	10.195	1.000	0.500	0.500	178.39	178.39	11.789	4	1
Horz4	L3x3x1/4	SAE	3X3X0.25	36.0	62.60	Comp	62.60	g60X	-9.098	NESC Ext	14.534	18.200	27.187	1.000	0.500	0.500	198.70	168.40	15.399	6	2
Horz5	L3x3x3/16	SAE	3X3X0.1875	36.0	14.49	Comp	14.49	g62Y	-1.774	NESC Ext	12.245	18.200	20.391	1.000	1.000	1.000	171.94	159.62	8.540	5	2

Inner1	L1.5x1.5x1/4	SAE	1.5X1.5X0.25	36.0	16.29	Comp	16.29	g64XY	-0.901	NESC Ext	5.530	9.100	13.594	2.000	1.000	1.000	188.98	188.98	3.536	4	1	
Inner2	L3x3x3/16	SAE	3X3X0.1875	36.0	8.43	Comp	8.43	g68X	-0.445	NESC Ext	5.277	18.200	20.391	1.000	1.000	1.000	243.16	243.16	12.077	4	2	
ShieldAr	L2.5x2.5x1/4	SAE	2.5X2.5X0.25	36.0	9.82	Tens	1.14	g69Y	-0.143	NESC Ext	12.545	18.200	27.187	0.500	0.500	0.500	164.77	164.77	13.484	4	2	
ShArmBr	L3x2x3/16	SAU	3X2X0.1875	36.0	22.61	Comp	22.61	g77XY	-1.531	NESC Hea	6.772	18.200	20.391	1.000	0.500	0.500	195.03	195.03	14.270	4	2	
TopCrArm	L3.5x2.5x1/4	SAU	3.5X2.5X0.25	36.0	10.30	Comp	10.30	g71XY	-2.812	NESC Hea	27.685	27.300	40.781	0.500	0.500	0.500	121.73	121.73	11.037	4	3	
TopArmBr	L2.5X2x3/16	SAU	2.5X2X0.1875	36.0	22.66	Tens	0.38	g78Y	-0.027	NESC Ext	7.031	18.200	20.391	1.000	0.500	0.500	181.59	181.59	12.000	4	2	
MidCrArm	L3.5x3x5/16	SAU	3.5X3X0.3125	36.0	11.31	Comp	11.31	g73XY	-3.754	NESC Hea	33.179	36.400	67.969	0.500	0.500	0.500	129.03	129.03	13.484	4	4	
MidArmBr	L3x2x3/16	SAU	3X2X0.1875	36.0	28.00	Tens	0.00	g79Y	0.000		6.812	18.200	20.391	1.000	0.500	0.500	194.45	194.45	14.228	4	2	
BotCrArm	L3.5x2.5x1/4	SAU	3.5X2.5X0.25	36.0	10.61	Comp	10.61	g75XY	-2.897	NESC Hea	27.685	27.300	40.781	0.500	0.500	0.500	121.73	121.73	11.037	4	3	
BotArmBr	L2.5X2x3/16	SAU	2.5X2X0.1875	36.0	23.07	Tens	0.00	g80Y	0.000		7.109	18.200	20.391	1.000	0.500	0.500	180.59	180.59	11.934	4	2	
Pwmnt	12" Std. Pipe	Pwmnt	Pipe 12" Std.	35.0	3.68	Comp	3.68	g81P	-15.512	NESC Hea	420.955	0.000	0.000	1.000	1.000	1.000	61.50	61.50	22.500	1	0	
PMBR1	**L2x2x3/16**	**SAE**	**2X2X0.1875**	**36.0**	**22.83**	**Tens**	**19.83**	**g88X**	**-2.022**	**NESC Ext**	**17.322**	**16.800**	**10.195**	**1.000**	**1.000**	**1.000**	**82.49**	**101.24**	**2.708**	**3**	**1**	**A potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize moments): g88P ??**
PMBR2	L3.5x3.5x1/4	SAE	3.5X3.5X0.25	36.0	19.36	Comp	19.36	g96X	-2.632	NESC Ext	29.729	16.800	13.594	1.000	1.000	1.000	127.56	127.56	7.377	4	1	
PMBR3	L4x4x1/4	SAE	4X4X0.25	36.0	13.01	Comp	13.01	g97P	-1.768	NESC Ext	27.444	16.800	13.594	1.000	1.000	1.000	142.24	142.24	9.424	4	1	
PMBR4	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	36.0	1.84	Comp	1.84	g98P	-0.161	NESC Hea	8.761	16.800	10.195	1.000	1.000	1.000	171.67	171.67	7.081	4	1	
PMBR5	L3x3x1/4	SAE	3X3X0.25	36.0	6.53	Comp	6.53	g99P	-0.873	NESC Ext	13.366	16.800	13.594	1.000	1.000	1.000	175.60	175.60	8.663	4	1	
Diag8	L3x2x3/16	SAU	3X2X0.1875	36.0	52.04	Comp	52.04	g43X	-1.891	NESC Hea	3.634	18.200	20.391	0.782	0.564	0.564	311.85	266.23	20.228	5	2	

Group Summary (Tension Portion):

Group Label	Group Desc.	Angle Type	Angle Size	Steel Strength (ksi)	Max Usage %	Max Usage Cont-rol	Tension Use In Tens. %	Tension Control Member	Tension Force (kips)	Tension Control Load Case	Net Section Capacity (kips)	Tension Connect. Shear Capacity (kips)	Tension Connect. Bearing Capacity (kips)	Tension Connect. Rupture Capacity (kips)	Length Tens. Member (ft)	No. Of Bolts Tens.	No. Of Holes	Hole Diameter (in)
Leg1	L3.5x3.5x1/4	SAE	3.5X3.5X0.25	36.0	70.54	Tens	70.54	g6X	27.583	NESC Ext	39.105	54.600	81.562	90.625	4.540	6	3.220	0.75
Leg2	L4x4x3/8	SAE	4X4X0.375	36.0	73.59	Tens	73.59	g9X	53.116	NESC Ext	72.180	91.000	203.906	226.562	4.540	10	3.040	0.75
Leg3	L5x5x3/8	SAE	5X5X0.375	36.0	83.29	Comp	65.81	g13XY	59.887	NESC Ext	104.141	91.000	203.906	213.235	7.234	10	2.550	0.75
Diag1	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	36.0	46.34	Comp	32.54	g21P	4.415	NESC Ext	15.532	18.200	20.391	13.570	6.869	2	1.000	0.75
Diag2	L1.75x1.75x1/4	SAE	1.75X1.75X0.25	36.0	35.59	Comp	31.62	g27P	5.721	NESC Ext	20.169	18.200	27.187	18.094	6.754	2		

1.000	0.75																
	Diag3	L2x2x1/4	SAE	2X2X0.25	36.0	42.85	Comp	42.65	g33P	7.762NESC Ext	24.381	18.200	27.187	24.167	6.754	2	
1.000	0.75																
	Diag4	L3x2x3/16	SAU	3X2X0.1875	36.0	30.35	Tens	30.35	g36X	3.879NESC Ext	18.529	18.200	20.391	12.783	9.230	2	
1.000	0.75																
	Diag5	L2.5x2x3/16	SAU	2.5X2X0.1875	36.0	19.38	Comp	15.73	g41P	1.305NESC Ext	18.650	9.100	10.195	8.297	13.073	1	
1.000	0.75																
	Diag6	L2x2x3/16	SAE	2X2X0.1875	36.0	79.75	Tens	79.75	g45X	11.170NESC Ext	18.448	18.200	20.391	14.006	10.386	2	
1.000	0.75																
	Diag7	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	36.0	95.76	Tens	95.76	g47P	12.605NESC Ext	15.532	18.200	20.391	13.162	25.313	2	
1.000	0.75																
	Horz1	L2.5x1.5x3/16	SAU	2.5X1.5X0.1875	36.0	10.18	Comp	4.72	g49P	0.314NESC Ext	12.373	9.100	10.195	6.664	5.000	1	
1.000	0.75																
	Horz2	L1.5x1.5x3/16	SAE	1.5X1.5X0.1875	36.0	66.55	Comp	41.58	g56P	2.771NESC Ext	12.616	9.100	10.195	6.664	5.000	1	
1.000	0.75																
	Horz3	L2.5x2x3/16	SAU	2.5X2X0.1875	36.0	40.23	Comp	16.39	g58P	1.150NESC Ext	18.650	9.100	10.195	7.017	11.789	1	
1.000	0.75																
	Horz4	L3x3x1/4	SAE	3X3X0.25	36.0	62.60	Comp	4.02	g60P	0.731NESC Hea	40.581	18.200	27.187	24.167	15.399	2	
1.000	0.75																
	Horz5	L3x3x3/16	SAE	3X3X0.1875	36.0	14.49	Comp	1.69	g62XY	0.271NESC Ext	30.760	18.200	20.391	15.993	8.540	2	
1.000	0.75																
	Inner1	L1.5x1.5x1/4	SAE	1.5X1.5X0.25	36.0	16.29	Comp	14.62	g64Y	1.124NESC Ext	16.281	9.100	13.594	7.687	3.536	1	
1.000	0.75																
	Inner2	L3x3x3/16	SAE	3X3X0.1875	36.0	8.43	Comp	2.67	g68P	0.427NESC Ext	30.760	18.200	20.391	15.993	12.077	2	
1.000	0.75																
	ShieldAr	L2.5x2.5x1/4	SAE	2.5X2.5X0.25	36.0	9.82	Tens	9.82	g69XY	1.788NESC Hea	26.406	18.200	27.187	28.431	13.484	2	
2.000	0.75																
	ShArmBr	L3x2x3/16	SAU	3X2X0.1875	36.0	22.61	Comp	0.00	g77Y	0.000	18.529	18.200	20.391	16.453	14.270	2	
1.000	0.75																
	TopCrArm	L3.5x2.5x1/4	SAU	3.5X2.5X0.25	36.0	10.30	Comp	0.00	g72Y	0.000	34.506	27.300	40.781	31.719	5.000	3	
2.000	0.75																
	TopArmBr	L2.5X2x3/16	SAU	2.5X2X0.1875	36.0	22.66	Tens	22.66	g78XY	3.728NESC Hea	18.650	18.200	20.391	16.453	12.000	2	
1.000	0.75																
	MidCrArm	L3.5x3x5/16	SAU	3.5X3X0.3125	36.0	11.31	Comp	0.00	g74Y	0.000	47.344	36.400	67.969	67.969	5.000	4	
2.000	0.75																
	MidArmBr	L3x2x3/16	SAU	3X2X0.1875	36.0	28.00	Tens	28.00	g79XY	4.607NESC Hea	18.529	18.200	20.391	16.453	14.228	2	
1.000	0.75																
	BotCrArm	L3.5x2.5x1/4	SAU	3.5X2.5X0.25	36.0	10.61	Comp	0.00	g76Y	0.000	35.660	27.300	40.781	42.647	5.000	3	
1.810	0.75																
	BotArmBr	L2.5X2x3/16	SAU	2.5X2X0.1875	36.0	23.07	Tens	23.07	g80XY	3.795NESC Hea	18.650	18.200	20.391	16.453	11.934	2	
1.000	0.75																
	Pwmnt	12" Std. Pipe	Pwmnt	Pipe 12" Std.	35.0	3.68	Comp	0.00	g87P	0.000	475.999	0.000	0.000	0.000	15.000	0	
0.000	0																
	PMBR1	**L2x2x3/16**	**SAE**	**2X2X0.1875**	**36.0**	**22.83**	**Tens**	**22.83**	**g88P**	**2.328NESC Ext**	**18.827**	**16.800**	**10.195**	**10.343**	**2.708**	**1**	
1.000	**0.6875**	**A potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize moments): g88P ??**															
	PMBR2	L3.5x3.5x1/4	SAE	3.5X3.5X0.25	36.0	19.36	Comp	4.57	g96P	0.622NESC Hea	49.187	16.800	13.594	15.104	7.377	1	
1.000	0.6875																
	PMBR3	L4x4x1/4	SAE	4X4X0.25	36.0	13.01	Comp	0.88	g97P	0.119NESC Hea	57.287	16.800	13.594	15.104	9.424	1	
1.000	0.6875																
	PMBR4	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	36.0	1.84	Comp	0.00	g98P	0.000	25.048	16.800	10.195	11.328	7.081	1	
1.000	0.6875																
	PMBR5	L3x3x1/4	SAE	3X3X0.25	36.0	6.53	Comp	6.48	g99X	0.881NESC Ext	41.087	16.800	13.594	15.104	8.663	1	
1.000	0.6875																
	Diag8	L3x2x3/16	SAU	3X2X0.1875	36.0	52.04	Comp	31.74	g44X	5.752NESC Ext	18.529	18.200	20.391	18.125	20.228	2	
1.000	0.75																

*** Maximum Stress Summary for Each Load Case

Summary of Maximum Usages by Load Case:

Load Case	Maximum Usage %	Element Label	Element Type
NESC Heavy	52.89	g48P	Angle
NESC Extreme	95.76	g47P	Angle

Summary of Insulator Usages:

Insulator Label	Insulator Type	Maximum Usage %	Load Case	Weight (lbs)
1	Clamp	2.31	NESC Heavy	0.0
2	Clamp	2.20	NESC Heavy	0.0
3	Clamp	6.22	NESC Heavy	0.0
4	Clamp	0.46	NESC Extreme	0.0
5	Clamp	6.34	NESC Heavy	0.0
6	Clamp	0.46	NESC Extreme	0.0
7	Clamp	6.22	NESC Heavy	0.0
8	Clamp	0.46	NESC Extreme	0.0
9	Clamp	8.44	NESC Heavy	0.0
10	Clamp	2.83	NESC Heavy	0.0
11	Clamp	2.73	NESC Heavy	0.0
12	Clamp	2.55	NESC Heavy	0.0
13	Clamp	3.94	NESC Heavy	0.0
14	Clamp	5.03	NESC Heavy	0.0
15	Clamp	4.62	NESC Heavy	0.0
16	Clamp	1.87	NESC Extreme	0.0
17	Clamp	1.40	NESC Extreme	0.0
18	Clamp	1.31	NESC Extreme	0.0
19	Clamp	1.29	NESC Extreme	0.0
20	Clamp	2.46	NESC Extreme	0.0
21	Clamp	2.24	NESC Extreme	0.0
22	Clamp	2.61	NESC Extreme	0.0
23	Clamp	4.01	NESC Extreme	0.0
24	Clamp	1.87	NESC Extreme	0.0
25	Clamp	1.40	NESC Extreme	0.0
26	Clamp	1.31	NESC Extreme	0.0
27	Clamp	1.29	NESC Extreme	0.0
28	Clamp	2.46	NESC Extreme	0.0
29	Clamp	2.24	NESC Extreme	0.0
30	Clamp	2.61	NESC Extreme	0.0
31	Clamp	4.01	NESC Extreme	0.0

*** Weight of structure (lbs):
Weight of Angles*Section DLF: 18835.5
Total: 18835.5

*** End of Report

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

Project Name : 17159.03 - Windsor, CT
Project Notes: Structure #10133 / Sprint - CT03XC055
Project File : J:\Jobs\1715900.WI\03_CT03XC055 Windsor\04_Structural\Calcs\Rev (1)\PLS Tower\CL&P # 10133.tow
Date run     : 8:20:46 AM Thursday, July 05, 2018
by           : Tower Version 12.50
Licensed to  : Centek Engineering Inc

Successfully performed nonlinear analysis

Member "g13P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "g13X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "g13XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "g13Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "g15P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "g15X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "g15XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "g15Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "g16P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "g16X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "g16XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "g16Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
KL/R value of 316.33 exceeds maximum of 200.00 for member "g45P" ??
KL/R value of 316.33 exceeds maximum of 200.00 for member "g45X" ??
KL/R value of 316.33 exceeds maximum of 200.00 for member "g45XY" ??
KL/R value of 316.33 exceeds maximum of 200.00 for member "g45Y" ??
KL/R value of 316.33 exceeds maximum of 200.00 for member "g46P" ??
KL/R value of 316.33 exceeds maximum of 200.00 for member "g46X" ??
KL/R value of 316.33 exceeds maximum of 200.00 for member "g46XY" ??
KL/R value of 316.33 exceeds maximum of 200.00 for member "g46Y" ??
KL/R value of 204.78 exceeds maximum of 200.00 for member "g50P" ??
KL/R value of 204.78 exceeds maximum of 200.00 for member "g50X" ??
KL/R value of 204.78 exceeds maximum of 200.00 for member "g51P" ??
KL/R value of 204.78 exceeds maximum of 200.00 for member "g51Y" ??
KL/R value of 204.78 exceeds maximum of 200.00 for member "g52P" ??
KL/R value of 204.78 exceeds maximum of 200.00 for member "g52Y" ??
KL/R value of 204.78 exceeds maximum of 200.00 for member "g53P" ??
KL/R value of 204.78 exceeds maximum of 200.00 for member "g53Y" ??
KL/R value of 204.78 exceeds maximum of 200.00 for member "g54P" ??
KL/R value of 204.78 exceeds maximum of 200.00 for member "g54Y" ??
KL/R value of 204.78 exceeds maximum of 200.00 for member "g55P" ??
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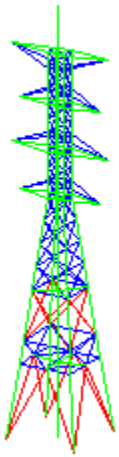
KL/R value of 204.78 exceeds maximum of 200.00 for member "g55X" ??
KL/R value of 204.78 exceeds maximum of 200.00 for member "g56P" ??
KL/R value of 204.78 exceeds maximum of 200.00 for member "g56X" ??
KL/R value of 204.78 exceeds maximum of 200.00 for member "g57P" ??
KL/R value of 204.78 exceeds maximum of 200.00 for member "g57X" ??
Member "g62P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g62X" will not be checked for block 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 "g62XY" will not be checked for block 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 "g62Y" will not be checked for block 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 "g63P" will not be checked for block 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 "g63X" will not be checked for block 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 "g63XY" will not be checked for block 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 "g63Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
KL/R value of 243.16 exceeds maximum of 200.00 for member "g68P" ??
KL/R value of 243.16 exceeds maximum of 200.00 for member "g68X" ??
KL/R value of 243.16 exceeds maximum of 200.00 for member "g68XY" ??
KL/R value of 243.16 exceeds maximum of 200.00 for member "g68Y" ??
Member "g69P" will not be checked for block 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 "g69X" will not be checked for block 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 "g69XY" will not be checked for block 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 "g69Y" will not be checked for block 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 "g70P" will not be checked for block 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 "g70Y" will not be checked for block 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 "g71P" will not be checked for block 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 "g71X" will not be checked for block 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 "g71XY" will not be checked for block 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 "g71Y" will not be checked for block 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 "g72P" will not be checked for block 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 "g72Y" will not be checked for block 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 "g73P" will not be checked for block 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 "g73X" will not be checked for block 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 "g73XY" will not be checked for block 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 "g73Y" will not be checked for block 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 "g74P" will not be checked for block 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 "g74Y" will not be checked for block 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 "g75P" will not be checked for block 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 "g75X" will not be checked for block 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 "g75XY" will not be checked for block 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 "g75Y" will not be checked for block 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 "g76P" will not be checked for block 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 "g76Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Unusual number of fixed joints found: 5. Towers normally have from between 1 and 4 fixed joints. ??
The model has 73 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	116.3	Free	Free	Free	Free	Free	Free
2P	XY-Symmetry	2.5	2.5	111.6	Free	Free	Free	Free	Free	Free
3P	XY-Symmetry	2.5	2.5	105	Free	Free	Free	Free	Free	Free

4P	XY-Symmetry	2.5	2.5	100.3	Free	Free	Free	Free	Free	Free
5P	XY-Symmetry	2.5	2.5	95.38	Free	Free	Free	Free	Free	Free
6P	XY-Symmetry	2.5	2.5	90.79	Free	Free	Free	Free	Free	Free
7P	XY-Symmetry	2.5	2.5	86.25	Free	Free	Free	Free	Free	Free
8P	XY-Symmetry	2.5	2.5	81.38	Free	Free	Free	Free	Free	Free
9P	XY-Symmetry	2.5	2.5	76.79	Free	Free	Free	Free	Free	Free
10P	XY-Symmetry	2.5	2.5	72.25	Free	Free	Free	Free	Free	Free
11P	XY-Symmetry	11.27	11.27	0	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
20P	X-Symmetry	0	15.75	116.3	Free	Free	Free	Free	Free	Free
21P	X-Symmetry	0	13.25	100.3	Free	Free	Free	Free	Free	Free
22P	X-Symmetry	0	15.75	86.25	Free	Free	Free	Free	Free	Free
23P	X-Symmetry	0	13.25	72.25	Free	Free	Free	Free	Free	Free
24P	None	1.458	0	131.3	Free	Free	Free	Free	Free	Free
25P	None	1.458	0	116.3	Free	Free	Free	Free	Free	Free
26P	None	1.458	0	100.3	Free	Free	Free	Free	Free	Free
27P	None	1.458	0	86.25	Free	Free	Free	Free	Free	Free
28P	None	1.458	0	72.25	Free	Free	Free	Free	Free	Free
29P	None	1.458	0	44.29	Free	Free	Free	Free	Free	Free
30P	None	1.458	0	22.5	Free	Free	Free	Free	Free	Free
31P	None	1.458	0	0	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
32P	None	0	0	116.3	Free	Free	Free	Free	Free	Free
33P	None	0	0	100.3	Free	Free	Free	Free	Free	Free
34P	None	0	0	86.25	Free	Free	Free	Free	Free	Free
35P	None	0	0	72.25	Free	Free	Free	Free	Free	Free
1X	X-GenXY	2.5	-2.5	116.3	Free	Free	Free	Free	Free	Free
1XY	XY-GenXY	-2.5	-2.5	116.3	Free	Free	Free	Free	Free	Free
1Y	Y-GenXY	-2.5	2.5	116.3	Free	Free	Free	Free	Free	Free
2X	X-GenXY	2.5	-2.5	111.6	Free	Free	Free	Free	Free	Free
2XY	XY-GenXY	-2.5	-2.5	111.6	Free	Free	Free	Free	Free	Free
2Y	Y-GenXY	-2.5	2.5	111.6	Free	Free	Free	Free	Free	Free
3X	X-GenXY	2.5	-2.5	105	Free	Free	Free	Free	Free	Free
3XY	XY-GenXY	-2.5	-2.5	105	Free	Free	Free	Free	Free	Free
3Y	Y-GenXY	-2.5	2.5	105	Free	Free	Free	Free	Free	Free
4X	X-GenXY	2.5	-2.5	100.3	Free	Free	Free	Free	Free	Free
4XY	XY-GenXY	-2.5	-2.5	100.3	Free	Free	Free	Free	Free	Free
4Y	Y-GenXY	-2.5	2.5	100.3	Free	Free	Free	Free	Free	Free
5X	X-GenXY	2.5	-2.5	95.38	Free	Free	Free	Free	Free	Free
5XY	XY-GenXY	-2.5	-2.5	95.38	Free	Free	Free	Free	Free	Free
5Y	Y-GenXY	-2.5	2.5	95.38	Free	Free	Free	Free	Free	Free
6X	X-GenXY	2.5	-2.5	90.79	Free	Free	Free	Free	Free	Free
6XY	XY-GenXY	-2.5	-2.5	90.79	Free	Free	Free	Free	Free	Free
6Y	Y-GenXY	-2.5	2.5	90.79	Free	Free	Free	Free	Free	Free
7X	X-GenXY	2.5	-2.5	86.25	Free	Free	Free	Free	Free	Free
7XY	XY-GenXY	-2.5	-2.5	86.25	Free	Free	Free	Free	Free	Free
7Y	Y-GenXY	-2.5	2.5	86.25	Free	Free	Free	Free	Free	Free
8X	X-GenXY	2.5	-2.5	81.38	Free	Free	Free	Free	Free	Free
8XY	XY-GenXY	-2.5	-2.5	81.38	Free	Free	Free	Free	Free	Free
8Y	Y-GenXY	-2.5	2.5	81.38	Free	Free	Free	Free	Free	Free
9X	X-GenXY	2.5	-2.5	76.79	Free	Free	Free	Free	Free	Free
9XY	XY-GenXY	-2.5	-2.5	76.79	Free	Free	Free	Free	Free	Free
9Y	Y-GenXY	-2.5	2.5	76.79	Free	Free	Free	Free	Free	Free
10X	X-GenXY	2.5	-2.5	72.25	Free	Free	Free	Free	Free	Free
10XY	XY-GenXY	-2.5	-2.5	72.25	Free	Free	Free	Free	Free	Free
10Y	Y-GenXY	-2.5	2.5	72.25	Free	Free	Free	Free	Free	Free
11X	X-GenXY	11.27	-11.27	0	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
11XY	XY-GenXY	-11.27	-11.27	0	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
11Y	Y-GenXY	-11.27	11.27	0	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
20X	X-Gen	0	-15.75	116.3	Free	Free	Free	Free	Free	Free
21X	X-Gen	0	-13.25	100.3	Free	Free	Free	Free	Free	Free

22X	X-Gen	0	-15.75	86.25	Free	Free	Free	Free	Free	Free
23X	X-Gen	0	-13.25	72.25	Free	Free	Free	Free	Free	Free

Secondary Joints:

Joint Label	Symmetry Code	Origin Joint	End Joint	Fraction	Elevation X (ft)	Disp. Y Rest.	Disp. Z Rest.	Disp. X Rot. Rest.	Rot. Y Rest.	Rot. Z Rest.
12S	XY-Symmetry	10P	11P	0	65.17	Free	Free	Free	Free	Free	Free
13S	XY-Symmetry	10P	11P	0	58.3	Free	Free	Free	Free	Free	Free
14S	XY-Symmetry	10P	11P	0	51.42	Free	Free	Free	Free	Free	Free
15S	XY-Symmetry	10P	11P	0	44.29	Free	Free	Free	Free	Free	Free
16S	XY-Symmetry	10P	11P	0	29.42	Free	Free	Free	Free	Free	Free
17S	XY-Symmetry	10P	11P	0	22.5	Free	Free	Free	Free	Free	Free
18S	Y-Symmetry	17X	17S	0.5	0	Free	Free	Free	Free	Free	Free
19S	X-Symmetry	17S	17Y	0.5	0	Free	Free	Free	Free	Free	Free
12X	X-GenXY	10P	11P	0	65.17	Free	Free	Free	Free	Free	Free
12XY	XY-GenXY	10P	11P	0	65.17	Free	Free	Free	Free	Free	Free
12Y	Y-GenXY	10P	11P	0	65.17	Free	Free	Free	Free	Free	Free
13X	X-GenXY	10P	11P	0	58.3	Free	Free	Free	Free	Free	Free
13XY	XY-GenXY	10P	11P	0	58.3	Free	Free	Free	Free	Free	Free
13Y	Y-GenXY	10P	11P	0	58.3	Free	Free	Free	Free	Free	Free
14X	X-GenXY	10P	11P	0	51.42	Free	Free	Free	Free	Free	Free
14XY	XY-GenXY	10P	11P	0	51.42	Free	Free	Free	Free	Free	Free
14Y	Y-GenXY	10P	11P	0	51.42	Free	Free	Free	Free	Free	Free
15X	X-GenXY	10P	11P	0	44.29	Free	Free	Free	Free	Free	Free
15XY	XY-GenXY	10P	11P	0	44.29	Free	Free	Free	Free	Free	Free
15Y	Y-GenXY	10P	11P	0	44.29	Free	Free	Free	Free	Free	Free
16X	X-GenXY	10P	11P	0	29.42	Free	Free	Free	Free	Free	Free
16XY	XY-GenXY	10P	11P	0	29.42	Free	Free	Free	Free	Free	Free
16Y	Y-GenXY	10P	11P	0	29.42	Free	Free	Free	Free	Free	Free
17X	X-GenXY	10P	11P	0	22.5	Free	Free	Free	Free	Free	Free
17XY	XY-GenXY	10P	11P	0	22.5	Free	Free	Free	Free	Free	Free
17Y	Y-GenXY	10P	11P	0	22.5	Free	Free	Free	Free	Free	Free
18Y	Y-Gen	17X	17S	0.5	0	Free	Free	Free	Free	Free	Free
19X	X-Gen	17S	17Y	0.5	0	Free	Free	Free	Free	Free	Free

The model contains 64 primary and 28 secondary joints for a total of 92 joints.

Steel Material Properties:

Steel Material Label	Modulus of Elasticity (ksi)	Yield Stress Fy (ksi)	Ultimate Stress Fu (ksi)	Member All. Stress Hyp. 1 (ksi)	Member All. Stress Hyp. 2 (ksi)	Member Rupture Hyp. 1 (ksi)	Member Rupture Hyp. 2 (ksi)	Member Bearing Hyp. 1 (ksi)	Member Bearing Hyp. 2 (ksi)
A 36	2.9e+004	36	58	0	0	0	0	0	0
A53-GrB	2.9e+004	35	60	0	0	0	0	0	0

Bolt Properties:

Bolt Label	Bolt Diameter (in)	Hole Diameter (in)	Ultimate Shear Capacity (kips)	Default End Distance (in)	Default Bolt Spacing (in)	Shear Capacity Hyp. 1 (kips)	Shear Capacity Hyp. 2 (kips)
5/8 A394	0.625	0.75	9.1	1.125	1.5	0	0
5/8 A325	0.625	0.6875	16.8	1.25	1.5	0	0

Number Bolts Used By Type:

Bolt Type	Number Bolts
5/8 A394	622
5/8 A325	20

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	5X5X0.375	5	5	0.375	12.3	3.61	11	1.56	1.56	0.99	1	5	2.5	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	2	0	1.0000	0
SAE	4X4X0.25	4	4	0.25	6.6	1.94	13.5	1.25	1.25	0.795	1	4	2	0	1.0000	0
SAE	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	1.75	0	1.0000	0
SAE	3X3X0.25	3	3	0.25	4.9	1.44	9.75	0.93	0.93	0.592	1	3	1.5	0	1.0000	0
SAE	3X3X0.1875	3	3	0.1875	3.71	1.09	13.33	0.939	0.939	0.596	1	3	1.5	0	1.0000	0
SAE	2.5X2.5X0.25	2.5	2.5	0.25	4.1	1.19	7.75	0.769	0.769	0.491	1	2.5	1.25	0	1.0000	0
SAE	2.5X2.5X0.1875	2.5	2.5	0.1875	3.07	0.902	10.67	0.778	0.778	0.495	1	2.5	1.25	0	1.0000	0
SAE	2X2X0.25	2	2	0.25	3.19	0.94	5	0.609	0.609	0.391	1	2	1	0	1.0000	0
SAE	2X2X0.1875	2	2	0.1875	2.44	0.71	8	0.617	0.617	0.394	1	2	1	0	1.0000	0
SAE	1.75X1.75X0.25	1.75	1.75	0.25	2.77	0.81	4.25	0.529	0.529	0.341	1	1.75	0.875	0	1.0000	0
SAE	1.75X1.75X0.1875	1.75	1.75	0.1875	2.12	0.62	6	0.537	0.537	0.343	1	1.75	0.875	0	1.0000	0
SAE	1.5X1.5X0.25	1.5	1.5	0.25	2.34	0.69	3.5	0.449	0.449	0.292	1	1.5	0.75	0	1.0000	0
SAE	1.5X1.5X0.1875	1.5	1.5	0.1875	1.8	0.53	5	0.457	0.457	0.293	1	1.5	0.75	0	1.0000	0
SAU	3.5X3X0.3125	3.5	3	0.3125	6.6	1.93	8.8	1.1	0.905	0.627	1	3.5	1.5	0	1.0000	0
SAU	3.5X2.5X0.25	3.5	2.5	0.25	4.9	1.44	11.25	1.12	0.735	0.544	1	3.5	1.25	0	1.0000	0
SAU	3X2X0.1875	3	2	0.1875	3.07	0.9	13.33	0.966	0.583	0.439	1	3	1	0	1.0000	0
SAU	2.5X2X0.1875	2.5	2	0.1875	2.75	0.81	10.67	0.793	0.6	0.427	1	2.5	1	0	1.0000	0
SAU	2.5X1.5X0.1875	2.5	1.5	0.1875	2.44	0.71	10.67	0.803	0.422	0.327	1	2.5	0.75	0	1.0000	0
Pwmnt	Pipe 12" Std.	12.75	12	0	49.6	13.6	1	4.39	4.39	4.39	1	12.75	0	0	0.0000	0

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	L3.5x3.5x1/4	SAE	3.5X3.5X0.25	A 36	Beam	Leg	None	0.000
Leg2	L4x4x3/8	SAE	4X4X0.375	A 36	Beam	Leg	None	0.000
Leg3	L5x5x3/8	SAE	5X5X0.375	A 36	Beam	Leg	None	0.000
Diag1	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	A 36	Truss	Crossing Diagonal	None	0.000
Diag2	L1.75x1.75x1/4	SAE	1.75X1.75X0.25	A 36	Truss	Crossing Diagonal	None	0.000
Diag3	L2x2x1/4	SAE	2X2X0.25	A 36	Truss	Crossing Diagonal	None	0.000
Diag4	L3x2x3/16	SAU	3X2X0.1875	A 36	Truss	Crossing Diagonal	None	0.000
Diag5	L2.5x2x3/16	SAU	2.5X2X0.1875	A 36	Truss	Crossing Diagonal	None	0.000
Diag6	L2x2x3/16	SAE	2X2X0.1875	A 36	Truss	Other	None	0.000
Diag7	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	A 36	T-Only	Other	None	0.000
Horz1	L2.5x1.5x3/16	SAU	2.5X1.5X0.1875	A 36	Truss	Other	None	0.000
Horz2	L1.5x1.5x3/16	SAE	1.5X1.5X0.1875	A 36	Truss	Other	None	0.000
Horz3	L2.5x2x3/16	SAU	2.5X2X0.1875	A 36	Truss	Other	None	0.000
Horz4	L3x3x1/4	SAE	3X3X0.25	A 36	Truss	Other	None	0.000
Horz5	L3x3x3/16	SAE	3X3X0.1875	A 36	Truss	Other	None	0.000

Inner1	L1.5x1.5x1/4	SAE	1.5X1.5X0.25	A 36	Beam	Other	None	0.000
Inner2	L3x3x3/16	SAE	3X3X0.1875	A 36	Truss	Other	None	0.000
ShieldAr	L2.5x2.5x1/4	SAE	2.5X2.5X0.25	A 36	Beam	Other	None	0.000
ShArmBr	L3x2x3/16	SAU	3X2X0.1875	A 36	Truss	Other	None	0.000
TopCrArm	L3.5x2.5x1/4	SAU	3.5X2.5X0.25	A 36	Beam	Other	None	0.000
TopArmBr	L2.5X2x3/16	SAU	2.5X2X0.1875	A 36	Truss	Other	None	0.000
MidCrArm	L3.5x3x5/16	SAU	3.5X3X0.3125	A 36	Beam	Other	None	0.000
MidArmBr	L3x2x3/16	SAU	3X2X0.1875	A 36	Truss	Other	None	0.000
BotCrArm	L3.5x2.5x1/4	SAU	3.5X2.5X0.25	A 36	Beam	Other	None	0.000
BotArmBr	L2.5X2x3/16	SAU	2.5X2X0.1875	A 36	Truss	Other	None	0.000
Pwmnt	12" Std. Pipe	Pwmnt	Pipe 12" Std.	A53-GrB	Beam	Other	None	0.000
PMBR1	L2x2x3/16	SAE	2X2X0.1875	A 36	Beam	Other	None	12.000
PMBR2	L3.5x3.5x1/4	SAE	3.5X3.5X0.25	A 36	Beam	Other	None	12.000
PMBR3	L4x4x1/4	SAE	4X4X0.25	A 36	Beam	Other	None	12.000
PMBR4	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	A 36	Beam	Other	None	12.000
PMBR5	L3x3x1/4	SAE	3X3X0.25	A 36	Beam	Other	None	12.000
Diag8	L3x2x3/16	SAU	3X2X0.1875	A 36	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	3.5X3.5X0.25	A 36	144.75	168.88	839.56
SAE	4X4X0.375	A 36	56.00	74.67	548.80
SAE	5X5X0.375	A 36	293.23	488.71	3606.71
SAE	1.75X1.75X0.1875	A 36	378.56	220.83	802.54
SAE	1.75X1.75X0.25	A 36	164.17	95.76	454.74
SAE	2X2X0.25	A 36	246.12	164.08	785.12
SAU	3X2X0.1875	A 36	349.65	291.38	1073.44
SAU	2.5X2X0.1875	A 36	339.76	254.82	934.34
SAE	2X2X0.1875	A 36	110.59	73.73	269.84
SAU	2.5X1.5X0.1875	A 36	10.00	6.67	24.40
SAE	1.5X1.5X0.1875	A 36	80.00	40.00	144.00
SAE	3X3X0.25	A 36	78.92	78.92	386.72
SAE	3X3X0.1875	A 36	116.62	116.62	432.67
SAE	1.5X1.5X0.25	A 36	56.57	28.28	132.37
SAE	2.5X2.5X0.25	A 36	63.94	53.28	262.13
SAU	3.5X2.5X0.25	A 36	108.29	108.29	530.65
SAU	3.5X3X0.3125	A 36	63.94	69.26	421.97
Pwmnt	Pipe 12" Std.	A53-GrB	131.25	541.41	6510.00
SAE	4X4X0.25	A 36	18.85	25.13	124.39
SAE	2.5X2.5X0.1875	A 36	7.08	5.90	21.74

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 For Face EIA Only	Ar Round 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 Force Drag x Area Factor	Solid Face
1	10P	1.000	3.200	3.200	1.000	1.000	0.000	0.000	1.000	1.000	0.000	0.000	None
2	11P	1.050	3.400	3.400	1.000	1.000	0.000	0.000	1.000	1.000	0.000	0.000	None

Angle Member Connectivity:

Member Label	Group Label	Section Label	Symmetry Code	Origin Joint	End Joint	Ecc. Code	Rest. Code	Ratio RLX	Ratio RLY	Ratio RLZ	Bolt Type	# Bolts	# Bolt Holes	# Shear Planes	Connect Leg	Short Edge Dist. (in)	Long Edge Dist. (in)	End Dist. (in)	Bolt Spacing (in)	Shear Path Length (in)	Tension Path Length (in)	Rest. Coef.
g1P	Leg1		XY-Symmetry	1P	2P	1	4	1	1	1	5/8 A394	0	3.63	0		0	0	0	0	0	0	0
g1X	Leg1		X-GenXY	1X	2X	1	4	1	1	1	5/8 A394	0	3.63	0		0	0	0	0	0	0	0
g1XY	Leg1		XY-GenXY	1XY	2XY	1	4	1	1	1	5/8 A394	0	3.63	0		0	0	0	0	0	0	0
g1Y	Leg1		Y-GenXY	1Y	2Y	1	4	1	1	1	5/8 A394	0	3.63	0		0	0	0	0	0	0	0
g2P	Leg1		XY-Symmetry	2P	3P	1	4	1	1	1	5/8 A394	0	2.34	0		0	0	0	0	0	0	0
g2X	Leg1		X-GenXY	2X	3X	1	4	1	1	1	5/8 A394	0	2.34	0		0	0	0	0	0	0	0
g2XY	Leg1		XY-GenXY	2XY	3XY	1	4	1	1	1	5/8 A394	0	2.34	0		0	0	0	0	0	0	0
g2Y	Leg1		Y-GenXY	2Y	3Y	1	4	1	1	1	5/8 A394	0	2.34	0		0	0	0	0	0	0	0
g3P	Leg1		XY-Symmetry	3P	4P	1	4	1	1	1	5/8 A394	4	3.22	1	Both	1.6875	0	1.25	2.5	0	0	0
g3X	Leg1		X-GenXY	3X	4X	1	4	1	1	1	5/8 A394	4	3.22	1	Both	1.6875	0	1.25	2.5	0	0	0
g3XY	Leg1		XY-GenXY	3XY	4XY	1	4	1	1	1	5/8 A394	4	3.22	1	Both	1.6875	0	1.25	2.5	0	0	0
g3Y	Leg1		Y-GenXY	3Y	4Y	1	4	1	1	1	5/8 A394	4	3.22	1	Both	1.6875	0	1.25	2.5	0	0	0
g4P	Leg1		XY-Symmetry	4P	5P	1	4	1	1	1	5/8 A394	0	3.34	0		0	0	0	0	0	0	0
g4X	Leg1		X-GenXY	4X	5X	1	4	1	1	1	5/8 A394	0	3.34	0		0	0	0	0	0	0	0
g4XY	Leg1		XY-GenXY	4XY	5XY	1	4	1	1	1	5/8 A394	0	3.34	0		0	0	0	0	0	0	0
g4Y	Leg1		Y-GenXY	4Y	5Y	1	4	1	1	1	5/8 A394	0	3.34	0		0	0	0	0	0	0	0
g5P	Leg1		XY-Symmetry	5P	6P	1	4	1	1	1	5/8 A394	0	3.18	0		0	0	0	0	0	0	0
g5X	Leg1		X-GenXY	5X	6X	1	4	1	1	1	5/8 A394	0	3.18	0		0	0	0	0	0	0	0
g5XY	Leg1		XY-GenXY	5XY	6XY	1	4	1	1	1	5/8 A394	0	3.18	0		0	0	0	0	0	0	0
g5Y	Leg1		Y-GenXY	5Y	6Y	1	4	1	1	1	5/8 A394	0	3.18	0		0	0	0	0	0	0	0
g6P	Leg1		XY-Symmetry	6P	7P	1	4	1	1	1	5/8 A394	6	3.22	1	Both	2	0	1.25	2.5	0	0	0
g6X	Leg1		X-GenXY	6X	7X	1	4	1	1	1	5/8 A394	6	3.22	1	Both	2	0	1.25	2.5	0	0	0
g6XY	Leg1		XY-GenXY	6XY	7XY	1	4	1	1	1	5/8 A394	6	3.22	1	Both	2	0	1.25	2.5	0	0	0

g6Y	Leg1	Y-GenXY	6Y	7Y	1	4	1	1	1	5/8	A394	6	3.22	1	Both	2	0	1.25	2.5	0	0	0
g7P	Leg2	XY-Symmetry	7P	8P	1	4	1	1	1	5/8	A394	0	3.48	0		0	0	0	0	0	0	0
g7X	Leg2	X-GenXY	7X	8X	1	4	1	1	1	5/8	A394	0	3.48	0		0	0	0	0	0	0	0
g7XY	Leg2	XY-GenXY	7XY	8XY	1	4	1	1	1	5/8	A394	0	3.48	0		0	0	0	0	0	0	0
g7Y	Leg2	Y-GenXY	7Y	8Y	1	4	1	1	1	5/8	A394	0	3.48	0		0	0	0	0	0	0	0
g8P	Leg2	XY-Symmetry	8P	9P	1	4	1	1	1	5/8	A394	0	3	0		0	0	0	0	0	0	0
g8X	Leg2	X-GenXY	8X	9X	1	4	1	1	1	5/8	A394	0	3	0		0	0	0	0	0	0	0
g8XY	Leg2	XY-GenXY	8XY	9XY	1	4	1	1	1	5/8	A394	0	3	0		0	0	0	0	0	0	0
g8Y	Leg2	Y-GenXY	8Y	9Y	1	4	1	1	1	5/8	A394	0	3	0		0	0	0	0	0	0	0
g9P	Leg2	XY-Symmetry	9P	10P	1	4	1	1	1	5/8	A394	10	3.04	1	Both	1.3125	0	1.25	2.5	0	0	0
g9X	Leg2	X-GenXY	9X	10X	1	4	1	1	1	5/8	A394	10	3.04	1	Both	1.3125	0	1.25	2.5	0	0	0
g9XY	Leg2	XY-GenXY	9XY	10XY	1	4	1	1	1	5/8	A394	10	3.04	1	Both	1.3125	0	1.25	2.5	0	0	0
g9Y	Leg2	Y-GenXY	9Y	10Y	1	4	1	1	1	5/8	A394	10	3.04	1	Both	1.3125	0	1.25	2.5	0	0	0
g10P	Leg3	XY-Symmetry	10P	12S	1	4	1	1	1	5/8	A394	0	2.82	0		0	0	0	0	0	0	0
g10X	Leg3	X-GenXY	10X	12X	1	4	1	1	1	5/8	A394	0	2.82	0		0	0	0	0	0	0	0
g10XY	Leg3	XY-GenXY	10XY	12XY	1	4	1	1	1	5/8	A394	0	2.82	0		0	0	0	0	0	0	0
g10Y	Leg3	Y-GenXY	10Y	12Y	1	4	1	1	1	5/8	A394	0	2.82	0		0	0	0	0	0	0	0
g11P	Leg3	XY-Symmetry	12S	13S	1	4	1	1	1	5/8	A394	0	2	0		0	0	0	0	0	0	0
g11X	Leg3	X-GenXY	12X	13X	1	4	1	1	1	5/8	A394	0	2	0		0	0	0	0	0	0	0
g11XY	Leg3	XY-GenXY	12XY	13XY	1	4	1	1	1	5/8	A394	0	2	0		0	0	0	0	0	0	0
g11Y	Leg3	Y-GenXY	12Y	13Y	1	4	1	1	1	5/8	A394	0	2	0		0	0	0	0	0	0	0
g12P	Leg3	XY-Symmetry	13S	14S	1	4	1	1	1	5/8	A394	0	2	0		0	0	0	0	0	0	0
g12X	Leg3	X-GenXY	13X	14X	1	4	1	1	1	5/8	A394	0	2	0		0	0	0	0	0	0	0
g12XY	Leg3	XY-GenXY	13XY	14XY	1	4	1	1	1	5/8	A394	0	2	0		0	0	0	0	0	0	0
g12Y	Leg3	Y-GenXY	13Y	14Y	1	4	1	1	1	5/8	A394	0	2	0		0	0	0	0	0	0	0
g13P	Leg3	XY-Symmetry	14S	15S	1	4	1	1	1	5/8	A394	10	2.55	1	Both	1	2.75	1.25	3.75	0	0	0
g13X	Leg3	X-GenXY	14X	15X	1	4	1	1	1	5/8	A394	10	2.55	1	Both	1	2.75	1.25	3.75	0	0	0
g13XY	Leg3	XY-GenXY	14XY	15XY	1	4	1	1	1	5/8	A394	10	2.55	1	Both	1	2.75	1.25	3.75	0	0	0
g13Y	Leg3	Y-GenXY	14Y	15Y	1	4	1	1	1	5/8	A394	10	2.55	1	Both	1	2.75	1.25	3.75	0	0	0
g14P	Leg3	XY-Symmetry	15S	16S	1	4	0.5	0.5	0.5	5/8	A394	0	4	0		0	0	0	0	0	0	0

0	0	0																						
	g14X	Leg3		X-GenXY	15X	16X	1	4	0.5	0.5	0.5	5/8	A394	0	4	0			0	0	0	0		
0	0	0																						
	g14XY	Leg3		XY-GenXY	15XY	16XY	1	4	0.5	0.5	0.5	5/8	A394	0	4	0			0	0	0	0		
0	0	0																						
	g14Y	Leg3		Y-GenXY	15Y	16Y	1	4	0.5	0.5	0.5	5/8	A394	0	4	0			0	0	0	0		
0	0	0																						
	g15P	Leg3		XY-Symmetry	16S	17S	1	4	1	1	1	5/8	A394	12	4	1		Both	1	2.75	1.25	4		
0	0	0																						
	g15X	Leg3		X-GenXY	16X	17X	1	4	1	1	1	5/8	A394	12	4	1		Both	1	2.75	1.25	4		
0	0	0																						
	g15XY	Leg3		XY-GenXY	16XY	17XY	1	4	1	1	1	5/8	A394	12	4	1		Both	1	2.75	1.25	4		
0	0	0																						
	g15Y	Leg3		Y-GenXY	16Y	17Y	1	4	1	1	1	5/8	A394	12	4	1		Both	1	2.75	1.25	4		
0	0	0																						
	g16P	Leg3		XY-Symmetry	17S	11P	1	4	0.333	0.333	0.333	5/8	A394	12	3	1		Both	1.8125	3.5625	1.25	5		
0	0	0																						
	g16X	Leg3		X-GenXY	17X	11X	1	4	0.333	0.333	0.333	5/8	A394	12	3	1		Both	1.8125	3.5625	1.25	5		
0	0	0																						
	g16XY	Leg3		XY-GenXY	17XY	11XY	1	4	0.333	0.333	0.333	5/8	A394	12	3	1		Both	1.8125	3.5625	1.25	5		
0	0	0																						
	g16Y	Leg3		Y-GenXY	17Y	11Y	1	4	0.333	0.333	0.333	5/8	A394	12	3	1		Both	1.8125	3.5625	1.25	5		
0	0	0																						
	g17P	Diag1		XY-Symmetry	1P	2X	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short	only	0.875	0	1	1.6875		
0	0	0																						
	g17X	Diag1		X-GenXY	1X	2P	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short	only	0.875	0	1	1.6875		
0	0	0																						
	g17XY	Diag1		XY-GenXY	1XY	2Y	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short	only	0.875	0	1	1.6875		
0	0	0																						
	g17Y	Diag1		Y-GenXY	1Y	2XY	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short	only	0.875	0	1	1.6875		
0	0	0																						
	g18P	Diag1		XY-Symmetry	1P	2Y	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short	only	0.875	0	1	1.6875		
0	0	0																						
	g18X	Diag1		X-GenXY	1X	2XY	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short	only	0.875	0	1	1.6875		
0	0	0																						
	g18XY	Diag1		XY-GenXY	1XY	2X	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short	only	0.875	0	1	1.6875		
0	0	0																						
	g18Y	Diag1		Y-GenXY	1Y	2P	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short	only	0.875	0	1	1.6875		
0	0	0																						
	g19P	Diag1		XY-Symmetry	2P	3X	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short	only	0.875	0	1	2.125		
0	0	0																						
	g19X	Diag1		X-GenXY	2X	3P	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short	only	0.875	0	1	2.125		
0	0	0																						
	g19XY	Diag1		XY-GenXY	2XY	3Y	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short	only	0.875	0	1	2.125		
0	0	0																						
	g19Y	Diag1		Y-GenXY	2Y	3XY	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short	only	0.875	0	1	2.125		
0	0	0																						
	g20P	Diag1		XY-Symmetry	2P	3Y	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short	only	0.875	0	1	2.125		
0	0	0																						
	g20X	Diag1		X-GenXY	2X	3XY	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short	only	0.875	0	1	2.125		
0	0	0																						
	g20XY	Diag1		XY-GenXY	2XY	3X	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short	only	0.875	0	1	2.125		
0	0	0																						
	g20Y	Diag1		Y-GenXY	2Y	3P	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short	only	0.875	0	1	2.125		
0	0	0																						
	g21P	Diag1		XY-Symmetry	3P	4X	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short	only	0.875	0	1	1.6875		
0	0	0																						
	g21X	Diag1		X-GenXY	3X	4P	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short	only	0.875	0	1	1.6875		
0	0	0																						

g21XY	Diag1	XY-GenXY	3XY	4Y	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	0.875	0	1	1.6875	0
0	0																			
g21Y	Diag1	Y-GenXY	3Y	4XY	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	0.875	0	1	1.6875	0
0	0																			
g22P	Diag1	XY-Symmetry	3P	4Y	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	0.875	0	1	1.6875	0
0	0																			
g22X	Diag1	X-GenXY	3X	4XY	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	0.875	0	1	1.6875	0
0	0																			
g22XY	Diag1	XY-GenXY	3XY	4X	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	0.875	0	1	1.6875	0
0	0																			
g22Y	Diag1	Y-GenXY	3Y	4P	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	0.875	0	1	1.6875	0
0	0																			
g23P	Diag2	XY-Symmetry	4P	5X	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	0.875	0	1	1.75	0
0	0																			
g23X	Diag2	X-GenXY	4X	5P	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	0.875	0	1	1.75	0
0	0																			
g23XY	Diag2	XY-GenXY	4XY	5Y	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	0.875	0	1	1.75	0
0	0																			
g23Y	Diag2	Y-GenXY	4Y	5XY	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	0.875	0	1	1.75	0
0	0																			
g24P	Diag2	XY-Symmetry	4P	5Y	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	0.875	0	1	1.75	0
0	0																			
g24X	Diag2	X-GenXY	4X	5XY	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	0.875	0	1	1.75	0
0	0																			
g24XY	Diag2	XY-GenXY	4XY	5X	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	0.875	0	1	1.75	0
0	0																			
g24Y	Diag2	Y-GenXY	4Y	5P	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	0.875	0	1	1.75	0
0	0																			
g25P	Diag2	XY-Symmetry	5P	6X	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	0.875	0	1	1.75	0
0	0																			
g25X	Diag2	X-GenXY	5X	6P	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	0.875	0	1	1.75	0
0	0																			
g25XY	Diag2	XY-GenXY	5XY	6Y	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	0.875	0	1	1.75	0
0	0																			
g25Y	Diag2	Y-GenXY	5Y	6XY	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	0.875	0	1	1.75	0
0	0																			
g26P	Diag2	XY-Symmetry	5P	6Y	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	0.875	0	1	1.75	0
0	0																			
g26X	Diag2	X-GenXY	5X	6XY	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	0.875	0	1	1.75	0
0	0																			
g26XY	Diag2	XY-GenXY	5XY	6X	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	0.875	0	1	1.75	0
0	0																			
g26Y	Diag2	Y-GenXY	5Y	6P	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	0.875	0	1	1.75	0
0	0																			
g27P	Diag2	XY-Symmetry	6P	7X	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	0.875	0	1	1.6875	0
0	0																			
g27X	Diag2	X-GenXY	6X	7P	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	0.875	0	1	1.6875	0
0	0																			
g27XY	Diag2	XY-GenXY	6XY	7Y	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	0.875	0	1	1.6875	0
0	0																			
g27Y	Diag2	Y-GenXY	6Y	7XY	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	0.875	0	1	1.6875	0
0	0																			
g28P	Diag2	XY-Symmetry	6P	7Y	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	0.875	0	1	1.6875	0
0	0																			
g28X	Diag2	X-GenXY	6X	7XY	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	0.875	0	1	1.6875	0
0	0																			
g28XY	Diag2	XY-GenXY	6XY	7X	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	0.875	0	1	1.6875	0
0	0																			
g28Y	Diag2	Y-GenXY	6Y	7P	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	0.875	0	1	1.6875	0

0	0	0																			
	g29P	Diag3	XY-Symmetry	7P	8X	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	1	0	1	2.0625	
0	0	0																			
	g29X	Diag3	X-GenXY	7X	8P	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	1	0	1	2.0625	
0	0	0																			
	g29XY	Diag3	XY-GenXY	7XY	8Y	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	1	0	1	2.0625	
0	0	0																			
	g29Y	Diag3	Y-GenXY	7Y	8XY	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	1	0	1	2.0625	
0	0	0																			
	g30P	Diag3	XY-Symmetry	7P	8Y	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	1	0	1	2.0625	
0	0	0																			
	g30X	Diag3	X-GenXY	7X	8XY	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	1	0	1	2.0625	
0	0	0																			
	g30XY	Diag3	XY-GenXY	7XY	8X	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	1	0	1	2.0625	
0	0	0																			
	g30Y	Diag3	Y-GenXY	7Y	8P	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	1	0	1	2.0625	
0	0	0																			
	g31P	Diag3	XY-Symmetry	8P	9X	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	1	0	1	2.0625	
0	0	0																			
	g31X	Diag3	X-GenXY	8X	9P	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	1	0	1	2.0625	
0	0	0																			
	g31XY	Diag3	XY-GenXY	8XY	9Y	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	1	0	1	2.0625	
0	0	0																			
	g31Y	Diag3	Y-GenXY	8Y	9XY	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	1	0	1	2.0625	
0	0	0																			
	g32P	Diag3	XY-Symmetry	8P	9Y	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	1	0	1	2.0625	
0	0	0																			
	g32X	Diag3	X-GenXY	8X	9XY	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	1	0	1	2.0625	
0	0	0																			
	g32XY	Diag3	XY-GenXY	8XY	9X	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	1	0	1	2.0625	
0	0	0																			
	g32Y	Diag3	Y-GenXY	8Y	9P	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	1	0	1	2.0625	
0	0	0																			
	g33P	Diag3	XY-Symmetry	9P	10X	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	1	0	1	2.375	
0	0	0																			
	g33X	Diag3	X-GenXY	9X	10P	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	1	0	1	2.375	
0	0	0																			
	g33XY	Diag3	XY-GenXY	9XY	10Y	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	1	0	1	2.375	
0	0	0																			
	g33Y	Diag3	Y-GenXY	9Y	10XY	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	1	0	1	2.375	
0	0	0																			
	g34P	Diag3	XY-Symmetry	9P	10Y	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	1	0	1	2.375	
0	0	0																			
	g34X	Diag3	X-GenXY	9X	10XY	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	1	0	1	2.375	
0	0	0																			
	g34XY	Diag3	XY-GenXY	9XY	10X	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	1	0	1	2.375	
0	0	0																			
	g34Y	Diag3	Y-GenXY	9Y	10P	2	5	0.75	0.5	0.5	5/8	A394	2	1	1	Short only	1	0	1	2.375	
0	0	0																			
	g35P	Diag4	XY-Symmetry	10P	12X	2	5	0.788	0.576	0.576	5/8	A394	2	1	1	Short only	1	0	1	1.4375	
0	0	0																			
	g35X	Diag4	X-GenXY	10X	12S	2	5	0.788	0.576	0.576	5/8	A394	2	1	1	Short only	1	0	1	1.4375	
0	0	0																			
	g35XY	Diag4	XY-GenXY	10XY	12Y	2	5	0.788	0.576	0.576	5/8	A394	2	1	1	Short only	1	0	1	1.4375	
0	0	0																			
	g35Y	Diag4	Y-GenXY	10Y	12XY	2	5	0.788	0.576	0.576	5/8	A394	2	1	1	Short only	1	0	1	1.4375	
0	0	0																			
	g36P	Diag4	XY-Symmetry	10P	12Y	2	5	0.788	0.576	0.576	5/8	A394	2	1	1	Short only	1	0	1	1.4375	
0	0	0																			

g36X	Diag4	X-GenXY	10X	12XY	2	5	0.788	0.576	0.576	5/8	A394	2	1	1	Short only	1	0	1	1.4375	0	0	0			
g36XY	Diag4	XY-GenXY	10XY	12X	2	5	0.788	0.576	0.576	5/8	A394	2	1	1	Short only	1	0	1	1.4375	0	0	0			
g36Y	Diag4	Y-GenXY	10Y	12S	2	5	0.788	0.576	0.576	5/8	A394	2	1	1	Short only	1	0	1	1.4375	0	0	0			
g37P	Diag3	XY-Symmetry	12S	13X	2	4	0.779	0.558	0.558	5/8	A394	1	1	1	Short only	1	0	1	0	0	0	0			
g37X	Diag3	X-GenXY	12X	13S	2	4	0.779	0.558	0.558	5/8	A394	1	1	1	Short only	1	0	1	0	0	0	0			
g37XY	Diag3	XY-GenXY	12XY	13Y	2	4	0.779	0.558	0.558	5/8	A394	1	1	1	Short only	1	0	1	0	0	0	0			
g37Y	Diag3	Y-GenXY	12Y	13XY	2	4	0.779	0.558	0.558	5/8	A394	1	1	1	Short only	1	0	1	0	0	0	0			
g38P	Diag3	XY-Symmetry	12S	13Y	2	4	0.779	0.558	0.558	5/8	A394	1	1	1	Short only	1	0	1	0	0	0	0			
g38X	Diag3	X-GenXY	12X	13XY	2	4	0.779	0.558	0.558	5/8	A394	1	1	1	Short only	1	0	1	0	0	0	0			
g38XY	Diag3	XY-GenXY	12XY	13X	2	4	0.779	0.558	0.558	5/8	A394	1	1	1	Short only	1	0	1	0	0	0	0			
g38Y	Diag3	Y-GenXY	12Y	13S	2	4	0.779	0.558	0.558	5/8	A394	1	1	1	Short only	1	0	1	0	0	0	0			
g39P	Diag5	XY-Symmetry	13S	14X	2	4	0.774	0.547	0.547	5/8	A394	1	1	1	Short only	1	0	1	0	0	0	0			
g39X	Diag5	X-GenXY	13X	14S	2	4	0.774	0.547	0.547	5/8	A394	1	1	1	Short only	1	0	1	0	0	0	0			
g39XY	Diag5	XY-GenXY	13XY	14Y	2	4	0.774	0.547	0.547	5/8	A394	1	1	1	Short only	1	0	1	0	0	0	0			
g39Y	Diag5	Y-GenXY	13Y	14XY	2	4	0.774	0.547	0.547	5/8	A394	1	1	1	Short only	1	0	1	0	0	0	0			
g40P	Diag5	XY-Symmetry	13S	14Y	2	4	0.774	0.547	0.547	5/8	A394	1	1	1	Short only	1	0	1	0	0	0	0			
g40X	Diag5	X-GenXY	13X	14XY	2	4	0.774	0.547	0.547	5/8	A394	1	1	1	Short only	1	0	1	0	0	0	0			
g40XY	Diag5	XY-GenXY	13XY	14X	2	4	0.774	0.547	0.547	5/8	A394	1	1	1	Short only	1	0	1	0	0	0	0			
g40Y	Diag5	Y-GenXY	13Y	14S	2	4	0.774	0.547	0.547	5/8	A394	1	1	1	Short only	1	0	1	0	0	0	0			
g41P	Diag5	XY-Symmetry	14S	15X	2	4	0.769	0.538	0.538	5/8	A394	1	1	1	Short only	1	0	1	0	0	0	0			
g41X	Diag5	X-GenXY	14X	15S	2	4	0.769	0.538	0.538	5/8	A394	1	1	1	Short only	1	0	1	0	0	0	0			
g41XY	Diag5	XY-GenXY	14XY	15Y	2	4	0.769	0.538	0.538	5/8	A394	1	1	1	Short only	1	0	1	0	0	0	0			
g41Y	Diag5	Y-GenXY	14Y	15XY	2	4	0.769	0.538	0.538	5/8	A394	1	1	1	Short only	1	0	1	0	0	0	0			
g42P	Diag5	XY-Symmetry	14S	15Y	2	4	0.769	0.538	0.538	5/8	A394	1	1	1	Short only	1	0	1	0	0	0	0			
g42X	Diag5	X-GenXY	14X	15XY	2	4	0.769	0.538	0.538	5/8	A394	1	1	1	Short only	1	0	1	0	0	0	0			
g42XY	Diag5	XY-GenXY	14XY	15X	2	4	0.769	0.538	0.538	5/8	A394	1	1	1	Short only	1	0	1	0	0	0	0			
g42Y	Diag5	Y-GenXY	14Y	15S	2	4	0.769	0.538	0.538	5/8	A394	1	1	1	Short only	1	0	1	0	0	0	0			
g43P	Diag8	XY-Symmetry	15S	16X	2	5	0.782	0.564	0.564	5/8	A394	2	1	1	Short only	1	0	1	2.3125	0	0	0			
g43X	Diag8	X-GenXY	15X	16S	2	5	0.782	0.564	0.564	5/8	A394	2	1	1	Short only	1	0	1	2.3125	0	0	0			
g43XY	Diag8	XY-GenXY	15XY	16Y	2	5	0.782	0.564	0.564	5/8	A394	2	1	1	Short only	1	0	1	2.3125						

0	0	0																					
	g43Y	Diag8	Y-GenXY	15Y	16XY	2	5	0.782	0.564	0.564	5/8	A394	2	1	1	Short only	1	0	1	2.3125			
0	0	0																					
	g44P	Diag8	XY-Symmetry	15S	16Y	2	5	0.782	0.564	0.564	5/8	A394	2	1	1	Short only	1	0	1	2.3125			
0	0	0																					
	g44X	Diag8	X-GenXY	15X	16XY	2	5	0.782	0.564	0.564	5/8	A394	2	1	1	Short only	1	0	1	2.3125			
0	0	0																					
	g44XY	Diag8	XY-GenXY	15XY	16X	2	5	0.782	0.564	0.564	5/8	A394	2	1	1	Short only	1	0	1	2.3125			
0	0	0																					
	g44Y	Diag8	Y-GenXY	15Y	16S	2	5	0.782	0.564	0.564	5/8	A394	2	1	1	Short only	1	0	1	2.3125			
0	0	0																					
	g45P	Diag6	XY-Symmetry	16X	18S	3	4	1	1	1	5/8	A394	2	1	1	Short only	0	0	0	0			
0	0	0																					
	g45X	Diag6	X-GenXY	16S	18S	3	4	1	1	1	5/8	A394	2	1	1	Short only	0	0	0	0			
0	0	0																					
	g45XY	Diag6	XY-GenXY	16Y	18Y	3	4	1	1	1	5/8	A394	2	1	1	Short only	0	0	0	0			
0	0	0																					
	g45Y	Diag6	Y-GenXY	16XY	18Y	3	4	1	1	1	5/8	A394	2	1	1	Short only	0	0	0	0			
0	0	0																					
	g46P	Diag6	XY-Symmetry	16S	19S	3	4	1	1	1	5/8	A394	2	1	1	Short only	0	0	0	0			
0	0	0																					
	g46X	Diag6	X-GenXY	16X	19X	3	4	1	1	1	5/8	A394	2	1	1	Short only	0	0	0	0			
0	0	0																					
	g46XY	Diag6	XY-GenXY	16XY	19X	3	4	1	1	1	5/8	A394	2	1	1	Short only	0	0	0	0			
0	0	0																					
	g46Y	Diag6	Y-GenXY	16Y	19S	3	4	1	1	1	5/8	A394	2	1	1	Short only	0	0	0	0			
0	0	0																					
	g47P	Diag7	XY-Symmetry	11X	18S	2	5	0.333	0.333	0.333	5/8	A394	2	1	1	Short only	0	0	0	0			
0	0	0																					
	g47X	Diag7	X-GenXY	11P	18S	2	5	0.333	0.333	0.333	5/8	A394	2	1	1	Short only	0	0	0	0			
0	0	0																					
	g47XY	Diag7	XY-GenXY	11Y	18Y	2	5	0.333	0.333	0.333	5/8	A394	2	1	1	Short only	0	0	0	0			
0	0	0																					
	g47Y	Diag7	Y-GenXY	11XY	18Y	2	5	0.333	0.333	0.333	5/8	A394	2	1	1	Short only	0	0	0	0			
0	0	0																					
	g48P	Diag7	XY-Symmetry	11P	19S	2	5	0.333	0.333	0.333	5/8	A394	2	1	1	Short only	0	0	0	0			
0	0	0																					
	g48X	Diag7	X-GenXY	11X	19X	2	5	0.333	0.333	0.333	5/8	A394	2	1	1	Short only	0	0	0	0			
0	0	0																					
	g48XY	Diag7	XY-GenXY	11XY	19X	2	5	0.333	0.333	0.333	5/8	A394	2	1	1	Short only	0	0	0	0			
0	0	0																					
	g48Y	Diag7	Y-GenXY	11Y	19S	2	5	0.333	0.333	0.333	5/8	A394	2	1	1	Short only	0	0	0	0			
0	0	0																					
	g49P	Horz1	X-Symmetry	1P	1Y	3	4	1	1	1	5/8	A394	1	1	1	Short only	0.625	0	3.6875	0			
0	0	0																					
	g49X	Horz1	X-Gen	1X	1XY	3	4	1	1	1	5/8	A394	1	1	1	Short only	0.625	0	3.6875	0			
0	0	0																					
	g50P	Horz2	X-Symmetry	2P	2Y	3	4	1	1	1	5/8	A394	1	1	1	Short only	0.625	0	1	0			
0	0	0																					
	g50X	Horz2	X-Gen	2X	2XY	3	4	1	1	1	5/8	A394	1	1	1	Short only	0.625	0	1	0			
0	0	0																					
	g51P	Horz2	Y-Symmetry	2X	2P	3	4	1	1	1	5/8	A394	1	1	1	Short only	0.625	0	1	0			
0	0	0																					
	g51Y	Horz2	Y-Gen	2XY	2Y	3	4	1	1	1	5/8	A394	1	1	1	Short only	0.625	0	1	0			
0	0	0																					
	g52P	Horz2	Y-Symmetry	3X	3P	3	4	1	1	1	5/8	A394	1	1	1	Short only	0.625	0	1	0			
0	0	0																					
	g52Y	Horz2	Y-Gen	3XY	3Y	3	4	1	1	1	5/8	A394	1	1	1	Short only	0.625	0	1	0			
0	0	0																					

g53P	Horz2	Y-Symmetry	6X	6P	3	4	1	1	1	5/8	A394	1	1	1	Short only	0.625	0	1	0	0
g53Y	Horz2	Y-Gen	6XY	6Y	3	4	1	1	1	5/8	A394	1	1	1	Short only	0.625	0	1	0	0
g54P	Horz2	Y-Symmetry	9X	9P	3	4	1	1	1	5/8	A394	1	1	1	Short only	0.625	0	1	0	0
g54Y	Horz2	Y-Gen	9XY	9Y	3	4	1	1	1	5/8	A394	1	1	1	Short only	0.625	0	1	0	0
g55P	Horz2	X-Symmetry	4P	4Y	3	4	1	1	1	5/8	A394	1	1	1	Short only	0.625	0	3.875	0	0
g55X	Horz2	X-Gen	4X	4XY	3	4	1	1	1	5/8	A394	1	1	1	Short only	0.625	0	3.875	0	0
g56P	Horz2	X-Symmetry	7P	7Y	3	4	1	1	1	5/8	A394	1	1	1	Short only	0.625	0	3.9375	0	0
g56X	Horz2	X-Gen	7X	7XY	3	4	1	1	1	5/8	A394	1	1	1	Short only	0.625	0	3.9375	0	0
g57P	Horz2	X-Symmetry	10P	10Y	3	4	1	1	1	5/8	A394	1	1	1	Short only	0.625	0	4.625	0	0
g57X	Horz2	X-Gen	10X	10XY	3	4	1	1	1	5/8	A394	1	1	1	Short only	0.625	0	4.625	0	0
g58P	Horz3	X-Symmetry	15S	15Y	3	4	1	0.5	0.5	5/8	A394	1	1	1	Short only	0.75	0	1.0625	0	0
g58X	Horz3	X-Gen	15X	15XY	3	4	1	0.5	0.5	5/8	A394	1	1	1	Short only	0.75	0	1.0625	0	0
g59P	Horz3	Y-Symmetry	15X	15S	3	4	1	0.5	0.5	5/8	A394	1	1	1	Short only	0.75	0	1.0625	0	0
g59Y	Horz3	Y-Gen	15XY	15Y	3	4	1	0.5	0.5	5/8	A394	1	1	1	Short only	0.75	0	1.0625	0	0
g60P	Horz4	X-Symmetry	16S	16Y	3	6	1	0.5	0.5	5/8	A394	2	1	1	Short only	1.5	0	1	1.75	0
g60X	Horz4	X-Gen	16X	16XY	3	6	1	0.5	0.5	5/8	A394	2	1	1	Short only	1.5	0	1	1.75	0
g61P	Horz4	Y-Symmetry	16X	16S	3	6	1	0.5	0.5	5/8	A394	2	1	1	Short only	1.5	0	1	1.75	0
g61Y	Horz4	Y-Gen	16XY	16Y	3	6	1	0.5	0.5	5/8	A394	2	1	1	Short only	1.5	0	1	1.75	0
g62P	Horz5	XY-Symmetry	17X	18S	3	5	1	1	1	5/8	A394	2	1	1	Short only	0.75	1.5	0.9375	3.375	0
g62X	Horz5	X-GenXY	17S	18S	3	5	1	1	1	5/8	A394	2	1	1	Short only	0.75	1.5	0.9375	3.375	0
g62XY	Horz5	XY-GenXY	17Y	18Y	3	5	1	1	1	5/8	A394	2	1	1	Short only	0.75	1.5	0.9375	3.375	0
g62Y	Horz5	Y-GenXY	17XY	18Y	3	5	1	1	1	5/8	A394	2	1	1	Short only	0.75	1.5	0.9375	3.375	0
g63P	Horz5	XY-Symmetry	17S	19S	3	5	1	1	1	5/8	A394	2	1	1	Short only	0.75	1.5	0.9375	3.375	0
g63X	Horz5	X-GenXY	17X	19X	3	5	1	1	1	5/8	A394	2	1	1	Short only	0.75	1.5	0.9375	3.375	0
g63XY	Horz5	XY-GenXY	17XY	19X	3	5	1	1	1	5/8	A394	2	1	1	Short only	0.75	1.5	0.9375	3.375	0
g63Y	Horz5	Y-GenXY	17Y	19S	3	5	1	1	1	5/8	A394	2	1	1	Short only	0.75	1.5	0.9375	3.375	0
g64P	Inner1	XY-Symmetry	1X	32P	3	4	2	1	1	5/8	A394	1	1	1	Short only	0.625	0	1	0	0
g64X	Inner1	X-GenXY	1P	32P	3	4	2	1	1	5/8	A394	1	1	1	Short only	0.625	0	1	0	0
g64XY	Inner1	XY-GenXY	1Y	32P	3	4	2	1	1	5/8	A394	1	1	1	Short only	0.625	0	1	0	0
g64Y	Inner1	Y-GenXY	1XY	32P	3	4	2	1	1	5/8	A394	1	1	1	Short only	0.625	0	1	0	0

0	0	0																		
	g65P	Inner1	XY-Symmetry	4X	33P	3	4	2	1	1	5/8	A394	1	1	1	Short only	0.625	0	1	0
0	0	0																		
	g65X	Inner1	X-GenXY	4P	33P	3	4	2	1	1	5/8	A394	1	1	1	Short only	0.625	0	1	0
0	0	0																		
	g65XY	Inner1	XY-GenXY	4Y	33P	3	4	2	1	1	5/8	A394	1	1	1	Short only	0.625	0	1	0
0	0	0																		
	g65Y	Inner1	Y-GenXY	4XY	33P	3	4	2	1	1	5/8	A394	1	1	1	Short only	0.625	0	1	0
0	0	0																		
	g66P	Inner1	XY-Symmetry	7X	34P	3	4	2	1	1	5/8	A394	1	1	1	Short only	0.625	0	1	0
0	0	0																		
	g66X	Inner1	X-GenXY	7P	34P	3	4	2	1	1	5/8	A394	1	1	1	Short only	0.625	0	1	0
0	0	0																		
	g66XY	Inner1	XY-GenXY	7Y	34P	3	4	2	1	1	5/8	A394	1	1	1	Short only	0.625	0	1	0
0	0	0																		
	g66Y	Inner1	Y-GenXY	7XY	34P	3	4	2	1	1	5/8	A394	1	1	1	Short only	0.625	0	1	0
0	0	0																		
	g67P	Inner1	XY-Symmetry	10X	35P	3	4	2	1	1	5/8	A394	1	1	1	Short only	0.625	0	1	0
0	0	0																		
	g67X	Inner1	X-GenXY	10P	35P	3	4	2	1	1	5/8	A394	1	1	1	Short only	0.625	0	1	0
0	0	0																		
	g67XY	Inner1	XY-GenXY	10Y	35P	3	4	2	1	1	5/8	A394	1	1	1	Short only	0.625	0	1	0
0	0	0																		
	g67Y	Inner1	Y-GenXY	10XY	35P	3	4	2	1	1	5/8	A394	1	1	1	Short only	0.625	0	1	0
0	0	0																		
	g68P	Inner2	XY-Symmetry	19X	18S	3	4	1	1	1	5/8	A394	2	1	1	Short only	0.75	1.75	1	4.5
0	0	0																		
	g68X	Inner2	X-GenXY	19S	18S	3	4	1	1	1	5/8	A394	2	1	1	Short only	0.75	1.75	1	4.5
0	0	0																		
	g68XY	Inner2	XY-GenXY	19S	18Y	3	4	1	1	1	5/8	A394	2	1	1	Short only	0.75	1.75	1	4.5
0	0	0																		
	g68Y	Inner2	Y-GenXY	19X	18Y	3	4	1	1	1	5/8	A394	2	1	1	Short only	0.75	1.75	1	4.5
0	0	0																		
	g69P	ShieldAr	XY-Symmetry	20X	1X	3	4	0.5	0.5	0.5	5/8	A394	2	2	1	Short only	1	1.8125	2	2.5
0	0	0																		
	g69X	ShieldAr	X-GenXY	20P	1P	3	4	0.5	0.5	0.5	5/8	A394	2	2	1	Short only	1	1.8125	2	2.5
0	0	0																		
	g69XY	ShieldAr	XY-GenXY	20P	1Y	3	4	0.5	0.5	0.5	5/8	A394	2	2	1	Short only	1	1.8125	2	2.5
0	0	0																		
	g69Y	ShieldAr	Y-GenXY	20X	1XY	3	4	0.5	0.5	0.5	5/8	A394	2	2	1	Short only	1	1.8125	2	2.5
0	0	0																		
	g70P	ShieldAr	Y-Symmetry	1X	1P	3	4	1	1	1	5/8	A394	2	1.3	1	Short only	1	1.8125	2	2.5
0	0	0																		
	g70Y	ShieldAr	Y-Gen	1XY	1Y	3	4	1	1	1	5/8	A394	2	1.3	1	Short only	1	1.8125	2	2.5
0	0	0																		
	g71P	TopCrArm	XY-Symmetry	21X	4X	3	4	0.5	0.5	0.5	5/8	A394	3	2	1	Long only	0.75	2.5	2	1.25
0	0	0																		
	g71X	TopCrArm	X-GenXY	21P	4P	3	4	0.5	0.5	0.5	5/8	A394	3	2	1	Long only	0.75	2.5	2	1.25
0	0	0																		
	g71XY	TopCrArm	XY-GenXY	21P	4Y	3	4	0.5	0.5	0.5	5/8	A394	3	2	1	Long only	0.75	2.5	2	1.25
0	0	0																		
	g71Y	TopCrArm	Y-GenXY	21X	4XY	3	4	0.5	0.5	0.5	5/8	A394	3	2	1	Long only	0.75	2.5	2	1.25
0	0	0																		
	g72P	TopCrArm	Y-Symmetry	4X	4P	3	4	1	1	1	5/8	A394	3	2	1	Long only	0.75	2.5	2	1.25
0	0	0																		
	g72Y	TopCrArm	Y-Gen	4XY	4Y	3	4	1	1	1	5/8	A394	3	2	1	Long only	0.75	2.5	2	1.25
0	0	0																		
	g73P	MidCrArm	XY-Symmetry	22X	7X	3	4	0.5	0.5	0.5	5/8	A394	4	2	1	Long only	1	2.5	2.125	1.5
0	0	0																		

g73X	MidCrArm	X-GenXY	22P	7P	3	4	0.5	0.5	0.5	5/8	A394	4	2	1	Long only	1	2.5	2.125	1.5	0	0	0
g73XY	MidCrArm	XY-GenXY	22P	7Y	3	4	0.5	0.5	0.5	5/8	A394	4	2	1	Long only	1	2.5	2.125	1.5	0	0	0
g73Y	MidCrArm	Y-GenXY	22X	7XY	3	4	0.5	0.5	0.5	5/8	A394	4	2	1	Long only	1	2.5	2.125	1.5	0	0	0
g74P	MidCrArm	Y-Symmetry	7X	7P	3	4	1	1	1	5/8	A394	4	2	1	Long only	1	2.5	2.125	1.5	0	0	0
g74Y	MidCrArm	Y-Gen	7XY	7Y	3	4	1	1	1	5/8	A394	4	2	1	Long only	1	2.5	2.125	1.5	0	0	0
g75P	BotCrArm	XY-Symmetry	23X	10X	3	4	0.5	0.5	0.5	5/8	A394	3	1.81	1	Long only	1	2.5	2.75	1.75	0	0	0
g75X	BotCrArm	X-GenXY	23P	10P	3	4	0.5	0.5	0.5	5/8	A394	3	1.81	1	Long only	1	2.5	2.75	1.75	0	0	0
g75XY	BotCrArm	XY-GenXY	23P	10Y	3	4	0.5	0.5	0.5	5/8	A394	3	1.81	1	Long only	1	2.5	2.75	1.75	0	0	0
g75Y	BotCrArm	Y-GenXY	23X	10XY	3	4	0.5	0.5	0.5	5/8	A394	3	1.81	1	Long only	1	2.5	2.75	1.75	0	0	0
g76P	BotCrArm	Y-Symmetry	10X	10P	3	4	1	1	1	5/8	A394	3	1.81	1	Long only	1	2.5	2.75	1.75	0	0	0
g76Y	BotCrArm	Y-Gen	10XY	10Y	3	4	1	1	1	5/8	A394	3	1.81	1	Long only	1	2.5	2.75	1.75	0	0	0
g77P	ShArmBr	XY-Symmetry	20X	2X	2	4	1	0.5	0.5	5/8	A394	2	1	1	Short only	1	0	1	2	0	0	0
g77X	ShArmBr	X-GenXY	20P	2P	2	4	1	0.5	0.5	5/8	A394	2	1	1	Short only	1	0	1	2	0	0	0
g77XY	ShArmBr	XY-GenXY	20P	2Y	2	4	1	0.5	0.5	5/8	A394	2	1	1	Short only	1	0	1	2	0	0	0
g77Y	ShArmBr	Y-GenXY	20X	2XY	2	4	1	0.5	0.5	5/8	A394	2	1	1	Short only	1	0	1	2	0	0	0
g78P	TopArmBr	XY-Symmetry	21X	3X	2	4	1	0.5	0.5	5/8	A394	2	1	1	Short only	1	0	1	2	0	0	0
g78X	TopArmBr	X-GenXY	21P	3P	2	4	1	0.5	0.5	5/8	A394	2	1	1	Short only	1	0	1	2	0	0	0
g78XY	TopArmBr	XY-GenXY	21P	3Y	2	4	1	0.5	0.5	5/8	A394	2	1	1	Short only	1	0	1	2	0	0	0
g78Y	TopArmBr	Y-GenXY	21X	3XY	2	4	1	0.5	0.5	5/8	A394	2	1	1	Short only	1	0	1	2	0	0	0
g79P	MidArmBr	XY-Symmetry	22X	6X	2	4	1	0.5	0.5	5/8	A394	2	1	1	Short only	1	0	1	2	0	0	0
g79X	MidArmBr	X-GenXY	22P	6P	2	4	1	0.5	0.5	5/8	A394	2	1	1	Short only	1	0	1	2	0	0	0
g79XY	MidArmBr	XY-GenXY	22P	6Y	2	4	1	0.5	0.5	5/8	A394	2	1	1	Short only	1	0	1	2	0	0	0
g79Y	MidArmBr	Y-GenXY	22X	6XY	2	4	1	0.5	0.5	5/8	A394	2	1	1	Short only	1	0	1	2	0	0	0
g80P	BotArmBr	XY-Symmetry	23X	9X	2	4	1	0.5	0.5	5/8	A394	2	1	1	Short only	1	0	1	2	0	0	0
g80X	BotArmBr	X-GenXY	23P	9P	2	4	1	0.5	0.5	5/8	A394	2	1	1	Short only	1	0	1	2	0	0	0
g80XY	BotArmBr	XY-GenXY	23P	9Y	2	4	1	0.5	0.5	5/8	A394	2	1	1	Short only	1	0	1	2	0	0	0
g80Y	BotArmBr	Y-GenXY	23X	9XY	2	4	1	0.5	0.5	5/8	A394	2	1	1	Short only	1	0	1	2	0	0	0
g81P	Pwmnt	None	31P	30P	1	4	1	1	1			0	0	0		0	0	0	0	0	0	0
g82P	Pwmnt	None	30P	29P	1	4	1	1	1			0	0	0		0	0	0	0	0	0	0
g83P	Pwmnt	None	29P	28P	1	4	1	1	1			0	0	0		0	0	0	0			

0	0	0																		
	g84P	Pwmnt	None	28P	27P	1	4	1	1	1		0	0	0		0	0	0	0	
0	0	0																		
	g85P	Pwmnt	None	27P	26P	1	4	1	1	1		0	0	0		0	0	0	0	
0	0	0																		
	g86P	Pwmnt	None	26P	25P	1	4	1	1	1		0	0	0		0	0	0	0	
0	0	0																		
	g87P	Pwmnt	None	25P	24P	1	4	1	1	1		0	0	0		0	0	0	0	
0	0	0																		
	g88P	PMBR1	X-Symmetry	1X	25P	3	4	1	1	1	5/8 A325	1	1	1	Short only	0	0	0	0	
0	0	0																		
	g88X	PMBR1	X-Gen	1P	25P	3	4	1	1	1	5/8 A325	1	1	1	Short only	0	0	0	0	
0	0	0																		
	g89P	PMBR1	None	25P	32P	3	4	1	1	1	5/8 A325	1	1	1	Short only	0	0	0	0	
0	0	0																		
	g90P	PMBR1	X-Symmetry	4X	26P	3	4	1	1	1	5/8 A325	1	1	1	Short only	0	0	0	0	
0	0	0																		
	g90X	PMBR1	X-Gen	4P	26P	3	4	1	1	1	5/8 A325	1	1	1	Short only	0	0	0	0	
0	0	0																		
	g91P	PMBR1	None	26P	33P	3	4	1	1	1	5/8 A325	1	1	1	Short only	0	0	0	0	
0	0	0																		
	g92P	PMBR1	X-Symmetry	7X	27P	3	4	1	1	1	5/8 A325	1	1	1	Short only	0	0	0	0	
0	0	0																		
	g92X	PMBR1	X-Gen	7P	27P	3	4	1	1	1	5/8 A325	1	1	1	Short only	0	0	0	0	
0	0	0																		
	g93P	PMBR1	None	27P	34P	3	4	1	1	1	5/8 A325	1	1	1	Short only	0	0	0	0	
0	0	0																		
	g94P	PMBR1	X-Symmetry	10X	28P	3	4	1	1	1	5/8 A325	1	1	1	Short only	0	0	0	0	
0	0	0																		
	g94X	PMBR1	X-Gen	10P	28P	3	4	1	1	1	5/8 A325	1	1	1	Short only	0	0	0	0	
0	0	0																		
	g95P	PMBR1	None	28P	35P	3	4	1	1	1	5/8 A325	1	1	1	Short only	0	0	0	0	
0	0	0																		
	g96P	PMBR2	X-Symmetry	15X	29P	3	4	1	1	1	5/8 A325	1	1	1	Short only	0	0	0	0	
0	0	0																		
	g96X	PMBR2	X-Gen	15S	29P	3	4	1	1	1	5/8 A325	1	1	1	Short only	0	0	0	0	
0	0	0																		
	g97P	PMBR3	X-Symmetry	15Y	29P	3	4	1	1	1	5/8 A325	1	1	1	Short only	0	0	0	0	
0	0	0																		
	g97X	PMBR3	X-Gen	15XY	29P	3	4	1	1	1	5/8 A325	1	1	1	Short only	0	0	0	0	
0	0	0																		
	g98P	PMBR4	None	18S	30P	3	4	1	1	1	5/8 A325	1	1	1	Short only	0	0	0	0	
0	0	0																		
	g99P	PMBR5	X-Symmetry	19X	30P	3	4	1	1	1	5/8 A325	1	1	1	Short only	0	0	0	0	
0	0	0																		
	g99X	PMBR5	X-Gen	19S	30P	3	4	1	1	1	5/8 A325	1	1	1	Short only	0	0	0	0	
0	0	0																		
	g100P	PMBR2	None	30P	18Y	3	4	1	1	1	5/8 A325	1	1	1	Short only	0	0	0	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 Override		L/r Connection Override		Connection Comp. Capacity	Net Shear Capacity	Rupture Bearing Capacity	RTE End Section Tension Capacity	RTE Edge Tension	Override Dist.	Override Dist.	Override Comp. Capacity	Warnings or Errors
		Comp. Tension Capacity	Control Tension Criterion	Face Capacity	Criterion													

		Capacity	Control	Capacity	Control	Member						Capacity		Capacity	Capacity	
		Unsup.	Criterion		Criterion	ship										
		(kips)		(kips)			(ft)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	
		(kips)														
g1P	Leg1	48.366	L/r	36.337	Net Sect	81	4.67	48.366	0.000	0.000	36.337	0.000	0.000	0.000	0.000	
0.000		0.000		Automatic												
g1X	Leg1	48.366	L/r	36.337	Net Sect	81	4.67	48.366	0.000	0.000	36.337	0.000	0.000	0.000	0.000	
0.000		0.000		Automatic												
g1XY	Leg1	48.366	L/r	36.337	Net Sect	81	4.67	48.366	0.000	0.000	36.337	0.000	0.000	0.000	0.000	
0.000		0.000		Automatic												
g1Y	Leg1	48.366	L/r	36.337	Net Sect	81	4.67	48.366	0.000	0.000	36.337	0.000	0.000	0.000	0.000	
0.000		0.000		Automatic												
g2P	Leg1	35.773	L/r	45.045	Net Sect	114	6.62	35.773	0.000	0.000	45.045	0.000	0.000	0.000	0.000	
0.000		0.000		Automatic												
g2X	Leg1	35.773	L/r	45.045	Net Sect	114	6.62	35.773	0.000	0.000	45.045	0.000	0.000	0.000	0.000	
0.000		0.000		Automatic												
g2XY	Leg1	35.773	L/r	45.045	Net Sect	114	6.62	35.773	0.000	0.000	45.045	0.000	0.000	0.000	0.000	
0.000		0.000		Automatic												
g2Y	Leg1	35.773	L/r	45.045	Net Sect	114	6.62	35.773	0.000	0.000	45.045	0.000	0.000	0.000	0.000	
0.000		0.000		Automatic												
g3P	Leg1	36.400	Shear	36.400	Shear	81	4.71	48.151	36.400	54.375	39.105	60.417	0.000	0.000	0.000	
0.000		0.000		Automatic												
g3X	Leg1	36.400	Shear	36.400	Shear	81	4.71	48.151	36.400	54.375	39.105	60.417	0.000	0.000	0.000	
0.000		0.000		Automatic												
g3XY	Leg1	36.400	Shear	36.400	Shear	81	4.71	48.151	36.400	54.375	39.105	60.417	0.000	0.000	0.000	
0.000		0.000		Automatic												
g3Y	Leg1	36.400	Shear	36.400	Shear	81	4.71	48.151	36.400	54.375	39.105	60.417	0.000	0.000	0.000	
0.000		0.000		Automatic												
g4P	Leg1	47.274	L/r	38.295	Net Sect	84	4.87	47.274	0.000	0.000	38.295	0.000	0.000	0.000	0.000	
0.000		0.000		Automatic												
g4X	Leg1	47.274	L/r	38.295	Net Sect	84	4.87	47.274	0.000	0.000	38.295	0.000	0.000	0.000	0.000	
0.000		0.000		Automatic												
g4XY	Leg1	47.274	L/r	38.295	Net Sect	84	4.87	47.274	0.000	0.000	38.295	0.000	0.000	0.000	0.000	
0.000		0.000		Automatic												
g4Y	Leg1	47.274	L/r	38.295	Net Sect	84	4.87	47.274	0.000	0.000	38.295	0.000	0.000	0.000	0.000	
0.000		0.000		Automatic												
g5P	Leg1	48.789	L/r	39.375	Net Sect	79	4.59	48.789	0.000	0.000	39.375	0.000	0.000	0.000	0.000	
0.000		0.000		Automatic												
g5X	Leg1	48.789	L/r	39.375	Net Sect	79	4.59	48.789	0.000	0.000	39.375	0.000	0.000	0.000	0.000	
0.000		0.000		Automatic												
g5XY	Leg1	48.789	L/r	39.375	Net Sect	79	4.59	48.789	0.000	0.000	39.375	0.000	0.000	0.000	0.000	
0.000		0.000		Automatic												
g5Y	Leg1	48.789	L/r	39.375	Net Sect	79	4.59	48.789	0.000	0.000	39.375	0.000	0.000	0.000	0.000	
0.000		0.000		Automatic												
g6P	Leg1	49.051	L/r	39.105	Net Sect	79	4.54	49.051	54.600	81.562	39.105	90.625	0.000	0.000	0.000	
0.000		0.000		Automatic												
g6X	Leg1	49.051	L/r	39.105	Net Sect	79	4.54	49.051	54.600	81.562	39.105	90.625	0.000	0.000	0.000	
0.000		0.000		Automatic												
g6XY	Leg1	49.051	L/r	39.105	Net Sect	79	4.54	49.051	54.600	81.562	39.105	90.625	0.000	0.000	0.000	
0.000		0.000		Automatic												
g6Y	Leg1	49.051	L/r	39.105	Net Sect	79	4.54	49.051	54.600	81.562	39.105	90.625	0.000	0.000	0.000	
0.000		0.000		Automatic												
g7P	Leg2	85.153	L/r	67.725	Net Sect	74	4.87	85.153	0.000	0.000	67.725	0.000	0.000	0.000	0.000	
0.000		0.000		Automatic												
g7X	Leg2	85.153	L/r	67.725	Net Sect	74	4.87	85.153	0.000	0.000	67.725	0.000	0.000	0.000	0.000	

0.000		0.000		Automatic											
g7XY	Leg2	85.153	L/r	67.725	Net Sect	74	4.87	85.153	0.000	0.000	67.725	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g7Y	Leg2	85.153	L/r	67.725	Net Sect	74	4.87	85.153	0.000	0.000	67.725	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g8P	Leg2	87.142	L/r	72.585	Net Sect	70	4.59	87.142	0.000	0.000	72.585	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g8X	Leg2	87.142	L/r	72.585	Net Sect	70	4.59	87.142	0.000	0.000	72.585	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g8XY	Leg2	87.142	L/r	72.585	Net Sect	70	4.59	87.142	0.000	0.000	72.585	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g8Y	Leg2	87.142	L/r	72.585	Net Sect	70	4.59	87.142	0.000	0.000	72.585	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g9P	Leg2	87.485	L/r	72.180	Net Sect	69	4.54	87.485	91.000	203.906	72.180	226.562	0.000	0.000	0.000
0.000		0.000		Automatic											
g9X	Leg2	87.485	L/r	72.180	Net Sect	69	4.54	87.485	91.000	203.906	72.180	226.562	0.000	0.000	0.000
0.000		0.000		Automatic											
g9XY	Leg2	87.485	L/r	72.180	Net Sect	69	4.54	87.485	91.000	203.906	72.180	226.562	0.000	0.000	0.000
0.000		0.000		Automatic											
g9Y	Leg2	87.485	L/r	72.180	Net Sect	69	4.54	87.485	91.000	203.906	72.180	226.562	0.000	0.000	0.000
0.000		0.000		Automatic											
g10P	Leg3	98.976	L/r	101.407	Net Sect	87	7.18	98.976	0.000	0.000	101.407	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g10X	Leg3	98.976	L/r	101.407	Net Sect	87	7.18	98.976	0.000	0.000	101.407	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g10XY	Leg3	98.976	L/r	101.407	Net Sect	87	7.18	98.976	0.000	0.000	101.407	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g10Y	Leg3	98.976	L/r	101.407	Net Sect	87	7.18	98.976	0.000	0.000	101.407	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g11P	Leg3	100.787	L/r	109.710	Net Sect	84	6.97	100.787	0.000	0.000	109.710	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g11X	Leg3	100.787	L/r	109.710	Net Sect	84	6.97	100.787	0.000	0.000	109.710	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g11XY	Leg3	100.787	L/r	109.710	Net Sect	84	6.97	100.787	0.000	0.000	109.710	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g11Y	Leg3	100.787	L/r	109.710	Net Sect	84	6.97	100.787	0.000	0.000	109.710	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g12P	Leg3	100.702	L/r	109.710	Net Sect	85	6.98	100.702	0.000	0.000	109.710	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g12X	Leg3	100.702	L/r	109.710	Net Sect	85	6.98	100.702	0.000	0.000	109.710	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g12XY	Leg3	100.702	L/r	109.710	Net Sect	85	6.98	100.702	0.000	0.000	109.710	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g12Y	Leg3	100.702	L/r	109.710	Net Sect	85	6.98	100.702	0.000	0.000	109.710	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g13P	**Leg3**	**91.000**	**Shear**	**91.000**	**Shear**	**88**	**7.23**	**98.537**	**91.000**	**203.906**	**104.141**	**213.235**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**	**Member "g13P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**										
g13X	**Leg3**	**91.000**	**Shear**	**91.000**	**Shear**	**88**	**7.23**	**98.537**	**91.000**	**203.906**	**104.141**	**213.235**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**	**Member "g13X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**										
g13XY	**Leg3**	**91.000**	**Shear**	**91.000**	**Shear**	**88**	**7.23**	**98.537**	**91.000**	**203.906**	**104.141**	**213.235**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**	**Member "g13XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**										
g13Y	**Leg3**	**91.000**	**Shear**	**91.000**	**Shear**	**88**	**7.23**	**98.537**	**91.000**	**203.906**	**104.141**	**213.235**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**	**Member "g13Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**										
g14P	Leg3	95.791	L/r	89.460	Net Sect	91	15.09	95.791	0.000	0.000	89.460	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											

g14X	Leg3	95.791	L/r	89.460	Net Sect	91	15.09	95.791	0.000	0.000	89.460	0.000	0.000	0.000	0.000	0.000
0.000	0.000	Automatic														
g14XY	Leg3	95.791	L/r	89.460	Net Sect	91	15.09	95.791	0.000	0.000	89.460	0.000	0.000	0.000	0.000	0.000
0.000	0.000	Automatic														
g14Y	Leg3	95.791	L/r	89.460	Net Sect	91	15.09	95.791	0.000	0.000	89.460	0.000	0.000	0.000	0.000	0.000
0.000	0.000	Automatic														
g15P	**Leg3**	**100.361**	**L/r**	**89.460**	**Net Sect**	**85**	**7.02**	**100.361**	**109.200**	**244.687**	**89.460**	**255.882**	**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	**Leg3**	**100.361**	**L/r**	**89.460**	**Net Sect**	**85**	**7.02**	**100.361**	**109.200**	**244.687**	**89.460**	**255.882**	**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	**Leg3**	**100.361**	**L/r**	**89.460**	**Net Sect**	**85**	**7.02**	**100.361**	**109.200**	**244.687**	**89.460**	**255.882**	**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	**Leg3**	**100.361**	**L/r**	**89.460**	**Net Sect**	**85**	**7.02**	**100.361**	**109.200**	**244.687**	**89.460**	**255.882**	**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	**Leg3**	**95.261**	**L/r**	**99.585**	**Net Sect**	**92**	**22.83**	**95.261**	**109.200**	**244.687**	**99.585**	**271.875**	**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	**Leg3**	**95.261**	**L/r**	**99.585**	**Net Sect**	**92**	**22.83**	**95.261**	**109.200**	**244.687**	**99.585**	**271.875**	**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	**Leg3**	**95.261**	**L/r**	**99.585**	**Net Sect**	**92**	**22.83**	**95.261**	**109.200**	**244.687**	**99.585**	**271.875**	**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	**Leg3**	**95.261**	**L/r**	**99.585**	**Net Sect**	**92**	**22.83**	**95.261**	**109.200**	**244.687**	**99.585**	**271.875**	**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	Diag1	12.254	L/r	13.570	Rupture	120	6.84	12.254	18.200	20.391	15.532	13.570	0.000	0.000	0.000	
0.000	0.000	Automatic														
g17X	Diag1	12.254	L/r	13.570	Rupture	120	6.84	12.254	18.200	20.391	15.532	13.570	0.000	0.000	0.000	
0.000	0.000	Automatic														
g17XY	Diag1	12.254	L/r	13.570	Rupture	120	6.84	12.254	18.200	20.391	15.532	13.570	0.000	0.000	0.000	
0.000	0.000	Automatic														
g17Y	Diag1	12.254	L/r	13.570	Rupture	120	6.84	12.254	18.200	20.391	15.532	13.570	0.000	0.000	0.000	
0.000	0.000	Automatic														
g18P	Diag1	12.254	L/r	13.570	Rupture	120	6.84	12.254	18.200	20.391	15.532	13.570	0.000	0.000	0.000	
0.000	0.000	Automatic														
g18X	Diag1	12.254	L/r	13.570	Rupture	120	6.84	12.254	18.200	20.391	15.532	13.570	0.000	0.000	0.000	
0.000	0.000	Automatic														
g18XY	Diag1	12.254	L/r	13.570	Rupture	120	6.84	12.254	18.200	20.391	15.532	13.570	0.000	0.000	0.000	
0.000	0.000	Automatic														
g18Y	Diag1	12.254	L/r	13.570	Rupture	120	6.84	12.254	18.200	20.391	15.532	13.570	0.000	0.000	0.000	
0.000	0.000	Automatic														
g19P	Diag1	9.161	L/r	15.532	Net Sect	145	8.30	9.161	18.200	20.391	15.532	16.425	0.000	0.000	0.000	
0.000	0.000	Automatic														
g19X	Diag1	9.161	L/r	15.532	Net Sect	145	8.30	9.161	18.200	20.391	15.532	16.425	0.000	0.000	0.000	
0.000	0.000	Automatic														
g19XY	Diag1	9.161	L/r	15.532	Net Sect	145	8.30	9.161	18.200	20.391	15.532	16.425	0.000	0.000	0.000	
0.000	0.000	Automatic														
g19Y	Diag1	9.161	L/r	15.532	Net Sect	145	8.30	9.161	18.200	20.391	15.532	16.425	0.000	0.000	0.000	
0.000	0.000	Automatic														
g20P	Diag1	9.161	L/r	15.532	Net Sect	145	8.30	9.161	18.200	20.391	15.532	16.425	0.000	0.000	0.000	
0.000	0.000	Automatic														
g20X	Diag1	9.161	L/r	15.532	Net Sect	145	8.30	9.161	18.200	20.391	15.532	16.425	0.000	0.000	0.000	
0.000	0.000	Automatic														
g20XY	Diag1	9.161	L/r	15.532	Net Sect	145	8.30	9.161	18.200	20.391	15.532	16.425	0.000	0.000	0.000	

0.000		0.000		Automatic											
g20Y	Diag1	9.161	L/r	15.532	Net Sect	145	8.30	9.161	18.200	20.391	15.532	16.425	0.000	0.000	0.000
0.000		0.000		Automatic											
g21P	Diag1	12.186	L/r	13.570	Rupture	120	6.87	12.186	18.200	20.391	15.532	13.570	0.000	0.000	0.000
0.000		0.000		Automatic											
g21X	Diag1	12.186	L/r	13.570	Rupture	120	6.87	12.186	18.200	20.391	15.532	13.570	0.000	0.000	0.000
0.000		0.000		Automatic											
g21XY	Diag1	12.186	L/r	13.570	Rupture	120	6.87	12.186	18.200	20.391	15.532	13.570	0.000	0.000	0.000
0.000		0.000		Automatic											
g21Y	Diag1	12.186	L/r	13.570	Rupture	120	6.87	12.186	18.200	20.391	15.532	13.570	0.000	0.000	0.000
0.000		0.000		Automatic											
g22P	Diag1	12.186	L/r	13.570	Rupture	120	6.87	12.186	18.200	20.391	15.532	13.570	0.000	0.000	0.000
0.000		0.000		Automatic											
g22X	Diag1	12.186	L/r	13.570	Rupture	120	6.87	12.186	18.200	20.391	15.532	13.570	0.000	0.000	0.000
0.000		0.000		Automatic											
g22XY	Diag1	12.186	L/r	13.570	Rupture	120	6.87	12.186	18.200	20.391	15.532	13.570	0.000	0.000	0.000
0.000		0.000		Automatic											
g22Y	Diag1	12.186	L/r	13.570	Rupture	120	6.87	12.186	18.200	20.391	15.532	13.570	0.000	0.000	0.000
0.000		0.000		Automatic											
g23P	Diag2	15.472	L/r	18.200	Shear	123	6.98	15.472	18.200	27.187	20.169	18.637	0.000	0.000	0.000
0.000		0.000		Automatic											
g23X	Diag2	15.472	L/r	18.200	Shear	123	6.98	15.472	18.200	27.187	20.169	18.637	0.000	0.000	0.000
0.000		0.000		Automatic											
g23XY	Diag2	15.472	L/r	18.200	Shear	123	6.98	15.472	18.200	27.187	20.169	18.637	0.000	0.000	0.000
0.000		0.000		Automatic											
g23Y	Diag2	15.472	L/r	18.200	Shear	123	6.98	15.472	18.200	27.187	20.169	18.637	0.000	0.000	0.000
0.000		0.000		Automatic											
g24P	Diag2	15.472	L/r	18.200	Shear	123	6.98	15.472	18.200	27.187	20.169	18.637	0.000	0.000	0.000
0.000		0.000		Automatic											
g24X	Diag2	15.472	L/r	18.200	Shear	123	6.98	15.472	18.200	27.187	20.169	18.637	0.000	0.000	0.000
0.000		0.000		Automatic											
g24XY	Diag2	15.472	L/r	18.200	Shear	123	6.98	15.472	18.200	27.187	20.169	18.637	0.000	0.000	0.000
0.000		0.000		Automatic											
g24Y	Diag2	15.472	L/r	18.200	Shear	123	6.98	15.472	18.200	27.187	20.169	18.637	0.000	0.000	0.000
0.000		0.000		Automatic											
g25P	Diag2	16.051	L/r	18.200	Shear	119	6.79	16.051	18.200	27.187	20.169	18.637	0.000	0.000	0.000
0.000		0.000		Automatic											
g25X	Diag2	16.051	L/r	18.200	Shear	119	6.79	16.051	18.200	27.187	20.169	18.637	0.000	0.000	0.000
0.000		0.000		Automatic											
g25XY	Diag2	16.051	L/r	18.200	Shear	119	6.79	16.051	18.200	27.187	20.169	18.637	0.000	0.000	0.000
0.000		0.000		Automatic											
g25Y	Diag2	16.051	L/r	18.200	Shear	119	6.79	16.051	18.200	27.187	20.169	18.637	0.000	0.000	0.000
0.000		0.000		Automatic											
g26P	Diag2	16.051	L/r	18.200	Shear	119	6.79	16.051	18.200	27.187	20.169	18.637	0.000	0.000	0.000
0.000		0.000		Automatic											
g26X	Diag2	16.051	L/r	18.200	Shear	119	6.79	16.051	18.200	27.187	20.169	18.637	0.000	0.000	0.000
0.000		0.000		Automatic											
g26XY	Diag2	16.051	L/r	18.200	Shear	119	6.79	16.051	18.200	27.187	20.169	18.637	0.000	0.000	0.000
0.000		0.000		Automatic											
g26Y	Diag2	16.051	L/r	18.200	Shear	119	6.79	16.051	18.200	27.187	20.169	18.637	0.000	0.000	0.000
0.000		0.000		Automatic											
g27P	Diag2	16.148	L/r	18.094	Rupture	119	6.75	16.148	18.200	27.187	20.169	18.094	0.000	0.000	0.000
0.000		0.000		Automatic											
g27X	Diag2	16.148	L/r	18.094	Rupture	119	6.75	16.148	18.200	27.187	20.169	18.094	0.000	0.000	0.000
0.000		0.000		Automatic											
g27XY	Diag2	16.148	L/r	18.094	Rupture	119	6.75	16.148	18.200	27.187	20.169	18.094	0.000	0.000	0.000
0.000		0.000		Automatic											
g27Y	Diag2	16.148	L/r	18.094	Rupture	119	6.75	16.148	18.200	27.187	20.169	18.094	0.000	0.000	0.000
0.000		0.000		Automatic											

g28P	Diag2	16.148	L/r	18.094	Rupture	119	6.75	16.148	18.200	27.187	20.169	18.094	0.000	0.000	0.000
0.000		0.000		Automatic											
g28X	Diag2	16.148	L/r	18.094	Rupture	119	6.75	16.148	18.200	27.187	20.169	18.094	0.000	0.000	0.000
0.000		0.000		Automatic											
g28XY	Diag2	16.148	L/r	18.094	Rupture	119	6.75	16.148	18.200	27.187	20.169	18.094	0.000	0.000	0.000
0.000		0.000		Automatic											
g28Y	Diag2	16.148	L/r	18.094	Rupture	119	6.75	16.148	18.200	27.187	20.169	18.094	0.000	0.000	0.000
0.000		0.000		Automatic											
g29P	Diag3	18.200	Shear	18.200	Shear	107	6.98	20.887	18.200	27.187	24.381	22.481	0.000	0.000	0.000
0.000		0.000		Automatic											
g29X	Diag3	18.200	Shear	18.200	Shear	107	6.98	20.887	18.200	27.187	24.381	22.481	0.000	0.000	0.000
0.000		0.000		Automatic											
g29XY	Diag3	18.200	Shear	18.200	Shear	107	6.98	20.887	18.200	27.187	24.381	22.481	0.000	0.000	0.000
0.000		0.000		Automatic											
g29Y	Diag3	18.200	Shear	18.200	Shear	107	6.98	20.887	18.200	27.187	24.381	22.481	0.000	0.000	0.000
0.000		0.000		Automatic											
g30P	Diag3	18.200	Shear	18.200	Shear	107	6.98	20.887	18.200	27.187	24.381	22.481	0.000	0.000	0.000
0.000		0.000		Automatic											
g30X	Diag3	18.200	Shear	18.200	Shear	107	6.98	20.887	18.200	27.187	24.381	22.481	0.000	0.000	0.000
0.000		0.000		Automatic											
g30XY	Diag3	18.200	Shear	18.200	Shear	107	6.98	20.887	18.200	27.187	24.381	22.481	0.000	0.000	0.000
0.000		0.000		Automatic											
g30Y	Diag3	18.200	Shear	18.200	Shear	107	6.98	20.887	18.200	27.187	24.381	22.481	0.000	0.000	0.000
0.000		0.000		Automatic											
g31P	Diag3	18.200	Shear	18.200	Shear	104	6.79	21.402	18.200	27.187	24.381	22.481	0.000	0.000	0.000
0.000		0.000		Automatic											
g31X	Diag3	18.200	Shear	18.200	Shear	104	6.79	21.402	18.200	27.187	24.381	22.481	0.000	0.000	0.000
0.000		0.000		Automatic											
g31XY	Diag3	18.200	Shear	18.200	Shear	104	6.79	21.402	18.200	27.187	24.381	22.481	0.000	0.000	0.000
0.000		0.000		Automatic											
g31Y	Diag3	18.200	Shear	18.200	Shear	104	6.79	21.402	18.200	27.187	24.381	22.481	0.000	0.000	0.000
0.000		0.000		Automatic											
g32P	Diag3	18.200	Shear	18.200	Shear	104	6.79	21.402	18.200	27.187	24.381	22.481	0.000	0.000	0.000
0.000		0.000		Automatic											
g32X	Diag3	18.200	Shear	18.200	Shear	104	6.79	21.402	18.200	27.187	24.381	22.481	0.000	0.000	0.000
0.000		0.000		Automatic											
g32XY	Diag3	18.200	Shear	18.200	Shear	104	6.79	21.402	18.200	27.187	24.381	22.481	0.000	0.000	0.000
0.000		0.000		Automatic											
g32Y	Diag3	18.200	Shear	18.200	Shear	104	6.79	21.402	18.200	27.187	24.381	22.481	0.000	0.000	0.000
0.000		0.000		Automatic											
g33P	Diag3	18.200	Shear	18.200	Shear	104	6.75	21.491	18.200	27.187	24.381	24.167	0.000	0.000	0.000
0.000		0.000		Automatic											
g33X	Diag3	18.200	Shear	18.200	Shear	104	6.75	21.491	18.200	27.187	24.381	24.167	0.000	0.000	0.000
0.000		0.000		Automatic											
g33XY	Diag3	18.200	Shear	18.200	Shear	104	6.75	21.491	18.200	27.187	24.381	24.167	0.000	0.000	0.000
0.000		0.000		Automatic											
g33Y	Diag3	18.200	Shear	18.200	Shear	104	6.75	21.491	18.200	27.187	24.381	24.167	0.000	0.000	0.000
0.000		0.000		Automatic											
g34P	Diag3	18.200	Shear	18.200	Shear	104	6.75	21.491	18.200	27.187	24.381	24.167	0.000	0.000	0.000
0.000		0.000		Automatic											
g34X	Diag3	18.200	Shear	18.200	Shear	104	6.75	21.491	18.200	27.187	24.381	24.167	0.000	0.000	0.000
0.000		0.000		Automatic											
g34XY	Diag3	18.200	Shear	18.200	Shear	104	6.75	21.491	18.200	27.187	24.381	24.167	0.000	0.000	0.000
0.000		0.000		Automatic											
g34Y	Diag3	18.200	Shear	18.200	Shear	104	6.75	21.491	18.200	27.187	24.381	24.167	0.000	0.000	0.000
0.000		0.000		Automatic											
g35P	Diag4	13.267	L/r	12.783	Rupture	145	9.23	13.267	18.200	20.391	18.529	12.783	0.000	0.000	0.000
0.000		0.000		Automatic											
g35X	Diag4	13.267	L/r	12.783	Rupture	145	9.23	13.267	18.200	20.391	18.529	12.783	0.000	0.000	0.000

0.000		0.000		Automatic											
g35XY	Diag4	13.267	L/r	12.783	Rupture	145	9.23	13.267	18.200	20.391	18.529	12.783	0.000	0.000	0.000
0.000		0.000		Automatic											
g35Y	Diag4	13.267	L/r	12.783	Rupture	145	9.23	13.267	18.200	20.391	18.529	12.783	0.000	0.000	0.000
0.000		0.000		Automatic											
g36P	Diag4	13.267	L/r	12.783	Rupture	145	9.23	13.267	18.200	20.391	18.529	12.783	0.000	0.000	0.000
0.000		0.000		Automatic											
g36X	Diag4	13.267	L/r	12.783	Rupture	145	9.23	13.267	18.200	20.391	18.529	12.783	0.000	0.000	0.000
0.000		0.000		Automatic											
g36XY	Diag4	13.267	L/r	12.783	Rupture	145	9.23	13.267	18.200	20.391	18.529	12.783	0.000	0.000	0.000
0.000		0.000		Automatic											
g36Y	Diag4	13.267	L/r	12.783	Rupture	145	9.23	13.267	18.200	20.391	18.529	12.783	0.000	0.000	0.000
0.000		0.000		Automatic											
g37P	Diag3	8.742	L/r	9.100	Shear	175	10.24	8.742	9.100	13.594	24.381	11.062	0.000	0.000	0.000
0.000		0.000		Automatic											
g37X	Diag3	8.742	L/r	9.100	Shear	175	10.24	8.742	9.100	13.594	24.381	11.062	0.000	0.000	0.000
0.000		0.000		Automatic											
g37XY	Diag3	8.742	L/r	9.100	Shear	175	10.24	8.742	9.100	13.594	24.381	11.062	0.000	0.000	0.000
0.000		0.000		Automatic											
g37Y	Diag3	8.742	L/r	9.100	Shear	175	10.24	8.742	9.100	13.594	24.381	11.062	0.000	0.000	0.000
0.000		0.000		Automatic											
g38P	Diag3	8.742	L/r	9.100	Shear	175	10.24	8.742	9.100	13.594	24.381	11.062	0.000	0.000	0.000
0.000		0.000		Automatic											
g38X	Diag3	8.742	L/r	9.100	Shear	175	10.24	8.742	9.100	13.594	24.381	11.062	0.000	0.000	0.000
0.000		0.000		Automatic											
g38XY	Diag3	8.742	L/r	9.100	Shear	175	10.24	8.742	9.100	13.594	24.381	11.062	0.000	0.000	0.000
0.000		0.000		Automatic											
g38Y	Diag3	8.742	L/r	9.100	Shear	175	10.24	8.742	9.100	13.594	24.381	11.062	0.000	0.000	0.000
0.000		0.000		Automatic											
g39P	Diag5	7.372	L/r	8.297	Rupture	177	11.54	7.372	9.100	10.195	18.650	8.297	0.000	0.000	0.000
0.000		0.000		Automatic											
g39X	Diag5	7.372	L/r	8.297	Rupture	177	11.54	7.372	9.100	10.195	18.650	8.297	0.000	0.000	0.000
0.000		0.000		Automatic											
g39XY	Diag5	7.372	L/r	8.297	Rupture	177	11.54	7.372	9.100	10.195	18.650	8.297	0.000	0.000	0.000
0.000		0.000		Automatic											
g39Y	Diag5	7.372	L/r	8.297	Rupture	177	11.54	7.372	9.100	10.195	18.650	8.297	0.000	0.000	0.000
0.000		0.000		Automatic											
g40P	Diag5	7.372	L/r	8.297	Rupture	177	11.54	7.372	9.100	10.195	18.650	8.297	0.000	0.000	0.000
0.000		0.000		Automatic											
g40X	Diag5	7.372	L/r	8.297	Rupture	177	11.54	7.372	9.100	10.195	18.650	8.297	0.000	0.000	0.000
0.000		0.000		Automatic											
g40XY	Diag5	7.372	L/r	8.297	Rupture	177	11.54	7.372	9.100	10.195	18.650	8.297	0.000	0.000	0.000
0.000		0.000		Automatic											
g40Y	Diag5	7.372	L/r	8.297	Rupture	177	11.54	7.372	9.100	10.195	18.650	8.297	0.000	0.000	0.000
0.000		0.000		Automatic											
g41P	Diag5	5.934	L/r	8.297	Rupture	198	13.07	5.934	9.100	10.195	18.650	8.297	0.000	0.000	0.000
0.000		0.000		Automatic											
g41X	Diag5	5.934	L/r	8.297	Rupture	198	13.07	5.934	9.100	10.195	18.650	8.297	0.000	0.000	0.000
0.000		0.000		Automatic											
g41XY	Diag5	5.934	L/r	8.297	Rupture	198	13.07	5.934	9.100	10.195	18.650	8.297	0.000	0.000	0.000
0.000		0.000		Automatic											
g41Y	Diag5	5.934	L/r	8.297	Rupture	198	13.07	5.934	9.100	10.195	18.650	8.297	0.000	0.000	0.000
0.000		0.000		Automatic											
g42P	Diag5	5.934	L/r	8.297	Rupture	198	13.07	5.934	9.100	10.195	18.650	8.297	0.000	0.000	0.000
0.000		0.000		Automatic											
g42X	Diag5	5.934	L/r	8.297	Rupture	198	13.07	5.934	9.100	10.195	18.650	8.297	0.000	0.000	0.000
0.000		0.000		Automatic											
g42XY	Diag5	5.934	L/r	8.297	Rupture	198	13.07	5.934	9.100	10.195	18.650	8.297	0.000	0.000	0.000
0.000		0.000		Automatic											

g42Y	Diag5	5.934	L/r	8.297	Rupture	198	13.07	5.934	9.100	10.195	18.650	8.297	0.000	0.000	0.000
0.000		0.000		Automatic											
g43P	Diag8	3.634	L/r	18.125	Rupture	312	20.23	3.634	18.200	20.391	18.529	18.125	0.000	0.000	0.000
0.000		0.000		Automatic											
g43X	Diag8	3.634	L/r	18.125	Rupture	312	20.23	3.634	18.200	20.391	18.529	18.125	0.000	0.000	0.000
0.000		0.000		Automatic											
g43XY	Diag8	3.634	L/r	18.125	Rupture	312	20.23	3.634	18.200	20.391	18.529	18.125	0.000	0.000	0.000
0.000		0.000		Automatic											
g43Y	Diag8	3.634	L/r	18.125	Rupture	312	20.23	3.634	18.200	20.391	18.529	18.125	0.000	0.000	0.000
0.000		0.000		Automatic											
g44P	Diag8	3.634	L/r	18.125	Rupture	312	20.23	3.634	18.200	20.391	18.529	18.125	0.000	0.000	0.000
0.000		0.000		Automatic											
g44X	Diag8	3.634	L/r	18.125	Rupture	312	20.23	3.634	18.200	20.391	18.529	18.125	0.000	0.000	0.000
0.000		0.000		Automatic											
g44XY	Diag8	3.634	L/r	18.125	Rupture	312	20.23	3.634	18.200	20.391	18.529	18.125	0.000	0.000	0.000
0.000		0.000		Automatic											
g44Y	Diag8	3.634	L/r	18.125	Rupture	312	20.23	3.634	18.200	20.391	18.529	18.125	0.000	0.000	0.000
0.000		0.000		Automatic											
g45P	**Diag6**	**2.031**	**L/r**	**14.006**	**Rupture**	**316**	**10.39**	**2.031**	**18.200**	**20.391**	**18.448**	**14.006**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**											
KL/R value of 316.33 exceeds maximum of 200.00 for member "g45P" ??															
g45X	**Diag6**	**2.031**	**L/r**	**14.006**	**Rupture**	**316**	**10.39**	**2.031**	**18.200**	**20.391**	**18.448**	**14.006**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**											
KL/R value of 316.33 exceeds maximum of 200.00 for member "g45X" ??															
g45XY	**Diag6**	**2.031**	**L/r**	**14.006**	**Rupture**	**316**	**10.39**	**2.031**	**18.200**	**20.391**	**18.448**	**14.006**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**											
KL/R value of 316.33 exceeds maximum of 200.00 for member "g45XY" ??															
g45Y	**Diag6**	**2.031**	**L/r**	**14.006**	**Rupture**	**316**	**10.39**	**2.031**	**18.200**	**20.391**	**18.448**	**14.006**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**											
KL/R value of 316.33 exceeds maximum of 200.00 for member "g45Y" ??															
g46P	**Diag6**	**2.031**	**L/r**	**14.006**	**Rupture**	**316**	**10.39**	**2.031**	**18.200**	**20.391**	**18.448**	**14.006**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**											
KL/R value of 316.33 exceeds maximum of 200.00 for member "g46P" ??															
g46X	**Diag6**	**2.031**	**L/r**	**14.006**	**Rupture**	**316**	**10.39**	**2.031**	**18.200**	**20.391**	**18.448**	**14.006**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**											
KL/R value of 316.33 exceeds maximum of 200.00 for member "g46X" ??															
g46XY	**Diag6**	**2.031**	**L/r**	**14.006**	**Rupture**	**316**	**10.39**	**2.031**	**18.200**	**20.391**	**18.448**	**14.006**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**											
KL/R value of 316.33 exceeds maximum of 200.00 for member "g46XY" ??															
g46Y	**Diag6**	**2.031**	**L/r**	**14.006**	**Rupture**	**316**	**10.39**	**2.031**	**18.200**	**20.391**	**18.448**	**14.006**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**											
KL/R value of 316.33 exceeds maximum of 200.00 for member "g46Y" ??															
g47P	Diag7	2.765	L/r	13.162	Rupture	295	25.31	2.765	18.200	20.391	15.532	13.162	0.000	0.000	0.000
0.000		0.000		Automatic											
g47X	Diag7	2.765	L/r	13.162	Rupture	295	25.31	2.765	18.200	20.391	15.532	13.162	0.000	0.000	0.000
0.000		0.000		Automatic											
g47XY	Diag7	2.765	L/r	13.162	Rupture	295	25.31	2.765	18.200	20.391	15.532	13.162	0.000	0.000	0.000
0.000		0.000		Automatic											
g47Y	Diag7	2.765	L/r	13.162	Rupture	295	25.31	2.765	18.200	20.391	15.532	13.162	0.000	0.000	0.000
0.000		0.000		Automatic											
g48P	Diag7	2.765	L/r	13.162	Rupture	295	25.31	2.765	18.200	20.391	15.532	13.162	0.000	0.000	0.000
0.000		0.000		Automatic											
g48X	Diag7	2.765	L/r	13.162	Rupture	295	25.31	2.765	18.200	20.391	15.532	13.162	0.000	0.000	0.000
0.000		0.000		Automatic											
g48XY	Diag7	2.765	L/r	13.162	Rupture	295	25.31	2.765	18.200	20.391	15.532	13.162	0.000	0.000	0.000
0.000		0.000		Automatic											
g48Y	Diag7	2.765	L/r	13.162	Rupture	295	25.31	2.765	18.200	20.391	15.532	13.162	0.000	0.000	0.000
0.000		0.000		Automatic											
g49P	Horz1	6.036	L/r	6.664	Rupture	183	5.00	6.036	9.100	10.195	12.373	6.664	0.000	0.000	0.000

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0.000              0.000           Automatic
   g49X    Horz1    6.036       L/r    6.664   Rupture  183   5.00    6.036      9.100     10.195    12.373    6.664    0.000    0.000    0.000
0.000              0.000           Automatic
   g50P    Horz2    3.617       L/r    5.766   Rupture  205   5.00    3.617      9.100     10.195    12.616    5.766    0.000    0.000    0.000
0.000              0.000           Automatic
KL/R value of 204.78 exceeds maximum of 200.00 for member "g50P"  ??
   g50X    Horz2    3.617       L/r    5.766   Rupture  205   5.00    3.617      9.100     10.195    12.616    5.766    0.000    0.000    0.000
0.000              0.000           Automatic
KL/R value of 204.78 exceeds maximum of 200.00 for member "g50X"  ??
   g51P    Horz2    3.617       L/r    5.766   Rupture  205   5.00    3.617      9.100     10.195    12.616    5.766    0.000    0.000    0.000
0.000              0.000           Automatic
KL/R value of 204.78 exceeds maximum of 200.00 for member "g51P"  ??
   g51Y    Horz2    3.617       L/r    5.766   Rupture  205   5.00    3.617      9.100     10.195    12.616    5.766    0.000    0.000    0.000
0.000              0.000           Automatic
KL/R value of 204.78 exceeds maximum of 200.00 for member "g51Y"  ??
   g52P    Horz2    3.617       L/r    5.766   Rupture  205   5.00    3.617      9.100     10.195    12.616    5.766    0.000    0.000    0.000
0.000              0.000           Automatic
KL/R value of 204.78 exceeds maximum of 200.00 for member "g52P"  ??
   g52Y    Horz2    3.617       L/r    5.766   Rupture  205   5.00    3.617      9.100     10.195    12.616    5.766    0.000    0.000    0.000
0.000              0.000           Automatic
KL/R value of 204.78 exceeds maximum of 200.00 for member "g52Y"  ??
   g53P    Horz2    3.617       L/r    5.766   Rupture  205   5.00    3.617      9.100     10.195    12.616    5.766    0.000    0.000    0.000
0.000              0.000           Automatic
KL/R value of 204.78 exceeds maximum of 200.00 for member "g53P"  ??
   g53Y    Horz2    3.617       L/r    5.766   Rupture  205   5.00    3.617      9.100     10.195    12.616    5.766    0.000    0.000    0.000
0.000              0.000           Automatic
KL/R value of 204.78 exceeds maximum of 200.00 for member "g53Y"  ??
   g54P    Horz2    3.617       L/r    5.766   Rupture  205   5.00    3.617      9.100     10.195    12.616    5.766    0.000    0.000    0.000
0.000              0.000           Automatic
KL/R value of 204.78 exceeds maximum of 200.00 for member "g54P"  ??
   g54Y    Horz2    3.617       L/r    5.766   Rupture  205   5.00    3.617      9.100     10.195    12.616    5.766    0.000    0.000    0.000
0.000              0.000           Automatic
KL/R value of 204.78 exceeds maximum of 200.00 for member "g54Y"  ??
   g55P    Horz2    3.617       L/r    6.664   Rupture  205   5.00    3.617      9.100     10.195    12.616    6.664    0.000    0.000    0.000
0.000              0.000           Automatic
KL/R value of 204.78 exceeds maximum of 200.00 for member "g55P"  ??
   g55X    Horz2    3.617       L/r    6.664   Rupture  205   5.00    3.617      9.100     10.195    12.616    6.664    0.000    0.000    0.000
0.000              0.000           Automatic
KL/R value of 204.78 exceeds maximum of 200.00 for member "g55X"  ??
   g56P    Horz2    3.617       L/r    6.664   Rupture  205   5.00    3.617      9.100     10.195    12.616    6.664    0.000    0.000    0.000
0.000              0.000           Automatic
KL/R value of 204.78 exceeds maximum of 200.00 for member "g56P"  ??
   g56X    Horz2    3.617       L/r    6.664   Rupture  205   5.00    3.617      9.100     10.195    12.616    6.664    0.000    0.000    0.000
0.000              0.000           Automatic
KL/R value of 204.78 exceeds maximum of 200.00 for member "g56X"  ??
   g57P    Horz2    3.617       L/r    6.664   Rupture  205   5.00    3.617      9.100     10.195    12.616    6.664    0.000    0.000    0.000
0.000              0.000           Automatic
KL/R value of 204.78 exceeds maximum of 200.00 for member "g57P"  ??
   g57X    Horz2    3.617       L/r    6.664   Rupture  205   5.00    3.617      9.100     10.195    12.616    6.664    0.000    0.000    0.000
0.000              0.000           Automatic
KL/R value of 204.78 exceeds maximum of 200.00 for member "g57X"  ??
   g58P    Horz3    7.285       L/r    7.017   Rupture  178  11.79    7.285      9.100     10.195    18.650    7.017    0.000    0.000    0.000
0.000              0.000           Automatic
   g58X    Horz3    7.285       L/r    7.017   Rupture  178  11.79    7.285      9.100     10.195    18.650    7.017    0.000    0.000    0.000
0.000              0.000           Automatic
   g59P    Horz3    7.285       L/r    7.017   Rupture  178  11.79    7.285      9.100     10.195    18.650    7.017    0.000    0.000    0.000
0.000              0.000           Automatic
   g59Y    Horz3    7.285       L/r    7.017   Rupture  178  11.79    7.285      9.100     10.195    18.650    7.017    0.000    0.000    0.000
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0.000             0.000          Automatic
   g60P    Horz4   14.534      L/r   18.200     Shear  199  15.40   14.534     18.200     27.187   40.581   24.167    0.000    0.000    0.000
0.000             0.000          Automatic
   g60X    Horz4   14.534      L/r   18.200     Shear  199  15.40   14.534     18.200     27.187   40.581   24.167    0.000    0.000    0.000
0.000             0.000          Automatic
   g61P    Horz4   14.534      L/r   18.200     Shear  199  15.40   14.534     18.200     27.187   40.581   24.167    0.000    0.000    0.000
0.000             0.000          Automatic
   g61Y    Horz4   14.534      L/r   18.200     Shear  199  15.40   14.534     18.200     27.187   40.581   24.167    0.000    0.000    0.000
0.000             0.000          Automatic
   g62P    Horz5   12.245      L/r   15.993   Rupture  172   8.54   12.245     18.200     20.391   30.760   15.993    0.000    0.000    0.000
0.000             0.000          Automatic  Member "g62P" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g62X    Horz5   12.245      L/r   15.993   Rupture  172   8.54   12.245     18.200     20.391   30.760   15.993    0.000    0.000    0.000
0.000             0.000          Automatic  Member "g62X" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
  g62XY    Horz5   12.245      L/r   15.993   Rupture  172   8.54   12.245     18.200     20.391   30.760   15.993    0.000    0.000    0.000
0.000             0.000          Automatic Member "g62XY" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g62Y    Horz5   12.245      L/r   15.993   Rupture  172   8.54   12.245     18.200     20.391   30.760   15.993    0.000    0.000    0.000
0.000             0.000          Automatic  Member "g62Y" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g63P    Horz5   12.245      L/r   15.993   Rupture  172   8.54   12.245     18.200     20.391   30.760   15.993    0.000    0.000    0.000
0.000             0.000          Automatic  Member "g63P" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g63X    Horz5   12.245      L/r   15.993   Rupture  172   8.54   12.245     18.200     20.391   30.760   15.993    0.000    0.000    0.000
0.000             0.000          Automatic  Member "g63X" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
  g63XY    Horz5   12.245      L/r   15.993   Rupture  172   8.54   12.245     18.200     20.391   30.760   15.993    0.000    0.000    0.000
0.000             0.000          Automatic Member "g63XY" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g63Y    Horz5   12.245      L/r   15.993   Rupture  172   8.54   12.245     18.200     20.391   30.760   15.993    0.000    0.000    0.000
0.000             0.000          Automatic  Member "g63Y" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g64P   Inner1    5.530      L/r    7.687   Rupture  189   3.54    5.530      9.100     13.594   16.281    7.687    0.000    0.000    0.000
0.000             0.000          Automatic
   g64X   Inner1    5.530      L/r    7.687   Rupture  189   3.54    5.530      9.100     13.594   16.281    7.687    0.000    0.000    0.000
0.000             0.000          Automatic
  g64XY   Inner1    5.530      L/r    7.687   Rupture  189   3.54    5.530      9.100     13.594   16.281    7.687    0.000    0.000    0.000
0.000             0.000          Automatic
   g64Y   Inner1    5.530      L/r    7.687   Rupture  189   3.54    5.530      9.100     13.594   16.281    7.687    0.000    0.000    0.000
0.000             0.000          Automatic
   g65P   Inner1    5.530      L/r    7.687   Rupture  189   3.54    5.530      9.100     13.594   16.281    7.687    0.000    0.000    0.000
0.000             0.000          Automatic
   g65X   Inner1    5.530      L/r    7.687   Rupture  189   3.54    5.530      9.100     13.594   16.281    7.687    0.000    0.000    0.000
0.000             0.000          Automatic
  g65XY   Inner1    5.530      L/r    7.687   Rupture  189   3.54    5.530      9.100     13.594   16.281    7.687    0.000    0.000    0.000
0.000             0.000          Automatic
   g65Y   Inner1    5.530      L/r    7.687   Rupture  189   3.54    5.530      9.100     13.594   16.281    7.687    0.000    0.000    0.000
0.000             0.000          Automatic
   g66P   Inner1    5.530      L/r    7.687   Rupture  189   3.54    5.530      9.100     13.594   16.281    7.687    0.000    0.000    0.000
0.000             0.000          Automatic
   g66X   Inner1    5.530      L/r    7.687   Rupture  189   3.54    5.530      9.100     13.594   16.281    7.687    0.000    0.000    0.000
0.000             0.000          Automatic
  g66XY   Inner1    5.530      L/r    7.687   Rupture  189   3.54    5.530      9.100     13.594   16.281    7.687    0.000    0.000    0.000
0.000             0.000          Automatic
   g66Y   Inner1    5.530      L/r    7.687   Rupture  189   3.54    5.530      9.100     13.594   16.281    7.687    0.000    0.000    0.000
0.000             0.000          Automatic
   g67P   Inner1    5.530      L/r    7.687   Rupture  189   3.54    5.530      9.100     13.594   16.281    7.687    0.000    0.000    0.000
0.000             0.000          Automatic
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   g67X   Inner1    5.530       L/r    7.687   Rupture  189   3.54    5.530      9.100     13.594   16.281    7.687    0.000    0.000    0.000
0.000              0.000           Automatic
  g67XY   Inner1    5.530       L/r    7.687   Rupture  189   3.54    5.530      9.100     13.594   16.281    7.687    0.000    0.000    0.000
0.000              0.000           Automatic
   g67Y   Inner1    5.530       L/r    7.687   Rupture  189   3.54    5.530      9.100     13.594   16.281    7.687    0.000    0.000    0.000
0.000              0.000           Automatic
   g68P   Inner2    5.277       L/r   15.993   Rupture  243  12.08    5.277     18.200     20.391   30.760   15.993    0.000    0.000    0.000
0.000              0.000           Automatic
KL/R value of 243.16 exceeds maximum of 200.00 for member "g68P"  ??
   g68X   Inner2    5.277       L/r   15.993   Rupture  243  12.08    5.277     18.200     20.391   30.760   15.993    0.000    0.000    0.000
0.000              0.000           Automatic
KL/R value of 243.16 exceeds maximum of 200.00 for member "g68X"  ??
  g68XY   Inner2    5.277       L/r   15.993   Rupture  243  12.08    5.277     18.200     20.391   30.760   15.993    0.000    0.000    0.000
0.000              0.000           Automatic
KL/R value of 243.16 exceeds maximum of 200.00 for member "g68XY"  ??
   g68Y   Inner2    5.277       L/r   15.993   Rupture  243  12.08    5.277     18.200     20.391   30.760   15.993    0.000    0.000    0.000
0.000              0.000           Automatic
KL/R value of 243.16 exceeds maximum of 200.00 for member "g68Y"  ??
   g69P ShieldAr   12.545       L/r   18.200     Shear  165  13.48   12.545     18.200     27.187   26.406   28.431    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g69P" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g69X ShieldAr   12.545       L/r   18.200     Shear  165  13.48   12.545     18.200     27.187   26.406   28.431    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g69X" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
  g69XY ShieldAr   12.545       L/r   18.200     Shear  165  13.48   12.545     18.200     27.187   26.406   28.431    0.000    0.000    0.000
0.000              0.000           Automatic Member "g69XY" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g69Y ShieldAr   12.545       L/r   18.200     Shear  165  13.48   12.545     18.200     27.187   26.406   28.431    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g69Y" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g70P ShieldAr   18.200     Shear   18.200     Shear  122   5.00   22.724     18.200     27.187   30.658   28.431    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g70P" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g70Y ShieldAr   18.200     Shear   18.200     Shear  122   5.00   22.724     18.200     27.187   30.658   28.431    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g70Y" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g71P TopCrArm   27.300     Shear   27.300     Shear  122  11.04   27.685     27.300     40.781   34.506   31.719    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g71P" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g71X TopCrArm   27.300     Shear   27.300     Shear  122  11.04   27.685     27.300     40.781   34.506   31.719    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g71X" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
  g71XY TopCrArm   27.300     Shear   27.300     Shear  122  11.04   27.685     27.300     40.781   34.506   31.719    0.000    0.000    0.000
0.000              0.000           Automatic Member "g71XY" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g71Y TopCrArm   27.300     Shear   27.300     Shear  122  11.04   27.685     27.300     40.781   34.506   31.719    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g71Y" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g72P TopCrArm   27.300     Shear   27.300     Shear  110   5.00   30.227     27.300     40.781   34.506   31.719    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g72P" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g72Y TopCrArm   27.300     Shear   27.300     Shear  110   5.00   30.227     27.300     40.781   34.506   31.719    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g72Y" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g73P MidCrArm   33.179       L/r   36.400     Shear  129  13.48   33.179     36.400     67.969   47.344   67.969    0.000    0.000    0.000
0.000              0.000           Automatic  Member "g73P" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g73X MidCrArm   33.179       L/r   36.400     Shear  129  13.48   33.179     36.400     67.969   47.344   67.969    0.000    0.000    0.000
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0.000 0.000 Automatic Member "g73X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
g73XY MidCrArm 33.179 L/r 36.400 Shear 129 13.48 33.179 36.400 67.969 47.344 67.969 0.000 0.000 0.000
0.000 0.000 Automatic Member "g73XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
g73Y MidCrArm 33.179 L/r 36.400 Shear 129 13.48 33.179 36.400 67.969 47.344 67.969 0.000 0.000 0.000
0.000 0.000 Automatic Member "g73Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
g74P MidCrArm 36.400 Shear 36.400 Shear 96 5.00 44.069 36.400 67.969 47.344 67.969 0.000 0.000 0.000
0.000 0.000 Automatic Member "g74P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
g74Y MidCrArm 36.400 Shear 36.400 Shear 96 5.00 44.069 36.400 67.969 47.344 67.969 0.000 0.000 0.000
0.000 0.000 Automatic Member "g74Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
g75P BotCrArm 27.300 Shear 27.300 Shear 122 11.04 27.685 27.300 40.781 35.660 42.647 0.000 0.000 0.000
0.000 0.000 Automatic Member "g75P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
g75X BotCrArm 27.300 Shear 27.300 Shear 122 11.04 27.685 27.300 40.781 35.660 42.647 0.000 0.000 0.000
0.000 0.000 Automatic Member "g75X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
g75XY BotCrArm 27.300 Shear 27.300 Shear 122 11.04 27.685 27.300 40.781 35.660 42.647 0.000 0.000 0.000
0.000 0.000 Automatic Member "g75XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
g75Y BotCrArm 27.300 Shear 27.300 Shear 122 11.04 27.685 27.300 40.781 35.660 42.647 0.000 0.000 0.000
0.000 0.000 Automatic Member "g75Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
g76P BotCrArm 27.300 Shear 27.300 Shear 110 5.00 30.227 27.300 40.781 35.660 42.647 0.000 0.000 0.000
0.000 0.000 Automatic Member "g76P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
g76Y BotCrArm 27.300 Shear 27.300 Shear 110 5.00 30.227 27.300 40.781 35.660 42.647 0.000 0.000 0.000
0.000 0.000 Automatic Member "g76Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
g77P ShArmBr 6.772 L/r 16.453 Rupture 195 14.27 6.772 18.200 20.391 18.529 16.453 0.000 0.000 0.000
0.000 0.000 Automatic
g77X ShArmBr 6.772 L/r 16.453 Rupture 195 14.27 6.772 18.200 20.391 18.529 16.453 0.000 0.000 0.000
0.000 0.000 Automatic
g77XY ShArmBr 6.772 L/r 16.453 Rupture 195 14.27 6.772 18.200 20.391 18.529 16.453 0.000 0.000 0.000
0.000 0.000 Automatic
g77Y ShArmBr 6.772 L/r 16.453 Rupture 195 14.27 6.772 18.200 20.391 18.529 16.453 0.000 0.000 0.000
0.000 0.000 Automatic
g78P TopArmBr 7.031 L/r 16.453 Rupture 182 12.00 7.031 18.200 20.391 18.650 16.453 0.000 0.000 0.000
0.000 0.000 Automatic
g78X TopArmBr 7.031 L/r 16.453 Rupture 182 12.00 7.031 18.200 20.391 18.650 16.453 0.000 0.000 0.000
0.000 0.000 Automatic
g78XY TopArmBr 7.031 L/r 16.453 Rupture 182 12.00 7.031 18.200 20.391 18.650 16.453 0.000 0.000 0.000
0.000 0.000 Automatic
g78Y TopArmBr 7.031 L/r 16.453 Rupture 182 12.00 7.031 18.200 20.391 18.650 16.453 0.000 0.000 0.000
0.000 0.000 Automatic
g79P MidArmBr 6.812 L/r 16.453 Rupture 194 14.23 6.812 18.200 20.391 18.529 16.453 0.000 0.000 0.000
0.000 0.000 Automatic
g79X MidArmBr 6.812 L/r 16.453 Rupture 194 14.23 6.812 18.200 20.391 18.529 16.453 0.000 0.000 0.000
0.000 0.000 Automatic
g79XY MidArmBr 6.812 L/r 16.453 Rupture 194 14.23 6.812 18.200 20.391 18.529 16.453 0.000 0.000 0.000
0.000 0.000 Automatic
g79Y MidArmBr 6.812 L/r 16.453 Rupture 194 14.23 6.812 18.200 20.391 18.529 16.453 0.000 0.000 0.000
0.000 0.000 Automatic
g80P BotArmBr 7.109 L/r 16.453 Rupture 181 11.93 7.109 18.200 20.391 18.650 16.453 0.000 0.000 0.000
0.000 0.000 Automatic

g80X	BotArmBr	7.109	L/r	16.453	Rupture	181	11.93	7.109	18.200	20.391	18.650	16.453	0.000	0.000	0.000
0.000		0.000		Automatic											
g80XY	BotArmBr	7.109	L/r	16.453	Rupture	181	11.93	7.109	18.200	20.391	18.650	16.453	0.000	0.000	0.000
0.000		0.000		Automatic											
g80Y	BotArmBr	7.109	L/r	16.453	Rupture	181	11.93	7.109	18.200	20.391	18.650	16.453	0.000	0.000	0.000
0.000		0.000		Automatic											
g81P	Pwmnt	420.955	L/r	475.999	Net Sect	62	22.50	420.955	0.000	0.000	475.999	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g82P	Pwmnt	424.374	L/r	475.999	Net Sect	60	21.79	424.374	0.000	0.000	475.999	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g83P	Pwmnt	390.998	L/r	475.999	Net Sect	76	27.96	390.998	0.000	0.000	475.999	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g84P	Pwmnt	454.688	L/r	475.999	Net Sect	38	14.00	454.688	0.000	0.000	475.999	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g85P	Pwmnt	454.688	L/r	475.999	Net Sect	38	14.00	454.688	0.000	0.000	475.999	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g86P	Pwmnt	448.164	L/r	475.999	Net Sect	44	16.00	448.164	0.000	0.000	475.999	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g87P	Pwmnt	451.535	L/r	475.999	Net Sect	41	15.00	451.535	0.000	0.000	475.999	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g88P	PMBR1	10.195	Bearing	10.195	Bearing	82	2.71	17.322	16.800	10.195	18.827	10.343	0.000	0.000	0.000
0.000		0.000		Automatic											
g88X	PMBR1	10.195	Bearing	10.195	Bearing	82	2.71	17.322	16.800	10.195	18.827	10.343	0.000	0.000	0.000
0.000		0.000		Automatic											
g89P	PMBR1	10.195	Bearing	10.195	Bearing	44	1.46	20.128	16.800	10.195	18.827	10.343	0.000	0.000	0.000
0.000		0.000		Automatic											
g90P	PMBR1	10.195	Bearing	10.195	Bearing	82	2.71	17.322	16.800	10.195	18.827	10.343	0.000	0.000	0.000
0.000		0.000		Automatic											
g90X	PMBR1	10.195	Bearing	10.195	Bearing	82	2.71	17.322	16.800	10.195	18.827	10.343	0.000	0.000	0.000
0.000		0.000		Automatic											
g91P	PMBR1	10.195	Bearing	10.195	Bearing	44	1.46	20.128	16.800	10.195	18.827	10.343	0.000	0.000	0.000
0.000		0.000		Automatic											
g92P	PMBR1	10.195	Bearing	10.195	Bearing	82	2.71	17.322	16.800	10.195	18.827	10.343	0.000	0.000	0.000
0.000		0.000		Automatic											
g92X	PMBR1	10.195	Bearing	10.195	Bearing	82	2.71	17.322	16.800	10.195	18.827	10.343	0.000	0.000	0.000
0.000		0.000		Automatic											
g93P	PMBR1	10.195	Bearing	10.195	Bearing	44	1.46	20.128	16.800	10.195	18.827	10.343	0.000	0.000	0.000
0.000		0.000		Automatic											
g94P	PMBR1	10.195	Bearing	10.195	Bearing	82	2.71	17.322	16.800	10.195	18.827	10.343	0.000	0.000	0.000
0.000		0.000		Automatic											
g94X	PMBR1	10.195	Bearing	10.195	Bearing	82	2.71	17.322	16.800	10.195	18.827	10.343	0.000	0.000	0.000
0.000		0.000		Automatic											
g95P	PMBR1	10.195	Bearing	10.195	Bearing	44	1.46	20.128	16.800	10.195	18.827	10.343	0.000	0.000	0.000
0.000		0.000		Automatic											
g96P	PMBR2	13.594	Bearing	13.594	Bearing	128	7.38	29.729	16.800	13.594	49.187	15.104	0.000	0.000	0.000
0.000		0.000		Automatic											
g96X	PMBR2	13.594	Bearing	13.594	Bearing	128	7.38	29.729	16.800	13.594	49.187	15.104	0.000	0.000	0.000
0.000		0.000		Automatic											
g97P	PMBR3	13.594	Bearing	13.594	Bearing	142	9.42	27.444	16.800	13.594	57.287	15.104	0.000	0.000	0.000
0.000		0.000		Automatic											
g97X	PMBR3	13.594	Bearing	13.594	Bearing	142	9.42	27.444	16.800	13.594	57.287	15.104	0.000	0.000	0.000
0.000		0.000		Automatic											
g98P	PMBR4	8.761	L/r	10.195	Bearing	172	7.08	8.761	16.800	10.195	25.048	11.328	0.000	0.000	0.000
0.000		0.000		Automatic											
g99P	PMBR5	13.366	L/r	13.594	Bearing	176	8.66	13.366	16.800	13.594	41.087	15.104	0.000	0.000	0.000
0.000		0.000		Automatic											
g99X	PMBR5	13.366	L/r	13.594	Bearing	176	8.66	13.366	16.800	13.594	41.087	15.104	0.000	0.000	0.000
0.000		0.000		Automatic											
g100P	PMBR2	13.594	Bearing	13.594	Bearing	173	10.00	16.186	16.800	13.594	49.187	15.104	0.000	0.000	0.000

0.000 0.000 Automatic

The model contains 313 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	0.0795	3.786	2.545
2P	0.0957	5.642	4.548
3P	0.086	5.119	4.140
4P	0.113	5.767	4.026
5P	0.0656	3.073	3.073
6P	0.0903	5.048	3.632
7P	0.151	6.311	4.205
8P	0.0903	3.512	3.512
9P	0.109	4.939	3.951
10P	0.168	7.885	6.144
11P	0.194	8.210	8.210
20P	0.0991	6.273	1.845
21P	0.0871	5.581	1.840
22P	0.133	7.366	2.025
23P	0.0869	5.567	1.809
24P	0.372	7.969	7.969
25P	0.777	16.885	16.764
26P	0.752	16.354	16.233
27P	0.703	15.292	15.170
28P	1.05	22.708	22.586
29P	1.34	30.114	30.174
30P	1.18	25.664	26.089
31P	0.558	11.953	11.953
32P	0.0183	0.625	0.747
33P	0.0183	0.625	0.747
34P	0.0183	0.625	0.747
35P	0.0183	0.625	0.747
1X	0.0795	3.786	2.545
1XY	0.0762	3.578	2.458
1Y	0.0762	3.578	2.458
2X	0.0957	5.642	4.548
2XY	0.0957	5.642	4.548
2Y	0.0957	5.642	4.548
3X	0.086	5.119	4.140
3XY	0.086	5.119	4.140
3Y	0.086	5.119	4.140
4X	0.113	5.767	4.026
4XY	0.11	5.559	3.939
4Y	0.11	5.559	3.939
5X	0.0656	3.073	3.073
5XY	0.0656	3.073	3.073
5Y	0.0656	3.073	3.073
6X	0.0903	5.048	3.632
6XY	0.0903	5.048	3.632
6Y	0.0903	5.048	3.632
7X	0.151	6.311	4.205
7XY	0.148	6.102	4.118
7Y	0.148	6.102	4.118
8X	0.0903	3.512	3.512

8XY	0.0903	3.512	3.512
8Y	0.0903	3.512	3.512
9X	0.109	4.939	3.951
9XY	0.109	4.939	3.951
9Y	0.109	4.939	3.951
10X	0.168	7.885	6.144
10XY	0.164	7.677	6.057
10Y	0.164	7.677	6.057
11X	0.194	8.210	8.210
11XY	0.194	8.210	8.210
11Y	0.194	8.210	8.210
20X	0.0991	6.273	1.845
21X	0.0871	5.581	1.840
22X	0.133	7.366	2.025
23X	0.0869	5.567	1.809
12S	0.148	6.395	6.395
13S	0.15	6.234	6.234
14S	0.155	6.968	6.968
15S	0.289	13.202	12.990
16S	0.299	12.332	12.332
17S	0.215	7.242	7.242
18S	0.166	9.665	7.340
19S	0.177	7.669	9.847
12X	0.148	6.395	6.395
12XY	0.148	6.395	6.395
12Y	0.148	6.395	6.395
13X	0.15	6.234	6.234
13XY	0.15	6.234	6.234
13Y	0.15	6.234	6.234
14X	0.155	6.968	6.968
14XY	0.155	6.968	6.968
14Y	0.155	6.968	6.968
15X	0.289	13.202	12.990
15XY	0.299	13.325	13.568
15Y	0.299	13.325	13.568
16X	0.299	12.332	12.332
16XY	0.299	12.332	12.332
16Y	0.299	12.332	12.332
17X	0.215	7.242	7.242
17XY	0.215	7.242	7.242
17Y	0.215	7.242	7.242
18Y	0.184	9.665	8.060
19X	0.177	7.669	9.847
Total	18.3	678.918	601.100

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	7.719	304.986	226.196	103.566	124.428
2	10.587	373.932	374.904	110.318	187.083
Total	18.306	678.918	601.100	213.883	311.511

Angle Member Weights and Surface Areas by Section:

Section Label	Unfactored Weight	Factored Weight	Unfactored Surface Area	Factored Surface Area

	(kips)	(kips)	(ft^2)	(ft^2)
1	7.719	7.719	1210.425	1210.425
2	10.587	11.117	1592.895	1672.540
Total	18.306	18.836	2803.321	2882.965

Section Joint Information:

Section Label	Joint Label	Joint Elevation (ft)
1	1P	116.250
1	2P	111.580
1	1X	116.250
1	2X	111.580
1	1XY	116.250
1	2XY	111.580
1	1Y	116.250
1	2Y	111.580
1	3P	104.960
1	3X	104.960
1	3XY	104.960
1	3Y	104.960
1	4P	100.250
1	4X	100.250
1	4XY	100.250
1	4Y	100.250
1	5P	95.380
1	5X	95.380
1	5XY	95.380
1	5Y	95.380
1	6P	90.790
1	6X	90.790
1	6XY	90.790
1	6Y	90.790
1	7P	86.250
1	7X	86.250
1	7XY	86.250
1	7Y	86.250
1	8P	81.380
1	8X	81.380
1	8XY	81.380
1	8Y	81.380
1	9P	76.790
1	9X	76.790
1	9XY	76.790
1	9Y	76.790
1	10P	72.250
1	10X	72.250
1	10XY	72.250
1	10Y	72.250
1	32P	116.250
1	33P	100.250
1	34P	86.250
1	35P	72.250
1	20X	116.250
1	20P	116.250
1	21X	100.250

1	21P	100.250
1	22X	86.250
1	22P	86.250
1	23X	72.250
1	23P	72.250
1	28P	72.250
1	27P	86.250
1	26P	100.250
1	25P	116.250
1	24P	131.250
2	10P	72.250
2	12S	65.170
2	10X	72.250
2	12X	65.170
2	10XY	72.250
2	12XY	65.170
2	10Y	72.250
2	12Y	65.170
2	13S	58.300
2	13X	58.300
2	13XY	58.300
2	13Y	58.300
2	14S	51.420
2	14X	51.420
2	14XY	51.420
2	14Y	51.420
2	15S	44.290
2	15X	44.290
2	15XY	44.290
2	15Y	44.290
2	16S	29.420
2	16X	29.420
2	16XY	29.420
2	16Y	29.420
2	17S	22.500
2	17X	22.500
2	17XY	22.500
2	17Y	22.500
2	11P	0.000
2	11X	0.000
2	11XY	0.000
2	11Y	0.000
2	18S	22.500
2	18Y	22.500
2	19S	22.500
2	19X	22.500
2	31P	0.000
2	30P	22.500
2	29P	44.290
2	28P	72.250

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	131.250	72.250	57	198	0.00	5.00	257.500	0.00	26.50	677.720
2	72.250	0.000	40	115	5.00	22.54	994.955	5.00	22.54	994.955

*** Insulator Data

Clamp Properties:

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

Clamp Insulator Connectivity:

Clamp Label	Structure And Tip Attach	Property Set	Min. Required Vertical Load (uplift) (lbs)
1	20P	C-EX1	No Limit
2	20X	C-EX1	No Limit
3	21P	C-EX1	No Limit
4	21X	C-EX1	No Limit
5	22P	C-EX1	No Limit
6	22X	C-EX1	No Limit
7	23P	C-EX1	No Limit
8	23X	C-EX1	No Limit
9	24P	C-EX1	No Limit
10	25P	C-EX1	No Limit
11	26P	C-EX1	No Limit
12	27P	C-EX1	No Limit
13	28P	C-EX1	No Limit
14	29P	C-EX1	No Limit
15	30P	C-EX1	No Limit
16	2X	C-EX1	No Limit
17	4X	C-EX1	No Limit
18	6X	C-EX1	No Limit
19	8X	C-EX1	No Limit
20	10X	C-EX1	No Limit
21	13X	C-EX1	No Limit
22	15X	C-EX1	No Limit
23	17X	C-EX1	No Limit
24	2XY	C-EX1	No Limit
25	4XY	C-EX1	No Limit
26	6XY	C-EX1	No Limit
27	8XY	C-EX1	No Limit
28	10XY	C-EX1	No Limit
29	13XY	C-EX1	No Limit
30	15XY	C-EX1	No Limit
31	17XY	C-EX1	No Limit

*** Loads Data

Loads from file: j:\jobs\1715900.wi\03_ct03xc055 windsor\04_structural\calcs\rev (1)\pls tower\cl&p # 10133.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)	131.25 (ft)	
Structure height	131.25 (ft)	
Structure height above ground	131.25 (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 and 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	1.5000	2.5000	1.00000	1.0000	1.0000	1.0000	32 loads	Wind on Face	4	0	0.000	0.000	0.0	
NESC Extreme	1.0000	1.0000	1.00000	1.0000	1.0000	1.0000	32 loads	NESC 2012	31	0	0.000	0.000	0.0	

Point Loads for Load Case "NESC Heavy":

Joint Label	Vertical Load (lbs)	Transverse Load (lbs)	Longitudinal Load (lbs)	Load Comment
20P	805	656	0	Shield Wire
20X	710	626	0	Shield Wire
21P	2750	1169	0	Conductor
21X	0	0	0	Conductor
22P	2750	1169	0	Conductor
22X	0	0	0	Conductor
23P	2750	1169	0	Conductor
23X	0	0	0	Conductor
24P	3534	454	0	Sprint Antennas
24P	70	0	0	Coax Cable in Antenna Mast
25P	145	0	0	Coax Cable in Antenna Mast
26P	140	0	0	Coax Cable in Antenna Mast
27P	131	0	0	Coax Cable in Antenna Mast
28P	197	0	0	Coax Cable in Antenna Mast
29P	243	0	0	Coax Cable in Antenna Mast
30P	309	0	0	Coax Cable in Antenna Mast
2X	356	241	0	Coax Cable on Tower
4X	241	163	0	Coax Cable on Tower
6X	218	148	0	Coax Cable on Tower
8X	213	144	0	Coax Cable on Tower

10X	264	179	0	Coax Cable on Tower
13X	322	218	0	Coax Cable on Tower
15X	414	280	0	Coax Cable on Tower
17X	759	514	0	Coax Cable on Tower
2XY	356	241	0	Coax Cable on Tower
4XY	241	163	0	Coax Cable on Tower
6XY	218	148	0	Coax Cable on Tower
8XY	213	144	0	Coax Cable on Tower
10XY	264	179	0	Coax Cable on Tower
13XY	322	218	0	Coax Cable on Tower
15XY	414	280	0	Coax Cable on Tower
17XY	759	514	0	Coax Cable on Tower

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

Section Label	Z of Top (ft)	Z of Bottom (ft)	Ave. Elev. Above Ground (ft)	Res. Adj. Wind Pres. (psf)	Tran Adj. Wind Pres. (psf)	Tran Drag Coef	Tran Wind Load (lbs)	Long Adj. Wind Pres. (psf)	Long Drag Coef	Long Wind Load (lbs)	Ice Weight (lbs)	Total Weight (lbs)
1	131.25	72.25	101.75	10.00	10.00	3.200	3981.7	0.00	3.200	0.0	0	11578
2	72.25	0.00	36.13	10.00	10.00	3.400	6360.8	0.00	3.400	0.0	0	16675

Point Loads for Load Case "NESC Extreme":

Joint Label	Vertical Load (lbs)	Transverse Load (lbs)	Longitudinal Load (lbs)	Load Comment
20P	185	655	0	Shield Wire
20X	153	521	0	Shield Wire
21P	1164	2153	0	Conductor
21X	0	0	0	Conductor
22P	1164	2153	0	Conductor
22X	0	0	0	Conductor
23P	1164	2153	0	Conductor
23X	0	0	0	Conductor
24P	1613	1785	0	Sprint Antennas
24P	47	0	0	Coax Cable in Antenna Mast
25P	97	0	0	Coax Cable in Antenna Mast
26P	94	0	0	Coax Cable in Antenna Mast
27P	87	0	0	Coax Cable in Antenna Mast
28P	131	0	0	Coax Cable in Antenna Mast
29P	162	0	0	Coax Cable in Antenna Mast
30P	206	0	0	Coax Cable in Antenna Mast
2X	97	720	0	Coax Cable on Tower
4X	66	488	0	Coax Cable on Tower
6X	59	442	0	Coax Cable on Tower
8X	58	430	0	Coax Cable on Tower
10X	72	535	0	Coax Cable on Tower
13X	87	651	0	Coax Cable on Tower
15X	112	837	0	Coax Cable on Tower
17X	206	1534	0	Coax Cable on Tower
2XY	97	720	0	Coax Cable on Tower
4XY	66	488	0	Coax Cable on Tower
6XY	59	442	0	Coax Cable on Tower
8XY	58	430	0	Coax Cable on Tower
10XY	72	535	0	Coax Cable on Tower

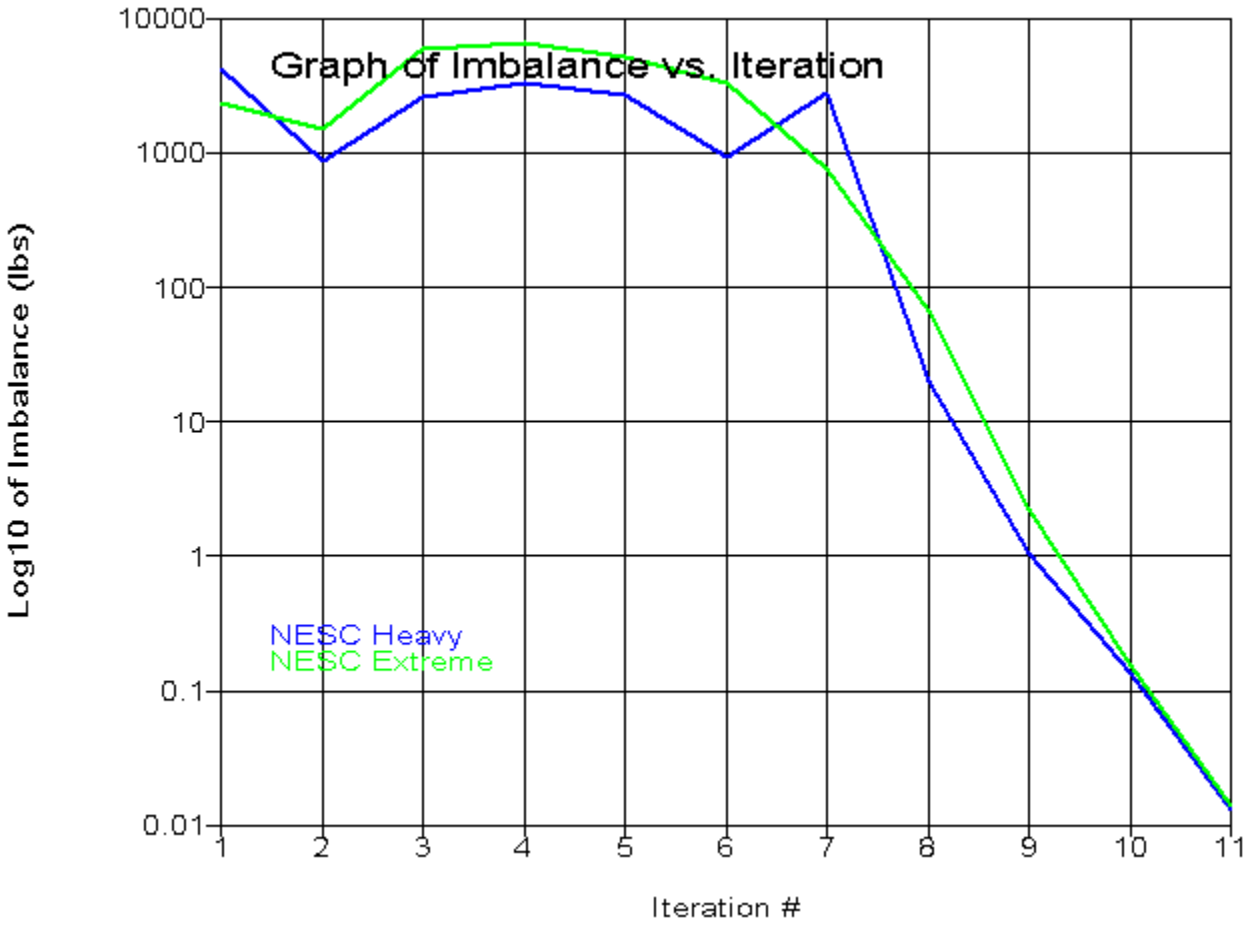
13XY	87	651	0 Coax Cable on Tower
15XY	112	837	0 Coax Cable on Tower
17XY	206	1534	0 Coax Cable on Tower

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

Section Label	Z of Top (ft)	Z of Bottom (ft)	Ave. Elev. Above Ground (ft)	Res. Adj. Wind Pres. (psf)	Tran Adj. Wind Pres. (psf)	Tran Angle Face Area (ft^2)	Tran Round Face Area (ft^2)	Tran Gross Area (ft^2)	Tran Soli- dity Ratio	Tran Angle Drag Coef	Tran Round Drag Coef	Tran Wind Load (lbs)	Long Adj. Wind Pres. (psf)	Long Angle Face Area (ft^2)	Long Round Face Area (ft^2)	Long Gross Area (ft^2)	Long Soli- dity Ratio	Long Angle Drag Coef	Long Round Drag Coef	Long Wind Load (lbs)	Ice Weight (lbs)	Total Weight (lbs)
1	131.25	72.25	101.75	32.35	32.35	61.74	62.69	257.50	0.483	3.200	2.000	10448.7	0.00	103.57	0.00	677.72	0.153	3.200	2.000	0.0	0	7719
2	72.25	0.00	36.13	32.35	32.35	110.32	76.77	994.95	0.188	3.200	2.000	16389.1	0.00	110.32	0.00	994.95	0.111	3.200	2.000	0.0	0	11117

*** Analysis Results:

Maximum element usage is 95.76% for Angle "g47P" in load case "NESC Extreme"
Maximum insulator usage is 8.44% for Clamp "9" in load case "NESC Heavy"



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

Group Label	Angle Label	Max. Usage For All LC %	Max. Tens. For All LC (kips)	Max. Comp. For All LC (kips)	LC 1 (kips)	LC 2 (kips)
Leg1	g1P	2.97	0.000	-1.438	-0.712	-1.438
Leg1	g1X	4.68	1.702	0.000	0.978	1.702
Leg1	g1XY	4.17	1.516	0.000	0.869	1.516
Leg1	g1Y	3.20	0.000	-1.549	-0.798	-1.549

Leg1	g2P	17.24	0.000	-6.168	-3.353	-6.168
Leg1	g2X	12.83	5.779	0.000	2.232	5.779
Leg1	g2XY	12.16	5.478	0.000	2.108	5.478
Leg1	g2Y	17.09	0.000	-6.114	-3.354	-6.114
Leg1	g3P	35.16	0.000	-12.799	-8.737	-12.799
Leg1	g3X	31.22	11.365	0.000	5.714	11.365
Leg1	g3XY	30.02	10.928	0.000	5.565	10.928
Leg1	g3Y	34.60	0.000	-12.594	-8.671	-12.594
Leg1	g4P	37.08	0.000	-17.530	-12.377	-17.530
Leg1	g4X	42.30	16.199	0.000	9.160	16.199
Leg1	g4XY	41.01	15.705	0.000	8.937	15.705
Leg1	g4Y	37.25	0.000	-17.608	-12.442	-17.608
Leg1	g5P	50.90	0.000	-24.832	-16.288	-24.832
Leg1	g5X	58.14	22.893	0.000	12.076	22.893
Leg1	g5XY	57.26	22.548	0.000	11.878	22.548
Leg1	g5Y	51.34	0.000	-25.046	-16.361	-25.046
Leg1	g6P	61.53	0.000	-30.183	-20.798	-30.183
Leg1	g6X	70.54	27.583	0.000	15.352	27.583
Leg1	g6XY	70.27	27.481	0.000	15.286	27.481
Leg1	g6Y	62.24	0.000	-30.527	-20.905	-30.527
Leg2	g7P	44.47	0.000	-37.864	-26.172	-37.864
Leg2	g7X	52.56	35.597	0.000	20.553	35.597
Leg2	g7XY	52.11	35.291	0.000	20.362	35.291
Leg2	g7Y	45.09	0.000	-38.395	-26.370	-38.395
Leg2	g8P	57.36	0.000	-49.987	-32.332	-49.987
Leg2	g8X	64.56	46.864	0.000	25.361	46.864
Leg2	g8XY	63.95	46.419	0.000	25.083	46.419
Leg2	g8Y	57.78	0.000	-50.354	-32.424	-50.354
Leg2	g9P	65.15	0.000	-56.995	-36.944	-56.995
Leg2	g9X	73.59	53.116	0.000	29.053	53.116
Leg2	g9XY	73.07	52.739	0.000	28.857	52.739
Leg2	g9Y	65.47	0.000	-57.274	-36.986	-57.274
Leg3	g10P	62.64	0.000	-62.002	-38.999	-62.002
Leg3	g10X	56.32	57.113	0.000	30.356	57.113
Leg3	g10XY	55.95	56.738	0.000	30.566	56.738
Leg3	g10Y	63.22	0.000	-62.571	-39.605	-62.571
Leg3	g11P	64.80	0.000	-65.312	-39.032	-65.312
Leg3	g11X	54.76	60.073	0.000	29.173	60.073
Leg3	g11XY	54.73	60.043	0.000	30.185	60.043
Leg3	g11Y	65.49	0.000	-66.011	-40.322	-66.011
Leg3	g12P	63.68	0.000	-64.129	-36.444	-64.129
Leg3	g12X	53.05	58.198	0.000	26.081	58.198
Leg3	g12XY	53.22	58.391	0.000	27.604	58.391
Leg3	g12Y	64.44	0.000	-64.893	-38.135	-64.893
Leg3	g13P	73.13	0.000	-66.544	-36.504	-66.544
Leg3	g13X	65.44	59.549	0.000	25.253	59.549
Leg3	g13XY	65.81	59.887	0.000	27.121	59.887
Leg3	g13Y	74.02	0.000	-67.361	-38.494	-67.361
Leg3	g14P	74.21	0.000	-71.083	-36.181	-71.083
Leg3	g14X	61.77	55.259	0.000	23.748	55.259
Leg3	g14XY	62.25	55.693	0.000	24.183	55.693
Leg3	g14Y	74.18	0.000	-71.063	-37.126	-71.063
Leg3	g15P	78.76	0.000	-79.047	-41.084	-79.047
Leg3	g15X	60.73	54.332	0.000	21.565	54.332
Leg3	g15XY	60.36	53.994	0.000	21.290	53.994
Leg3	g15Y	78.16	0.000	-78.437	-38.211	-78.437
Leg3	g16P	83.29	0.000	-79.340	-41.427	-79.340
Leg3	g16X	54.09	53.869	0.000	20.461	53.869
Leg3	g16XY	53.75	53.529	0.000	20.175	53.529

Leg3	g16Y	82.65	0.000	-78.731	-38.564	-78.731
Diag1	g17P	17.26	2.342	0.000	1.105	2.342
Diag1	g17X	21.38	0.000	-2.619	-1.559	-2.619
Diag1	g17XY	17.73	0.000	-2.173	-1.338	-2.173
Diag1	g17Y	13.96	1.894	0.000	0.911	1.894
Diag1	g18P	2.81	0.000	-0.344	-0.142	-0.344
Diag1	g18X	2.85	0.386	0.000	0.213	0.386
Diag1	g18XY	1.50	0.000	-0.184	-0.065	-0.184
Diag1	g18Y	1.25	0.169	0.000	0.093	0.169
Diag1	g19P	26.96	4.188	0.000	1.912	4.188
Diag1	g19X	46.34	0.000	-4.245	-2.030	-4.245
Diag1	g19XY	33.70	0.000	-3.087	-1.509	-3.087
Diag1	g19Y	19.28	2.994	0.000	1.373	2.994
Diag1	g20P	8.59	0.000	-0.633	-0.594	-0.633
Diag1	g20X	2.88	0.448	0.000	0.152	0.448
Diag1	g20XY	3.26	0.000	-0.298	-0.203	-0.298
Diag1	g20Y	3.51	0.130	-0.243	-0.243	0.130
Diag1	g21P	32.54	4.415	0.000	3.791	4.415
Diag1	g21X	35.03	0.000	-4.268	-3.573	-4.268
Diag1	g21XY	31.39	0.000	-3.826	-3.383	-3.826
Diag1	g21Y	28.94	3.927	0.000	3.563	3.927
Diag1	g22P	8.98	0.000	-0.806	-0.806	-0.529
Diag1	g22X	1.68	0.228	0.000	0.142	0.228
Diag1	g22XY	2.43	0.000	-0.297	-0.116	-0.297
Diag1	g22Y	6.47	0.000	-0.581	-0.581	-0.037
Diag2	g23P	21.08	3.837	0.000	1.555	3.837
Diag2	g23X	27.19	0.000	-4.207	-2.516	-4.207
Diag2	g23XY	25.71	0.000	-3.978	-2.273	-3.978
Diag2	g23Y	19.98	3.636	0.000	1.322	3.636
Diag2	g24P	11.49	0.000	-1.293	-0.550	-1.293
Diag2	g24X	7.50	1.365	0.000	0.854	1.365
Diag2	g24XY	5.63	1.024	0.000	0.582	1.024
Diag2	g24Y	8.82	0.000	-0.992	-0.319	-0.992
Diag2	g25P	23.64	4.302	0.000	2.428	4.302
Diag2	g25X	25.31	0.000	-4.062	-1.664	-4.062
Diag2	g25XY	23.86	0.000	-3.830	-1.411	-3.830
Diag2	g25Y	22.60	4.114	0.000	2.213	4.114
Diag2	g26P	5.12	0.932	0.000	0.283	0.932
Diag2	g26X	8.74	0.000	-1.021	-0.589	-1.021
Diag2	g26XY	11.39	0.000	-1.330	-0.838	-1.330
Diag2	g26Y	6.86	1.248	0.000	0.523	1.248
Diag2	g27P	31.62	5.721	0.000	4.792	5.721
Diag2	g27X	35.59	0.000	-5.748	-4.773	-5.748
Diag2	g27XY	34.97	0.000	-5.648	-4.655	-5.648
Diag2	g27Y	30.53	5.524	0.000	4.612	5.524
Diag2	g28P	14.65	0.000	-1.722	-1.597	-1.722
Diag2	g28X	7.49	1.355	0.000	0.802	1.355
Diag2	g28XY	5.74	1.038	0.000	0.556	1.038
Diag2	g28Y	12.21	0.000	-1.436	-1.383	-1.436
Diag3	g29P	33.61	6.118	0.000	2.575	6.118
Diag3	g29X	37.77	0.000	-6.875	-3.673	-6.875
Diag3	g29XY	34.83	0.000	-6.339	-3.233	-6.339
Diag3	g29Y	30.95	5.633	0.000	2.157	5.633
Diag3	g30P	13.68	0.000	-2.151	-1.079	-2.151
Diag3	g30X	11.77	2.143	0.000	1.340	2.143
Diag3	g30XY	9.40	1.711	0.000	0.955	1.711
Diag3	g30Y	11.25	0.000	-1.770	-0.737	-1.770
Diag3	g31P	38.06	6.927	0.000	3.567	6.927
Diag3	g31X	38.20	0.000	-6.953	-2.922	-6.953

Diag3	g31XY	35.27	0.000	-6.418	-2.475	-6.418
Diag3	g31Y	35.42	6.447	0.000	3.163	6.447
Diag3	g32P	10.32	1.878	0.000	0.790	1.878
Diag3	g32X	11.73	0.000	-1.912	-1.062	-1.912
Diag3	g32XY	14.08	0.000	-2.295	-1.413	-2.295
Diag3	g32Y	12.50	2.275	0.000	1.139	2.275
Diag3	g33P	42.65	7.762	0.000	5.142	7.762
Diag3	g33X	42.85	0.000	-7.798	-5.353	-7.798
Diag3	g33XY	41.41	0.000	-7.537	-5.119	-7.537
Diag3	g33Y	40.42	7.356	0.000	4.801	7.356
Diag3	g34P	19.19	0.000	-3.149	-2.417	-3.149
Diag3	g34X	15.31	2.787	0.000	1.641	2.787
Diag3	g34XY	13.27	2.416	0.000	1.302	2.416
Diag3	g34Y	17.13	0.000	-2.811	-2.106	-2.811
Diag4	g35P	17.24	0.000	-2.287	-2.287	-0.526
Diag4	g35X	12.22	1.562	0.000	1.562	0.511
Diag4	g35XY	14.41	1.842	0.000	1.842	1.064
Diag4	g35Y	19.42	0.000	-2.576	-2.576	-1.074
Diag4	g36P	28.16	0.000	-3.736	-2.486	-3.736
Diag4	g36X	30.35	3.879	0.000	2.424	3.879
Diag4	g36XY	23.76	3.037	0.000	1.478	3.037
Diag4	g36Y	23.30	0.000	-3.091	-1.663	-3.091
Diag3	g37P	14.24	0.000	-1.245	-1.245	-0.131
Diag3	g37X	13.80	1.256	-0.306	1.256	-0.306
Diag3	g37XY	16.04	1.460	0.000	1.460	0.081
Diag3	g37Y	16.30	0.000	-1.425	-1.425	-0.488
Diag3	g38P	16.83	1.532	0.000	0.763	1.532
Diag3	g38X	23.04	0.000	-1.521	-0.753	-1.521
Diag3	g38XY	31.40	0.000	-2.073	-1.381	-2.073
Diag3	g38Y	21.75	1.979	0.000	1.330	1.979
Diag5	g39P	12.86	0.657	-0.948	-0.948	0.657
Diag5	g39X	15.60	0.421	-1.150	0.421	-1.150
Diag5	g39XY	11.92	0.556	-0.879	0.556	-0.879
Diag5	g39Y	14.86	0.375	-1.095	-1.095	0.375
Diag5	g40P	15.30	0.000	-1.128	-0.768	-1.128
Diag5	g40X	13.19	1.094	0.000	0.768	1.094
Diag5	g40XY	8.15	0.677	0.000	0.292	0.677
Diag5	g40Y	10.94	0.000	-0.806	-0.368	-0.806
Diag5	g41P	15.73	1.305	-0.391	-0.391	1.305
Diag5	g41X	19.38	0.507	-1.150	0.507	-1.150
Diag5	g41XY	15.71	0.622	-0.932	0.622	-0.932
Diag5	g41Y	12.79	1.061	-0.524	-0.524	1.061
Diag5	g42P	4.25	0.352	0.000	0.068	0.352
Diag5	g42X	5.29	0.000	-0.313	-0.155	-0.313
Diag5	g42XY	10.91	0.000	-0.646	-0.533	-0.646
Diag5	g42Y	7.71	0.639	0.000	0.460	0.639
Diag8	g43P	29.64	5.372	-0.278	-0.278	5.372
Diag8	g43X	52.04	0.000	-1.891	-1.891	0.000
Diag8	g43XY	13.95	0.000	-0.507	-0.507	0.000
Diag8	g43Y	36.14	4.175	-1.314	-1.314	4.175
Diag8	g44P	0.00	0.000	0.000	0.000	0.000
Diag8	g44X	31.74	5.752	0.000	2.054	5.752
Diag8	g44XY	31.29	5.672	0.000	2.743	5.672
Diag8	g44Y	17.23	0.000	-0.626	-0.626	0.000
Diag6	g45P	43.01	6.024	0.000	2.733	6.024
Diag6	g45X	79.75	11.170	0.000	4.401	11.170
Diag6	g45XY	73.25	10.260	0.000	1.231	10.260
Diag6	g45Y	42.80	5.995	0.000	1.393	5.995
Diag6	g46P	31.75	0.197	-0.645	-0.645	0.197

Diag6	g46X	50.57	7.083	0.000	2.503	7.083
Diag6	g46XY	50.16	7.025	0.000	3.000	7.025
Diag6	g46Y	43.45	0.239	-0.882	-0.882	0.239
Diag7	g47P	95.76	12.605	0.000	5.064	12.605
Diag7	g47X	0.00	0.000	0.000	0.000	0.000
Diag7	g47XY	0.00	0.000	0.000	0.000	0.000
Diag7	g47Y	90.41	11.900	0.000	1.638	11.900
Diag7	g48P	52.89	0.000	-1.463	-1.463	0.000
Diag7	g48X	38.57	5.077	0.000	2.243	5.077
Diag7	g48XY	39.70	5.226	0.000	1.581	5.226
Diag7	g48Y	0.00	0.000	0.000	0.000	0.000
Horz1	g49P	4.72	0.314	-0.242	-0.242	0.314
Horz1	g49X	10.18	0.000	-0.614	-0.574	-0.614
Horz2	g50P	8.92	0.514	0.000	0.514	0.303
Horz2	g50X	2.77	0.160	-0.098	0.160	-0.098
Horz2	g51P	35.56	0.000	-1.286	-1.286	-0.706
Horz2	g51Y	34.62	0.000	-1.252	-1.252	-0.650
Horz2	g52P	28.19	1.625	0.000	1.625	0.789
Horz2	g52Y	28.05	1.617	0.000	1.617	0.782
Horz2	g53P	32.46	1.872	0.000	1.872	0.728
Horz2	g53Y	32.30	1.862	0.000	1.862	0.722
Horz2	g54P	26.73	1.541	0.000	1.541	0.816
Horz2	g54Y	26.55	1.531	0.000	1.531	0.803
Horz2	g55P	21.04	1.402	0.000	1.402	0.885
Horz2	g55X	15.96	0.000	-0.577	-0.432	-0.577
Horz2	g56P	41.58	2.771	0.000	2.496	2.771
Horz2	g56X	66.55	0.000	-2.407	-1.372	-2.407
Horz2	g57P	64.34	0.000	-2.327	-0.728	-2.327
Horz2	g57X	34.53	2.301	0.000	1.330	2.301
Horz3	g58P	16.39	1.150	0.000	0.292	1.150
Horz3	g58X	40.23	0.000	-2.931	-1.678	-2.931
Horz3	g59P	11.19	0.524	-0.815	0.524	-0.815
Horz3	g59Y	14.50	0.392	-1.056	0.392	-1.056
Horz4	g60P	4.02	0.731	-0.244	0.731	-0.244
Horz4	g60X	62.60	0.000	-9.098	-3.697	-9.098
Horz4	g61P	59.91	0.000	-8.707	-2.529	-8.707
Horz4	g61Y	54.85	0.000	-7.972	-0.783	-7.972
Horz5	g62P	14.32	0.000	-1.753	-0.807	-1.753
Horz5	g62X	1.66	0.266	-0.102	-0.102	0.266
Horz5	g62XY	1.69	0.271	-0.063	-0.063	0.271
Horz5	g62Y	14.49	0.000	-1.774	-0.884	-1.774
Horz5	g63P	0.19	0.030	-0.012	0.030	-0.012
Horz5	g63X	1.16	0.000	-0.142	-0.142	-0.104
Horz5	g63XY	1.26	0.000	-0.154	-0.154	-0.101
Horz5	g63Y	0.77	0.000	-0.094	-0.094	-0.031
Inner1	g64P	14.27	0.000	-0.789	-0.350	-0.789
Inner1	g64X	11.13	0.855	0.000	0.464	0.855
Inner1	g64XY	16.29	0.000	-0.901	-0.215	-0.901
Inner1	g64Y	14.62	1.124	0.000	0.686	1.124
Inner1	g65P	8.01	0.616	0.000	0.186	0.616
Inner1	g65X	10.43	0.000	-0.577	-0.027	-0.577
Inner1	g65XY	6.34	0.487	0.000	0.083	0.487
Inner1	g65Y	8.91	0.000	-0.493	-0.118	-0.493
Inner1	g66P	0.96	0.000	-0.053	-0.046	-0.053
Inner1	g66X	3.82	0.294	0.000	0.294	0.192
Inner1	g66XY	2.92	0.000	-0.161	-0.143	-0.161
Inner1	g66Y	4.19	0.322	0.000	0.214	0.322
Inner1	g67P	8.87	0.000	-0.491	-0.491	-0.372
Inner1	g67X	4.19	0.322	0.000	0.322	0.129

Inner1	g67XY	13.03	0.000	-0.721	-0.721	-0.648
Inner1	g67Y	2.54	0.195	0.000	0.181	0.195
Inner2	g68P	2.67	0.427	-0.132	-0.132	0.427
Inner2	g68X	8.43	0.317	-0.445	0.317	-0.445
Inner2	g68XY	4.79	0.000	-0.253	-0.203	-0.253
Inner2	g68Y	4.42	0.181	-0.233	-0.233	0.181
ShieldAr	g69P	5.30	0.964	0.000	0.964	0.232
ShieldAr	g69X	8.92	1.623	0.000	1.623	0.680
ShieldAr	g69XY	9.82	1.788	0.000	1.788	1.069
ShieldAr	g69Y	4.38	0.796	-0.143	0.796	-0.143
ShieldAr	g70P	6.01	1.094	0.000	1.094	0.425
ShieldAr	g70Y	6.79	1.235	0.000	1.235	0.479
TopCrArm	g71P	1.67	0.000	-0.456	-0.281	-0.456
TopCrArm	g71X	9.72	0.000	-2.655	-2.655	-0.078
TopCrArm	g71XY	10.30	0.000	-2.812	-2.812	-0.452
TopCrArm	g71Y	0.38	0.000	-0.103	-0.103	-0.069
TopCrArm	g72P	4.29	0.000	-1.172	-1.172	-0.406
TopCrArm	g72Y	4.59	0.000	-1.252	-1.252	-0.413
MidCrArm	g73P	1.13	0.000	-0.375	-0.375	-0.336
MidCrArm	g73X	11.18	0.000	-3.708	-3.708	-0.653
MidCrArm	g73XY	11.31	0.000	-3.754	-3.754	-0.687
MidCrArm	g73Y	0.93	0.000	-0.310	-0.310	-0.291
MidCrArm	g74P	4.38	0.000	-1.593	-1.593	-0.295
MidCrArm	g74Y	4.57	0.000	-1.665	-1.665	-0.270
BotCrArm	g75P	1.29	0.000	-0.352	-0.260	-0.352
BotCrArm	g75X	10.31	0.000	-2.816	-2.816	-0.263
BotCrArm	g75XY	10.61	0.000	-2.897	-2.897	-0.379
BotCrArm	g75Y	0.78	0.000	-0.213	-0.147	-0.213
BotCrArm	g76P	5.45	0.000	-1.488	-1.488	-0.667
BotCrArm	g76Y	6.07	0.000	-1.657	-1.657	-0.763
ShArmBr	g77P	20.61	0.000	-1.396	-1.396	-0.628
ShArmBr	g77X	20.13	0.000	-1.363	-1.363	-0.269
ShArmBr	g77XY	22.61	0.000	-1.531	-1.531	-0.675
ShArmBr	g77Y	17.90	0.000	-1.212	-1.212	-0.230
TopArmBr	g78P	2.38	0.391	0.000	0.272	0.391
TopArmBr	g78X	21.56	3.548	0.000	3.548	1.396
TopArmBr	g78XY	22.66	3.728	0.000	3.728	1.807
TopArmBr	g78Y	0.48	0.079	-0.027	0.079	-0.027
MidArmBr	g79P	2.19	0.360	0.000	0.360	0.255
MidArmBr	g79X	27.62	4.545	0.000	4.545	1.947
MidArmBr	g79XY	28.00	4.607	0.000	4.607	1.991
MidArmBr	g79Y	1.77	0.291	0.000	0.291	0.207
BotArmBr	g80P	1.70	0.279	0.000	0.249	0.279
BotArmBr	g80X	22.46	3.696	0.000	3.696	1.584
BotArmBr	g80XY	23.07	3.795	0.000	3.795	1.715
BotArmBr	g80Y	0.77	0.127	0.000	0.127	0.127
Pwmnt	g81P	3.68	0.000	-15.512	-15.512	-6.110
Pwmnt	g82P	3.14	0.000	-13.332	-13.332	-5.589
Pwmnt	g83P	2.79	0.000	-10.907	-10.907	-5.030
Pwmnt	g84P	1.94	0.000	-8.809	-8.809	-3.986
Pwmnt	g85P	1.61	0.000	-7.335	-7.335	-3.255
Pwmnt	g86P	1.29	0.000	-5.762	-5.762	-2.530
Pwmnt	g87P	0.92	0.000	-4.155	-4.155	-1.757
PMBR1	g88P	22.83	2.328	0.000	1.333	2.328
PMBR1	g88X	19.83	0.000	-2.022	-0.677	-2.022
PMBR1	g89P	2.47	0.252	0.000	0.252	0.111
PMBR1	g90P	14.43	0.000	-1.471	-0.497	-1.471
PMBR1	g90X	13.57	1.384	0.000	0.126	1.384
PMBR1	g91P	1.34	0.000	-0.137	-0.137	-0.032

PMBR1	g92P	5.33	0.543	0.000	0.265	0.543
PMBR1	g92X	5.78	0.000	-0.590	-0.590	-0.495
PMBR1	g93P	1.22	0.016	-0.125	-0.125	0.016
PMBR1	g94P	3.63	0.370	0.000	0.197	0.370
PMBR1	g94X	9.02	0.000	-0.919	-0.919	-0.751
PMBR1	g95P	2.57	0.000	-0.262	-0.262	-0.149
PMBR2	g96P	13.49	0.622	-1.834	0.622	-1.834
PMBR2	g96X	19.36	0.000	-2.632	-0.989	-2.632
PMBR3	g97P	13.01	0.119	-1.768	0.119	-1.768
PMBR3	g97X	12.29	0.000	-1.670	-0.560	-1.670
PMBR4	g98P	1.84	0.000	-0.161	-0.161	-0.019
PMBR5	g99P	6.53	0.000	-0.873	-0.031	-0.873
PMBR5	g99X	6.48	0.881	-0.115	-0.115	0.881
PMBR2	g100P	2.00	0.272	0.000	0.272	0.019

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

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

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
1P	0.001161	0.4046	-0.02774	-0.4768	0.0175	0.0885	2.501	2.905	116.2
2P	0.0005481	0.3671	-0.02752	-0.4511	0.0057	0.0858	2.501	2.867	111.6
3P	-0.0003278	0.3148	-0.02686	-0.4582	0.0088	0.0818	2.5	2.815	104.9
4P	-0.001031	0.2771	-0.02587	-0.4514	0.0120	0.0789	2.499	2.777	100.2
5P	-0.001245	0.2415	-0.02451	-0.3972	0.0036	0.0765	2.499	2.741	95.36
6P	-0.00201	0.2103	-0.02288	-0.3874	0.0144	0.0741	2.498	2.71	90.77
7P	-0.00312	0.1804	-0.02085	-0.3535	0.0131	0.0717	2.497	2.68	86.23
8P	-0.003556	0.1527	-0.01924	-0.3024	-0.0018	0.0735	2.496	2.653	81.36
9P	-0.003894	0.1294	-0.01739	-0.2862	0.0242	0.0749	2.496	2.629	76.77
10P	-0.00598	0.1082	-0.01532	-0.2274	-0.0013	0.0766	2.494	2.608	72.23
11P	0	0	0	0.0000	0.0000	0.0000	11.27	11.27	0
20P	-0.0191	0.401	-0.1379	-0.4833	0.0163	0.0879	-0.0191	16.15	116.1
21P	-0.01646	0.2724	-0.1186	-0.5208	0.0150	0.0807	-0.01646	13.52	100.1
22P	-0.02164	0.1756	-0.1198	-0.4687	0.0127	0.0790	-0.02164	15.93	86.13
23P	-0.01992	0.1041	-0.07309	-0.3503	0.0122	0.0760	-0.01992	13.35	72.18
24P	0.007545	0.5563	-0.005264	-0.6151	0.0105	0.0676	1.466	0.5563	131.2
25P	0.004986	0.4032	-0.004325	-0.5233	0.0104	0.0676	1.463	0.4032	116.2
26P	0.002259	0.2759	-0.003584	-0.4185	0.0104	0.0651	1.461	0.2759	100.2
27P	-0.0001769	0.1793	-0.00299	-0.3551	0.0107	0.0619	1.458	0.1793	86.25
28P	-0.002751	0.1071	-0.002491	-0.2321	0.0110	0.0578	1.456	0.1071	72.25
29P	-0.008089	0.04321	-0.001644	-0.0637	0.0116	0.0454	1.45	0.04321	44.29
30P	-0.008859	0.02205	-0.0008975	-0.0673	-0.0177	0.0256	1.449	0.02205	22.5
31P	0	0	0	0.0000	0.0000	0.0000	1.458	0	0
32P	0.00497	0.4008	-0.004718	-0.4691	-0.0329	0.0991	0.00497	0.4008	116.2
33P	0.00227	0.2739	-0.004304	-0.4199	-0.0292	0.0799	0.00227	0.2739	100.2
34P	-0.0001667	0.1774	-0.003582	-0.3339	-0.0265	0.0790	-0.0001667	0.1774	86.25
35P	-0.002731	0.105	-0.003088	-0.2276	-0.0240	0.0852	-0.002731	0.105	72.25
1X	0.008639	0.4046	0.01148	-0.4236	0.0255	0.0851	2.509	-2.095	116.3
1XY	0.008784	0.3969	0.01234	-0.4446	0.0086	0.0862	-2.491	-2.103	116.3
1Y	0.001226	0.3969	-0.02684	-0.4623	0.0083	0.0856	-2.499	2.897	116.2
2X	0.007911	0.3676	0.01153	-0.4646	0.0089	0.0839	2.508	-2.132	111.6
2XY	0.007865	0.3601	0.0124	-0.4554	0.0098	0.0855	-2.492	-2.14	111.6
2Y	0.0003866	0.3595	-0.02661	-0.4516	0.0118	0.0850	-2.5	2.859	111.6
3X	0.006233	0.3145	0.01144	-0.4623	0.0084	0.0820	2.506	-2.186	105
3XY	0.007106	0.3073	0.01233	-0.4577	0.0132	0.0844	-2.493	-2.193	105
3Y	-0.0007142	0.3077	-0.02596	-0.4572	0.0088	0.0842	-2.501	2.808	104.9
4X	0.005744	0.2774	0.01104	-0.4205	0.0178	0.0806	2.506	-2.223	100.3
4XY	0.005889	0.2704	0.01194	-0.4300	0.0098	0.0836	-2.494	-2.23	100.3
4Y	-0.001482	0.2701	-0.02497	-0.4419	0.0135	0.0835	-2.501	2.77	100.2
5X	0.004416	0.2416	0.01026	-0.4116	0.0175	0.0780	2.504	-2.258	95.39
5XY	0.005436	0.2346	0.01118	-0.4084	0.0039	0.0832	-2.495	-2.265	95.39
5Y	-0.002826	0.2346	-0.02361	-0.3978	0.0147	0.0828	-2.503	2.735	95.36
6X	0.003266	0.2098	0.009242	-0.3873	0.0065	0.0755	2.503	-2.29	90.8
6XY	0.004874	0.2029	0.01018	-0.3852	0.0155	0.0827	-2.495	-2.297	90.8
6Y	-0.003543	0.2034	-0.02197	-0.3879	0.0051	0.0822	-2.504	2.703	90.77
7X	0.002984	0.1806	0.007913	-0.3318	0.0139	0.0730	2.503	-2.319	86.26
7XY	0.003435	0.1738	0.008855	-0.3384	0.0131	0.0822	-2.497	-2.326	86.26
7Y	-0.003927	0.1736	-0.01993	-0.3478	0.0097	0.0816	-2.504	2.674	86.23
8X	0.001716	0.1527	0.006786	-0.3142	0.0230	0.0731	2.502	-2.347	81.39
8XY	0.002795	0.146	0.007738	-0.3109	-0.0002	0.0791	-2.497	-2.354	81.39

8Y	-0.005094	0.1461	-0.01831	-0.3016	0.0209	0.0770	-2.505	2.646	81.36
9X	0.0001809	0.129	0.005444	-0.2836	-0.0008	0.0734	2.5	-2.371	76.8
9XY	0.002512	0.1224	0.006411	-0.2815	0.0237	0.0759	-2.497	-2.378	76.8
9Y	-0.006287	0.1229	-0.01646	-0.2862	-0.0041	0.0730	-2.506	2.623	76.77
10X	0.0006473	0.1085	0.0039	-0.2162	0.0221	0.0736	2.501	-2.392	72.25
10XY	0.0002191	0.102	0.004878	-0.2200	0.0054	0.0729	-2.5	-2.398	72.25
10Y	-0.005739	0.1017	-0.01438	-0.2225	0.0223	0.0688	-2.506	2.602	72.24
11X	0	0	0	0.0000	0.0000	0.0000	11.27	-11.27	0
11XY	0	0	0	0.0000	0.0000	0.0000	-11.27	-11.27	0
11Y	0	0	0	0.0000	0.0000	0.0000	-11.27	11.27	0
20X	0.02905	0.4008	0.1132	-0.4393	0.0212	0.0889	0.02905	-15.35	116.4
21X	0.02101	0.2743	0.09585	-0.4611	0.0156	0.0802	0.02101	-12.98	100.3
22X	0.02132	0.1776	0.09362	-0.3850	0.0147	0.0785	0.02132	-15.57	86.34
23X	0.01447	0.1054	0.05331	-0.2804	0.0139	0.0755	0.01447	-13.14	72.3
12S	-0.005361	0.08726	-0.01504	-0.1520	0.0062	0.0802	3.354	3.447	65.15
13S	-0.01026	0.07077	-0.01498	-0.1293	0.0146	0.0777	4.183	4.264	58.29
14S	-0.01087	0.05834	-0.01409	-0.0955	0.0031	0.0742	5.018	5.087	51.41
15S	-0.01494	0.04816	-0.01325	-0.0849	0.0176	0.0708	5.879	5.942	44.28
16S	-0.01473	0.03302	-0.009767	-0.0384	0.0053	0.0484	7.685	7.732	29.41
17S	-0.01694	0.02848	-0.007789	-0.0563	-0.0066	0.0324	8.523	8.568	22.49
18S	-0.008909	0.02851	-0.007362	-0.0673	0.0872	0.0656	8.531	0.02851	22.49
19S	-0.01694	0.02064	-0.008314	-0.0373	-0.0126	0.0685	-0.01694	8.56	22.49
12X	-0.002126	0.08666	0.004131	-0.1561	0.0174	0.0744	3.357	-3.273	65.17
12XY	0.001919	0.07814	0.005477	-0.1531	0.0084	0.0688	-3.358	-3.281	65.18
12Y	-0.01071	0.07878	-0.01377	-0.1514	0.0123	0.0642	-3.37	3.438	65.16
13X	-0.0006892	0.07088	0.004268	-0.1250	0.0060	0.0728	4.193	-4.123	58.3
13XY	-0.0004025	0.06055	0.005877	-0.1229	0.0182	0.0681	-4.194	-4.133	58.31
13Y	-0.01024	0.0604	-0.01331	-0.1260	0.0051	0.0656	-4.204	4.254	58.29
14X	-0.001906	0.05803	0.003928	-0.1013	0.0183	0.0674	5.027	-4.971	51.42
14XY	2.907e-005	0.04596	0.005744	-0.0979	0.0052	0.0710	-5.029	-4.983	51.43
14Y	-0.01424	0.04631	-0.01194	-0.0928	0.0236	0.0690	-5.043	5.075	51.41
15X	-0.001689	0.04792	0.003419	-0.0742	0.0074	0.0649	5.893	-5.846	44.29
15XY	-0.0008391	0.03433	0.005369	-0.0684	0.0116	0.0710	-5.895	-5.86	44.3
15Y	-0.01508	0.03451	-0.01056	-0.0747	-0.0128	0.0679	-5.909	5.929	44.28
16X	-0.001814	0.03397	0.001631	-0.0424	0.0036	0.0441	7.698	-7.666	29.42
16XY	-0.0004428	0.01849	0.003716	-0.0406	0.0064	0.0467	-7.7	-7.681	29.42
16Y	-0.01499	0.01819	-0.007116	-0.0393	0.0153	0.0467	-7.714	7.718	29.41
17X	-0.001088	0.02873	0.0008889	-0.0630	-0.0012	0.0305	8.538	-8.511	22.5
17XY	-0.001001	0.01297	0.003007	-0.0398	0.0065	0.0366	-8.541	-8.527	22.5
17Y	-0.01691	0.01271	-0.004946	-0.0383	-0.0054	0.0346	-8.556	8.552	22.5
18Y	-0.00891	0.01273	-0.002706	-0.0673	-0.0068	0.0673	-8.548	0.01273	22.5
19X	-0.001046	0.02073	0.0005022	0.0127	-0.0313	0.0658	-0.001046	-8.519	22.5

Joint Support Reactions for Load Case "NESC Heavy":

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 %
11P	-5.61	0.0	-5.09	0.0	0.0	-42.44	0.0	0.0	43.11	0.0	0.42	0.0	0.4	0.0	0.0	0.05	0.0	0.0
31P	0.29	0.0	-0.88	0.0	0.0	-16.39	0.0	0.0	16.42	0.0	8.24	0.0	4.1	0.0	0.0	-0.81	0.0	0.0
11X	3.99	0.0	-5.23	0.0	0.0	26.35	0.0	0.0	27.15	0.0	0.42	0.0	-0.0	0.0	0.0	0.01	0.0	0.0
11XY	-3.29	0.0	-3.56	0.0	0.0	22.44	0.0	0.0	22.95	0.0	0.13	0.0	0.0	0.0	0.0	-0.05	0.0	0.0
11Y	4.62	0.0	-4.60	0.0	0.0	-38.32	0.0	0.0	38.87	0.0	0.13	0.0	0.3	0.0	0.0	-0.01	0.0	0.0

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

Joint	X External	Y External	Z External	X Member	Y Member	Z Member	X	Y	Z

Label	Load (kips)	Load (kips)	Load (kips)	Force (kips)	Force (kips)	Force (kips)	Disp. (ft)	Disp. (ft)	Disp. (ft)
1P	0.0000	0.0000	-0.1192	0.0000	0.0000	0.1192	0.0012	0.4046	-0.0277
2P	0.0000	0.0000	-0.1436	-0.0000	0.0000	0.1436	0.0005	0.3671	-0.0275
3P	0.0000	0.0000	-0.1290	-0.0000	0.0000	0.1290	-0.0003	0.3148	-0.0269
4P	0.0000	0.0000	-0.1694	0.0000	0.0000	0.1694	-0.0010	0.2771	-0.0259
5P	0.0000	0.0000	-0.0984	-0.0000	0.0000	0.0984	-0.0012	0.2415	-0.0245
6P	0.0000	0.0000	-0.1355	-0.0000	0.0000	0.1355	-0.0020	0.2103	-0.0229
7P	0.0000	0.0000	-0.2264	0.0000	0.0000	0.2264	-0.0031	0.1804	-0.0209
8P	0.0000	0.0000	-0.1354	-0.0000	0.0000	0.1354	-0.0036	0.1527	-0.0192
9P	0.0000	0.0000	-0.1633	-0.0000	0.0000	0.1633	-0.0039	0.1294	-0.0174
10P	0.0000	0.0000	-0.2567	0.0000	0.0000	0.2567	-0.0060	0.1082	-0.0153
11P	0.0000	0.0000	-0.3056	5.6105	5.0941	-42.1317	0.0000	0.0000	0.0000
20P	0.0000	0.6560	-0.9536	0.0000	-0.6560	0.9536	-0.0191	0.4010	-0.1379
21P	0.0000	1.1690	-2.8806	-0.0000	-1.1690	2.8806	-0.0165	0.2724	-0.1186
22P	0.0000	1.1690	-2.9490	-0.0000	-1.1690	2.9490	-0.0216	0.1756	-0.1198
23P	0.0000	1.1690	-2.8803	-0.0000	-1.1690	2.8803	-0.0199	0.1041	-0.0731
24P	0.0000	0.7090	-4.1620	-0.0000	-0.7090	4.1620	0.0075	0.5563	-0.0053
25P	0.0000	0.5270	-1.3108	0.0000	-0.5270	1.3108	0.0050	0.4032	-0.0043
26P	0.0000	0.5100	-1.2686	-0.0000	-0.5100	1.2686	0.0023	0.2759	-0.0036
27P	0.0000	0.4760	-1.1852	0.0000	-0.4760	1.1852	-0.0002	0.1793	-0.0030
28P	0.0000	0.7430	-1.8225	0.0000	-0.7430	1.8225	-0.0028	0.1071	-0.0025
29P	0.0000	0.8986	-2.3516	0.0000	-0.8986	2.3516	-0.0081	0.0432	-0.0016
30P	0.0000	0.8000	-2.1686	0.0000	-0.8000	2.1686	-0.0089	0.0221	-0.0009
31P	0.0000	0.4064	-0.8789	-0.2900	0.4727	-15.5127	0.0000	0.0000	0.0000
32P	0.0000	0.0000	-0.0275	0.0000	0.0000	0.0275	0.0050	0.4008	-0.0047
33P	0.0000	0.0000	-0.0275	0.0000	0.0000	0.0275	0.0023	0.2739	-0.0043
34P	0.0000	0.0000	-0.0275	0.0000	0.0000	0.0275	-0.0002	0.1774	-0.0036
35P	0.0000	0.0000	-0.0275	0.0000	0.0000	0.0275	-0.0027	0.1050	-0.0031
1X	0.0000	0.0461	-0.1192	0.0000	-0.0461	0.1192	0.0086	0.4046	0.0115
1XY	0.0000	0.0461	-0.1143	0.0000	-0.0461	0.1143	0.0088	0.3969	0.0123
1Y	0.0000	0.0000	-0.1143	0.0000	0.0000	0.1143	0.0012	0.3969	-0.0268
2X	0.0000	0.3602	-0.4996	-0.0000	-0.3602	0.4996	0.0079	0.3676	0.0115
2XY	0.0000	0.3602	-0.4996	-0.0000	-0.3602	0.4996	0.0079	0.3601	0.0124
2Y	0.0000	0.0000	-0.1436	-0.0000	0.0000	0.1436	0.0004	0.3595	-0.0266
3X	0.0000	0.1060	-0.1290	-0.0000	-0.1060	0.1290	0.0062	0.3145	0.0114
3XY	0.0000	0.1060	-0.1290	-0.0000	-0.1060	0.1290	0.0071	0.3073	0.0123
3Y	0.0000	0.0000	-0.1290	-0.0000	0.0000	0.1290	-0.0007	0.3077	-0.0260
4X	0.0000	0.2517	-0.4104	0.0000	-0.2517	0.4104	0.0057	0.2774	0.0110
4XY	0.0000	0.2517	-0.4054	0.0000	-0.2517	0.4054	0.0059	0.2704	0.0119
4Y	0.0000	0.0000	-0.1644	0.0000	0.0000	0.1644	-0.0015	0.2701	-0.0250
5X	0.0000	0.0763	-0.0984	-0.0000	-0.0763	0.0984	0.0044	0.2416	0.0103
5XY	0.0000	0.0763	-0.0984	-0.0000	-0.0763	0.0984	0.0054	0.2346	0.0112
5Y	0.0000	0.0000	-0.0984	-0.0000	0.0000	0.0984	-0.0028	0.2346	-0.0236
6X	0.0000	0.2429	-0.3535	-0.0000	-0.2429	0.3535	0.0033	0.2098	0.0092
6XY	0.0000	0.2429	-0.3535	-0.0000	-0.2429	0.3535	0.0049	0.2029	0.0102
6Y	0.0000	0.0000	-0.1355	-0.0000	0.0000	0.1355	-0.0035	0.2034	-0.0220
7X	0.0000	0.0932	-0.2264	0.0000	-0.0932	0.2264	0.0030	0.1806	0.0079
7XY	0.0000	0.0932	-0.2215	0.0000	-0.0932	0.2215	0.0034	0.1738	0.0089
7Y	0.0000	0.0000	-0.2215	0.0000	0.0000	0.2215	-0.0039	0.1736	-0.0199
8X	0.0000	0.2312	-0.3484	-0.0000	-0.2312	0.3484	0.0017	0.1527	0.0068
8XY	0.0000	0.2312	-0.3484	-0.0000	-0.2312	0.3484	0.0028	0.1460	0.0077
8Y	0.0000	0.0000	-0.1354	-0.0000	0.0000	0.1354	-0.0051	0.1461	-0.0183
9X	0.0000	0.1021	-0.1633	-0.0000	-0.1021	0.1633	0.0002	0.1290	0.0054
9XY	0.0000	0.1021	-0.1633	-0.0000	-0.1021	0.1633	0.0025	0.1224	0.0064
9Y	0.0000	0.0000	-0.1633	-0.0000	0.0000	0.1633	-0.0063	0.1229	-0.0165
10X	0.0000	0.3225	-0.5207	0.0000	-0.3225	0.5207	0.0006	0.1085	0.0039
10XY	0.0000	0.3225	-0.5158	0.0000	-0.3225	0.5158	0.0002	0.1020	0.0049

10Y	0.0000	0.0000	-0.2518	0.0000	0.0000	0.2518	-0.0057	0.1017	-0.0144
11X	0.0000	0.2229	-0.3056	-3.9944	5.0064	26.6508	0.0000	0.0000	0.0000
11XY	0.0000	0.2229	-0.3056	3.2890	3.3335	22.7432	0.0000	0.0000	0.0000
11Y	0.0000	0.0000	-0.3056	-4.6151	4.6003	-38.0094	0.0000	0.0000	0.0000
20X	0.0000	0.6850	-0.8586	0.0000	-0.6850	0.8586	0.0291	0.4008	0.1132
21X	0.0000	0.0589	-0.1306	0.0000	-0.0589	0.1306	0.0210	0.2743	0.0958
22X	0.0000	0.0648	-0.1990	0.0000	-0.0648	0.1990	0.0213	0.1776	0.0936
23X	0.0000	0.0579	-0.1303	0.0000	-0.0579	0.1303	0.0145	0.1054	0.0533
12S	0.0000	0.0000	-0.2332	-0.0000	0.0000	0.2332	-0.0054	0.0873	-0.0150
13S	0.0000	0.0000	-0.2366	-0.0000	0.0000	0.2366	-0.0103	0.0708	-0.0150
14S	0.0000	0.0000	-0.2443	-0.0000	0.0000	0.2443	-0.0109	0.0583	-0.0141
15S	0.0000	0.0000	-0.4554	0.0000	0.0000	0.4554	-0.0149	0.0482	-0.0133
16S	0.0000	0.0000	-0.4707	-0.0000	0.0000	0.4707	-0.0147	0.0330	-0.0098
17S	0.0000	0.0000	-0.3390	-0.0000	0.0000	0.3390	-0.0169	0.0285	-0.0078
18S	0.0000	0.0000	-0.2620	-0.0000	0.0000	0.2620	-0.0089	0.0285	-0.0074
19S	0.0000	0.0000	-0.2783	-0.0000	-0.0000	0.2783	-0.0169	0.0206	-0.0083
12X	0.0000	0.1675	-0.2332	-0.0000	-0.1675	0.2332	-0.0021	0.0867	0.0041
12XY	0.0000	0.1675	-0.2332	0.0000	-0.1675	0.2332	0.0019	0.0781	0.0055
12Y	0.0000	0.0000	-0.2332	-0.0000	0.0000	0.2332	-0.0107	0.0788	-0.0138
13X	0.0000	0.3858	-0.5586	0.0000	-0.3858	0.5586	-0.0007	0.0709	0.0043
13XY	0.0000	0.3858	-0.5586	-0.0000	-0.3858	0.5586	-0.0004	0.0606	0.0059
13Y	0.0000	0.0000	-0.2366	-0.0000	0.0000	0.2366	-0.0102	0.0604	-0.0133
14X	0.0000	0.1869	-0.2443	0.0000	-0.1869	0.2443	-0.0019	0.0580	0.0039
14XY	0.0000	0.1869	-0.2443	0.0000	-0.1869	0.2443	0.0000	0.0460	0.0057
14Y	0.0000	0.0000	-0.2443	-0.0000	0.0000	0.2443	-0.0142	0.0463	-0.0119
15X	0.0000	0.6106	-0.8694	0.0000	-0.6106	0.8694	-0.0017	0.0479	0.0034
15XY	0.0000	0.6106	-0.8847	0.0000	-0.6106	0.8847	-0.0008	0.0343	0.0054
15Y	0.0000	0.0000	-0.4707	-0.0000	0.0000	0.4707	-0.0151	0.0345	-0.0106
16X	0.0000	0.3359	-0.4707	-0.0000	-0.3359	0.4707	-0.0018	0.0340	0.0016
16XY	0.0000	0.3359	-0.4707	-0.0000	-0.3359	0.4707	-0.0004	0.0185	0.0037
16Y	0.0000	0.0000	-0.4707	-0.0000	-0.0000	0.4707	-0.0150	0.0182	-0.0071
17X	0.0000	0.7602	-1.0980	0.0000	-0.7602	1.0980	-0.0011	0.0287	0.0009
17XY	0.0000	0.7602	-1.0980	0.0000	-0.7602	1.0980	-0.0010	0.0130	0.0030
17Y	0.0000	0.0000	-0.3390	-0.0000	-0.0000	0.3390	-0.0169	0.0127	-0.0049
18Y	0.0000	0.0000	-0.2906	-0.0000	-0.0000	0.2906	-0.0089	0.0127	-0.0027
19X	0.0000	0.2560	-0.2783	-0.0000	-0.2560	0.2783	-0.0010	0.0207	0.0005

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

Comp. Member Label	Tens. Member Label	Connect Leg for Comp. Member	Force In Comp. Member (kips)	Force In Tens. Member (kips)	Original Supported L/R Cap. (kips)	RLX	RLY	RLZ	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.
g20P	g20Y	Short only	-0.59	-0.24	9.16	0.750	0.500	0.500	145.12	139.18	5	6.91	1.000	185.39	160.21	6
g20Y	g20P	Short only	-0.24	-0.59	9.16	0.750	0.500	0.500	145.12	139.18	5	6.91	1.000	185.39	160.21	6
g22P	g22Y	Short only	-0.81	-0.58	12.19	0.750	0.500	0.500	120.16	120.16	5	8.98	1.000	153.50	140.60	6
g22Y	g22P	Short only	-0.58	-0.81	12.19	0.750	0.500	0.500	120.16	120.16	5	8.98	1.000	153.50	140.60	6
g24P	g24Y	Short only	-0.55	-0.32	15.47	0.750	0.500	0.500	122.81	122.18	5	11.25	1.000	158.33	143.57	6
g24Y	g24P	Short only	-0.32	-0.55	15.47	0.750	0.500	0.500	122.81	122.18	5	11.25	1.000	158.33	143.57	6
g26X	g26XY	Short only	-0.59	-0.84	16.05	0.750	0.500	0.500	119.43	119.57	2	11.68	1.000	153.97	140.89	6
g26XY	g26X	Short only	-0.84	-0.59	16.05	0.750	0.500	0.500	119.43	119.57	2	11.68	1.000	153.97	140.89	6
g28P	g28Y	Short only	-1.60	-1.38	16.15	0.750	0.500	0.500	118.83	119.12	2	11.76	1.000	153.20	140.42	6
g28Y	g28P	Short only	-1.38	-1.60	16.15	0.750	0.500	0.500	118.83	119.12	2	11.76	1.000	153.20	140.42	6
g30P	g30Y	Short only	-1.08	-0.74	20.89	0.750	0.500	0.500	107.11	110.33	2	15.73	1.000	137.53	130.78	6
g30Y	g30P	Short only	-0.74	-1.08	20.89	0.750	0.500	0.500	107.11	110.33	2	15.73	1.000	137.53	130.78	6
g32X	g32XY	Short only	-1.06	-1.41	21.40	0.750	0.500	0.500	104.15	108.12	2	16.31	1.000	133.74	128.45	6
g32XY	g32X	Short only	-1.41	-1.06	21.40	0.750	0.500	0.500	104.15	108.12	2	16.31	1.000	133.74	128.45	6

g34P	g34Y	Short only	-2.42	-2.11	21.49	0.750	0.500	0.500	103.64	107.73	2	16.41	1.000	133.08	128.04	6
g34Y	g34P	Short only	-2.11	-2.42	21.49	0.750	0.500	0.500	103.64	107.73	2	16.41	1.000	133.08	128.04	6
g38X	g38XY	Short only	-0.75	-1.38	8.74	0.779	0.558	0.558	175.43	175.43	4	6.60	1.000	201.85	201.85	4
g38XY	g38X	Short only	-1.38	-0.75	8.74	0.779	0.558	0.558	175.43	175.43	4	6.60	1.000	201.85	201.85	4
g42X	g42XY	Short only	-0.16	-0.53	5.93	0.769	0.538	0.538	197.65	197.65	4	5.92	1.000	197.82	197.82	4
g42XY	g42X	Short only	-0.53	-0.16	5.93	0.769	0.538	0.538	197.65	197.65	4	5.92	1.000	197.82	197.82	4

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

Clamp Label	Force (kips)	Input Holding Capacity (kips)	Factored Holding Capacity (kips)	Usage %
1	1.157	50.00	50.00	2.31
2	1.098	50.00	50.00	2.20
3	3.109	50.00	50.00	6.22
4	0.143	50.00	50.00	0.29
5	3.172	50.00	50.00	6.34
6	0.209	50.00	50.00	0.42
7	3.109	50.00	50.00	6.22
8	0.143	50.00	50.00	0.29
9	4.222	50.00	50.00	8.44
10	1.413	50.00	50.00	2.83
11	1.367	50.00	50.00	2.73
12	1.277	50.00	50.00	2.55
13	1.968	50.00	50.00	3.94
14	2.517	50.00	50.00	5.03
15	2.311	50.00	50.00	4.62
16	0.616	50.00	50.00	1.23
17	0.481	50.00	50.00	0.96
18	0.429	50.00	50.00	0.86
19	0.418	50.00	50.00	0.84
20	0.613	50.00	50.00	1.23
21	0.679	50.00	50.00	1.36
22	1.062	50.00	50.00	2.12
23	1.336	50.00	50.00	2.67
24	0.616	50.00	50.00	1.23
25	0.477	50.00	50.00	0.95
26	0.429	50.00	50.00	0.86
27	0.418	50.00	50.00	0.84
28	0.608	50.00	50.00	1.22
29	0.679	50.00	50.00	1.36
30	1.075	50.00	50.00	2.15
31	1.336	50.00	50.00	2.67

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

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

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
1P	-0.002501	0.7465	-0.04361	-0.8068	0.0125	0.0480	2.497	3.247	116.2
2P	-0.002354	0.6821	-0.04303	-0.7858	-0.0096	0.0450	2.498	3.182	111.5
3P	-0.001255	0.5912	-0.04157	-0.7798	0.0008	0.0402	2.499	3.091	104.9
4P	-0.001826	0.528	-0.03991	-0.7581	0.0095	0.0367	2.498	3.028	100.2
5P	-0.0008099	0.4664	-0.03778	-0.7000	-0.0163	0.0328	2.499	2.966	95.34
6P	-0.0003419	0.4118	-0.03513	-0.6606	0.0078	0.0285	2.5	2.912	90.75
7P	-0.00135	0.3615	-0.03206	-0.6054	0.0097	0.0245	2.499	2.862	86.22
8P	-0.0007643	0.3124	-0.02959	-0.5475	-0.0245	0.0264	2.499	2.812	81.35
9P	0.0004113	0.2707	-0.02663	-0.5011	0.0238	0.0275	2.5	2.771	76.76
10P	-0.002232	0.2339	-0.02336	-0.4055	-0.0137	0.0291	2.498	2.734	72.23
11P	0	0	0	0.0000	0.0000	0.0000	11.27	11.27	0
20P	-0.01426	0.7433	-0.2275	-0.7960	0.0089	0.0522	-0.01426	16.49	116
21P	-0.008564	0.5254	-0.1869	-0.8000	0.0079	0.0334	-0.008564	13.78	100.1
22P	-0.009359	0.359	-0.185	-0.6919	0.0047	0.0332	-0.009359	16.11	86.07
23P	-0.007207	0.2323	-0.1144	-0.5244	0.0051	0.0290	-0.007207	13.48	72.14
24P	-0.0007078	1.038	-0.007762	-1.1969	-0.0004	0.0303	1.458	1.038	131.2
25P	-0.0004617	0.7463	-0.004849	-0.9523	-0.0003	0.0303	1.458	0.7463	116.2
26P	-0.0003581	0.5275	-0.00325	-0.7049	0.0003	0.0276	1.458	0.5275	100.2
27P	-0.0004222	0.3614	-0.00215	-0.6204	0.0009	0.0252	1.458	0.3614	86.25
28P	-0.0007329	0.2335	-0.001424	-0.4207	0.0020	0.0232	1.458	0.2335	72.25
29P	-0.001782	0.1106	-0.0007972	-0.1303	0.0012	0.0158	1.457	0.1106	44.29
30P	-0.001367	0.06235	-0.000435	-0.1794	-0.0039	0.0082	1.457	0.06235	22.5
31P	0	0	0	0.0000	0.0000	0.0000	1.458	0	0
32P	-0.0004683	0.7446	-0.005621	-0.8227	-0.0992	0.0689	-0.0004683	0.7446	116.2
33P	-0.0003541	0.5269	-0.00539	-0.7163	-0.0805	0.0251	-0.0003541	0.5269	100.2
34P	-0.000422	0.3607	-0.003989	-0.5821	-0.0815	0.0292	-0.000422	0.3607	86.25
35P	-0.0007206	0.2324	-0.003388	-0.4080	-0.0788	0.0387	-0.0007206	0.2324	72.25
1X	0.00151	0.7469	0.02396	-0.7383	0.0275	0.0445	2.502	-1.753	116.3
1XY	0.001661	0.7424	0.0239	-0.7733	-0.0035	0.0477	-2.498	-1.758	116.3
1Y	-0.002575	0.742	-0.04355	-0.7854	-0.0054	0.0470	-2.503	3.242	116.2
2X	0.001525	0.6828	0.02424	-0.8041	-0.0001	0.0422	2.502	-1.817	111.6
2XY	0.001559	0.6786	0.02419	-0.7867	-0.0019	0.0454	-2.498	-1.821	111.6
2Y	-0.002451	0.6779	-0.04296	-0.7837	0.0056	0.0447	-2.502	3.178	111.5
3X	0.0004325	0.5914	0.02409	-0.7850	-0.0032	0.0385	2.5	-1.909	105
3XY	0.0023	0.5881	0.02407	-0.7764	0.0072	0.0420	-2.498	-1.912	105
3Y	-0.002967	0.5879	-0.04153	-0.7762	-0.0059	0.0419	-2.503	3.088	104.9
4X	0.001173	0.5285	0.02342	-0.7251	0.0090	0.0357	2.501	-1.972	100.3
4XY	0.001361	0.5255	0.02344	-0.7384	0.0015	0.0398	-2.499	-1.974	100.3
4Y	-0.002113	0.525	-0.0399	-0.7435	-0.0011	0.0398	-2.502	3.025	100.2
5X	0.000234	0.4667	0.0222	-0.7098	0.0147	0.0315	2.5	-2.033	95.4
5XY	0.002145	0.4638	0.02227	-0.7063	-0.0127	0.0395	-2.498	-2.036	95.4
5Y	-0.002974	0.4635	-0.03776	-0.7023	0.0139	0.0391	-2.503	2.963	95.34
6X	-0.000378	0.4119	0.02038	-0.6639	-0.0070	0.0279	2.5	-2.088	90.81
6XY	0.002544	0.409	0.02048	-0.6613	0.0100	0.0388	-2.497	-2.091	90.81
6Y	-0.003318	0.409	-0.03509	-0.6621	-0.0085	0.0389	-2.503	2.909	90.75
7X	0.0005626	0.3618	0.0181	-0.5804	0.0047	0.0240	2.501	-2.138	86.27
7XY	0.001347	0.359	0.01821	-0.5912	0.0059	0.0384	-2.499	-2.141	86.27
7Y	-0.00225	0.3587	-0.03198	-0.5966	-0.0047	0.0384	-2.502	2.859	86.22
8X	-0.0001579	0.3128	0.01626	-0.5561	0.0234	0.0242	2.5	-2.187	81.4
8XY	0.001737	0.31	0.01639	-0.5514	-0.0199	0.0349	-2.498	-2.19	81.4

8Y	-0.002821	0.3098	-0.02948	-0.5468	0.0243	0.0338	-2.503	2.81	81.35
9X	-0.001515	0.2706	0.01386	-0.5023	-0.0200	0.0249	2.498	-2.229	76.8
9XY	0.002756	0.268	0.01401	-0.4994	0.0244	0.0309	-2.497	-2.232	76.8
9Y	-0.004029	0.2681	-0.0265	-0.5015	-0.0228	0.0301	-2.504	2.768	76.76
10X	0.0008058	0.2341	0.0111	-0.3930	0.0208	0.0251	2.501	-2.266	72.26
10XY	5.785e-005	0.2317	0.01127	-0.3992	-0.0107	0.0275	-2.5	-2.268	72.26
10Y	-0.001474	0.2314	-0.02322	-0.3971	0.0182	0.0260	-2.501	2.731	72.23
11X	0	0	0	0.0000	0.0000	0.0000	11.27	-11.27	0
11XY	0	0	0	0.0000	0.0000	0.0000	-11.27	-11.27	0
11Y	0	0	0	0.0000	0.0000	0.0000	-11.27	11.27	0
20X	0.01334	0.7459	0.2044	-0.7909	0.0189	0.0529	0.01334	-15	116.5
21X	0.007867	0.528	0.1669	-0.7801	0.0080	0.0337	0.007867	-12.72	100.4
22X	0.008527	0.3612	0.1656	-0.6632	0.0075	0.0334	0.008527	-15.39	86.42
23X	0.005775	0.2334	0.09846	-0.4969	0.0060	0.0295	0.005775	-13.02	72.35
12S	0.00215	0.1922	-0.02345	-0.2972	-0.0056	0.0325	3.362	3.552	65.15
13S	-0.002721	0.1591	-0.02357	-0.2453	0.0096	0.0300	4.191	4.353	58.28
14S	-0.0003594	0.1335	-0.02201	-0.1862	-0.0146	0.0238	5.028	5.162	51.4
15S	-0.003531	0.1114	-0.02038	-0.1751	0.0230	0.0187	5.891	6.006	44.27
16S	-0.002686	0.07339	-0.01444	-0.0777	-0.0107	0.0141	7.697	7.773	29.41
17S	-0.003001	0.06417	-0.01022	-0.1092	-0.0047	0.0051	8.537	8.604	22.49
18S	-0.001383	0.0641	-0.0124	-0.1794	0.1470	0.0176	8.538	0.0641	22.49
19S	-0.002996	0.06224	-0.01559	-0.0653	0.0157	0.0119	-0.002996	8.602	22.48
12X	-0.003518	0.1917	0.01187	-0.2966	0.0117	0.0270	3.356	-3.168	65.18
12XY	0.004199	0.1887	0.01216	-0.2921	-0.0047	0.0207	-3.355	-3.171	65.18
12Y	-0.006688	0.1893	-0.02322	-0.2964	0.0060	0.0198	-3.366	3.549	65.15
13X	-9.104e-005	0.1598	0.01218	-0.2439	-0.0053	0.0252	4.193	-4.034	58.31
13XY	0.0006373	0.1564	0.01253	-0.2428	0.0122	0.0192	-4.193	-4.037	58.31
13Y	-0.002767	0.1556	-0.02324	-0.2422	-0.0071	0.0193	-4.196	4.349	58.28
14X	-0.002008	0.1328	0.01134	-0.1949	0.0153	0.0180	5.027	-4.896	51.43
14XY	0.002397	0.1289	0.01176	-0.1930	-0.0086	0.0224	-5.026	-4.9	51.43
14Y	-0.006155	0.1297	-0.02154	-0.1848	0.0198	0.0230	-5.035	5.158	51.4
15X	-0.0006114	0.1118	0.009909	-0.1469	-0.0016	0.0151	5.894	-5.782	44.3
15XY	0.0008603	0.1077	0.01035	-0.1443	0.0059	0.0215	-5.893	-5.787	44.3
15Y	-0.004107	0.1072	-0.01977	-0.1686	-0.0259	0.0234	-5.898	6.001	44.27
16X	-0.001486	0.07661	0.006035	-0.0946	-0.0022	0.0105	7.698	-7.623	29.43
16XY	0.001869	0.07308	0.006329	-0.0902	0.0044	0.0136	-7.698	-7.626	29.43
16Y	-0.002596	0.07012	-0.01401	-0.0743	0.0084	0.0140	-7.702	7.77	29.41
17X	0.0002056	0.06459	0.004013	-0.1315	-0.0088	0.0018	8.54	-8.475	22.5
17XY	0.000263	0.06125	0.004296	-0.1250	0.0110	0.0162	-8.539	-8.478	22.5
17Y	-0.002985	0.06082	-0.009751	-0.1044	0.0031	0.0161	-8.543	8.6	22.49
18Y	-0.001365	0.06075	-0.0115	-0.1793	-0.0932	0.0093	-8.541	0.06075	22.49
19X	0.0002348	0.06226	0.0005156	0.0717	-0.0467	0.0117	0.0002348	-8.477	22.5

Joint Support Reactions for Load Case "NESC Extreme":

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 %
11P	-9.50	0.0	-9.76	0.0	0.0	-78.49	0.0	0.0	79.66	0.0	0.98	0.0	0.1	0.0	0.0	0.11	0.0	0.0
31P	0.03	0.0	-1.89	0.0	0.0	-6.39	0.0	0.0	6.67	0.0	24.18	0.0	0.5	0.0	0.0	-0.26	0.0	0.0
11X	10.06	0.0	-13.27	0.0	0.0	68.49	0.0	0.0	70.49	0.0	0.94	0.0	-0.0	0.0	0.0	0.10	0.0	0.0
11XY	-10.01	0.0	-12.92	0.0	0.0	67.66	0.0	0.0	69.61	0.0	0.88	0.0	0.0	0.0	0.0	-0.11	0.0	0.0
11Y	9.42	0.0	-9.69	0.0	0.0	-77.89	0.0	0.0	79.05	0.0	0.91	0.0	0.0	0.0	0.0	-0.11	0.0	0.0

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

Joint	X External	Y External	Z External	X Member	Y Member	Z Member	X	Y	Z

Label	Load (kips)	Load (kips)	Load (kips)	Force (kips)	Force (kips)	Force (kips)	Disp. (ft)	Disp. (ft)	Disp. (ft)
1P	0.0000	0.1833	-0.1354	0.0000	-0.1833	0.1354	-0.0025	0.7465	-0.0436
2P	0.0000	0.1833	-0.1354	-0.0000	-0.1833	0.1354	-0.0024	0.6821	-0.0430
3P	0.0000	0.1833	-0.1354	-0.0000	-0.1833	0.1354	-0.0013	0.5912	-0.0416
4P	0.0000	0.1833	-0.1354	0.0000	-0.1833	0.1354	-0.0018	0.5280	-0.0399
5P	0.0000	0.1833	-0.1354	-0.0000	-0.1833	0.1354	-0.0008	0.4664	-0.0378
6P	0.0000	0.1833	-0.1354	-0.0000	-0.1833	0.1354	-0.0003	0.4118	-0.0351
7P	0.0000	0.1833	-0.1354	0.0000	-0.1833	0.1354	-0.0013	0.3615	-0.0321
8P	0.0000	0.1833	-0.1354	-0.0000	-0.1833	0.1354	-0.0008	0.3124	-0.0296
9P	0.0000	0.1833	-0.1354	-0.0000	-0.1833	0.1354	0.0004	0.2707	-0.0266
10P	0.0000	0.5930	-0.4133	0.0000	-0.5930	0.4133	-0.0022	0.2339	-0.0234
11P	0.0000	0.4097	-0.2779	9.5028	9.3496	-78.2116	0.0000	0.0000	0.0000
20P	0.0000	0.8383	-0.3204	-0.0000	-0.8383	0.3204	-0.0143	0.7433	-0.2275
21P	0.0000	2.3363	-1.2994	-0.0000	-2.3363	1.2994	-0.0086	0.5254	-0.1869
22P	0.0000	2.3363	-1.2994	-0.0000	-2.3363	1.2994	-0.0094	0.3590	-0.1850
23P	0.0000	2.3363	-1.2994	-0.0000	-2.3363	1.2994	-0.0072	0.2323	-0.1144
24P	0.0000	1.9683	-1.7954	-0.0000	-1.9683	1.7954	-0.0007	1.0385	-0.0078
25P	0.0000	0.1833	-0.2324	-0.0000	-0.1833	0.2324	-0.0005	0.7463	-0.0048
26P	0.0000	0.1833	-0.2294	-0.0000	-0.1833	0.2294	-0.0004	0.5275	-0.0033
27P	0.0000	0.1833	-0.2224	0.0000	-0.1833	0.2224	-0.0004	0.3614	-0.0021
28P	0.0000	0.5930	-0.5443	0.0000	-0.5930	0.5443	-0.0007	0.2335	-0.0014
29P	0.0000	0.4097	-0.4399	-0.0000	-0.4097	0.4399	-0.0018	0.1106	-0.0008
30P	0.0000	0.4097	-0.4839	0.0000	-0.4097	0.4839	-0.0014	0.0624	-0.0004
31P	0.0000	0.4097	-0.2779	-0.0329	1.4797	-6.1140	0.0000	0.0000	0.0000
32P	0.0000	0.1833	-0.1354	0.0000	-0.1833	0.1354	-0.0005	0.7446	-0.0056
33P	0.0000	0.1833	-0.1354	0.0000	-0.1833	0.1354	-0.0004	0.5269	-0.0054
34P	0.0000	0.1833	-0.1354	0.0000	-0.1833	0.1354	-0.0004	0.3607	-0.0040
35P	0.0000	0.1833	-0.1354	-0.0000	-0.1833	0.1354	-0.0007	0.2324	-0.0034
1X	0.0000	0.1833	-0.1354	0.0000	-0.1833	0.1354	0.0015	0.7469	0.0240
1XY	0.0000	0.1833	-0.1354	0.0000	-0.1833	0.1354	0.0017	0.7424	0.0239
1Y	0.0000	0.1833	-0.1354	0.0000	-0.1833	0.1354	-0.0026	0.7420	-0.0436
2X	0.0000	0.9033	-0.2324	-0.0000	-0.9033	0.2324	0.0015	0.6828	0.0242
2XY	0.0000	0.9033	-0.2324	-0.0000	-0.9033	0.2324	0.0016	0.6786	0.0242
2Y	0.0000	0.1833	-0.1354	-0.0000	-0.1833	0.1354	-0.0025	0.6779	-0.0430
3X	0.0000	0.1833	-0.1354	-0.0000	-0.1833	0.1354	0.0004	0.5914	0.0241
3XY	0.0000	0.1833	-0.1354	-0.0000	-0.1833	0.1354	0.0023	0.5881	0.0241
3Y	0.0000	0.1833	-0.1354	-0.0000	-0.1833	0.1354	-0.0030	0.5879	-0.0415
4X	0.0000	0.6713	-0.2014	0.0000	-0.6713	0.2014	0.0012	0.5285	0.0234
4XY	0.0000	0.6713	-0.2014	0.0000	-0.6713	0.2014	0.0014	0.5255	0.0234
4Y	0.0000	0.1833	-0.1354	0.0000	-0.1833	0.1354	-0.0021	0.5250	-0.0399
5X	0.0000	0.1833	-0.1354	-0.0000	-0.1833	0.1354	0.0002	0.4667	0.0222
5XY	0.0000	0.1833	-0.1354	-0.0000	-0.1833	0.1354	0.0021	0.4638	0.0223
5Y	0.0000	0.1833	-0.1354	-0.0000	-0.1833	0.1354	-0.0030	0.4635	-0.0378
6X	0.0000	0.6253	-0.1944	-0.0000	-0.6253	0.1944	-0.0004	0.4119	0.0204
6XY	0.0000	0.6253	-0.1944	-0.0000	-0.6253	0.1944	0.0025	0.4090	0.0205
6Y	0.0000	0.1833	-0.1354	-0.0000	-0.1833	0.1354	-0.0033	0.4090	-0.0351
7X	0.0000	0.1833	-0.1354	0.0000	-0.1833	0.1354	0.0006	0.3618	0.0181
7XY	0.0000	0.1833	-0.1354	0.0000	-0.1833	0.1354	0.0013	0.3590	0.0182
7Y	0.0000	0.1833	-0.1354	0.0000	-0.1833	0.1354	-0.0023	0.3587	-0.0320
8X	0.0000	0.6133	-0.1934	0.0000	-0.6133	0.1934	-0.0002	0.3128	0.0163
8XY	0.0000	0.6133	-0.1934	-0.0000	-0.6133	0.1934	0.0017	0.3100	0.0164
8Y	0.0000	0.1833	-0.1354	0.0000	-0.1833	0.1354	-0.0028	0.3098	-0.0295
9X	0.0000	0.1833	-0.1354	-0.0000	-0.1833	0.1354	-0.0015	0.2706	0.0139
9XY	0.0000	0.1833	-0.1354	0.0000	-0.1833	0.1354	0.0028	0.2680	0.0140
9Y	0.0000	0.1833	-0.1354	-0.0000	-0.1833	0.1354	-0.0040	0.2681	-0.0265
10X	0.0000	1.1280	-0.4853	0.0000	-1.1280	0.4853	0.0008	0.2341	0.0111
10XY	0.0000	1.1280	-0.4853	0.0000	-1.1280	0.4853	0.0001	0.2317	0.0113

10Y	0.0000	0.5930	-0.4133	0.0000	-0.5930	0.4133	-0.0015	0.2314	-0.0232
11X	0.0000	0.4097	-0.2779	-10.0553	12.8615	68.7687	0.0000	0.0000	0.0000
11XY	0.0000	0.4097	-0.2779	10.0056	12.5074	67.9424	0.0000	0.0000	0.0000
11Y	0.0000	0.4097	-0.2779	-9.4202	9.2848	-77.6125	0.0000	0.0000	0.0000
20X	0.0000	0.7043	-0.2884	0.0000	-0.7043	0.2884	0.0133	0.7459	0.2044
21X	0.0000	0.1833	-0.1354	0.0000	-0.1833	0.1354	0.0079	0.5280	0.1669
22X	0.0000	0.1833	-0.1354	0.0000	-0.1833	0.1354	0.0085	0.3612	0.1656
23X	0.0000	0.1833	-0.1354	0.0000	-0.1833	0.1354	0.0058	0.2334	0.0985
12S	0.0000	0.4097	-0.2779	-0.0000	-0.4097	0.2779	0.0022	0.1922	-0.0235
13S	0.0000	0.4097	-0.2779	0.0000	-0.4097	0.2779	-0.0027	0.1591	-0.0236
14S	0.0000	0.4097	-0.2779	-0.0000	-0.4097	0.2779	-0.0004	0.1335	-0.0220
15S	0.0000	0.4097	-0.2779	0.0000	-0.4097	0.2779	-0.0035	0.1114	-0.0204
16S	0.0000	0.4097	-0.2779	-0.0000	-0.4097	0.2779	-0.0027	0.0734	-0.0144
17S	0.0000	0.4097	-0.2779	0.0000	-0.4097	0.2779	-0.0030	0.0642	-0.0102
18S	0.0000	0.4097	-0.2779	-0.0000	-0.4097	0.2779	-0.0014	0.0641	-0.0124
19S	0.0000	0.4097	-0.2779	-0.0000	-0.4097	0.2779	-0.0030	0.0622	-0.0156
12X	0.0000	0.4097	-0.2779	-0.0000	-0.4097	0.2779	-0.0035	0.1917	0.0119
12XY	0.0000	0.4097	-0.2779	-0.0000	-0.4097	0.2779	0.0042	0.1887	0.0122
12Y	0.0000	0.4097	-0.2779	0.0000	-0.4097	0.2779	-0.0067	0.1893	-0.0232
13X	0.0000	1.0607	-0.3649	0.0000	-1.0607	0.3649	-0.0001	0.1598	0.0122
13XY	0.0000	1.0607	-0.3649	-0.0000	-1.0607	0.3649	0.0006	0.1564	0.0125
13Y	0.0000	0.4097	-0.2779	-0.0000	-0.4097	0.2779	-0.0028	0.1556	-0.0232
14X	0.0000	0.4097	-0.2779	0.0000	-0.4097	0.2779	-0.0020	0.1328	0.0113
14XY	0.0000	0.4097	-0.2779	-0.0000	-0.4097	0.2779	0.0024	0.1289	0.0118
14Y	0.0000	0.4097	-0.2779	-0.0000	-0.4097	0.2779	-0.0062	0.1297	-0.0215
15X	0.0000	1.2467	-0.3899	0.0000	-1.2467	0.3899	-0.0006	0.1118	0.0099
15XY	0.0000	1.2467	-0.3899	-0.0000	-1.2467	0.3899	0.0009	0.1077	0.0103
15Y	0.0000	0.4097	-0.2779	-0.0000	-0.4097	0.2779	-0.0041	0.1072	-0.0198
16X	0.0000	0.4097	-0.2779	-0.0000	-0.4097	0.2779	-0.0015	0.0766	0.0060
16XY	0.0000	0.4097	-0.2779	-0.0000	-0.4097	0.2779	0.0019	0.0731	0.0063
16Y	0.0000	0.4097	-0.2779	-0.0000	-0.4097	0.2779	-0.0026	0.0701	-0.0140
17X	0.0000	1.9437	-0.4839	0.0000	-1.9437	0.4839	0.0002	0.0646	0.0040
17XY	0.0000	1.9437	-0.4839	0.0000	-1.9437	0.4839	0.0003	0.0612	0.0043
17Y	0.0000	0.4097	-0.2779	-0.0000	-0.4097	0.2779	-0.0030	0.0608	-0.0098
18Y	0.0000	0.4097	-0.2779	-0.0000	-0.4097	0.2779	-0.0014	0.0608	-0.0115
19X	0.0000	0.4097	-0.2779	-0.0000	-0.4097	0.2779	0.0002	0.0623	0.0005

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

Comp. Member Label	Tens. Member Label	Connect Leg for Comp. Member	Force In Comp. Member (kips)	Force In Tens. Member (kips)	Original Supported L/R Cap. (kips)	RLX	RLY	RLZ	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.
g22P	g22Y	Short only	-0.53	-0.04	12.19	0.750	0.500	0.500	120.16	120.16	5	8.98	1.000	153.50	140.60	6
g22Y	g22P	Short only	-0.04	-0.53	12.19	0.750	0.500	0.500	120.16	120.16	5	8.98	1.000	153.50	140.60	6
g24P	g24Y	Short only	-1.29	-0.99	15.47	0.750	0.500	0.500	122.81	122.18	5	11.25	1.000	158.33	143.57	6
g24Y	g24P	Short only	-0.99	-1.29	15.47	0.750	0.500	0.500	122.81	122.18	5	11.25	1.000	158.33	143.57	6
g26X	g26XY	Short only	-1.02	-1.33	16.05	0.750	0.500	0.500	119.43	119.57	2	11.68	1.000	153.97	140.89	6
g26XY	g26X	Short only	-1.33	-1.02	16.05	0.750	0.500	0.500	119.43	119.57	2	11.68	1.000	153.97	140.89	6
g28P	g28Y	Short only	-1.72	-1.44	16.15	0.750	0.500	0.500	118.83	119.12	2	11.76	1.000	153.20	140.42	6
g28Y	g28P	Short only	-1.44	-1.72	16.15	0.750	0.500	0.500	118.83	119.12	2	11.76	1.000	153.20	140.42	6
g30P	g30Y	Short only	-2.15	-1.77	20.89	0.750	0.500	0.500	107.11	110.33	2	15.73	1.000	137.53	130.78	6
g30Y	g30P	Short only	-1.77	-2.15	20.89	0.750	0.500	0.500	107.11	110.33	2	15.73	1.000	137.53	130.78	6
g32X	g32XY	Short only	-1.91	-2.30	21.40	0.750	0.500	0.500	104.15	108.12	2	16.31	1.000	133.74	128.45	6
g32XY	g32X	Short only	-2.30	-1.91	21.40	0.750	0.500	0.500	104.15	108.12	2	16.31	1.000	133.74	128.45	6
g34P	g34Y	Short only	-3.15	-2.81	21.49	0.750	0.500	0.500	103.64	107.73	2	16.41	1.000	133.08	128.04	6
g34Y	g34P	Short only	-2.81	-3.15	21.49	0.750	0.500	0.500	103.64	107.73	2	16.41	1.000	133.08	128.04	6

g37P	g37X	Short only	-0.13	-0.31	8.74	0.779	0.558	0.558	175.43	175.43	4	6.60	1.000	201.85	201.85	4
g37X	g37P	Short only	-0.31	-0.13	8.74	0.779	0.558	0.558	175.43	175.43	4	6.60	1.000	201.85	201.85	4
g37Y	g37XY	Short only	-0.49	0.08	8.74	0.779	0.558	0.558	175.43	175.43	4	6.60	1.000	201.85	201.85	4
g38X	g38XY	Short only	-1.52	-2.07	8.74	0.779	0.558	0.558	175.43	175.43	4	6.60	1.000	201.85	201.85	4
g38XY	g38X	Short only	-2.07	-1.52	8.74	0.779	0.558	0.558	175.43	175.43	4	6.60	1.000	201.85	201.85	4
g42X	g42XY	Short only	-0.31	-0.65	5.93	0.769	0.538	0.538	197.65	197.65	4	5.92	1.000	197.82	197.82	4
g42XY	g42X	Short only	-0.65	-0.31	5.93	0.769	0.538	0.538	197.65	197.65	4	5.92	1.000	197.82	197.82	4

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

Clamp Label	Force (kips)	Input Holding Capacity (kips)	Factored Holding Capacity (kips)	Usage %
1	0.897	50.00	50.00	1.79
2	0.761	50.00	50.00	1.52
3	2.673	50.00	50.00	5.35
4	0.228	50.00	50.00	0.46
5	2.673	50.00	50.00	5.35
6	0.228	50.00	50.00	0.46
7	2.673	50.00	50.00	5.35
8	0.228	50.00	50.00	0.46
9	2.664	50.00	50.00	5.33
10	0.296	50.00	50.00	0.59
11	0.294	50.00	50.00	0.59
12	0.288	50.00	50.00	0.58
13	0.805	50.00	50.00	1.61
14	0.601	50.00	50.00	1.20
15	0.634	50.00	50.00	1.27
16	0.933	50.00	50.00	1.87
17	0.701	50.00	50.00	1.40
18	0.655	50.00	50.00	1.31
19	0.643	50.00	50.00	1.29
20	1.228	50.00	50.00	2.46
21	1.122	50.00	50.00	2.24
22	1.306	50.00	50.00	2.61
23	2.003	50.00	50.00	4.01
24	0.933	50.00	50.00	1.87
25	0.701	50.00	50.00	1.40
26	0.655	50.00	50.00	1.31
27	0.643	50.00	50.00	1.29
28	1.228	50.00	50.00	2.46
29	1.122	50.00	50.00	2.24
30	1.306	50.00	50.00	2.61
31	2.003	50.00	50.00	4.01

*** 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 Curve	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	KL/R	Length (ft)	Comp. No.	Angle No. Of Bolts	Member Comp.
Leg1	L3.5x3.5x1/4	SAE	3.5X3.5X0.25	36.0	70.54	Tens	62.24	g6Y	-30.527	NESC Ext	49.051	54.600	81.562	1.000	1.000	1.000	78.50	78.50	4.540	1	6	
Leg2	L4x4x3/8	SAE	4X4X0.375	36.0	73.59	Tens	65.47	g9Y	-57.274	NESC Ext	87.485	91.000	203.906	1.000	1.000	1.000	69.14	69.14	4.540	1	10	
Leg3	L5x5x3/8	SAE	5X5X0.375	36.0	83.29	Comp	83.29	g16P	-79.340	NESC Ext	95.261	109.200	244.687	0.333	0.333	0.333	92.15	92.15	22.829	1	12	
Diag1	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	36.0	46.34	Comp	46.34	g19X	-4.245	NESC Ext	9.161	18.200	20.391	0.750	0.500	0.500	145.12	139.18	8.296	5	2	
Diag2	L1.75x1.75x1/4	SAE	1.75X1.75X0.25	36.0	35.59	Comp	35.59	g27X	-5.748	NESC Ext	16.148	18.200	27.187	0.750	0.500	0.500	118.83	119.12	6.754	2	2	
Diag3	L2x2x1/4	SAE	2X2X0.25	36.0	42.85	Comp	42.85	g33X	-7.798	NESC Ext	21.491	18.200	27.187	0.750	0.500	0.500	103.64	107.73	6.754	2	2	
Diag4	L3x2x3/16	SAU	3X2X0.1875	36.0	30.35	Tens	28.16	g36P	-3.736	NESC Ext	13.267	18.200	20.391	0.788	0.576	0.576	145.33	139.34	9.230	5	2	
Diag5	L2.5x2x3/16	SAU	2.5X2X0.1875	36.0	19.38	Comp	19.38	g41X	-1.150	NESC Ext	5.934	9.100	10.195	0.769	0.538	0.538	197.65	197.65	13.073	4	1	
Diag6	L2x2x3/16	SAE	2X2X0.1875	36.0	79.75	Tens	43.45	g46Y	-0.882	NESC Hea	2.031	18.200	20.391	1.000	1.000	1.000	316.33	316.33	10.386	4	2	
Diag7	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	36.0	95.76	Tens	52.89	g48P	-1.463	NESC Hea	2.765	18.200	20.391	0.333	0.333	0.333	294.90	253.31	25.313	5	2	
Horz1	L2.5x1.5x3/16	SAU	2.5X1.5X0.1875	36.0	10.18	Comp	10.18	g49X	-0.614	NESC Ext	6.036	9.100	10.195	1.000	1.000	1.000	183.49	183.49	5.000	4	1	
Horz2	L1.5x1.5x3/16	SAE	1.5X1.5X0.1875	36.0	66.55	Comp	66.55	g56X	-2.407	NESC Ext	3.617	9.100	10.195	1.000	1.000	1.000	204.78	204.78	5.000	4	1	
Horz3	L2.5x2x3/16	SAU	2.5X2X0.1875	36.0	40.23	Comp	40.23	g58X	-2.931	NESC Ext	7.285	9.100	10.195	1.000	0.500	0.500	178.39	178.39	11.789	4	1	
Horz4	L3x3x1/4	SAE	3X3X0.25	36.0	62.60	Comp	62.60	g60X	-9.098	NESC Ext	14.534	18.200	27.187	1.000	0.500	0.500	198.70	168.40	15.399	6	2	
Horz5	L3x3x3/16	SAE	3X3X0.1875	36.0	14.49	Comp	14.49	g62Y	-1.774	NESC Ext	12.245	18.200	20.391	1.000	1.000	1.000	171.94	159.62	8.540	5	2	
Inner1	L1.5x1.5x1/4	SAE	1.5X1.5X0.25	36.0	16.29	Comp	16.29	g64XY	-0.901	NESC Ext	5.530	9.100	13.594	2.000	1.000	1.000	188.98	188.98	3.536	4	1	
Inner2	L3x3x3/16	SAE	3X3X0.1875	36.0	8.43	Comp	8.43	g68X	-0.445	NESC Ext	5.277	18.200	20.391	1.000	1.000	1.000	243.16	243.16	12.077	4	2	
ShieldAr	L2.5x2.5x1/4	SAE	2.5X2.5X0.25	36.0	9.82	Tens	1.14	g69Y	-0.143	NESC Ext	12.545	18.200	27.187	0.500	0.500	0.500	164.77	164.77	13.484	4	2	
ShArmBr	L3x2x3/16	SAU	3X2X0.1875	36.0	22.61	Comp	22.61	g77XY	-1.531	NESC Hea	6.772	18.200	20.391	1.000	0.500	0.500						

195.03 195.03 14.270 4 2
TopCrArm L3.5x2.5x1/4 SAU 3.5X2.5X0.25 36.0 10.30 Comp 10.30 g71XY -2.812NESC Hea 27.685 27.300 40.781 0.500 0.500 0.500
121.73 121.73 11.037 4 3
TopArmBr L2.5X2x3/16 SAU 2.5X2X0.1875 36.0 22.66 Tens 0.38 g78Y -0.027NESC Ext 7.031 18.200 20.391 1.000 0.500 0.500
181.59 181.59 12.000 4 2
MidCrArm L3.5x3x5/16 SAU 3.5X3X0.3125 36.0 11.31 Comp 11.31 g73XY -3.754NESC Hea 33.179 36.400 67.969 0.500 0.500 0.500
129.03 129.03 13.484 4 4
MidArmBr L3x2x3/16 SAU 3X2X0.1875 36.0 28.00 Tens 0.00 g79Y 0.000 6.812 18.200 20.391 1.000 0.500 0.500
194.45 194.45 14.228 4 2
BotCrArm L3.5x2.5x1/4 SAU 3.5X2.5X0.25 36.0 10.61 Comp 10.61 g75XY -2.897NESC Hea 27.685 27.300 40.781 0.500 0.500 0.500
121.73 121.73 11.037 4 3
BotArmBr L2.5X2x3/16 SAU 2.5X2X0.1875 36.0 23.07 Tens 0.00 g80Y 0.000 7.109 18.200 20.391 1.000 0.500 0.500
180.59 180.59 11.934 4 2
Pwmnt 12" Std. Pipe Pwmnt Pipe 12" Std. 35.0 3.68 Comp 3.68 g81P -15.512NESC Hea 420.955 0.000 0.000 1.000 1.000 1.000
61.50 61.50 22.500 1 0
PMBR1 L2x2x3/16 SAE 2X2X0.1875 36.0 22.83 Tens 19.83 g88X -2.022NESC Ext 17.322 16.800 10.195 1.000 1.000 1.000
82.49 101.24 2.708 3 1 A potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize moments): g88P ??
PMBR2 L3.5x3.5x1/4 SAE 3.5X3.5X0.25 36.0 19.36 Comp 19.36 g96X -2.632NESC Ext 29.729 16.800 13.594 1.000 1.000 1.000
127.56 127.56 7.377 4 1
PMBR3 L4x4x1/4 SAE 4X4X0.25 36.0 13.01 Comp 13.01 g97P -1.768NESC Ext 27.444 16.800 13.594 1.000 1.000 1.000
142.24 142.24 9.424 4 1
PMBR4 L2.5x2.5x3/16 SAE 2.5X2.5X0.1875 36.0 1.84 Comp 1.84 g98P -0.161NESC Hea 8.761 16.800 10.195 1.000 1.000 1.000
171.67 171.67 7.081 4 1
PMBR5 L3x3x1/4 SAE 3X3X0.25 36.0 6.53 Comp 6.53 g99P -0.873NESC Ext 13.366 16.800 13.594 1.000 1.000 1.000
175.60 175.60 8.663 4 1
Diag8 L3x2x3/16 SAU 3X2X0.1875 36.0 52.04 Comp 52.04 g43X -1.891NESC Hea 3.634 18.200 20.391 0.782 0.564 0.564
311.85 266.23 20.228 5 2

Group Summary (Tension Portion):

Group No.	Group Label	Angle Desc.	Angle Type	Steel Size	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)	Holes
Leg1	L3.5x3.5x1/4	SAE	3.5X3.5X0.25	36.0	70.54	Tens	70.54	g6X	27.583NESC Ext	39.105	54.600	81.562	90.625	4.540	6	3.220	0.75		
Leg2	L4x4x3/8	SAE	4X4X0.375	36.0	73.59	Tens	73.59	g9X	53.116NESC Ext	72.180	91.000	203.906	226.562	4.540	10	3.040	0.75		
Leg3	L5x5x3/8	SAE	5X5X0.375	36.0	83.29	Comp	65.81	g13XY	59.887NESC Ext	104.141	91.000	203.906	213.235	7.234	10	2.550	0.75		
Diag1	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	36.0	46.34	Comp	32.54	g21P	4.415NESC Ext	15.532	18.200	20.391	13.570	6.869	2	1.000	0.75		
Diag2	L1.75x1.75x1/4	SAE	1.75X1.75X0.25	36.0	35.59	Comp	31.62	g27P	5.721NESC Ext	20.169	18.200	27.187	18.094	6.754	2	1.000	0.75		
Diag3	L2x2x1/4	SAE	2X2X0.25	36.0	42.85	Comp	42.65	g33P	7.762NESC Ext	24.381	18.200	27.187	24.167	6.754	2	1.000	0.75		
Diag4	L3x2x3/16	SAU	3X2X0.1875	36.0	30.35	Tens	30.35	g36X	3.879NESC Ext	18.529	18.200	20.391	12.783	9.230	2	1.000	0.75		
Diag5	L2.5x2x3/16	SAU	2.5X2X0.1875	36.0	19.38	Comp	15.73	g41P	1.305NESC Ext	18.650	9.100	10.195	8.297	13.073	1	1.000	0.75		

Diag6	L2x2x3/16	SAE	2X2X0.1875	36.0	79.75	Tens	79.75	g45X	11.170NESC Ext	18.448	18.200	20.391	14.006	10.386	2	1.000	0.75	
Diag7	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	36.0	95.76	Tens	95.76	g47P	12.605NESC Ext	15.532	18.200	20.391	13.162	25.313	2	1.000	0.75	
Horz1	L2.5x1.5x3/16	SAU	2.5X1.5X0.1875	36.0	10.18	Comp	4.72	g49P	0.314NESC Ext	12.373	9.100	10.195	6.664	5.000	1	1.000	0.75	
Horz2	L1.5x1.5x3/16	SAE	1.5X1.5X0.1875	36.0	66.55	Comp	41.58	g56P	2.771NESC Ext	12.616	9.100	10.195	6.664	5.000	1	1.000	0.75	
Horz3	L2.5x2x3/16	SAU	2.5X2X0.1875	36.0	40.23	Comp	16.39	g58P	1.150NESC Ext	18.650	9.100	10.195	7.017	11.789	1	1.000	0.75	
Horz4	L3x3x1/4	SAE	3X3X0.25	36.0	62.60	Comp	4.02	g60P	0.731NESC Hea	40.581	18.200	27.187	24.167	15.399	2	1.000	0.75	
Horz5	L3x3x3/16	SAE	3X3X0.1875	36.0	14.49	Comp	1.69	g62XY	0.271NESC Ext	30.760	18.200	20.391	15.993	8.540	2	1.000	0.75	
Inner1	L1.5x1.5x1/4	SAE	1.5X1.5X0.25	36.0	16.29	Comp	14.62	g64Y	1.124NESC Ext	16.281	9.100	13.594	7.687	3.536	1	1.000	0.75	
Inner2	L3x3x3/16	SAE	3X3X0.1875	36.0	8.43	Comp	2.67	g68P	0.427NESC Ext	30.760	18.200	20.391	15.993	12.077	2	1.000	0.75	
ShieldAr	L2.5x2.5x1/4	SAE	2.5X2.5X0.25	36.0	9.82	Tens	9.82	g69XY	1.788NESC Hea	26.406	18.200	27.187	28.431	13.484	2	2.000	0.75	
ShArmBr	L3x2x3/16	SAU	3X2X0.1875	36.0	22.61	Comp	0.00	g77Y	0.000	18.529	18.200	20.391	16.453	14.270	2	1.000	0.75	
TopCrArm	L3.5x2.5x1/4	SAU	3.5X2.5X0.25	36.0	10.30	Comp	0.00	g72Y	0.000	34.506	27.300	40.781	31.719	5.000	3	2.000	0.75	
TopArmBr	L2.5X2x3/16	SAU	2.5X2X0.1875	36.0	22.66	Tens	22.66	g78XY	3.728NESC Hea	18.650	18.200	20.391	16.453	12.000	2	1.000	0.75	
MidCrArm	L3.5x3x5/16	SAU	3.5X3X0.3125	36.0	11.31	Comp	0.00	g74Y	0.000	47.344	36.400	67.969	67.969	5.000	4	2.000	0.75	
MidArmBr	L3x2x3/16	SAU	3X2X0.1875	36.0	28.00	Tens	28.00	g79XY	4.607NESC Hea	18.529	18.200	20.391	16.453	14.228	2	1.000	0.75	
BotCrArm	L3.5x2.5x1/4	SAU	3.5X2.5X0.25	36.0	10.61	Comp	0.00	g76Y	0.000	35.660	27.300	40.781	42.647	5.000	3	1.810	0.75	
BotArmBr	L2.5X2x3/16	SAU	2.5X2X0.1875	36.0	23.07	Tens	23.07	g80XY	3.795NESC Hea	18.650	18.200	20.391	16.453	11.934	2	1.000	0.75	
Pwmnt	12" Std. Pipe Pwmnt	Pipe 12" Std.		35.0	3.68	Comp	0.00	g87P	0.000	475.999	0.000	0.000	0.000	15.000	0	0.000	0	
PMBR1	**L2x2x3/16**	**SAE**	**2X2X0.1875**	**36.0**	**22.83**	**Tens**	**22.83**	**g88P**	**2.328NESC Ext**	**18.827**	**16.800**	**10.195**	**10.343**	**2.708**	**1**	**1.000**	**0.6875**	**A potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize moments): g88P ??**
PMBR2	L3.5x3.5x1/4	SAE	3.5X3.5X0.25	36.0	19.36	Comp	4.57	g96P	0.622NESC Hea	49.187	16.800	13.594	15.104	7.377	1	1.000	0.6875	
PMBR3	L4x4x1/4	SAE	4X4X0.25	36.0	13.01	Comp	0.88	g97P	0.119NESC Hea	57.287	16.800	13.594	15.104	9.424	1	1.000	0.6875	
PMBR4	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	36.0	1.84	Comp	0.00	g98P	0.000	25.048	16.800	10.195	11.328	7.081	1	1.000	0.6875	
PMBR5	L3x3x1/4	SAE	3X3X0.25	36.0	6.53	Comp	6.48	g99X	0.881NESC Ext	41.087	16.800	13.594	15.104	8.663	1	1.000	0.6875	
Diag8	L3x2x3/16	SAU	3X2X0.1875	36.0	52.04	Comp	31.74	g44X	5.752NESC Ext	18.529	18.200	20.391	18.125	20.228	2	1.000	0.75	

*** Maximum Stress Summary for Each Load Case

Summary of Maximum Usages by Load Case:

Load Case	Maximum Usage %	Element Label	Element Type

NESC Heavy	52.89	g48P	Angle
NESC Extreme	95.76	g47P	Angle

Summary of Insulator Usages:

Insulator Label	Insulator Type	Maximum Usage %	Load Case	Weight (lbs)
1	Clamp	2.31	NESC Heavy	0.0
2	Clamp	2.20	NESC Heavy	0.0
3	Clamp	6.22	NESC Heavy	0.0
4	Clamp	0.46	NESC Extreme	0.0
5	Clamp	6.34	NESC Heavy	0.0
6	Clamp	0.46	NESC Extreme	0.0
7	Clamp	6.22	NESC Heavy	0.0
8	Clamp	0.46	NESC Extreme	0.0
9	Clamp	8.44	NESC Heavy	0.0
10	Clamp	2.83	NESC Heavy	0.0
11	Clamp	2.73	NESC Heavy	0.0
12	Clamp	2.55	NESC Heavy	0.0
13	Clamp	3.94	NESC Heavy	0.0
14	Clamp	5.03	NESC Heavy	0.0
15	Clamp	4.62	NESC Heavy	0.0
16	Clamp	1.87	NESC Extreme	0.0
17	Clamp	1.40	NESC Extreme	0.0
18	Clamp	1.31	NESC Extreme	0.0
19	Clamp	1.29	NESC Extreme	0.0
20	Clamp	2.46	NESC Extreme	0.0
21	Clamp	2.24	NESC Extreme	0.0
22	Clamp	2.61	NESC Extreme	0.0
23	Clamp	4.01	NESC Extreme	0.0
24	Clamp	1.87	NESC Extreme	0.0
25	Clamp	1.40	NESC Extreme	0.0
26	Clamp	1.31	NESC Extreme	0.0
27	Clamp	1.29	NESC Extreme	0.0
28	Clamp	2.46	NESC Extreme	0.0
29	Clamp	2.24	NESC Extreme	0.0
30	Clamp	2.61	NESC Extreme	0.0
31	Clamp	4.01	NESC Extreme	0.0

Loads At Insulator Attachments For All Load Cases:

Load Case	Insulator Label	Insulator Type	Structure Attach Label	Structure Attach Load X (kips)	Structure Attach Load Y (kips)	Structure Attach Load Z (kips)	Structure Attach Load Res. (kips)
NESC Heavy	1	Clamp	20P	0.000	0.656	0.954	1.157
NESC Heavy	2	Clamp	20X	0.000	0.685	0.859	1.098
NESC Heavy	3	Clamp	21P	0.000	1.169	2.881	3.109
NESC Heavy	4	Clamp	21X	0.000	0.059	0.131	0.143
NESC Heavy	5	Clamp	22P	0.000	1.169	2.949	3.172
NESC Heavy	6	Clamp	22X	0.000	0.065	0.199	0.209
NESC Heavy	7	Clamp	23P	0.000	1.169	2.880	3.109
NESC Heavy	8	Clamp	23X	0.000	0.058	0.130	0.143
NESC Heavy	9	Clamp	24P	0.000	0.709	4.162	4.222

NESC Heavy	10	Clamp	25P	0.000	0.527	1.311	1.413
NESC Heavy	11	Clamp	26P	0.000	0.510	1.269	1.367
NESC Heavy	12	Clamp	27P	0.000	0.476	1.185	1.277
NESC Heavy	13	Clamp	28P	0.000	0.743	1.822	1.968
NESC Heavy	14	Clamp	29P	0.000	0.899	2.352	2.517
NESC Heavy	15	Clamp	30P	0.000	0.800	2.169	2.311
NESC Heavy	16	Clamp	2X	0.000	0.360	0.500	0.616
NESC Heavy	17	Clamp	4X	0.000	0.252	0.410	0.481
NESC Heavy	18	Clamp	6X	0.000	0.243	0.353	0.429
NESC Heavy	19	Clamp	8X	0.000	0.231	0.348	0.418
NESC Heavy	20	Clamp	10X	0.000	0.322	0.521	0.613
NESC Heavy	21	Clamp	13X	0.000	0.386	0.559	0.679
NESC Heavy	22	Clamp	15X	0.000	0.611	0.869	1.062
NESC Heavy	23	Clamp	17X	0.000	0.760	1.098	1.336
NESC Heavy	24	Clamp	2XY	0.000	0.360	0.500	0.616
NESC Heavy	25	Clamp	4XY	0.000	0.252	0.405	0.477
NESC Heavy	26	Clamp	6XY	0.000	0.243	0.353	0.429
NESC Heavy	27	Clamp	8XY	0.000	0.231	0.348	0.418
NESC Heavy	28	Clamp	10XY	0.000	0.322	0.516	0.608
NESC Heavy	29	Clamp	13XY	0.000	0.386	0.559	0.679
NESC Heavy	30	Clamp	15XY	0.000	0.611	0.885	1.075
NESC Heavy	31	Clamp	17XY	0.000	0.760	1.098	1.336
NESC Extreme	1	Clamp	20P	0.000	0.838	0.320	0.897
NESC Extreme	2	Clamp	20X	0.000	0.704	0.288	0.761
NESC Extreme	3	Clamp	21P	0.000	2.336	1.299	2.673
NESC Extreme	4	Clamp	21X	0.000	0.183	0.135	0.228
NESC Extreme	5	Clamp	22P	0.000	2.336	1.299	2.673
NESC Extreme	6	Clamp	22X	0.000	0.183	0.135	0.228
NESC Extreme	7	Clamp	23P	0.000	2.336	1.299	2.673
NESC Extreme	8	Clamp	23X	0.000	0.183	0.135	0.228
NESC Extreme	9	Clamp	24P	0.000	1.968	1.795	2.664
NESC Extreme	10	Clamp	25P	0.000	0.183	0.232	0.296
NESC Extreme	11	Clamp	26P	0.000	0.183	0.229	0.294
NESC Extreme	12	Clamp	27P	0.000	0.183	0.222	0.288
NESC Extreme	13	Clamp	28P	0.000	0.593	0.544	0.805
NESC Extreme	14	Clamp	29P	0.000	0.410	0.440	0.601
NESC Extreme	15	Clamp	30P	0.000	0.410	0.484	0.634
NESC Extreme	16	Clamp	2X	0.000	0.903	0.232	0.933
NESC Extreme	17	Clamp	4X	0.000	0.671	0.201	0.701
NESC Extreme	18	Clamp	6X	0.000	0.625	0.194	0.655
NESC Extreme	19	Clamp	8X	0.000	0.613	0.193	0.643
NESC Extreme	20	Clamp	10X	0.000	1.128	0.485	1.228
NESC Extreme	21	Clamp	13X	0.000	1.061	0.365	1.122
NESC Extreme	22	Clamp	15X	0.000	1.247	0.390	1.306
NESC Extreme	23	Clamp	17X	0.000	1.944	0.484	2.003
NESC Extreme	24	Clamp	2XY	0.000	0.903	0.232	0.933
NESC Extreme	25	Clamp	4XY	0.000	0.671	0.201	0.701
NESC Extreme	26	Clamp	6XY	0.000	0.625	0.194	0.655
NESC Extreme	27	Clamp	8XY	0.000	0.613	0.193	0.643
NESC Extreme	28	Clamp	10XY	0.000	1.128	0.485	1.228
NESC Extreme	29	Clamp	13XY	0.000	1.061	0.365	1.122
NESC Extreme	30	Clamp	15XY	0.000	1.247	0.390	1.306
NESC Extreme	31	Clamp	17XY	0.000	1.944	0.484	2.003

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 Total Total Transverse Longitudinal Torsional

	Tran. Load (kips)	Long. Load (kips)	Vert. Load (kips)	Overturning Moment (ft-k)	Overturning Moment (ft-k)	Moment (ft-k)
NESC Heavy	9.017	0.000	20.108	837.769	6.955	0.662
NESC Extreme	20.694	0.000	7.781	1675.585	3.554	2.603

*** Weight of structure (lbs):
Weight of Angles*Section DLF: 18835.5
Total: 18835.5

*** End of Report

CENTEK engineering
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Subject: Foundation Analysis CL&P Tower # 10133

Location: Windsor, CT

Rev. 1: 7/3/18

Prepared by: T.J.L. Checked by: C.F.C.
Job No. 17159.03

Foundation Analysis

Input Data:

Max. Reactions at Tower Leg:

Shear = $Shear := 16.65 \cdot 1.1 \cdot kips = 18.3 \cdot kips$ (User Input)

Compression = $Comp := 78.49 \cdot 1.1 \cdot kips = 86.3 \cdot kips$ (User Input)

Uplift = $Uplift := 68.49 \cdot 1.1 \cdot kips = 75.3 \cdot kips$ (User Input)

Tower Properties:

Tower Height = $H_t := 116.25 \cdot ft$ (User Input)

Foundation Properties:

Depth to Steel Grillage = $D_{sg} := 8.6 \cdot ft$ (User Input)

Steel Grillage Width 1 = $W_{sg1} := 6 \cdot ft$ (User Input)

Steel Grillage Width 2 = $W_{sg2} := 6 \cdot ft$ (User Input)

Subgrade Properties:

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

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

Calculated Data:

Resisting Pyramid Base 1 = $B_1 := W_{sg1} \cdot W_{sg2} = 36 ft^2$

Resisting Pyramid Base 2 = $B_2 := \left[2 \cdot \tan(\psi) \cdot \left(D_{sg}\right) + W_{sg1}\right] \cdot \left[2 \cdot \tan(\psi) \cdot \left(D_{sg}\right) + W_{sg2}\right] = 254 ft^2$

Volume of Soil = $V_{soil} := \left[\frac{\left(D_{sg}\right)}{3} \cdot \left(B_1 + B_2 + \sqrt{B_1 \cdot B_2}\right)\right] = 1105 \cdot ft^3$

Mass of Soil = $Mass_{Soil} := V_{soil} \cdot \gamma s = 110 \cdot kips$

Check Uplift:

Required Factor of Safety = $F_S := 1.0$

$$ActualFS := \frac{Mass_{Soil}}{Uplift} = 1.47$$

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

Uplift_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

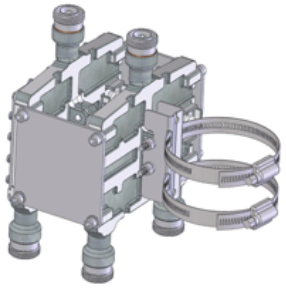
Mechanical

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□□

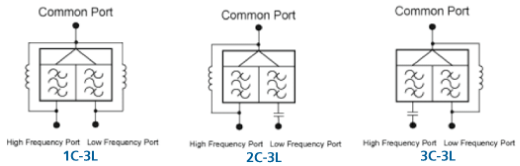
KIT-FD9R6004/1C-DL Installation Instructions

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)	