10 Industrial Ave,
Suite 3
Mahwah NJ 07430

Phone: 201.684.0055
Fax: 201.684.0066

October 1, 2019

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

RE: Notice of Exempt Modification
63-69 Myrtle Ave. Stamford, CT 06902
Latitude: 41.054075
Longitude: -73.525556
Sprint Site#: CT03XC329 – DO Macro

Dear Ms. Bachman:

Sprint currently maintains three (3) antennas at the 135-foot level of the existing 135-foot transmission tower at 63-69 Myrtle Ave. Stamford, CT. The 135-foot transmission tower is owned by The Connecticut Light & Power Company, d/b/a Eversource Energy and the property is owned by Riley General Partners. 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 135-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. 393 dated June 25, 1998. 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 – David Martin, Elected Official, and Vineeta Mathur, Senior Planner for the City of Stamford, as well as the owners.

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

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

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

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

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

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

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

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

Sincerely,

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

Attachments
cc: David Martin – City of Stamford Mayor
Vineeta Mathur – City of Stamford Senior Planner
Riley General Partners – property owner
The Connecticut Light & Power Company, d/b/a Eversource Energy – tower owner

EVERSOURCE
ENERGY

56 Prospect Street,
Hartford, CT 06103

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

August 9, 2019

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

RE: Sprint Antenna Site, CT-03XC329, Myrtle Ave, Stamford, CT, structure 1217

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: 17159.05 - CT03XC329 - Structural Analysis Rev2 18.12.14
17159.05 CT03XC329 Stamford - CD Rev.1 19.01.02 S&S

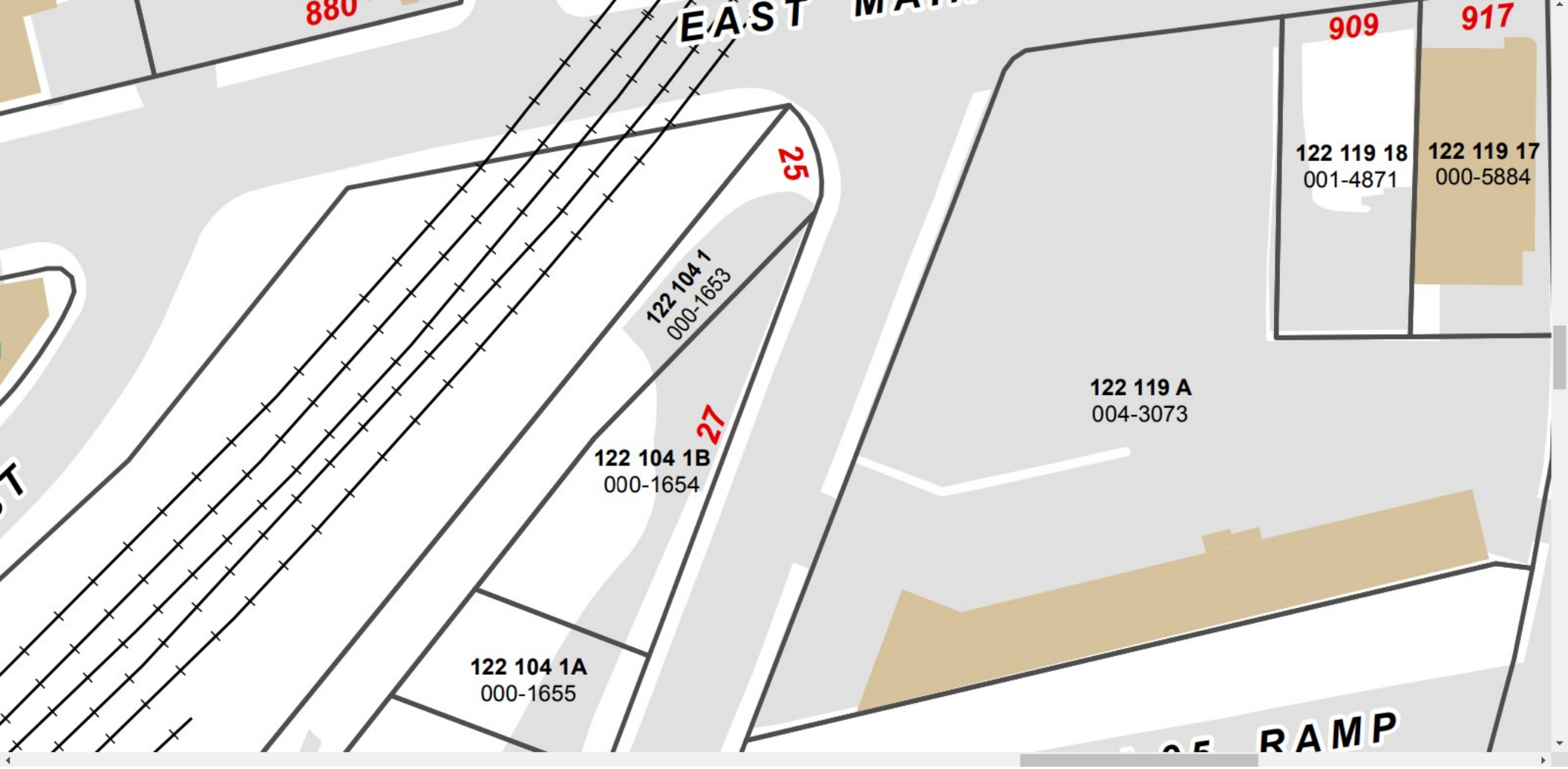
Petition No. 393
Sprint Spectrum, L.P.
Staff Report
June 25, 1998

On Monday, June 8, 1998, Connecticut Siting Council (Council) members Daniel P. Lynch and Albert E. Gary, and Council staff Joel M. Rinebold and Paul M. Aresta met Sprint Spectrum L. P.'s (Sprint) representatives Karen Johnson and John Tierney, for a site inspection of the proposed modification to an existing electric transmission line facility located adjacent to 63 Myrtle Avenue, Stamford, Connecticut. Sprint is petitioning the Council for a declaratory ruling that modifications to this existing transmission line structure would have no substantial adverse environmental effect.

Sprint proposes to construct a Fort Worth Tower Power Mount (Power Mount), and antennas measuring 51.2 inches by 5.5 inches by 2.6 inches, at a centerline height of 135 feet above ground level (AGL), within an existing Connecticut Light and Power (CL&P) transmission line structure (#1217). Sprint would also install associated equipment consisting of three equipment cabinets measuring approximately 31 inches by 30 inches by 60 inches, on an 8-foot by 11-foot concrete pad, a GPS antenna on an 18-foot fence pole, and a six-foot fence topped with three strands of barbed wire, within the existing CL&P right-of-way. The proposed Power Mount would extend approximately 15 feet above the top of the transmission line structure.

There are no wetlands or storm drainage systems on the proposed site; Interstate 95 (I 95) is immediately adjacent to the existing transmission line structure; the land uses surrounding the proposed site are primarily industrial and commercial in nature, although there are residences approximately 150 feet from the proposed structure; and there are no recreational land uses nearby. There are four other existing transmission line structures in the area ranging in height from 78 feet to 160 feet AGL. Sprint currently has two sites within one mile of the proposed site, adjacent to I 95 in Stamford, which are building mounts. In addition there are three other telecommunications facilities within one mile of the proposed structure including a 250-foot high AM radio tower located at 185 Magee Avenue, a building mount at 300 Tresser Boulevard, and a SNET tower atop a SNET building at 555 Main Street, in Stamford. Sprint contends that they were unable to obtain a lease option for the AM tower, and that the other two existing telecommunications facilities are outside of their search area for their coverage objectives. Sprint further contends that they can not mount their antennas to nearby buildings due to the proximity of several tall structures on the north side of I 95, which would impede the PCS digital signal. The I 95 expansion project would not require the relocation of the existing transmission line structure #1217.

The proposed construction of a Power Mount and associated antennas and equipment within CL&P's existing transmission line structure and right-of-way would not adversely effect a federal and state endangered species, Falco peregrinus (peregrine falcon); and it would not exceed the maximum permissible exposure limit for the worst case radio frequency power density at the base of the structure (2.6509% of the standard). Sprint contends that the proposed modifications to CL&P's existing facility will not cause a substantial adverse environmental effect.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RAMP

69 MYRTLE AVENUE

Location	69 MYRTLE AVENUE	**Mblu**	003/ 5429/ / /
Acct#	003-5429	**Owner**	RILEY GENERAL PARTNERS
Assessment	$1,326,720	**Appraisal**	$1,895,320
PID	14373	**Building Count**	2

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$624,100	$1,271,220	$1,895,320

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$436,870	$889,850	$1,326,720

Owner of Record

Owner	RILEY GENERAL PARTNERS
Co-Owner	
Address	107 MYRTLE AVENUE STAMFORD, CT 06902-3905

Sale Price	$1,900,000
Book & Page	11633/ 223
Sale Date	12/06/2016
Instrument	00

Ownership History

Ownership History				
Owner	**Sale Price**	**Book & Page**	**Instrument**	**Sale Date**
RILEY GENERAL PARTNERS	$1,900,000	11633/ 223	00	12/06/2016
SIXTY 3 MYRTLE AVENUE LLC	$725,000	5705/ 312	00	03/01/2001
ACME ELECTRO-PLATING INC	$0	5698/ 158		02/21/2001
ACME ELECTRO-PLATING INC	$0	1273/ 056	25	06/16/1972

Building Information

Building 1 : Section 1

Year Built: 1945
Living Area: 3,732

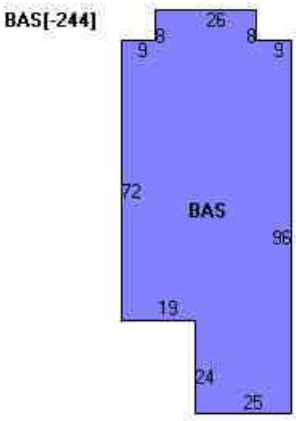
Building Attributes	
Field	**Description**
STYLE	Industry Light

MODEL	Ind/Comm
Grade	C+
Stories:	1
Occupancy	1
Exterior Wall 1	Concr/Cinder
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	T&G/Rubber
Interior Wall 1	Minimum
Interior Wall 2	
Interior Floor 1	Concrete Slab
Interior Floor 2	
Heating Fuel	Gas/LP
Heating Type	Hot Air-no Duc
AC Type	None
Bldg Use	Industrial MDL-96
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	300
Heat/AC	None
Frame Type	Masonry
Baths/Plumbing	Average
Ceiling/Wall	Ceiling Only
Rooms/Prtns	Average
Wall Height	14
% Comn Wall	

Building Photo

(http://images.vgsi.com/photos/StamfordCTPhotos//\00\04\22/6

Building Layout



(http://images.vgsi.com/photos/StamfordCTPhotos//Sketches/14

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	3,732	3,732
		3,732	3,732

Building 2 : Section 1

Year Built: 1900
Living Area: 5,840

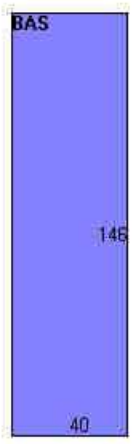
Building Attributes : Bldg 2 of 2	
Field	**Description**
STYLE	Off/Warehouse
MODEL	Ind/Comm
Grade	C+
Stories:	1
Occupancy	1
Exterior Wall 1	Concr/Cinder

Exterior Wall 2	Brick
Roof Structure	Flat
Roof Cover	T&G/Rubber
Interior Wall 1	Minimum
Interior Wall 2	Drywall/Plaste
Interior Floor 1	Ceram Clay Til
Interior Floor 2	
Heating Fuel	Gas/LP
Heating Type	Hot Air-no Duc
AC Type	None
Bldg Use	Commercial MDL-94
Total Rooms	
Total Bedrms	
Total Baths	
1st Floor Use:	
Heat/AC	None
Frame Type	Wood Frame
Baths/Plumbing	Average
Ceiling/Wall	Sus-Ceil/Mn WL
Rooms/Prtns	Average
Wall Height	14
% Comn Wall	

Building Photo

(http://images.vgsi.com/photos/StamfordCTPhotos//\00\10\54/7

Building Layout



(http://images.vgsi.com/photos/StamfordCTPhotos//Sketches/14

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	5,840	5,840
		5,840	5,840

Extra Features

Extra Features				Legend
Code	**Description**	**Size**	**Value**	**Bldg #**
RP2	Porch Coverd	240 S.F	$5,380	2
OH1	Door Overhd Co	2 UNITS	$5,620	1

Land

Land Use

Use Code 300
Description Industrial MDL-96

Land Line Valuation

Size (Acres) 0.68
Depth

Zone	ML	**Assessed Value**	$889,850
Neighborhood	0200	**Appraised Value**	$1,271,220
Alt Land Appr	No		
Category			

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
AP1	Fence Chn Lk			200 L.F.	$1,730	1
FC1	Shed Wood			604 S.F.	$14,500	1
LP4	Pavng Asphlt			10000 S.F	$12,000	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$624,100	$1,271,220	$1,895,320
2017	$624,100	$1,271,220	$1,895,320
2016	$328,080	$840,480	$1,168,560

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$436,870	$889,850	$1,326,720
2017	$436,870	$889,850	$1,326,720
2016	$229,670	$588,340	$818,010

UPS Internet Shipping: View/Print Label

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

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

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

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

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

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

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

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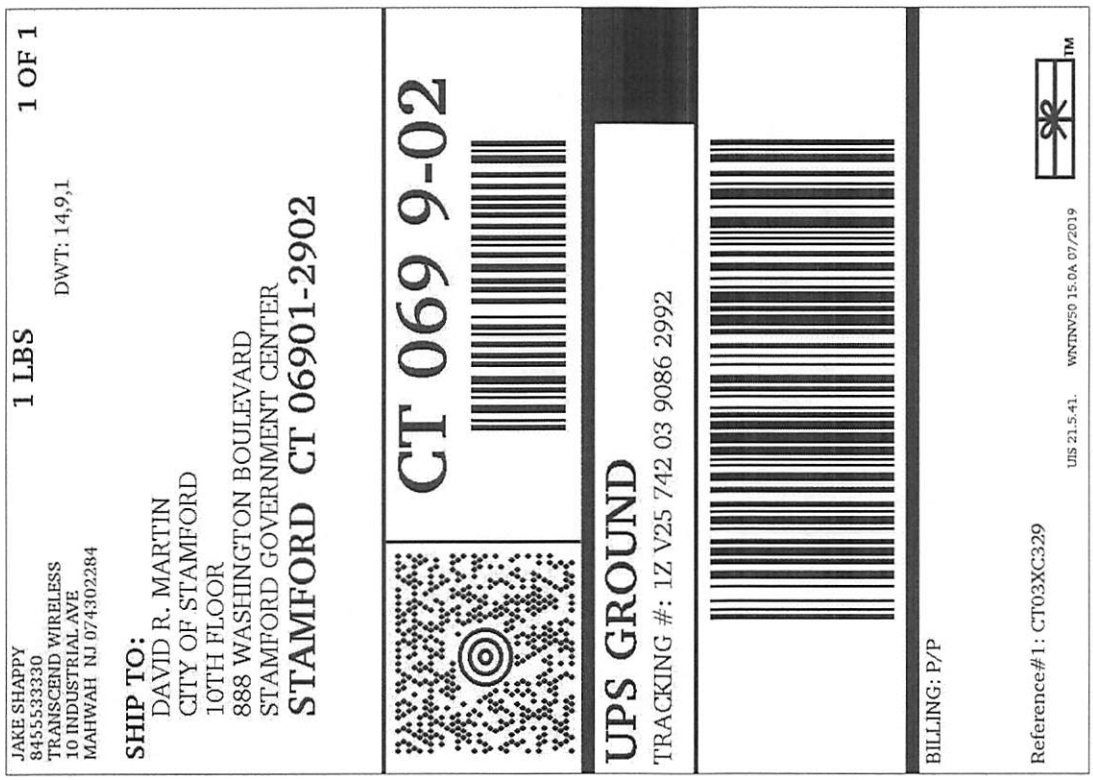

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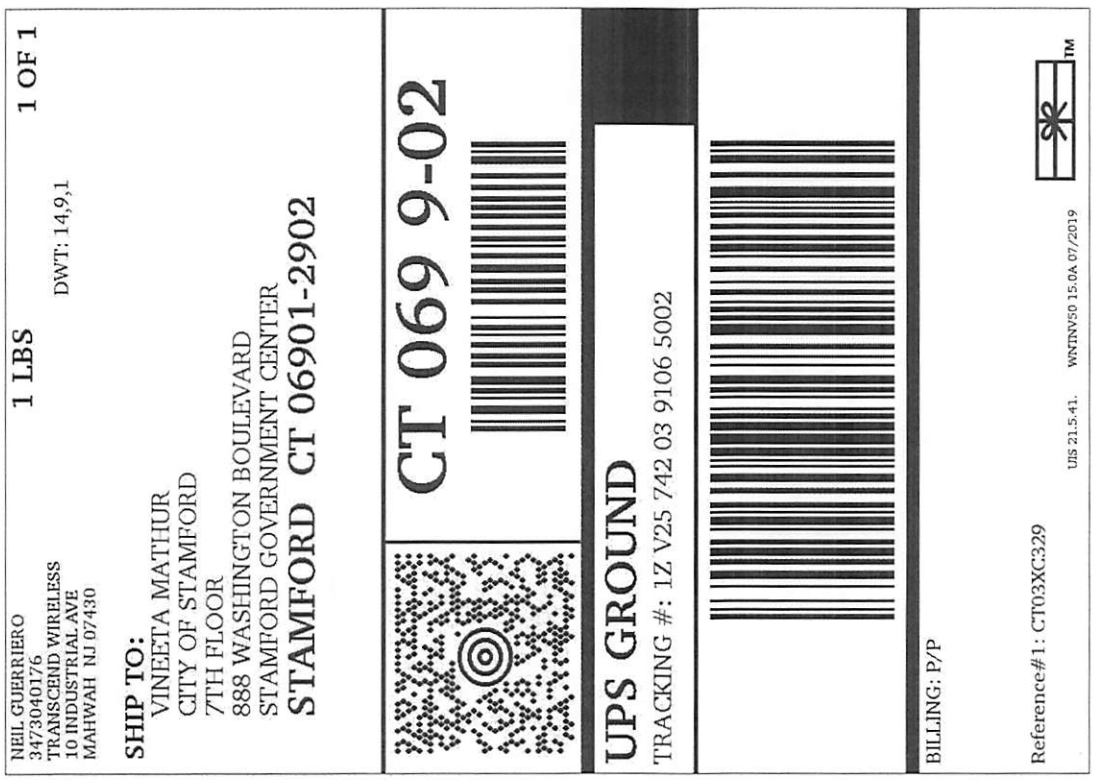

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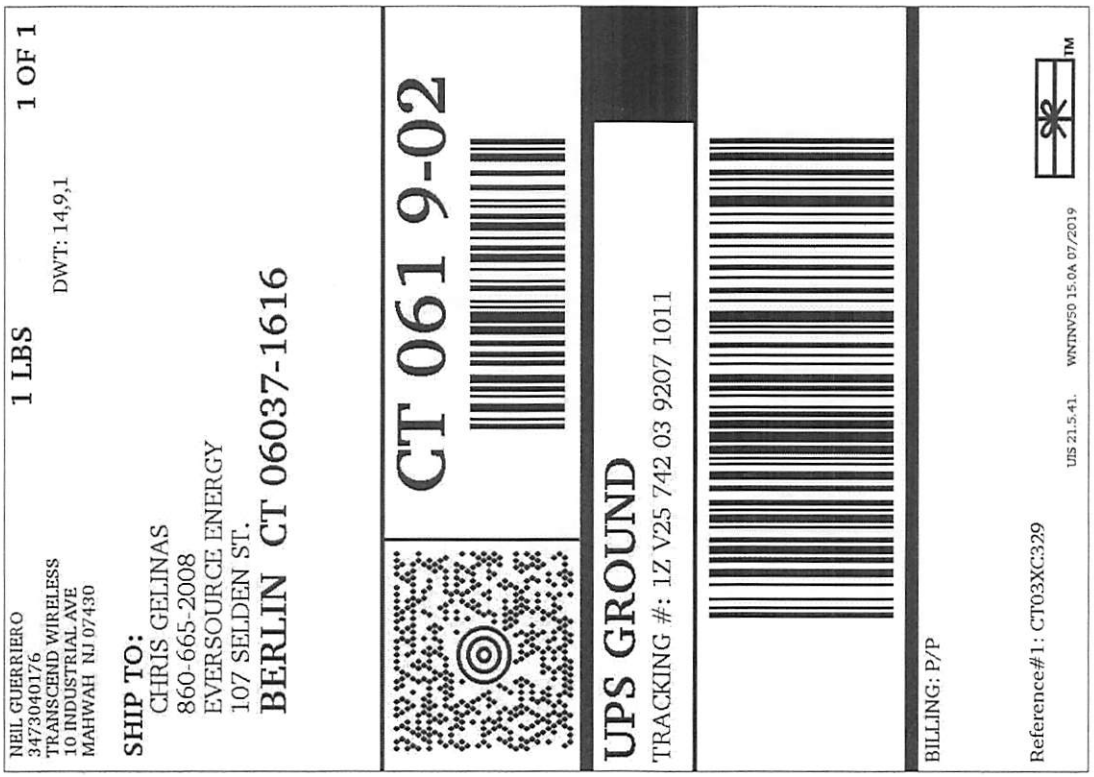

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RAMSEY ,NJ 07446

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JAKE SHAPPY
8455533330
TRANSCEND WIRELESS
10 INDUSTRIAL AVE
MAHWAH NJ 074302284

2 LBS 1 OF 1

DWT: 12,9,1

SHIP TO:
MELANIE A. BACHMAN
CONNECTICUT SITING COUNCIL
10 FRANKLIN SQUARE
NEW BRITAIN CT 06051-2655

CT 067 9-06

UPS GROUND

TRACKING #: 1Z V25 742 03 9048 1028

BILLING: P/P

Reference#1: CT03XG329

UIS 21.5.41. WNTNV50 15.0A 07/2019

WIRELESS COMMUNICATIONS FACILITY

EVERSOURCE STRUCT. No.: 1217

SITE ID: CT03XC329

63-69 MYRTLE AVE

STAMFORD, CT 06902

GENERAL NOTES

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

SITE DIRECTIONS

FROM: 5 WAYSIDE ROAD
BURLINGTON, MA 01803

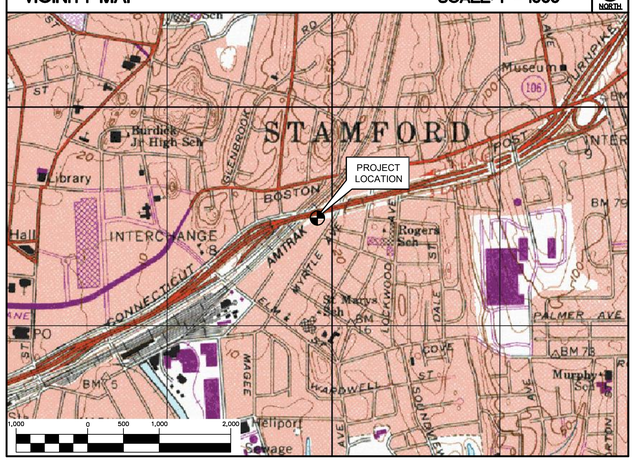
TO: 63-69 MYRTLE AVE
STAMFORD, CT 06902

1.	START OUT BY GOING TO WAYSIDE ROAD.	0.12 MI.
2.	TURN LEFT ONTO CAMBRIDGE ST/US-3 N/MA	0.12 MI.
3.	MERGE ONTO I-95 S/MA-128 S/YANKEE DIMISION HWY S TOWARD WALTHAM/LOWELL	0.27 MI.
4.	TAKE THE I-90/MASS PIKE EXIT, EXIT 25, TOWARD BOSTON/ALBANY NY.	12.32 MI.
5.	MERGE ONTO I-90 W/MASSACHUSETTS TPKE W TOWARD WORCESTER (PORTIONS TOLL).	0.32 MI.
6.	MERGE ONTO I-84 W/WILBUR CROSS HWY S VIA EXIT 9 TOWARD US-20(PORTIONS TOLL).	44.45 MI.
7.	KEEP LEFT TO TAKE CT-15 S VIA EXIT 57 TOWARD I-91 S/CHARTER OAK BR/NY CITY.	41.73 MI.
8.	MERGE ONTO I-91 S VIA EXIT 86 TOWARD NEW HAVEN/NY CITY.	1.99 MI.
9.	MERGE ONTO CT-15 S VIA EXIT 17 WIBUR CROSS PKWY.	17.07 MI.
10.	TAKE EXIT 52 FOR STATE ROUTE 108 S/STATE ROUTE 8 S TOWARD BRIDGEPORT.	30.20 MI.
11.	KEEP LEFT AND FOLLOW SIGNS FOR ROUT 8 S TOWARD BRIDGEPORT.	5.80 MI.
12.	TAKE THE INTERSTATE 95 S EXIT TOWARD NY CITY.	0.20 MI.
13.	MERGE ONTO I-95 S.	19.40 MI.
14.	TAKE EXIT 9 FOR US-1 TOWARD CT-106/GLENBROOK.	0.20 MI.
15.	TURN RIGHT ONTO US-1 S/E MAIN ST.	0.60 MI.
16.	TURN LEFT ONTO MYRTLE AVE.	0.20 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. REMOVE (3) EXISTING PANEL ANTENNAS FROM TOWER.
   - B. INSTALL (3) PROPOSED 10-PORT PANEL ANTENNAS, (1) PER SECTOR.
   - C. INSTALL (6) PROPOSED DIPLEXERS ON TOWER.
   - D. INSTALL (6) PROPOSED DIPLEXERS ON EXISTING UNISTRUT RACK.
   - E. REMOVE (3) EXISTING RRH'S ON EXISTING UNISTRUT RACK.
   - F. INSTALL (3) PROPOSED RRH'S ON PROPOSED UNISTRUT RACK.

PROJECT INFORMATION

SITE NAME:	EVERSOURCE STRUCT. No.: 1217
SITE ID:	CT03XC329
SITE ADDRESS:	63-69 MYRTLE AVE STAMFORD, CT 06902
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° 03' 14.67"N LONGITUDE: 73° 31' 32.00"W GROUND ELEVATION: ±79' AMSL SITE COORDINATES AND GROUND ELEVATION REFERENCED FROM GOOGLE EARTH.

SHEET INDEX

SHT. NO.	DESCRIPTION	REV.
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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	01/02/19	TJL	CAG	REVISED PER FINAL STRUCTURAL REPORT
0	03/02/18	TJL	CAG	CONSTRUCTION DRAWINGS

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SITE ID: CT03XC329
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STAMFORD, CT 06902

DATE: 01/17/18
SCALE: AS NOTED
JOB NO. 17159.05

TITLE SHEET

T-1

Sheet No. 1 of 5

DESIGN BASIS:

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

1. DESIGN CRITERIA:

- WIND LOAD (UTILITY TOWER): 110 MPH (3 SECOND GUSTS) PER NESC C2-2012 SECTION 25 RULE 250C
- WIND LOAD (ANTENNA MAST): 93 MPH (Vasd) (EXPOSURE C/IMPORTANCE FACTOR 1.15 BASED ON ASCE 7-10) PER 2015 INTERNATIONAL BUILDING CODE (IBC) AS MODIFIED BY THE 2018 CONNECTICUT STATE BUILDING CODE.
- SEISMIC LOAD (DOES NOT CONTROL): PER ASCE 7-10 MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES.

GENERAL NOTES:

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

STRUCTURAL STEEL

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

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

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

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WIRELESS COMMUNICATIONS FACILITY

EVERSOURCE STRUCT No.: 1217
SITE ID: CT03XC329

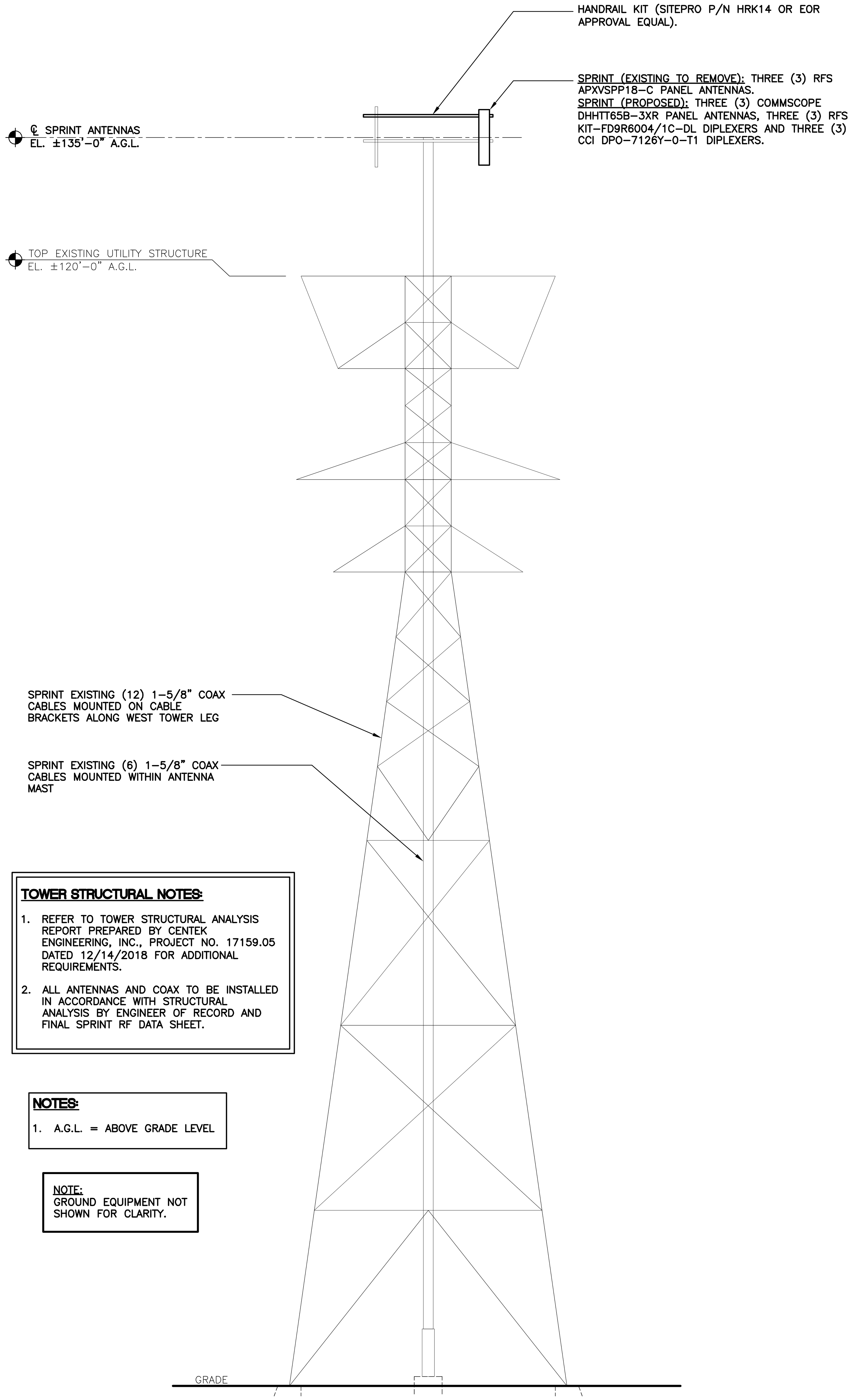
63-69 MYRTLE AVE
STAMFORD, CT 06902

DATE:	01/17/18
SCALE:	AS NOTED
JOB NO.	17159.05

DESIGN BASIS, SITE NOTES & TYPICAL DETAILS

N-1

Sheet No. 2 of 5



TOWER STRUCTURAL NOTES:

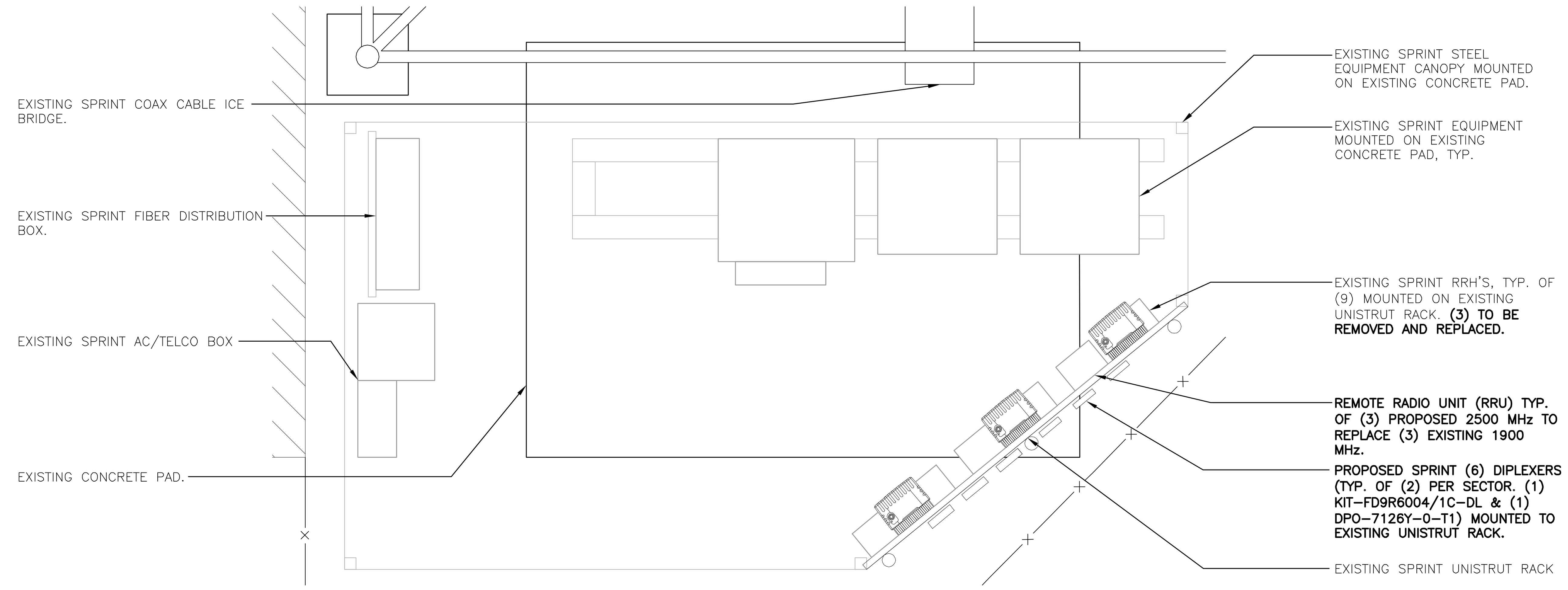
1. REFER TO TOWER STRUCTURAL ANALYSIS REPORT PREPARED BY CENTEK ENGINEERING, INC., PROJECT NO. 17159.05 DATED 12/14/2018 FOR ADDITIONAL REQUIREMENTS.
2. ALL ANTENNAS AND COAX TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS BY ENGINEER OF RECORD AND FINAL SPRINT RF DATA SHEET.

NOTES:

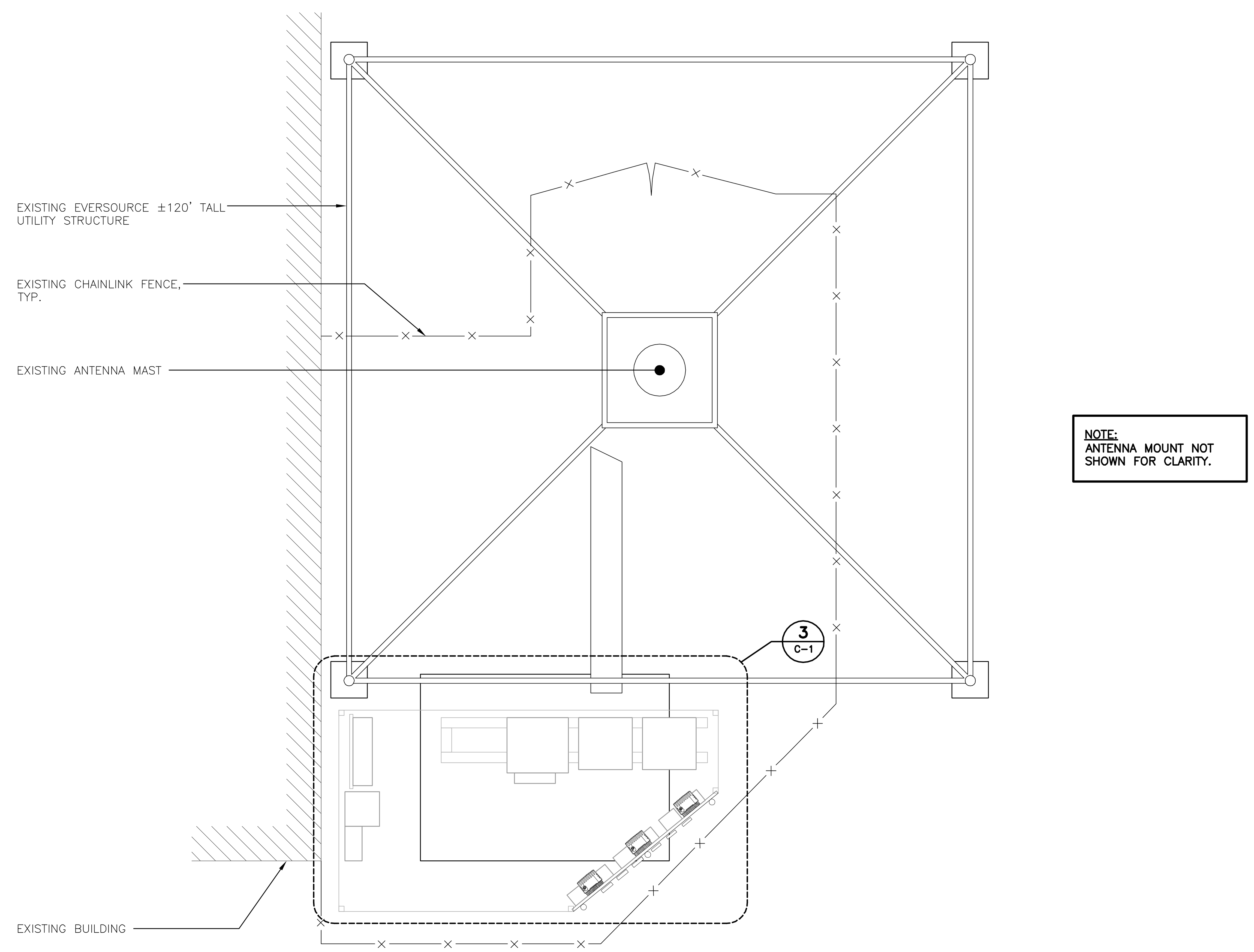
1. A.G.L. = ABOVE GRADE LEVEL

NOTE: GROUND EQUIPMENT NOT SHOWN FOR CLARITY.

1 / C-1 **PROPOSED TOWER ELEVATION**
SCALE: 1/8" = 1'-0"



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



NOTE: ANTENNA MOUNT NOT SHOWN FOR CLARITY.

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

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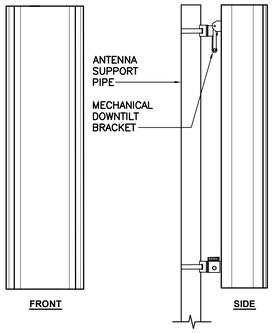
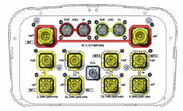
DATE: 01/17/18
SCALE: AS NOTED
JOB NO. 17159.05

COMPOUND PLANS AND ELEVATION

C-1

Sheet No. 3 of 5





BOTTOM

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

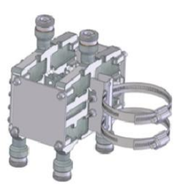
1 / C-2 **PROPOSED ANTENNA DETAIL**
SCALE: 1/2" = 1'-0"

TD-RRH8x20-25

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

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

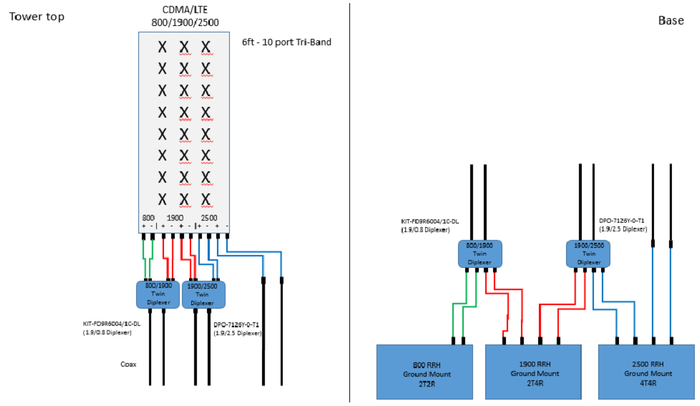
DOP-7126Y-0-T1



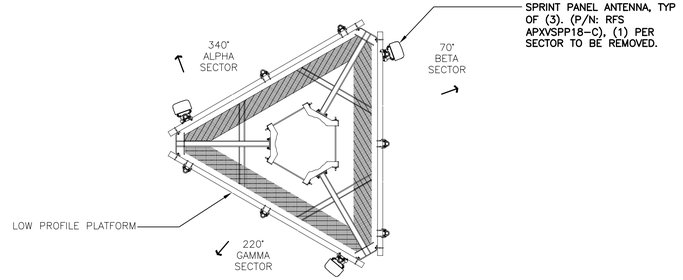
KIT-FD9R6004/1C-DL

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

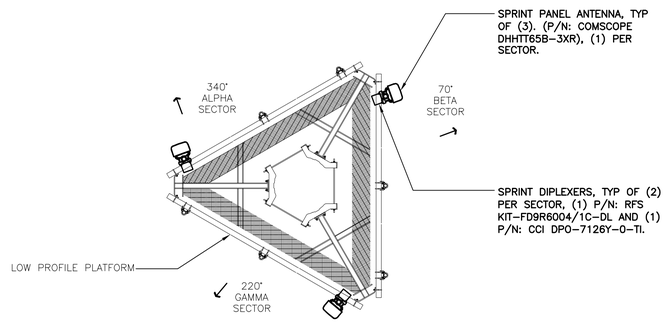
3 / C-2 **DIPLEXER DETAIL**
SCALE: NOT TO SCALE



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



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



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

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SCALE: AS NOTED
JOB NO. 17159.05

TYPICAL DETAILS

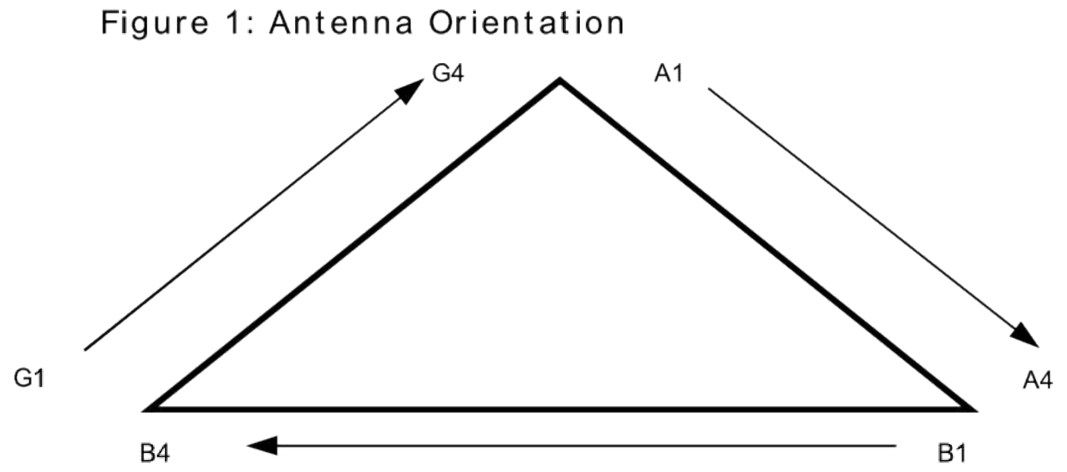
C-2
Sheet No. 4 of 5

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

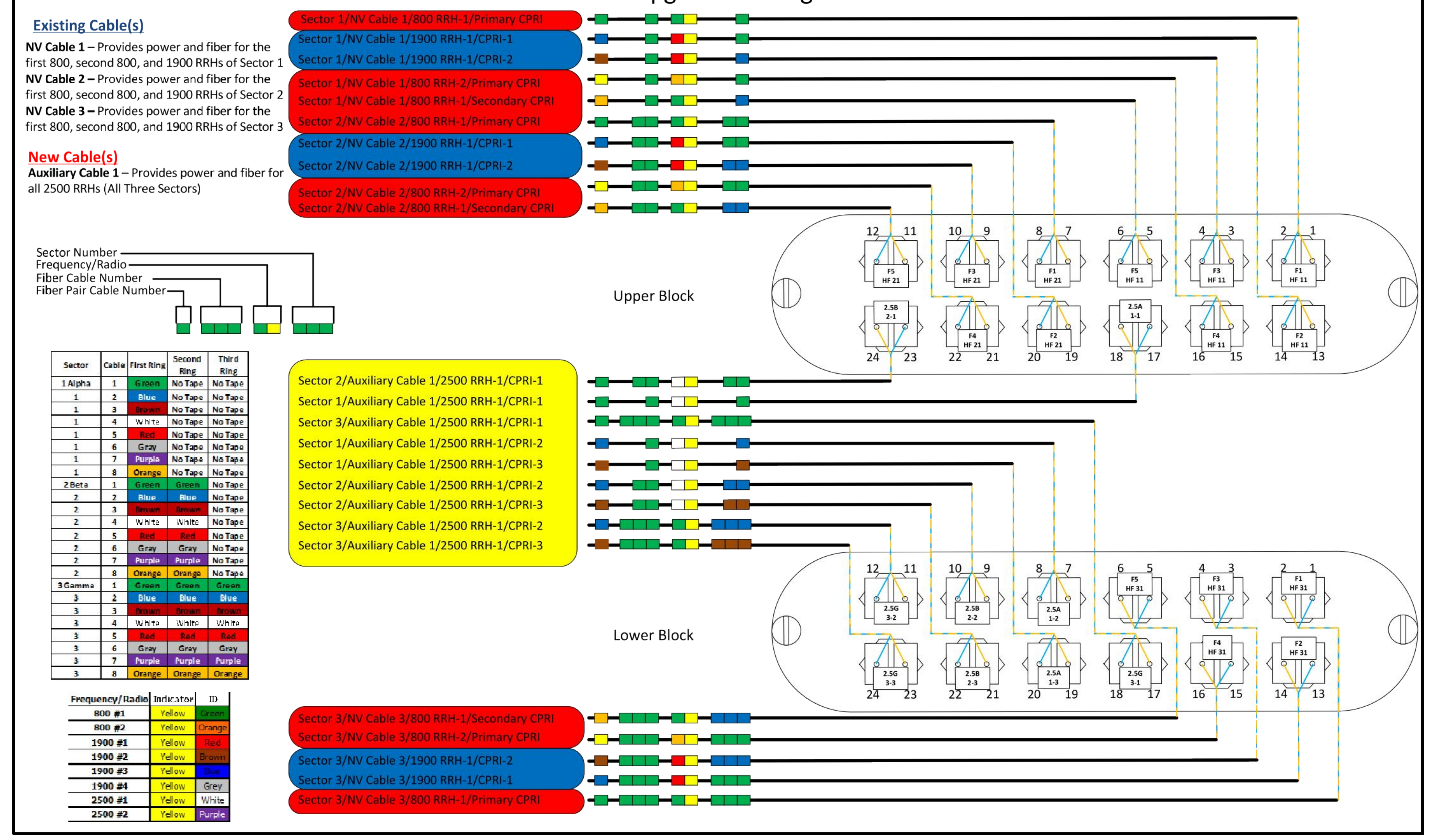
FREQUE	INDICATOR		ID
2500 -1	YEL	WHT	GRN
2500 -2	YEL	WHT	RED
2500 -3	YEL	WHT	BRN
2500 -4	YEL	WHT	BLU
2500 -5	YEL	WHT	SLT
2500 -6	YEL	WHT	ORG
2500 -7	YEL	WHT	WHT
2500 -8	YEL	WHT	PPL

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

Nokia-A Site Upgrade: Adding a 2500 RRH



REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
1	01/02/19	TJL	CAG	REVISED PER FINAL STRUCTURAL REPORT
0	03/02/18	TJL	CAG	CONSTRUCTION DRAWINGS

PROFESSIONAL ENGINEER SEAL

Sprint

CENTEK engineering
Centered on Solutions™
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63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

SPRINT
WIRELESS COMMUNICATIONS FACILITY
EVERSOURCE STRUCT No: 1217
SITE ID: CT03XC329
63-69 MYRTLE AVE
STAMFORD, CT 06902

DATE: 01/17/18
SCALE: AS NOTED
JOB NO. 17159.05

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: CT03XC329

Eversource Structure No. 1217

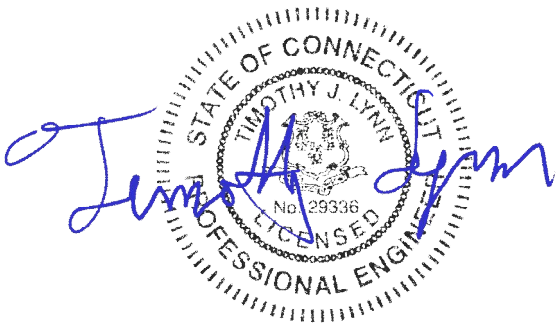
120' Electric Transmission Lattice Tower

63-69 Myrtle Ave
Stamford, CT

CENTEK Project No. 17159.05

~~Date: January 24, 2018~~

Rev 2: December 14, 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 135' FWT Powermount job no. 17532 dated August 8, 1998 and 120' utility tower located at 63-63 Myrtle Ave., Stamford, 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 running on the inside of the existing powermount. Twelve (12) 1-5/8" ∅ coax cables mounted on T-Brackets running on a leg of the existing tower as indicated in section 4 of this report.
- **SPRINT (Existing to Remove)**
  Antennas: Three (3) RFS APXVSPP18-C panel antennas mounted on an existing 14-ft low profile platform to the existing powermount with a RAD center elevation of 135-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 an existing 14-ft low profile platform to the existing powermount with a RAD center elevation of 135-ft above grade. (Handrail to be installed on existing platform. Refer to section 4 for details)

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 seven 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……..... 93 mph (2016 CSBC Appendix-N)
  Radial Ice Thickness…….. 0”

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

R e s u l t s

- POWERMOUNT

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

Component	Design Limit	Stress Ratio (percentage of capacity)	Result
12” Sch. 40 Pipe	Bending	23.2%	**PASS**
L4x3x1/4 Brace	Bending	43.1%	**PASS**
Connection	Shear	72.6%	**PASS**

- UTILITY TOWER

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

  A maximum usage of **90.14%** occurs in the utility structure under the **NESC Heavy Broken Wire** loading condition.

  TOWER SECTION:

  The utility structure was found to be within allowable limits.

Tower Member	Stress Ratio (% of capacity)	Result
Angle g51P	90.14%	**PASS**

- FOUNDATION AND ANCHORS

The existing foundation consists of four (4) concrete piers. The base of the tower is connected to the foundation by one (1) anchor stub angle per leg. Foundation information was obtained from Northeast Utilities foundation evaluation dated 10/30/97 referencing NUSCO drawing no. 01144-50001 sht. P87547A.

BASE REACTIONS:

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

Load Case	Shear	Uplift	Compression
NESC Heavy Wind	12.08 kips	22.83 kips	52.76 kips
NESC Extreme Wind	23.54 kips	89.65 kips	102.06 kips
Broken Wire	17.02 kips	54.72 kips	81.06 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
Concrete Pier	Uplift	1.0 FS (1)	2.48 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.

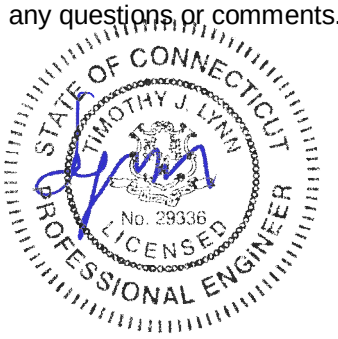
Conclusion

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
Eversource Design Criteria

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

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

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

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

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

a) Wireless communication mast for its total height above ground level, including the initial and any planned future equipment (Support Platforms, Antennas, TMA's etc.) above the top of an electric transmission structure.

b) Conductors and related devices and hardware (wire loads will be provided by Eversource).

c) Electric Transmission Structure

   i) The loads from the wireless communication equipment components based on NESC and Eversource Criteria in Attachment A, and from the electric conductors shall be applied to the structure at conductor and wireless communication mast attachment points, where those loads transfer to the tower.

   ii) Shape Factor Multiplier:

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

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

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

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

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

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

EVERSOURCE

Wire Loads

Project Name	Structure 1217 Recheck
Work Order	
Structure #	1217
Line #	1440/1450
Prepared By	JS
Date	06/27/2018
Checked By	
Date	

Structure Data

Structure Height (AGL)	120	Load Zone	Central CT
# of Circuits	2	Insulation Type	Strain (On Arm-Pole)
Insulator Weight	150	Broken Wire Side	Back
Broken Wire Side	Left	Structure Type	Double Circuit Steel Pole

Wire Data

Circuit #	Left	Right
Shield Wire	4/0 Cu	4/0 Cu
Conductor	BITTERN	BITTERN
# of Conductors	1	1

Line Geometry

	Circuit 1			Circuit 2		
	Ahead	Back	Total	Ahead	Back	Total
Wind Span	310	165	475	310	165	475
Weight Span	175	175	350	175	175	350
Minimum Line Angle	0	3	3	0	3	3
Maximum Line Angle	0	3	3	0	3	3

Wire Tensions

	Left Circuit		Right Circuit		
	Ahead	Back	Ahead	Back	
NESC Rule 250B	6000	6000	6000	6000	Conductor
NESC Rule 250C	7227	6143	7227	6143	
NESC Rule 250D					
60°F, No wind or ice	2745	2493	2745	2493	
NESC Rule 250B	4500	4500	4500	4500	Shield Wire
NESC Rule 250C	3909	3571	3909	3571	
NESC Rule 250D					
60°F, No wind or ice	1911	2258	1911	2258	

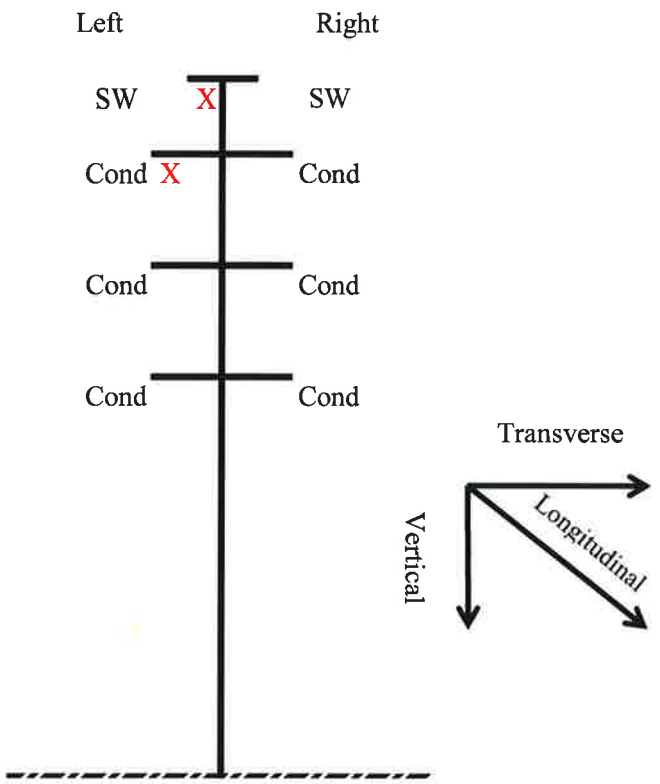
All Loads include Overload Factors but not Pole Shape Factors

Load Case	Description
1	NESC Rule 250B; 0°F, ½" of ice, 4 psf wind
2	NESC Rule 250C; (Extreme Wind Loading)
3	NESC Rule 250C; Extreme Wind Longtitudinal On The Pole Only
4	NESC Rule 250D; 15°F 1" of ice, 4 psf or NU Ice Case; 32°F 1" Ice
5	NESC Rule 250B with no OLFs (Service Load)
6	60°F, No wind or Ice (Deflection)
7a	NESC Rule 250B/261C Broken Wire Case (Broken SW and Borken Conductor)
7b	NESC Rule 250B/261C Broken Wire Case (Broken SW or Broken Phase)

EVERSOURCE

Wire Loads
Load Tree

Project Number
Structure 1217 Recheck
Structure Number
1217
Line Number
1440/1450



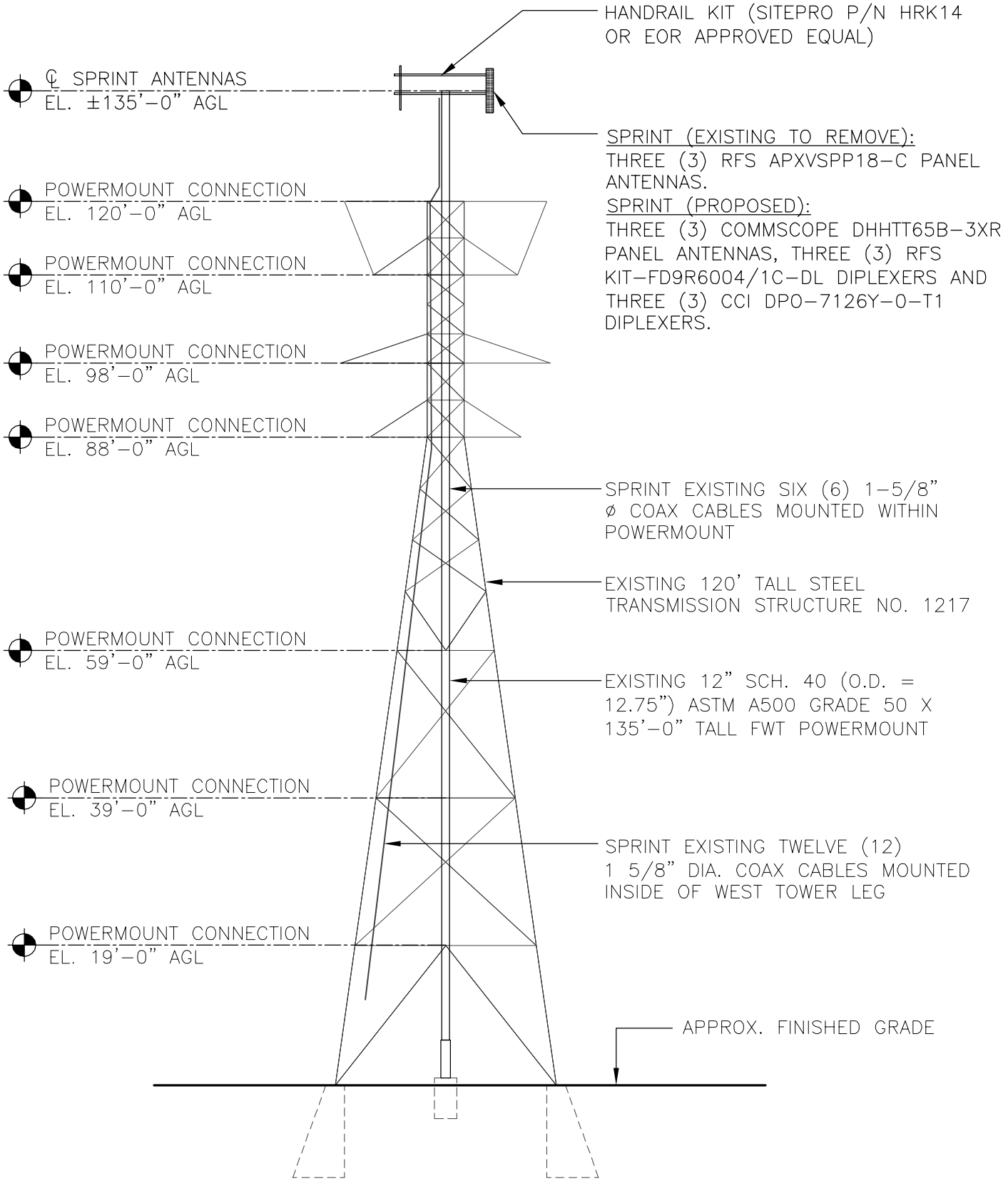
Double Circuit Steel Pole Configuration
X Denotes Broken Wire Location. This attachment receives case 7 loads. All others receive Case 1 Loads for Case 7

Left Circuit

	Case	Vertical	Transverse	Longitudina
Conductor	1	1804.2848	1546.3551	13.567606
	2	801.2	2598.1248	1092.4188
	3	801.2	130.47354	255.41657
	4	1822.213	569.625	0
	5	1202.8565	725.3074	8.2227915
	6	801.2	130.47354	255.41657
	7a	902.14238	655.79167	9900
	7b	902.14238	655.79167	9900
Shield Wire	Case	Vertical	Transverse	Longitudina
	1	676.7166	991.05281	10.175704
	2	228.655	930.7417	342.89393
	3	228.655	118.17459	-343.9055
	4	891.3338	399.31667	0
	5	451.1444	476.49514	6.1670936
	6	228.655	118.17459	-343.9055
	7a	338.3583	781.77781	7425
	7b	338.3583	393.18333	7425

Right Circuit

	Case	Vertical	Transverse	Longitudina
Conductor	1	1804.2848	1546.3551	13.567606
	2	801.2	2598.1248	1092.4188
	3	801.2	130.47354	255.41657
	4	1822.213	569.625	0
	5	1202.8565	725.3074	8.2227915
	6	801.2	130.47354	255.41657
	7a	902.14238	655.79167	9900
	7b	902.14238	655.79167	9900
Shield Wire	Case	Vertical	Transverse	Longitudina
	1	676.7166	991.05281	10.175704
	2	228.655	930.7417	342.89393
	3	228.655	118.17459	-343.9055
	4	891.3338	399.31667	0
	5	451.1444	476.49514	6.1670936
	6	228.655	118.17459	-343.9055
	7a	338.3583	393.18333	7425
	7b	338.3583	393.18333	7425



1 / EL–1

TOWER & MAST ELEVATION

SCALE: NOT TO SCALE

REVISIONS		
00	1/24/18	CONSTRUCTION
01	12/14/18	CONSTRUCTION

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STAMFORD, CT 06902

PROJECT NO:	17159.05
DRAWN BY:	TJL
CHECKED BY:	CFC
SCALE:	AS NOTED
DATE:	1/24/18

TOWER AND MAST ELEVATION

EL-1

DWG. 1 OF 1

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Subject:	Loads on Equipmnet Structure 1217
Location:	Stamford, CT
Rev. 2: 12/14/18	Prepared by: T.J.L. Checked by: C.F.C. Job No. 17159.05

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

Wind Speeds

Basic Wind Speed	$V := 93$	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 =	$h := 120$	ft	(User Input)
Height to Center of Antennas =	$z_{ant} := 135$	ft	(User Input)
Height to Center of Mast =	$z_{Mast7} := 127.5$	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) Mast Based on Max 20-ft Section per 2.6.9.1.3
Height to Center of Mast =	$z_{Mast3} := 50$	ft	(User Input)
Height to Center of Mast =	$z_{Mast2} := 30$	ft	(User Input)
Height to Center of Mast =	$z_{Mast1} := 10$	ft	(User Input)
Radial Ice Thickness =	$t_i := 0.75$	in	(User Input per Annex B of TIA-222-G)
Radial Ice Density =	Id := 56.00	pcf	(User Input)
Topograpic Factor =	$K_{zt} := 1.0$		(User Input)
	$K_a := 1.0$		(User Input)
Gust Response Factor =	$G_H := 1.35$		(User Input)

Output

Wind Direction Probability Factor =

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

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

Importance Factors =

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

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

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

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

$K_{iz} := \left(\frac{z_{ant}}{33}\right)^{0.1} = 1.151$ $t_{iz} := 2.0 \cdot t_i \cdot I_{ice} \cdot K_{iz} \cdot K_{zt}^{0.35} = 2.159$

Velocity Pressure CoefficientAntennas = $Kz_{ant} := 2.01\left(\left(\frac{z_{ant}}{zg}\right)\right)^{\frac{2}{\alpha}} = 1.348$

Velocity Pressure w/o Ice Antennas = $qz_{ant} := 0.00256 \cdot K_d \cdot Kz_{ant} \cdot V^2 \cdot I_{Wind} = 29.179$

Velocity Pressure with Ice Antennas = $qz_{ice.ant} := 0.00256 \cdot K_d \cdot Kz_{ant} \cdot V_i^2 \cdot I_{Wind\_w\_Ice} = 7.334$

$K_{izMast7} := \left(\frac{z_{Mast7}}{33}\right)^{0.1} = 1.145$ $t_{izMast7} := 2.0 \cdot t_i \cdot I_{ice} \cdot K_{izMast7} \cdot K_{zt}^{0.35} = 2.146$

Velocity Pressure Coefficient Mast = $Kz_{Mast7} := 2.01\left(\left(\frac{z_{Mast7}}{zg}\right)\right)^{\frac{2}{\alpha}} = 1.332$

Velocity Pressure w/o Ice Mast= $qz_{Mast7} := 0.00256 \cdot K_d \cdot Kz_{Mast7} \cdot V^2 \cdot I_{Wind} = 28.83$

Velocity Pressure with Ice Mast = $qz_{ice.Mast7} := 0.00256 \cdot K_d \cdot Kz_{Mast7} \cdot V_i^2 \cdot I_{Wind\_w\_Ice} = 7.246$

$K_{izMast6} := \left(\frac{z_{Mast6}}{33}\right)^{0.1} = 1.128$ $t_{izMast6} := 2.0 \cdot t_i \cdot I_{ice} \cdot K_{izMast6} \cdot K_{zt}^{0.35} = 2.115$

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= $qz_{Mast6} := 0.00256 \cdot K_d \cdot Kz_{Mast6} \cdot V^2 \cdot I_{Wind} = 27.947$

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

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

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

Velocity Pressure w/o Ice Mast= $qz_{Mast5} := 0.00256 \cdot K_d \cdot Kz_{Mast5} \cdot V^2 \cdot I_{Wind} = 26.791$

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

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

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

Velocity Pressure w/o Ice Mast= $qz_{Mast4} := 0.00256 \cdot K_d \cdot Kz_{Mast4} \cdot V^2 \cdot I_{Wind} = 25.411$

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

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

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

Velocity Pressure w/o Ice Mast= $qz_{Mast3} := 0.00256 \cdot K_d \cdot Kz_{Mast3} \cdot V^2 \cdot I_{Wind} = 23.673$

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

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

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

Velocity Pressure w/o Ice Mast= $qz_{Mast2} := 0.00256 \cdot K_d \cdot Kz_{Mast2} \cdot V^2 \cdot I_{Wind} = 21.259$

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

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

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

Velocity Pressure w/o Ice Mast= $qz_{Mast1} := 0.00256 \cdot K_d \cdot Kz_{Mast1} \cdot V^2 \cdot I_{Wind} = 16.869$

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

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Subject:	Loads on Equipmnet Structure 1217
Location:	Stamford, CT
Rev. 2: 12/14/18	Prepared by: T.J.L. Checked by: C.F.C. Job No. 17159.05

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 = $L_{mast} := 135$ ft (User Input)

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

Velocity Coefficient = $C := \sqrt{I \cdot Kz_{Mast1}} \cdot V \cdot \frac{D_{mast}}{12} = 87$

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 =	$qz_{Mast7} \cdot G_H \cdot CF_{mast} \cdot A_{mast} = 25$	plf	BLC 5
Total Mast Wind Force =	$qz_{Mast6} \cdot G_H \cdot CF_{mast} \cdot A_{mast} = 24$	plf	BLC 5
Total Mast Wind Force =	$qz_{Mast5} \cdot G_H \cdot CF_{mast} \cdot A_{mast} = 23$	plf	BLC 5
Total Mast Wind Force =	$qz_{Mast4} \cdot G_H \cdot CF_{mast} \cdot A_{mast} = 22$	plf	BLC 5
Total Mast Wind Force =	$qz_{Mast3} \cdot G_H \cdot CF_{mast} \cdot A_{mast} = 20$	plf	BLC 5
Total Mast Wind Force =	$qz_{Mast2} \cdot G_H \cdot CF_{mast} \cdot A_{mast} = 18$	plf	BLC 5
Total Mast Wind Force =	$qz_{Mast1} \cdot G_H \cdot CF_{mast} \cdot A_{mast} = 15$	plf	BLC 5

Wind Load (with ice)

Mast Projected Surface Area w/ Ice = $AICE_{mast} := \frac{(D_{mast} + 2 \cdot t_{izMast7})}{12} = 1.42$ sf/ft

Total Mast Wind Force w/ Ice = $qz_{ice.Mast7} \cdot G_H \cdot CF_{mast} \cdot AICE_{mast} = 8$ plf BLC 4

Mast Projected Surface Area w/ Ice = $AICE_{mast} := \frac{(D_{mast} + 2 \cdot t_{izMast6})}{12} = 1.415$ sf/ft

Total Mast Wind Force w/ Ice = $qz_{ice.Mast6} \cdot G_H \cdot CF_{mast} \cdot AICE_{mast} = 8$ plf BLC 4

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

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

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

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

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

Total Mast Wind Force w/ Ice =	$qz_{ice.Mast3} \cdot G_H \cdot CF_{mast} \cdot AICE_{mast} = 7$	plf	**BLC 4**
Mast Projected Surface Area w/ Ice =	$AICE_{mast} := \frac{\left(D_{mast} + 2 \cdot t_{izMast2}\right)}{12} = 1.372$	sf/ft	
Total Mast Wind Force w/ Ice =	$qz_{ice.Mast2} \cdot G_H \cdot CF_{mast} \cdot AICE_{mast} = 6$	plf	**BLC 4**
Mast Projected Surface Area w/ Ice =	$AICE_{mast} := \frac{\left(D_{mast} + 2 \cdot t_{izMast1}\right)}{12} = 1.34$	sf/ft	
Total Mast Wind Force w/ Ice =	$qz_{ice.Mast1} \cdot G_H \cdot CF_{mast} \cdot AICE_{mast} = 5$	plf	**BLC 4**
Gravity Loads (without ice)			
Weight of the mast =	Self Weight **(Computed internally by Risa-3D)**	plf	**BLC 1**
Gravity Loads (ice only)			
Ice Area per Linear Foot =	$Ai_{mast} := \frac{\pi}{4}\left[\left(D_{mast} + t_{izMast7} \cdot 2\right)^2 - D_{mast}^2\right] = 100.4$	sq in	
Weight of Ice on Mast =	$W_{ICEmast7} := Id \cdot \frac{Ai_{mast}}{144} = 39$	plf	**BLC 3**
Ice Area per Linear Foot =	$Ai_{mast} := \frac{\pi}{4}\left[\left(D_{mast} + t_{izMast6} \cdot 2\right)^2 - D_{mast}^2\right] = 98.8$	sq in	
Weight of Ice on Mast =	$W_{ICEmast6} := Id \cdot \frac{Ai_{mast}}{144} = 38$	plf	**BLC 3**
Ice Area per Linear Foot =	$Ai_{mast} := \frac{\pi}{4}\left[\left(D_{mast} + t_{izMast5} \cdot 2\right)^2 - D_{mast}^2\right] = 96.5$	sq in	
Weight of Ice on Mast =	$W_{ICEmast5} := Id \cdot \frac{Ai_{mast}}{144} = 38$	plf	**BLC 3**
Ice Area per Linear Foot =	$Ai_{mast} := \frac{\pi}{4}\left[\left(D_{mast} + t_{izMast4} \cdot 2\right)^2 - D_{mast}^2\right] = 93.8$	sq in	
Weight of Ice on Mast =	$W_{ICEmast4} := Id \cdot \frac{Ai_{mast}}{144} = 36$	plf	**BLC 3**
Ice Area per Linear Foot =	$Ai_{mast} := \frac{\pi}{4}\left[\left(D_{mast} + t_{izMast3} \cdot 2\right)^2 - D_{mast}^2\right] = 90.3$	sq in	
Weight of Ice on Mast =	$W_{ICEmast3} := Id \cdot \frac{Ai_{mast}}{144} = 35$	plf	**BLC 3**
Ice Area per Linear Foot =	$Ai_{mast} := \frac{\pi}{4}\left[\left(D_{mast} + t_{izMast2} \cdot 2\right)^2 - D_{mast}^2\right] = 85.2$	sq in	
Weight of Ice on Mast =	$W_{ICEmast2} := Id \cdot \frac{Ai_{mast}}{144} = 33$	plf	**BLC 3**
Ice Area per Linear Foot =	$Ai_{mast} := \frac{\pi}{4}\left[\left(D_{mast} + t_{izMast1} \cdot 2\right)^2 - D_{mast}^2\right] = 75.4$	sq in	
Weight of Ice on Mast =	$W_{ICEmast1} := Id \cdot \frac{Ai_{mast}}{144} = 29$	plf	**BLC 3**

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Subject:	Loads on Equipmnet Structure 1217
Location:	Stamford, CT
Rev. 2: 12/14/18	Prepared by: T.J.L. Checked by: C.F.C. Job No. 17159.05

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 = $F_{ant} := qz_{ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ant} = 956$ lbs **BLC 5**

Wind Load (with ice)

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz})}{144} = 8.6$ sf

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 25.8$ sf

Total Antenna Wind Force w/ Ice = $Fi_{ant} := qz_{ice.ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ICEant} = 347$ 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 = $V_{ice} := (L_{ant} + 2 \cdot t_{iz})(W_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 8058$ cu in

Weight of Ice on Each Antenna = $W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 261$ lbs

Weight of Ice on All Antennas = $W_{ICEant} \cdot N_{ant} = 783$ lbs **BLC 3**

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)	
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 =	$F_{ant} := qz_{ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ant} = 37$	lbs	**BLC 5**

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEant} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz})}{144} = 0.8$	sf	
Antenna Projected Surface Area w/ Ice =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 2.3$	sf	
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ICEant} = 27$	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 =	$V_{ice} := (L_{ant} + 2 \cdot t_{iz})(W_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 803$	cu in	
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 26$	lbs	
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 78$	lbs	**BLC 3**

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 =	$F_{ant} := qz_{ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ant} = 30$	lbs	**BLC 5**

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEant} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz})}{144} = 0.7$	sf	
Antenna Projected Surface Area w/ Ice =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 2.1$	sf	
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ICEant} = 24$	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 =	$V_{ice} := (L_{ant} + 2 \cdot t_{iz})(W_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 852$	cu in	
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 28$	lbs	
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 83$	lbs	**BLC 3**

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Location:	Stamford, CT
Rev. 2: 12/14/18	Prepared by: T.J.L. Checked by: C.F.C. Job No. 17159.05

Development of Wind & Ice Load on Antenna Mounts

Mount Data:

Mount Type:	FWT Low Profile Platform w/ Handrail		
Mount Shape =	Flat		(User Input)
Mount Projected Surface Area =	$CaAa := 21$	sf	(User Input)
Mount Projected Surface Area w/ Ice =	$CaAa_{ice} := 24$	sf	(User Input)
Mount Weight =	$WT_{mnt} := 3200$	lbs	(User Input)
Mount Weight w/ Ice =	$WT_{mnt.ice} := 4450$	lbs	

Wind Load (without ice)

Total Mount Wind Force =	$F_{mnt} := qz_{ant} \cdot G_H \cdot CaAa = 827$	lbs	**BLC 5**

Wind Load (with ice)

Total Mount Wind Force =	$Fi_{mnt} := qz_{ice.ant} \cdot G_H \cdot CaAa_{ice} = 238$	lbs	**BLC 4**

Gravity Loads (without ice)

Weight of All Mounts =	$WT_{mnt} = 3200$	lbs	**BLC 2**

Gravity Loads (ice only)

Weight of Ice on All Mounts =	$WT_{mnt.ice} - WT_{mnt} = 1250$	lbs	**BLC 3**

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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 =	$NP_{coax} := 2$		(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 =	$A_{coax} := \frac{(NP_{coax} D_{coax})}{12} = 0.3$	sf/ft		
Total Coax Wind Force =	$F_{coax} := Ca_{coax} \cdot qz_{Mast4} \cdot G_H \cdot A_{coax} = 14$	plf	**BLC 5**	

Wind Load (with ice)

Coax projected surface area w/ Ice =	$AICE_{coax} := \frac{(NP_{coax} \cdot D_{coax} + 2 \cdot t_{iz})}{12} = 0.7$	sf/ft		
Total Coax Wind Force w/ Ice =	$Fi_{coax} := Ca_{coax} \cdot qz_{ice.Mast4} \cdot G_H \cdot AICE_{coax} = 7$	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 =	$Ai_{coax} := \frac{\pi}{4}\left[(D_{coax} + 2 \cdot t_{iz})^2 - D_{coax}^2\right] = 28.1$	sq in		
Ice Weight All Coax per foot =	$WTi_{coax} := N_{coax} \cdot Id \cdot \frac{Ai_{coax}}{144} = 196$	plf	**BLC 3**	

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Development of Wind & Ice Load on Coax Cables

Coax Cable Data: (Below 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 =	$L_{coax} := 120$	ft	(User Input)	
Weight of Coax per foot =	$Wt_{coax} := 1.04$	plf	(User Input)	
Total Number of Coax =	$N_{coax} := 6$		(User Input)	
Total Number of Exterior Coax =	$Ne_{coax} := 0$		(User Input)	
No. of Coax Projecting Outside Face of Mast =	$NP_{coax} := 0$		(User Input)	
Coax aspect ratio,	$Ar_{coax} := \frac{(L_{coax} \cdot 12)}{D_{coax}} = 727.3$			
Coax Cable Force Factor Coefficient =	$Ca_{coax} = 1.2$			

Wind Load (without ice)

Coax projected surface area =	$A_{coax} := \frac{(NP_{coax} D_{coax})}{12} = 0$	sf/ft	
Total Coax Wind Force =	$F_{coax} := Ca_{coax} \cdot qz_{Mast4} \cdot G_H \cdot A_{coax} = 0$	plf	**BLC 5**

Wind Load (with ice)

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

Gravity Loads (without ice)

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

Gravity Loads (ice only)

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

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Location:	Stamford, CT
Rev. 2: 12/14/18	Prepared by: T.J.L. Checked by: C.F.C. Job No. 17159.05

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 = $L_{mem} := 36$ in (User Input)

Member Aspect Ratio = $Ar_{mem} := \frac{L_{mem}}{W_{mem}} = 18.0$

Member Force Coefficient = $Ca_{mem} = 1.77$

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 = $A_{ICEmem} := \frac{\left(H_{mem} + 2 \cdot t_{izMast5}\right)}{12} = 0.5$ sf/ft

Total Member Wind Force w/ Ice = $Fi_{mem} := qz_{ice.Mast4} \cdot G_H \cdot Ca_{mem} \cdot A_{ICEmem} = 8$ plf **BLC 4**

Gravity Load (without ice)

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

Gravity Loads (ice only)

Ice Area per Linear foot =

$$Ai_{mem} := \left[\left(H_{mem} + 2 \cdot t_{izMast5}\right) + \left(W_{mem} - t_{mem}\right)\right] \cdot \left(t_{mem} + 2 \cdot t_{izMast5}\right) - \left[H_{mem} + \left(W_{mem} + t_{mem}\right)\right] \cdot t_{mem} = 34 \text{ sq in}$$

Weight of Ice on Member = $W_{ICE.mem} := Id \cdot \frac{Ai_{mem}}{144} = 13$ plf **BLC 3**

Development of Wind & Ice Load on Brace Member

Member Data: L3x3x3/16

Antenna Shape = Flat (User Input)

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

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

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

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

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

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

Wind Load (without ice)

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

Total Member Wind Force = $F_{mem} := qz_{Mast4} \cdot G_H \cdot Ca_{mem} \cdot A_{mem} = 17$ 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 = $Fi_{mem} := qz_{ice.Mast4} \cdot G_H \cdot Ca_{mem} \cdot A_{ICEmem} = 10$ plf **BLC 4**

Gravity Load (without ice)

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

Gravity Loads (ice only)

Ice Area per Linear foot =

$$Ai_{mem} := \left[\left(H_{mem} + 2 \cdot t_{izMast5}\right) + \left(W_{mem} - t_{mem}\right)\right] \cdot \left(t_{mem} + 2 \cdot t_{izMast5}\right) - \left[H_{mem} + \left(W_{mem} + t_{mem}\right)\right] \cdot t_{mem} = 42 \text{ sq in}$$

Weight of Ice on Member = $W_{ICE.mem} := Id \cdot \frac{Ai_{mem}}{144} = 16$ plf **BLC 3**

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Subject: Loads on Equipmnet Structure 1217

Location: Stamford, CT

Rev. 2: 12/14/18

Prepared by: T.J.L. Checked by: C.F.C.
Job No. 17159.05

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 =	$L_{mem} := 150$	in	(User Input)	
Member Aspect Ratio =	$Ar_{mem} := \frac{L_{mem}}{W_{mem}} = 37.5$			
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 =	$F_{mem} := qz_{Mast4} \cdot G_H \cdot Ca_{mem} \cdot A_{mem} = 23$	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 =

$$Ai_{mem} := \left[\left(H_{mem} + 2 \cdot t_{izMast5}\right) + \left(W_{mem} - t_{mem}\right)\right] \cdot \left(t_{mem} + 2 \cdot t_{izMast5}\right) - \left[H_{mem} + \left(W_{mem} + t_{mem}\right)\right] \cdot t_{mem} = 50 \quad \text{sq in}$$

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

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Development of Wind & Ice Load on Brace Member

Member Data: L5x5x3/8

Antenna Shape = Flat (User Input)

Height = $H_{mem} := 5$ in (User Input)

Width = $W_{mem} := 5$ in (User Input)

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

Length = $L_{mem} := 192$ in (User Input)

Member Aspect Ratio = $Ar_{mem} := \frac{L_{mem}}{W_{mem}} = 38.4$

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

Wind Load (without ice)

Member Projected Surface Area = $A_{mem} := \frac{H_{mem}}{12} = 0.4$ sf/ft

Total Member Wind Force = $F_{mem} := qz_{Mast4} \cdot G_H \cdot Ca_{mem} \cdot A_{mem} = 29$ 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 =

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

Weight of Ice on Member = $W_{ICE.mem} := Id \cdot \frac{Ai_{mem}}{144} = 23$ 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	Standard Solver

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

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

(Global) Model Settings, Continued

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

Hot Rolled Steel Properties

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

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Powermount	12" FWT Powermount	Column	Pipe	A500 Gr. 50	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	L3X3X3	Beam	Single Angle	A36 Gr.36	Typical	1.09	.948	.948	.014
4	Brace 3	L4X4X4	Beam	Single Angle	A36 Gr.36	Typical	1.93	3	3	.044
5	Brace 4	L5X5X6	Beam	Single Angle	A36 Gr.36	Typical	3.65	8.76	8.76	.183
6	Brace 5	L3X2.5X4	Beam	Single Angle	A36 Gr.36	Typical	1.32	.734	1.16	.03
7	Brace 6	L4X3X4	Beam	Single Angle	A36 Gr.36	Typical	1.69	1.33	2.75	.039

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	135	Segment	Segment	Lbyy						Lateral
2	M2	Brace 6	1.5			Lbyy						Lateral
3	M3	Brace 6	10.8			Lbyy						Lateral
4	M4	Brace 5	1.5			Lbyy						Lateral
5	M5	Brace 5	7.96			Lbyy						Lateral
6	M6	Brace 4	16.369			Lbyy						Lateral
7	M7	Brace 4	16.369			Lbyy						Lateral
8	M8	Brace 3	12.363			Lbyy						Lateral
9	M9	Brace 3	12.363			Lbyy						Lateral
10	M10	Brace 2	8.369			Lbyy						Lateral
11	M11	Brace 2	8.369			Lbyy						Lateral
12	M12	Brace 1	1.5			Lbyy						Lateral
13	M13	Brace 1	2.693			Lbyy						Lateral
14	M14	Brace 1	2.693			Lbyy						Lateral
15	M15	Brace 1	1.5			Lbyy						Lateral
16	M16	Brace 1	2.693			Lbyy						Lateral
17	M17	Brace 1	2.693			Lbyy						Lateral
18	M18	Brace 1	1.5			Lbyy						Lateral
19	M19	Brace 1	2.693			Lbyy						Lateral
20	M20	Brace 1	2.693			Lbyy						Lateral
21	M21	Brace 1	1.5			Lbyy						Lateral
22	M22	Brace 1	2.693			Lbyy						Lateral
23	M23	Brace 1	2.693			Lbyy						Lateral
24	M24	Brace 1	1.5			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	N9			Powermount	Column	Pipe	A500 Gr...	Typical
2	M2	N10	N2			Brace 6	Beam	Single Angle	A36 Gr.36	Typical
3	M3	N2	N11			Brace 6	Beam	Single Angle	A36 Gr.36	Typical
4	M4	N14	N3			Brace 5	Beam	Single Angle	A36 Gr.36	Typical
5	M5	N3	N15			Brace 5	Beam	Single Angle	A36 Gr.36	Typical
6	M6	N12	N2			Brace 4	Beam	Single Angle	A36 Gr.36	Typical
7	M7	N2	N13			Brace 4	Beam	Single Angle	A36 Gr.36	Typical
8	M8	N16	N3			Brace 3	Beam	Single Angle	A36 Gr.36	Typical
9	M9	N3	N17			Brace 3	Beam	Single Angle	A36 Gr.36	Typical
10	M10	N19	N4			Brace 2	Beam	Single Angle	A36 Gr.36	Typical
11	M11	N4	N20			Brace 2	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...
12	M12	N4	N18			Brace 1	Beam	Single Angle	A36 Gr.36	Typical
13	M13	N22	N5			Brace 1	Beam	Single Angle	A36 Gr.36	Typical
14	M14	N5	N23			Brace 1	Beam	Single Angle	A36 Gr.36	Typical
15	M15	N5	N21			Brace 1	Beam	Single Angle	A36 Gr.36	Typical
16	M16	N25	N6			Brace 1	Beam	Single Angle	A36 Gr.36	Typical
17	M17	N6	N26			Brace 1	Beam	Single Angle	A36 Gr.36	Typical
18	M18	N6	N24			Brace 1	Beam	Single Angle	A36 Gr.36	Typical
19	M19	N28	N7			Brace 1	Beam	Single Angle	A36 Gr.36	Typical
20	M20	N7	N29			Brace 1	Beam	Single Angle	A36 Gr.36	Typical
21	M21	N7	N27			Brace 1	Beam	Single Angle	A36 Gr.36	Typical
22	M22	N31	N8			Brace 1	Beam	Single Angle	A36 Gr.36	Typical
23	M23	N8	N32			Brace 1	Beam	Single Angle	A36 Gr.36	Typical
24	M24	N8	N30			Brace 1	Beam	Single Angle	A36 Gr.36	Typical

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Dia...
1	N1	0	0	0	0	
2	N2	0	19	0	0	
3	N3	0	39	0	0	
4	N4	0	59	0	0	
5	N5	0	88	0	0	
6	N6	0	98	0	0	
7	N7	0	110	0	0	
8	N8	0	120	0	0	
9	N9	0	135	0	0	
10	N10	0	19	1.5	0	
11	N11	0	19	-10.8	0	
12	N12	-12.3	19	-10.8	0	
13	N13	12.3	19	-10.8	0	
14	N14	0	39	1.5	0	
15	N15	0	39	-7.96	0	
16	N16	-9.46	39	-7.96	0	
17	N17	9.46	39	-7.96	0	
18	N18	0	59	1.5	0	
19	N19	-6.62	59	-5.12	0	
20	N20	6.62	59	-5.12	0	
21	N21	0	88	1.5	0	
22	N22	-2.5	88	-1	0	
23	N23	2.5	88	-1	0	
24	N24	0	98	1.5	0	
25	N25	-2.5	98	-1	0	
26	N26	2.5	98	-1	0	
27	N27	0	110	1.5	0	
28	N28	-2.5	110	-1	0	
29	N29	2.5	110	-1	0	
30	N30	0	120	1.5	0	
31	N31	-2.5	120	-1	0	
32	N32	2.5	120	-1	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						
8	N8						
9	N9						
10	N10	Reaction	Reaction	Reaction			
11	N11	Reaction	Reaction	Reaction			
12	N12	Reaction	Reaction	Reaction			
13	N13	Reaction	Reaction	Reaction			
14	N14	Reaction	Reaction	Reaction			
15	N15	Reaction	Reaction	Reaction			
16	N16	Reaction	Reaction	Reaction			
17	N17	Reaction	Reaction	Reaction			
18	N18	Reaction	Reaction	Reaction			
19	N19	Reaction	Reaction	Reaction			
20	N20	Reaction	Reaction	Reaction			
21	N21	Reaction	Reaction	Reaction			
22	N22	Reaction	Reaction	Reaction			
23	N23	Reaction	Reaction	Reaction			
24	N24	Reaction	Reaction	Reaction			
25	N25	Reaction	Reaction	Reaction			
26	N27	Reaction	Reaction	Reaction			
27	N28	Reaction	Reaction	Reaction			
28	N30	Reaction	Reaction	Reaction			
29	N31	Reaction	Reaction	Reaction			
30	N26	Reaction	Reaction	Reaction			
31	N29	Reaction	Reaction	Reaction			
32	N32	Reaction	Reaction	Reaction			

Member Point Loads

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

Member Distributed Loads (BLC 2 : Weight of Appurtenances)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-.006	-.006	0	120
2	M1	Y	-.019	-.019	120	0

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

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-.029	-.029	0	20
2	M1	Y	-.033	-.033	20	40
3	M1	Y	-.035	-.035	40	60

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

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
4	M1	Y	-.036	-.036	60	80
5	M1	Y	-.038	-.038	80	100
6	M1	Y	-.038	-.038	100	120
7	M1	Y	-.039	-.039	120	0
8	M1	Y	-.196	-.196	120	0
9	M22	Y	-.013	-.013	0	0
10	M24	Y	-.013	-.013	0	0
11	M23	Y	-.013	-.013	0	0
12	M19	Y	-.013	-.013	0	0
13	M21	Y	-.013	-.013	0	0
14	M20	Y	-.013	-.013	0	0
15	M16	Y	-.013	-.013	0	0
16	M18	Y	-.013	-.013	0	0
17	M17	Y	-.013	-.013	0	0
18	M13	Y	-.013	-.013	0	0
19	M15	Y	-.013	-.013	0	0
20	M14	Y	-.013	-.013	0	0
21	M12	Y	-.013	-.013	0	0
22	M10	Y	-.016	-.016	0	0
23	M11	Y	-.016	-.016	0	0
24	M8	Y	-.002	-.002	0	0
25	M5	Y	-.002	-.002	0	0
26	M4	Y	-.002	-.002	0	0
27	M9	Y	-.002	-.002	0	0
28	M6	Y	-.002	-.002	0	0
29	M2	Y	-.002	-.002	0	0
30	M3	Y	-.002	-.002	0	0
31	M7	Y	-.002	-.002	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	.005	.005	0	20
2	M1	X	.006	.006	20	40
3	M1	X	.007	.007	40	60
4	M1	X	.007	.007	60	80
5	M1	X	.008	.008	80	100
6	M1	X	.008	.008	100	120
7	M1	X	.008	.008	120	0
8	M1	X	.007	.007	120	0
9	M24	X	.008	.008	0	0
10	M21	X	.008	.008	0	0
11	M18	X	.008	.008	0	0
12	M15	X	.008	.008	0	0
13	M12	X	.01	.01	0	0
14	M4	X	.012	.012	0	0
15	M5	X	.012	.012	0	0
16	M2	X	.013	.013	0	0
17	M3	X	.013	.013	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]

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

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M1	X	.015	.015	0	20
2	M1	X	.018	.018	20	40
3	M1	X	.02	.02	40	60
4	M1	X	.022	.022	60	80
5	M1	X	.023	.023	80	100
6	M1	X	.024	.024	100	120
7	M1	X	.025	.025	120	0
8	M1	X	.014	.014	120	0
9	M24	X	.01	.01	0	0
10	M21	X	.01	.01	0	0
11	M18	X	.01	.01	0	0
12	M15	X	.01	.01	0	0
13	M12	X	.017	.017	0	0
14	M4	X	.023	.023	0	0
15	M5	X	.023	.023	0	0
16	M2	X	.029	.029	0	0
17	M3	X	.029	.029	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	.005	.005	0	20
2	M1	Z	.006	.006	20	40
3	M1	Z	.007	.007	40	60
4	M1	Z	.007	.007	60	80
5	M1	Z	.008	.008	80	100
6	M1	Z	.008	.008	100	120
7	M1	Z	.008	.008	120	0
8	M1	Z	.007	.007	120	0
9	M22	Z	.008	.008	0	0
10	M23	Z	.008	.008	0	0
11	M19	Z	.008	.008	0	0
12	M20	Z	.008	.008	0	0
13	M16	Z	.008	.008	0	0
14	M17	Z	.008	.008	0	0
15	M13	Z	.008	.008	0	0
16	M14	Z	.008	.008	0	0
17	M10	Z	.01	.01	0	0
18	M11	Z	.01	.01	0	0
19	M8	Z	.012	.012	0	0
20	M9	Z	.012	.012	0	0
21	M6	Z	.013	.013	0	0
22	M7	Z	.013	.013	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	.015	.015	0	20
2	M1	Z	.018	.018	20	40
3	M1	Z	.02	.02	40	60
4	M1	Z	.022	.022	60	80
5	M1	Z	.023	.023	80	100
6	M1	Z	.024	.024	100	120

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

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/...	Start Location[ft,%]	End Location[ft,%]
7	M1	Z	.025	.025	120	0
8	M1	Z	.014	.014	120	0
9	M22	Z	.01	.01	0	0
10	M23	Z	.01	.01	0	0
11	M19	Z	.01	.01	0	0
12	M20	Z	.01	.01	0	0
13	M16	Z	.01	.01	0	0
14	M17	Z	.01	.01	0	0
15	M13	Z	.01	.01	0	0
16	M14	Z	.01	.01	0	0
17	M10	Z	.017	.017	0	0
18	M11	Z	.017	.017	0	0
19	M8	Z	.023	.023	0	0
20	M9	Z	.023	.023	0	0
21	M6	Z	.029	.029	0	0
22	M7	Z	.029	.029	0	0

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribu...	Area(M...	Surface...
1	Self Weight	None		-1						
2	Weight of Appurtenances	None				4		2		
3	Weight of Ice Only	None				4		31		
4	(x) TIA Wind with Ice	None				4		17		
5	(x) TIA Wind	None				4		17		
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...	BLC	Fac...
1	1.2D + 1.6W (X-direction)	Yes	Y		1	1.2	2	1.2	5	1.6																
2	0.9D + 1.6W (X-direction)	Yes	Y		1	.9	2	.9	5	1.6																
3	1.2D + 1.0Di + 1.0Wi (X-...	Yes	Y		1	1.2	2	1.2	3	1	4	1														
4	1.2D + 1.6W (Z-direction)	Yes	Y		1	1.2	2	1.2	7	1.6																
5	0.9D + 1.6W (Z-direction)	Yes	Y		1	.9	2	.9	7	1.6																
6	1.2D + 1.0Di + 1.0Wi (Z-d...	Yes	Y		1	1.2	2	1.2	3	1	6	1														

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N1	max	0	6	24.097	6	0	3	0	3	0	6	.699	2
2		min	-.219	2	10.344	2	-.214	5	-.647	5	0	1	0	4
3	N10	max	0	6	.007	3	0	3	0	6	0	6	0	6
4		min	-.035	1	.004	5	-.985	4	0	1	0	1	0	1
5	N11	max	0	6	.048	6	0	3	0	6	0	6	0	6
6		min	-.251	1	.028	2	-.137	4	0	1	0	1	0	1
7	N12	max	-.024	6	.138	3	-.083	3	0	6	0	6	0	6
8		min	-.405	1	.091	5	-.465	4	0	1	0	1	0	1
9	N13	max	.097	4	.138	6	.356	1	0	6	0	6	0	6

Envelope Joint Reactions (Continued)

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
10		min	-.405	1	.091	2	-.465	4	0	1	0	1	0	1
11	N14	max	0	6	.006	3	0	3	0	6	0	6	0	6
12		min	-.028	1	.003	5	-.736	5	0	1	0	1	0	1
13	N15	max	0	6	.029	6	0	3	0	6	0	6	0	6
14		min	-.146	1	.016	2	-.139	5	0	1	0	1	0	1
15	N16	max	-.017	6	.061	3	-.072	3	0	6	0	6	0	6
16		min	-.354	2	.037	5	-.298	2	0	1	0	1	0	1
17	N17	max	.064	5	.061	6	.298	2	0	6	0	6	0	6
18		min	-.354	2	.036	2	-.282	5	0	1	0	1	0	1
19	N18	max	0	6	.012	3	0	3	0	6	0	6	0	6
20		min	-.02	1	0	5	-.946	4	0	1	0	1	0	1
21	N19	max	-.03	6	.086	3	-.065	6	0	6	0	6	0	6
22		min	-.463	1	.014	5	-.358	1	0	1	0	1	0	1
23	N20	max	.124	4	.086	6	.358	1	0	6	0	6	0	6
24		min	-.462	1	.014	2	-.21	4	0	1	0	1	0	1
25	N21	max	0	6	.012	3	0	3	0	6	0	6	0	6
26		min	-.012	1	0	5	-.578	5	0	1	0	1	0	1
27	N22	max	-.025	6	.022	3	-.021	6	0	6	0	6	0	6
28		min	-.329	2	.003	5	-.132	2	0	1	0	1	0	1
29	N23	max	.111	5	.022	6	.132	2	0	6	0	6	0	6
30		min	-.329	2	.003	2	-.066	5	0	1	0	1	0	1
31	N24	max	0	6	.012	3	0	3	0	6	0	6	0	6
32		min	-.012	1	0	4	-1.377	4	0	1	0	1	0	1
33	N25	max	-.061	6	.022	3	-.035	6	0	6	0	6	0	6
34		min	-.753	1	.003	5	-.301	1	0	1	0	1	0	1
35	N27	max	0	6	.017	6	5.922	4	0	6	0	6	0	6
36		min	-.012	1	.002	2	0	1	0	1	0	1	0	1
37	N28	max	3.402	1	.021	6	1.361	1	0	6	0	6	0	6
38		min	.25	6	0	1	.089	6	0	1	0	1	0	1
39	N30	max	0	6	.012	3	0	3	0	6	0	6	0	6
40		min	-.012	1	-.018	4	-8.983	4	0	1	0	1	0	1
41	N31	max	-.383	6	.024	3	-.164	6	0	6	0	6	0	6
42		min	-5.154	1	.005	5	-2.061	1	0	1	0	1	0	1
43	N26	max	.265	4	.022	6	.301	1	0	6	0	6	0	6
44		min	-.753	1	.002	2	-.127	4	0	1	0	1	0	1
45	N29	max	3.402	1	.023	3	.433	4	0	6	0	6	0	6
46		min	-1.138	4	.002	5	-1.361	1	0	1	0	1	0	1
47	N32	max	1.725	4	.022	6	2.062	1	0	6	0	6	0	6
48		min	-5.153	1	-.003	1	-.712	4	0	1	0	1	0	1
49	Totals:	max	0	6	24.984	6	0	3						
50		min	-8.856	1	10.711	2	-11.029	4						

Envelope Joint Displacements

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...	LC	Y Rotation [...	LC	Z Rotation [...	LC
1	N1	max	0	6	0	6	0	6	0	6	0	6	0	6
2		min	0	1	0	1	0	1	0	1	0	1	0	1
3	N2	max	.002	1	-.007	2	0	5	2.231e-05	5	0	6	0	6
4		min	0	4	-.016	6	0	1	0	1	0	1	-2.705e-05	1
5	N3	max	.002	2	-.013	2	0	5	0	3	0	6	3.12e-05	2
6		min	0	4	-.03	6	0	1	-3.293e-05	4	0	1	0	4

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...	LC	Y Rotation [...	LC	Z Rotation [...	LC
7	N4	max	.003	1	-.018	2	.001	4	1.42e-04	4	0	6	0	6
8		min	0	4	-.044	6	0	3	0	1	0	1	-1.392e-04	1
9	N5	max	0	2	-.025	2	0	5	0	3	0	6	1.828e-04	1
10		min	0	4	-.06	6	0	1	-1.848e-04	4	0	1	0	4
11	N6	max	.002	1	-.027	2	.001	4	2.268e-04	4	0	6	0	6
12		min	0	4	-.065	6	0	3	0	1	0	1	-2.186e-04	1
13	N7	max	0	6	-.029	2	0	2	0	3	0	6	9.211e-04	1
14		min	-.008	1	-.071	6	-.006	4	-9.278e-04	4	0	1	0	4
15	N8	max	.012	1	-.03	2	.01	4	3.647e-03	4	0	6	0	6
16		min	0	4	-.075	6	0	3	0	1	0	1	-3.683e-03	1
17	N9	max	1.688	1	-.032	2	1.68	4	1.193e-02	4	0	6	0	6
18		min	0	4	-.08	6	0	3	0	1	0	1	-1.197e-02	1
19	N10	max	0	6	0	6	0	6	-3.522e-04	2	3.836e-06	6	0	6
20		min	0	1	0	1	0	1	-8.73e-04	6	-1.39e-04	2	-2.705e-05	1
21	N11	max	0	6	0	6	0	6	1.769e-03	6	1.697e-02	2	0	6
22		min	0	1	0	1	0	1	-6.406e-03	2	-1.423e-03	6	-2.705e-05	1
23	N12	max	0	6	0	6	0	6	2.286e-03	3	2.017e-03	3	1.425e-03	5
24		min	0	1	0	1	0	1	-1.229e-03	5	-5.661e-03	5	-2.609e-03	3
25	N13	max	0	6	0	6	0	6	2.292e-03	3	5.661e-03	5	2.605e-03	3
26		min	0	1	0	1	0	1	-1.229e-03	5	-2.014e-03	3	-1.425e-03	5
27	N14	max	0	6	0	6	0	6	-6.842e-04	2	6.492e-06	6	3.12e-05	2
28		min	0	1	0	1	0	1	-1.703e-03	6	-1.767e-04	2	0	4
29	N15	max	0	6	0	6	0	6	1.611e-03	6	9.641e-03	2	3.12e-05	2
30		min	0	1	0	1	0	1	-3.977e-03	2	-9.674e-04	6	0	4
31	N16	max	0	6	0	6	0	6	1.773e-03	3	1.541e-03	3	2.11e-03	5
32		min	0	1	0	1	0	1	-1.808e-03	5	-6.33e-03	5	-2.101e-03	3
33	N17	max	0	6	0	6	0	6	1.767e-03	3	6.33e-03	5	2.106e-03	3
34		min	0	1	0	1	0	1	-1.808e-03	5	-1.537e-03	3	-2.11e-03	5
35	N18	max	0	6	0	6	0	6	-1.023e-03	5	-6.603e-06	5	0	6
36		min	0	1	0	1	0	1	-2.545e-03	3	-3.094e-04	1	-1.392e-04	1
37	N19	max	0	6	0	6	0	6	3.413e-03	3	3.126e-03	3	1.857e-03	5
38		min	0	1	0	1	0	1	-1.294e-03	5	-4.931e-03	5	-4.44e-03	3
39	N20	max	0	6	0	6	0	6	3.439e-03	3	4.931e-03	5	4.42e-03	3
40		min	0	1	0	1	0	1	-1.294e-03	5	-3.119e-03	3	-1.857e-03	5
41	N21	max	0	6	0	6	0	6	-1.385e-03	5	-6.603e-06	5	1.828e-04	1
42		min	0	1	0	1	0	1	-3.458e-03	3	-1.306e-04	1	0	4
43	N22	max	0	6	0	6	0	6	8.789e-04	3	2.772e-04	3	-5.955e-04	5
44		min	0	1	0	1	0	1	5.36e-05	5	-4.11e-04	5	-2.16e-03	3
45	N23	max	0	6	0	6	0	6	8.529e-04	3	4.11e-04	5	2.17e-03	3
46		min	0	1	0	1	0	1	5.36e-05	5	-2.737e-04	3	5.955e-04	5
47	N24	max	0	6	0	6	0	6	-1.49e-03	5	-6.603e-06	5	0	6
48		min	0	1	0	1	0	1	-3.734e-03	3	-1.833e-04	1	-2.186e-04	1
49	N25	max	0	6	0	6	0	6	9.18e-04	6	2.798e-04	3	-5.084e-04	5
50		min	0	1	0	1	0	1	2.544e-04	2	-4.355e-04	5	-2.314e-03	3
51	N26	max	0	6	0	6	0	6	9.393e-04	3	4.355e-04	5	2.301e-03	3
52		min	0	1	0	1	0	1	4.047e-04	2	-2.711e-04	3	5.084e-04	5
53	N27	max	0	6	0	6	0	6	-1.604e-03	5	3.34e-04	2	9.211e-04	1
54		min	0	1	0	1	0	1	-4.037e-03	3	-4.762e-05	6	0	4
55	N28	max	0	6	0	6	0	6	1.056e-03	3	2.561e-04	3	-7.559e-04	2
56		min	0	1	0	1	0	1	-5.393e-04	5	-2.109e-04	5	-2.436e-03	3
57	N29	max	0	6	0	6	0	6	9.156e-04	3	2.109e-04	5	2.492e-03	3
58		min	0	1	0	1	0	1	-5.393e-04	5	-2.948e-04	3	9.64e-04	5

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...	LC	Y Rotation [...	LC	Z Rotation [...	LC
59	N30	max	0	6	0	6	0	6	-1.687e-03	5	-6.603e-06	5	0	6
60		min	0	1	0	1	0	1	-4.266e-03	3	-7.304e-04	1	-3.683e-03	1
61	N31	max	0	6	0	6	0	6	3.543e-03	4	3.047e-04	3	5.654e-04	5
62		min	0	1	0	1	0	1	-8.956e-04	2	-6.7e-04	5	-2.694e-03	3
63	N32	max	0	6	0	6	0	6	3.543e-03	4	6.7e-04	5	2.47e-03	3
64		min	0	1	0	1	0	1	1.313e-03	3	-2.462e-04	3	-5.654e-04	5

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

	Member	Shape	Code Check	Loc...	LC	Shea...	Loc.....	L...		phi*Pn...	phi*Pn...	phi*M...	phi*M...	...	Eqn
1	M1	12" FWT Powerm...	.232	119...	1	.033	119...		4	620.976	656.055	215.419	215.419	4...	H1-1b
2	M2	L4X3X4	.021	.75	4	.002	1.5	z	2	48.049	54.756	1.795	4.609	1...	H2-1
3	M3	L4X3X4	.425	5.4	1	.017	0	z	2	9.282	54.756	1.844	3.189	1...	H2-1
4	M4	L3X2.5X4	.019	.75	4	.002	0	z	2	40.154	42.768	1.251	2.963	1...	H2-1
5	M5	L3X2.5X4	.262	3.98	2	.012	7.96	z	2	8.838	42.768	1.251	2.273	1...	H2-1
6	M6	L5X5X6	.172	8.1...	5	.008	16....	z	5	20.778	118.26	7.418	11.446	1...	H2-1
7	M7	L5X5X6	.172	8.1...	5	.008	16....	z	5	20.778	118.26	7.418	11.446	1...	H2-1
8	M8	L4X4X4	.196	6.1...	5	.009	12....	z	5	12.145	62.532	3.138	4.661	1...	H2-1
9	M9	L4X4X4	.196	6.1...	5	.009	12....	z	5	12.145	62.532	3.138	4.661	1...	H2-1
10	M10	L3X3X3	.164	4.1...	5	.008	8.3...	z	5	8.384	35.316	1.32	2.057	1...	H2-1
11	M11	L3X3X3	.172	4.1...	3	.008	8.3...	z	5	8.384	35.316	1.32	2.057	1...	H2-1
12	M12	L2x2x3	.047	.75	4	.003	0	z	2	20.899	23.393	.558	1.239	1...	H2-1
13	M13	L2x2x3	.030	1.3...	3	.003	0	y	6	16.268	23.393	.558	1.192	1...	H2-1
14	M14	L2x2x3	.031	1.3...	3	.003	2.6...	y	6	16.268	23.393	.558	1.192	1...	H2-1
15	M15	L2x2x3	.029	.75	4	.002	0	z	2	20.899	23.393	.558	1.239	1...	H2-1
16	M16	L2x2x3	.040	1.3...	1	.003	0	y	6	16.268	23.393	.558	1.192	1...	H2-1
17	M17	L2x2x3	.055	1.3...	1	.003	2.6...	y	6	16.268	23.393	.558	1.192	1...	H2-1
18	M18	L2x2x3	.067	.75	4	.002	0	z	2	20.899	23.393	.558	1.239	1...	H2-1
19	M19	L2x2x3	.230	1.3...	1	.003	0	y	6	16.268	23.393	.558	1.192	1...	H2-1
20	M20	L2x2x3	.162	1.3...	1	.003	2.6...	y	6	16.268	23.393	.558	1.192	1...	H2-1
21	M21	L2x2x3	.255	.75	4	.002	1.5	z	2	20.899	23.393	.558	1.239	1...	H2-1
22	M22	L2x2x3	.242	1.3...	1	.003	0	y	6	16.268	23.393	.558	1.192	1...	H2-1
23	M23	L2x2x3	.346	1.3...	1	.003	2.6...	y	6	16.268	23.393	.558	1.192	1...	H2-1
24	M24	L2x2x3	.431	.75	4	.002	0	z	2	20.899	23.393	.558	1.239	1...	H2-1

Joint Reactions

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	1	N1	-.219	13.792	0	0	0	.699
2	1	N10	-.035	.005	0	0	0	0
3	1	N11	-.251	.037	0	0	0	0
4	1	N12	-.405	.122	-.356	0	0	0
5	1	N13	-.405	.122	.356	0	0	0
6	1	N14	-.028	.004	0	0	0	0
7	1	N15	-.146	.021	0	0	0	0
8	1	N16	-.354	.049	-.298	0	0	0
9	1	N17	-.354	.049	.298	0	0	0
10	1	N18	-.02	.002	0	0	0	0
11	1	N19	-.463	.019	-.358	0	0	0
12	1	N20	-.462	.018	.358	0	0	0
13	1	N21	-.012	.002	0	0	0	0
14	1	N22	-.329	.004	-.132	0	0	0
15	1	N23	-.329	.004	.132	0	0	0
16	1	N24	-.012	.002	0	0	0	0
17	1	N25	-.753	.005	-.301	0	0	0
18	1	N27	-.012	.002	0	0	0	0
19	1	N28	3.402	0	1.361	0	0	0
20	1	N30	-.012	.002	-.001	0	0	0
21	1	N31	-5.154	.011	-2.061	0	0	0
22	1	N26	-.753	.003	.301	0	0	0
23	1	N29	3.402	.008	-1.361	0	0	0
24	1	N32	-5.153	-.003	2.062	0	0	0
25	1	Totals:	-8.856	14.281	0			
26	1	COG (ft):	X: 0	Y: 85.396	Z: -.292			

Joint Reactions

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	2	N1	-.219	10.344	0	0	0	.699
2	2	N10	-.035	.004	0	0	0	0
3	2	N11	-.251	.028	0	0	0	0
4	2	N12	-.405	.092	-.356	0	0	0
5	2	N13	-.405	.091	.356	0	0	0
6	2	N14	-.028	.003	0	0	0	0
7	2	N15	-.146	.016	0	0	0	0
8	2	N16	-.354	.037	-.298	0	0	0
9	2	N17	-.354	.036	.298	0	0	0
10	2	N18	-.02	.002	0	0	0	0
11	2	N19	-.462	.014	-.358	0	0	0
12	2	N20	-.462	.014	.358	0	0	0
13	2	N21	-.012	.002	0	0	0	0
14	2	N22	-.329	.003	-.132	0	0	0
15	2	N23	-.329	.003	.132	0	0	0
16	2	N24	-.012	.002	0	0	0	0
17	2	N25	-.75	.004	-.3	0	0	0
18	2	N27	-.012	.002	0	0	0	0
19	2	N28	3.39	0	1.356	0	0	0
20	2	N30	-.012	.002	-.001	0	0	0
21	2	N31	-5.144	.008	-2.057	0	0	0
22	2	N26	-.75	.002	.3	0	0	0
23	2	N29	3.391	.006	-1.356	0	0	0
24	2	N32	-5.143	-.002	2.058	0	0	0
25	2	Totals:	-8.856	10.711	0			
26	2	COG (ft):	X: 0	Y: 85.396	Z: -.292			

Joint Reactions

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	3	N1	-.046	24.093	0	0	0	.148
2	3	N10	-.01	.007	0	0	0	0
3	3	N11	-.07	.048	0	0	0	0
4	3	N12	-.094	.138	-.083	0	0	0
5	3	N13	-.094	.138	.083	0	0	0
6	3	N14	-.009	.006	0	0	0	0
7	3	N15	-.048	.029	0	0	0	0
8	3	N16	-.086	.061	-.072	0	0	0
9	3	N17	-.086	.061	.072	0	0	0
10	3	N18	-.007	.012	0	0	0	0
11	3	N19	-.098	.086	-.076	0	0	0
12	3	N20	-.098	.086	.076	0	0	0
13	3	N21	-.006	.012	0	0	0	0
14	3	N22	-.068	.022	-.027	0	0	0
15	3	N23	-.068	.021	.027	0	0	0
16	3	N24	-.006	.012	0	0	0	0
17	3	N25	-.169	.022	-.068	0	0	0
18	3	N27	-.006	.012	0	0	0	0
19	3	N28	.753	.02	.301	0	0	0
20	3	N30	-.006	.012	0	0	0	0
21	3	N31	-1.139	.024	-.456	0	0	0
22	3	N26	-.169	.021	.068	0	0	0
23	3	N29	.753	.023	-.301	0	0	0
24	3	N32	-1.139	.019	.456	0	0	0
25	3	Totals:	-2.017	24.984	0			
26	3	COG (ft):	X: 0	Y: 91.528	Z: -.226			

Joint Reactions

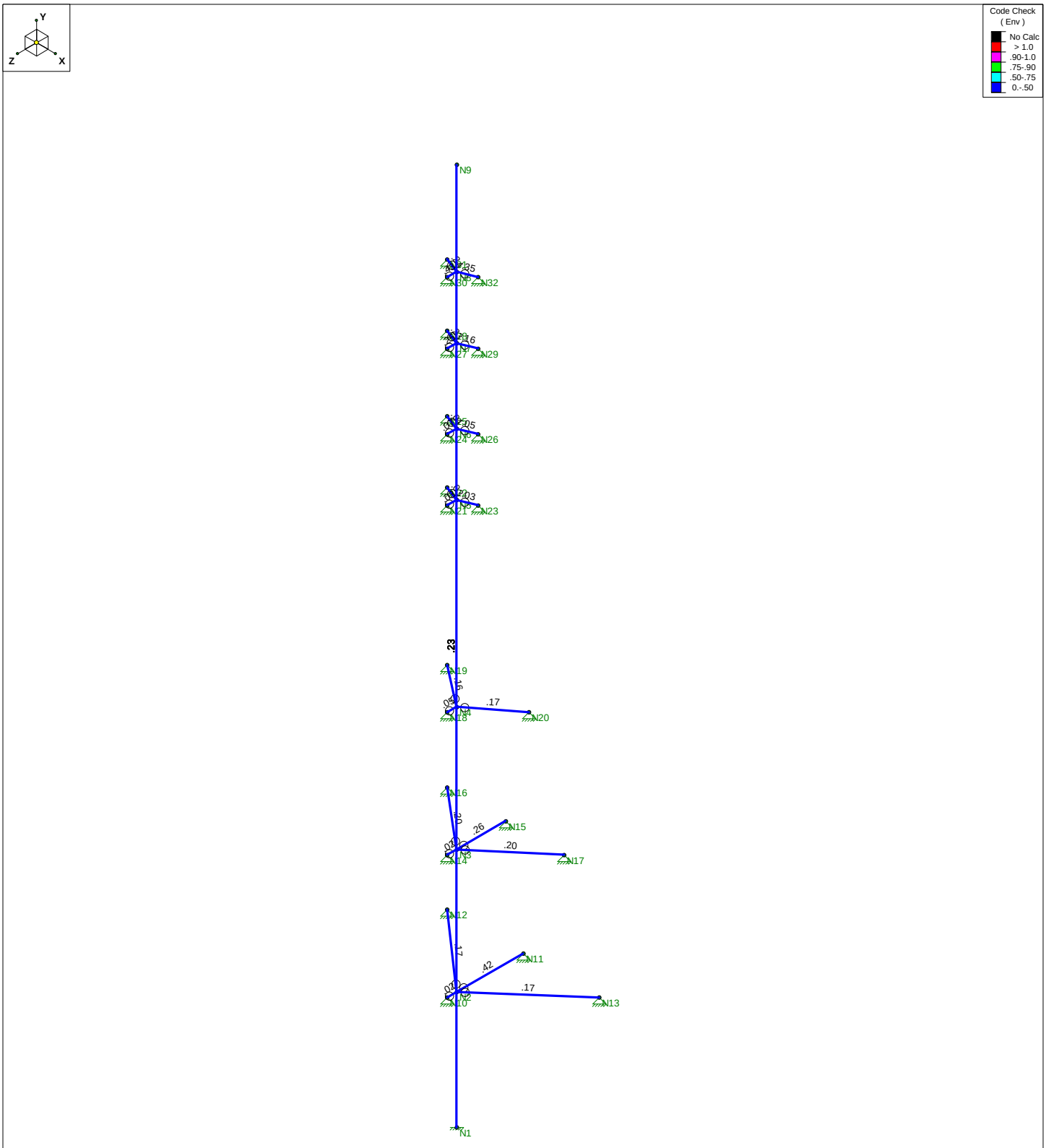
	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	4	N1	0	13.803	-.214	-.647	0	0
2	4	N10	0	.005	-.985	0	0	0
3	4	N11	0	.037	-.137	0	0	0
4	4	N12	-.097	.122	-.465	0	0	0
5	4	N13	.097	.122	-.465	0	0	0
6	4	N14	0	.003	-.736	0	0	0
7	4	N15	0	.021	-.139	0	0	0
8	4	N16	-.064	.049	-.282	0	0	0
9	4	N17	.064	.049	-.282	0	0	0
10	4	N18	0	0	-.946	0	0	0
11	4	N19	-.124	.019	-.21	0	0	0
12	4	N20	.124	.019	-.21	0	0	0
13	4	N21	0	.001	-.577	0	0	0
14	4	N22	-.111	.004	-.066	0	0	0
15	4	N23	.111	.004	-.066	0	0	0
16	4	N24	0	0	-1.377	0	0	0
17	4	N25	-.265	.004	-.127	0	0	0
18	4	N27	0	.015	5.922	0	0	0
19	4	N28	1.138	.003	.433	0	0	0
20	4	N30	0	-.018	-8.983	0	0	0
21	4	N31	-1.725	.006	-.712	0	0	0
22	4	N26	.265	.004	-.127	0	0	0
23	4	N29	-1.138	.003	.433	0	0	0
24	4	N32	1.725	.006	-.712	0	0	0
25	4	Totals:	0	14.281	-11.029			
26	4	COG (ft):	X: 0	Y: 85.396	Z: -.292			

Joint Reactions

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	5	N1	0	10.352	-.214	-.647	0	0
2	5	N10	0	.004	-.985	0	0	0
3	5	N11	0	.028	-.137	0	0	0
4	5	N12	-.097	.091	-.465	0	0	0
5	5	N13	.097	.091	-.465	0	0	0
6	5	N14	0	.003	-.736	0	0	0
7	5	N15	0	.016	-.139	0	0	0
8	5	N16	-.064	.037	-.282	0	0	0
9	5	N17	.064	.037	-.282	0	0	0
10	5	N18	0	0	-.946	0	0	0
11	5	N19	-.124	.014	-.21	0	0	0
12	5	N20	.124	.014	-.21	0	0	0
13	5	N21	0	0	-.578	0	0	0
14	5	N22	-.111	.003	-.066	0	0	0
15	5	N23	.111	.003	-.066	0	0	0
16	5	N24	0	0	-1.374	0	0	0
17	5	N25	-.264	.003	-.127	0	0	0
18	5	N27	0	.011	5.902	0	0	0
19	5	N28	1.134	.002	.432	0	0	0
20	5	N30	0	-.013	-8.965	0	0	0
21	5	N31	-1.722	.005	-.711	0	0	0
22	5	N26	.264	.003	-.127	0	0	0
23	5	N29	-1.134	.002	.432	0	0	0
24	5	N32	1.722	.005	-.711	0	0	0
25	5	Totals:	0	10.711	-11.029			
26	5	COG (ft):	X: 0	Y: 85.396	Z: -.292			

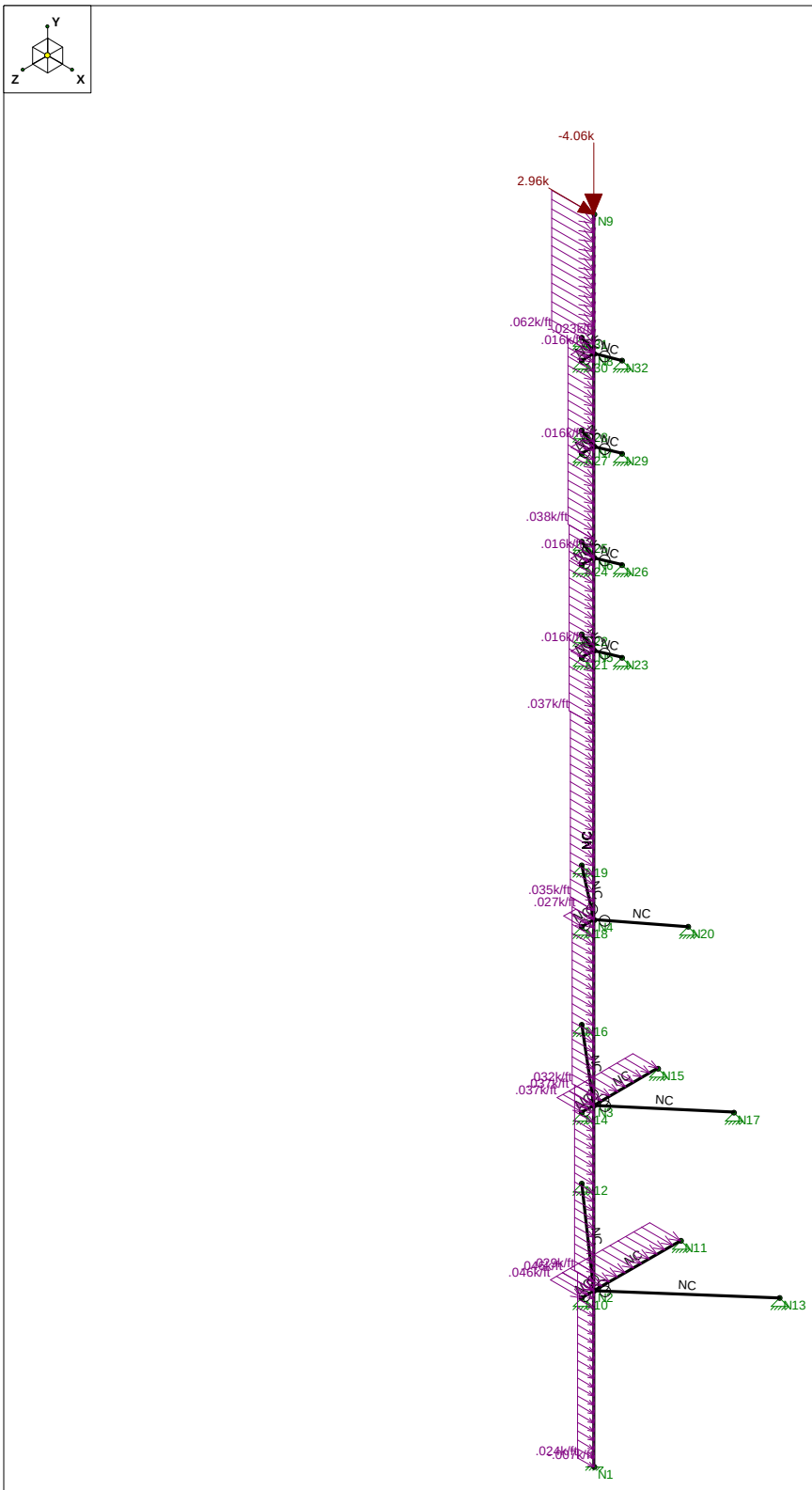
Joint Reactions

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	6	N1	0	24.097	-.045	-.137	0	0
2	6	N10	0	.006	-.246	0	0	0
3	6	N11	0	.048	-.034	0	0	0
4	6	N12	-.024	.138	-.128	0	0	0
5	6	N13	.024	.138	-.128	0	0	0
6	6	N14	0	.005	-.197	0	0	0
7	6	N15	0	.029	-.037	0	0	0
8	6	N16	-.017	.061	-.089	0	0	0
9	6	N17	.017	.061	-.089	0	0	0
10	6	N18	0	.011	-.227	0	0	0
11	6	N19	-.03	.086	-.065	0	0	0
12	6	N20	.03	.086	-.065	0	0	0
13	6	N21	0	.012	-.128	0	0	0
14	6	N22	-.025	.022	-.021	0	0	0
15	6	N23	.025	.022	-.021	0	0	0
16	6	N24	0	.011	-.316	0	0	0
17	6	N25	-.061	.022	-.035	0	0	0
18	6	N27	0	.017	1.303	0	0	0
19	6	N28	.25	.021	.089	0	0	0
20	6	N30	0	.004	-1.993	0	0	0
21	6	N31	-.383	.022	-.164	0	0	0
22	6	N26	.061	.022	-.035	0	0	0
23	6	N29	-.25	.021	.089	0	0	0
24	6	N32	.383	.022	-.164	0	0	0
25	6	Totals:	0	24.984	-2.743			
26	6	COG (ft):	X: 0	Y: 91.528	Z: -.226			



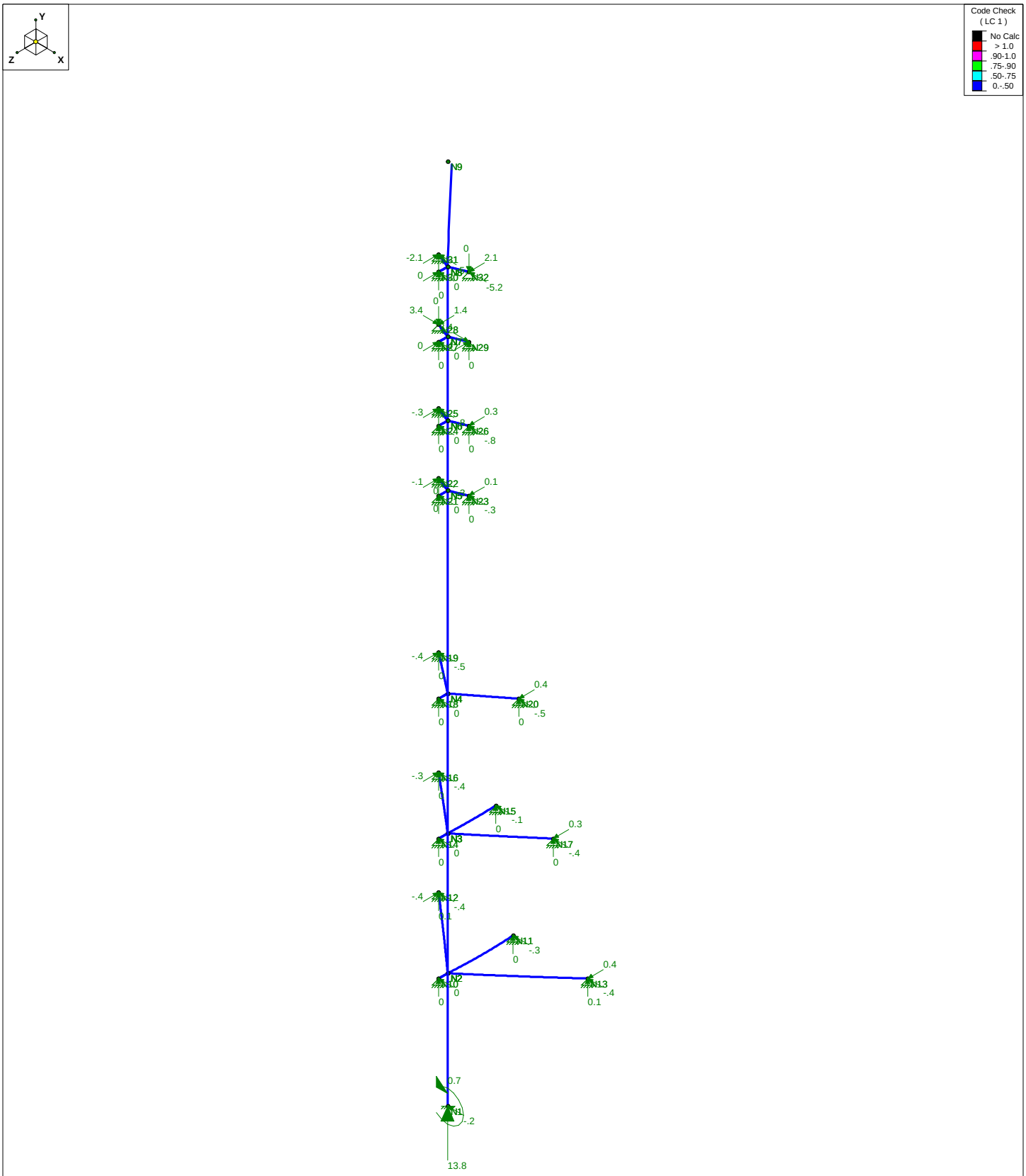
Member Code Checks Displayed (Enveloped)
Envelope Only Solution

CENTEK Engineering, INC.		
tjl, cfc	Structure # 1217 - Antenna Mast	Dec 14, 2018 at 11:30 AM
17159.05 - CT03XC329	Unity Check	Antenna Mast.r3d



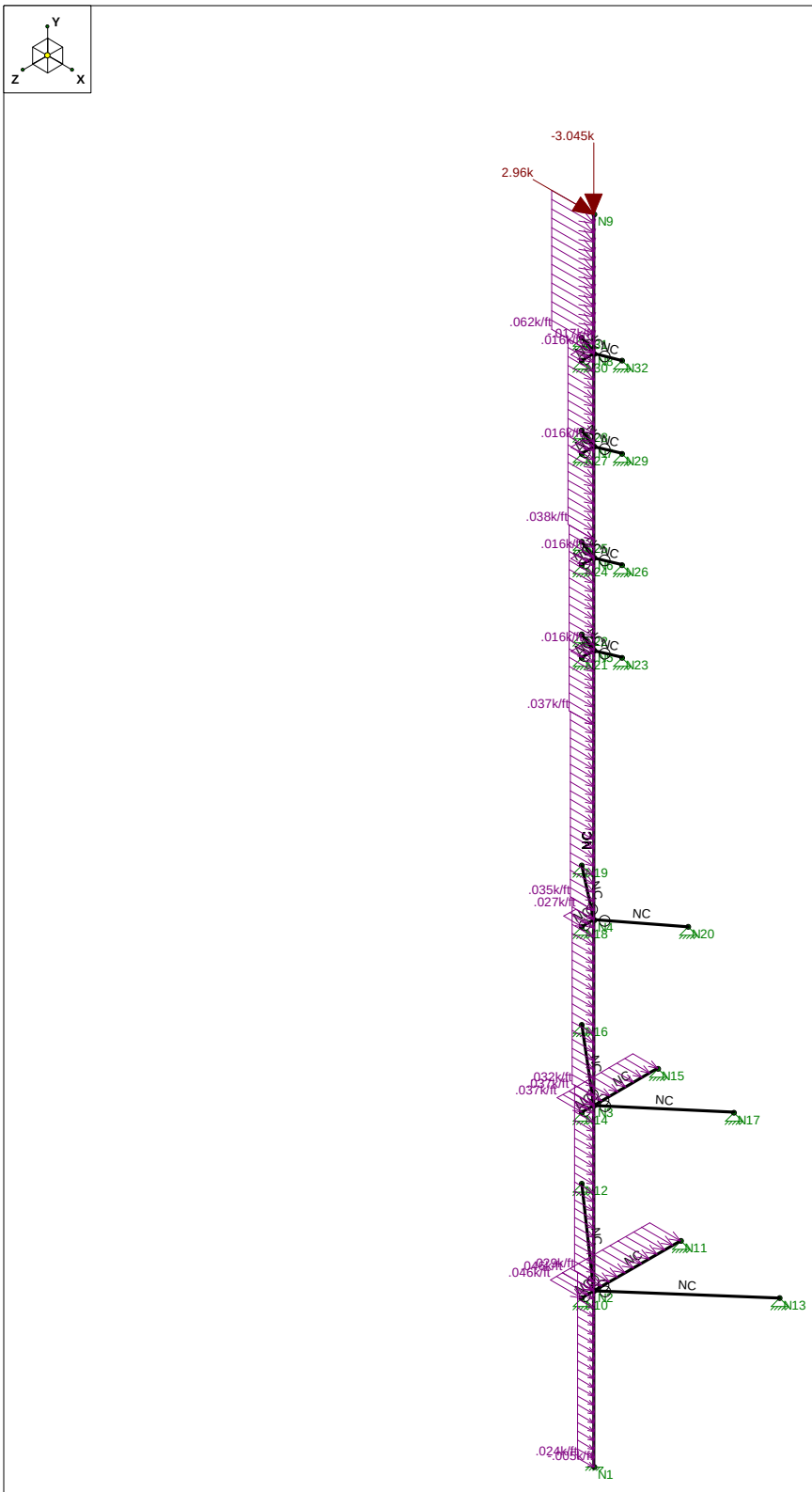
Member Code Checks Displayed
Loads: LC 1, 1.2D + 1.6W (X-direction)

CENTEK Engineering, INC.		
tjl, cfc	Structure # 1217 - Antenna Mast	Dec 14, 2018 at 11:31 AM
17159.05 - CT03XC329	LC #1 Loads	Antenna Mast.r3d



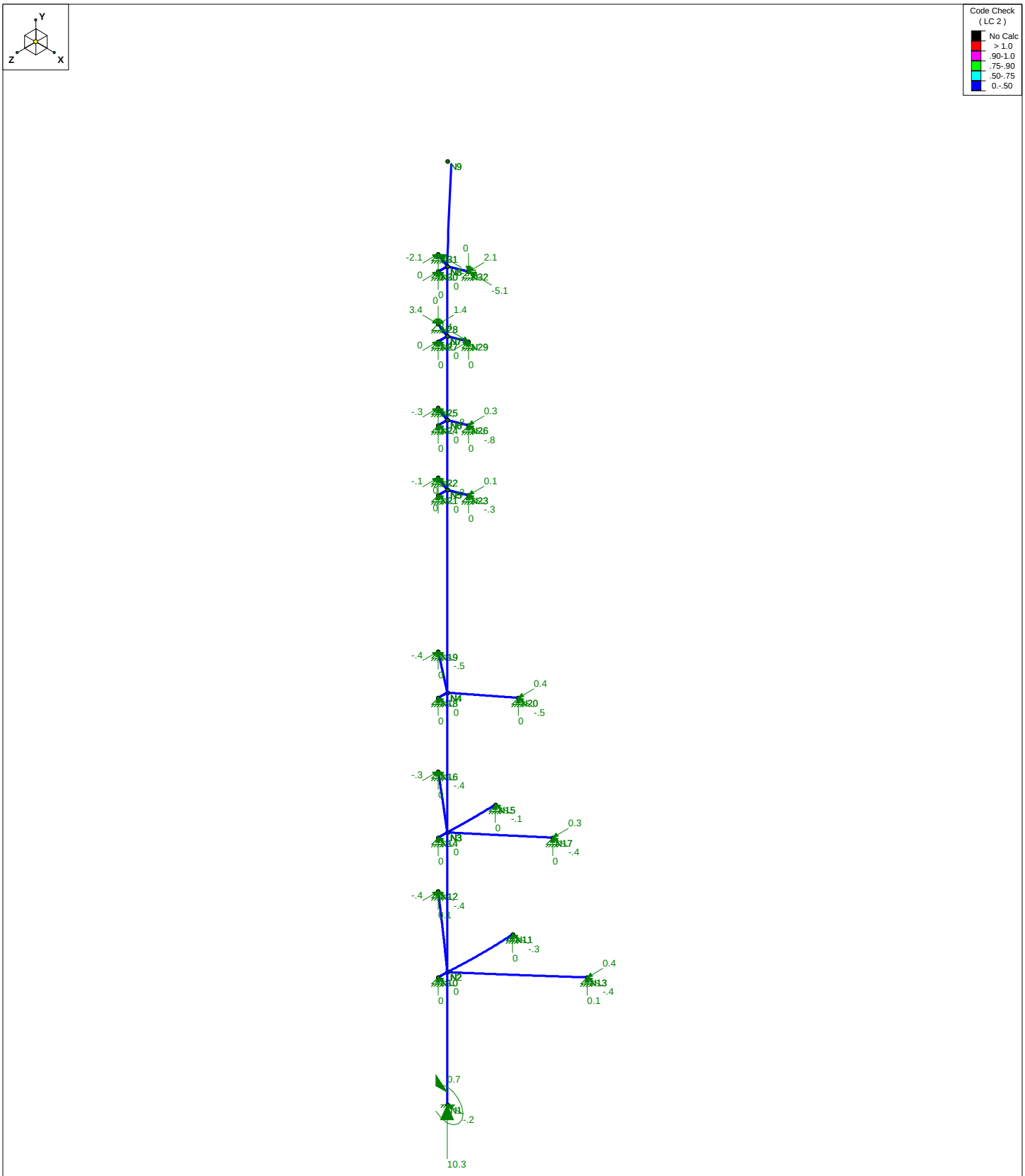
Member Code Checks Displayed
Results for LC 1, 1.2D + 1.6W (X-direction)
Reaction and Moment Units are k and k-ft

CENTEK Engineering, INC.		
tjl, cfc	Structure # 1217 - Antenna Mast	Dec 14, 2018 at 11:32 AM
17159.05 - CT03XC329	LC #1 Reactions and Deflected Shape	Antenna Mast.r3d



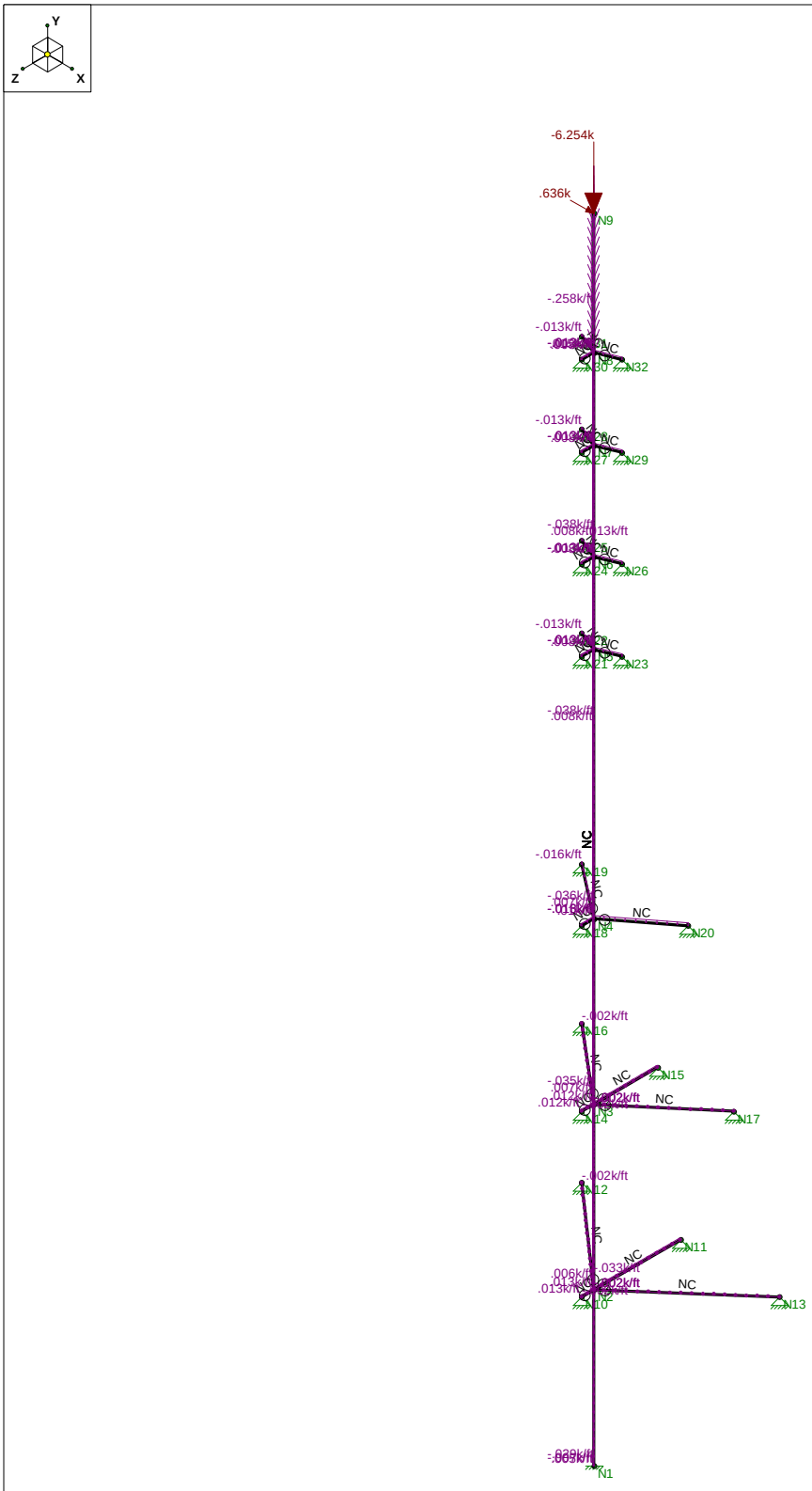
Member Code Checks Displayed
Loads: LC 2, 0.9D + 1.6W (X-direction)

CENTEK Engineering, INC.		
tjl, cfc	Structure # 1217 - Antenna Mast	Dec 14, 2018 at 11:31 AM
17159.05 - CT03XC329	LC #2 Loads	Antenna Mast.r3d



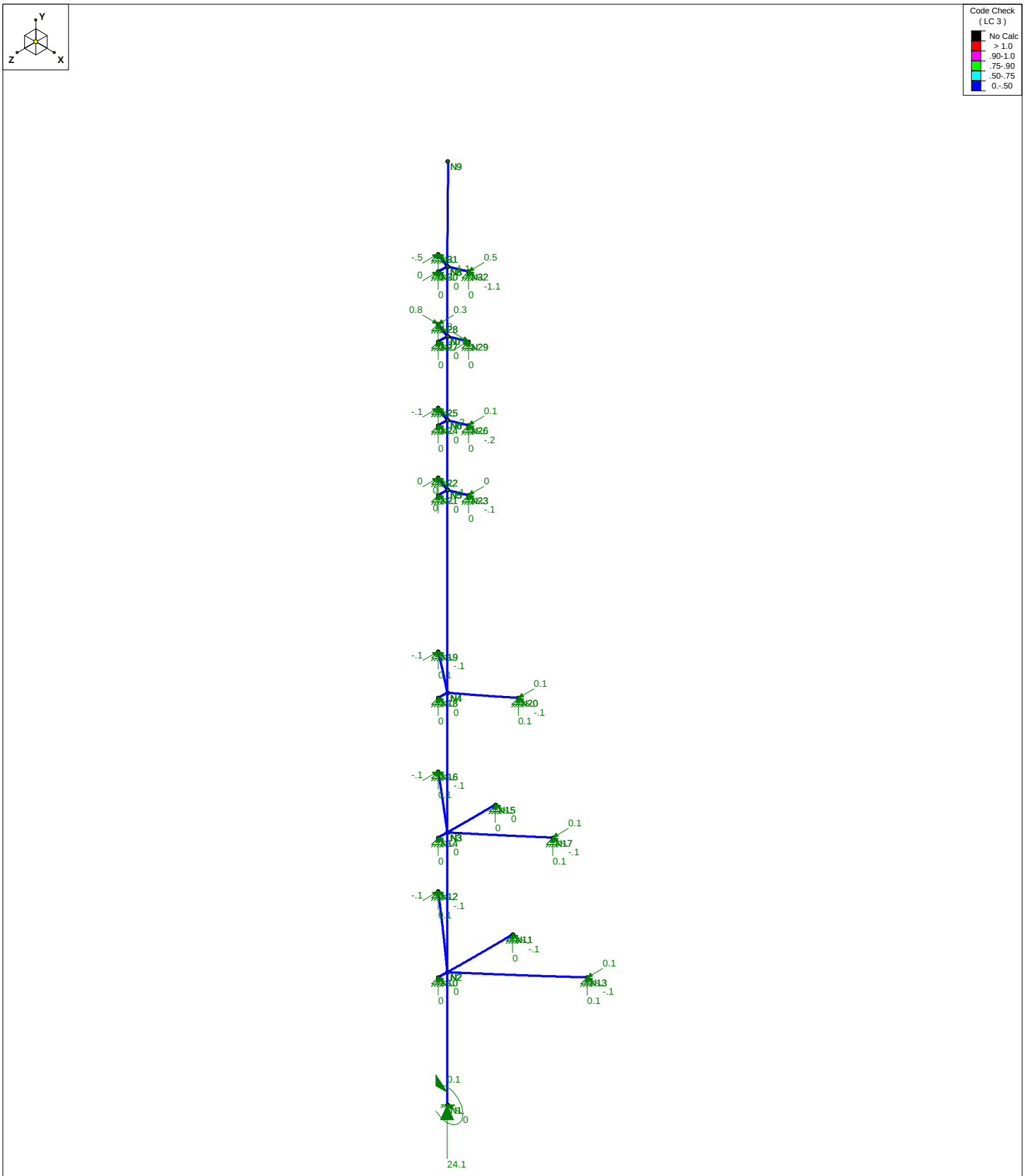
Member Code Checks Displayed
Results for LC 2, 0.9D + 1.6W (X-direction)
Reaction and Moment Units are k and k-ft

CENTEK Engineering, INC.		
tjl, cfc	Structure # 1217 - Antenna Mast	Dec 14, 2018 at 11:33 AM
17159.05 - CT03XC329	LC #2 Reactions and Deflected Shape	Antenna Mast.r3d



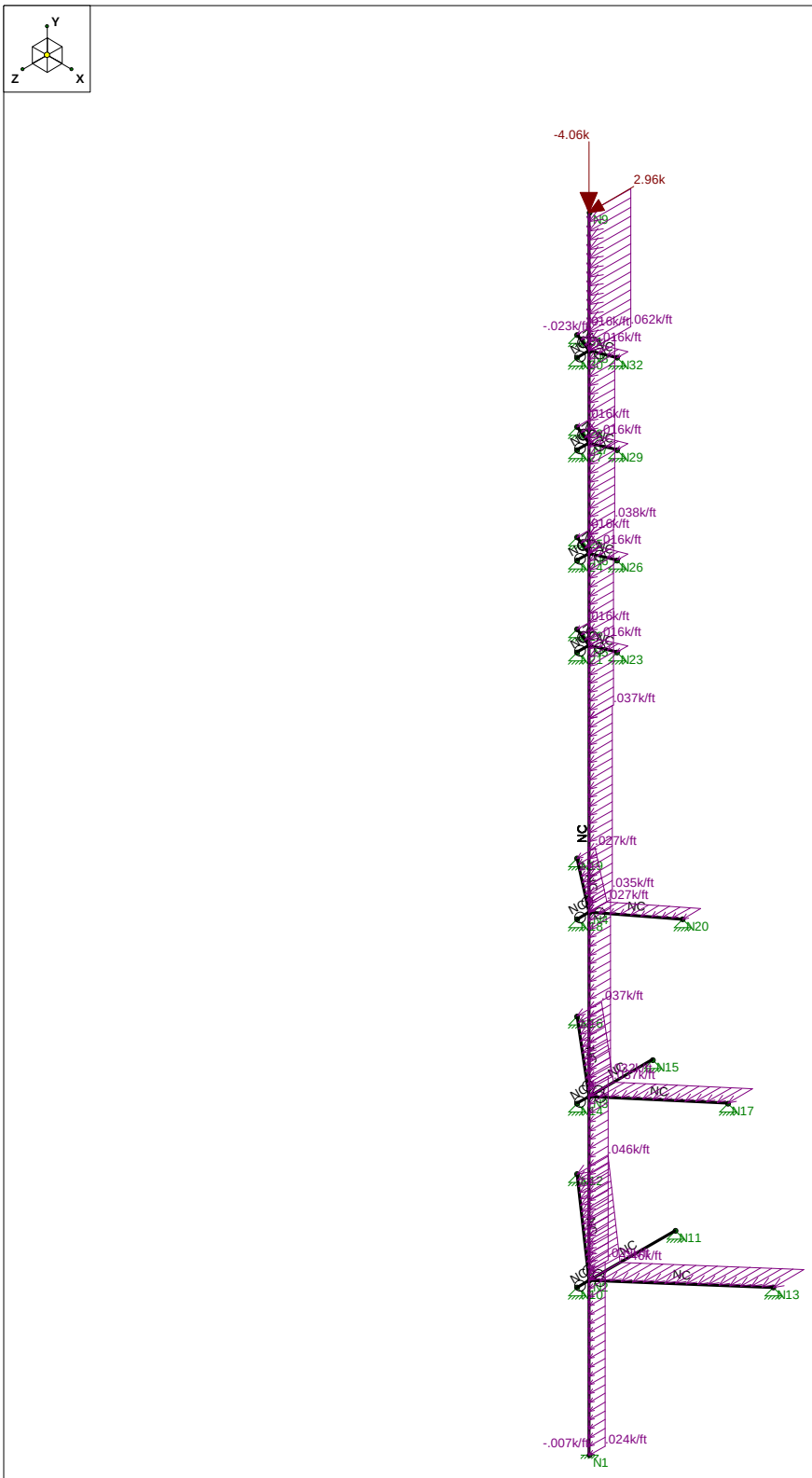
Member Code Checks Displayed
Loads: LC 3, 1.2D + 1.0Di + 1.0Wi (X-direction)

CENTEK Engineering, INC.		
tjl, cfc	Structure # 1217 - Antenna Mast	Dec 14, 2018 at 11:31 AM
17159.05 - CT03XC329	LC #3 Loads	Antenna Mast.r3d



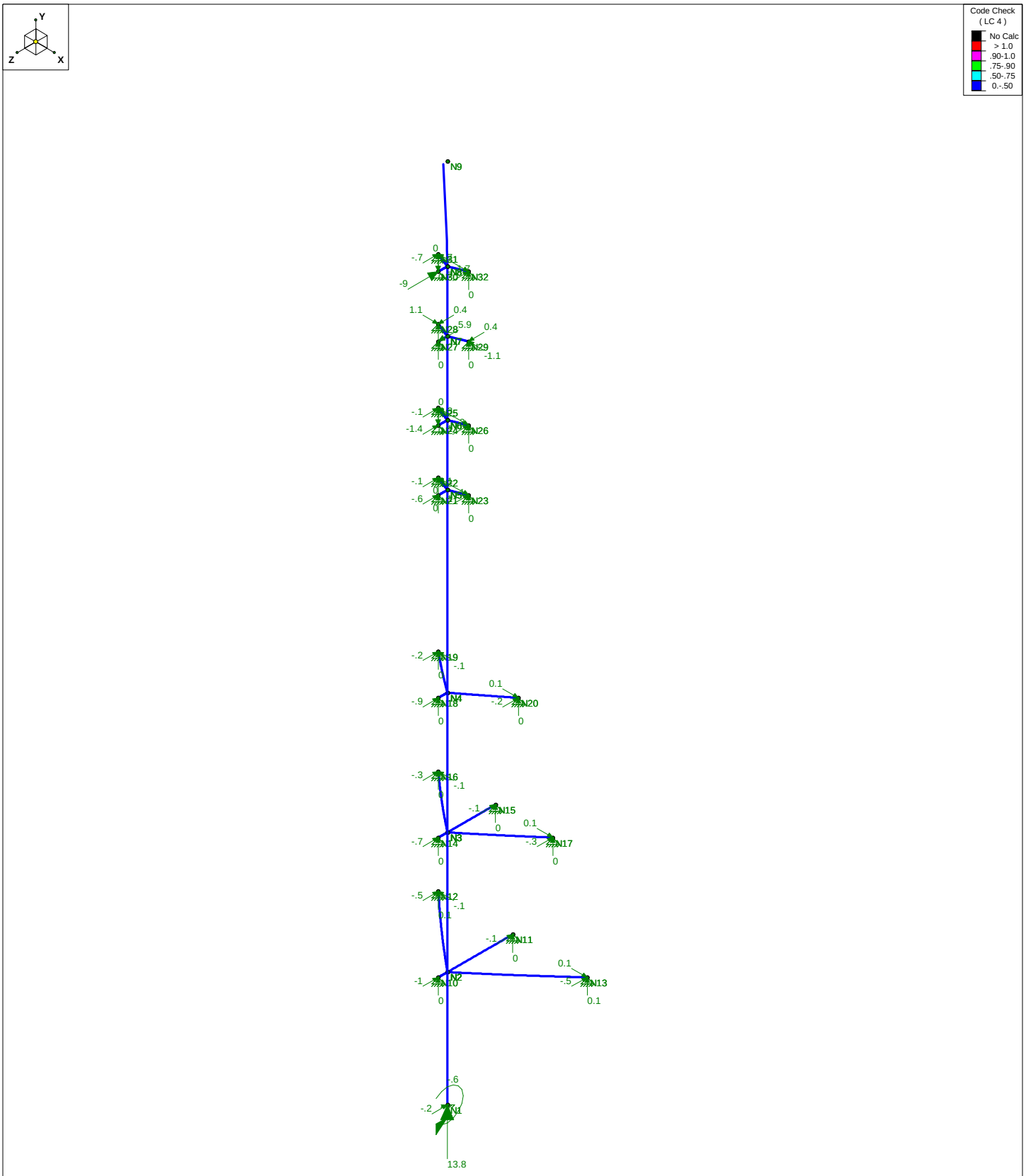
Member Code Checks Displayed
Results for LC 3, 1.2D + 1.0Di + 1.0Wi (X-direction)
Reaction and Moment Units are k and k-ft

CENTEK Engineering, INC.		
tjl, cfc	Structure # 1217 - Antenna Mast	Dec 14, 2018 at 11:33 AM
17159.05 - CT03XC329	LC #3 Reactions and Deflected Shape	Antenna Mast.r3d



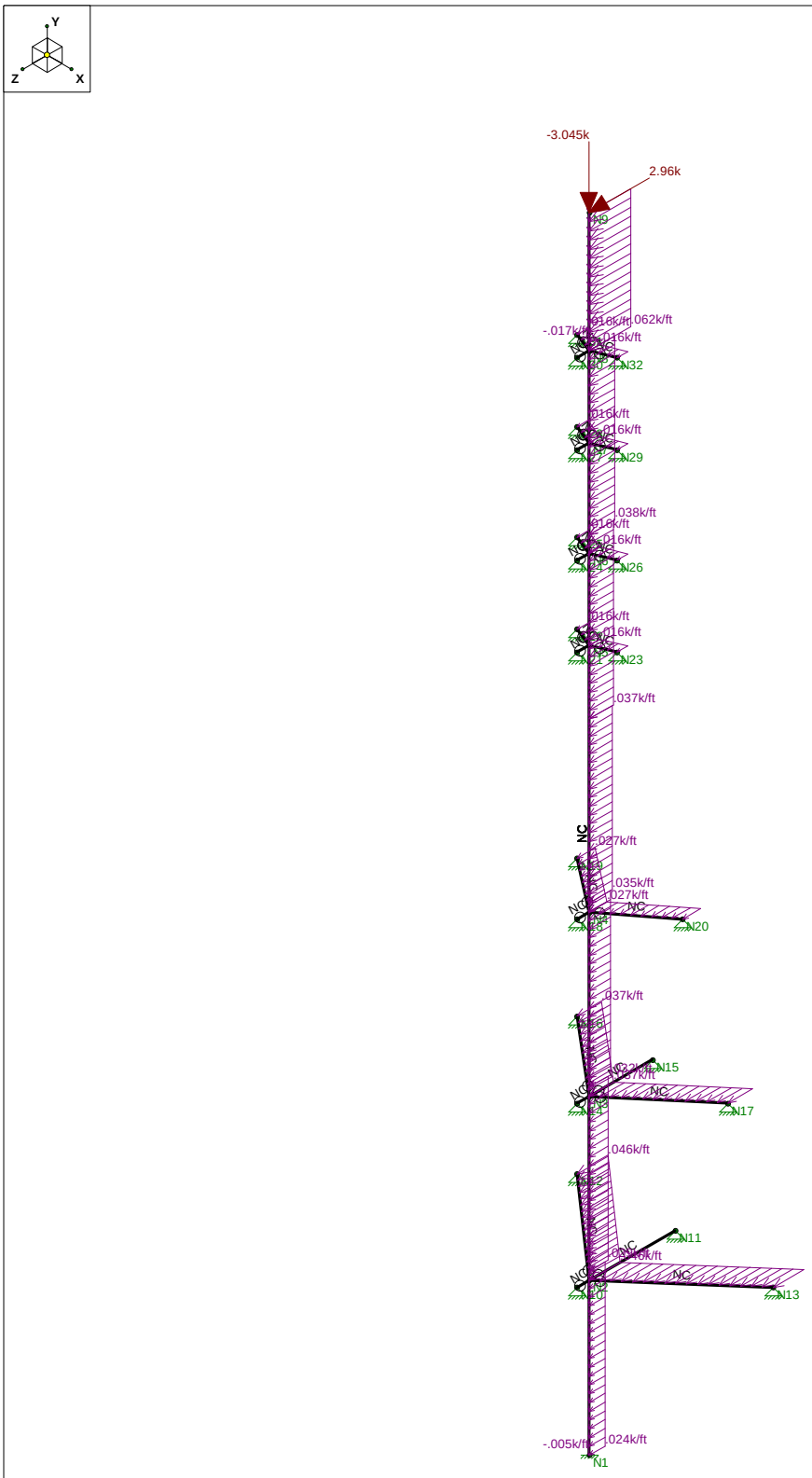
Member Code Checks Displayed
Loads: LC 4, 1.2D + 1.6W (Z-direction)

CENTEK Engineering, INC.		
tjl, cfc	Structure # 1217 - Antenna Mast	Dec 14, 2018 at 11:31 AM
17159.05 - CT03XC329	LC #4 Loads	Antenna Mast.r3d



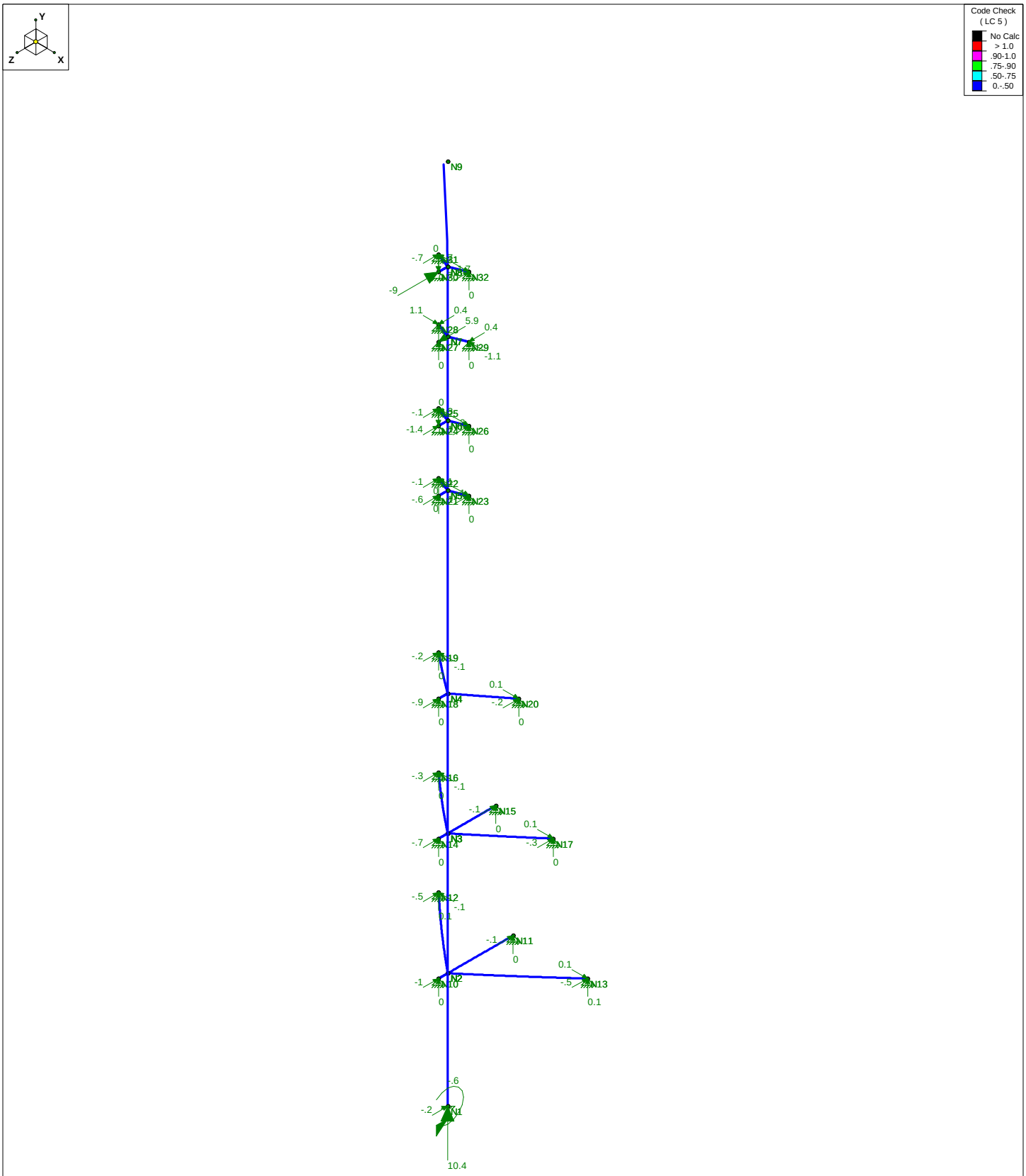
Member Code Checks Displayed
Results for LC 4, 1.2D + 1.6W (Z-direction)
Reaction and Moment Units are k and k-ft

CENTEK Engineering, INC.		
tjl, cfc	Structure # 1217 - Antenna Mast	Dec 14, 2018 at 11:34 AM
17159.05 - CT03XC329	LC #4 Reactions and Deflected Shape	Antenna Mast.r3d



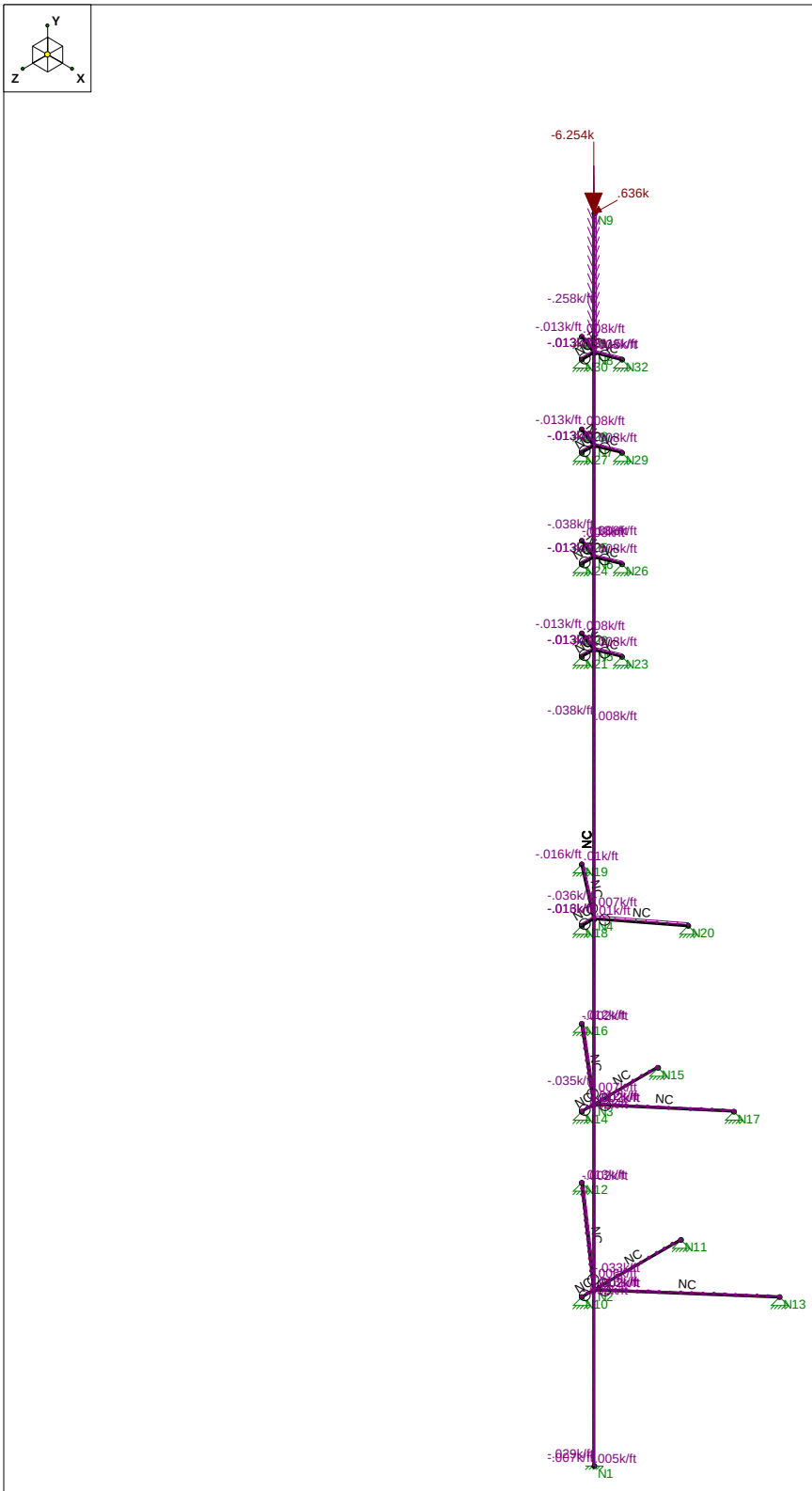
Member Code Checks Displayed
Loads: LC 5, 0.9D + 1.6W (Z-direction)

CENTEK Engineering, INC.		
tjl, cfc	Structure # 1217 - Antenna Mast	Dec 14, 2018 at 11:31 AM
17159.05 - CT03XC329	LC #5 Loads	Antenna Mast.r3d



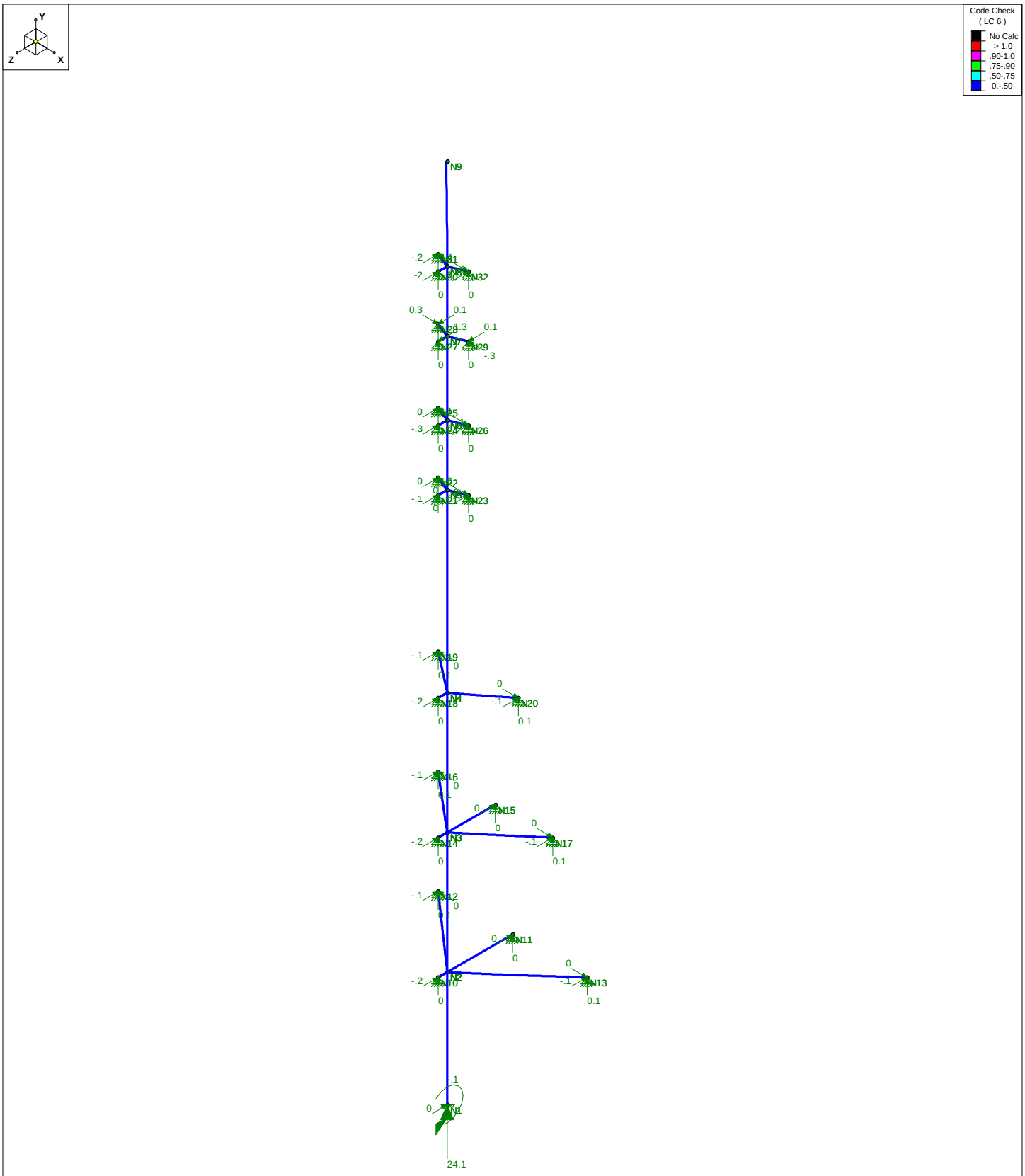
Member Code Checks Displayed
Results for LC 5, 0.9D + 1.6W (Z-direction)
Reaction and Moment Units are k and k-ft

CENTEK Engineering, INC.		
tjl, cfc	Structure # 1217 - Antenna Mast	Dec 14, 2018 at 11:34 AM
17159.05 - CT03XC329	LC #5 Reactions and Deflected Shape	Antenna Mast.r3d



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

CENTEK Engineering, INC.		
tjl, cfc	Structure # 1217 - Antenna Mast	Dec 14, 2018 at 11:31 AM
17159.05 - CT03XC329	LC #6 Loads	Antenna Mast.r3d



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

CENTEK Engineering, INC.		
tjl, cfc	Structure # 1217 - Antenna Mast	Dec 14, 2018 at 11:34 AM
17159.05 - CT03XC329	LC #6 Reactions and Deflected Shape	Antenna Mast.r3d

CENTEK engineering
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Subject:	Connection of Antenna Mast to Tower # 1217
Location:	Stamford, CT
Rev. 2: 12/14/18	Prepared by: T.J.L. Checked by: C.F.C. Job No. 17159.05

Antenna Mast Connection to Tower:

Pipe Collar:

Reactions:

Horz = $Horz := 10.4 \cdot kips$ (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 = $f_t := \frac{Horz}{N_b} = 2.6 \cdot kips$

Bolt Tenison % of Capacity = $\frac{f_t}{F_t} = 12.56 \cdot \%$

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

$Bolt\_Tension = "OK"$

Angle Brace

Reactions:

Force = $Fab := 9.0 \cdot kips$ (User Input)

Bolt Data:

Bolt Type = ASTMA325 (User Input)

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

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

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

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

Check Angle Brace Bolts:

Shear Force = $f_v := \frac{Fab}{N_b} = 9 \cdot kips$

Bolt Shear % of Capacity = $\frac{f_v}{F_v} = 72.58 \cdot \%$

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

$Bolt\_Shear = "OK"$

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Subject: Load Analysis of Antenna Mast Structure # 1217

Location: Stamford, CT

Rev. 2 12/14/18

Prepared by: T.J.L Checked by: C.F.C.
Job No. 17159.05

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 := 135	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 = $Kz := 2.01 \cdot \left(\frac{TME}{900}\right)^{\frac{2}{9.5}} = 1.348$ (NESC 2007 Table 250-2)

Exposure Factor = $Es := 0.346 \left[\frac{33}{(0.67 \cdot TME)}\right]^{\frac{1}{7}} = 0.3$ (NESC 2007 Table 250-3)

Response Term = $Bs := \frac{1}{\left(1 + 0.375 \cdot \frac{TME}{220}\right)} = 0.813$ (NESC 2007 Table 250-3)

Gust Response Factor = $Grf := \frac{\left[1 + \left(2.7 \cdot Es \cdot Bs^{\frac{1}{2}}\right)\right]}{kv^2} = 0.846$ (NESC 2007 Table 250-3)

Wind Pressure = $qz := 0.00256 \cdot Kz \cdot V^2 \cdot Grf \cdot I = 35.3$ psf (NESC 2007 Section 250.C.2)

Shape Factors

NUS Design Criteria Issued April 12, 2007

Shape Factor for Round Members =	$Cd_R := 1.3$	(User Input)
Shape Factor for Flat Members =	$Cd_F := 1.6$	(User Input)
Shape Factor for Coax Cables Attached to Outside of Pole =	$Cd_{coax} := 1.6$	(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 # 1217
Location:	Stamford, CT
Rev. 2 12/14/18	Prepared by: T.J.L Checked by: C.F.C. Job No. 17159.05

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 = $F_{ant1} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 1263$ lbs

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Subject: Load Analysis of Antenna Mast Structure # 1217

Location: Stamford, CT

Rev. 2 12/14/18

Prepared by: T.J.L Checked by: C.F.C.
Job No. 17159.05

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 # 1217
Location:	Stamford, CT
Rev. 2 12/14/18	Prepared by: T.J.L Checked by: C.F.C. Job No. 17159.05

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 # 1217
Location:	Stamford, CT
Rev. 2 12/14/18	Prepared by: T.J.L Checked by: C.F.C. Job No. 17159.05

Development of Wind & Ice Load on Platform

Platform Data:

Platform Model =	14' Low Profile Platform w/ Handrail		
Mount Shape =	Flat		
Mount Projected Surface Area =	$CdAa := 21$	sf	(User Input)
Mount Projected Surface Area w/ Ice =	$CdAa_{ice} := 24$	sf	(User Input)
Mount Weight =	$WT_{mnt} := 3200$	lbs	(User Input)
Mount Weight w/ Ice =	$WT_{mnt.ice} := 4450$	lbs	(User Input)

Gravity Loads (without ice)

Weight of All Mounts = $Wt_{mnt1} := WT_{mnt} = 3200$ lbs

Gravity Load (ice only)

Weight of Ice on All Mounts = $Wt_{ice.mnt1} := \left(WT_{mnt.ice} - WT_{mnt}\right) = 1250$ lbs

Wind Load (NESC Heavy)

Total Mount Wind Force w/ Ice = $Fi_{mnt1} := p \cdot CdAa_{ice} = 96$ lbs

Wind Load (NESC Extreme)

Total Mount Wind Force = $F_{mnt1} := qz \cdot CdAa \cdot m = 927$ lbs

Total Equipment Loads:

NESC Heavy Wind Vertical =

$$\left(Wt_{ant1} + Wt_{ice.ant1} + Wt_{ant2} + Wt_{ice.ant2} + Wt_{ant3} + Wt_{ice.ant3} + Wt_{mnt1} + Wt_{ice.mnt1}\right)\cdot 1.5 = 7209$$

NESC Heavy Wind Trasnsverse =

$$\left(Fi_{ant1} + Fi_{ant2} + Fi_{ant3} + Fi_{mnt1}\right)\cdot 2.5 = 586$$

NESC Extreme Wind Vertical =

$$\left(Wt_{ant1} + Wt_{ant2} + Wt_{ant3} + Wt_{mnt1}\right) = 3383$$

NESC Extreme Wind Trasnsverse =

$$\left(F_{ant1} + F_{ant2} + F_{ant3} + F_{mnt1}\right) = 2289$$

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Subject:	Coax Cable on Antenna Mast Tower # 1217
Location:	Stamford, CT
Rev. 2: 12/14/18	Prepared by: T.J.L Checked by: C.F.C. Job No. 17159.05

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 =	$TME := 135$	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 =	$Kz := 2.01 \cdot \left(\frac{0.67TME}{900}\right)^{\frac{2}{9.5}} = 1.239$		(NESC 2007 Table 250-2)
Exposure Factor =	$Es := 0.346\left[\frac{33}{(0.67 \cdot TME)}\right]^{\frac{1}{7}} = 0.3$		(NESC 2007 Table 250-3)
Response Term =	$Bs := \frac{1}{\left(1 + 0.375 \cdot \frac{TME}{220}\right)} = 0.813$		(NESC 2007 Table 250-3)
Gust Response Factor =	$Grf := \frac{\left[1 + \left(2.7 \cdot Es \cdot Bs^{\frac{1}{2}}\right)\right]}{kv^2} = 0.846$		(NESC 2007 Table 250-3)
Wind Pressure =	$qz := 0.00256 \cdot Kz \cdot V^2 \cdot Grf \cdot I = 32.5$	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 =	$Cd_{coax} := 1.6$	(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 # 1217
Location:	Stamford, CT
Rev. 2: 12/14/18	Prepared by: T.J.L Checked by: C.F.C. Job No. 17159.05

Below Top of Tower

Distance Between Coax Cable Attach Points =

$Coax_{Span} := \begin{pmatrix} 5 \\ 11 \\ 11 \\ 19.5 \\ 24.5 \\ 20 \\ 29 \end{pmatrix} \cdot ft$ *(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 =

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

$Heavy\_WInd_{Vert} = \begin{pmatrix} 47 \\ 103 \\ 103 \\ 183 \\ 229 \\ 187 \\ 271 \end{pmatrix} lb$ $Heavy\_Wind_{Trans} = \begin{pmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \end{pmatrix}$

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 =

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

$Extreme\_Wind_{Vert} = \begin{pmatrix} 31 \\ 69 \\ 69 \\ 122 \\ 153 \\ 125 \\ 181 \end{pmatrix} lb$ $Extreme\_Wind_{Trans} = \begin{pmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \end{pmatrix}$

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

Subject:	Coax Cable on Antenna Mast Tower # 1217
Location:	Stamford, CT
Rev. 2: 12/14/18	Prepared by: T.J.L Checked by: C.F.C. Job No. 17159.05

Above Top of Tower

Distance Between Coax Cable Attach Points = $Coax_{Span} := 15 \cdot ft$ *(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 = $N_{coax} := 18$ *(User Input)*

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

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

Wind Area without Ice = $A := \left(NP_{coax} \cdot D_{coax}\right) = 3.96 \cdot in$

Wind Area with Ice = $A_{ice} := \left(NP_{coax} \cdot D_{coax} + 2 \cdot Ir\right) = 4.96 \cdot in$

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 = $W_{ice} := Ai_{coax} \cdot Id \cdot NX_{coax} = 18.179 \cdot plf$

Heavy Wind Vertical Load =

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

Heavy Wind Transverse Load =

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

$Heavy\_WInd_{Vert} = 830lb$ $Heavy\_Wind_{Trans} = 99lb$

Extreme Wind Vertical Load =

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

Extreme Wind Transverse Load =

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

$Extreme\_Wind_{Vert} = 281lb$ $Extreme\_Wind_{Trans} = 257lb$

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Location:	Stamford, CT
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Coax Cable on Tower

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 := 0.50in		(User Input)
Radial Ice Density =	Id := 56.0·pcf		(User Input)

Factors for Extreme Wind Calculation

Elevation of Top of Pole Above Grade =	TME := 135	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 =	$Kz := 2.01\cdot\left(\frac{0.67TME}{900}\right)^{\frac{2}{9.5}} = 1.239$		(NESC 2007 Table 250-2)
Exposure Factor =	$Es := 0.346\left[\frac{33}{(0.67\cdot TME)}\right]^{\frac{1}{7}} = 0.3$		(NESC 2007 Table 250-3)
Response Term =	$Bs := \frac{1}{\left(1+0.375\cdot\frac{TME}{220}\right)} = 0.813$		(NESC 2007 Table 250-3)
Gust Response Factor =	$Grf := \frac{\left[1+\left(2.7\cdot Es\cdot Bs^{\frac{1}{2}}\right)\right]}{kv^2} = 0.846$		(NESC 2007 Table 250-3)
Wind Pressure =	$qz := 0.00256\cdot Kz\cdot V^2\cdot Grf\cdot I = 32.5$	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 =	$Cd_{coax} := 1.6$	(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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Distance Between Coax Cable Attach Points =

$$Coax_{Span} := \begin{pmatrix} 5 \\ 11 \\ 11 \\ 19.5 \\ 24.5 \\ 20 \\ 29 \end{pmatrix} \cdot ft$$ *(User Input)*

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

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

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

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

Number of External Coax Cables = $NX_{coax} := 12$ *(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 = $W_{ice} := Ai_{coax} \cdot Id \cdot NX_{coax} = 18.179 \cdot plf$

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 =

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

$$Heavy\_WInd_{Vert} = \begin{pmatrix} 230 \\ 506 \\ 506 \\ 897 \\ 1127 \\ 920 \\ 1334 \end{pmatrix} lb \qquad Heavy\_Wind_{Trans} = \begin{pmatrix} 86 \\ 189 \\ 189 \\ 335 \\ 421 \\ 343 \\ 498 \end{pmatrix} lb$$

Extreme Wind Vertical Load =

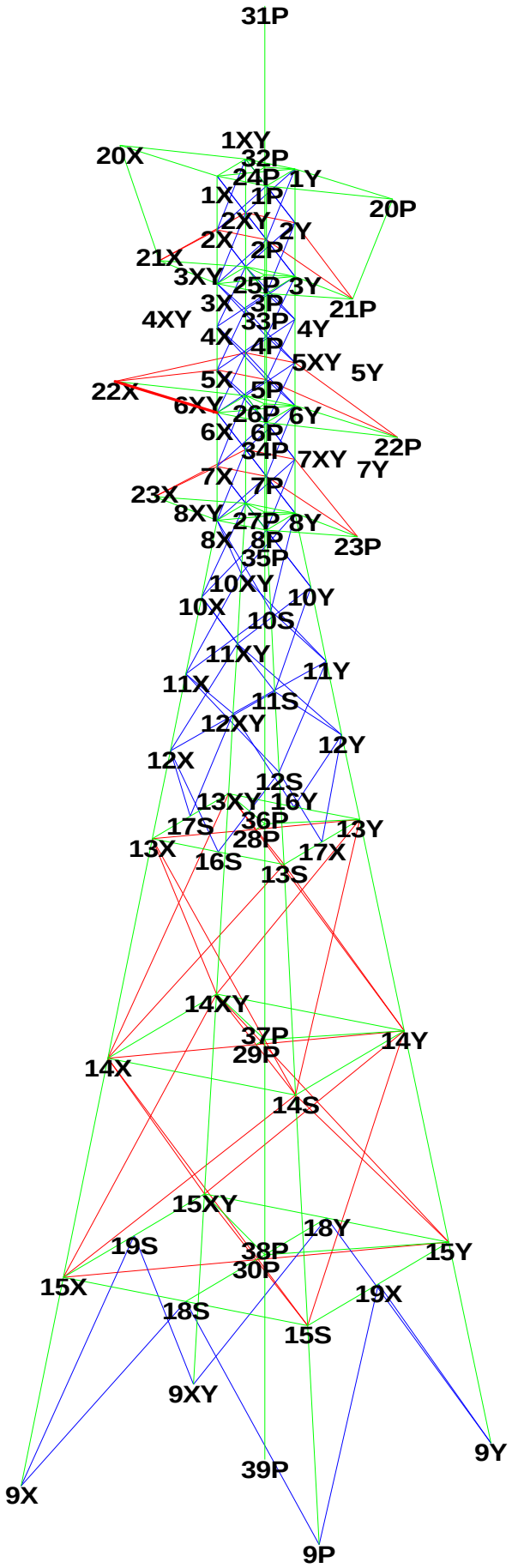
$$\overrightarrow{Extreme\_Wind_{Vert} := \left(N_{coax} \cdot W_{coax} \cdot Coax_{Span} \cdot OF_{EWV}\right)}$$

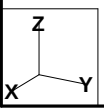
Extreme Wind Transverse Load =

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

$$Extreme\_WInd_{Vert} = \begin{pmatrix} 62 \\ 137 \\ 137 \\ 243 \\ 306 \\ 250 \\ 362 \end{pmatrix} lb \qquad Extreme\_Wind_{Trans} = \begin{pmatrix} 257 \\ 566 \\ 566 \\ 1003 \\ 1260 \\ 1028 \\ 1491 \end{pmatrix} lb$$

Centek Engineering Inc, Project: "CL&P # 1217"
Tower Version 12.50, 2:21:07 PM Thursday, August 16, 2018
Undeformed geometry displayed





Project Name : 17159.05 - Stamford, CT
Project Notes: Structure #1217 / Sprint - CT03XC329
Project File : J:\Jobs\1715900.WI\05_CT03XC329 Stamford\04_Structural\Calcs\Rev (2)\PLS Tower\CL&P # 1217.tow
Date run   : 11:16:38 AM Friday, December 14, 2018
by   : Tower Version 12.50
Licensed to : Centek Engineering Inc

Successfully performed nonlinear analysis

Member "g5P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
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Member "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 "g70X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g70XY" will not be checked for block shear 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. ??
KL/R value of 226.75 exceeds maximum of 200.00 for member "g95P" ??
Member "g98P" will not be checked for block 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 115 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\05_ct03xc329 stamford\04_structural\calcs\rev (2)\pls tower\cl&p # 1217.lca

*** Analysis Results:

Maximum element usage is 90.14% for Angle "g51P" in load case "NESC Heavy Broken Wire"
Maximum insulator usage is 19.98% for Clamp "CLAMP4" in load case "NESC Heavy Broken Wire"

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	9P	-7.40	-8.59	-51.20	11.34	0.01	0.05	0.05	-0.10	0.00
NESC Heavy	39P	-0.02	-0.39	-20.57	0.39	1.15	-0.25	1.18	0.20	0.00
NESC Heavy	9X	3.15	-4.86	22.83	5.79	-0.14	0.13	0.19	0.90	0.00
NESC Heavy	9XY	-3.25	-5.50	22.22	6.39	0.07	-0.14	0.16	-0.63	0.00
NESC Heavy	9Y	7.43	-9.53	-52.76	12.08	0.12	-0.06	0.13	0.04	0.00
NESC Extreme	9P	-14.49	-18.55	-102.06	23.54	-0.41	0.35	0.53	1.14	0.00
NESC Extreme	39P	-0.01	-0.85	-10.54	0.85	2.50	-0.65	2.58	0.44	0.00
NESC Extreme	9X	8.12	-12.35	60.11	14.78	-0.28	0.28	0.39	1.53	0.00
NESC Extreme	9XY	-13.03	-18.81	89.65	22.88	0.21	-0.22	0.30	-1.02	0.00
NESC Extreme	9Y	12.16	-18.09	-83.42	21.80	-0.01	0.15	0.15	-0.78	0.00
NESC Heavy Broken Wire	9P	-9.38	-14.20	-81.06	17.02	-0.10	0.49	0.50	-0.32	0.00
NESC Heavy Broken Wire	39P	0.00	-0.34	-18.39	0.34	0.85	-0.16	0.86	-1.03	0.00
NESC Heavy Broken Wire	9X	-3.60	-1.02	-13.77	3.75	0.03	0.05	0.06	0.67	0.00
NESC Heavy Broken Wire	9XY	-9.42	-8.75	54.72	12.86	-0.19	-0.20	0.27	-0.74	0.00
NESC Heavy Broken Wire	9Y	5.00	-3.46	-19.72	6.09	-0.04	0.20	0.20	-0.04	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	9P	15S	g14X	52.421	1.313	1.328	0.131	1.322	-7.40	-8.59	-51.20
NESC Heavy	9X	15X	g14P	-23.502	1.608	1.622	0.098	1.619	3.15	-4.86	22.83
NESC Heavy	9XY	15XY	g14Y	-23.004	2.322	2.347	0.097	2.345	-3.25	-5.50	22.22
NESC Heavy	9Y	15Y	g14XY	54.085	2.014	2.032	0.066	2.031	7.43	-9.53	-52.76
NESC Extreme	9P	15S	g14X	104.658	4.011	4.050	-0.005	4.050	-14.49	-18.55	-102.06
NESC Extreme	9X	15X	g14P	-61.786	3.809	3.838	0.423	3.814	8.12	-12.35	60.11
NESC Extreme	9XY	15XY	g14Y	-92.327	6.014	6.079	0.291	6.072	-13.03	-18.81	89.65
NESC Extreme	9Y	15Y	g14XY	85.996	6.179	6.246	-0.314	6.239	12.16	-18.09	-83.42
NESC Heavy Broken Wire	9P	15S	g14X	82.752	3.426	3.427	-2.132	2.683	-9.38	-14.20	-81.06

NESC Heavy Broken Wire	9X	15X	g14P	13.862	3.399	3.405	1.648	2.979	-3.60	-1.02	-13.77		
NESC Heavy Broken Wire	9XY	15XY	g14Y	-56.177	1.884	1.920	1.652	0.978	-9.42	-8.75	54.72		
NESC Heavy Broken Wire	9Y	15Y	g14XY	20.515	2.265	2.299	-2.202	0.662	5.00	-3.46	-19.72		

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	135.000	59.000	71	232	0.00	13.24	461.960	0.00	13.24	901.460
2	59.000	0.000	26	67	13.24	30.00	1275.540	13.24	30.00	1275.540

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

Group Summary (Compression Portion):

Group Label	Group Desc.	Angle Type	Angle Size	Steel Strength (ksi)	Max Usage %	Cont-rol	Max Use In Comp. %	Comp. Control Member	Comp. Force (kips)	Comp. Control Load Case	L/R Capacity (kips)	Comp. Connect. Shear Capacity (kips)	Comp. Connect. Bearing Capacity (kips)	RLX	RLY	RLZ	L/R KL/R	Length (ft)	Curve Comp.	No. Of Member	No. Bolts
LEG1	L4X4X1/4	SAE	4X4X0.25	33.0	27.07	Comp	27.07	g2XY	-9.974	NESC Ext	53.509	36.840	84.375	1.000	1.000	1.000	75.47	75.47	5.000	1	6
LEG2	L5X5X3/8	SAE	5X5X0.375	33.0	46.17	Comp	46.17	g5X	-39.685	NESC Hea	111.058	85.960	295.312	1.000	1.000	1.000	48.48	48.48	4.000	1	14
LEG3	L6X6X1/2	SAE	6X6X0.5	33.0	40.35	Comp	40.35	g7X	-64.421	NESC Hea	175.609	159.640	731.249	1.000	1.000	1.000	50.85	50.85	5.000	1	26
LEG4	L8X8X1/2	SAE	8X8X0.5	33.0	45.45	Comp	45.45	g11X	-83.724	NESC Ext	227.792	184.200	843.749	1.000	1.000	1.000	61.58	61.58	8.160	1	30
LEG5	L8X8X5/8	SAE	8X8X0.625	33.0	49.44	Comp	49.44	g13X	-97.142	NESC Ext	262.274	196.480	1124.998	0.500	0.500	0.500	77.47	77.47	20.400	1	32
XBR1	L3x3x1/4	SAE	3X3X0.25	33.0	53.87	Comp	53.87	g17P	-9.922	NESC Hea	37.913	18.420	42.187	0.750	0.500	0.500	71.67	83.75	7.071	2	3
XBR2	L3.5X3.5X1/4	SAE	3.5X3.5X0.25	33.0	74.08	Comp	74.08	g22XY	-18.193	NESC Hea	47.548	24.560	56.250	0.750	0.500	0.500	55.36	71.52	6.403	2	4
XBR3	L5X5X5/16	SAE	5X5X0.3125	33.0	54.53	Comp	54.53	g27P	-20.087	NESC Hea	88.907	36.840	105.469	0.750	0.500	0.500	42.68	62.01	7.071	2	6
XBR4	L4X4X1/4	SAE	4X4X0.25	33.0	89.68	Comp	89.68	g29P	-16.519	NESC Hea	49.239	18.420	42.187	0.783	0.567	0.567	79.33	89.50	9.269	2	3
XBR5	L4X3X5/16	SAU	4X3X0.3125	33.0	83.01	Comp	83.01	g38Y	-8.449	NESC Ext	10.178	30.700	87.890	0.586	0.793	0.586	280.62	242.43	25.819	5	5
XBR6	L3.5X2.5X1/4	SAU	3.5X2.5X0.25	33.0	72.87	Comp	72.87	g39Y	-2.987	NESC Hea	4.099	18.420	42.187	0.563	0.781	0.563	378.61	317.10	29.692	5	3
DIAG1	L4X3X1/4	SAU	4X3X0.25	33.0	42.17	Tens	41.56	g36P	-7.655	NESC Hea	37.785	18.420	42.187	1.000	0.500	0.500	91.55	105.77	9.765	3	3
DIAG2	L5X3.5X5/16	SAU	5X3.5X0.3125	33.0	89.93	Comp	89.93	g41XY	-11.044	NESC Ext	24.206	12.280	35.156	1.000	0.500	0.500	190.79	173.98	24.357	5	2

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 HORZ1       L4X4X1/4   SAE         4X4X0.25     33.0 56.79  Comp 56.79    g47Y -10.460NESC Ext   19.194   18.420   42.187 1.000 1.000 1.000 185.68
170.09 12.301     5     3 A potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize
moments): g48P g48X g48XY g48Y  ??
  ARM1    L5X3.5X5/16   SAU     5X3.5X0.3125     33.0 56.20  Comp 56.20    g49P -17.253NESC Hea   57.564   30.700   87.890 1.000 0.500 0.500  90.27
105.13 11.524     3     5
  ARM2       L4X4X1/4   SAE         4X4X0.25     33.0 90.14  Comp 90.14    g51P -16.604NESC Hea   38.378   18.420   42.187 1.000 1.000 1.000 115.76
117.88  7.669     3     3
    M1  LL3.5X3.5X1/4   DAE     3.5X3.5X0.25     33.0  3.96  Comp  3.96    g57X  -0.972NESC Hea   66.338   24.560   56.250 1.000 1.000 1.000 118.57
118.57 10.770     1     2
    M2      L3X3X3/16   SAE       3X3X0.1875     33.0 31.65  Tens 30.42   g68XY  -3.735NESC Hea   24.499   12.280   21.094 2.000 1.000 1.000  90.37
105.18  3.536     3     2
    M3       L3X3X1/4   SAE         3X3X0.25     33.0 16.17  Tens 13.81    g61X  -2.543NESC Ext   30.742   18.420   42.187 1.000 1.000 1.000 101.35
110.68  5.000     3     3
    M4     BAR 2X3/16   Bar           2x3/16     33.0 57.95  Tens  0.00    g63Y   0.000            4.649   12.280   21.094 1.000 1.000 1.000 151.94
151.94 12.661     4     2
    M5 1.75x1.75x3/16   SAE 1.75X1.75X0.1875     33.0 75.34  Comp 75.34   g73XY  -0.374NESC Ext    0.496    6.140   10.547 2.000 1.000 1.000 597.93
597.93 13.379     4     1
 Pwmnt  12" Std. Pipe Pwmnt    Pipe 12" Std.     50.0  3.30  Comp  3.30    g82P -19.825NESC Hea  599.894    0.000    0.000 1.000 1.000 1.000  51.94
51.94 19.000     1     0
 PMBR1      L2x2x3/16   SAE       2X2X0.1875     36.0 41.69  Tens 40.82    g83X  -4.162NESC Ext   17.361   16.800   10.195 1.000 1.000 1.000  82.01
101.00  2.693     3     1 A potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize
moments): g83X g87P g88P  ??
 PMBR2       L3x3x3/16   SAE       3X3X0.1875     36.0  7.24  Tens  5.81    g91X  -0.592NESC Ext   10.990   16.800   10.195 1.000 1.000 1.000 168.48
168.48  8.368     4     1
 PMBR3       L4x4x1/4   SAE         4X4X0.25     36.0  4.57  Tens  4.28    g93X  -0.582NESC Ext   15.943   16.800   13.594 1.000 1.000 1.000 186.62
186.62 12.364     4     1
 PMBR4       L5x5x3/8   SAE        5X5X0.375     36.0  5.12  Tens  4.60    g94X  -0.772NESC Ext   26.243   16.800   20.391 1.000 1.000 1.000 198.43
198.43 16.370     4     1
 HORZ2     L3X2.5X1/4   SAU       3X2.5X0.25     33.0  3.43  Tens  1.51    g98P  -0.093NESC Hea   35.833    6.140   14.062 1.000 1.000 1.000  34.09
77.05  1.500     3     1 A potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize
moments): g98P  ??
 HORZ3       L4X3X1/4   SAU         4X3X0.25     33.0  1.78  Tens  1.64    g95P  -0.101NESC Ext    9.408    6.140   14.062 1.000 1.000 1.000 226.75
226.75 12.301     4     1
    M6 1.75x1.75x3/16   SAE 1.75X1.75X0.1875     33.0  0.00        0.00           0.000            0.000    0.000    0.000 0.000 0.000 0.000   0.00
0.00  0.000     0     0
    M7     BAR 2X3/16   Bar           2x3/16     33.0 39.92  Tens  0.00    g66Y   0.000           11.091    6.140   10.547 1.000 1.000 1.000  60.00
60.00  5.000     1     1
    M8  BAR 1.75X3/16   Bar       1.75x3/16     33.0 58.79  Tens 27.90    g67Y  -1.713NESC Hea    7.015    6.140   10.547 1.000 1.000 1.000 111.11
111.11  5.000     1     1
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Group Summary (Tension Portion):

Group Label	Group Desc.	Angle Type	Angle Size	Steel Strength (ksi)	Max Usage Cont-rol %	Max Tension Use In Tens. %	Tension Control Member	Tension Force (kips)	Tension Control Load Case	Net Section Capacity (kips)	Tension Connect. Shear Capacity (kips)	Tension Connect. Bearing Capacity (kips)	Tension Connect. Rupture Capacity (kips)	Length Tens. Member (ft)	No. Of Bolts	No. Of Holes	Hole Diameter (in)
LEG1	L4X4X1/4	SAE	4X4X0.25	33.0	27.07	Comp 22.77	g2Y	8.388	NESC Ext	52.676	36.840	84.375	93.750	5.000	6	2.000	0.6875
LEG2	L5X5X3/8	SAE	5X5X0.375	33.0	46.17	Comp 36.96	g5Y	31.449	NESC Hea	85.099	85.960	295.312	328.124	4.000	14	4.000	0.6875
LEG3	L6X6X1/2	SAE	6X6X0.5	33.0	40.35	Comp 37.02	g7Y	55.092	NESC Ext	148.799	159.640	731.249	812.499	5.000	26	3.610	0.6875

LEG4	L8X8X1/2	SAE	8X8X0.5	33.0	45.45	Comp	39.63	g11Y	73.006	NESC Ext	213.211	184.200	843.749	937.499	8.160	30	3.750
0.6875																	
LEG5	L8X8X5/8	SAE	8X8X0.625	33.0	49.44	Comp	40.13	g14Y	83.783	NESC Ext	260.411	208.760	1195.311	1328.123	19.380	34	4.000
0.6875																	
XBR1	L3x3x1/4	SAE	3X3X0.25	33.0	53.87	Comp	51.68	g18X	9.520	NESC Hea	37.663	18.420	42.187	26.977	7.071	3	1.000
0.6875																	
XBR2	L3.5X3.5X1/4	SAE	3.5X3.5X0.25	33.0	74.08	Comp	73.17	g20X	17.971	NESC Hea	42.893	24.560	56.250	43.750	6.403	4	1.430
0.6875																	
XBR3	L5X5X5/16	SAE	5X5X0.3125	33.0	54.53	Comp	53.01	g28X	19.527	NESC Hea	77.612	36.840	105.469	82.031	7.071	6	1.940
0.6875																	
XBR4	L4X4X1/4	SAE	4X4X0.25	33.0	89.68	Comp	72.97	g29Y	13.441	NESC Hea	48.991	18.420	42.187	84.539	9.269	3	1.690
0.6875																	
XBR5	L4X3X5/16	SAU	4X3X0.3125	33.0	83.01	Comp	39.49	g37X	12.124	NESC Hea	51.289	30.700	87.890	87.890	25.819	5	1.690
0.6875																	
XBR6	L3.5X2.5X1/4	SAU	3.5X2.5X0.25	33.0	72.87	Comp	56.09	g39XY	10.331	NESC Ext	37.663	18.420	42.187	32.812	29.692	3	1.000
0.6875																	
DIAG1	L4X3X1/4	SAU	4X3X0.25	33.0	42.17	Tens	42.17	g36Y	7.768	NESC Hea	37.663	18.420	42.187	32.812	9.765	3	1.000
0.6875																	
DIAG2	L5X3.5X5/16	SAU	5X3.5X0.3125	33.0	89.93	Comp	82.72	g41Y	10.158	NESC Ext	55.729	12.280	35.156	27.344	24.357	2	1.000
0.6875																	
HORZ1	**L4X4X1/4**	**SAE**	**4X4X0.25**	**33.0**	**56.79**	**Comp**	**24.77**	**g44Y**	**6.084**	**NESC Ext**	**48.225**	**24.560**	**56.250**	**43.750**	**6.619**	**4**	**1.840**
0.6875 A potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize moments): g48P g48X g48XY g48Y ??																	
ARM1	L5X3.5X5/16	SAU	5X3.5X0.3125	33.0	56.20	Comp	54.34	g49Y	16.681	NESC Hea	64.036	30.700	87.890	68.359	11.524	5	1.880
0.6875																	
ARM2	L4X4X1/4	SAE	4X4X0.25	33.0	90.14	Comp	71.95	g51Y	13.253	NESC Hea	50.982	18.420	42.187	60.662	7.669	3	1.300
0.6875																	
M1	LL3.5X3.5X1/4	DAE	3.5X3.5X0.25	33.0	3.96	Comp	0.00	g57X	0.000		90.176	24.560	56.250	43.750	10.770	2	2.000
0.6875																	
M2	L3X3X3/16	SAE	3X3X0.1875	33.0	31.65	Tens	31.65	g68X	3.887	NESC Hea	28.544	12.280	21.094	19.301	3.536	2	1.000
0.6875																	
M3	L3X3X1/4	SAE	3X3X0.25	33.0	16.17	Tens	16.17	g61P	2.979	NESC Ext	37.663	18.420	42.187	32.812	5.000	3	1.000
0.6875																	
M4	BAR 2X3/16	Bar	2x3/16	33.0	57.95	Tens	57.95	g63XY	4.706	NESC Hea	8.121	12.280	21.094	16.406	12.661	2	1.000
0.6875																	
M5	1.75x1.75x3/16	SAE	1.75X1.75X0.1875	33.0	75.34	Comp	13.11	g72P	0.805	NESC Ext	14.585	6.140	10.547	6.873	9.361	1	1.000
0.6875																	
Pwmnt	12" Std. Pipe Pwmnt		Pipe 12" Std.	50.0	3.30	Comp	0.00	g82P	0.000		679.999	0.000	0.000	0.000	19.000	0	0.000
0																	
PMBR1	**L2x2x3/16**	**SAE**	**2X2X0.1875**	**36.0**	**41.69**	**Tens**	**41.69**	**g83P**	**4.251**	**NESC Ext**	**18.827**	**16.800**	**10.195**	**10.343**	**2.693**	**1**	**1.000**
0.6875 A potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize moments): g83X g87P g88P ??																	
PMBR2	L3x3x3/16	SAE	3X3X0.1875	36.0	7.24	Tens	7.24	g91P	0.738	NESC Ext	31.139	16.800	10.195	11.328	8.368	1	1.000
0.6875																	
PMBR3	L4x4x1/4	SAE	4X4X0.25	36.0	4.57	Tens	4.57	g93P	0.621	NESC Hea	57.287	16.800	13.594	15.104	12.364	1	1.000
0.6875																	
PMBR4	L5x5x3/8	SAE	5X5X0.375	36.0	5.12	Tens	5.12	g94P	0.860	NESC Ext	108.611	16.800	20.391	22.656	16.370	1	1.000
0.6875																	
HORZ2	**L3X2.5X1/4**	**SAU**	**3X2.5X0.25**	**33.0**	**3.43**	**Tens**	**3.43**	**g98P**	**0.211**	**NESC Hea**	**30.090**	**6.140**	**14.062**	**10.937**	**1.500**	**1**	**1.000**
0.6875 A potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize moments): g98P ??																	
HORZ3	L4X3X1/4	SAU	4X3X0.25	33.0	1.78	Tens	1.78	g96P	0.109	NESC Hea	37.663	6.140	14.062	10.937	1.500	1	1.000
0.6875																	
M6	1.75x1.75x3/16	SAE	1.75X1.75X0.1875	33.0	0.00		0.00		0.000		0.000	0.000	0.000	0.000	0.000	0	0.000
0																	
M7	BAR 2X3/16	Bar	2x3/16	33.0	39.92	Tens	39.92	g66P	2.451	NESC Hea	8.121	6.140	10.547	8.203	5.000	1	1.000
0.6875																	
M8	BAR 1.75X3/16	Bar	1.75x3/16	33.0	58.79	Tens	58.79	g67P	3.609	NESC Hea	6.636	6.140	10.547	8.203	5.000	1	1.000
0.6875																	

*** Maximum Stress Summary for Each Load Case

Summary of Maximum Usages by Load Case:

Load Case	Maximum Usage %	Element Label	Element Type
NESC Heavy	72.87	g39Y	Angle
NESC Extreme	89.93	g41XY	Angle
NESC Heavy Broken Wire	90.14	g51P	Angle

Summary of Insulator Usages:

Insulator Label	Insulator Type	Maximum Usage %	Load Case	Weight (lbs)
CLAMP1	Clamp	2.72	NESC Heavy	0.0
CLAMP2	Clamp	15.00	NESC Heavy Broken Wire	0.0
CLAMP3	Clamp	6.53	NESC Extreme	0.0
CLAMP4	Clamp	19.98	NESC Heavy Broken Wire	0.0
CLAMP5	Clamp	6.53	NESC Extreme	0.0
CLAMP6	Clamp	6.53	NESC Extreme	0.0
CLAMP7	Clamp	6.53	NESC Extreme	0.0
CLAMP8	Clamp	6.53	NESC Extreme	0.0
CLAMP9	Clamp	0.76	NESC Extreme	0.0
CLAMP10	Clamp	0.76	NESC Extreme	0.0
CLAMP11	Clamp	0.76	NESC Extreme	0.0
CLAMP12	Clamp	0.76	NESC Extreme	0.0
CLAMP13	Clamp	0.86	NESC Heavy	0.0
CLAMP14	Clamp	0.92	NESC Heavy	0.0
CLAMP15	Clamp	1.07	NESC Heavy	0.0
CLAMP16	Clamp	1.17	NESC Heavy	0.0
CLAMP17	Clamp	2.92	NESC Extreme	0.0
CLAMP18	Clamp	2.92	NESC Extreme	0.0
CLAMP19	Clamp	3.58	NESC Heavy	0.0
CLAMP20	Clamp	3.99	NESC Heavy	0.0
CLAMP21	Clamp	2.82	NESC Heavy	0.0
CLAMP22	Clamp	3.13	NESC Heavy	0.0
CLAMP23	Clamp	17.35	NESC Heavy	0.0
CLAMP24	Clamp	2.26	NESC Heavy	0.0
CLAMP25	Clamp	2.10	NESC Heavy	0.0
CLAMP26	Clamp	2.10	NESC Heavy	0.0
CLAMP27	Clamp	3.71	NESC Heavy	0.0
CLAMP28	Clamp	4.74	NESC Heavy	0.0
CLAMP29	Clamp	4.05	NESC Heavy	0.0
CLAMP30	Clamp	4.57	NESC Heavy	0.0
CLAMP31	Clamp	1.26	NESC Extreme	0.0
CLAMP32	Clamp	1.88	NESC Extreme	0.0
CLAMP33	Clamp	2.01	NESC Heavy	0.0
CLAMP34	Clamp	3.09	NESC Heavy	0.0
CLAMP35	Clamp	5.37	NESC Extreme	0.0
CLAMP36	Clamp	6.07	NESC Heavy	0.0
CLAMP37	Clamp	6.27	NESC Heavy	0.0

*** Weight of structure (lbs):
    Weight of Angles*Section DLF: 35070.6
    Total: 35070.6

*** End of Report

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*****************************************************************************
*                                                                           *
* TOWER - Analysis and Design -  Copyright Power Line Systems, Inc. 1986-2011 *
*                                                                           *
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Project Name : 17159.05 - Stamford, CT
Project Notes: Structure #1217 / Sprint - CT03XC329
Project File : J:\Jobs\1715900.WI\05_CT03XC329 Stamford\04_Structural\Calcs\Rev (2)\PLS Tower\CL&P # 1217.tow
Date run     : 11:16:38 AM Friday, December 14, 2018
by           : Tower Version 12.50
Licensed to  : Centek Engineering Inc

Successfully performed nonlinear analysis

Member "g5P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "g5X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
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Member "g7P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
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Member "g11P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
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and spacing distances will be checked. ??
Member "g14XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
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Member "g19P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
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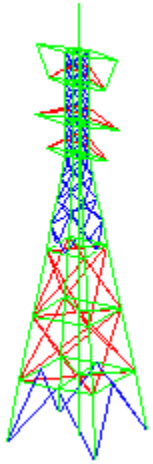
Member "g71Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
KL/R value of 226.75 exceeds maximum of 200.00 for member "g95P" ??
Member "g98P" will not be checked for block 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 115 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	120	Free	Free	Free	Free	Free	Free
2P	XY-Symmetry	2.5	2.5	115	Free	Free	Free	Free	Free	Free
3P	XY-Symmetry	2.5	2.5	110	Free	Free	Free	Free	Free	Free
4P	XY-Symmetry	2.5	2.5	106	Free	Free	Free	Free	Free	Free
5P	XY-Symmetry	2.5	2.5	102	Free	Free	Free	Free	Free	Free
6P	XY-Symmetry	2.5	2.5	98	Free	Free	Free	Free	Free	Free
7P	XY-Symmetry	2.5	2.5	93	Free	Free	Free	Free	Free	Free
8P	XY-Symmetry	2.5	2.5	88	Free	Free	Free	Free	Free	Free

9P	XY-Symmetry	15	15	0	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
20P	X-Symmetry	0	13.75	120	Free	Free	Free	Free	Free	Free
21P	X-Symmetry	0	9.75	110	Free	Free	Free	Free	Free	Free
22P	X-Symmetry	0	14.25	98	Free	Free	Free	Free	Free	Free
23P	X-Symmetry	0	10.25	88	Free	Free	Free	Free	Free	Free
24P	None	0	0	120	Free	Free	Free	Free	Free	Free
25P	None	0	0	110	Free	Free	Free	Free	Free	Free
26P	None	0	0	98	Free	Free	Free	Free	Free	Free
27P	None	0	0	88	Free	Free	Free	Free	Free	Free
28P	None	0	0	59	Free	Free	Free	Free	Free	Free
29P	None	0	0	39	Free	Free	Free	Free	Free	Free
30P	None	0	0	19	Free	Free	Free	Free	Free	Free
31P	None	-1.5	0	135	Free	Free	Free	Free	Free	Free
32P	None	-1.5	0	120	Free	Free	Free	Free	Free	Free
33P	None	-1.5	0	110	Free	Free	Free	Free	Free	Free
34P	None	-1.5	0	98	Free	Free	Free	Free	Free	Free
35P	None	-1.5	0	88	Free	Free	Free	Free	Free	Free
36P	None	-1.5	0	59	Free	Free	Free	Free	Free	Free
37P	None	-1.5	0	39	Free	Free	Free	Free	Free	Free
38P	None	-1.5	0	19	Free	Free	Free	Free	Free	Free
39P	None	-1.5	0	0	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
1X	X-GenXY	2.5	-2.5	120	Free	Free	Free	Free	Free	Free
1XY	XY-GenXY	-2.5	-2.5	120	Free	Free	Free	Free	Free	Free
1Y	Y-GenXY	-2.5	2.5	120	Free	Free	Free	Free	Free	Free
2X	X-GenXY	2.5	-2.5	115	Free	Free	Free	Free	Free	Free
2XY	XY-GenXY	-2.5	-2.5	115	Free	Free	Free	Free	Free	Free
2Y	Y-GenXY	-2.5	2.5	115	Free	Free	Free	Free	Free	Free
3X	X-GenXY	2.5	-2.5	110	Free	Free	Free	Free	Free	Free
3XY	XY-GenXY	-2.5	-2.5	110	Free	Free	Free	Free	Free	Free
3Y	Y-GenXY	-2.5	2.5	110	Free	Free	Free	Free	Free	Free
4X	X-GenXY	2.5	-2.5	106	Free	Free	Free	Free	Free	Free
4XY	XY-GenXY	-2.5	-2.5	106	Free	Free	Free	Free	Free	Free
4Y	Y-GenXY	-2.5	2.5	106	Free	Free	Free	Free	Free	Free
5X	X-GenXY	2.5	-2.5	102	Free	Free	Free	Free	Free	Free
5XY	XY-GenXY	-2.5	-2.5	102	Free	Free	Free	Free	Free	Free
5Y	Y-GenXY	-2.5	2.5	102	Free	Free	Free	Free	Free	Free
6X	X-GenXY	2.5	-2.5	98	Free	Free	Free	Free	Free	Free
6XY	XY-GenXY	-2.5	-2.5	98	Free	Free	Free	Free	Free	Free
6Y	Y-GenXY	-2.5	2.5	98	Free	Free	Free	Free	Free	Free
7X	X-GenXY	2.5	-2.5	93	Free	Free	Free	Free	Free	Free
7XY	XY-GenXY	-2.5	-2.5	93	Free	Free	Free	Free	Free	Free
7Y	Y-GenXY	-2.5	2.5	93	Free	Free	Free	Free	Free	Free
8X	X-GenXY	2.5	-2.5	88	Free	Free	Free	Free	Free	Free
8XY	XY-GenXY	-2.5	-2.5	88	Free	Free	Free	Free	Free	Free
8Y	Y-GenXY	-2.5	2.5	88	Free	Free	Free	Free	Free	Free
9X	X-GenXY	15	-15	0	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
9XY	XY-GenXY	-15	-15	0	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
9Y	Y-GenXY	-15	15	0	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
20X	X-Gen	0	-13.75	120	Free	Free	Free	Free	Free	Free
21X	X-Gen	0	-9.75	110	Free	Free	Free	Free	Free	Free
22X	X-Gen	0	-14.25	98	Free	Free	Free	Free	Free	Free
23X	X-Gen	0	-10.25	88	Free	Free	Free	Free	Free	Free

Secondary Joints:

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

10S	XY-Symmetry	9P	8P	0	81	Free	Free	Free	Free	Free	Free
11S	XY-Symmetry	9P	8P	0	74	Free	Free	Free	Free	Free	Free
12S	XY-Symmetry	9P	8P	0	67	Free	Free	Free	Free	Free	Free
13S	XY-Symmetry	9P	8P	0	59	Free	Free	Free	Free	Free	Free
14S	XY-Symmetry	9P	8P	0	39	Free	Free	Free	Free	Free	Free
15S	XY-Symmetry	9P	8P	0	19	Free	Free	Free	Free	Free	Free
16S	Y-Symmetry	13X	13S	0.5	0	Free	Free	Free	Free	Free	Free
17S	X-Symmetry	13X	13XY	0.5	0	Free	Free	Free	Free	Free	Free
18S	Y-Symmetry	15X	15S	0.5	0	Free	Free	Free	Free	Free	Free
19S	X-Symmetry	15X	15XY	0.5	0	Free	Free	Free	Free	Free	Free
10X	X-GenXY	9P	8P	0	81	Free	Free	Free	Free	Free	Free
10XY	XY-GenXY	9P	8P	0	81	Free	Free	Free	Free	Free	Free
10Y	Y-GenXY	9P	8P	0	81	Free	Free	Free	Free	Free	Free
11X	X-GenXY	9P	8P	0	74	Free	Free	Free	Free	Free	Free
11XY	XY-GenXY	9P	8P	0	74	Free	Free	Free	Free	Free	Free
11Y	Y-GenXY	9P	8P	0	74	Free	Free	Free	Free	Free	Free
12X	X-GenXY	9P	8P	0	67	Free	Free	Free	Free	Free	Free
12XY	XY-GenXY	9P	8P	0	67	Free	Free	Free	Free	Free	Free
12Y	Y-GenXY	9P	8P	0	67	Free	Free	Free	Free	Free	Free
13X	X-GenXY	9P	8P	0	59	Free	Free	Free	Free	Free	Free
13XY	XY-GenXY	9P	8P	0	59	Free	Free	Free	Free	Free	Free
13Y	Y-GenXY	9P	8P	0	59	Free	Free	Free	Free	Free	Free
14X	X-GenXY	9P	8P	0	39	Free	Free	Free	Free	Free	Free
14XY	XY-GenXY	9P	8P	0	39	Free	Free	Free	Free	Free	Free
14Y	Y-GenXY	9P	8P	0	39	Free	Free	Free	Free	Free	Free
15X	X-GenXY	9P	8P	0	19	Free	Free	Free	Free	Free	Free
15XY	XY-GenXY	9P	8P	0	19	Free	Free	Free	Free	Free	Free
15Y	Y-GenXY	9P	8P	0	19	Free	Free	Free	Free	Free	Free
16Y	Y-Gen	13X	13S	0.5	0	Free	Free	Free	Free	Free	Free
17X	X-Gen	13X	13XY	0.5	0	Free	Free	Free	Free	Free	Free
18Y	Y-Gen	15X	15S	0.5	0	Free	Free	Free	Free	Free	Free
19X	X-Gen	15X	15XY	0.5	0	Free	Free	Free	Free	Free	Free

The model contains 60 primary and 32 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
A7	2.9e+004	33	60	0	0	0	0	0	0
A500-50	2.9e+004	50	62	0	0	0	0	0	0

Bolt Properties:

Bolt Label	Bolt Diameter (in)	Hole Diameter (in)	Ultimate Shear Capacity (kips)	Default End Distance (in)	Default Bolt Spacing (in)	Shear Capacity Hyp. 1 (kips)	Shear Capacity Hyp. 2 (kips)
5/8 A325	0.625	0.6875	16.8	1.25	1.5	0	0
5/8 A307	0.625	0.6875	6.14	1.25	2.25	0	0

Number Bolts Used By Type:

Bolt Number

Type	Bolts
5/8 A307	1350
5/8 A325	19

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	8X8X0.625	8	8	0.625	32.7	9.61	10.8	2.49	2.49	1.58	1	8	4	0	1.0000	0
SAE	8X8X0.5	8	8	0.5	26.4	7.75	13.75	2.5	2.5	1.59	1	8	4	0	1.0000	0
SAE	6X6X0.5	6	6	0.5	19.6	5.75	10	1.86	1.86	1.18	1	6	3	0	1.0000	0
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	5X5X0.3125	5	5	0.3125	10.3	3.03	13.4	1.57	1.57	0.994	1	5	2.5	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	2X2X0.1875	2	2	0.1875	2.44	0.71	8	0.617	0.617	0.394	1	2	1	0	1.0000	0
SAE	1.75X1.75X0.1875	1.75	1.75	0.1875	2.12	0.62	6	0.537	0.537	0.343	1	1.75	0.875	0	1.0000	0
SAU	5X3.5X0.3125	5	3.5	0.3125	8.7	2.56	13.4	1.61	1.03	0.766	1	5	1.75	0	1.0000	0
SAU	4X3X0.3125	4	3	0.3125	7.2	2.09	10.4	1.27	0.887	0.647	1	4	1.5	0	1.0000	0
SAU	4X3X0.25	4	3	0.25	5.8	1.69	13.25	1.28	0.896	0.651	1	4	1.5	0	1.0000	0
SAU	3.5X2.5X0.25	3.5	2.5	0.25	4.9	1.44	11.25	1.12	0.735	0.544	1	3.5	1.25	0	1.0000	0
SAU	3X2.5X0.25	3	2.5	0.25	4.5	1.31	9.5	0.945	0.753	0.528	1	3	1.25	0	1.0000	0
DAE	3.5X3.5X0.25	3.5	3.5	0.25	11.6	3.38	11.5	1.09	1.59	1.09	2	3.5	1.75	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
Bar	2x3/16	2	0	0.1875	1.28	0.375	10.67	1	1	1	1	2	0	0	0.0000	0
Bar	1.75x3/16	1.75	0	0.1875	1.12	0.33	9.33	0.54	2.69	0.54	1	1.75	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	L4X4X1/4	SAE	4X4X0.25	A7	Beam	Leg	None	0.000
LEG2	L5X5X3/8	SAE	5X5X0.375	A7	Beam	Leg	None	0.000
LEG3	L6X6X1/2	SAE	6X6X0.5	A7	Beam	Leg	None	0.000
LEG4	L8X8X1/2	SAE	8X8X0.5	A7	Beam	Leg	None	0.000
LEG5	L8X8X5/8	SAE	8X8X0.625	A7	Beam	Leg	None	0.000
XBR1	L3x3x1/4	SAE	3X3X0.25	A7	Truss Crossing Diagonal		None	0.000
XBR2	L3.5X3.5X1/4	SAE	3.5X3.5X0.25	A7	Truss Crossing Diagonal		None	0.000
XBR3	L5X5X5/16	SAE	5X5X0.3125	A7	Truss Crossing Diagonal		None	0.000
XBR4	L4X4X1/4	SAE	4X4X0.25	A7	Truss Crossing Diagonal		None	0.000
XBR5	L4X3X5/16	SAU	4X3X0.3125	A7	T-Only	Other	None	0.000
XBR6	L3.5X2.5X1/4	SAU	3.5X2.5X0.25	A7	T-Only	Other	None	0.000
DIAG1	L4X3X1/4	SAU	4X3X0.25	A7	Truss	Other	None	0.000
DIAG2	L5X3.5X5/16	SAU	5X3.5X0.3125	A7	Truss	Other	None	0.000
HORZ1	L4X4X1/4	SAE	4X4X0.25	A7	Beam	Other	None	0.000
ARM1	L5X3.5X5/16	SAU	5X3.5X0.3125	A7	Beam	Other	None	0.000
ARM2	L4X4X1/4	SAE	4X4X0.25	A7	Beam	Other	None	0.000
M1	LL3.5X3.5X1/4	DAE	3.5X3.5X0.25	A7	Beam	Other	None	0.000
M2	L3X3X3/16	SAE	3X3X0.1875	A7	Beam	Other	None	0.000
M3	L3X3X1/4	SAE	3X3X0.25	A7	Beam	Other	None	0.000

M4	BAR 2X3/16	Bar	2x3/16	A7	T-Only	Beam	Other	None	0.000
M5	1.75x1.75x3/16	SAE	1.75X1.75X0.1875	A7	T-Only	Beam	Other	None	0.000
Pwmnt	12" Std. Pipe	Pwmnt	Pipe 12" Std.	A500-50		Beam	Other	None	0.000
PMBR1	L2x2x3/16	SAE	2X2X0.1875	A 36		Beam	Other	None	12.000
PMBR2	L3x3x3/16	SAE	3X3X0.1875	A 36		Beam	Other	None	12.000
PMBR3	L4x4x1/4	SAE	4X4X0.25	A 36		Beam	Other	None	12.000
PMBR4	L5x5x3/8	SAE	5X5X0.375	A 36		Beam	Other	None	12.000
HORZ2	L3X2.5X1/4	SAU	3X2.5X0.25	A7		Beam	Other	None	0.000
HORZ3	L4X3X1/4	SAU	4X3X0.25	A7		Beam	Other	None	0.000
M6	1.75x1.75x3/16	SAE	1.75X1.75X0.1875	A7	T-Only	Beam	Other	None	0.000
M7	BAR 2X3/16	Bar	2x3/16	A7	T-Only		Other	None	0.000
M8	BAR 1.75X3/16	Bar	1.75x3/16	A7	T-Only		Other	None	0.000

Aggregate Angle Information:

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

Angle Type	Angle Size	Material Type	Total Length (ft)	Total Surface Area (ft^2)	Total Weight (lbs)
SAE	4X4X0.25	A7	509.76	679.68	3364.41
SAE	5X5X0.375	A7	48.00	80.00	590.40
SAE	6X6X0.5	A7	40.00	80.00	784.00
SAE	8X8X0.5	A7	118.32	315.51	3123.58
SAE	8X8X0.625	A7	240.71	641.91	7871.37
SAE	3X3X0.25	A7	123.14	123.14	603.37
SAE	3.5X3.5X0.25	A7	251.47	293.38	1458.50
SAE	5X5X0.3125	A7	113.14	188.56	1165.31
SAU	4X3X0.25	A7	102.72	119.84	595.79
SAU	4X3X0.3125	A7	206.55	240.98	1487.18
SAU	3.5X2.5X0.25	A7	237.54	237.54	1163.93
SAU	5X3.5X0.3125	A7	309.01	437.76	2688.38
DAE	3.5X3.5X0.25	A7	21.54	25.13	249.87
SAE	3X3X0.1875	A7	86.57	86.57	321.17
Bar	2x3/16	A7	107.27	35.76	137.30
Bar	1.75x3/16	A7	48.22	14.07	54.01
SAE	1.75X1.75X0.1875	A7	160.55	93.65	340.36
Pwmnt	Pipe 12" Std.	A500-50	135.00	556.88	6696.00
SAE	2X2X0.1875	A 36	29.04	19.36	70.86
SAE	3X3X0.1875	A 36	16.74	16.74	62.09
SAE	4X4X0.25	A 36	24.73	32.97	163.20
SAE	5X5X0.375	A 36	32.74	54.57	402.71
SAU	3X2.5X0.25	A7	1.50	1.38	6.75

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

Section Label	Joint Defining Section Bottom	Dead Load Adjust. Factor	Transverse Drag x Area Factor For Face	Longitudinal Drag x Area Factor For Face	Transverse Area Factor (CD From Code)	Longitudinal Area Factor (CD From Code)	Af Flat Factor For Face EIA Only	Ar Round Factor For Face EIA Only	Transverse Drag x Area Factor For All	Longitudinal Drag x Area Factor For All	SAPS Angle Drag x Area Factor	SAPS Round Force Drag x Area Factor	Solid Face
1	13X	1.050	3.350	3.350	1.050	1.050	0.000	0.000	0.000	0.000	0.000	0.000	None
2	9X	1.050	3.500	3.500	1.100	1.100	0.000	0.000	0.000	0.000	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	1X	2X	1	4	1	1	1	5/8 A307	0	0	0		0	0	0	0	0	0	0
g1X	LEG1		X-GenXY	1P	2P	1	4	1	1	1	5/8 A307	0	0	0		0	0	0	0	0	0	0
g1XY	LEG1		XY-GenXY	1Y	2Y	1	4	1	1	1	5/8 A307	0	0	0		0	0	0	0	0	0	0
g1Y	LEG1		Y-GenXY	1XY	2XY	1	4	1	1	1	5/8 A307	0	0	0		0	0	0	0	0	0	0
g2P	LEG1		XY-Symmetry	2X	3X	1	4	1	1	1	5/8 A307	6	2	1	Both	2	0	1.25	4	0	0	0
g2X	LEG1		X-GenXY	2P	3P	1	4	1	1	1	5/8 A307	6	2	1	Both	2	0	1.25	4	0	0	0
g2XY	LEG1		XY-GenXY	2Y	3Y	1	4	1	1	1	5/8 A307	6	2	1	Both	2	0	1.25	4	0	0	0
g2Y	LEG1		Y-GenXY	2XY	3XY	1	4	1	1	1	5/8 A307	6	2	1	Both	2	0	1.25	4	0	0	0
g3P	LEG2		XY-Symmetry	3X	4X	1	4	1	1	1	5/8 A307	0	4	0		0	0	0	0	0	0	0
g3X	LEG2		X-GenXY	3P	4P	1	4	1	1	1	5/8 A307	0	4	0		0	0	0	0	0	0	0
g3XY	LEG2		XY-GenXY	3Y	4Y	1	4	1	1	1	5/8 A307	0	4	0		0	0	0	0	0	0	0
g3Y	LEG2		Y-GenXY	3XY	4XY	1	4	1	1	1	5/8 A307	0	4	0		0	0	0	0	0	0	0
g4P	LEG2		XY-Symmetry	4X	5X	1	4	1	1	1	5/8 A307	0	4	0		0	0	0	0	0	0	0
g4X	LEG2		X-GenXY	4P	5P	1	4	1	1	1	5/8 A307	0	4	0		0	0	0	0	0	0	0
g4XY	LEG2		XY-GenXY	4Y	5Y	1	4	1	1	1	5/8 A307	0	4	0		0	0	0	0	0	0	0
g4Y	LEG2		Y-GenXY	4XY	5XY	1	4	1	1	1	5/8 A307	0	4	0		0	0	0	0	0	0	0
g5P	LEG2		XY-Symmetry	5X	6X	1	4	1	1	1	5/8 A307	14	4	1	Both	1.5	3.125	1.25	3.5	0	0	0
g5X	LEG2		X-GenXY	5P	6P	1	4	1	1	1	5/8 A307	14	4	1	Both	1.5	3.125	1.25	3.5	0	0	0
g5XY	LEG2		XY-GenXY	5Y	6Y	1	4	1	1	1	5/8 A307	14	4	1	Both	1.5	3.125	1.25	3.5	0	0	0
g5Y	LEG2		Y-GenXY	5XY	6XY	1	4	1	1	1	5/8 A307	14	4	1	Both	1.5	3.125	1.25	3.5	0	0	0
g6P	LEG3		XY-Symmetry	6X	7X	1	4	1	1	1	5/8 A307	0	4	0		0	0	0	0	0	0	0
g6X	LEG3		X-GenXY	6P	7P	1	4	1	1	1	5/8 A307	0	4	0		0	0	0	0	0	0	0
g6XY	LEG3		XY-GenXY	6Y	7Y	1	4	1	1	1	5/8 A307	0	4	0		0	0	0	0	0	0	0
g6Y	LEG3		Y-GenXY	6XY	7XY	1	4	1	1	1	5/8 A307	0	4	0		0	0	0	0	0	0	0

g7P	LEG3	XY-Symmetry	7X	8X	1	4	1	1	1	5/8	A307	26	3.61	1	Both	1.875	4.25	1.25	2.25	0	0	0
g7X	LEG3	X-GenXY	7P	8P	1	4	1	1	1	5/8	A307	26	3.61	1	Both	1.875	4.25	1.25	2.25	0	0	0
g7XY	LEG3	XY-GenXY	7Y	8Y	1	4	1	1	1	5/8	A307	26	3.61	1	Both	1.875	4.25	1.25	2.25	0	0	0
g7Y	LEG3	Y-GenXY	7XY	8XY	1	4	1	1	1	5/8	A307	26	3.61	1	Both	1.875	4.25	1.25	2.25	0	0	0
g8P	LEG4	XY-Symmetry	8X	10X	1	4	1	1	1	5/8	A307	0	4	0		0	0	0	0	0	0	0
g8X	LEG4	X-GenXY	8P	10S	1	4	1	1	1	5/8	A307	0	4	0		0	0	0	0	0	0	0
g8XY	LEG4	XY-GenXY	8Y	10Y	1	4	1	1	1	5/8	A307	0	4	0		0	0	0	0	0	0	0
g8Y	LEG4	Y-GenXY	8XY	10XY	1	4	1	1	1	5/8	A307	0	4	0		0	0	0	0	0	0	0
g9P	LEG4	XY-Symmetry	10X	11X	1	4	1	1	1	5/8	A307	0	2	0		0	0	0	0	0	0	0
g9X	LEG4	X-GenXY	10S	11S	1	4	1	1	1	5/8	A307	0	2	0		0	0	0	0	0	0	0
g9XY	LEG4	XY-GenXY	10Y	11Y	1	4	1	1	1	5/8	A307	0	2	0		0	0	0	0	0	0	0
g9Y	LEG4	Y-GenXY	10XY	11XY	1	4	1	1	1	5/8	A307	0	2	0		0	0	0	0	0	0	0
g10P	LEG4	XY-Symmetry	11X	12X	1	4	1	1	1	5/8	A307	0	2	0		0	0	0	0	0	0	0
g10X	LEG4	X-GenXY	11S	12S	1	4	1	1	1	5/8	A307	0	2	0		0	0	0	0	0	0	0
g10XY	LEG4	XY-GenXY	11Y	12Y	1	4	1	1	1	5/8	A307	0	2	0		0	0	0	0	0	0	0
g10Y	LEG4	Y-GenXY	11XY	12XY	1	4	1	1	1	5/8	A307	0	2	0		0	0	0	0	0	0	0
g11P	LEG4	XY-Symmetry	12X	13X	1	4	1	1	1	5/8	A307	30	3.75	1	Both	2	5.75	1.25	2.5	0	0	0
g11X	LEG4	X-GenXY	12S	13S	1	4	1	1	1	5/8	A307	30	3.75	1	Both	2	5.75	1.25	2.5	0	0	0
g11XY	LEG4	XY-GenXY	12Y	13Y	1	4	1	1	1	5/8	A307	30	3.75	1	Both	2	5.75	1.25	2.5	0	0	0
g11Y	LEG4	Y-GenXY	12XY	13XY	1	4	1	1	1	5/8	A307	30	3.75	1	Both	2	5.75	1.25	2.5	0	0	0
g12P	LEG5	XY-Symmetry	13X	14X	1	4	0.5	0.5	0.5	5/8	A307	32	3.75	1	Both	1.375	5.125	1.25	2.25	0	0	0
g12X	LEG5	X-GenXY	13S	14S	1	4	0.5	0.5	0.5	5/8	A307	32	3.75	1	Both	1.375	5.125	1.25	2.25	0	0	0
g12XY	LEG5	XY-GenXY	13Y	14Y	1	4	0.5	0.5	0.5	5/8	A307	32	3.75	1	Both	1.375	5.125	1.25	2.25	0	0	0
g12Y	LEG5	Y-GenXY	13XY	14XY	1	4	0.5	0.5	0.5	5/8	A307	32	3.75	1	Both	1.375	5.125	1.25	2.25	0	0	0
g13P	LEG5	XY-Symmetry	14X	15X	1	4	0.5	0.5	0.5	5/8	A307	32	6	1	Both	2	5.75	1.25	2.25	0	0	0
g13X	LEG5	X-GenXY	14S	15S	1	4	0.5	0.5	0.5	5/8	A307	32	6	1	Both	2	5.75	1.25	2.25	0	0	0
g13XY	LEG5	XY-GenXY	14Y	15Y	1	4	0.5	0.5	0.5	5/8	A307	32	6	1	Both	2	5.75	1.25	2.25	0	0	0
g13Y	LEG5	Y-GenXY	14XY	15XY	1	4	0.5	0.5	0.5	5/8	A307	32	6	1	Both	2	5.75	1.25	2.25	0	0	0
g14P	LEG5	XY-Symmetry	15X	9X	1	4	0.5	0.5	0.5	5/8	A307	34	4	1	Both	2	5.75	1.25	2	0	0	0
g14X	LEG5	X-GenXY	15S	9P	1	4	0.5	0.5	0.5	5/8	A307	34	4	1	Both	2	5.75	1.25	2			

0		0	0																		
	g14XY	LEG5		XY-GenXY	15Y	9Y	1	4	0.5	0.5	0.5	5/8	A307	34	4	1	Both	2	5.75	1.25	2
0		0	0																		
	g14Y	LEG5		Y-GenXY	15XY	9XY	1	4	0.5	0.5	0.5	5/8	A307	34	4	1	Both	2	5.75	1.25	2
0		0	0																		
	g15P	XBR1		XY-Symmetry	1X	2P	2	5	0.75	0.5	0.5	5/8	A307	3	1	1	Long only	1.125	0	0.875	1.5625
0		0	0																		
	g15X	XBR1		X-GenXY	1P	2X	2	5	0.75	0.5	0.5	5/8	A307	3	1	1	Long only	1.125	0	0.875	1.5625
0		0	0																		
	g15XY	XBR1		XY-GenXY	1Y	2XY	2	5	0.75	0.5	0.5	5/8	A307	3	1	1	Long only	1.125	0	0.875	1.5625
0		0	0																		
	g15Y	XBR1		Y-GenXY	1XY	2Y	2	5	0.75	0.5	0.5	5/8	A307	3	1	1	Long only	1.125	0	0.875	1.5625
0		0	0																		
	g16P	XBR1		XY-Symmetry	1P	2Y	2	5	0.75	0.5	0.5	5/8	A307	3	1	1	Long only	1.125	0	0.875	1.5625
0		0	0																		
	g16X	XBR1		X-GenXY	1X	2XY	2	5	0.75	0.5	0.5	5/8	A307	3	1	1	Long only	1.125	0	0.875	1.5625
0		0	0																		
	g16XY	XBR1		XY-GenXY	1XY	2X	2	5	0.75	0.5	0.5	5/8	A307	3	1	1	Long only	1.125	0	0.875	1.5625
0		0	0																		
	g16Y	XBR1		Y-GenXY	1Y	2P	2	5	0.75	0.5	0.5	5/8	A307	3	1	1	Long only	1.125	0	0.875	1.5625
0		0	0																		
	g17P	XBR1		XY-Symmetry	2X	3P	2	5	0.75	0.5	0.5	5/8	A307	3	1	1	Long only	1.125	0	0.875	1.5625
0		0	0																		
	g17X	XBR1		X-GenXY	2P	3X	2	5	0.75	0.5	0.5	5/8	A307	3	1	1	Long only	1.125	0	0.875	1.5625
0		0	0																		
	g17XY	XBR1		XY-GenXY	2Y	3XY	2	5	0.75	0.5	0.5	5/8	A307	3	1	1	Long only	1.125	0	0.875	1.5625
0		0	0																		
	g17Y	XBR1		Y-GenXY	2XY	3Y	2	5	0.75	0.5	0.5	5/8	A307	3	1	1	Long only	1.125	0	0.875	1.5625
0		0	0																		
	g18P	XBR1		XY-Symmetry	2P	3Y	2	5	0.75	0.5	0.5	5/8	A307	3	1	1	Long only	1.125	0	0.875	1.5625
0		0	0																		
	g18X	XBR1		X-GenXY	2X	3XY	2	5	0.75	0.5	0.5	5/8	A307	3	1	1	Long only	1.125	0	0.875	1.5625
0		0	0																		
	g18XY	XBR1		XY-GenXY	2XY	3X	2	5	0.75	0.5	0.5	5/8	A307	3	1	1	Long only	1.125	0	0.875	1.5625
0		0	0																		
	g18Y	XBR1		Y-GenXY	2Y	3P	2	5	0.75	0.5	0.5	5/8	A307	3	1	1	Long only	1.125	0	0.875	1.5625
0		0	0																		
	g19P	XBR2		XY-Symmetry	3X	4P	2	5	0.75	0.5	0.5	5/8	A307	4	1.43	1	Long only	0.9375	1.9375	0.875	1.25
0		0	0																		
	g19X	XBR2		X-GenXY	3P	4X	2	5	0.75	0.5	0.5	5/8	A307	4	1.43	1	Long only	0.9375	1.9375	0.875	1.25
0		0	0																		
	g19XY	XBR2		XY-GenXY	3Y	4XY	2	5	0.75	0.5	0.5	5/8	A307	4	1.43	1	Long only	0.9375	1.9375	0.875	1.25
0		0	0																		
	g19Y	XBR2		Y-GenXY	3XY	4Y	2	5	0.75	0.5	0.5	5/8	A307	4	1.43	1	Long only	0.9375	1.9375	0.875	1.25
0		0	0																		
	g20P	XBR2		XY-Symmetry	3P	4Y	2	5	0.75	0.5	0.5	5/8	A307	4	1.43	1	Long only	0.9375	1.9375	0.875	1.25
0		0	0																		
	g20X	XBR2		X-GenXY	3X	4XY	2	5	0.75	0.5	0.5	5/8	A307	4	1.43	1	Long only	0.9375	1.9375	0.875	1.25
0		0	0																		
	g20XY	XBR2		XY-GenXY	3XY	4X	2	5	0.75	0.5	0.5	5/8	A307	4	1.43	1	Long only	0.9375	1.9375	0.875	1.25
0		0	0																		
	g20Y	XBR2		Y-GenXY	3Y	4P	2	5	0.75	0.5	0.5	5/8	A307	4	1.43	1	Long only	0.9375	1.9375	0.875	1.25
0		0	0																		
	g21P	XBR2		XY-Symmetry	4X	5P	2	5	0.75	0.5	0.5	5/8	A307	4	1.43	1	Long only	0.9375	1.9375	0.875	1.25
0		0	0																		
	g21X	XBR2		X-GenXY	4P	5X	2	5	0.75	0.5	0.5	5/8	A307	4	1.43	1	Long only	0.9375	1.9375	0.875	1.25
0		0	0																		
	g21XY	XBR2		XY-GenXY	4Y	5XY	2	5	0.75	0.5	0.5	5/8	A307	4	1.43	1	Long only	0.9375	1.9375	0.875	1.25
0		0	0																		

g21Y	XBR2		Y-GenXY	4XY	5Y	2	5	0.75	0.5	0.5	5/8	A307	4	1.43		1	Long only	0.9375	1.9375	0.875	1.25	
0	0	0																				
g22P	XBR2		XY-Symmetry	4P	5Y	2	5	0.75	0.5	0.5	5/8	A307	4	1.43		1	Long only	0.9375	1.9375	0.875	1.25	
0	0	0																				
g22X	XBR2		X-GenXY	4X	5XY	2	5	0.75	0.5	0.5	5/8	A307	4	1.43		1	Long only	0.9375	1.9375	0.875	1.25	
0	0	0																				
g22XY	XBR2		XY-GenXY	4XY	5X	2	5	0.75	0.5	0.5	5/8	A307	4	1.43		1	Long only	0.9375	1.9375	0.875	1.25	
0	0	0																				
g22Y	XBR2		Y-GenXY	4Y	5P	2	5	0.75	0.5	0.5	5/8	A307	4	1.43		1	Long only	0.9375	1.9375	0.875	1.25	
0	0	0																				
g23P	XBR2		XY-Symmetry	5X	6P	2	5	0.75	0.5	0.5	5/8	A307	4	1.43		1	Long only	0.9375	1.9375	0.875	1.25	
0	0	0																				
g23X	XBR2		X-GenXY	5P	6X	2	5	0.75	0.5	0.5	5/8	A307	4	1.43		1	Long only	0.9375	1.9375	0.875	1.25	
0	0	0																				
g23XY	XBR2		XY-GenXY	5Y	6XY	2	5	0.75	0.5	0.5	5/8	A307	4	1.43		1	Long only	0.9375	1.9375	0.875	1.25	
0	0	0																				
g23Y	XBR2		Y-GenXY	5XY	6Y	2	5	0.75	0.5	0.5	5/8	A307	4	1.43		1	Long only	0.9375	1.9375	0.875	1.25	
0	0	0																				
g24P	XBR2		XY-Symmetry	5P	6Y	2	5	0.75	0.5	0.5	5/8	A307	4	1.43		1	Long only	0.9375	1.9375	0.875	1.25	
0	0	0																				
g24X	XBR2		X-GenXY	5X	6XY	2	5	0.75	0.5	0.5	5/8	A307	4	1.43		1	Long only	0.9375	1.9375	0.875	1.25	
0	0	0																				
g24XY	XBR2		XY-GenXY	5XY	6X	2	5	0.75	0.5	0.5	5/8	A307	4	1.43		1	Long only	0.9375	1.9375	0.875	1.25	
0	0	0																				
g24Y	XBR2		Y-GenXY	5Y	6P	2	5	0.75	0.5	0.5	5/8	A307	4	1.43		1	Long only	0.9375	1.9375	0.875	1.25	
0	0	0																				
g25P	XBR3		XY-Symmetry	6X	7P	2	5	0.75	0.5	0.5	5/8	A307	6	1.65		1	Long only	1.875	3.5	0.875	1.25	
0	0	0																				
g25X	XBR3		X-GenXY	6P	7X	2	5	0.75	0.5	0.5	5/8	A307	6	1.65		1	Long only	1.875	3.5	0.875	1.25	
0	0	0																				
g25XY	XBR3		XY-GenXY	6Y	7XY	2	5	0.75	0.5	0.5	5/8	A307	6	1.65		1	Long only	1.875	3.5	0.875	1.25	
0	0	0																				
g25Y	XBR3		Y-GenXY	6XY	7Y	2	5	0.75	0.5	0.5	5/8	A307	6	1.65		1	Long only	1.875	3.5	0.875	1.25	
0	0	0																				
g26P	XBR3		XY-Symmetry	6P	7Y	2	5	0.75	0.5	0.5	5/8	A307	6	1.65		1	Long only	1.875	3.5	0.875	1.25	
0	0	0																				
g26X	XBR3		X-GenXY	6X	7XY	2	5	0.75	0.5	0.5	5/8	A307	6	1.65		1	Long only	1.875	3.5	0.875	1.25	
0	0	0																				
g26XY	XBR3		XY-GenXY	6XY	7X	2	5	0.75	0.5	0.5	5/8	A307	6	1.65		1	Long only	1.875	3.5	0.875	1.25	
0	0	0																				
g26Y	XBR3		Y-GenXY	6Y	7P	2	5	0.75	0.5	0.5	5/8	A307	6	1.65		1	Long only	1.875	3.5	0.875	1.25	
0	0	0																				
g27P	XBR3		XY-Symmetry	7X	8P	2	5	0.75	0.5	0.5	5/8	A307	6	1.94		1	Long only	1.5	2.625	0.875	1.875	
0	0	0																				
g27X	XBR3		X-GenXY	7P	8X	2	5	0.75	0.5	0.5	5/8	A307	6	1.94		1	Long only	1.5	2.625	0.875	1.875	
0	0	0																				
g27XY	XBR3		XY-GenXY	7Y	8XY	2	5	0.75	0.5	0.5	5/8	A307	6	1.94		1	Long only	1.5	2.625	0.875	1.875	
0	0	0																				
g27Y	XBR3		Y-GenXY	7XY	8Y	2	5	0.75	0.5	0.5	5/8	A307	6	1.94		1	Long only	1.5	2.625	0.875	1.875	
0	0	0																				
g28P	XBR3		XY-Symmetry	7P	8Y	2	5	0.75	0.5	0.5	5/8	A307	6	1.94		1	Long only	1.5	2.625	0.875	1.875	
0	0	0																				
g28X	XBR3		X-GenXY	7X	8XY	2	5	0.75	0.5	0.5	5/8	A307	6	1.94		1	Long only	1.5	2.625	0.875	1.875	
0	0	0																				
g28XY	XBR3		XY-GenXY	7XY	8X	2	5	0.75	0.5	0.5	5/8	A307	6	1.94		1	Long only	1.5	2.625	0.875	1.875	
0	0	0																				
g28Y	XBR3		Y-GenXY	7Y	8P	2	5	0.75	0.5	0.5	5/8	A307	6	1.94		1	Long only	1.5	2.625	0.875	1.875	
0	0	0																				
g29P	XBR4		XY-Symmetry	8X	10S	2	5	0.783	0.567	0.567	5/8	A307	3	1.69		1	Long only	2.375	0	2.375	3.4375	

0	0	0																					
	g29X	XBR4		X-GenXY	8P	10X	2	5	0.783	0.567	0.567	5/8	A307	3	1.69	1	Long only	2.375	0	2.375	3.4375		
0	0	0																					
	g29XY	XBR4		XY-GenXY	8Y	10XY	2	5	0.783	0.567	0.567	5/8	A307	3	1.69	1	Long only	2.375	0	2.375	3.4375		
0	0	0																					
	g29Y	XBR4		Y-GenXY	8XY	10Y	2	5	0.783	0.567	0.567	5/8	A307	3	1.69	1	Long only	2.375	0	2.375	3.4375		
0	0	0																					
	g30P	XBR4		XY-Symmetry	8P	10Y	2	5	0.783	0.567	0.567	5/8	A307	3	1.69	1	Long only	2.375	0	2.375	3.4375		
0	0	0																					
	g30X	XBR4		X-GenXY	8X	10XY	2	5	0.783	0.567	0.567	5/8	A307	3	1.69	1	Long only	2.375	0	2.375	3.4375		
0	0	0																					
	g30XY	XBR4		XY-GenXY	8XY	10X	2	5	0.783	0.567	0.567	5/8	A307	3	1.69	1	Long only	2.375	0	2.375	3.4375		
0	0	0																					
	g30Y	XBR4		Y-GenXY	8Y	10S	2	5	0.783	0.567	0.567	5/8	A307	3	1.69	1	Long only	2.375	0	2.375	3.4375		
0	0	0																					
	g31P	XBR4		XY-Symmetry	10X	11S	2	5	0.78	0.56	0.56	5/8	A307	3	1	1	Long only	2.375	0	1.375	2.9375		
0	0	0																					
	g31X	XBR4		X-GenXY	10S	11X	2	5	0.78	0.56	0.56	5/8	A307	3	1	1	Long only	2.375	0	1.375	2.9375		
0	0	0																					
	g31XY	XBR4		XY-GenXY	10Y	11XY	2	5	0.78	0.56	0.56	5/8	A307	3	1	1	Long only	2.375	0	1.375	2.9375		
0	0	0																					
	g31Y	XBR4		Y-GenXY	10XY	11Y	2	5	0.78	0.56	0.56	5/8	A307	3	1	1	Long only	2.375	0	1.375	2.9375		
0	0	0																					
	g32P	XBR4		XY-Symmetry	10S	11Y	2	5	0.78	0.56	0.56	5/8	A307	3	1	1	Long only	2.375	0	1.375	2.9375		
0	0	0																					
	g32X	XBR4		X-GenXY	10X	11XY	2	5	0.78	0.56	0.56	5/8	A307	3	1	1	Long only	2.375	0	1.375	2.9375		
0	0	0																					
	g32XY	XBR4		XY-GenXY	10XY	11X	2	5	0.78	0.56	0.56	5/8	A307	3	1	1	Long only	2.375	0	1.375	2.9375		
0	0	0																					
	g32Y	XBR4		Y-GenXY	10Y	11S	2	5	0.78	0.56	0.56	5/8	A307	3	1	1	Long only	2.375	0	1.375	2.9375		
0	0	0																					
	g33P	XBR2		XY-Symmetry	11X	12S	2	5	0.774	0.548	0.548	5/8	A307	3	1	1	Long only	1.9375	0	1.375	2.625		
0	0	0																					
	g33X	XBR2		X-GenXY	11S	12X	2	5	0.774	0.548	0.548	5/8	A307	3	1	1	Long only	1.9375	0	1.375	2.625		
0	0	0																					
	g33XY	XBR2		XY-GenXY	11Y	12XY	2	5	0.774	0.548	0.548	5/8	A307	3	1	1	Long only	1.9375	0	1.375	2.625		
0	0	0																					
	g33Y	XBR2		Y-GenXY	11XY	12Y	2	5	0.774	0.548	0.548	5/8	A307	3	1	1	Long only	1.9375	0	1.375	2.625		
0	0	0																					
	g34P	XBR2		XY-Symmetry	11S	12Y	2	5	0.774	0.548	0.548	5/8	A307	3	1	1	Long only	1.9375	0	1.375	2.625		
0	0	0																					
	g34X	XBR2		X-GenXY	11X	12XY	2	5	0.774	0.548	0.548	5/8	A307	3	1	1	Long only	1.9375	0	1.375	2.625		
0	0	0																					
	g34XY	XBR2		XY-GenXY	11XY	12X	2	5	0.774	0.548	0.548	5/8	A307	3	1	1	Long only	1.9375	0	1.375	2.625		
0	0	0																					
	g34Y	XBR2		Y-GenXY	11Y	12S	2	5	0.774	0.548	0.548	5/8	A307	3	1	1	Long only	1.9375	0	1.375	2.625		
0	0	0																					
	g35P	DIAG1		XY-Symmetry	12X	16S	3	5	1	0.5	0.5	5/8	A307	3	1	1	Short only	1.44	0	0.875	2.5		
0	0	0																					
	g35X	DIAG1		X-GenXY	12S	16S	3	5	1	0.5	0.5	5/8	A307	3	1	1	Short only	1.44	0	0.875	2.5		
0	0	0																					
	g35XY	DIAG1		XY-GenXY	12Y	16Y	3	5	1	0.5	0.5	5/8	A307	3	1	1	Short only	1.44	0	0.875	2.5		
0	0	0																					
	g35Y	DIAG1		Y-GenXY	12XY	16Y	3	5	1	0.5	0.5	5/8	A307	3	1	1	Short only	1.44	0	0.875	2.5		
0	0	0																					
	g36P	DIAG1		XY-Symmetry	12S	17X	3	5	1	0.5	0.5	5/8	A307	3	1	1	Short only	1.44	0	0.875	2.5		
0	0	0																					
	g36X	DIAG1		X-GenXY	12X	17S	3	5	1	0.5	0.5	5/8	A307	3	1	1	Short only	1.44	0	0.875	2.5		
0	0	0																					

g36XY	DIAG1		XY-GenXY	12XY	17S	3	5	1	0.5	0.5	5/8	A307	3	1	1	Short only	1.44	0	0.875	2.5	0	0	0
g36Y	DIAG1		Y-GenXY	12Y	17X	3	5	1	0.5	0.5	5/8	A307	3	1	1	Short only	1.44	0	0.875	2.5	0	0	0
g37P	XBR5		XY-Symmetry	13X	14S	2	5	0.586	0.793	0.586	5/8	A307	5	1.69	1	Long only	1	2.5	1.125	2.5625	0	0	0
g37X	XBR5		X-GenXY	13S	14X	2	5	0.586	0.793	0.586	5/8	A307	5	1.69	1	Long only	1	2.5	1.125	2.5625	0	0	0
g37XY	XBR5		XY-GenXY	13Y	14XY	2	5	0.586	0.793	0.586	5/8	A307	5	1.69	1	Long only	1	2.5	1.125	2.5625	0	0	0
g37Y	XBR5		Y-GenXY	13XY	14Y	2	5	0.586	0.793	0.586	5/8	A307	5	1.69	1	Long only	1	2.5	1.125	2.5625	0	0	0
g38P	XBR5		XY-Symmetry	13S	14Y	2	5	0.586	0.793	0.586	5/8	A307	5	1.69	1	Long only	1	2.5	1.125	2.5625	0	0	0
g38X	XBR5		X-GenXY	13X	14XY	2	5	0.586	0.793	0.586	5/8	A307	5	1.69	1	Long only	1	2.5	1.125	2.5625	0	0	0
g38XY	XBR5		XY-GenXY	13XY	14X	2	5	0.586	0.793	0.586	5/8	A307	5	1.69	1	Long only	1	2.5	1.125	2.5625	0	0	0
g38Y	XBR5		Y-GenXY	13Y	14S	2	5	0.586	0.793	0.586	5/8	A307	5	1.69	1	Long only	1	2.5	1.125	2.5625	0	0	0
g39P	XBR6		XY-Symmetry	14X	15S	2	5	0.563	0.781	0.563	5/8	A307	3	1	1	Long only	1.75	0	0.875	2.25	0	0	0
g39X	XBR6		X-GenXY	14S	15X	2	5	0.563	0.781	0.563	5/8	A307	3	1	1	Long only	1.75	0	0.875	2.25	0	0	0
g39XY	XBR6		XY-GenXY	14Y	15XY	2	5	0.563	0.781	0.563	5/8	A307	3	1	1	Long only	1.75	0	0.875	2.25	0	0	0
g39Y	XBR6		Y-GenXY	14XY	15Y	2	5	0.563	0.781	0.563	5/8	A307	3	1	1	Long only	1.75	0	0.875	2.25	0	0	0
g40P	XBR6		XY-Symmetry	14S	15Y	2	5	0.563	0.781	0.563	5/8	A307	3	1	1	Long only	1.75	0	0.875	2.25	0	0	0
g40X	XBR6		X-GenXY	14X	15XY	2	5	0.563	0.781	0.563	5/8	A307	3	1	1	Long only	1.75	0	0.875	2.25	0	0	0
g40XY	XBR6		XY-GenXY	14XY	15X	2	5	0.563	0.781	0.563	5/8	A307	3	1	1	Long only	1.75	0	0.875	2.25	0	0	0
g40Y	XBR6		Y-GenXY	14Y	15S	2	5	0.563	0.781	0.563	5/8	A307	3	1	1	Long only	1.75	0	0.875	2.25	0	0	0
g41P	DIAG2		XY-Symmetry	18S	9X	3	5	1	0.5	0.5	5/8	A307	2	1	1	Short only	1.75	0	0.875	3	0	0	0
g41X	DIAG2		X-GenXY	18S	9P	3	5	1	0.5	0.5	5/8	A307	2	1	1	Short only	1.75	0	0.875	3	0	0	0
g41XY	DIAG2		XY-GenXY	18Y	9Y	3	5	1	0.5	0.5	5/8	A307	2	1	1	Short only	1.75	0	0.875	3	0	0	0
g41Y	DIAG2		Y-GenXY	18Y	9XY	3	5	1	0.5	0.5	5/8	A307	2	1	1	Short only	1.75	0	0.875	3	0	0	0
g42P	DIAG2		XY-Symmetry	19X	9P	3	5	1	0.5	0.5	5/8	A307	2	1	1	Short only	1.75	0	0.875	3	0	0	0
g42X	DIAG2		X-GenXY	19S	9X	3	5	1	0.5	0.5	5/8	A307	2	1	1	Short only	1.75	0	0.875	3	0	0	0
g42XY	DIAG2		XY-GenXY	19S	9XY	3	5	1	0.5	0.5	5/8	A307	2	1	1	Short only	1.75	0	0.875	3	0	0	0
g42Y	DIAG2		Y-GenXY	19X	9Y	3	5	1	0.5	0.5	5/8	A307	2	1	1	Short only	1.75	0	0.875	3	0	0	0
g43P	HORZ1		XY-Symmetry	13X	16S	3	6	1	2	1	5/8	A307	4	1.84	1	Long only	1	2.25	0.875	1.875	0	0	0
g43X	HORZ1		X-GenXY	13S	16S	3	6	1	2	1	5/8	A307	4	1.84	1	Long only	1	2.25	0.875	1.875	0	0	0
g43XY	HORZ1		XY-GenXY	13Y	16Y	3	6	1	2	1	5/8	A307	4	1.84	1	Long only	1	2.25	0.875	1.875	0	0	0
g43Y	HORZ1		Y-GenXY	13XY	16Y	3	6	1	2	1	5/8	A307	4	1.84	1	Long only	1	2.25	0.875	1.875			

0	0	0																			
	g44P	HORZ1		XY-Symmetry	13S	17X	3	6	1	2	1	5/8	A307	4	1.84	1	Long only	1	2.25	0.875	1.875
0	0	0																			
	g44X	HORZ1		X-GenXY	13X	17S	3	6	1	2	1	5/8	A307	4	1.84	1	Long only	1	2.25	0.875	1.875
0	0	0																			
	g44XY	HORZ1		XY-GenXY	13XY	17S	3	6	1	2	1	5/8	A307	4	1.84	1	Long only	1	2.25	0.875	1.875
0	0	0																			
	g44Y	HORZ1		Y-GenXY	13Y	17X	3	6	1	2	1	5/8	A307	4	1.84	1	Long only	1	2.25	0.875	1.875
0	0	0																			
	g45P	HORZ1		Y-Symmetry	14X	14S	3	5	0.5	0.5	0.5	5/8	A307	3	1	1	Long only	2.25	0	0.875	1.875
0	0	0																			
	g45Y	HORZ1		Y-Gen	14XY	14Y	3	5	0.5	0.5	0.5	5/8	A307	3	1	1	Long only	2.25	0	0.875	1.875
0	0	0																			
	g46P	HORZ1		X-Symmetry	14S	14Y	3	5	0.5	0.5	0.5	5/8	A307	3	1	1	Long only	2.25	0	0.875	1.875
0	0	0																			
	g46X	HORZ1		X-Gen	14X	14XY	3	5	0.5	0.5	0.5	5/8	A307	3	1	1	Long only	2.25	0	0.875	1.875
0	0	0																			
	g47P	HORZ1		XY-Symmetry	15X	18S	3	5	1	1	1	5/8	A307	3	1	1	Long only	2.25	0	0.875	1.875
0	0	0																			
	g47X	HORZ1		X-GenXY	15S	18S	3	5	1	1	1	5/8	A307	3	1	1	Long only	2.25	0	0.875	1.875
0	0	0																			
	g47XY	HORZ1		XY-GenXY	15Y	18Y	3	5	1	1	1	5/8	A307	3	1	1	Long only	2.25	0	0.875	1.875
0	0	0																			
	g47Y	HORZ1		Y-GenXY	15XY	18Y	3	5	1	1	1	5/8	A307	3	1	1	Long only	2.25	0	0.875	1.875
0	0	0																			
	g48P	HORZ1		XY-Symmetry	15S	19X	3	5	1	1	1	5/8	A307	3	1	1	Long only	2.25	0	0.875	1.875
0	0	0																			
	g48X	HORZ1		X-GenXY	15X	19S	3	5	1	1	1	5/8	A307	3	1	1	Long only	2.25	0	0.875	1.875
0	0	0																			
	g48XY	HORZ1		XY-GenXY	15XY	19S	3	5	1	1	1	5/8	A307	3	1	1	Long only	2.25	0	0.875	1.875
0	0	0																			
	g48Y	HORZ1		Y-GenXY	15Y	19X	3	5	1	1	1	5/8	A307	3	1	1	Long only	2.25	0	0.875	1.875
0	0	0																			
	g49P	ARM1		XY-Symmetry	20X	1X	3	5	1	0.5	0.5	5/8	A307	5	1.88	1	Long only	0.875	2.25	0.875	2
0	0	0																			
	g49X	ARM1		X-GenXY	20P	1P	3	5	1	0.5	0.5	5/8	A307	5	1.88	1	Long only	0.875	2.25	0.875	2
0	0	0																			
	g49XY	ARM1		XY-GenXY	20P	1Y	3	5	1	0.5	0.5	5/8	A307	5	1.88	1	Long only	0.875	2.25	0.875	2
0	0	0																			
	g49Y	ARM1		Y-GenXY	20X	1XY	3	5	1	0.5	0.5	5/8	A307	5	1.88	1	Long only	0.875	2.25	0.875	2
0	0	0																			
	g50P	ARM1		Y-Symmetry	1X	1P	3	6	1	1	1	5/8	A307	0	0	0		0	0	0	0
0	0	0																			
	g50Y	ARM1		Y-Gen	1XY	1Y	3	6	1	1	1	5/8	A307	0	0	0		0	0	0	0
0	0	0																			
	g51P	ARM2		XY-Symmetry	21X	3X	3	5	1	1	1	5/8	A307	3	1.3	1	Long only	1.375	2.75	2	4.25
0	0	0																			
	g51X	ARM2		X-GenXY	21P	3P	3	5	1	1	1	5/8	A307	3	1.3	1	Long only	1.375	2.75	2	4.25
0	0	0																			
	g51XY	ARM2		XY-GenXY	21P	3Y	3	5	1	1	1	5/8	A307	3	1.3	1	Long only	1.375	2.75	2	4.25
0	0	0																			
	g51Y	ARM2		Y-GenXY	21X	3XY	3	5	1	1	1	5/8	A307	3	1.3	1	Long only	1.375	2.75	2	4.25
0	0	0																			
	g52P	ARM2		Y-Symmetry	3X	3P	3	6	1	1	1	5/8	A307	0	0	0		0	0	0	0
0	0	0																			
	g52Y	ARM2		Y-Gen	3XY	3Y	3	6	1	1	1	5/8	A307	0	0	0		0	0	0	0
0	0	0																			
	g53P	ARM1		XY-Symmetry	22X	6X	3	5	1	0.5	0.5	5/8	A307	5	1.83	1	Long only	0.875	2.25	1.25	2.25
0	0	0																			

g53X	ARM1	X-GenXY	22P	6P	3	5	1	0.5	0.5	5/8	A307	5	1.83	1	Long only	0.875	2.25	1.25	2.25	0	0	0
g53XY	ARM1	XY-GenXY	22P	6Y	3	5	1	0.5	0.5	5/8	A307	5	1.83	1	Long only	0.875	2.25	1.25	2.25	0	0	0
g53Y	ARM1	Y-GenXY	22X	6XY	3	5	1	0.5	0.5	5/8	A307	5	1.83	1	Long only	0.875	2.25	1.25	2.25	0	0	0
g54P	ARM1	Y-Symmetry	6X	6P	3	6	1	1	1	5/8	A307	0	0	0		0	0	0	0	0	0	0
g54Y	ARM1	Y-Gen	6XY	6Y	3	6	1	1	1	5/8	A307	0	0	0		0	0	0	0	0	0	0
g55P	ARM2	XY-Symmetry	23X	8X	3	5	1	1	1	5/8	A307	4	1.67	1	Long only	1.125	2.5	1.5	3.125	0	0	0
g55X	ARM2	X-GenXY	23P	8P	3	5	1	1	1	5/8	A307	4	1.67	1	Long only	1.125	2.5	1.5	3.125	0	0	0
g55XY	ARM2	XY-GenXY	23P	8Y	3	5	1	1	1	5/8	A307	4	1.67	1	Long only	1.125	2.5	1.5	3.125	0	0	0
g55Y	ARM2	Y-GenXY	23X	8XY	3	5	1	1	1	5/8	A307	4	1.67	1	Long only	1.125	2.5	1.5	3.125	0	0	0
g56P	ARM2	Y-Symmetry	8X	8P	3	6	1	1	1	5/8	A307	0	0	0		0	0	0	0	0	0	0
g56Y	ARM2	Y-Gen	8XY	8Y	3	6	1	1	1	5/8	A307	0	0	0		0	0	0	0	0	0	0
g57P	M1	X-Symmetry	20X	21X	1	4	1	1	1	5/8	A307	2	2	2	Long only	2	0	0.875	1.875	0	0	0
g57X	M1	X-Gen	20P	21P	1	4	1	1	1	5/8	A307	2	2	2	Long only	2	0	0.875	1.875	0	0	0
g58P	M2	X-Symmetry	1X	1XY	3	6	1	1	1	5/8	A307	2	1	1	Long only	1.5	0	0.875	1.625	0	0	0
g58X	M2	X-Gen	1P	1Y	3	6	1	1	1	5/8	A307	2	1	1	Long only	1.5	0	0.875	1.625	0	0	0
g59P	M2	X-Symmetry	3X	3XY	3	6	1	1	1	5/8	A307	2	1	1	Long only	1.5	0	0.875	2.25	0	0	0
g59X	M2	X-Gen	3P	3Y	3	6	1	1	1	5/8	A307	2	1	1	Long only	1.5	0	0.875	2.25	0	0	0
g60P	M2	X-Symmetry	6X	6XY	3	6	1	1	1	5/8	A307	3	1	1	Long only	1.5	0	0.875	1.625	0	0	0
g60X	M2	X-Gen	6P	6Y	3	6	1	1	1	5/8	A307	3	1	1	Long only	1.5	0	0.875	1.625	0	0	0
g61P	M3	X-Symmetry	8X	8XY	3	6	1	1	1	5/8	A307	3	1	1	Long only	1.5	0	0.875	1.875	0	0	0
g61X	M3	X-Gen	8P	8Y	3	6	1	1	1	5/8	A307	3	1	1	Long only	1.5	0	0.875	1.875	0	0	0
g62P	M4	XY-Symmetry	21X	2X	1	4	1	1	1	5/8	A307	2	1	1	Both	1	0	0.875	1.8125	0	0	0
g62X	M4	X-GenXY	21P	2P	1	4	1	1	1	5/8	A307	2	1	1	Both	1	0	0.875	1.8125	0	0	0
g62XY	M4	XY-GenXY	21P	2Y	1	4	1	1	1	5/8	A307	2	1	1	Both	1	0	0.875	1.8125	0	0	0
g62Y	M4	Y-GenXY	21X	2XY	1	4	1	1	1	5/8	A307	2	1	1	Both	1	0	0.875	1.8125	0	0	0
g63P	M4	XY-Symmetry	22X	5X	1	4	1	1	1	5/8	A307	2	1	1	Both	1	0	0.875	1.8125	0	0	0
g63X	M4	X-GenXY	22P	5P	1	4	1	1	1	5/8	A307	2	1	1	Both	1	0	0.875	1.8125	0	0	0
g63XY	M4	XY-GenXY	22P	5Y	1	4	1	1	1	5/8	A307	2	1	1	Both	1	0	0.875	1.8125	0	0	0
g63Y	M4	Y-GenXY	22X	5XY	1	4	1	1	1	5/8	A307	2	1	1	Both	1	0	0.875	1.8125	0	0	0
g64P	M8	XY-Symmetry	23X	7X	1	4	1	1	1	5/8	A307	2	1	1	Both	0.875	0	0.875	1.9375			

0	0	0																			
	g64X	M8		X-GenXY	23P	7P	1	4	1	1	1	5/8	A307	2	1	1	Both	0.875	0	0.875	1.9375
0	0	0																			
	g64XY	M8		XY-GenXY	23P	7Y	1	4	1	1	1	5/8	A307	2	1	1	Both	0.875	0	0.875	1.9375
0	0	0																			
	g64Y	M8		Y-GenXY	23X	7XY	1	4	1	1	1	5/8	A307	2	1	1	Both	0.875	0	0.875	1.9375
0	0	0																			
	g65P	M7		Y-Symmetry	2X	2P	1	4	1	1	1	5/8	A307	1	1	1	Both	1	0	0.875	0
0	0	0																			
	g65Y	M7		Y-Gen	2XY	2Y	1	4	1	1	1	5/8	A307	1	1	1	Both	1	0	0.875	0
0	0	0																			
	g66P	M7		Y-Symmetry	5X	5P	1	4	1	1	1	5/8	A307	1	1	1	Both	1	0	0.875	0
0	0	0																			
	g66Y	M7		Y-Gen	5XY	5Y	1	4	1	1	1	5/8	A307	1	1	1	Both	1	0	0.875	0
0	0	0																			
	g67P	M8		Y-Symmetry	7X	7P	1	4	1	1	1	5/8	A307	1	1	1	Both	0.875	0	0.875	0
0	0	0																			
	g67Y	M8		Y-Gen	7XY	7Y	1	4	1	1	1	5/8	A307	1	1	1	Both	0.875	0	0.875	0
0	0	0																			
	g68P	M2		XY-Symmetry	1X	24P	3	4	2	1	1	5/8	A307	2	1	1	Short only	0.875	1.75	1.25	1.6875
0	0	0																			
	g68X	M2		X-GenXY	1P	24P	3	4	2	1	1	5/8	A307	2	1	1	Short only	0.875	1.75	1.25	1.6875
0	0	0																			
	g68XY	M2		XY-GenXY	1Y	24P	3	4	2	1	1	5/8	A307	2	1	1	Short only	0.875	1.75	1.25	1.6875
0	0	0																			
	g68Y	M2		Y-GenXY	1XY	24P	3	4	2	1	1	5/8	A307	2	1	1	Short only	0.875	1.75	1.25	1.6875
0	0	0																			
	g69P	M2		XY-Symmetry	3X	25P	3	4	2	1	1	5/8	A307	2	1	1	Short only	0.875	1.75	1.375	1.625
0	0	0																			
	g69X	M2		X-GenXY	3P	25P	3	4	2	1	1	5/8	A307	2	1	1	Short only	0.875	1.75	1.375	1.625
0	0	0																			
	g69XY	M2		XY-GenXY	3Y	25P	3	4	2	1	1	5/8	A307	2	1	1	Short only	0.875	1.75	1.375	1.625
0	0	0																			
	g69Y	M2		Y-GenXY	3XY	25P	3	4	2	1	1	5/8	A307	2	1	1	Short only	0.875	1.75	1.375	1.625
0	0	0																			
	g70P	M2		XY-Symmetry	6X	26P	3	4	2	1	1	5/8	A307	2	1	1	Short only	0.875	1.75	1.125	1.5625
0	0	0																			
	g70X	M2		X-GenXY	6P	26P	3	4	2	1	1	5/8	A307	2	1	1	Short only	0.875	1.75	1.125	1.5625
0	0	0																			
	g70XY	M2		XY-GenXY	6Y	26P	3	4	2	1	1	5/8	A307	2	1	1	Short only	0.875	1.75	1.125	1.5625
0	0	0																			
	g70Y	M2		Y-GenXY	6XY	26P	3	4	2	1	1	5/8	A307	2	1	1	Short only	0.875	1.75	1.125	1.5625
0	0	0																			
	g71P	M2		XY-Symmetry	8X	27P	3	4	2	1	1	5/8	A307	2	1	1	Short only	0.875	1.75	1.25	1.5625
0	0	0																			
	g71X	M2		X-GenXY	8P	27P	3	4	2	1	1	5/8	A307	2	1	1	Short only	0.875	1.75	1.25	1.5625
0	0	0																			
	g71XY	M2		XY-GenXY	8Y	27P	3	4	2	1	1	5/8	A307	2	1	1	Short only	0.875	1.75	1.25	1.5625
0	0	0																			
	g71Y	M2		Y-GenXY	8XY	27P	3	4	2	1	1	5/8	A307	2	1	1	Short only	0.875	1.75	1.25	1.5625
0	0	0																			
	g72P	M5		XY-Symmetry	13X	28P	3	4	2	1	1	5/8	A307	1	1	1	Long only	0.875	0	0.875	0
0	0	0																			
	g72X	M5		X-GenXY	13S	28P	3	4	2	1	1	5/8	A307	1	1	1	Long only	0.875	0	0.875	0
0	0	0																			
	g72XY	M5		XY-GenXY	13Y	28P	3	4	2	1	1	5/8	A307	1	1	1	Long only	0.875	0	0.875	0
0	0	0																			
	g72Y	M5		Y-GenXY	13XY	28P	3	4	2	1	1	5/8	A307	1	1	1	Long only	0.875	0	0.875	0
0	0	0																			

g73P	M5	XY-Symmetry	14X	29P	3	4	2	1	1	5/8	A307	1	1	1	Long only	0.875	0	0.875	0	0	0
g73X	M5	X-GenXY	14S	29P	3	4	2	1	1	5/8	A307	1	1	1	Long only	0.875	0	0.875	0	0	0
g73XY	M5	XY-GenXY	14Y	29P	3	4	2	1	1	5/8	A307	1	1	1	Long only	0.875	0	0.875	0	0	0
g73Y	M5	Y-GenXY	14XY	29P	3	4	2	1	1	5/8	A307	1	1	1	Long only	0.875	0	0.875	0	0	0
g74P	M5	XY-Symmetry	15X	30P	3	4	2	1	1	5/8	A307	1	1	1	Long only	0.875	0	0.875	0	0	0
g74X	M5	X-GenXY	15S	30P	3	4	2	1	1	5/8	A307	1	1	1	Long only	0.875	0	0.875	0	0	0
g74XY	M5	XY-GenXY	15Y	30P	3	4	2	1	1	5/8	A307	1	1	1	Long only	0.875	0	0.875	0	0	0
g74Y	M5	Y-GenXY	15XY	30P	3	4	2	1	1	5/8	A307	1	1	1	Long only	0.875	0	0.875	0	0	0
g75P	Pwmnt	None	32P	31P	1	4	1	1	1			0	0	0		0	0	0	0	0	0
g76P	Pwmnt	None	33P	32P	1	4	1	1	1			0	0	0		0	0	0	0	0	0
g77P	Pwmnt	None	34P	33P	1	4	1	1	1			0	0	0		0	0	0	0	0	0
g78P	Pwmnt	None	35P	34P	1	4	1	1	1			0	0	0		0	0	0	0	0	0
g79P	Pwmnt	None	36P	35P	1	4	1	1	1			0	0	0		0	0	0	0	0	0
g80P	Pwmnt	None	37P	36P	1	4	1	1	1			0	0	0		0	0	0	0	0	0
g81P	Pwmnt	None	38P	37P	1	4	1	1	1			0	0	0		0	0	0	0	0	0
g82P	Pwmnt	None	39P	38P	1	4	1	1	1			0	0	0		0	0	0	0	0	0
g83P	PMBR1	X-Symmetry	1XY	32P	3	4	1	1	1	5/8	A325	1	1	1	Long only	0	0	0	0	0	0
g83X	PMBR1	X-Gen	1Y	32P	3	4	1	1	1	5/8	A325	1	1	1	Long only	0	0	0	0	0	0
g84P	PMBR1	X-Symmetry	3XY	33P	3	4	1	1	1	5/8	A325	1	1	1	Long only	0	0	0	0	0	0
g84X	PMBR1	X-Gen	3Y	33P	3	4	1	1	1	5/8	A325	1	1	1	Long only	0	0	0	0	0	0
g85P	PMBR1	X-Symmetry	6XY	34P	3	4	1	1	1	5/8	A325	1	1	1	Long only	0	0	0	0	0	0
g85X	PMBR1	X-Gen	6Y	34P	3	4	1	1	1	5/8	A325	1	1	1	Long only	0	0	0	0	0	0
g86P	PMBR1	X-Symmetry	8XY	35P	3	4	1	1	1	5/8	A325	1	1	1	Long only	0	0	0	0	0	0
g86X	PMBR1	X-Gen	8Y	35P	3	4	1	1	1	5/8	A325	1	1	1	Long only	0	0	0	0	0	0
g87P	PMBR1	None	32P	24P	3	4	1	1	1	5/8	A325	1	1	1	Long only	0	0	0	0	0	0
g88P	PMBR1	None	33P	25P	3	4	1	1	1	5/8	A325	1	1	1	Long only	0	0	0	0	0	0
g89P	PMBR1	None	34P	26P	3	4	1	1	1	5/8	A325	1	1	1	Long only	0	0	0	0	0	0
g90P	PMBR1	None	35P	27P	3	4	1	1	1	5/8	A325	1	1	1	Long only	0	0	0	0	0	0
g91P	PMBR2	X-Symmetry	13XY	36P	3	4	1	1	1	5/8	A325	1	1	1	Long only	0	0	0	0	0	0
g91X	PMBR2	X-Gen	13Y	36P	3	4	1	1	1	5/8	A325	1	1	1	Long only	0	0	0	0	0	0

0	0	0																			
g92P	PMBR1		None	36P	28P	3	4	1	1	1	5/8	A325	1	1	1	Long only	0	0	0	0	
0	0	0																			
g93P	PMBR3		X-Symmetry	14XY	37P	3	4	1	1	1	5/8	A325	1	1	1	Long only	0	0	0	0	
0	0	0																			
g93X	PMBR3		X-Gen	14Y	37P	3	4	1	1	1	5/8	A325	1	1	1	Long only	0	0	0	0	
0	0	0																			
g94P	PMBR4		X-Symmetry	15XY	38P	3	4	1	1	1	5/8	A325	1	1	1	Long only	0	0	0	0	
0	0	0																			
g94X	PMBR4		X-Gen	15Y	38P	3	4	1	1	1	5/8	A325	1	1	1	Long only	0	0	0	0	
0	0	0																			
g95P	HORZ3		None	18S	30P	3	4	1	1	1	5/8	A307	1	1	1	Short only	1.5	0	0.875	0	
0	0	0																			
g96P	HORZ3		None	38P	30P	3	4	1	1	1	5/8	A307	1	1	1	Short only	1.5	0	0.875	0	
0	0	0																			
g97P	HORZ3		None	38P	18Y	3	4	1	1	1	5/8	A307	1	1	1	Short only	1.5	0	0.875	0	
0	0	0																			
g98P	HORZ2		None	37P	29P	3	4	1	1	1	5/8	A307	1	1	1	Short only	1.25	5	0.875	0	
0	0	0																			

Member Capacities and Overrides:

Member Label	Group Label	Design Comp. Control	Design Comp. Capacity	Tension Control Criterion	L/r Length (ft)	L/r Comp. Capacity	Connection Shear Capacity	Connection Bearing Capacity	Net Section Tension Capacity	Rupture Tension Capacity	RTE End Dist. Capacity	RTE Edge Dist. Capacity	Override Comp. Capacity	Override Tension Capacity	Override Warnings
			(kips)				(kips)	(kips)	(kips)	(kips)	(kips)				
g1P	LEG1	53.509	53.509	L/r	64.020	53.509	0.000	0.000	64.020	0.000	0.000	0.000	0.000	0.000	
				Net Sect	75	5.00									0.000 Automatic
g1X	LEG1	53.509	53.509	L/r	64.020	53.509	0.000	0.000	64.020	0.000	0.000	0.000	0.000	0.000	
				Net Sect	75	5.00									0.000 Automatic
g1XY	LEG1	53.509	53.509	L/r	64.020	53.509	0.000	0.000	64.020	0.000	0.000	0.000	0.000	0.000	
				Net Sect	75	5.00									0.000 Automatic
g1Y	LEG1	53.509	53.509	L/r	64.020	53.509	0.000	0.000	64.020	0.000	0.000	0.000	0.000	0.000	
				Net Sect	75	5.00									0.000 Automatic
g2P	LEG1	36.840	36.840	Shear	36.840	53.509	36.840	84.375	52.676	93.750	0.000	0.000	0.000	0.000	
				Shear	75	5.00									0.000 Automatic
g2X	LEG1	36.840	36.840	Shear	36.840	53.509	36.840	84.375	52.676	93.750	0.000	0.000	0.000	0.000	
				Shear	75	5.00									0.000 Automatic
g2XY	LEG1	36.840	36.840	Shear	36.840	53.509	36.840	84.375	52.676	93.750	0.000	0.000	0.000	0.000	
				Shear	75	5.00									0.000 Automatic
g2Y	LEG1	36.840	36.840	Shear	36.840	53.509	36.840	84.375	52.676	93.750	0.000	0.000	0.000	0.000	
				Shear	75	5.00									0.000 Automatic
g3P	LEG2	111.058	111.058	L/r	85.099	111.058	0.000	0.000	85.099	0.000	0.000	0.000	0.000	0.000	
				Net Sect	48	4.00									0.000 Automatic
g3X	LEG2	111.058	111.058	L/r	85.099	111.058	0.000	0.000	85.099	0.000	0.000	0.000	0.000	0.000	
				Net Sect	48	4.00									0.000 Automatic
g3XY	LEG2	111.058	111.058	L/r	85.099	111.058	0.000	0.000	85.099	0.000	0.000	0.000	0.000	0.000	
				Net Sect	48	4.00									0.000 Automatic

g3Y	LEG2	111.058	L/r	85.099	Net Sect	48	4.00	111.058	0.000	0.000	85.099	0.000	0.000	0.000	0.000	0.000	0.000 Automatic
g4P	LEG2	111.058	L/r	85.099	Net Sect	48	4.00	111.058	0.000	0.000	85.099	0.000	0.000	0.000	0.000	0.000	0.000 Automatic
g4X	LEG2	111.058	L/r	85.099	Net Sect	48	4.00	111.058	0.000	0.000	85.099	0.000	0.000	0.000	0.000	0.000	0.000 Automatic
g4XY	LEG2	111.058	L/r	85.099	Net Sect	48	4.00	111.058	0.000	0.000	85.099	0.000	0.000	0.000	0.000	0.000	0.000 Automatic
g4Y	LEG2	111.058	L/r	85.099	Net Sect	48	4.00	111.058	0.000	0.000	85.099	0.000	0.000	0.000	0.000	0.000	0.000 Automatic
g5P	**LEG2**	**85.960**	**Shear**	**85.099**	**Net Sect**	**48**	**4.00**	**111.058**	**85.960**	**295.312**	**85.099**	**328.124**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000 Automatic Member "g5P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**
g5X	**LEG2**	**85.960**	**Shear**	**85.099**	**Net Sect**	**48**	**4.00**	**111.058**	**85.960**	**295.312**	**85.099**	**328.124**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000 Automatic Member "g5X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**
g5XY	**LEG2**	**85.960**	**Shear**	**85.099**	**Net Sect**	**48**	**4.00**	**111.058**	**85.960**	**295.312**	**85.099**	**328.124**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000 Automatic Member "g5XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**
g5Y	**LEG2**	**85.960**	**Shear**	**85.099**	**Net Sect**	**48**	**4.00**	**111.058**	**85.960**	**295.312**	**85.099**	**328.124**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000 Automatic Member "g5Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**
g6P	LEG3	175.609	L/r	144.375	Net Sect	51	5.00	175.609	0.000	0.000	144.375	0.000	0.000	0.000	0.000	0.000	0.000 Automatic
g6X	LEG3	175.609	L/r	144.375	Net Sect	51	5.00	175.609	0.000	0.000	144.375	0.000	0.000	0.000	0.000	0.000	0.000 Automatic
g6XY	LEG3	175.609	L/r	144.375	Net Sect	51	5.00	175.609	0.000	0.000	144.375	0.000	0.000	0.000	0.000	0.000	0.000 Automatic
g6Y	LEG3	175.609	L/r	144.375	Net Sect	51	5.00	175.609	0.000	0.000	144.375	0.000	0.000	0.000	0.000	0.000	0.000 Automatic
g7P	**LEG3**	**159.640**	**Shear**	**148.799**	**Net Sect**	**51**	**5.00**	**175.609**	**159.640**	**731.249**	**148.799**	**812.499**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000 Automatic Member "g7P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**
g7X	**LEG3**	**159.640**	**Shear**	**148.799**	**Net Sect**	**51**	**5.00**	**175.609**	**159.640**	**731.249**	**148.799**	**812.499**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000 Automatic Member "g7X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**
g7XY	**LEG3**	**159.640**	**Shear**	**148.799**	**Net Sect**	**51**	**5.00**	**175.609**	**159.640**	**731.249**	**148.799**	**812.499**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000 Automatic Member "g7XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**
g7Y	**LEG3**	**159.640**	**Shear**	**148.799**	**Net Sect**	**51**	**5.00**	**175.609**	**159.640**	**731.249**	**148.799**	**812.499**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000 Automatic Member "g7Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**
g8P	LEG4	234.345	L/r	210.375	Net Sect	54	7.14	234.345	0.000	0.000	210.375	0.000	0.000	0.000	0.000	0.000	0.000 Automatic
g8X	LEG4	234.345	L/r	210.375	Net Sect	54	7.14	234.345	0.000	0.000	210.375	0.000	0.000	0.000	0.000	0.000	0.000 Automatic
g8XY	LEG4	234.345	L/r	210.375	Net Sect	54	7.14	234.345	0.000	0.000	210.375	0.000	0.000	0.000	0.000	0.000	0.000 Automatic
g8Y	LEG4	234.345	L/r	210.375	Net Sect	54	7.14	234.345	0.000	0.000	210.375	0.000	0.000	0.000	0.000	0.000	0.000 Automatic
g9P	LEG4	234.345	L/r	233.062	Net Sect	54	7.14	234.345	0.000	0.000	233.062	0.000	0.000	0.000	0.000	0.000	0.000 Automatic
g9X	LEG4	234.345	L/r	233.062	Net Sect	54	7.14	234.345	0.000	0.000	233.062	0.000	0.000	0.000	0.000	0.000	0.000 Automatic
g9XY	LEG4	234.345	L/r	233.062	Net Sect	54	7.14	234.345	0.000	0.000	233.062	0.000	0.000	0.000	0.000	0.000	0.000 Automatic
g9Y	LEG4	234.345	L/r	233.062	Net Sect	54	7.14	234.345	0.000	0.000	233.062	0.000	0.000	0.000	0.000	0.000	0.000 Automatic
g10P	LEG4	234.345	L/r	233.062	Net Sect	54	7.14	234.345	0.000	0.000	233.062	0.000	0.000	0.000	0.000	0.000	0.000

0.000		Automatic															
g10X	LEG4	234.345		L/r	233.062	Net Sect	54	7.14	234.345	0.000	0.000	233.062	0.000	0.000	0.000	0.000	0.000
0.000		Automatic															
g10XY	LEG4	234.345		L/r	233.062	Net Sect	54	7.14	234.345	0.000	0.000	233.062	0.000	0.000	0.000	0.000	0.000
0.000		Automatic															
g10Y	LEG4	234.345		L/r	233.062	Net Sect	54	7.14	234.345	0.000	0.000	233.062	0.000	0.000	0.000	0.000	0.000
0.000		Automatic															
g11P	**LEG4**	**184.200**		**Shear**	**184.200**	**Shear**	**62**	**8.16**	**227.792**	**184.200**	**843.749**	**213.211**	**937.499**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g11P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**														
g11X	**LEG4**	**184.200**		**Shear**	**184.200**	**Shear**	**62**	**8.16**	**227.792**	**184.200**	**843.749**	**213.211**	**937.499**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g11X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**														
g11XY	**LEG4**	**184.200**		**Shear**	**184.200**	**Shear**	**62**	**8.16**	**227.792**	**184.200**	**843.749**	**213.211**	**937.499**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g11XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**														
g11Y	**LEG4**	**184.200**		**Shear**	**184.200**	**Shear**	**62**	**8.16**	**227.792**	**184.200**	**843.749**	**213.211**	**937.499**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g11Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**														
g12P	**LEG5**	**196.480**		**Shear**	**196.480**	**Shear**	**77**	**20.40**	**262.274**	**196.480**	**1124.998**	**263.956**	**1249.998**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g12P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**														
g12X	**LEG5**	**196.480**		**Shear**	**196.480**	**Shear**	**77**	**20.40**	**262.274**	**196.480**	**1124.998**	**263.956**	**1249.998**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g12X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**														
g12XY	**LEG5**	**196.480**		**Shear**	**196.480**	**Shear**	**77**	**20.40**	**262.274**	**196.480**	**1124.998**	**263.956**	**1249.998**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g12XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**														
g12Y	**LEG5**	**196.480**		**Shear**	**196.480**	**Shear**	**77**	**20.40**	**262.274**	**196.480**	**1124.998**	**263.956**	**1249.998**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g12Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**														
g13P	**LEG5**	**196.480**		**Shear**	**196.480**	**Shear**	**77**	**20.40**	**262.274**	**196.480**	**1124.998**	**232.052**	**1249.998**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g13P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**														
g13X	**LEG5**	**196.480**		**Shear**	**196.480**	**Shear**	**77**	**20.40**	**262.274**	**196.480**	**1124.998**	**232.052**	**1249.998**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g13X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**														
g13XY	**LEG5**	**196.480**		**Shear**	**196.480**	**Shear**	**77**	**20.40**	**262.274**	**196.480**	**1124.998**	**232.052**	**1249.998**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g13XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**														
g13Y	**LEG5**	**196.480**		**Shear**	**196.480**	**Shear**	**77**	**20.40**	**262.274**	**196.480**	**1124.998**	**232.052**	**1249.998**	**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	**LEG5**	**208.760**		**Shear**	**208.760**	**Shear**	**74**	**19.38**	**267.622**	**208.760**	**1195.311**	**260.411**	**1328.123**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g14P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**														
g14X	**LEG5**	**208.760**		**Shear**	**208.760**	**Shear**	**74**	**19.38**	**267.622**	**208.760**	**1195.311**	**260.411**	**1328.123**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g14X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**														
g14XY	**LEG5**	**208.760**		**Shear**	**208.760**	**Shear**	**74**	**19.38**	**267.622**	**208.760**	**1195.311**	**260.411**	**1328.123**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g14XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**														
g14Y	**LEG5**	**208.760**		**Shear**	**208.760**	**Shear**	**74**	**19.38**	**267.622**	**208.760**	**1195.311**	**260.411**	**1328.123**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g14Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**														
g15P	XBR1	18.420		Shear	18.420	Shear	72	7.07	37.913	18.420	42.187	37.663	26.977	0.000	0.000	0.000	0.000
0.000		Automatic															
g15X	XBR1	18.420		Shear	18.420	Shear	72	7.07	37.913	18.420	42.187	37.663	26.977	0.000	0.000	0.000	0.000

0.000		Automatic														
g15XY	XBR1	18.420	Shear	18.420	Shear	72	7.07	37.913	18.420	42.187	37.663	26.977	0.000	0.000	0.000	0.000
0.000		Automatic														
g15Y	XBR1	18.420	Shear	18.420	Shear	72	7.07	37.913	18.420	42.187	37.663	26.977	0.000	0.000	0.000	0.000
0.000		Automatic														
g16P	XBR1	18.420	Shear	18.420	Shear	72	7.07	37.913	18.420	42.187	37.663	26.977	0.000	0.000	0.000	0.000
0.000		Automatic														
g16X	XBR1	18.420	Shear	18.420	Shear	72	7.07	37.913	18.420	42.187	37.663	26.977	0.000	0.000	0.000	0.000
0.000		Automatic														
g16XY	XBR1	18.420	Shear	18.420	Shear	72	7.07	37.913	18.420	42.187	37.663	26.977	0.000	0.000	0.000	0.000
0.000		Automatic														
g16Y	XBR1	18.420	Shear	18.420	Shear	72	7.07	37.913	18.420	42.187	37.663	26.977	0.000	0.000	0.000	0.000
0.000		Automatic														
g17P	XBR1	18.420	Shear	18.420	Shear	72	7.07	37.913	18.420	42.187	37.663	26.977	0.000	0.000	0.000	0.000
0.000		Automatic														
g17X	XBR1	18.420	Shear	18.420	Shear	72	7.07	37.913	18.420	42.187	37.663	26.977	0.000	0.000	0.000	0.000
0.000		Automatic														
g17XY	XBR1	18.420	Shear	18.420	Shear	72	7.07	37.913	18.420	42.187	37.663	26.977	0.000	0.000	0.000	0.000
0.000		Automatic														
g17Y	XBR1	18.420	Shear	18.420	Shear	72	7.07	37.913	18.420	42.187	37.663	26.977	0.000	0.000	0.000	0.000
0.000		Automatic														
g18P	XBR1	18.420	Shear	18.420	Shear	72	7.07	37.913	18.420	42.187	37.663	26.977	0.000	0.000	0.000	0.000
0.000		Automatic														
g18X	XBR1	18.420	Shear	18.420	Shear	72	7.07	37.913	18.420	42.187	37.663	26.977	0.000	0.000	0.000	0.000
0.000		Automatic														
g18XY	XBR1	18.420	Shear	18.420	Shear	72	7.07	37.913	18.420	42.187	37.663	26.977	0.000	0.000	0.000	0.000
0.000		Automatic														
g18Y	XBR1	18.420	Shear	18.420	Shear	72	7.07	37.913	18.420	42.187	37.663	26.977	0.000	0.000	0.000	0.000
0.000		Automatic														
g19P	**XBR2**	**24.560**	**Shear**	**24.560**	**Shear**	**55**	**6.40**	**47.548**	**24.560**	**56.250**	**42.893**	**43.750**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g19P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**													
g19X	**XBR2**	**24.560**	**Shear**	**24.560**	**Shear**	**55**	**6.40**	**47.548**	**24.560**	**56.250**	**42.893**	**43.750**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g19X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**													
g19XY	**XBR2**	**24.560**	**Shear**	**24.560**	**Shear**	**55**	**6.40**	**47.548**	**24.560**	**56.250**	**42.893**	**43.750**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g19XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**													
g19Y	**XBR2**	**24.560**	**Shear**	**24.560**	**Shear**	**55**	**6.40**	**47.548**	**24.560**	**56.250**	**42.893**	**43.750**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g19Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**													
g20P	**XBR2**	**24.560**	**Shear**	**24.560**	**Shear**	**55**	**6.40**	**47.548**	**24.560**	**56.250**	**42.893**	**43.750**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g20P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**													
g20X	**XBR2**	**24.560**	**Shear**	**24.560**	**Shear**	**55**	**6.40**	**47.548**	**24.560**	**56.250**	**42.893**	**43.750**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g20X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**													
g20XY	**XBR2**	**24.560**	**Shear**	**24.560**	**Shear**	**55**	**6.40**	**47.548**	**24.560**	**56.250**	**42.893**	**43.750**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g20XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**													
g20Y	**XBR2**	**24.560**	**Shear**	**24.560**	**Shear**	**55**	**6.40**	**47.548**	**24.560**	**56.250**	**42.893**	**43.750**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g20Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**													
g21P	**XBR2**	**24.560**	**Shear**	**24.560**	**Shear**	**55**	**6.40**	**47.548**	**24.560**	**56.250**	**42.893**	**43.750**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g21P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**													
g21X	**XBR2**	**24.560**	**Shear**	**24.560**	**Shear**	**55**	**6.40**	**47.548**	**24.560**	**56.250**	**42.893**	**43.750**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g21X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than**													

zero); however, end, edge and spacing distances will be checked. ??
g21XY XBR2 24.560 Shear 24.560 Shear 55 6.40 47.548 24.560 56.250 42.893 43.750 0.000 0.000 0.000 0.000
0.000 Automatic Member "g21XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
g21Y XBR2 24.560 Shear 24.560 Shear 55 6.40 47.548 24.560 56.250 42.893 43.750 0.000 0.000 0.000 0.000
0.000 Automatic Member "g21Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
g22P XBR2 24.560 Shear 24.560 Shear 55 6.40 47.548 24.560 56.250 42.893 43.750 0.000 0.000 0.000 0.000
0.000 Automatic Member "g22P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
g22X XBR2 24.560 Shear 24.560 Shear 55 6.40 47.548 24.560 56.250 42.893 43.750 0.000 0.000 0.000 0.000
0.000 Automatic Member "g22X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
g22XY XBR2 24.560 Shear 24.560 Shear 55 6.40 47.548 24.560 56.250 42.893 43.750 0.000 0.000 0.000 0.000
0.000 Automatic Member "g22XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
g22Y XBR2 24.560 Shear 24.560 Shear 55 6.40 47.548 24.560 56.250 42.893 43.750 0.000 0.000 0.000 0.000
0.000 Automatic Member "g22Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
g23P XBR2 24.560 Shear 24.560 Shear 55 6.40 47.548 24.560 56.250 42.893 43.750 0.000 0.000 0.000 0.000
0.000 Automatic Member "g23P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
g23X XBR2 24.560 Shear 24.560 Shear 55 6.40 47.548 24.560 56.250 42.893 43.750 0.000 0.000 0.000 0.000
0.000 Automatic Member "g23X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
g23XY XBR2 24.560 Shear 24.560 Shear 55 6.40 47.548 24.560 56.250 42.893 43.750 0.000 0.000 0.000 0.000
0.000 Automatic Member "g23XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
g23Y XBR2 24.560 Shear 24.560 Shear 55 6.40 47.548 24.560 56.250 42.893 43.750 0.000 0.000 0.000 0.000
0.000 Automatic Member "g23Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
g24P XBR2 24.560 Shear 24.560 Shear 55 6.40 47.548 24.560 56.250 42.893 43.750 0.000 0.000 0.000 0.000
0.000 Automatic Member "g24P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
g24X XBR2 24.560 Shear 24.560 Shear 55 6.40 47.548 24.560 56.250 42.893 43.750 0.000 0.000 0.000 0.000
0.000 Automatic Member "g24X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
g24XY XBR2 24.560 Shear 24.560 Shear 55 6.40 47.548 24.560 56.250 42.893 43.750 0.000 0.000 0.000 0.000
0.000 Automatic Member "g24XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
g24Y XBR2 24.560 Shear 24.560 Shear 55 6.40 47.548 24.560 56.250 42.893 43.750 0.000 0.000 0.000 0.000
0.000 Automatic Member "g24Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
g25P XBR3 36.840 Shear 36.840 Shear 43 7.07 88.907 36.840 105.469 79.462 82.031 0.000 0.000 0.000 0.000
0.000 Automatic Member "g25P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
g25X XBR3 36.840 Shear 36.840 Shear 43 7.07 88.907 36.840 105.469 79.462 82.031 0.000 0.000 0.000 0.000
0.000 Automatic Member "g25X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
g25XY XBR3 36.840 Shear 36.840 Shear 43 7.07 88.907 36.840 105.469 79.462 82.031 0.000 0.000 0.000 0.000
0.000 Automatic Member "g25XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
g25Y XBR3 36.840 Shear 36.840 Shear 43 7.07 88.907 36.840 105.469 79.462 82.031 0.000 0.000 0.000 0.000
0.000 Automatic Member "g25Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
g26P XBR3 36.840 Shear 36.840 Shear 43 7.07 88.907 36.840 105.469 79.462 82.031 0.000 0.000 0.000 0.000
0.000 Automatic Member "g26P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??

g26X	XBR3	36.840	Shear	36.840	Shear	43	7.07	88.907	36.840	105.469	79.462	82.031	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g26X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g26XY	XBR3	36.840	Shear	36.840	Shear	43	7.07	88.907	36.840	105.469	79.462	82.031	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g26XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g26Y	XBR3	36.840	Shear	36.840	Shear	43	7.07	88.907	36.840	105.469	79.462	82.031	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g26Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g27P	XBR3	36.840	Shear	36.840	Shear	43	7.07	88.907	36.840	105.469	77.612	82.031	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g27P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g27X	XBR3	36.840	Shear	36.840	Shear	43	7.07	88.907	36.840	105.469	77.612	82.031	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g27X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g27XY	XBR3	36.840	Shear	36.840	Shear	43	7.07	88.907	36.840	105.469	77.612	82.031	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g27XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g27Y	XBR3	36.840	Shear	36.840	Shear	43	7.07	88.907	36.840	105.469	77.612	82.031	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g27Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g28P	XBR3	36.840	Shear	36.840	Shear	43	7.07	88.907	36.840	105.469	77.612	82.031	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g28P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g28X	XBR3	36.840	Shear	36.840	Shear	43	7.07	88.907	36.840	105.469	77.612	82.031	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g28X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g28XY	XBR3	36.840	Shear	36.840	Shear	43	7.07	88.907	36.840	105.469	77.612	82.031	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g28XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g28Y	XBR3	36.840	Shear	36.840	Shear	43	7.07	88.907	36.840	105.469	77.612	82.031	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g28Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g29P	XBR4	18.420	Shear	18.420	Shear	79	9.27	49.239	18.420	42.187	48.991	84.539	0.000	0.000	0.000	0.000
0.000	Automatic															
g29X	XBR4	18.420	Shear	18.420	Shear	79	9.27	49.239	18.420	42.187	48.991	84.539	0.000	0.000	0.000	0.000
0.000	Automatic															
g29XY	XBR4	18.420	Shear	18.420	Shear	79	9.27	49.239	18.420	42.187	48.991	84.539	0.000	0.000	0.000	0.000
0.000	Automatic															
g29Y	XBR4	18.420	Shear	18.420	Shear	79	9.27	49.239	18.420	42.187	48.991	84.539	0.000	0.000	0.000	0.000
0.000	Automatic															
g30P	XBR4	18.420	Shear	18.420	Shear	79	9.27	49.239	18.420	42.187	48.991	84.539	0.000	0.000	0.000	0.000
0.000	Automatic															
g30X	XBR4	18.420	Shear	18.420	Shear	79	9.27	49.239	18.420	42.187	48.991	84.539	0.000	0.000	0.000	0.000
0.000	Automatic															
g30XY	XBR4	18.420	Shear	18.420	Shear	79	9.27	49.239	18.420	42.187	48.991	84.539	0.000	0.000	0.000	0.000
0.000	Automatic															
g30Y	XBR4	18.420	Shear	18.420	Shear	79	9.27	49.239	18.420	42.187	48.991	84.539	0.000	0.000	0.000	0.000
0.000	Automatic															
g31P	XBR4	18.420	Shear	18.420	Shear	90	10.66	46.440	18.420	42.187	52.513	51.562	0.000	0.000	0.000	0.000
0.000	Automatic															
g31X	XBR4	18.420	Shear	18.420	Shear	90	10.66	46.440	18.420	42.187	52.513	51.562	0.000	0.000	0.000	0.000
0.000	Automatic															
g31XY	XBR4	18.420	Shear	18.420	Shear	90	10.66	46.440	18.420	42.187	52.513	51.562	0.000	0.000	0.000	0.000
0.000	Automatic															
g31Y	XBR4	18.420	Shear	18.420	Shear	90	10.66	46.440	18.420	42.187	52.513	51.562	0.000	0.000	0.000	0.000
0.000	Automatic															
g32P	XBR4	18.420	Shear	18.420	Shear	90	10.66	46.440	18.420	42.187	52.513	51.562	0.000	0.000	0.000	0.000

0.000		Automatic														
g32X	XBR4	18.420	Shear	18.420	Shear	90	10.66	46.440	18.420	42.187	52.513	51.562	0.000	0.000	0.000	0.000
0.000		Automatic														
g32XY	XBR4	18.420	Shear	18.420	Shear	90	10.66	46.440	18.420	42.187	52.513	51.562	0.000	0.000	0.000	0.000
0.000		Automatic														
g32Y	XBR4	18.420	Shear	18.420	Shear	90	10.66	46.440	18.420	42.187	52.513	51.562	0.000	0.000	0.000	0.000
0.000		Automatic														
g33P	XBR2	18.420	Shear	18.420	Shear	116	12.22	33.813	18.420	42.187	45.088	51.562	0.000	0.000	0.000	0.000
0.000		Automatic														
g33X	XBR2	18.420	Shear	18.420	Shear	116	12.22	33.813	18.420	42.187	45.088	51.562	0.000	0.000	0.000	0.000
0.000		Automatic														
g33XY	XBR2	18.420	Shear	18.420	Shear	116	12.22	33.813	18.420	42.187	45.088	51.562	0.000	0.000	0.000	0.000
0.000		Automatic														
g33Y	XBR2	18.420	Shear	18.420	Shear	116	12.22	33.813	18.420	42.187	45.088	51.562	0.000	0.000	0.000	0.000
0.000		Automatic														
g34P	XBR2	18.420	Shear	18.420	Shear	116	12.22	33.813	18.420	42.187	45.088	51.562	0.000	0.000	0.000	0.000
0.000		Automatic														
g34X	XBR2	18.420	Shear	18.420	Shear	116	12.22	33.813	18.420	42.187	45.088	51.562	0.000	0.000	0.000	0.000
0.000		Automatic														
g34XY	XBR2	18.420	Shear	18.420	Shear	116	12.22	33.813	18.420	42.187	45.088	51.562	0.000	0.000	0.000	0.000
0.000		Automatic														
g34Y	XBR2	18.420	Shear	18.420	Shear	116	12.22	33.813	18.420	42.187	45.088	51.562	0.000	0.000	0.000	0.000
0.000		Automatic														
g35P	DIAG1	18.420	Shear	18.420	Shear	92	9.76	37.785	18.420	42.187	37.663	32.812	0.000	0.000	0.000	0.000
0.000		Automatic														
g35X	DIAG1	18.420	Shear	18.420	Shear	92	9.76	37.785	18.420	42.187	37.663	32.812	0.000	0.000	0.000	0.000
0.000		Automatic														
g35XY	DIAG1	18.420	Shear	18.420	Shear	92	9.76	37.785	18.420	42.187	37.663	32.812	0.000	0.000	0.000	0.000
0.000		Automatic														
g35Y	DIAG1	18.420	Shear	18.420	Shear	92	9.76	37.785	18.420	42.187	37.663	32.812	0.000	0.000	0.000	0.000
0.000		Automatic														
g36P	DIAG1	18.420	Shear	18.420	Shear	92	9.76	37.785	18.420	42.187	37.663	32.812	0.000	0.000	0.000	0.000
0.000		Automatic														
g36X	DIAG1	18.420	Shear	18.420	Shear	92	9.76	37.785	18.420	42.187	37.663	32.812	0.000	0.000	0.000	0.000
0.000		Automatic														
g36XY	DIAG1	18.420	Shear	18.420	Shear	92	9.76	37.785	18.420	42.187	37.663	32.812	0.000	0.000	0.000	0.000
0.000		Automatic														
g36Y	DIAG1	18.420	Shear	18.420	Shear	92	9.76	37.785	18.420	42.187	37.663	32.812	0.000	0.000	0.000	0.000
0.000		Automatic														
g37P	**XBR5**	**10.178**	**L/r**	**30.700**	**Shear**	**281**	**25.82**	**10.178**	**30.700**	**87.890**	**51.289**	**87.890**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g37P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**													
g37X	**XBR5**	**10.178**	**L/r**	**30.700**	**Shear**	**281**	**25.82**	**10.178**	**30.700**	**87.890**	**51.289**	**87.890**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g37X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**													
g37XY	**XBR5**	**10.178**	**L/r**	**30.700**	**Shear**	**281**	**25.82**	**10.178**	**30.700**	**87.890**	**51.289**	**87.890**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g37XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**													
g37Y	**XBR5**	**10.178**	**L/r**	**30.700**	**Shear**	**281**	**25.82**	**10.178**	**30.700**	**87.890**	**51.289**	**87.890**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g37Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**													
g38P	**XBR5**	**10.178**	**L/r**	**30.700**	**Shear**	**281**	**25.82**	**10.178**	**30.700**	**87.890**	**51.289**	**87.890**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g38P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**													
g38X	**XBR5**	**10.178**	**L/r**	**30.700**	**Shear**	**281**	**25.82**	**10.178**	**30.700**	**87.890**	**51.289**	**87.890**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g38X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**													
g38XY	**XBR5**	**10.178**	**L/r**	**30.700**	**Shear**	**281**	**25.82**	**10.178**	**30.700**	**87.890**	**51.289**	**87.890**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g38XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than**													

zero); however, end, edge and spacing distances will be checked. ??
g38Y XBR5 10.178 L/r 30.700 Shear 281 25.82 10.178 30.700 87.890 51.289 87.890 0.000 0.000 0.000 0.000
0.000 Automatic Member "g38Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
g39P XBR6 4.099 L/r 18.420 Shear 379 29.69 4.099 18.420 42.187 37.663 32.812 0.000 0.000 0.000 0.000
0.000 Automatic
g39X XBR6 4.099 L/r 18.420 Shear 379 29.69 4.099 18.420 42.187 37.663 32.812 0.000 0.000 0.000 0.000
0.000 Automatic
g39XY XBR6 4.099 L/r 18.420 Shear 379 29.69 4.099 18.420 42.187 37.663 32.812 0.000 0.000 0.000 0.000
0.000 Automatic
g39Y XBR6 4.099 L/r 18.420 Shear 379 29.69 4.099 18.420 42.187 37.663 32.812 0.000 0.000 0.000 0.000
0.000 Automatic
g40P XBR6 4.099 L/r 18.420 Shear 379 29.69 4.099 18.420 42.187 37.663 32.812 0.000 0.000 0.000 0.000
0.000 Automatic
g40X XBR6 4.099 L/r 18.420 Shear 379 29.69 4.099 18.420 42.187 37.663 32.812 0.000 0.000 0.000 0.000
0.000 Automatic
g40XY XBR6 4.099 L/r 18.420 Shear 379 29.69 4.099 18.420 42.187 37.663 32.812 0.000 0.000 0.000 0.000
0.000 Automatic
g40Y XBR6 4.099 L/r 18.420 Shear 379 29.69 4.099 18.420 42.187 37.663 32.812 0.000 0.000 0.000 0.000
0.000 Automatic
g41P DIAG2 12.280 Shear 12.280 Shear 191 24.36 24.206 12.280 35.156 55.729 27.344 0.000 0.000 0.000 0.000
0.000 Automatic
g41X DIAG2 12.280 Shear 12.280 Shear 191 24.36 24.206 12.280 35.156 55.729 27.344 0.000 0.000 0.000 0.000
0.000 Automatic
g41XY DIAG2 12.280 Shear 12.280 Shear 191 24.36 24.206 12.280 35.156 55.729 27.344 0.000 0.000 0.000 0.000
0.000 Automatic
g41Y DIAG2 12.280 Shear 12.280 Shear 191 24.36 24.206 12.280 35.156 55.729 27.344 0.000 0.000 0.000 0.000
0.000 Automatic
g42P DIAG2 12.280 Shear 12.280 Shear 191 24.36 24.206 12.280 35.156 55.729 27.344 0.000 0.000 0.000 0.000
0.000 Automatic
g42X DIAG2 12.280 Shear 12.280 Shear 191 24.36 24.206 12.280 35.156 55.729 27.344 0.000 0.000 0.000 0.000
0.000 Automatic
g42XY DIAG2 12.280 Shear 12.280 Shear 191 24.36 24.206 12.280 35.156 55.729 27.344 0.000 0.000 0.000 0.000
0.000 Automatic
g42Y DIAG2 12.280 Shear 12.280 Shear 191 24.36 24.206 12.280 35.156 55.729 27.344 0.000 0.000 0.000 0.000
0.000 Automatic
g43P HORZ1 24.560 Shear 24.560 Shear 127 6.62 35.481 24.560 56.250 48.225 43.750 0.000 0.000 0.000 0.000
0.000 Automatic Member "g43P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
g43X HORZ1 24.560 Shear 24.560 Shear 127 6.62 35.481 24.560 56.250 48.225 43.750 0.000 0.000 0.000 0.000
0.000 Automatic Member "g43X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
g43XY HORZ1 24.560 Shear 24.560 Shear 127 6.62 35.481 24.560 56.250 48.225 43.750 0.000 0.000 0.000 0.000
0.000 Automatic Member "g43XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
g43Y HORZ1 24.560 Shear 24.560 Shear 127 6.62 35.481 24.560 56.250 48.225 43.750 0.000 0.000 0.000 0.000
0.000 Automatic Member "g43Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
g44P HORZ1 24.560 Shear 24.560 Shear 127 6.62 35.481 24.560 56.250 48.225 43.750 0.000 0.000 0.000 0.000
0.000 Automatic Member "g44P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
g44X HORZ1 24.560 Shear 24.560 Shear 127 6.62 35.481 24.560 56.250 48.225 43.750 0.000 0.000 0.000 0.000
0.000 Automatic Member "g44X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
g44XY HORZ1 24.560 Shear 24.560 Shear 127 6.62 35.481 24.560 56.250 48.225 43.750 0.000 0.000 0.000 0.000
0.000 Automatic Member "g44XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
g44Y HORZ1 24.560 Shear 24.560 Shear 127 6.62 35.481 24.560 56.250 48.225 43.750 0.000 0.000 0.000 0.000

0.000	**Automatic**	**Member "g44Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**														
g45P	HORZ1	18.420	Shear	18.420	Shear	143	18.92	29.408	18.420	42.187	52.513	32.812	0.000	0.000	0.000	0.000
0.000	Automatic															
g45Y	HORZ1	18.420	Shear	18.420	Shear	143	18.92	29.408	18.420	42.187	52.513	32.812	0.000	0.000	0.000	0.000
0.000	Automatic															
g46P	HORZ1	18.420	Shear	18.420	Shear	143	18.92	29.408	18.420	42.187	52.513	32.812	0.000	0.000	0.000	0.000
0.000	Automatic															
g46X	HORZ1	18.420	Shear	18.420	Shear	143	18.92	29.408	18.420	42.187	52.513	32.812	0.000	0.000	0.000	0.000
0.000	Automatic															
g47P	HORZ1	18.420	Shear	18.420	Shear	186	12.30	19.194	18.420	42.187	52.513	32.812	0.000	0.000	0.000	0.000
0.000	Automatic															
g47X	HORZ1	18.420	Shear	18.420	Shear	186	12.30	19.194	18.420	42.187	52.513	32.812	0.000	0.000	0.000	0.000
0.000	Automatic															
g47XY	HORZ1	18.420	Shear	18.420	Shear	186	12.30	19.194	18.420	42.187	52.513	32.812	0.000	0.000	0.000	0.000
0.000	Automatic															
g47Y	HORZ1	18.420	Shear	18.420	Shear	186	12.30	19.194	18.420	42.187	52.513	32.812	0.000	0.000	0.000	0.000
0.000	Automatic															
g48P	HORZ1	18.420	Shear	18.420	Shear	186	12.30	19.194	18.420	42.187	52.513	32.812	0.000	0.000	0.000	0.000
0.000	Automatic															
g48X	HORZ1	18.420	Shear	18.420	Shear	186	12.30	19.194	18.420	42.187	52.513	32.812	0.000	0.000	0.000	0.000
0.000	Automatic															
g48XY	HORZ1	18.420	Shear	18.420	Shear	186	12.30	19.194	18.420	42.187	52.513	32.812	0.000	0.000	0.000	0.000
0.000	Automatic															
g48Y	HORZ1	18.420	Shear	18.420	Shear	186	12.30	19.194	18.420	42.187	52.513	32.812	0.000	0.000	0.000	0.000
0.000	Automatic															
g49P	**ARM1**	**30.700**	**Shear**	**30.700**	**Shear**	**90**	**11.52**	**57.564**	**30.700**	**87.890**	**64.036**	**68.359**	**0.000**	**0.000**	**0.000**	**0.000**
0.000	**Automatic**	**Member "g49P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**														
g49X	**ARM1**	**30.700**	**Shear**	**30.700**	**Shear**	**90**	**11.52**	**57.564**	**30.700**	**87.890**	**64.036**	**68.359**	**0.000**	**0.000**	**0.000**	**0.000**
0.000	**Automatic**	**Member "g49X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**														
g49XY	**ARM1**	**30.700**	**Shear**	**30.700**	**Shear**	**90**	**11.52**	**57.564**	**30.700**	**87.890**	**64.036**	**68.359**	**0.000**	**0.000**	**0.000**	**0.000**
0.000	**Automatic**	**Member "g49XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**														
g49Y	**ARM1**	**30.700**	**Shear**	**30.700**	**Shear**	**90**	**11.52**	**57.564**	**30.700**	**87.890**	**64.036**	**68.359**	**0.000**	**0.000**	**0.000**	**0.000**
0.000	**Automatic**	**Member "g49Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**														
g50P	ARM1	60.534	L/r	84.480	Net Sect	78	5.00	60.534	0.000	0.000	84.480	0.000	0.000	0.000	0.000	0.000
0.000	Automatic															
g50Y	ARM1	60.534	L/r	84.480	Net Sect	78	5.00	60.534	0.000	0.000	84.480	0.000	0.000	0.000	0.000	0.000
0.000	Automatic															
g51P	**ARM2**	**18.420**	**Shear**	**18.420**	**Shear**	**116**	**7.67**	**38.378**	**18.420**	**42.187**	**50.982**	**60.662**	**0.000**	**0.000**	**0.000**	**0.000**
0.000	**Automatic**	**Member "g51P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**														
g51X	**ARM2**	**18.420**	**Shear**	**18.420**	**Shear**	**116**	**7.67**	**38.378**	**18.420**	**42.187**	**50.982**	**60.662**	**0.000**	**0.000**	**0.000**	**0.000**
0.000	**Automatic**	**Member "g51X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**														
g51XY	**ARM2**	**18.420**	**Shear**	**18.420**	**Shear**	**116**	**7.67**	**38.378**	**18.420**	**42.187**	**50.982**	**60.662**	**0.000**	**0.000**	**0.000**	**0.000**
0.000	**Automatic**	**Member "g51XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**														
g51Y	**ARM2**	**18.420**	**Shear**	**18.420**	**Shear**	**116**	**7.67**	**38.378**	**18.420**	**42.187**	**50.982**	**60.662**	**0.000**	**0.000**	**0.000**	**0.000**
0.000	**Automatic**	**Member "g51Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**														
g52P	ARM2	46.393	L/r	64.020	Net Sect	75	5.00	46.393	0.000	0.000	64.020	0.000	0.000	0.000	0.000	0.000
0.000	Automatic															
g52Y	ARM2	46.393	L/r	64.020	Net Sect	75	5.00	46.393	0.000	0.000	64.020	0.000	0.000	0.000	0.000	0.000
0.000	Automatic															

g53P	ARM1	30.700	Shear	30.700	Shear	94	12.01	56.576	30.700	87.890	64.355	80.423	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g53P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g53X	ARM1	30.700	Shear	30.700	Shear	94	12.01	56.576	30.700	87.890	64.355	80.423	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g53X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g53XY	ARM1	30.700	Shear	30.700	Shear	94	12.01	56.576	30.700	87.890	64.355	80.423	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g53XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g53Y	ARM1	30.700	Shear	30.700	Shear	94	12.01	56.576	30.700	87.890	64.355	80.423	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g53Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g54P	ARM1	60.534	L/r	84.480	Net Sect	78	5.00	60.534	0.000	0.000	84.480	0.000	0.000	0.000	0.000	0.000
0.000	Automatic															
g54Y	ARM1	60.534	L/r	84.480	Net Sect	78	5.00	60.534	0.000	0.000	84.480	0.000	0.000	0.000	0.000	0.000
0.000	Automatic															
g55P	ARM2	24.560	Shear	24.560	Shear	123	8.14	36.436	24.560	56.250	49.093	66.176	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g55P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g55X	ARM2	24.560	Shear	24.560	Shear	123	8.14	36.436	24.560	56.250	49.093	66.176	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g55X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g55XY	ARM2	24.560	Shear	24.560	Shear	123	8.14	36.436	24.560	56.250	49.093	66.176	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g55XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g55Y	ARM2	24.560	Shear	24.560	Shear	123	8.14	36.436	24.560	56.250	49.093	66.176	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g55Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g56P	ARM2	46.393	L/r	64.020	Net Sect	75	5.00	46.393	0.000	0.000	64.020	0.000	0.000	0.000	0.000	0.000
0.000	Automatic															
g56Y	ARM2	46.393	L/r	64.020	Net Sect	75	5.00	46.393	0.000	0.000	64.020	0.000	0.000	0.000	0.000	0.000
0.000	Automatic															
g57P	M1	24.560	Shear	24.560	Shear	119	10.77	66.338	24.560	56.250	90.176	43.750	0.000	0.000	0.000	0.000
0.000	Automatic															
g57X	M1	24.560	Shear	24.560	Shear	119	10.77	66.338	24.560	56.250	90.176	43.750	0.000	0.000	0.000	0.000
0.000	Automatic															
g58P	M2	12.280	Shear	12.280	Shear	101	5.00	23.348	12.280	21.094	28.544	16.406	0.000	0.000	0.000	0.000
0.000	Automatic															
g58X	M2	12.280	Shear	12.280	Shear	101	5.00	23.348	12.280	21.094	28.544	16.406	0.000	0.000	0.000	0.000
0.000	Automatic															
g59P	M2	12.280	Shear	12.280	Shear	101	5.00	23.348	12.280	21.094	28.544	16.406	0.000	0.000	0.000	0.000
0.000	Automatic															
g59X	M2	12.280	Shear	12.280	Shear	101	5.00	23.348	12.280	21.094	28.544	16.406	0.000	0.000	0.000	0.000
0.000	Automatic															
g60P	M2	18.420	Shear	18.420	Shear	101	5.00	23.348	18.420	31.641	28.544	23.396	0.000	0.000	0.000	0.000
0.000	Automatic															
g60X	M2	18.420	Shear	18.420	Shear	101	5.00	23.348	18.420	31.641	28.544	23.396	0.000	0.000	0.000	0.000
0.000	Automatic															
g61P	M3	18.420	Shear	18.420	Shear	101	5.00	30.742	18.420	42.187	37.663	32.812	0.000	0.000	0.000	0.000
0.000	Automatic															
g61X	M3	18.420	Shear	18.420	Shear	101	5.00	30.742	18.420	42.187	37.663	32.812	0.000	0.000	0.000	0.000
0.000	Automatic															
g62P	M4	8.070	L/r	8.121	Net Sect	110	9.15	8.070	12.280	21.094	8.121	16.406	0.000	0.000	0.000	0.000
0.000	Automatic															
g62X	M4	8.070	L/r	8.121	Net Sect	110	9.15	8.070	12.280	21.094	8.121	16.406	0.000	0.000	0.000	0.000
0.000	Automatic															
g62XY	M4	8.070	L/r	8.121	Net Sect	110	9.15	8.070	12.280	21.094	8.121	16.406	0.000	0.000	0.000	0.000
0.000	Automatic															
g62Y	M4	8.070	L/r	8.121	Net Sect	110	9.15	8.070	12.280	21.094	8.121	16.406	0.000	0.000	0.000	0.000

0.000		Automatic														
g63P	M4	4.649	L/r	8.121	Net Sect	152	12.66	4.649	12.280	21.094	8.121	16.406	0.000	0.000	0.000	0.000
0.000		Automatic														
g63X	M4	4.649	L/r	8.121	Net Sect	152	12.66	4.649	12.280	21.094	8.121	16.406	0.000	0.000	0.000	0.000
0.000		Automatic														
g63XY	M4	4.649	L/r	8.121	Net Sect	152	12.66	4.649	12.280	21.094	8.121	16.406	0.000	0.000	0.000	0.000
0.000		Automatic														
g63Y	M4	4.649	L/r	8.121	Net Sect	152	12.66	4.649	12.280	21.094	8.121	16.406	0.000	0.000	0.000	0.000
0.000		Automatic														
g64P	M8	2.095	L/r	6.636	Net Sect	212	9.56	2.095	12.280	21.094	6.636	16.406	0.000	0.000	0.000	0.000
0.000		Automatic														
g64X	M8	2.095	L/r	6.636	Net Sect	212	9.56	2.095	12.280	21.094	6.636	16.406	0.000	0.000	0.000	0.000
0.000		Automatic														
g64XY	M8	2.095	L/r	6.636	Net Sect	212	9.56	2.095	12.280	21.094	6.636	16.406	0.000	0.000	0.000	0.000
0.000		Automatic														
g64Y	M8	2.095	L/r	6.636	Net Sect	212	9.56	2.095	12.280	21.094	6.636	16.406	0.000	0.000	0.000	0.000
0.000		Automatic														
g65P	M7	6.140	Shear	6.140	Shear	60	5.00	11.091	6.140	10.547	8.121	8.203	0.000	0.000	0.000	0.000
0.000		Automatic														
g65Y	M7	6.140	Shear	6.140	Shear	60	5.00	11.091	6.140	10.547	8.121	8.203	0.000	0.000	0.000	0.000
0.000		Automatic														
g66P	M7	6.140	Shear	6.140	Shear	60	5.00	11.091	6.140	10.547	8.121	8.203	0.000	0.000	0.000	0.000
0.000		Automatic														
g66Y	M7	6.140	Shear	6.140	Shear	60	5.00	11.091	6.140	10.547	8.121	8.203	0.000	0.000	0.000	0.000
0.000		Automatic														
g67P	M8	6.140	Shear	6.140	Shear	111	5.00	7.015	6.140	10.547	6.636	8.203	0.000	0.000	0.000	0.000
0.000		Automatic														
g67Y	M8	6.140	Shear	6.140	Shear	111	5.00	7.015	6.140	10.547	6.636	8.203	0.000	0.000	0.000	0.000
0.000		Automatic														
g68P	**M2**	**12.280**	**Shear**	**12.280**	**Shear**	**90**	**3.54**	**24.499**	**12.280**	**21.094**	**28.544**	**19.301**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g68P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**													
g68X	**M2**	**12.280**	**Shear**	**12.280**	**Shear**	**90**	**3.54**	**24.499**	**12.280**	**21.094**	**28.544**	**19.301**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g68X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**													
g68XY	**M2**	**12.280**	**Shear**	**12.280**	**Shear**	**90**	**3.54**	**24.499**	**12.280**	**21.094**	**28.544**	**19.301**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g68XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**													
g68Y	**M2**	**12.280**	**Shear**	**12.280**	**Shear**	**90**	**3.54**	**24.499**	**12.280**	**21.094**	**28.544**	**19.301**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g68Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**													
g69P	**M2**	**12.280**	**Shear**	**12.280**	**Shear**	**90**	**3.54**	**24.499**	**12.280**	**21.094**	**28.544**	**19.301**	**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	**M2**	**12.280**	**Shear**	**12.280**	**Shear**	**90**	**3.54**	**24.499**	**12.280**	**21.094**	**28.544**	**19.301**	**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	**M2**	**12.280**	**Shear**	**12.280**	**Shear**	**90**	**3.54**	**24.499**	**12.280**	**21.094**	**28.544**	**19.301**	**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	**M2**	**12.280**	**Shear**	**12.280**	**Shear**	**90**	**3.54**	**24.499**	**12.280**	**21.094**	**28.544**	**19.301**	**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	**M2**	**12.280**	**Shear**	**12.280**	**Shear**	**90**	**3.54**	**24.499**	**12.280**	**21.094**	**28.544**	**19.301**	**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. ??**													
g70X	**M2**	**12.280**	**Shear**	**12.280**	**Shear**	**90**	**3.54**	**24.499**	**12.280**	**21.094**	**28.544**	**19.301**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g70X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than**													

zero); however, end, edge and spacing distances will be checked. ??
g70XY M2 12.280 Shear 12.280 Shear 90 3.54 24.499 12.280 21.094 28.544 19.301 0.000 0.000 0.000 0.000
0.000 Automatic Member "g70XY" will not be checked for block 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 M2 12.280 Shear 12.280 Shear 90 3.54 24.499 12.280 21.094 28.544 19.301 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 M2 12.280 Shear 12.280 Shear 90 3.54 24.499 12.280 21.094 28.544 19.301 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 M2 12.280 Shear 12.280 Shear 90 3.54 24.499 12.280 21.094 28.544 19.301 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 M2 12.280 Shear 12.280 Shear 90 3.54 24.499 12.280 21.094 28.544 19.301 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 M2 12.280 Shear 12.280 Shear 90 3.54 24.499 12.280 21.094 28.544 19.301 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 M5 1.014 L/r 6.140 Shear 418 9.36 1.014 6.140 10.547 14.585 6.873 0.000 0.000 0.000 0.000
0.000 Automatic
g72X M5 1.014 L/r 6.140 Shear 418 9.36 1.014 6.140 10.547 14.585 6.873 0.000 0.000 0.000 0.000
0.000 Automatic
g72XY M5 1.014 L/r 6.140 Shear 418 9.36 1.014 6.140 10.547 14.585 6.873 0.000 0.000 0.000 0.000
0.000 Automatic
g72Y M5 1.014 L/r 6.140 Shear 418 9.36 1.014 6.140 10.547 14.585 6.873 0.000 0.000 0.000 0.000
0.000 Automatic
g73P M5 0.496 L/r 6.140 Shear 598 13.38 0.496 6.140 10.547 14.585 6.873 0.000 0.000 0.000 0.000
0.000 Automatic
g73X M5 0.496 L/r 6.140 Shear 598 13.38 0.496 6.140 10.547 14.585 6.873 0.000 0.000 0.000 0.000
0.000 Automatic
g73XY M5 0.496 L/r 6.140 Shear 598 13.38 0.496 6.140 10.547 14.585 6.873 0.000 0.000 0.000 0.000
0.000 Automatic
g73Y M5 0.496 L/r 6.140 Shear 598 13.38 0.496 6.140 10.547 14.585 6.873 0.000 0.000 0.000 0.000
0.000 Automatic
g74P M5 0.294 L/r 6.140 Shear 777 17.40 0.294 6.140 10.547 14.585 6.873 0.000 0.000 0.000 0.000
0.000 Automatic
g74X M5 0.294 L/r 6.140 Shear 777 17.40 0.294 6.140 10.547 14.585 6.873 0.000 0.000 0.000 0.000
0.000 Automatic
g74XY M5 0.294 L/r 6.140 Shear 777 17.40 0.294 6.140 10.547 14.585 6.873 0.000 0.000 0.000 0.000
0.000 Automatic
g74Y M5 0.294 L/r 6.140 Shear 777 17.40 0.294 6.140 10.547 14.585 6.873 0.000 0.000 0.000 0.000
0.000 Automatic
g75P Pwmnt 630.072 L/r 679.999 Net Sect 41 15.00 630.072 0.000 0.000 679.999 0.000 0.000 0.000 0.000 0.000
0.000 Automatic
g76P Pwmnt 657.809 L/r 679.999 Net Sect 27 10.00 657.809 0.000 0.000 679.999 0.000 0.000 0.000 0.000 0.000
0.000 Automatic
g77P Pwmnt 648.046 L/r 679.999 Net Sect 33 12.00 648.046 0.000 0.000 679.999 0.000 0.000 0.000 0.000 0.000
0.000 Automatic
g78P Pwmnt 657.809 L/r 679.999 Net Sect 27 10.00 657.809 0.000 0.000 679.999 0.000 0.000 0.000 0.000 0.000
0.000 Automatic
g79P Pwmnt 493.382 L/r 679.999 Net Sect 79 29.00 493.382 0.000 0.000 679.999 0.000 0.000 0.000 0.000 0.000
0.000 Automatic
g80P Pwmnt 591.240 L/r 679.999 Net Sect 55 20.00 591.240 0.000 0.000 679.999 0.000 0.000 0.000 0.000 0.000
0.000 Automatic
g81P Pwmnt 591.240 L/r 679.999 Net Sect 55 20.00 591.240 0.000 0.000 679.999 0.000 0.000 0.000 0.000 0.000
0.000 Automatic
g82P Pwmnt 599.894 L/r 679.999 Net Sect 52 19.00 599.894 0.000 0.000 679.999 0.000 0.000 0.000 0.000 0.000
0.000 Automatic

g83P	PMBR1	10.195	Bearing	10.195	Bearing	82	2.69	17.361	16.800	10.195	18.827	10.343	0.000	0.000	0.000	0.000
0.000		Automatic														
g83X	PMBR1	10.195	Bearing	10.195	Bearing	82	2.69	17.361	16.800	10.195	18.827	10.343	0.000	0.000	0.000	0.000
0.000		Automatic														
g84P	PMBR1	10.195	Bearing	10.195	Bearing	82	2.69	17.361	16.800	10.195	18.827	10.343	0.000	0.000	0.000	0.000
0.000		Automatic														
g84X	PMBR1	10.195	Bearing	10.195	Bearing	82	2.69	17.361	16.800	10.195	18.827	10.343	0.000	0.000	0.000	0.000
0.000		Automatic														
g85P	PMBR1	10.195	Bearing	10.195	Bearing	82	2.69	17.361	16.800	10.195	18.827	10.343	0.000	0.000	0.000	0.000
0.000		Automatic														
g85X	PMBR1	10.195	Bearing	10.195	Bearing	82	2.69	17.361	16.800	10.195	18.827	10.343	0.000	0.000	0.000	0.000
0.000		Automatic														
g86P	PMBR1	10.195	Bearing	10.195	Bearing	82	2.69	17.361	16.800	10.195	18.827	10.343	0.000	0.000	0.000	0.000
0.000		Automatic														
g86X	PMBR1	10.195	Bearing	10.195	Bearing	82	2.69	17.361	16.800	10.195	18.827	10.343	0.000	0.000	0.000	0.000
0.000		Automatic														
g87P	PMBR1	10.195	Bearing	10.195	Bearing	46	1.50	20.044	16.800	10.195	18.827	10.343	0.000	0.000	0.000	0.000
0.000		Automatic														
g88P	PMBR1	10.195	Bearing	10.195	Bearing	46	1.50	20.044	16.800	10.195	18.827	10.343	0.000	0.000	0.000	0.000
0.000		Automatic														
g89P	PMBR1	10.195	Bearing	10.195	Bearing	46	1.50	20.044	16.800	10.195	18.827	10.343	0.000	0.000	0.000	0.000
0.000		Automatic														
g90P	PMBR1	10.195	Bearing	10.195	Bearing	46	1.50	20.044	16.800	10.195	18.827	10.343	0.000	0.000	0.000	0.000
0.000		Automatic														
g91P	PMBR2	10.195	Bearing	10.195	Bearing	168	8.37	10.990	16.800	10.195	31.139	11.328	0.000	0.000	0.000	0.000
0.000		Automatic														
g91X	PMBR2	10.195	Bearing	10.195	Bearing	168	8.37	10.990	16.800	10.195	31.139	11.328	0.000	0.000	0.000	0.000
0.000		Automatic														
g92P	PMBR1	10.195	Bearing	10.195	Bearing	46	1.50	20.044	16.800	10.195	18.827	10.343	0.000	0.000	0.000	0.000
0.000		Automatic														
g93P	PMBR3	13.594	Bearing	13.594	Bearing	187	12.36	15.943	16.800	13.594	57.287	15.104	0.000	0.000	0.000	0.000
0.000		Automatic														
g93X	PMBR3	13.594	Bearing	13.594	Bearing	187	12.36	15.943	16.800	13.594	57.287	15.104	0.000	0.000	0.000	0.000
0.000		Automatic														
g94P	PMBR4	16.800	Shear	16.800	Shear	198	16.37	26.243	16.800	20.391	108.611	22.656	0.000	0.000	0.000	0.000
0.000		Automatic														
g94X	PMBR4	16.800	Shear	16.800	Shear	198	16.37	26.243	16.800	20.391	108.611	22.656	0.000	0.000	0.000	0.000
0.000		Automatic														
g95P	**HORZ3**	**6.140**	**Shear**	**6.140**	**Shear**	**227**	**12.30**	**9.408**	**6.140**	**14.062**	**37.663**	**10.937**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**														
g96P	HORZ3	6.140	Shear	6.140	Shear	28	1.50	47.009	6.140	14.062	37.663	10.937	0.000	0.000	0.000	0.000
0.000		Automatic														
g97P	HORZ3	6.140	Shear	6.140	Shear	199	10.80	12.202	6.140	14.062	37.663	10.937	0.000	0.000	0.000	0.000
0.000		Automatic														
g98P	**HORZ2**	**6.140**	**Shear**	**6.140**	**Shear**	**34**	**1.50**	**35.833**	**6.140**	**14.062**	**30.090**	**10.937**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**														

KL/R value of 226.75 exceeds maximum of 200.00 for member "g95P" ??

Member "g98P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

The model contains 299 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	0.139	6.040	3.801
2P	0.111	5.835	5.150

3P	0.171	7.047	6.047
4P	0.123	4.701	4.701
5P	0.135	6.152	5.094
6P	0.273	9.917	7.574
7P	0.252	8.567	7.937
8P	0.339	11.273	10.190
9P	0.529	15.438	15.438
20P	0.163	6.258	2.500
21P	0.125	5.455	3.223
22P	0.121	6.965	1.828
23P	0.0644	3.928	1.649
24P	0.0281	1.250	1.375
25P	0.0281	1.250	1.375
26P	0.0281	1.250	1.375
27P	0.0281	1.250	1.375
28P	0.0415	1.931	2.056
29P	0.0601	2.759	2.947
30P	0.114	3.588	5.888
31P	0.372	7.969	7.969
32P	0.628	13.698	13.573
33P	0.554	12.104	11.979
34P	0.554	12.104	11.979
35P	0.976	21.135	21.010
36P	1.25	27.686	27.436
37P	1.08	24.403	24.091
38P	1.2	25.844	27.269
39P	0.471	10.094	10.094
1X	0.139	6.040	3.801
1XY	0.142	6.248	3.884
1Y	0.142	6.248	3.884
2X	0.111	5.835	5.150
2XY	0.111	5.835	5.150
2Y	0.111	5.835	5.150
3X	0.171	7.047	6.047
3XY	0.174	7.255	6.130
3Y	0.174	7.255	6.130
4X	0.123	4.701	4.701
4XY	0.123	4.701	4.701
4Y	0.123	4.701	4.701
5X	0.135	6.152	5.094
5XY	0.135	6.152	5.094
5Y	0.135	6.152	5.094
6X	0.273	9.917	7.574
6XY	0.277	10.126	7.657
6Y	0.277	10.126	7.657
7X	0.252	8.567	7.937
7XY	0.252	8.567	7.937
7Y	0.252	8.567	7.937
8X	0.339	11.273	10.190
8XY	0.343	11.482	10.273
8Y	0.343	11.482	10.273
9X	0.529	15.438	15.438
9XY	0.529	15.438	15.438
9Y	0.529	15.438	15.438
20X	0.163	6.258	2.500
21X	0.125	5.455	3.223
22X	0.121	6.965	1.828
23X	0.0644	3.928	1.649
10S	0.32	10.376	10.376

11S	0.33	10.469	10.469
12S	0.329	10.821	10.821
13S	0.681	18.657	18.657
14S	1.14	32.210	32.210
15S	0.896	23.334	23.334
16S	0.1	5.439	2.693
17S	0.1	2.693	5.439
18S	0.329	14.187	10.046
19S	0.293	7.996	14.187
10X	0.32	10.376	10.376
10XY	0.32	10.376	10.376
10Y	0.32	10.376	10.376
11X	0.33	10.469	10.469
11XY	0.33	10.469	10.469
11Y	0.33	10.469	10.469
12X	0.329	10.821	10.821
12XY	0.329	10.821	10.821
12Y	0.329	10.821	10.821
13X	0.681	18.657	18.657
13XY	0.696	19.484	19.297
13Y	0.696	19.484	19.297
14X	1.14	32.210	32.210
14XY	1.18	33.787	33.537
14Y	1.18	33.787	33.537
15X	0.896	23.334	23.334
15XY	0.996	25.897	25.584
15Y	0.996	25.897	25.584
16Y	0.1	5.439	2.693
17X	0.1	2.693	5.439
18Y	0.324	14.187	9.796
19X	0.293	7.996	14.187
Total	33.4	1009.110	950.968

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	16.131	537.713	473.245	262.849	223.224
2	17.269	471.398	477.723	211.173	211.173
Total	33.401	1009.110	950.968	474.022	434.397

Angle Member Weights and Surface Areas by Section:

Section Label	Unfactored Weight (kips)	Factored Weight (kips)	Unfactored Surface Area (ft^2)	Factored Surface Area (ft^2)
1	16.131	16.938	2254.140	2366.846
2	17.269	18.133	2014.955	2115.703
Total	33.401	35.071	4269.095	4482.550

Section Joint Information:

Section Label	Joint Label	Joint Elevation (ft)

1	1X	120.000
1	2X	115.000
1	1P	120.000
1	2P	115.000
1	1Y	120.000
1	2Y	115.000
1	1XY	120.000
1	2XY	115.000
1	3X	110.000
1	3P	110.000
1	3Y	110.000
1	3XY	110.000
1	4X	106.000
1	4P	106.000
1	4Y	106.000
1	4XY	106.000
1	5X	102.000
1	5P	102.000
1	5Y	102.000
1	5XY	102.000
1	6X	98.000
1	6P	98.000
1	6Y	98.000
1	6XY	98.000
1	7X	93.000
1	7P	93.000
1	7Y	93.000
1	7XY	93.000
1	8X	88.000
1	8P	88.000
1	8Y	88.000
1	8XY	88.000
1	10X	81.000
1	10S	81.000
1	10Y	81.000
1	10XY	81.000
1	11X	74.000
1	11S	74.000
1	11Y	74.000
1	11XY	74.000
1	12X	67.000
1	12S	67.000
1	12Y	67.000
1	12XY	67.000
1	13X	59.000
1	13S	59.000
1	13Y	59.000
1	13XY	59.000
1	16S	59.000
1	16Y	59.000
1	17X	59.000
1	17S	59.000
1	20X	120.000
1	20P	120.000
1	21X	110.000
1	21P	110.000
1	22X	98.000
1	22P	98.000
1	23X	88.000

1	23P	88.000
1	24P	120.000
1	25P	110.000
1	26P	98.000
1	27P	88.000
1	28P	59.000
1	32P	120.000
1	31P	135.000
1	33P	110.000
1	34P	98.000
1	35P	88.000
1	36P	59.000
2	13X	59.000
2	14X	39.000
2	13S	59.000
2	14S	39.000
2	13Y	59.000
2	14Y	39.000
2	13XY	59.000
2	14XY	39.000
2	15X	19.000
2	15S	19.000
2	15Y	19.000
2	15XY	19.000
2	9X	0.000
2	9P	0.000
2	9Y	0.000
2	9XY	0.000
2	18S	19.000
2	18Y	19.000
2	19X	19.000
2	19S	19.000
2	29P	39.000
2	30P	19.000
2	37P	39.000
2	36P	59.000
2	38P	19.000
2	39P	0.000

Sections Information:

Section Label	Top Z (ft)	Bottom Z (ft)	Joint Count	Member Count	Tran. Face Top Width (ft)	Tran. Face Bot Width (ft)	Tran. Face Gross Area (ft^2)	Long. Face Top Width (ft)	Long. Face Bot Width (ft)	Long. Face Gross Area (ft^2)
1	135.000	59.000	71	232	0.00	13.24	461.960	0.00	13.24	901.460
2	59.000	0.000	26	67	13.24	30.00	1275.540	13.24	30.00	1275.540

*** 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)
CLAMP1	20P	C-EX1	No Limit
CLAMP2	20X	C-EX1	No Limit
CLAMP3	21P	C-EX1	No Limit
CLAMP4	21X	C-EX1	No Limit
CLAMP5	22P	C-EX1	No Limit
CLAMP6	22X	C-EX1	No Limit
CLAMP7	23P	C-EX1	No Limit
CLAMP8	23X	C-EX1	No Limit
CLAMP9	1P	C-EX1	No Limit
CLAMP10	1X	C-EX1	No Limit
CLAMP11	3P	C-EX1	No Limit
CLAMP12	3X	C-EX1	No Limit
CLAMP13	6P	C-EX1	No Limit
CLAMP14	6X	C-EX1	No Limit
CLAMP15	8P	C-EX1	No Limit
CLAMP16	8X	C-EX1	No Limit
CLAMP17	13S	C-EX1	No Limit
CLAMP18	13X	C-EX1	No Limit
CLAMP19	14S	C-EX1	No Limit
CLAMP20	14X	C-EX1	No Limit
CLAMP21	15S	C-EX1	No Limit
CLAMP22	15X	C-EX1	No Limit
CLAMP23	31P	C-EX1	No Limit
CLAMP24	32P	C-EX1	No Limit
CLAMP25	33P	C-EX1	No Limit
CLAMP26	34P	C-EX1	No Limit
CLAMP27	35P	C-EX1	No Limit
CLAMP28	36P	C-EX1	No Limit
CLAMP29	37P	C-EX1	No Limit
CLAMP30	38P	C-EX1	No Limit
CLAMP31	1XY	C-EX1	No Limit
CLAMP32	3XY	C-EX1	No Limit
CLAMP33	6XY	C-EX1	No Limit
CLAMP34	8XY	C-EX1	No Limit
CLAMP35	13XY	C-EX1	No Limit
CLAMP36	14XY	C-EX1	No Limit
CLAMP37	15XY	C-EX1	No Limit

*** Loads Data

Loads from file: j:\jobs\1715900.wi\05_ct03xc329 stamford\04_structural\calcs\rev (2)\pls tower\cl&p # 1217.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)	135.00 (ft)	
Structure height	135.00 (ft)	
Structure height above ground	135.00 (ft)	
Tower Shape	Rectangular	

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

Vector Load Cases:

Load Case Description	Dead Load Factor	Wind Area Factor	SF for Steel Poles 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	24 loads	Wind on Face	4	0	0.000	56.000	0.0	
NESC Extreme	1.0000	1.0000	1.00000	1.0000	1.0000	1.0000	24 loads	NESC 2012	31	0	0.000	0.000	0.0	
NESC Heavy Broken Wire	1.5000	2.5000	1.00000	1.0000	1.0000	1.0000	24 loads	Wind on Face	4	0	0.000	56.000	0.0	

Point Loads for Load Case "NESC Heavy":

Joint Label	Vertical Load (lbs)	Transverse Load (lbs)	Longitudinal Load (lbs)	Load Comment
20P	677	991	10	Shield Wire
20X	677	991	10	Shield Wire
21P	1804	1546	14	Conductor
21X	1804	1546	14	Conductor
22P	1804	1546	14	Conductor
22X	1804	1546	14	Conductor
23P	1804	1546	14	Conductor
23X	1804	1546	14	Conductor
31P	830	99	0	Coax Cables on Powermount
32P	47	0	0	Coax Cables in Powermount
33P	103	0	0	Coax Cables in Powermount
34P	103	0	0	Coax Cables in Powermount
35P	183	0	0	Coax Cables in Powermount
36P	229	0	0	Coax Cables in Powermount
37P	187	0	0	Coax Cables in Powermount
38P	271	0	0	Coax Cables in Powermount
1XY	230	86	0	Coax Cables on Tower
3XY	506	189	0	Coax Cables on Tower
6XY	506	189	0	Coax Cables on Tower

8XY	897	335	0	Coax Cables on Tower
13XY	1127	421	0	Coax Cables on Tower
14XY	920	343	0	Coax Cables on Tower
15XY	1334	498	0	Coax Cables on Tower
31P	7209	586	0	Sprint Antennas

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	135.00	59.00	97.00	10.00	10.00	3.350	7478.0	0.00	3.350	0.0	0	25406
2	59.00	0.00	29.50	10.00	10.00	3.500	7391.1	0.00	3.500	0.0	0	27199

Point Loads for Load Case "NESC Extreme":

Joint Label	Vertical Load (lbs)	Transverse Load (lbs)	Longitudinal Load (lbs)	Load Comment
20P	229	931	343	Shield Wire
20X	229	931	343	Shield Wire
21P	801	2598	1093	Conductor
21X	801	2598	1093	Conductor
22P	801	2598	1093	Conductor
22X	801	2598	1093	Conductor
23P	801	2598	1093	Conductor
23X	801	2598	1093	Conductor
31P	281	257	0	Coax Cables on Powermount
32P	31	0	0	Coax Cables in Powermount
33P	69	0	0	Coax Cables in Powermount
34P	69	0	0	Coax Cables in Powermount
35P	122	0	0	Coax Cables in Powermount
36P	153	0	0	Coax Cables in Powermount
37P	125	0	0	Coax Cables in Powermount
38P	181	0	0	Coax Cables in Powermount
1XY	62	257	0	Coax Cables on Tower
3XY	137	566	0	Coax Cables on Tower
6XY	137	566	0	Coax Cables on Tower
8XY	243	1003	0	Coax Cables on Tower
13XY	306	1260	0	Coax Cables on Tower
14XY	250	1028	0	Coax Cables on Tower
15XY	362	1491	0	Coax Cables on Tower
31P	3383	2289	0	Sprint Antennas

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	135.00	59.00	97.00	10.00	10.00	0.0	0.0	0.0	0.000	0.000	0.000	0.0	0.00	0.0	0.0	0.0	0.000	0.000	0.000	0.0	0	25406
2	59.00	0.00	29.50	10.00	10.00	0.0	0.0	0.0	0.000	0.000	0.000	0.0	0.00	0.0	0.0	0.0	0.000	0.000	0.000	0.0	0	27199

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       1 135.00  59.00  97.00 32.46 32.46 149.60  84.79  461.96 0.507 3.200 2.000 21040.7  0.00 191.20  84.79  901.46 0.306 3.200 2.000  0.0      0
16938
       2  59.00   0.00  29.50 32.46 32.46 163.33  68.96 1275.54 0.182 3.200 2.000 21439.8  0.00 163.33  68.96 1275.54 0.182 3.200 2.000  0.0      0
18133
```

Point Loads for Load Case "NESC Heavy Broken Wire":

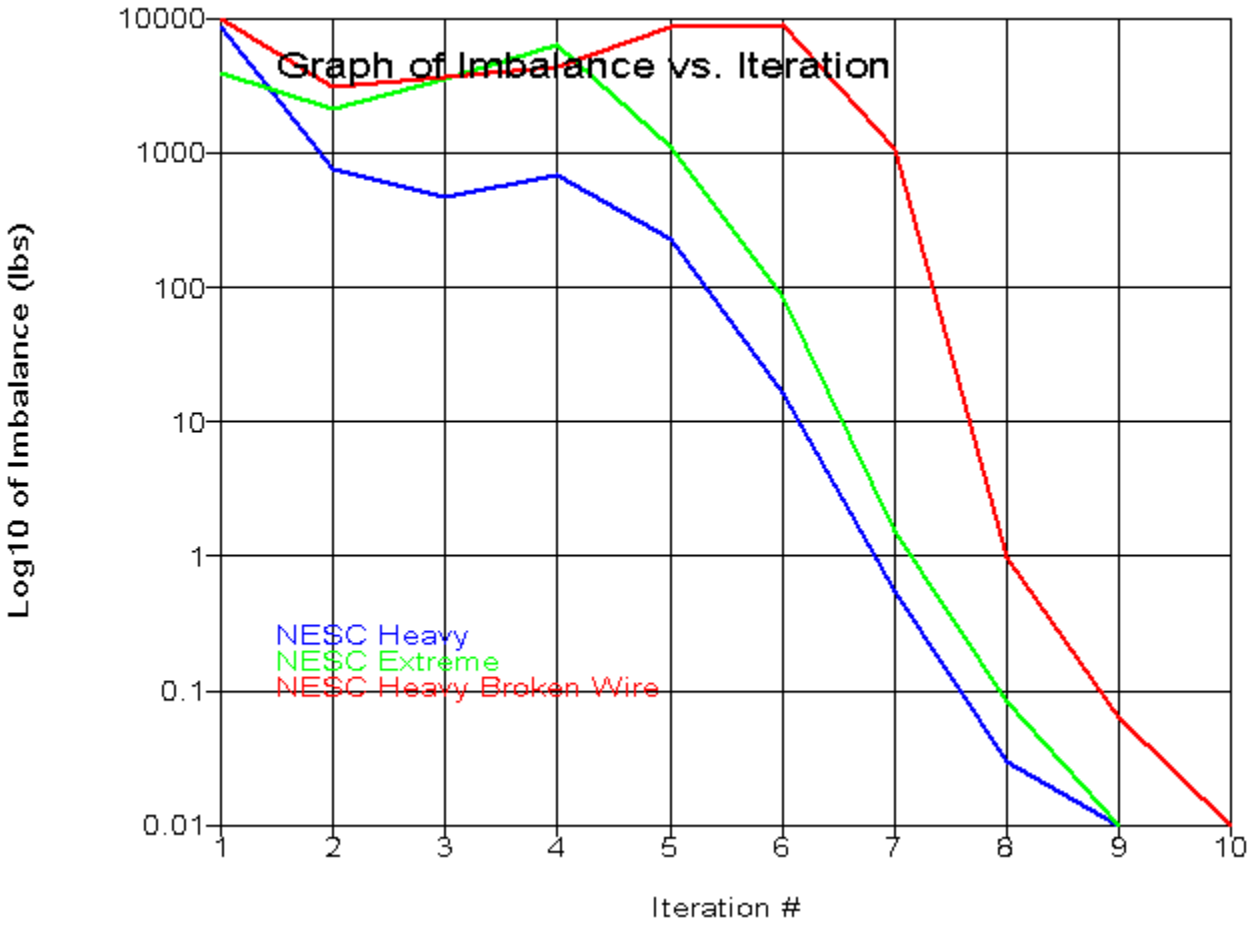
Joint Label	Vertical Load (lbs)	Transverse Load (lbs)	Longitudinal Load (lbs)	Load Comment
20P	677	991	10	Shield Wire
20X	339	782	7425	Shield Wire
21P	1804	1546	14	Conductor
21X	902	656	9900	Conductor
22P	1804	1546	14	Conductor
22X	1804	1546	14	Conductor
23P	1804	1546	14	Conductor
23X	1804	1546	14	Conductor
31P	830	99	0	Coax Cables on Powermount
32P	47	0	0	Coax Cables in Powermount
33P	103	0	0	Coax Cables in Powermount
34P	103	0	0	Coax Cables in Powermount
35P	183	0	0	Coax Cables in Powermount
36P	229	0	0	Coax Cables in Powermount
37P	187	0	0	Coax Cables in Powermount
38P	271	0	0	Coax Cables in Powermount
1XY	230	86	0	Coax Cables on Tower
3XY	506	189	0	Coax Cables on Tower
6XY	506	189	0	Coax Cables on Tower
8XY	897	335	0	Coax Cables on Tower
13XY	1127	421	0	Coax Cables on Tower
14XY	920	343	0	Coax Cables on Tower
15XY	1334	498	0	Coax Cables on Tower
31P	7209	586	0	Sprint Antennas

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

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	135.00	59.00	97.00	10.00	10.00	3.350	7478.0	0.00	3.350	0.0	0	25406
2	59.00	0.00	29.50	10.00	10.00	3.500	7391.1	0.00	3.500	0.0	0	27199

*** Analysis Results:

Maximum element usage is 90.14% for Angle "g51P" in load case "NESC Heavy Broken Wire"
Maximum insulator usage is 19.98% for Clamp "CLAMP4" in load case "NESC Heavy Broken Wire"



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

Group Label	Angle Label	Max. Usage For All LC %	Max. Tens. For All LC (kips)	Max. Comp. For All LC (kips)	LC 1 (kips)	LC 2 (kips)	LC 3 (kips)
LEG1	g1P	4.47	2.861	-0.273	0.916	2.861	-0.273
LEG1	g1X	7.46	0.000	-3.993	-2.059	-3.993	-3.416
LEG1	g1XY	7.97	0.000	-4.263	-2.279	-4.263	-0.879
LEG1	g1Y	5.56	3.559	0.000	0.928	3.559	1.803

LEG1	g2P	18.84	6.941	-1.781	1.967	6.941	-1.781
LEG1	g2X	26.21	0.000	-9.654	-5.183	-9.654	-9.242
LEG1	g2XY	27.07	0.000	-9.974	-5.618	-9.974	-2.250
LEG1	g2Y	22.77	8.388	0.000	2.222	8.388	7.176
LEG2	g3P	14.56	12.393	-4.791	4.750	12.393	-4.791
LEG2	g3X	17.27	0.000	-19.182	-8.272	-17.436	-19.182
LEG2	g3XY	14.31	0.476	-15.890	-8.775	-15.890	0.476
LEG2	g3Y	18.37	15.633	0.000	4.590	15.482	15.633
LEG2	g4P	21.58	18.362	-9.234	7.363	18.362	-9.234
LEG2	g4X	28.85	0.000	-32.037	-12.992	-27.313	-32.037
LEG2	g4XY	20.54	4.825	-22.807	-13.383	-22.807	4.825
LEG2	g4Y	28.85	24.552	0.000	7.171	23.450	24.552
LEG2	g5P	26.92	22.910	-13.488	8.997	22.910	-13.488
LEG2	g5X	46.17	0.000	-39.685	-16.431	-34.028	-39.685
LEG2	g5XY	32.33	6.597	-27.788	-16.691	-27.788	6.597
LEG2	g5Y	36.96	31.449	0.000	8.745	28.708	31.449
LEG3	g6P	22.87	33.016	-17.245	14.186	33.016	-17.245
LEG3	g6X	30.50	0.000	-53.563	-22.530	-48.864	-53.563
LEG3	g6XY	22.03	8.946	-38.694	-22.911	-38.694	8.946
LEG3	g6Y	30.27	43.697	0.000	13.653	42.782	43.697
LEG3	g7P	27.43	40.812	-21.151	17.941	40.812	-21.151
LEG3	g7X	40.35	0.000	-64.421	-28.140	-61.561	-64.421
LEG3	g7XY	30.01	9.411	-47.911	-28.800	-47.911	9.411
LEG3	g7Y	37.02	55.092	0.000	17.876	55.092	54.621
LEG4	g8P	22.03	46.351	-22.208	21.347	46.351	-22.208
LEG4	g8X	30.77	0.000	-72.109	-32.246	-71.869	-72.109
LEG4	g8XY	22.93	9.619	-53.727	-32.994	-53.727	9.619
LEG4	g8Y	30.84	64.888	0.000	20.849	64.888	61.068
LEG4	g9P	21.35	49.769	-20.461	22.645	49.769	-20.461
LEG4	g9X	34.22	0.000	-80.196	-36.754	-80.196	-76.855
LEG4	g9XY	24.96	5.463	-58.496	-37.406	-58.496	5.463
LEG4	g9Y	30.47	71.004	0.000	22.486	71.004	61.743
LEG4	g10P	21.26	49.558	-17.326	22.630	49.558	-17.326
LEG4	g10X	34.29	0.000	-80.360	-37.068	-80.360	-74.472
LEG4	g10XY	24.69	2.874	-57.866	-37.621	-57.866	2.874
LEG4	g10Y	30.51	71.118	0.000	22.719	71.118	58.879
LEG4	g11P	27.46	50.581	-15.232	22.767	50.581	-15.232
LEG4	g11X	45.45	0.000	-83.724	-39.273	-83.724	-75.270
LEG4	g11XY	32.57	0.000	-60.000	-39.747	-60.000	-0.781
LEG4	g11Y	39.63	73.006	0.000	23.081	73.006	57.228
LEG5	g12P	25.25	49.605	-20.679	21.861	49.605	-20.679
LEG5	g12X	43.76	0.000	-85.980	-37.770	-80.685	-85.980
LEG5	g12XY	29.39	0.000	-57.739	-38.251	-57.739	-10.272
LEG5	g12Y	35.92	70.583	0.000	21.493	70.583	52.970
LEG5	g13P	27.10	53.254	-17.174	23.096	53.254	-17.174
LEG5	g13X	49.44	0.000	-97.142	-43.937	-97.142	-84.437
LEG5	g13XY	37.93	0.000	-74.519	-44.536	-74.519	-13.650
LEG5	g13Y	38.74	76.113	0.000	22.373	76.113	54.226
LEG5	g14P	27.89	58.231	-14.344	22.715	58.231	-14.344
LEG5	g14X	46.83	0.000	-97.759	-48.672	-97.759	-80.479
LEG5	g14XY	35.91	0.000	-74.958	-49.472	-74.958	-14.381
LEG5	g14Y	40.13	83.783	0.000	20.680	83.783	53.507
XBR1	g15P	47.42	0.000	-8.735	-0.632	-2.909	-8.735
XBR1	g15X	45.30	8.344	0.000	2.322	3.583	8.344
XBR1	g15XY	31.47	5.797	-3.559	3.110	5.797	-3.559
XBR1	g15Y	34.25	6.309	-4.783	-1.456	-4.783	6.309
XBR1	g16P	21.57	1.636	-3.973	0.224	1.636	-3.973
XBR1	g16X	46.92	8.642	-1.513	-1.011	-1.513	8.642
XBR1	g16XY	53.25	0.000	-9.808	-0.517	-0.604	-9.808

XBR1	g16Y	21.75	4.006	-0.305	-0.305	-0.265	4.006
XBR1	g17P	53.87	0.000	-9.922	-1.456	-4.133	-9.922
XBR1	g17X	38.18	7.033	0.000	1.909	3.777	7.033
XBR1	g17XY	31.41	5.785	-1.712	2.514	5.785	-1.712
XBR1	g17Y	28.10	5.176	-5.154	-2.069	-5.154	5.176
XBR1	g18P	23.28	0.000	-4.288	-0.727	-0.288	-4.288
XBR1	g18X	51.68	9.520	-0.386	-0.386	0.371	9.520
XBR1	g18XY	50.61	0.896	-9.323	0.035	0.896	-9.323
XBR1	g18Y	12.60	2.320	-2.177	-1.183	-2.177	2.320
XBR2	g19P	66.69	0.000	-16.379	-3.321	-5.354	-16.379
XBR2	g19X	52.97	13.010	0.000	1.209	4.078	13.010
XBR2	g19XY	43.12	4.800	-10.591	1.536	4.800	-10.591
XBR2	g19Y	41.42	10.172	-5.664	-3.643	-5.664	10.172
XBR2	g20P	26.06	0.638	-6.400	0.192	0.638	-6.400
XBR2	g20X	73.17	17.971	0.000	0.601	1.522	17.971
XBR2	g20XY	67.27	0.952	-16.522	0.952	0.640	-16.522
XBR2	g20Y	25.77	6.329	-2.054	-0.222	-2.054	6.329
XBR2	g21P	54.51	0.000	-13.387	-1.323	-4.482	-13.387
XBR2	g21X	67.33	16.536	0.000	3.409	5.803	16.536
XBR2	g21XY	40.96	6.162	-10.059	3.738	6.162	-10.059
XBR2	g21Y	44.72	10.982	-5.173	-1.652	-5.173	10.982
XBR2	g22P	25.72	2.218	-6.318	0.291	2.218	-6.318
XBR2	g22X	67.85	16.665	-1.009	-1.009	-0.736	16.665
XBR2	g22XY	74.08	0.000	-18.193	-0.653	-1.641	-18.193
XBR2	g22Y	26.73	6.565	-0.498	-0.123	-0.498	6.565
XBR2	g23P	59.19	0.000	-14.537	-1.855	-5.873	-14.537
XBR2	g23X	46.67	11.461	0.000	2.988	5.013	11.461
XBR2	g23XY	27.63	6.785	-5.773	3.280	6.785	-5.773
XBR2	g23Y	45.07	11.070	-5.038	-2.147	-5.038	11.070
XBR2	g24P	28.76	0.000	-7.063	-0.814	-0.242	-7.063
XBR2	g24X	69.29	17.017	0.000	0.109	1.747	17.017
XBR2	g24XY	67.78	0.669	-16.647	0.450	0.669	-16.647
XBR2	g24Y	19.86	4.877	-3.091	-1.221	-3.091	4.877
XBR3	g25P	50.74	0.000	-18.691	-3.970	-9.229	-18.691
XBR3	g25X	44.67	16.458	0.000	4.176	8.550	16.458
XBR3	g25XY	29.41	10.835	-8.231	4.940	10.835	-8.231
XBR3	g25Y	29.59	10.902	-9.938	-4.755	-9.938	10.902
XBR3	g26P	17.11	3.954	-6.303	1.005	3.954	-6.303
XBR3	g26X	51.03	18.801	-0.938	-0.938	-0.350	18.801
XBR3	g26XY	54.47	0.000	-20.067	-0.516	-2.868	-20.067
XBR3	g26Y	20.75	7.643	-0.663	0.478	-0.663	7.643
XBR3	g27P	54.53	0.000	-20.087	-3.996	-10.091	-20.087
XBR3	g27X	33.80	12.453	0.000	4.277	8.129	12.453
XBR3	g27XY	31.21	11.497	-4.127	4.977	11.497	-4.127
XBR3	g27Y	33.11	12.200	-9.532	-4.766	-9.532	12.200
XBR3	g28P	23.16	0.000	-8.533	-1.733	-0.889	-8.533
XBR3	g28X	53.01	19.527	0.000	0.466	3.961	19.527
XBR3	g28XY	50.02	1.232	-18.426	0.879	1.232	-18.426
XBR3	g28Y	15.45	4.712	-5.691	-2.255	-5.691	4.712
XBR4	g29P	89.68	0.000	-16.519	-1.112	-1.460	-16.519
XBR4	g29X	52.74	9.714	-0.726	-0.356	-0.726	9.714
XBR4	g29XY	53.19	1.985	-9.798	0.477	1.985	-9.798
XBR4	g29Y	72.97	13.441	-2.031	-2.031	-1.530	13.441
XBR4	g30P	89.59	0.000	-16.503	-1.591	-2.559	-16.503
XBR4	g30X	59.97	11.046	0.000	1.215	3.625	11.046
XBR4	g30XY	45.03	3.936	-8.294	1.772	3.936	-8.294
XBR4	g30Y	66.88	12.319	-5.750	-2.587	-5.750	12.319
XBR4	g31P	40.72	0.000	-7.501	-0.213	-0.045	-7.501
XBR4	g31X	54.43	10.025	0.000	0.476	0.843	10.025

XBR4	g31XY	45.94	1.243	-8.462	1.076	1.243	-8.462
XBR4	g31Y	36.31	6.689	-1.493	-0.774	-1.493	6.689
XBR4	g32P	47.52	2.703	-8.753	1.129	2.703	-8.753
XBR4	g32X	30.80	5.674	-1.575	-0.795	-1.575	5.674
XBR4	g32XY	37.08	0.000	-6.831	-0.426	-1.341	-6.831
XBR4	g32Y	56.58	10.422	0.000	0.473	0.636	10.422
XBR2	g33P	39.29	0.000	-7.237	-0.818	-1.039	-7.237
XBR2	g33X	31.59	5.819	0.000	0.132	0.561	5.819
XBR2	g33XY	28.88	1.399	-5.321	0.546	1.399	-5.321
XBR2	g33Y	28.30	5.213	-1.577	-1.245	-1.577	5.213
XBR2	g34P	39.49	0.178	-7.274	-0.124	0.178	-7.274
XBR2	g34X	25.32	4.664	-0.091	-0.091	0.253	4.664
XBR2	g34XY	25.09	0.357	-4.621	0.177	0.357	-4.621
XBR2	g34Y	34.97	6.442	-1.368	-0.600	-1.368	6.442
DIAG1	g35P	39.13	0.000	-7.208	-0.485	-0.839	-7.208
DIAG1	g35X	39.69	7.312	0.000	0.657	1.094	7.312
DIAG1	g35XY	29.47	1.843	-5.428	1.109	1.843	-5.428
DIAG1	g35Y	30.70	5.655	-1.553	-0.938	-1.553	5.655
DIAG1	g36P	41.56	0.845	-7.655	0.318	0.845	-7.655
DIAG1	g36X	26.37	4.858	-0.047	-0.047	0.051	4.858
DIAG1	g36XY	25.34	0.277	-4.667	0.238	0.277	-4.667
DIAG1	g36Y	42.17	7.768	-0.630	-0.195	-0.630	7.768
XBR5	g37P	56.35	0.000	-5.735	-2.235	-5.735	0.000
XBR5	g37X	39.49	12.124	0.000	0.256	1.401	12.124
XBR5	g37XY	14.21	4.361	-1.136	0.820	4.361	-1.136
XBR5	g37Y	47.81	4.990	-4.866	-3.045	-4.866	4.990
XBR5	g38P	63.59	0.000	-6.472	-3.578	-6.472	0.000
XBR5	g38X	18.59	5.708	0.000	1.962	5.708	5.505
XBR5	g38XY	24.66	6.289	-2.510	2.155	6.289	-2.510
XBR5	g38Y	83.01	11.664	-8.449	-4.166	-8.449	11.664
XBR6	g39P	56.49	0.000	-2.315	-2.315	0.000	0.000
XBR6	g39X	46.08	8.488	0.000	0.826	6.245	8.488
XBR6	g39XY	56.09	10.331	0.000	1.267	10.331	0.044
XBR6	g39Y	72.87	1.289	-2.987	-2.987	0.000	1.289
XBR6	g40P	45.83	0.313	-1.878	-1.878	0.313	0.000
XBR6	g40X	17.92	3.302	0.000	0.633	2.510	3.302
XBR6	g40XY	54.02	2.175	-2.214	0.786	2.175	-2.214
XBR6	g40Y	61.01	7.814	-2.501	-2.501	0.000	7.814
DIAG2	g41P	47.31	5.810	0.000	2.212	5.810	4.952
DIAG2	g41X	54.91	0.000	-6.743	-2.883	-6.743	-5.651
DIAG2	g41XY	89.93	0.000	-11.044	-4.273	-11.044	-1.559
DIAG2	g41Y	82.72	10.158	0.000	3.613	10.158	0.923
DIAG2	g42P	32.32	3.969	-0.503	-0.503	-0.301	3.969
DIAG2	g42X	28.64	0.000	-3.517	-0.425	-1.046	-3.517
DIAG2	g42XY	24.75	3.039	-0.051	-0.051	0.366	3.039
DIAG2	g42Y	37.31	0.000	-4.582	-0.111	-0.780	-4.582
HORZ1	g43P	8.28	2.035	-0.810	0.494	2.035	-0.810
HORZ1	g43X	36.49	0.652	-8.963	-0.147	0.652	-8.963
HORZ1	g43XY	7.76	0.778	-1.906	-0.608	-1.906	0.778
HORZ1	g43Y	22.17	0.541	-5.444	0.541	0.297	-5.444
HORZ1	g44P	21.40	5.256	0.000	2.681	5.256	0.000
HORZ1	g44X	20.49	0.000	-5.032	-1.975	-5.032	-4.329
HORZ1	g44XY	21.01	1.019	-5.159	-2.135	-5.159	1.019
HORZ1	g44Y	35.26	6.084	-8.660	2.969	6.084	-8.660
HORZ1	g45P	39.72	0.275	-7.317	0.275	-1.623	-7.317
HORZ1	g45Y	25.76	0.158	-4.745	0.158	-4.745	-2.434
HORZ1	g46P	34.27	3.932	-6.312	3.540	3.932	-6.312
HORZ1	g46X	29.91	0.000	-5.509	-2.286	-5.509	-1.713
HORZ1	g47P	36.53	0.000	-6.729	-1.880	-5.765	-6.729

HORZ1	g47X	6.81	1.254	-0.205	1.254	1.120	-0.205
HORZ1	g47XY	10.19	1.877	-0.710	1.877	1.755	-0.710
HORZ1	g47Y	56.79	0.000	-10.460	-2.973	-10.460	-2.238
HORZ1	g48P	28.06	1.389	-5.169	1.389	0.032	-5.169
HORZ1	g48X	9.63	1.092	-1.774	-0.907	-1.774	1.092
HORZ1	g48XY	15.99	0.000	-2.945	-1.137	-2.644	-2.945
HORZ1	g48Y	6.23	1.148	0.000	1.148	0.327	0.097
ARM1	g49P	56.20	0.000	-17.253	-0.379	-1.341	-17.253
ARM1	g49X	2.27	0.696	-0.038	0.696	-0.038	0.569
ARM1	g49XY	4.88	1.499	0.000	0.726	1.499	0.852
ARM1	g49Y	54.34	16.681	-0.319	-0.319	0.281	16.681
ARM1	g50P	13.37	0.000	-8.094	-0.458	-0.896	-8.094
ARM1	g50Y	8.26	6.975	-0.424	-0.424	0.360	6.975
ARM2	g51P	90.14	0.000	-16.604	-3.165	-3.966	-16.604
ARM2	g51X	8.87	0.063	-1.635	-1.635	-1.349	0.063
ARM2	g51XY	16.79	2.047	-3.093	-1.428	2.047	-3.093
ARM2	g51Y	71.95	13.253	-3.292	-3.292	-1.476	13.253
ARM2	g52P	11.94	0.000	-5.537	-1.608	-1.871	-5.537
ARM2	g52Y	5.02	3.212	-1.534	-1.534	0.125	3.212
ARM1	g53P	17.14	0.000	-5.263	-3.740	-5.263	-5.202
ARM1	g53X	7.46	0.000	-2.292	-2.128	-2.292	-0.573
ARM1	g53XY	11.71	2.331	-3.594	-2.044	2.331	-3.594
ARM1	g53Y	12.09	0.000	-3.711	-3.711	-0.723	-2.248
ARM1	g54P	5.08	0.000	-3.072	-3.072	-2.845	-0.219
ARM1	g54Y	9.30	0.000	-5.629	-2.891	-0.363	-5.629
ARM2	g55P	15.51	0.000	-3.808	-2.383	-3.808	-3.038
ARM2	g55X	3.86	0.948	-0.801	-0.745	-0.801	0.948
ARM2	g55XY	9.57	2.256	-2.351	-0.657	2.256	-2.351
ARM2	g55Y	9.70	0.000	-2.382	-2.382	-0.942	-1.725
ARM2	g56P	4.61	0.000	-2.139	-1.605	-2.139	-2.120
ARM2	g56Y	3.44	0.051	-1.595	-1.595	0.051	-1.175
M1	g57P	3.92	0.000	-0.962	-0.962	-0.466	-0.579
M1	g57X	3.96	0.000	-0.972	-0.972	-0.488	-0.962
M2	g58P	2.24	0.275	-0.057	0.275	-0.057	0.180
M2	g58X	2.07	0.254	-0.115	0.179	0.254	-0.115
M2	g59P	6.04	0.742	0.000	0.742	0.061	0.065
M2	g59X	8.48	1.041	0.000	1.041	0.835	0.904
M2	g60P	4.84	0.892	0.000	0.826	0.014	0.892
M2	g60X	6.52	1.201	0.000	1.194	1.022	1.201
M3	g61P	16.17	2.979	0.000	1.753	2.979	1.657
M3	g61X	13.81	0.000	-2.543	-0.743	-2.543	-0.703
M4	g62P	30.40	2.469	0.000	2.469	0.818	1.051
M4	g62X	32.65	2.652	0.000	2.652	1.305	0.668
M4	g62XY	54.39	4.417	0.000	2.470	1.278	4.417
M4	g62Y	32.66	2.653	0.000	2.653	1.775	1.798
M4	g63P	55.97	4.546	0.000	3.041	1.226	4.546
M4	g63X	37.50	3.046	0.000	3.046	1.223	1.359
M4	g63XY	57.95	4.706	0.000	3.025	1.861	4.706
M4	g63Y	37.91	3.079	0.000	3.079	1.960	1.574
M8	g64P	38.44	2.551	0.000	1.779	0.599	2.551
M8	g64X	27.22	1.806	-0.231	1.806	0.654	-0.231
M8	g64XY	57.05	3.786	0.000	1.748	1.217	3.786
M8	g64Y	27.57	1.830	0.000	1.830	1.396	1.057
M7	g65P	27.67	1.699	0.000	1.168	0.702	1.699
M7	g65Y	19.30	1.185	0.000	1.185	0.612	0.234
M7	g66P	39.92	2.451	0.000	1.357	0.844	2.451
M7	g66Y	22.22	1.364	0.000	1.364	0.629	0.227
M8	g67P	58.79	3.609	0.000	0.920	1.130	3.609
M8	g67Y	27.90	0.945	-1.713	0.945	0.010	-1.713

M2	g68P	29.80	1.943	-3.660	0.700	1.943	-3.660
M2	g68X	31.65	3.887	-1.948	-0.684	-1.948	3.887
M2	g68XY	30.42	1.620	-3.735	0.682	1.620	-3.735
M2	g68Y	25.47	3.127	-1.644	-0.620	-1.644	3.127
M2	g69P	26.09	0.000	-3.204	-0.326	-0.876	-3.204
M2	g69X	27.82	3.416	0.000	0.221	0.880	3.416
M2	g69XY	26.71	0.000	-3.281	-0.194	-1.068	-3.281
M2	g69Y	22.44	2.755	0.000	0.316	0.982	2.755
M2	g70P	3.61	0.230	-0.443	-0.083	0.230	-0.443
M2	g70X	3.71	0.000	-0.456	-0.367	-0.456	-0.249
M2	g70XY	1.07	0.131	0.000	0.101	0.070	0.131
M2	g70Y	1.45	0.178	-0.171	-0.170	-0.171	0.178
M2	g71P	2.81	0.345	-0.209	-0.050	0.345	-0.209
M2	g71X	6.58	0.000	-0.809	-0.635	-0.809	-0.540
M2	g71XY	0.90	0.111	-0.039	0.086	0.111	-0.039
M2	g71Y	3.97	0.000	-0.488	-0.434	-0.488	-0.334
M5	g72P	13.11	0.805	0.000	0.424	0.805	0.258
M5	g72X	62.91	0.000	-0.638	-0.227	-0.638	0.000
M5	g72XY	9.20	0.565	0.000	0.352	0.565	0.193
M5	g72Y	40.34	0.011	-0.409	-0.269	-0.409	0.011
M5	g73P	11.24	0.558	-0.056	0.558	0.096	-0.056
M5	g73X	28.15	0.000	-0.140	-0.140	0.000	0.000
M5	g73XY	75.34	0.380	-0.374	0.380	-0.374	-0.059
M5	g73Y	52.07	0.567	-0.258	-0.258	0.567	0.135
M5	g74P	6.13	0.377	0.000	0.233	0.377	0.142
M5	g74X	0.00	0.000	0.000	0.000	0.000	0.000
M5	g74XY	38.60	0.135	-0.113	0.135	-0.113	0.025
M5	g74Y	31.34	0.322	-0.092	-0.092	0.322	0.031
Pwmnt	g75P	1.37	0.000	-8.620	-8.620	-3.866	-8.620
Pwmnt	g76P	1.47	0.000	-9.643	-9.643	-4.279	-8.995
Pwmnt	g77P	1.63	0.000	-10.590	-10.590	-4.618	-9.293
Pwmnt	g78P	1.76	0.000	-11.545	-11.545	-4.981	-9.746
Pwmnt	g79P	2.68	0.000	-13.247	-13.247	-5.419	-11.119
Pwmnt	g80P	2.62	0.000	-15.503	-15.503	-6.739	-13.366
Pwmnt	g81P	2.96	0.000	-17.479	-17.479	-8.260	-15.321
Pwmnt	g82P	3.30	0.000	-19.825	-19.825	-9.838	-17.650
PMBR1	g83P	41.69	4.251	0.000	1.573	4.251	2.546
PMBR1	g83X	40.82	0.000	-4.162	-1.653	-4.162	-0.996
PMBR1	g84P	28.82	0.000	-2.939	-1.092	-2.939	-0.070
PMBR1	g84X	28.66	2.922	0.000	0.633	2.922	0.894
PMBR1	g85P	6.91	0.705	-0.313	0.059	0.705	-0.313
PMBR1	g85X	8.12	0.000	-0.828	-0.808	-0.818	-0.828
PMBR1	g86P	2.48	0.253	0.000	0.048	0.108	0.253
PMBR1	g86X	7.31	0.000	-0.745	-0.711	-0.236	-0.745
PMBR1	g87P	5.87	0.599	-0.032	-0.032	0.013	0.599
PMBR1	g88P	5.20	0.530	-0.160	-0.160	0.064	0.530
PMBR1	g89P	7.10	0.000	-0.724	-0.269	-0.088	-0.724
PMBR1	g90P	2.50	0.000	-0.255	-0.235	-0.053	-0.255
PMBR2	g91P	7.24	0.738	0.000	0.570	0.738	0.413
PMBR2	g91X	5.81	0.000	-0.592	-0.460	-0.592	-0.448
PMBR1	g92P	0.80	0.082	0.000	0.082	0.008	0.037
PMBR3	g93P	4.57	0.621	0.000	0.621	0.330	0.335
PMBR3	g93X	4.28	0.000	-0.582	-0.267	-0.582	-0.533
PMBR4	g94P	5.12	0.860	0.000	0.502	0.860	0.447
PMBR4	g94X	4.60	0.000	-0.772	-0.424	-0.772	-0.511
HORZ3	g95P	1.64	0.000	-0.101	-0.026	-0.101	-0.038
HORZ3	g96P	1.78	0.109	0.000	0.109	0.018	0.024
HORZ3	g97P	1.30	0.000	-0.080	-0.037	-0.080	-0.032
HORZ2	g98P	3.43	0.211	-0.093	0.211	-0.068	-0.093

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

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

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
1P	-0.000711	0.126	-0.01089	-0.1599	-0.0073	-0.0146	2.499	2.626	120
2P	-0.0004085	0.1127	-0.01069	-0.1532	-0.0004	-0.0135	2.5	2.613	115
3P	-0.0003675	0.09914	-0.01021	-0.1537	-0.0039	-0.0120	2.5	2.599	110
4P	-0.0001864	0.089	-0.009882	-0.1366	-0.0030	-0.0110	2.5	2.589	106
5P	-4.602e-005	0.07969	-0.009375	-0.1360	0.0021	-0.0101	2.5	2.58	102
6P	-0.0001281	0.0703	-0.008736	-0.1240	-0.0084	-0.0090	2.5	2.57	97.99
7P	0.0005322	0.06049	-0.008051	-0.1098	0.0029	-0.0067	2.501	2.56	92.99
8P	-0.0001151	0.05127	-0.007199	-0.0908	-0.0043	-0.0043	2.5	2.551	87.99
9P	0	0	0	0.0000	0.0000	0.0000	15	15	0
20P	0.002488	0.1268	-0.04589	-0.1743	0.0015	-0.0169	0.002488	13.88	120
21P	0.001035	0.09935	-0.03476	-0.1900	0.0017	-0.0127	0.001035	9.849	110
22P	0.001893	0.0703	-0.04918	-0.2306	-0.0011	-0.0109	0.001893	14.32	97.95
23P	0.001133	0.05154	-0.02564	-0.1561	-0.0009	-0.0099	0.001133	10.3	87.97
24P	-0.001329	0.1267	-0.004428	-0.1577	-0.0019	-0.0180	-0.001329	0.1267	120
25P	-0.0009799	0.09973	-0.004205	-0.1416	-0.0025	-0.0106	-0.0009799	0.09973	110
26P	-0.0006285	0.07086	-0.00387	-0.1198	-0.0018	-0.0104	-0.0006285	0.07086	98
27P	-0.0003949	0.05165	-0.003579	-0.0901	-0.0014	-0.0092	-0.0003949	0.05165	88
28P	-5.889e-005	0.02072	-0.003455	-0.0362	0.0369	-0.0138	-5.889e-005	0.02072	59
29P	2.764e-005	0.00987	-0.002232	-0.0244	0.0213	-0.0180	2.764e-005	0.00987	39
30P	0.00039	0.002859	-0.001242	-0.0148	0.0132	-0.0096	0.00039	0.002859	19
31P	-0.001872	0.2035	-0.005093	-0.3308	-0.0022	-0.0122	-1.502	0.2035	135
32P	-0.001326	0.1274	-0.004573	-0.2092	-0.0021	-0.0122	-1.501	0.1274	120
33P	-0.0009682	0.09988	-0.00429	-0.1372	-0.0020	-0.0116	-1.501	0.09988	110
34P	-0.0006089	0.07118	-0.003934	-0.1264	-0.0015	-0.0111	-1.501	0.07118	98
35P	-0.0003778	0.05199	-0.003623	-0.0942	-0.0012	-0.0107	-1.5	0.05199	88
36P	-6.455e-005	0.02112	-0.002632	-0.0382	0.0001	-0.0090	-1.5	0.02112	59
37P	1.942e-005	0.01029	-0.001843	-0.0252	-0.0008	-0.0077	-1.5	0.01029	39
38P	0.0003867	0.003064	-0.0009553	-0.0158	0.0009	-0.0054	-1.5	0.003064	19
39P	0	0	0	0.0000	0.0000	0.0000	-1.5	0	0
1X	-0.001913	0.126	0.00249	-0.1472	-0.0033	-0.0143	2.498	-2.374	120
1XY	-0.001956	0.1275	0.002342	-0.1480	-0.0016	-0.0145	-2.502	-2.373	120
1Y	-0.000739	0.1274	-0.01112	-0.1596	0.0044	-0.0142	-2.501	2.627	120
2X	-0.002018	0.1122	0.002427	-0.1569	-0.0023	-0.0128	2.498	-2.388	115
2XY	-0.001445	0.1133	0.002279	-0.1601	-0.0026	-0.0135	-2.501	-2.387	115
2Y	-0.000746	0.1138	-0.01089	-0.1568	-0.0031	-0.0125	-2.501	2.614	115
3X	-0.001466	0.0993	0.002269	-0.1399	-0.0048	-0.0123	2.499	-2.401	110
3XY	-0.001583	0.1003	0.002099	-0.1406	0.0003	-0.0117	-2.502	-2.4	110
3Y	-0.0005321	0.1001	-0.01038	-0.1535	0.0012	-0.0115	-2.501	2.6	110
4X	-0.001435	0.08911	0.002101	-0.1489	0.0029	-0.0121	2.499	-2.411	106
4XY	-0.001292	0.09005	0.001937	-0.1495	-0.0076	-0.0105	-2.501	-2.41	106
4Y	-0.0005375	0.08995	-0.01003	-0.1375	0.0006	-0.0107	-2.501	2.59	106
5X	-0.001497	0.07908	0.001832	-0.1330	-0.0060	-0.0118	2.499	-2.421	102
5XY	-0.0009173	0.07999	0.001675	-0.1334	0.0015	-0.0094	-2.501	-2.42	102
5Y	-0.000529	0.0806	-0.009506	-0.1364	-0.0041	-0.0098	-2.501	2.581	102
6X	-0.0009934	0.07051	0.001497	-0.1171	0.0022	-0.0119	2.499	-2.429	98
6XY	-0.001124	0.07139	0.001351	-0.1176	-0.0061	-0.0079	-2.501	-2.429	98
6Y	-0.0003169	0.07118	-0.008857	-0.1241	0.0064	-0.0092	-2.5	2.571	97.99
7X	-0.001463	0.06002	0.001083	-0.1133	-0.0032	-0.0151	2.499	-2.44	93
7XY	-0.000332	0.06083	0.0009523	-0.1138	-0.0003	-0.0037	-2.5	-2.439	93
7Y	-0.0008101	0.06131	-0.008161	-0.1107	-0.0050	-0.0093	-2.501	2.561	92.99

8X	-0.0006406	0.05142	0.0005526	-0.0856	-0.0013	-0.0183	2.499	-2.449	88
8XY	-0.0008504	0.05218	0.0004238	-0.0870	-0.0025	0.0006	-2.501	-2.448	88
8Y	-2.606e-005	0.05203	-0.007288	-0.0914	0.0036	-0.0094	-2.5	2.552	87.99
9X	0	0	0	0.0000	0.0000	0.0000	15	-15	0
9XY	0	0	0	0.0000	0.0000	0.0000	-15	-15	0
9Y	0	0	0	0.0000	0.0000	0.0000	-15	15	0
20X	-0.00511	0.1268	0.02681	-0.1268	-0.0056	-0.0166	-0.00511	-13.62	120
21X	-0.002983	0.1003	0.01635	-0.1203	-0.0057	-0.0124	-0.002983	-9.65	110
22X	-0.003101	0.07159	0.01366	-0.0308	-0.0017	-0.0099	-0.003101	-14.18	98.01
23X	-0.001926	0.0522	0.01005	-0.0633	-0.0012	-0.0087	-0.001926	-10.2	88.01
10S	0.0009398	0.04161	-0.00737	-0.0693	-0.0041	-0.0004	3.495	3.536	80.99
11S	0.0004078	0.03355	-0.007394	-0.0593	0.0010	0.0026	4.489	4.522	73.99
12S	0.0006957	0.02676	-0.007114	-0.0520	-0.0040	0.0037	5.484	5.51	66.99
13S	0.0005901	0.0199	-0.006646	-0.0423	-0.0020	0.0063	6.62	6.639	58.99
14S	0.000899	0.008851	-0.005349	-0.0258	-0.0027	0.0097	9.461	9.469	38.99
15S	0.0004047	0.001631	-0.003163	-0.0125	-0.0007	0.0115	12.3	12.3	19
16S	0.001321	0.01992	-0.002491	-0.0366	-0.0059	0.0040	6.621	0.01992	59
17S	-0.0003667	0.02711	0.001438	-0.0382	-0.0007	-0.0024	-0.0003667	-6.592	59
18S	0.0003833	0.001357	-8.667e-005	-0.0129	-0.0129	0.0168	12.3	0.001357	19
19S	9.956e-005	0.08412	-0.01224	-0.0020	0.0001	0.0051	9.956e-005	-12.22	18.99
10X	-0.001292	0.04137	0.001203	-0.0698	-0.0024	-0.0263	3.493	-3.453	81
10XY	3.152e-006	0.04218	0.001055	-0.0719	-0.0018	0.0084	-3.494	-3.452	81
10Y	-0.0008679	0.04245	-0.007455	-0.0704	0.0042	-0.0104	-3.495	3.537	80.99
11X	-0.0006385	0.03334	0.001707	-0.0518	-0.0066	-0.0336	4.488	-4.455	74
11XY	-0.000484	0.03426	0.001525	-0.0534	0.0027	0.0151	-4.489	-4.454	74
11Y	-0.00014	0.03448	-0.007474	-0.0596	-0.0014	-0.0108	-4.489	4.523	73.99
12X	-0.000939	0.0269	0.001849	-0.0445	-0.0037	-0.0435	5.482	-5.456	67
12XY	-1.1e-005	0.02791	0.001626	-0.0465	-0.0006	0.0246	-5.483	-5.455	67
12Y	-0.000276	0.02778	-0.007183	-0.0521	0.0039	-0.0092	-5.483	5.511	66.99
13X	-0.0006031	0.01986	0.002056	-0.0372	-0.0098	-0.0535	6.619	-6.599	59
13XY	-0.0001126	0.02097	0.001775	-0.0393	0.0054	0.0342	-6.619	-6.598	59
13Y	-7.427e-005	0.02096	-0.006706	-0.0425	0.0017	-0.0087	-6.619	6.64	58.99
14X	-0.0004959	0.00876	0.00202	-0.0134	-0.0083	-0.0669	9.46	-9.451	39
14XY	0.0002728	0.009897	0.001691	-0.0171	0.0031	0.0406	-9.46	-9.45	39
14Y	-0.0002916	0.009949	-0.005381	-0.0251	0.0027	-0.0065	-9.461	9.47	38.99
15X	-0.0003819	0.001768	0.001306	0.0011	-0.0171	-0.1101	12.3	-12.3	19
15XY	0.0006244	0.002751	0.0009872	-0.0051	0.0123	0.0760	-12.3	-12.3	19
15Y	-0.0001426	0.002511	-0.003132	-0.0140	0.0014	-0.0061	-12.3	12.3	19
16Y	-0.0009354	0.02103	-0.002728	-0.0346	0.0036	-0.0066	-6.62	0.02103	59
17X	0.0002748	0.01972	-0.007899	-0.0424	-0.0003	-0.0063	0.0002748	6.639	58.99
18Y	0.000395	0.002101	-0.0001951	-0.0100	0.0059	-0.0096	-12.3	0.002101	19
19X	0.0001043	-0.007307	-0.001168	-0.0133	-0.0001	-0.0044	0.0001043	12.29	19

Joint Support Reactions for Load Case "NESC Heavy":

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 %
9P	-7.40	0.0	-8.59	0.0	0.0	-51.20	0.0	0.0	52.44	0.0	0.01	0.0	0.0	0.0	0.0	-0.10	0.0	0.0
39P	-0.02	0.0	-0.39	0.0	0.0	-20.57	0.0	0.0	20.57	0.0	1.15	0.0	-0.2	0.0	0.0	0.20	0.0	0.0
9X	3.15	0.0	-4.86	0.0	0.0	22.83	0.0	0.0	23.56	0.0	-0.14	0.0	0.1	0.0	0.0	0.90	0.0	0.0
9XY	-3.25	0.0	-5.50	0.0	0.0	22.22	0.0	0.0	23.12	0.0	0.07	0.0	-0.1	0.0	0.0	-0.63	0.0	0.0
9Y	7.43	0.0	-9.53	0.0	0.0	-52.76	0.0	0.0	54.12	0.0	0.12	0.0	-0.1	0.0	0.0	0.04	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	-0.2187	0.0000	0.0000	0.2187	-0.0007	0.1260	-0.0109
2P	0.0000	0.0000	-0.1754	0.0000	0.0000	0.1754	-0.0004	0.1127	-0.0107
3P	0.0000	0.0000	-0.2686	0.0000	0.0000	0.2686	-0.0004	0.0991	-0.0102
4P	0.0000	0.0000	-0.1945	0.0000	0.0000	0.1945	-0.0002	0.0890	-0.0099
5P	0.0000	0.0000	-0.2123	0.0000	0.0000	0.2123	-0.0000	0.0797	-0.0094
6P	0.0000	0.0000	-0.4306	-0.0000	0.0000	0.4306	-0.0001	0.0703	-0.0087
7P	0.0000	0.0000	-0.3966	-0.0000	0.0000	0.3966	0.0005	0.0605	-0.0081
8P	0.0000	0.0000	-0.5346	-0.0000	0.0000	0.5346	-0.0001	0.0513	-0.0072
9P	0.0000	0.0000	-0.8328	7.4029	8.5941	-50.3628	0.0000	0.0000	0.0000
20P	0.0100	0.9910	-0.9333	-0.0100	-0.9910	0.9333	0.0025	0.1268	-0.0459
21P	0.0140	1.5460	-2.0006	-0.0140	-1.5460	2.0006	0.0010	0.0993	-0.0348
22P	0.0140	1.5460	-1.9941	-0.0140	-1.5460	1.9941	0.0019	0.0703	-0.0492
23P	0.0140	1.5460	-1.9055	-0.0140	-1.5460	1.9055	0.0011	0.0515	-0.0256
24P	0.0000	0.0000	-0.0442	-0.0000	0.0000	0.0442	-0.0013	0.1267	-0.0044
25P	0.0000	0.0000	-0.0442	-0.0000	0.0000	0.0442	-0.0010	0.0997	-0.0042
26P	0.0000	0.0000	-0.0442	-0.0000	0.0000	0.0442	-0.0006	0.0709	-0.0039
27P	0.0000	0.0000	-0.0442	-0.0000	0.0000	0.0442	-0.0004	0.0517	-0.0036
28P	0.0000	0.0000	-0.0654	-0.0000	0.0000	0.0654	-0.0001	0.0207	-0.0035
29P	0.0000	0.0000	-0.0947	-0.0000	0.0000	0.0947	0.0000	0.0099	-0.0022
30P	0.0000	0.0000	-0.1792	0.0000	0.0000	0.1792	0.0004	0.0029	-0.0012
31P	0.0000	0.9520	-8.6249	0.0000	-0.9520	8.6249	-0.0019	0.2035	-0.0051
32P	0.0000	0.4449	-1.0367	0.0000	-0.4449	1.0367	-0.0013	0.1274	-0.0046
33P	0.0000	0.3915	-0.9755	-0.0000	-0.3915	0.9756	-0.0010	0.0999	-0.0043
34P	0.0000	0.3915	-0.9755	0.0000	-0.3915	0.9755	-0.0006	0.0712	-0.0039
35P	0.0000	0.6941	-1.7196	-0.0000	-0.6941	1.7196	-0.0004	0.0520	-0.0036
36P	0.0000	0.8880	-2.1947	-0.0000	-0.8880	2.1947	-0.0001	0.0211	-0.0026
37P	0.0000	0.7437	-1.8832	-0.0000	-0.7437	1.8832	0.0000	0.0103	-0.0018
38P	0.0000	0.7252	-2.1677	-0.0000	-0.7252	2.1677	0.0004	0.0031	-0.0010
39P	0.0000	0.3533	-0.7421	0.0212	0.0371	-19.8246	0.0000	0.0000	0.0000
1X	0.0000	0.0750	-0.2187	0.0000	-0.0750	0.2187	-0.0019	0.1260	0.0025
1XY	0.0000	0.1610	-0.4539	-0.0000	-0.1610	0.4539	-0.0020	0.1275	0.0023
1Y	0.0000	0.0000	-0.2239	-0.0000	0.0000	0.2239	-0.0007	0.1274	-0.0111
2X	0.0000	0.1307	-0.1754	0.0000	-0.1307	0.1754	-0.0020	0.1122	0.0024
2XY	0.0000	0.1307	-0.1754	0.0000	-0.1307	0.1754	-0.0014	0.1133	0.0023
2Y	0.0000	0.0000	-0.1754	-0.0000	0.0000	0.1754	-0.0007	0.1138	-0.0109
3X	0.0000	0.1307	-0.2686	0.0000	-0.1307	0.2686	-0.0015	0.0993	0.0023
3XY	0.0000	0.3197	-0.7798	-0.0000	-0.3197	0.7798	-0.0016	0.1003	0.0021
3Y	0.0000	0.0000	-0.2738	-0.0000	0.0000	0.2738	-0.0005	0.1001	-0.0104
4X	0.0000	0.1184	-0.1945	0.0000	-0.1184	0.1945	-0.0014	0.0891	0.0021
4XY	0.0000	0.1184	-0.1945	-0.0000	-0.1184	0.1945	-0.0013	0.0901	0.0019
4Y	0.0000	0.0000	-0.1945	0.0000	0.0000	0.1945	-0.0005	0.0900	-0.0100
5X	0.0000	0.1316	-0.2123	-0.0000	-0.1316	0.2123	-0.0015	0.0791	0.0018
5XY	0.0000	0.1316	-0.2123	0.0000	-0.1316	0.2123	-0.0009	0.0800	0.0017
5Y	0.0000	0.0000	-0.2123	-0.0000	0.0000	0.2123	-0.0005	0.0806	-0.0095
6X	0.0000	0.1679	-0.4306	0.0000	-0.1679	0.4306	-0.0010	0.0705	0.0015
6XY	0.0000	0.3569	-0.9418	-0.0000	-0.3569	0.9418	-0.0011	0.0714	0.0014
6Y	0.0000	0.0000	-0.4358	-0.0000	0.0000	0.4358	-0.0003	0.0712	-0.0089
7X	0.0000	0.1961	-0.3966	-0.0000	-0.1961	0.3966	-0.0015	0.0600	0.0011
7XY	0.0000	0.1961	-0.3966	-0.0000	-0.1961	0.3966	-0.0003	0.0608	0.0010
7Y	0.0000	0.0000	-0.3966	-0.0000	0.0000	0.3966	-0.0008	0.0613	-0.0082
8X	0.0000	0.2356	-0.5346	-0.0000	-0.2356	0.5346	-0.0006	0.0514	0.0006
8XY	0.0000	0.5706	-1.4368	0.0000	-0.5706	1.4368	-0.0009	0.0522	0.0004
8Y	0.0000	0.0000	-0.5398	0.0000	0.0000	0.5398	-0.0000	0.0520	-0.0073
9X	0.0000	0.4004	-0.8328	-3.1455	4.4622	23.6667	0.0000	0.0000	0.0000
9XY	0.0000	0.4004	-0.8328	3.2529	5.1004	23.0527	0.0000	0.0000	0.0000
9Y	0.0000	0.0000	-0.8328	-7.4275	9.5252	-51.9244	0.0000	0.0000	0.0000

20X	0.0100	1.0747	-0.9333	-0.0100	-1.0747	0.9333	-0.0051	0.1268	0.0268
21X	0.0140	1.6540	-2.0006	-0.0140	-1.6540	2.0006	-0.0030	0.1003	0.0163
22X	0.0140	1.6072	-1.9941	-0.0140	-1.6072	1.9941	-0.0031	0.0716	0.0137
23X	0.0140	1.6012	-1.9055	-0.0140	-1.6012	1.9055	-0.0019	0.0522	0.0101
10S	0.0000	0.0000	-0.5041	-0.0000	0.0000	0.5041	0.0009	0.0416	-0.0074
11S	0.0000	0.0000	-0.5194	0.0000	0.0000	0.5194	0.0004	0.0336	-0.0074
12S	0.0000	0.0000	-0.5189	0.0000	0.0000	0.5189	0.0007	0.0268	-0.0071
13S	0.0000	0.0000	-1.0722	0.0000	0.0000	1.0722	0.0006	0.0199	-0.0066
14S	0.0000	0.0000	-1.7916	0.0000	0.0000	1.7916	0.0009	0.0089	-0.0053
15S	0.0000	0.0000	-1.4104	0.0000	0.0000	1.4104	0.0004	0.0016	-0.0032
16S	0.0000	0.0000	-0.1580	0.0000	0.0000	0.1580	0.0013	0.0199	-0.0025
17S	0.0000	0.1822	-0.1580	-0.0000	-0.1822	0.1580	-0.0004	0.0271	0.0014
18S	0.0000	0.0000	-0.5178	0.0000	-0.0000	0.5178	0.0004	0.0014	-0.0001
19S	0.0000	0.4965	-0.4616	-0.0000	-0.4965	0.4616	0.0001	0.0841	-0.0122
10X	0.0000	0.2686	-0.5041	0.0000	-0.2686	0.5041	-0.0013	0.0414	0.0012
10XY	0.0000	0.2686	-0.5041	-0.0000	-0.2686	0.5041	0.0000	0.0422	0.0011
10Y	0.0000	0.0000	-0.5041	-0.0000	0.0000	0.5041	-0.0009	0.0424	-0.0075
11X	0.0000	0.2767	-0.5194	0.0000	-0.2767	0.5194	-0.0006	0.0333	0.0017
11XY	0.0000	0.2767	-0.5194	-0.0000	-0.2767	0.5194	-0.0005	0.0343	0.0015
11Y	0.0000	0.0000	-0.5194	-0.0000	0.0000	0.5194	-0.0001	0.0345	-0.0075
12X	0.0000	0.2829	-0.5189	-0.0000	-0.2829	0.5189	-0.0009	0.0269	0.0018
12XY	0.0000	0.2829	-0.5189	-0.0000	-0.2829	0.5189	-0.0000	0.0279	0.0016
12Y	0.0000	0.0000	-0.5189	-0.0000	0.0000	0.5189	-0.0003	0.0278	-0.0072
13X	0.0000	0.5126	-1.0722	-0.0000	-0.5126	1.0722	-0.0006	0.0199	0.0021
13XY	0.0000	0.9336	-2.2236	-0.0000	-0.9336	2.2236	-0.0001	0.0210	0.0018
13Y	0.0000	0.0000	-1.0966	-0.0000	0.0000	1.0966	-0.0001	0.0210	-0.0067
14X	0.0000	0.8823	-1.7916	-0.0000	-0.8823	1.7916	-0.0005	0.0088	0.0020
14XY	0.0000	1.2253	-2.7758	0.0000	-1.2253	2.7758	0.0003	0.0099	0.0017
14Y	0.0000	0.0000	-1.8558	-0.0000	0.0000	1.8558	-0.0003	0.0099	-0.0054
15X	0.0000	0.6822	-1.4104	0.0000	-0.6822	1.4104	-0.0004	0.0018	0.0013
15XY	0.0000	1.1802	-2.9030	-0.0000	-1.1802	2.9030	0.0006	0.0028	0.0010
15Y	0.0000	0.0000	-1.5690	-0.0000	0.0000	1.5690	-0.0001	0.0025	-0.0031
16Y	0.0000	0.0000	-0.1580	-0.0000	0.0000	0.1580	-0.0009	0.0210	-0.0027
17X	0.0000	0.0000	-0.1580	0.0000	0.0000	0.1580	0.0003	0.0197	-0.0079
18Y	0.0000	0.0000	-0.5110	0.0000	0.0000	0.5110	0.0004	0.0021	-0.0002
19X	0.0000	0.0000	-0.4616	0.0000	-0.0000	0.4616	0.0001	-0.0073	-0.0012

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.
g16X	g16XY	Long only	-1.01	-0.52	37.91	0.750	0.500	0.500	71.67	83.75	2	32.24	1.000	91.24	105.62	3
g16XY	g16X	Long only	-0.52	-1.01	37.91	0.750	0.500	0.500	71.67	83.75	2	32.24	1.000	91.24	105.62	3
g18P	g18Y	Long only	-0.73	-1.18	37.91	0.750	0.500	0.500	71.67	83.75	2	32.24	1.000	91.24	105.62	3
g18X	g18XY	Long only	-0.39	0.04	37.91	0.750	0.500	0.500	71.67	83.75	2	32.24	1.000	91.24	105.62	3
g18Y	g18P	Long only	-1.18	-0.73	37.91	0.750	0.500	0.500	71.67	83.75	2	32.24	1.000	91.24	105.62	3
g22X	g22XY	Long only	-1.01	-0.65	47.55	0.750	0.500	0.500	55.36	71.52	2	41.19	1.000	70.49	95.25	3
g22XY	g22X	Long only	-0.65	-1.01	47.55	0.750	0.500	0.500	55.36	71.52	2	41.19	1.000	70.49	95.25	3
g24P	g24Y	Long only	-0.81	-1.22	47.55	0.750	0.500	0.500	55.36	71.52	2	41.19	1.000	70.49	95.25	3
g24Y	g24P	Long only	-1.22	-0.81	47.55	0.750	0.500	0.500	55.36	71.52	2	41.19	1.000	70.49	95.25	3
g26X	g26XY	Long only	-0.94	-0.52	88.91	0.750	0.500	0.500	42.68	62.01	2	78.16	1.000	54.05	87.02	3
g26XY	g26X	Long only	-0.52	-0.94	88.91	0.750	0.500	0.500	42.68	62.01	2	78.16	1.000	54.05	87.02	3
g28P	g28Y	Long only	-1.73	-2.25	88.91	0.750	0.500	0.500	42.68	62.01	2	78.16	1.000	54.05	87.02	3
g28Y	g28P	Long only	-2.25	-1.73	88.91	0.750	0.500	0.500	42.68	62.01	2	78.16	1.000	54.05	87.02	3
g29P	g29X	Long only	-1.11	-0.36	49.24	0.783	0.567	0.567	79.33	89.50	2	43.87	1.000	88.99	104.49	3

g29X	g29P	Long only	-0.36	-1.11	49.24	0.783	0.567	0.567	79.33	89.50	2	43.87	1.000	88.99	104.49	3
g30P	g30Y	Long only	-1.59	-2.59	49.24	0.783	0.567	0.567	79.33	89.50	2	43.87	1.000	88.99	104.49	3
g30Y	g30P	Long only	-2.59	-1.59	49.24	0.783	0.567	0.567	79.33	89.50	2	43.87	1.000	88.99	104.49	3
g32X	g32XY	Long only	-0.80	-0.43	46.44	0.780	0.560	0.560	90.14	97.60	2	41.21	1.000	102.37	111.19	3
g32XY	g32X	Long only	-0.43	-0.80	46.44	0.780	0.560	0.560	90.14	97.60	2	41.21	1.000	102.37	111.19	3
g33P	g33X	Long only	-0.82	0.13	33.81	0.774	0.548	0.548	115.83	116.87	2	29.03	1.000	134.57	128.96	6
g34P	g34Y	Long only	-0.12	-0.60	33.81	0.774	0.548	0.548	115.83	116.87	2	29.03	1.000	134.57	128.96	6
g34Y	g34P	Long only	-0.60	-0.12	33.81	0.774	0.548	0.548	115.83	116.87	2	29.03	1.000	134.57	128.96	6

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

Clamp Label	Force (kips)	Input Holding Capacity (kips)	Factored Holding Capacity (kips)	Usage %
CLAMP1	1.361	50.00	50.00	2.72
CLAMP2	1.423	50.00	50.00	2.85
CLAMP3	2.528	50.00	50.00	5.06
CLAMP4	2.596	50.00	50.00	5.19
CLAMP5	2.523	50.00	50.00	5.05
CLAMP6	2.561	50.00	50.00	5.12
CLAMP7	2.454	50.00	50.00	4.91
CLAMP8	2.489	50.00	50.00	4.98
CLAMP9	0.219	50.00	50.00	0.44
CLAMP10	0.231	50.00	50.00	0.46
CLAMP11	0.269	50.00	50.00	0.54
CLAMP12	0.299	50.00	50.00	0.60
CLAMP13	0.431	50.00	50.00	0.86
CLAMP14	0.462	50.00	50.00	0.92
CLAMP15	0.535	50.00	50.00	1.07
CLAMP16	0.584	50.00	50.00	1.17
CLAMP17	1.072	50.00	50.00	2.14
CLAMP18	1.188	50.00	50.00	2.38
CLAMP19	1.792	50.00	50.00	3.58
CLAMP20	1.997	50.00	50.00	3.99
CLAMP21	1.410	50.00	50.00	2.82
CLAMP22	1.567	50.00	50.00	3.13
CLAMP23	8.677	50.00	50.00	17.35
CLAMP24	1.128	50.00	50.00	2.26
CLAMP25	1.051	50.00	50.00	2.10
CLAMP26	1.051	50.00	50.00	2.10
CLAMP27	1.854	50.00	50.00	3.71
CLAMP28	2.368	50.00	50.00	4.74
CLAMP29	2.025	50.00	50.00	4.05
CLAMP30	2.286	50.00	50.00	4.57
CLAMP31	0.482	50.00	50.00	0.96
CLAMP32	0.843	50.00	50.00	1.69
CLAMP33	1.007	50.00	50.00	2.01
CLAMP34	1.546	50.00	50.00	3.09
CLAMP35	2.412	50.00	50.00	4.82
CLAMP36	3.034	50.00	50.00	6.07
CLAMP37	3.134	50.00	50.00	6.27

*** Analysis Results for Load Case No. 2 "NESC Extreme" - Number of iterations in SAPS 9

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	0.04392	0.276	-0.01992	-0.3366	0.0351	-0.0418	2.544	2.776	120
2P	0.04041	0.2465	-0.01947	-0.3394	0.0486	-0.0394	2.54	2.747	115
3P	0.03593	0.2174	-0.01853	-0.3204	0.0431	-0.0367	2.536	2.717	110
4P	0.03294	0.1955	-0.0178	-0.3056	0.0393	-0.0355	2.533	2.696	106
5P	0.03003	0.1747	-0.0167	-0.2945	0.0520	-0.0344	2.53	2.675	102
6P	0.02652	0.155	-0.01535	-0.2596	0.0264	-0.0329	2.527	2.655	97.98
7P	0.0244	0.1335	-0.01384	-0.2407	0.0449	-0.0333	2.524	2.633	92.99
8P	0.01972	0.114	-0.01196	-0.1869	0.0265	-0.0335	2.52	2.614	87.99
9P	0	0	0	0.0000	0.0000	0.0000	15	15	0
20P	0.05341	0.2779	-0.08556	-0.3414	0.0518	-0.0512	0.05341	14.03	119.9
21P	0.04071	0.2188	-0.06162	-0.3586	0.0522	-0.0414	0.04071	9.969	109.9
22P	0.03455	0.1561	-0.07809	-0.3363	0.0387	-0.0434	0.03455	14.41	97.92
23P	0.0244	0.1153	-0.04318	-0.2630	0.0295	-0.0364	0.0244	10.37	87.96
24P	0.0422	0.2781	-0.0039	-0.3476	0.0563	-0.0494	0.0422	0.2781	120
25P	0.03429	0.219	-0.003885	-0.3079	0.0492	-0.0292	0.03429	0.219	110
26P	0.02513	0.1564	-0.003425	-0.2590	0.0448	-0.0305	0.02513	0.1564	98
27P	0.01872	0.1151	-0.003101	-0.1929	0.0375	-0.0274	0.01872	0.1151	88
28P	0.008184	0.0506	-0.004557	-0.0734	0.1474	-0.0305	0.008184	0.0506	59
29P	0.005863	0.02856	-0.0042	-0.0579	0.1728	0.0138	0.005863	0.02856	39
30P	0.002082	0.008034	-0.001807	-0.0406	0.0594	0.0088	0.002082	0.008034	19
31P	0.05433	0.4716	-0.003922	-0.8487	0.0461	-0.0315	-1.446	0.4716	135
32P	0.0422	0.28	-0.002546	-0.4955	0.0457	-0.0317	-1.458	0.28	120
33P	0.03428	0.2193	-0.002251	-0.2900	0.0450	-0.0302	-1.466	0.2193	110
34P	0.02514	0.1573	-0.001947	-0.2747	0.0406	-0.0288	-1.475	0.1573	98
35P	0.01873	0.116	-0.001733	-0.2014	0.0326	-0.0275	-1.481	0.116	88
36P	0.008188	0.05145	-0.001261	-0.0769	0.0098	-0.0221	-1.492	0.05145	59
37P	0.005869	0.02842	-0.0009055	-0.0630	0.0102	-0.0170	-1.494	0.02842	39
38P	0.002082	0.007814	-0.0004757	-0.0449	0.0121	-0.0118	-1.498	0.007814	19
39P	0	0	0	0.0000	0.0000	0.0000	-1.5	0	0
1X	0.04053	0.2762	0.009318	-0.3345	0.0448	-0.0399	2.541	-2.224	120
1XY	0.04054	0.2801	0.01333	-0.3341	0.0416	-0.0388	-2.459	-2.22	120
1Y	0.04389	0.28	-0.01617	-0.3389	0.0560	-0.0409	-2.456	2.78	120
2X	0.03611	0.2463	0.009155	-0.3386	0.0437	-0.0353	2.536	-2.254	115
2XY	0.03718	0.2495	0.0131	-0.3490	0.0442	-0.0351	-2.463	-2.25	115
2Y	0.03939	0.2497	-0.0157	-0.3474	0.0427	-0.0380	-2.461	2.75	115
3X	0.0328	0.2177	0.008621	-0.3184	0.0416	-0.0326	2.533	-2.282	110
3XY	0.0328	0.2204	0.01245	-0.3172	0.0467	-0.0314	-2.467	-2.28	110
3Y	0.0358	0.2203	-0.01473	-0.3232	0.0489	-0.0355	-2.464	2.72	110
4X	0.02945	0.1955	0.008211	-0.3134	0.0523	-0.0316	2.529	-2.305	106
4XY	0.02995	0.1983	0.01192	-0.3126	0.0346	-0.0291	-2.47	-2.302	106
4Y	0.03229	0.1981	-0.01406	-0.3085	0.0527	-0.0333	-2.468	2.698	106
5X	0.02614	0.1744	0.007566	-0.2888	0.0338	-0.0305	2.526	-2.326	102
5XY	0.02732	0.1771	0.01108	-0.2928	0.0490	-0.0268	-2.473	-2.323	102
5Y	0.02886	0.1773	-0.01313	-0.2915	0.0366	-0.0310	-2.471	2.677	102
6X	0.02391	0.1552	0.006738	-0.2612	0.0498	-0.0303	2.524	-2.345	98.01
6XY	0.02391	0.1577	0.01003	-0.2582	0.0275	-0.0245	-2.476	-2.342	98.01
6Y	0.02636	0.1577	-0.01202	-0.2636	0.0549	-0.0286	-2.474	2.658	97.99
7X	0.01928	0.1329	0.005799	-0.2400	0.0316	-0.0338	2.519	-2.367	93.01
7XY	0.02193	0.1357	0.008794	-0.2432	0.0416	-0.0195	-2.478	-2.364	93.01
7Y	0.02157	0.1357	-0.01081	-0.2407	0.0310	-0.0238	-2.478	2.636	92.99

8X	0.01784	0.1142	0.004611	-0.1882	0.0326	-0.0373	2.518	-2.386	88
8XY	0.01748	0.1165	0.007182	-0.1874	0.0250	-0.0145	-2.483	-2.384	88.01
8Y	0.02003	0.1164	-0.009335	-0.1916	0.0379	-0.0191	-2.48	2.616	87.99
9X	0	0	0	0.0000	0.0000	0.0000	15	-15	0
9XY	0	0	0	0.0000	0.0000	0.0000	-15	-15	0
9Y	0	0	0	0.0000	0.0000	0.0000	-15	15	0
20X	0.03235	0.2784	0.07354	-0.3171	0.0330	-0.0419	0.03235	-13.47	120.1
21X	0.02944	0.2195	0.05025	-0.3226	0.0322	-0.0283	0.02944	-9.53	110.1
22X	0.01974	0.1571	0.05822	-0.2326	0.0373	-0.0175	0.01974	-14.09	98.06
23X	0.01483	0.1158	0.03357	-0.2117	0.0289	-0.0193	0.01483	-10.13	88.03
10S	0.0184	0.09344	-0.0127	-0.1436	0.0230	-0.0401	3.513	3.588	80.99
11S	0.01447	0.07617	-0.01309	-0.1164	0.0288	-0.0477	4.503	4.565	73.99
12S	0.01302	0.0623	-0.01265	-0.0974	0.0175	-0.0589	5.496	5.545	66.99
13S	0.01054	0.04777	-0.01195	-0.0788	0.0208	-0.0698	6.63	6.667	58.99
14S	0.00766	0.02379	-0.009731	-0.0478	0.0259	-0.0810	9.468	9.484	38.99
15S	-0.0005781	0.003587	-0.006507	-0.0159	0.0292	-0.1367	12.3	12.3	18.99
16S	0.008031	0.0477	-0.003599	-0.0765	0.0106	0.0075	6.627	0.0477	59
17S	0.006242	0.06046	0.007108	-0.0786	0.0116	-0.0181	0.006242	-6.559	59.01
18S	0.002056	0.003344	9.529e-005	-0.0283	-0.0297	0.0594	12.3	0.003344	19
19S	0.0003763	0.1446	-0.02125	-0.0214	0.0051	0.0051	0.0003763	-12.16	18.98
10X	0.01245	0.09271	0.005429	-0.1469	0.0251	-0.0476	3.507	-3.402	81.01
10XY	0.01569	0.09618	0.008243	-0.1479	0.0198	-0.0034	-3.479	-3.398	81.01
10Y	0.01482	0.09579	-0.009754	-0.1485	0.0313	-0.0101	-3.479	3.59	80.99
11X	0.01082	0.07595	0.005987	-0.1122	0.0096	-0.0577	4.499	-4.413	74.01
11XY	0.01143	0.07955	0.00893	-0.1158	0.0253	0.0072	-4.477	-4.409	74.01
11Y	0.01361	0.07953	-0.009978	-0.1173	0.0134	-0.0010	-4.475	4.568	73.99
12X	0.007663	0.062	0.005928	-0.0980	0.0153	-0.0737	5.491	-5.421	67.01
12XY	0.009764	0.06637	0.008747	-0.0990	0.0143	0.0223	-5.473	-5.417	67.01
12Y	0.01099	0.06596	-0.009644	-0.1024	0.0210	0.0140	-5.472	5.549	66.99
13X	0.005637	0.04747	0.005845	-0.0771	0.0002	-0.0882	6.625	-6.572	59.01
13XY	0.006855	0.05224	0.008476	-0.0801	0.0219	0.0368	-6.612	-6.567	59.01
13Y	0.009213	0.05204	-0.009135	-0.0811	0.0067	0.0274	-6.61	6.671	58.99
14X	0.001736	0.02434	0.004885	-0.0410	-0.0038	-0.1129	9.462	-9.436	39
14XY	0.003589	0.03024	0.006806	-0.0494	0.0100	0.0518	-9.457	-9.43	39.01
14Y	0.006339	0.02864	-0.007726	-0.0565	0.0102	0.0422	-9.454	9.489	38.99
15X	-0.0008332	0.004605	0.003357	-0.0121	-0.0267	-0.1915	12.3	-12.3	19
15XY	0.001741	0.007936	0.004567	-0.0304	0.0228	0.1244	-12.3	-12.29	19
15Y	0.0002345	0.006031	-0.004494	-0.0294	-0.0036	0.1002	-12.3	12.31	19
16Y	0.008434	0.05227	-0.0003308	-0.0740	0.0142	-0.0313	-6.611	0.05227	59
17X	0.009926	0.05785	-0.01136	-0.0800	0.0115	-0.0171	0.009926	6.677	58.99
18Y	0.0021	0.005648	-0.0004852	-0.0187	-0.0019	-0.0358	-12.3	0.005648	19
19X	-0.0001277	0.1075	0.01474	-0.0224	0.0006	0.0006	-0.0001277	12.41	19.01

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 %
9P	-14.49	0.0	-18.55	0.0	0.0	-102.06	0.0	0.0	104.73	0.0	-0.41	0.0	0.3	0.0	0.0	1.14	0.0	0.0
39P	-0.01	0.0	-0.85	0.0	0.0	-10.54	0.0	0.0	10.57	0.0	2.50	0.0	-0.7	0.0	0.0	0.44	0.0	0.0
9X	8.12	0.0	-12.35	0.0	0.0	60.11	0.0	0.0	61.90	0.0	-0.28	0.0	0.3	0.0	0.0	1.53	0.0	0.0
9XY	-13.03	0.0	-18.81	0.0	0.0	89.65	0.0	0.0	92.52	0.0	0.21	0.0	-0.2	0.0	0.0	-1.02	0.0	0.0
9Y	12.16	0.0	-18.09	0.0	0.0	-83.42	0.0	0.0	86.22	0.0	-0.01	0.0	0.2	0.0	0.0	-0.78	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	0.2963	-0.2386	0.0000	-0.2963	0.2386	0.0439	0.2760	-0.0199
2P	0.0000	0.2963	-0.2386	0.0000	-0.2963	0.2386	0.0404	0.2465	-0.0195
3P	0.0000	0.2963	-0.2386	0.0000	-0.2963	0.2386	0.0359	0.2174	-0.0185
4P	0.0000	0.2963	-0.2386	0.0000	-0.2963	0.2386	0.0329	0.1955	-0.0178
5P	0.0000	0.2963	-0.2386	0.0000	-0.2963	0.2386	0.0300	0.1747	-0.0167
6P	0.0000	0.2963	-0.2386	-0.0000	-0.2963	0.2386	0.0265	0.1550	-0.0154
7P	0.0000	0.2963	-0.2386	0.0000	-0.2963	0.2386	0.0244	0.1335	-0.0138
8P	0.0000	0.2963	-0.2386	-0.0000	-0.2963	0.2386	0.0197	0.1140	-0.0120
9P	0.0000	0.8246	-0.6974	14.4917	17.7219	-101.3586	0.0000	0.0000	0.0000
20P	0.3430	1.2273	-0.4676	-0.3430	-1.2273	0.4676	0.0534	0.2779	-0.0856
21P	1.0930	2.8943	-1.0396	-1.0930	-2.8943	1.0396	0.0407	0.2188	-0.0616
22P	1.0930	2.8943	-1.0396	-1.0930	-2.8943	1.0396	0.0345	0.1561	-0.0781
23P	1.0930	2.8943	-1.0396	-1.0930	-2.8943	1.0396	0.0244	0.1153	-0.0432
24P	0.0000	0.2963	-0.2386	0.0000	-0.2963	0.2386	0.0422	0.2781	-0.0039
25P	0.0000	0.2963	-0.2386	0.0000	-0.2963	0.2386	0.0343	0.2190	-0.0039
26P	0.0000	0.2963	-0.2386	0.0000	-0.2963	0.2386	0.0251	0.1564	-0.0034
27P	0.0000	0.2963	-0.2386	0.0000	-0.2963	0.2386	0.0187	0.1151	-0.0031
28P	0.0000	0.2963	-0.2386	0.0000	-0.2963	0.2386	0.0082	0.0506	-0.0046
29P	0.0000	0.8246	-0.6974	0.0000	-0.8246	0.6974	0.0059	0.0286	-0.0042
30P	0.0000	0.8246	-0.6974	0.0000	-0.8246	0.6974	0.0021	0.0080	-0.0018
31P	0.0000	2.8423	-3.9026	0.0000	-2.8423	3.9026	0.0543	0.4716	-0.0039
32P	0.0000	0.2963	-0.2696	0.0000	-0.2963	0.2696	0.0422	0.2800	-0.0025
33P	0.0000	0.2963	-0.3076	0.0000	-0.2963	0.3076	0.0343	0.2193	-0.0023
34P	0.0000	0.2963	-0.3076	0.0000	-0.2963	0.3076	0.0251	0.1573	-0.0019
35P	0.0000	0.2963	-0.3606	-0.0000	-0.2963	0.3606	0.0187	0.1160	-0.0017
36P	0.0000	1.1210	-1.0890	0.0000	-1.1210	1.0890	0.0082	0.0514	-0.0013
37P	0.0000	0.8246	-0.8224	-0.0000	-0.8246	0.8224	0.0059	0.0284	-0.0009
38P	0.0000	0.8246	-0.8784	-0.0000	-0.8246	0.8784	0.0021	0.0078	-0.0005
39P	0.0000	0.8246	-0.6974	0.0063	0.0294	-9.8378	0.0000	0.0000	0.0000
1X	0.0000	0.2963	-0.2386	0.0000	-0.2963	0.2386	0.0405	0.2762	0.0093
1XY	0.0000	0.5533	-0.3006	0.0000	-0.5533	0.3006	0.0405	0.2801	0.0133
1Y	0.0000	0.2963	-0.2386	0.0000	-0.2963	0.2386	0.0439	0.2800	-0.0162
2X	0.0000	0.2963	-0.2386	0.0000	-0.2963	0.2386	0.0361	0.2463	0.0092
2XY	0.0000	0.2963	-0.2386	0.0000	-0.2963	0.2386	0.0372	0.2495	0.0131
2Y	0.0000	0.2963	-0.2386	0.0000	-0.2963	0.2386	0.0394	0.2497	-0.0157
3X	0.0000	0.2963	-0.2386	0.0000	-0.2963	0.2386	0.0328	0.2177	0.0086
3XY	0.0000	0.8623	-0.3756	0.0000	-0.8623	0.3756	0.0328	0.2204	0.0124
3Y	0.0000	0.2963	-0.2386	-0.0000	-0.2963	0.2386	0.0358	0.2203	-0.0147
4X	0.0000	0.2963	-0.2386	0.0000	-0.2963	0.2386	0.0295	0.1955	0.0082
4XY	0.0000	0.2963	-0.2386	0.0000	-0.2963	0.2386	0.0300	0.1983	0.0119
4Y	0.0000	0.2963	-0.2386	0.0000	-0.2963	0.2386	0.0323	0.1981	-0.0141
5X	0.0000	0.2963	-0.2386	0.0000	-0.2963	0.2386	0.0261	0.1744	0.0076
5XY	0.0000	0.2963	-0.2386	0.0000	-0.2963	0.2386	0.0273	0.1771	0.0111
5Y	0.0000	0.2963	-0.2386	0.0000	-0.2963	0.2386	0.0289	0.1773	-0.0131
6X	0.0000	0.2963	-0.2386	0.0000	-0.2963	0.2386	0.0239	0.1552	0.0067
6XY	0.0000	0.8623	-0.3756	-0.0000	-0.8623	0.3756	0.0239	0.1577	0.0100
6Y	0.0000	0.2963	-0.2386	0.0000	-0.2963	0.2386	0.0264	0.1577	-0.0120
7X	0.0000	0.2963	-0.2386	0.0000	-0.2963	0.2386	0.0193	0.1329	0.0058
7XY	0.0000	0.2963	-0.2386	0.0000	-0.2963	0.2386	0.0219	0.1357	0.0088
7Y	0.0000	0.2963	-0.2386	0.0000	-0.2963	0.2386	0.0216	0.1357	-0.0108
8X	0.0000	0.2963	-0.2386	-0.0000	-0.2963	0.2386	0.0178	0.1142	0.0046
8XY	0.0000	1.2993	-0.4816	0.0000	-1.2993	0.4816	0.0175	0.1165	0.0072
8Y	0.0000	0.2963	-0.2386	0.0000	-0.2963	0.2386	0.0200	0.1164	-0.0093
9X	0.0000	0.8246	-0.6974	-8.1161	11.5286	60.8103	0.0000	0.0000	0.0000
9XY	0.0000	0.8246	-0.6974	13.0256	17.9817	90.3473	0.0000	0.0000	0.0000
9Y	0.0000	0.8246	-0.6974	-12.1634	17.2630	-82.7197	0.0000	0.0000	0.0000

20X	0.3430	1.2273	-0.4676	-0.3430	-1.2273	0.4676	0.0323	0.2784	0.0735
21X	1.0930	2.8943	-1.0396	-1.0930	-2.8943	1.0396	0.0294	0.2195	0.0502
22X	1.0930	2.8943	-1.0396	-1.0930	-2.8943	1.0396	0.0197	0.1571	0.0582
23X	1.0930	2.8943	-1.0396	-1.0930	-2.8943	1.0396	0.0148	0.1158	0.0336
10S	0.0000	0.2963	-0.2386	0.0000	-0.2963	0.2386	0.0184	0.0934	-0.0127
11S	0.0000	0.2963	-0.2386	0.0000	-0.2963	0.2386	0.0145	0.0762	-0.0131
12S	0.0000	0.2963	-0.2386	0.0000	-0.2963	0.2386	0.0130	0.0623	-0.0127
13S	0.0000	1.1210	-0.9360	-0.0000	-1.1210	0.9360	0.0105	0.0478	-0.0120
14S	0.0000	0.8246	-0.6974	0.0000	-0.8246	0.6974	0.0077	0.0238	-0.0097
15S	0.0000	0.8246	-0.6974	-0.0000	-0.8246	0.6974	-0.0006	0.0036	-0.0065
16S	0.0000	0.2963	-0.2386	0.0000	-0.2963	0.2386	0.0080	0.0477	-0.0036
17S	0.0000	0.2963	-0.2386	0.0000	-0.2963	0.2386	0.0062	0.0605	0.0071
18S	0.0000	0.8246	-0.6974	0.0000	-0.8246	0.6974	0.0021	0.0033	0.0001
19S	0.0000	0.8246	-0.6974	0.0000	-0.8246	0.6974	0.0004	0.1446	-0.0212
10X	0.0000	0.2963	-0.2386	0.0000	-0.2963	0.2386	0.0124	0.0927	0.0054
10XY	0.0000	0.2963	-0.2386	-0.0000	-0.2963	0.2386	0.0157	0.0962	0.0082
10Y	0.0000	0.2963	-0.2386	0.0000	-0.2963	0.2386	0.0148	0.0958	-0.0098
11X	0.0000	0.2963	-0.2386	0.0000	-0.2963	0.2386	0.0108	0.0759	0.0060
11XY	0.0000	0.2963	-0.2386	-0.0000	-0.2963	0.2386	0.0114	0.0795	0.0089
11Y	0.0000	0.2963	-0.2386	-0.0000	-0.2963	0.2386	0.0136	0.0795	-0.0100
12X	0.0000	0.2963	-0.2386	0.0000	-0.2963	0.2386	0.0077	0.0620	0.0059
12XY	0.0000	0.2963	-0.2386	-0.0000	-0.2963	0.2386	0.0098	0.0664	0.0087
12Y	0.0000	0.2963	-0.2386	-0.0000	-0.2963	0.2386	0.0110	0.0660	-0.0096
13X	0.0000	1.1210	-0.9360	-0.0000	-1.1210	0.9360	0.0056	0.0475	0.0058
13XY	0.0000	2.3810	-1.2420	-0.0000	-2.3810	1.2420	0.0069	0.0522	0.0085
13Y	0.0000	1.1210	-0.9360	-0.0000	-1.1210	0.9360	0.0092	0.0520	-0.0091
14X	0.0000	0.8246	-0.6974	-0.0000	-0.8246	0.6974	0.0017	0.0243	0.0049
14XY	0.0000	1.8526	-0.9474	0.0000	-1.8526	0.9474	0.0036	0.0302	0.0068
14Y	0.0000	0.8246	-0.6974	0.0000	-0.8246	0.6974	0.0063	0.0286	-0.0077
15X	0.0000	0.8246	-0.6974	0.0000	-0.8246	0.6974	-0.0008	0.0046	0.0034
15XY	0.0000	2.3156	-1.0594	-0.0000	-2.3156	1.0594	0.0017	0.0079	0.0046
15Y	0.0000	0.8246	-0.6974	-0.0000	-0.8246	0.6974	0.0002	0.0060	-0.0045
16Y	0.0000	0.2963	-0.2386	0.0000	-0.2963	0.2386	0.0084	0.0523	-0.0003
17X	0.0000	0.2963	-0.2386	0.0000	-0.2963	0.2386	0.0099	0.0579	-0.0114
18Y	0.0000	0.8246	-0.6974	0.0000	-0.8246	0.6974	0.0021	0.0056	-0.0005
19X	0.0000	0.8246	-0.6974	-0.0000	-0.8246	0.6974	-0.0001	0.1075	0.0147

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.
g16X	g16XY	Long only	-1.51	-0.60	37.91	0.750	0.500	0.500	71.67	83.75	2	32.24	1.000	91.24	105.62	3
g16XY	g16X	Long only	-0.60	-1.51	37.91	0.750	0.500	0.500	71.67	83.75	2	32.24	1.000	91.24	105.62	3
g18P	g18Y	Long only	-0.29	-2.18	37.91	0.750	0.500	0.500	71.67	83.75	2	32.24	1.000	91.24	105.62	3
g18Y	g18P	Long only	-2.18	-0.29	37.91	0.750	0.500	0.500	71.67	83.75	2	32.24	1.000	91.24	105.62	3
g22X	g22XY	Long only	-0.74	-1.64	47.55	0.750	0.500	0.500	55.36	71.52	2	41.19	1.000	70.49	95.25	3
g22XY	g22X	Long only	-1.64	-0.74	47.55	0.750	0.500	0.500	55.36	71.52	2	41.19	1.000	70.49	95.25	3
g24P	g24Y	Long only	-0.24	-3.09	47.55	0.750	0.500	0.500	55.36	71.52	2	41.19	1.000	70.49	95.25	3
g24Y	g24P	Long only	-3.09	-0.24	47.55	0.750	0.500	0.500	55.36	71.52	2	41.19	1.000	70.49	95.25	3
g26X	g26XY	Long only	-0.35	-2.87	88.91	0.750	0.500	0.500	42.68	62.01	2	78.16	1.000	54.05	87.02	3
g26XY	g26X	Long only	-2.87	-0.35	88.91	0.750	0.500	0.500	42.68	62.01	2	78.16	1.000	54.05	87.02	3
g28P	g28Y	Long only	-0.89	-5.69	88.91	0.750	0.500	0.500	42.68	62.01	2	78.16	1.000	54.05	87.02	3
g28Y	g28P	Long only	-5.69	-0.89	88.91	0.750	0.500	0.500	42.68	62.01	2	78.16	1.000	54.05	87.02	3
g29P	g29X	Long only	-1.46	-0.73	49.24	0.783	0.567	0.567	79.33	89.50	2	43.87	1.000	88.99	104.49	3
g29X	g29P	Long only	-0.73	-1.46	49.24	0.783	0.567	0.567	79.33	89.50	2	43.87	1.000	88.99	104.49	3

g30P	g30Y	Long only	-2.56	-5.75	49.24	0.783	0.567	0.567	79.33	89.50	2	43.87	1.000	88.99	104.49	3
g30Y	g30P	Long only	-5.75	-2.56	49.24	0.783	0.567	0.567	79.33	89.50	2	43.87	1.000	88.99	104.49	3
g32X	g32XY	Long only	-1.58	-1.34	46.44	0.780	0.560	0.560	90.14	97.60	2	41.21	1.000	102.37	111.19	3
g32XY	g32X	Long only	-1.34	-1.58	46.44	0.780	0.560	0.560	90.14	97.60	2	41.21	1.000	102.37	111.19	3
g34Y	g34P	Long only	-1.37	0.18	33.81	0.774	0.548	0.548	115.83	116.87	2	29.03	1.000	134.57	128.96	6

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

Clamp Label	Force (kips)	Input Holding Capacity (kips)	Factored Holding Capacity (kips)	Usage %
CLAMP1	1.357	50.00	50.00	2.71
CLAMP2	1.357	50.00	50.00	2.71
CLAMP3	3.264	50.00	50.00	6.53
CLAMP4	3.264	50.00	50.00	6.53
CLAMP5	3.264	50.00	50.00	6.53
CLAMP6	3.264	50.00	50.00	6.53
CLAMP7	3.264	50.00	50.00	6.53
CLAMP8	3.264	50.00	50.00	6.53
CLAMP9	0.380	50.00	50.00	0.76
CLAMP10	0.380	50.00	50.00	0.76
CLAMP11	0.380	50.00	50.00	0.76
CLAMP12	0.380	50.00	50.00	0.76
CLAMP13	0.380	50.00	50.00	0.76
CLAMP14	0.380	50.00	50.00	0.76
CLAMP15	0.380	50.00	50.00	0.76
CLAMP16	0.380	50.00	50.00	0.76
CLAMP17	1.460	50.00	50.00	2.92
CLAMP18	1.460	50.00	50.00	2.92
CLAMP19	1.080	50.00	50.00	2.16
CLAMP20	1.080	50.00	50.00	2.16
CLAMP21	1.080	50.00	50.00	2.16
CLAMP22	1.080	50.00	50.00	2.16
CLAMP23	4.828	50.00	50.00	9.66
CLAMP24	0.401	50.00	50.00	0.80
CLAMP25	0.427	50.00	50.00	0.85
CLAMP26	0.427	50.00	50.00	0.85
CLAMP27	0.467	50.00	50.00	0.93
CLAMP28	1.563	50.00	50.00	3.13
CLAMP29	1.165	50.00	50.00	2.33
CLAMP30	1.205	50.00	50.00	2.41
CLAMP31	0.630	50.00	50.00	1.26
CLAMP32	0.941	50.00	50.00	1.88
CLAMP33	0.941	50.00	50.00	1.88
CLAMP34	1.386	50.00	50.00	2.77
CLAMP35	2.685	50.00	50.00	5.37
CLAMP36	2.081	50.00	50.00	4.16
CLAMP37	2.546	50.00	50.00	5.09

*** Analysis Results for Load Case No. 3 "NESC Heavy Broken Wire" - Number of iterations in SAPS 10

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

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	0.1446	0.1455	-0.02192	-0.1451	0.2110	0.5068	2.645	2.645	120
2P	0.1255	0.1317	-0.02156	-0.1663	0.2262	0.4687	2.626	2.632	115
3P	0.1064	0.117	-0.02068	-0.1510	0.2076	0.4328	2.606	2.617	110
4P	0.09236	0.1061	-0.01991	-0.1531	0.1986	0.3905	2.592	2.606	106
5P	0.07905	0.09527	-0.01865	-0.1578	0.1882	0.3482	2.579	2.595	102
6P	0.06677	0.08476	-0.0171	-0.1182	0.1594	0.3082	2.567	2.585	97.98
7P	0.05349	0.07507	-0.01547	-0.1172	0.1581	0.2733	2.553	2.575	92.98
8P	0.04097	0.06473	-0.01351	-0.0952	0.1011	0.2386	2.541	2.565	87.99
9P	0	0	0	0.0000	0.0000	0.0000	15	15	0
20P	0.04255	0.1224	-0.04428	-0.1665	0.1801	0.5232	0.04255	13.87	120
21P	0.04873	0.09686	-0.03392	-0.1812	0.1766	0.4777	0.04873	9.847	110
22P	0.0008596	0.07041	-0.04686	-0.2187	0.1781	0.3237	0.0008596	14.32	97.95
23P	0.007157	0.05388	-0.02444	-0.1440	0.1315	0.2566	0.007157	10.3	87.98
24P	0.1668	0.1229	-0.007965	-0.1477	0.2010	0.5347	0.1668	0.1229	120
25P	0.1256	0.09751	-0.007361	-0.1314	0.1901	0.4660	0.1256	0.09751	110
26P	0.0805	0.07117	-0.006417	-0.1078	0.1558	0.3185	0.0805	0.07117	97.99
27P	0.05175	0.05409	-0.005538	-0.0789	0.1197	0.2503	0.05175	0.05409	87.99
28P	0.01048	0.02847	-0.004264	-0.0282	0.0842	0.0964	0.01048	0.02847	59
29P	0.002484	0.01457	-0.00239	-0.0307	0.0372	0.0382	0.002484	0.01457	39
30P	0.0005515	0.003319	-0.001201	-0.0168	0.0156	-0.0025	0.0005515	0.003319	19
31P	0.2303	0.1802	-0.004829	-0.3101	0.2454	0.3089	-1.27	0.1802	135
32P	0.1668	0.1092	-0.004198	-0.1889	0.2410	0.3084	-1.333	0.1092	120
33P	0.1256	0.08533	-0.003857	-0.1090	0.2315	0.2928	-1.374	0.08533	110
34P	0.08058	0.06301	-0.003469	-0.0978	0.1915	0.2601	-1.419	0.06301	98
35P	0.05178	0.0478	-0.003169	-0.0723	0.1398	0.2291	-1.448	0.0478	88
36P	0.01048	0.02571	-0.002313	-0.0329	0.0390	0.1362	-1.49	0.02571	59
37P	0.002489	0.01326	-0.00163	-0.0350	0.0115	0.0765	-1.498	0.01326	39
38P	0.0005508	0.003111	-0.0008506	-0.0194	0.0034	0.0276	-1.499	0.003111	19
39P	0	0	0	0.0000	0.0000	0.0000	-1.5	0	0
1X	0.1894	0.1462	-0.009508	-0.1496	0.2350	0.5283	2.689	-2.354	120
1XY	0.1896	0.09985	0.01088	-0.1509	0.2653	0.5338	-2.31	-2.4	120
1Y	0.1448	0.1001	-0.001482	-0.1351	0.2535	0.5130	-2.355	2.6	120
2X	0.1668	0.1311	-0.009409	-0.1627	0.2635	0.4913	2.667	-2.369	115
2XY	0.1675	0.08877	0.01078	-0.1196	0.2525	0.4946	-2.333	-2.411	115
2Y	0.1254	0.08869	-0.001353	-0.1252	0.2134	0.4748	-2.375	2.589	115
3X	0.1451	0.1177	-0.009186	-0.1526	0.2469	0.4479	2.645	-2.382	110
3XY	0.1453	0.0776	0.0102	-0.1181	0.2606	0.4529	-2.355	-2.422	110
3Y	0.1065	0.07773	-0.001105	-0.1225	0.2224	0.4377	-2.394	2.578	110
4X	0.127	0.1055	-0.008944	-0.1726	0.2633	0.3991	2.627	-2.394	106
4XY	0.1273	0.07095	0.009653	-0.0904	0.2511	0.4037	-2.373	-2.429	106
4Y	0.09211	0.06997	-0.00109	-0.0940	0.1996	0.3944	-2.408	2.57	106
5X	0.1096	0.09424	-0.008537	-0.1429	0.2400	0.3502	2.61	-2.406	102
5XY	0.1103	0.06382	0.008757	-0.0932	0.2460	0.3546	-2.39	-2.436	102
5Y	0.07872	0.06382	-0.001247	-0.0854	0.1810	0.3511	-2.421	2.564	102
6X	0.09405	0.08486	-0.00798	-0.1250	0.2063	0.3037	2.594	-2.415	97.99
6XY	0.09401	0.05774	0.007594	-0.0868	0.2022	0.3086	-2.406	-2.442	98.01
6Y	0.06668	0.05728	-0.001476	-0.1001	0.1767	0.3100	-2.433	2.557	98
7X	0.07663	0.07324	-0.00742	-0.1125	0.1839	0.2633	2.577	-2.427	92.99
7XY	0.07778	0.05045	0.006315	-0.0854	0.1849	0.2748	-2.422	-2.45	93.01
7Y	0.05227	0.04949	-0.001717	-0.0771	0.1493	0.2715	-2.448	2.549	93

8X	0.06255	0.06497	-0.006759	-0.1003	0.1478	0.2229	2.563	-2.435	87.99
8XY	0.06241	0.04355	0.004706	-0.0506	0.1484	0.2408	-2.438	-2.456	88
8Y	0.04111	0.0434	-0.001983	-0.0622	0.1093	0.2331	-2.459	2.543	88
9X	0	0	0	0.0000	0.0000	0.0000	15	-15	0
9XY	0	0	0	0.0000	0.0000	0.0000	-15	-15	0
9Y	0	0	0	0.0000	0.0000	0.0000	-15	15	0
20X	0.3061	0.1237	0.02525	-0.1275	0.3099	0.6159	0.3061	-13.63	120
21X	0.2096	0.09818	0.01561	-0.1279	0.3035	0.5477	0.2096	-9.652	110
22X	0.1589	0.07212	0.00927	-0.0180	0.1863	0.3180	0.1589	-14.18	98.01
23X	0.096	0.05473	0.006813	-0.0504	0.1208	0.2553	0.096	-10.2	88.01
10S	0.02776	0.05797	-0.01399	-0.0826	0.0677	0.2102	3.522	3.552	80.99
11S	0.01545	0.05107	-0.01422	-0.0704	0.0617	0.1856	4.504	4.54	73.99
12S	0.005869	0.04636	-0.01383	-0.0604	0.0505	0.1600	5.489	5.529	66.99
13S	-0.004022	0.03948	-0.01341	-0.0676	0.0332	0.1275	6.615	6.659	58.99
14S	-0.008479	0.01952	-0.01045	-0.0646	-0.0211	0.0705	9.452	9.48	38.99
15S	-0.003415	0.002778	-0.005799	-0.0300	-0.0228	0.0372	12.3	12.3	18.99
16S	0.01076	0.04055	-0.01092	-0.0165	0.0478	0.1244	6.63	0.04055	58.99
17S	0.02335	0.03458	-0.0005548	-0.0329	0.0474	0.1068	0.02335	-6.585	59
18S	0.0005419	0.002824	-7.018e-005	-0.0032	-0.0144	0.0239	12.3	0.002824	19
19S	0.001746	0.08393	-0.01221	-0.0095	0.0091	0.0094	0.001746	-12.22	18.99
10X	0.04905	0.05554	-0.006598	-0.0898	0.1202	0.1872	3.543	-3.439	80.99
10XY	0.05028	0.03553	0.005604	-0.0305	0.1202	0.2185	-3.444	-3.459	81.01
10Y	0.02614	0.03354	-0.001545	-0.0359	0.0765	0.1978	-3.468	3.528	81
11X	0.03974	0.05039	-0.006518	-0.0593	0.0900	0.1548	4.528	-4.438	73.99
11XY	0.03992	0.02712	0.006282	-0.0281	0.0983	0.1978	-4.449	-4.462	74.01
11Y	0.01484	0.02689	-0.00105	-0.0296	0.0610	0.1677	-4.474	4.516	74
12X	0.03138	0.04543	-0.006433	-0.0541	0.0833	0.1154	5.514	-5.438	66.99
12XY	0.03227	0.02168	0.006239	-0.0136	0.0856	0.1741	-5.451	-5.461	67.01
12Y	0.005171	0.02028	-0.0006979	-0.0274	0.0519	0.1392	-5.478	5.503	67
13X	0.02284	0.04066	-0.006399	-0.0495	0.0621	0.0721	6.642	-6.579	58.99
13XY	0.02326	0.01571	0.006255	-0.0163	0.0761	0.1490	-6.596	-6.604	59.01
13Y	-0.002974	0.01513	-0.0002377	-0.0171	0.0283	0.1037	-6.622	6.634	59
14X	0.009845	0.02199	-0.004036	-0.0582	0.0280	0.0000	9.47	-9.438	39
14XY	0.01043	0.006491	0.005438	-0.0038	0.0381	0.0964	-9.45	-9.454	39.01
14Y	-0.006349	0.005664	-0.0003338	-0.0146	-0.0122	0.0457	-9.467	9.466	39
15X	0.001723	0.004296	-0.001383	-0.0223	0.0004	-0.0844	12.3	-12.3	19
15XY	0.002678	0.001151	0.003251	0.0033	0.0281	0.0908	-12.3	-12.3	19
15Y	-0.002295	0.0005055	-0.0006223	-0.0036	-0.0116	0.0075	-12.3	12.3	19
16Y	0.009413	0.01505	0.003607	-0.0340	0.0522	0.1071	-6.61	0.01505	59
17X	-0.004007	0.02624	-0.00802	-0.0424	0.0698	0.1004	-0.004007	6.646	58.99
18Y	0.0005582	0.0006611	-0.000213	-0.0139	0.0047	-0.0046	-12.3	0.0006611	19
19X	-0.002278	-0.009267	-0.001448	-0.0169	0.0266	-0.0032	-0.002278	12.29	19

Joint Support Reactions for Load Case "NESC Heavy Broken Wire":

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 %
9P	-9.38	0.0	-14.20	0.0	0.0	-81.06	0.0	0.0	82.82	0.0	-0.10	0.0	0.5	0.0	0.0	-0.32	0.0	0.0
39P	0.00	0.0	-0.34	0.0	0.0	-18.39	0.0	0.0	18.40	0.0	0.85	0.0	-0.2	0.0	0.0	-1.03	0.0	0.0
9X	-3.60	0.0	-1.02	0.0	0.0	-13.77	0.0	0.0	14.27	0.0	0.03	0.0	0.1	0.0	0.0	0.67	0.0	0.0
9XY	-9.42	0.0	-8.75	0.0	0.0	54.72	0.0	0.0	56.21	0.0	-0.19	0.0	-0.2	0.0	0.0	-0.74	0.0	0.0
9Y	5.00	0.0	-3.46	0.0	0.0	-19.72	0.0	0.0	20.64	0.0	-0.04	0.0	0.2	0.0	0.0	-0.04	0.0	0.0

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

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	-0.2187	-0.0000	0.0000	0.2187	0.1446	0.1455	-0.0219
2P	0.0000	0.0000	-0.1754	-0.0000	0.0000	0.1754	0.1255	0.1317	-0.0216
3P	0.0000	0.0000	-0.2686	-0.0000	0.0000	0.2686	0.1064	0.1170	-0.0207
4P	0.0000	0.0000	-0.1945	-0.0000	0.0000	0.1945	0.0924	0.1061	-0.0199
5P	0.0000	0.0000	-0.2123	-0.0000	0.0000	0.2123	0.0790	0.0953	-0.0186
6P	0.0000	0.0000	-0.4306	0.0000	-0.0000	0.4306	0.0668	0.0848	-0.0171
7P	0.0000	0.0000	-0.3966	0.0000	0.0000	0.3966	0.0535	0.0751	-0.0155
8P	0.0000	0.0000	-0.5346	0.0000	0.0000	0.5346	0.0410	0.0647	-0.0135
9P	0.0000	0.0000	-0.8328	9.3813	14.1966	-80.2237	0.0000	0.0000	0.0000
20P	0.0100	0.9910	-0.9333	-0.0100	-0.9910	0.9333	0.0426	0.1224	-0.0443
21P	0.0140	1.5460	-2.0006	-0.0140	-1.5460	2.0006	0.0487	0.0969	-0.0339
22P	0.0140	1.5460	-1.9941	-0.0140	-1.5460	1.9941	0.0009	0.0704	-0.0469
23P	0.0140	1.5460	-1.9055	-0.0140	-1.5460	1.9055	0.0072	0.0539	-0.0244
24P	0.0000	0.0000	-0.0442	0.0000	0.0000	0.0442	0.1668	0.1229	-0.0080
25P	0.0000	0.0000	-0.0442	0.0000	0.0000	0.0442	0.1256	0.0975	-0.0074
26P	0.0000	0.0000	-0.0442	0.0000	0.0000	0.0442	0.0805	0.0712	-0.0064
27P	0.0000	0.0000	-0.0442	0.0000	0.0000	0.0442	0.0518	0.0541	-0.0055
28P	0.0000	0.0000	-0.0654	0.0000	0.0000	0.0654	0.0105	0.0285	-0.0043
29P	0.0000	0.0000	-0.0947	0.0000	-0.0000	0.0947	0.0025	0.0146	-0.0024
30P	0.0000	0.0000	-0.1792	0.0000	-0.0000	0.1792	0.0006	0.0033	-0.0012
31P	0.0000	0.9520	-8.6249	-0.0000	-0.9520	8.6249	0.2303	0.1802	-0.0048
32P	0.0000	0.4449	-1.0367	-0.0000	-0.4449	1.0367	0.1668	0.1092	-0.0042
33P	0.0000	0.3915	-0.9755	0.0000	-0.3915	0.9755	0.1256	0.0853	-0.0039
34P	0.0000	0.3915	-0.9755	0.0000	-0.3915	0.9755	0.0806	0.0630	-0.0035
35P	0.0000	0.6941	-1.7196	0.0000	-0.6941	1.7196	0.0518	0.0478	-0.0032
36P	0.0000	0.8880	-2.1947	0.0000	-0.8880	2.1947	0.0105	0.0257	-0.0023
37P	0.0000	0.7437	-1.8832	0.0000	-0.7437	1.8832	0.0025	0.0133	-0.0016
38P	0.0000	0.7252	-2.1677	0.0000	-0.7252	2.1677	0.0006	0.0031	-0.0009
39P	0.0000	0.3533	-0.7421	-0.0011	-0.0127	-17.6502	0.0000	0.0000	0.0000
1X	0.0000	0.0750	-0.2187	0.0000	-0.0750	0.2187	0.1894	0.1462	-0.0095
1XY	0.0000	0.1610	-0.4539	0.0000	-0.1610	0.4539	0.1896	0.0998	0.0109
1Y	0.0000	0.0000	-0.2239	-0.0000	0.0000	0.2239	0.1448	0.1001	-0.0015
2X	0.0000	0.1307	-0.1754	-0.0000	-0.1307	0.1754	0.1668	0.1311	-0.0094
2XY	0.0000	0.1307	-0.1754	-0.0000	-0.1307	0.1754	0.1675	0.0888	0.0108
2Y	0.0000	0.0000	-0.1754	-0.0000	0.0000	0.1754	0.1254	0.0887	-0.0014
3X	0.0000	0.1307	-0.2686	-0.0000	-0.1307	0.2686	0.1451	0.1177	-0.0092
3XY	0.0000	0.3197	-0.7798	-0.0000	-0.3197	0.7798	0.1453	0.0776	0.0102
3Y	0.0000	0.0000	-0.2738	-0.0000	0.0000	0.2738	0.1065	0.0777	-0.0011
4X	0.0000	0.1184	-0.1945	-0.0000	-0.1184	0.1945	0.1270	0.1055	-0.0089
4XY	0.0000	0.1184	-0.1945	0.0000	-0.1184	0.1945	0.1273	0.0710	0.0097
4Y	0.0000	0.0000	-0.1945	-0.0000	0.0000	0.1945	0.0921	0.0700	-0.0011
5X	0.0000	0.1316	-0.2123	-0.0000	-0.1316	0.2123	0.1096	0.0942	-0.0085
5XY	0.0000	0.1316	-0.2123	0.0000	-0.1316	0.2123	0.1103	0.0638	0.0088
5Y	0.0000	0.0000	-0.2123	0.0000	0.0000	0.2123	0.0787	0.0638	-0.0012
6X	0.0000	0.1679	-0.4306	0.0000	-0.1679	0.4306	0.0940	0.0849	-0.0080
6XY	0.0000	0.3569	-0.9418	0.0000	-0.3569	0.9418	0.0940	0.0577	0.0076
6Y	0.0000	0.0000	-0.4358	0.0000	0.0000	0.4358	0.0667	0.0573	-0.0015
7X	0.0000	0.1961	-0.3966	0.0000	-0.1961	0.3966	0.0766	0.0732	-0.0074
7XY	0.0000	0.1961	-0.3966	0.0000	-0.1961	0.3966	0.0778	0.0505	0.0063
7Y	0.0000	0.0000	-0.3966	0.0000	0.0000	0.3966	0.0523	0.0495	-0.0017
8X	0.0000	0.2356	-0.5346	0.0000	-0.2356	0.5346	0.0625	0.0650	-0.0068
8XY	0.0000	0.5706	-1.4368	0.0000	-0.5706	1.4368	0.0624	0.0436	0.0047
8Y	0.0000	0.0000	-0.5398	0.0000	0.0000	0.5398	0.0411	0.0434	-0.0020
9X	0.0000	0.4004	-0.8328	3.6041	0.6225	-12.9394	0.0000	0.0000	0.0000
9XY	0.0000	0.4004	-0.8328	9.4242	8.3500	55.5503	0.0000	0.0000	0.0000
9Y	0.0000	0.0000	-0.8328	-5.0035	3.4636	-18.8895	0.0000	0.0000	0.0000

20X	7.4250	0.8657	-0.5953	-7.4250	-0.8657	0.5953	0.3061	0.1237	0.0253
21X	9.9000	0.7640	-1.0986	-9.9000	-0.7640	1.0986	0.2096	0.0982	0.0156
22X	0.0140	1.6072	-1.9941	-0.0140	-1.6072	1.9941	0.1589	0.0721	0.0093
23X	0.0140	1.6012	-1.9055	-0.0140	-1.6012	1.9055	0.0960	0.0547	0.0068
10S	0.0000	0.0000	-0.5041	0.0000	0.0000	0.5041	0.0278	0.0580	-0.0140
11S	0.0000	0.0000	-0.5194	0.0000	0.0000	0.5194	0.0154	0.0511	-0.0142
12S	0.0000	0.0000	-0.5189	0.0000	0.0000	0.5189	0.0059	0.0464	-0.0138
13S	0.0000	0.0000	-1.0722	0.0000	0.0000	1.0722	-0.0040	0.0395	-0.0134
14S	0.0000	0.0000	-1.7916	0.0000	0.0000	1.7916	-0.0085	0.0195	-0.0105
15S	0.0000	0.0000	-1.4104	0.0000	0.0000	1.4104	-0.0034	0.0028	-0.0058
16S	0.0000	0.0000	-0.1580	-0.0000	0.0000	0.1580	0.0108	0.0406	-0.0109
17S	0.0000	0.1822	-0.1580	0.0000	-0.1822	0.1580	0.0234	0.0346	-0.0006
18S	0.0000	0.0000	-0.5178	0.0000	0.0000	0.5178	0.0005	0.0028	-0.0001
19S	0.0000	0.4965	-0.4616	0.0000	-0.4965	0.4616	0.0017	0.0839	-0.0122
10X	0.0000	0.2686	-0.5041	0.0000	-0.2686	0.5041	0.0490	0.0555	-0.0066
10XY	0.0000	0.2686	-0.5041	0.0000	-0.2686	0.5041	0.0503	0.0355	0.0056
10Y	0.0000	0.0000	-0.5041	0.0000	0.0000	0.5041	0.0261	0.0335	-0.0015
11X	0.0000	0.2767	-0.5194	0.0000	-0.2767	0.5194	0.0397	0.0504	-0.0065
11XY	0.0000	0.2767	-0.5194	0.0000	-0.2767	0.5194	0.0399	0.0271	0.0063
11Y	0.0000	0.0000	-0.5194	0.0000	0.0000	0.5194	0.0148	0.0269	-0.0010
12X	0.0000	0.2829	-0.5189	0.0000	-0.2829	0.5189	0.0314	0.0454	-0.0064
12XY	0.0000	0.2829	-0.5189	0.0000	-0.2829	0.5189	0.0323	0.0217	0.0062
12Y	0.0000	0.0000	-0.5189	0.0000	0.0000	0.5189	0.0052	0.0203	-0.0007
13X	0.0000	0.5126	-1.0722	0.0000	-0.5126	1.0722	0.0228	0.0407	-0.0064
13XY	0.0000	0.9336	-2.2236	0.0000	-0.9336	2.2236	0.0233	0.0157	0.0063
13Y	0.0000	0.0000	-1.0966	0.0000	0.0000	1.0966	-0.0030	0.0151	-0.0002
14X	0.0000	0.8823	-1.7916	0.0000	-0.8823	1.7916	0.0098	0.0220	-0.0040
14XY	0.0000	1.2253	-2.7758	0.0000	-1.2253	2.7758	0.0104	0.0065	0.0054
14Y	0.0000	0.0000	-1.8558	0.0000	0.0000	1.8558	-0.0063	0.0057	-0.0003
15X	0.0000	0.6822	-1.4104	0.0000	-0.6822	1.4104	0.0017	0.0043	-0.0014
15XY	0.0000	1.1802	-2.9030	0.0000	-1.1802	2.9030	0.0027	0.0012	0.0033
15Y	0.0000	0.0000	-1.5690	0.0000	0.0000	1.5690	-0.0023	0.0005	-0.0006
16Y	0.0000	0.0000	-0.1580	0.0000	0.0000	0.1580	0.0094	0.0151	0.0036
17X	0.0000	0.0000	-0.1580	0.0000	0.0000	0.1580	-0.0040	0.0262	-0.0080
18Y	0.0000	0.0000	-0.5110	0.0000	-0.0000	0.5110	0.0006	0.0007	-0.0002
19X	0.0000	0.0000	-0.4616	-0.0000	-0.0000	0.4616	-0.0023	-0.0093	-0.0014

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

Clamp Label	Force (kips)	Input Holding Capacity (kips)	Factored Holding Capacity (kips)	Usage %
CLAMP1	1.361	50.00	50.00	2.72
CLAMP2	7.499	50.00	50.00	15.00
CLAMP3	2.528	50.00	50.00	5.06
CLAMP4	9.990	50.00	50.00	19.98
CLAMP5	2.523	50.00	50.00	5.05
CLAMP6	2.561	50.00	50.00	5.12
CLAMP7	2.454	50.00	50.00	4.91
CLAMP8	2.489	50.00	50.00	4.98
CLAMP9	0.219	50.00	50.00	0.44
CLAMP10	0.231	50.00	50.00	0.46
CLAMP11	0.269	50.00	50.00	0.54
CLAMP12	0.299	50.00	50.00	0.60
CLAMP13	0.431	50.00	50.00	0.86

CLAMP14	0.462	50.00	50.00	0.92
CLAMP15	0.535	50.00	50.00	1.07
CLAMP16	0.584	50.00	50.00	1.17
CLAMP17	1.072	50.00	50.00	2.14
CLAMP18	1.188	50.00	50.00	2.38
CLAMP19	1.792	50.00	50.00	3.58
CLAMP20	1.997	50.00	50.00	3.99
CLAMP21	1.410	50.00	50.00	2.82
CLAMP22	1.567	50.00	50.00	3.13
CLAMP23	8.677	50.00	50.00	17.35
CLAMP24	1.128	50.00	50.00	2.26
CLAMP25	1.051	50.00	50.00	2.10
CLAMP26	1.051	50.00	50.00	2.10
CLAMP27	1.854	50.00	50.00	3.71
CLAMP28	2.368	50.00	50.00	4.74
CLAMP29	2.025	50.00	50.00	4.05
CLAMP30	2.286	50.00	50.00	4.57
CLAMP31	0.482	50.00	50.00	0.96
CLAMP32	0.843	50.00	50.00	1.69
CLAMP33	1.007	50.00	50.00	2.01
CLAMP34	1.546	50.00	50.00	3.09
CLAMP35	2.412	50.00	50.00	4.82
CLAMP36	3.034	50.00	50.00	6.07
CLAMP37	3.134	50.00	50.00	6.27

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

Group Summary (Compression Portion):

Group Label	Group Desc.	Angle Type	Angle Size	Steel Strength (ksi)	Max Usage %	Cont-rol	Max Use In Comp. %	Comp. Control Member	Comp. Force (kips)	Comp. Control Load Case	L/R Capacity (kips)	Comp. Connect. Shear Capacity (kips)	Comp. Connect. Bearing Capacity (kips)	RLX	RLY	RLZ	L/R KL/R Comp.	Length (ft)	Curve No.	No. Of Bolts
LEG1	L4X4X1/4	SAE	4X4X0.25	33.0	27.07	Comp	27.07	g2XY	-9.974	NESC Ext	53.509	36.840	84.375	1.000	1.000	1.000	75.47	75.47	5.000	1	6
LEG2	L5X5X3/8	SAE	5X5X0.375	33.0	46.17	Comp	46.17	g5X	-39.685	NESC Hea	111.058	85.960	295.312	1.000	1.000	1.000	48.48	48.48	4.000	1	14
LEG3	L6X6X1/2	SAE	6X6X0.5	33.0	40.35	Comp	40.35	g7X	-64.421	NESC Hea	175.609	159.640	731.249	1.000	1.000	1.000	50.85	50.85	5.000	1	26
LEG4	L8X8X1/2	SAE	8X8X0.5	33.0	45.45	Comp	45.45	g11X	-83.724	NESC Ext	227.792	184.200	843.749	1.000	1.000	1.000	61.58	61.58	8.160	1	30
LEG5	L8X8X5/8	SAE	8X8X0.625	33.0	49.44	Comp	49.44	g13X	-97.142	NESC Ext	262.274	196.480	1124.998	0.500	0.500	0.500	77.47	77.47	20.400	1	32
XBR1	L3x3x1/4	SAE	3X3X0.25	33.0	53.87	Comp	53.87	g17P	-9.922	NESC Hea	37.913	18.420	42.187	0.750	0.500	0.500	71.67	83.75	7.071	2	3
XBR2	L3.5X3.5X1/4	SAE	3.5X3.5X0.25	33.0	74.08	Comp	74.08	g22XY	-18.193	NESC Hea	47.548	24.560	56.250	0.750	0.500	0.500	55.36	71.52	6.403	2	4
XBR3	L5X5X5/16	SAE	5X5X0.3125	33.0	54.53	Comp	54.53	g27P	-20.087	NESC Hea	88.907	36.840	105.469	0.750	0.500	0.500	42.68	62.01	7.071	2	6
XBR4	L4X4X1/4	SAE	4X4X0.25	33.0	89.68	Comp	89.68	g29P	-16.519	NESC Hea	49.239	18.420	42.187	0.783	0.567	0.567	79.33	89.50	9.269	2	3
XBR5	L4X3X5/16	SAU	4X3X0.3125	33.0	83.01	Comp	83.01	g38Y	-8.449	NESC Ext	10.178	30.700	87.890	0.586	0.793	0.586	280.62	242.43	25.819	5	5
XBR6	L3.5X2.5X1/4	SAU	3.5X2.5X0.25	33.0	72.87	Comp	72.87	g39Y	-2.987	NESC Hea	4.099	18.420	42.187	0.563	0.781	0.563	378.61	317.10	29.692	5	3
DIAG1	L4X3X1/4	SAU	4X3X0.25	33.0	42.17	Tens	41.56	g36P	-7.655	NESC Hea	37.785	18.420	42.187	1.000	0.500	0.500	91.55	105.77	9.765	3	3
DIAG2	L5X3.5X5/16	SAU	5X3.5X0.3125	33.0	89.93	Comp	89.93	g41XY	-11.044	NESC Ext	24.206	12.280	35.156	1.000	0.500	0.500	190.79	173.98	24.357	5	2
HORZ1	**L4X4X1/4**	**SAE**	**4X4X0.25**	**33.0**	**56.79**	**Comp**	**56.79**	**g47Y**	**-10.460**	**NESC Ext**	**19.194**	**18.420**	**42.187**	**1.000**	**1.000**	**1.000**	**185.68**	**170.09**	**12.301**	**5**	**3 A potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize moments): g48P g48X g48XY g48Y ??**
ARM1	L5X3.5X5/16	SAU	5X3.5X0.3125	33.0	56.20	Comp	56.20	g49P	-17.253	NESC Hea	57.564	30.700	87.890	1.000	0.500	0.500	90.27	105.13	11.524	3	5
ARM2	L4X4X1/4	SAE	4X4X0.25	33.0	90.14	Comp	90.14	g51P	-16.604	NESC Hea	38.378	18.420	42.187	1.000	1.000	1.000	115.76	117.88	7.669	3	3
M1	LL3.5X3.5X1/4	DAE	3.5X3.5X0.25	33.0	3.96	Comp	3.96	g57X	-0.972	NESC Hea	66.338	24.560	56.250	1.000	1.000	1.000	118.57	118.57	10.770	1	2
M2	L3X3X3/16	SAE	3X3X0.1875	33.0	31.65	Tens	30.42	g68XY	-3.735	NESC Hea	24.499	12.280	21.094	2.000	1.000	1.000	90.37	105.18	3.536	3	2

M3	L3X3X1/4	SAE	3X3X0.25	33.0	16.17	Tens	13.81	g61X	-2.543	NESC Ext	30.742	18.420	42.187	1.000	1.000	1.000	101.35	110.68	5.000	3	3	
M4	BAR 2X3/16	Bar	2x3/16	33.0	57.95	Tens	0.00	g63Y	0.000		4.649	12.280	21.094	1.000	1.000	1.000	151.94	151.94	12.661	4	2	
M5	1.75x1.75x3/16	SAE	1.75X1.75X0.1875	33.0	75.34	Comp	75.34	g73XY	-0.374	NESC Ext	0.496	6.140	10.547	2.000	1.000	1.000	597.93	597.93	13.379	4	1	
Pwmnt	12" Std. Pipe	Pwmnt	Pipe 12" Std.	50.0	3.30	Comp	3.30	g82P	-19.825	NESC Hea	599.894	0.000	0.000	1.000	1.000	1.000	51.94	51.94	19.000	1	0	
PMBR1	**L2x2x3/16**	**SAE**	**2X2X0.1875**	**36.0**	**41.69**	**Tens**	**40.82**	**g83X**	**-4.162**	**NESC Ext**	**17.361**	**16.800**	**10.195**	**1.000**	**1.000**	**1.000**	**82.01**	**101.00**	**2.693**	**3**	**1**	**A potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize moments): g83X g87P g88P ??**
PMBR2	L3x3x3/16	SAE	3X3X0.1875	36.0	7.24	Tens	5.81	g91X	-0.592	NESC Ext	10.990	16.800	10.195	1.000	1.000	1.000	168.48	168.48	8.368	4	1	
PMBR3	L4x4x1/4	SAE	4X4X0.25	36.0	4.57	Tens	4.28	g93X	-0.582	NESC Ext	15.943	16.800	13.594	1.000	1.000	1.000	186.62	186.62	12.364	4	1	
PMBR4	L5x5x3/8	SAE	5X5X0.375	36.0	5.12	Tens	4.60	g94X	-0.772	NESC Ext	26.243	16.800	20.391	1.000	1.000	1.000	198.43	198.43	16.370	4	1	
HORZ2	**L3X2.5X1/4**	**SAU**	**3X2.5X0.25**	**33.0**	**3.43**	**Tens**	**1.51**	**g98P**	**-0.093**	**NESC Hea**	**35.833**	**6.140**	**14.062**	**1.000**	**1.000**	**1.000**	**34.09**	**77.05**	**1.500**	**3**	**1**	**A potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize moments): g98P ??**
HORZ3	L4X3X1/4	SAU	4X3X0.25	33.0	1.78	Tens	1.64	g95P	-0.101	NESC Ext	9.408	6.140	14.062	1.000	1.000	1.000	226.75	226.75	12.301	4	1	
M6	1.75x1.75x3/16	SAE	1.75X1.75X0.1875	33.0	0.00		0.00		0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.00	0.00	0.000	0	0	
M7	BAR 2X3/16	Bar	2x3/16	33.0	39.92	Tens	0.00	g66Y	0.000		11.091	6.140	10.547	1.000	1.000	1.000	60.00	60.00	5.000	1	1	
M8	BAR 1.75X3/16	Bar	1.75x3/16	33.0	58.79	Tens	27.90	g67Y	-1.713	NESC Hea	7.015	6.140	10.547	1.000	1.000	1.000	111.11	111.11	5.000	1	1	

Group Summary (Tension Portion):

Group Label	Group Desc.	Angle Type	Angle Size	Steel Strength (ksi)	Max Usage %	Max Usage Cont-rol	Max Tension Use In Tens. %	Tension Control Member	Tension Force (kips)	Tension Control Load Case	Net Section Capacity (kips)	Tension Connect. Shear Capacity (kips)	Tension Connect. Bearing Capacity (kips)	Tension Connect. Rupture Capacity (kips)	Length Tens. Member (ft)	No. Of Bolts Tens.	No. Of Holes	Hole Diameter (in)
LEG1	L4X4X1/4	SAE	4X4X0.25	33.0	27.07	Comp	22.77	g2Y	8.388	NESC Ext	52.676	36.840	84.375	93.750	5.000	6	2.000	0.6875
LEG2	L5X5X3/8	SAE	5X5X0.375	33.0	46.17	Comp	36.96	g5Y	31.449	NESC Hea	85.099	85.960	295.312	328.124	4.000	14	4.000	0.6875
LEG3	L6X6X1/2	SAE	6X6X0.5	33.0	40.35	Comp	37.02	g7Y	55.092	NESC Ext	148.799	159.640	731.249	812.499	5.000	26	3.610	0.6875
LEG4	L8X8X1/2	SAE	8X8X0.5	33.0	45.45	Comp	39.63	g11Y	73.006	NESC Ext	213.211	184.200	843.749	937.499	8.160	30	3.750	0.6875
LEG5	L8X8X5/8	SAE	8X8X0.625	33.0	49.44	Comp	40.13	g14Y	83.783	NESC Ext	260.411	208.760	1195.311	1328.123	19.380	34	4.000	0.6875
XBR1	L3x3x1/4	SAE	3X3X0.25	33.0	53.87	Comp	51.68	g18X	9.520	NESC Hea	37.663	18.420	42.187	26.977	7.071	3	1.000	0.6875
XBR2	L3.5X3.5X1/4	SAE	3.5X3.5X0.25	33.0	74.08	Comp	73.17	g20X	17.971	NESC Hea	42.893	24.560	56.250	43.750	6.403	4	1.430	0.6875
XBR3	L5X5X5/16	SAE	5X5X0.3125	33.0	54.53	Comp	53.01	g28X	19.527	NESC Hea	77.612	36.840	105.469	82.031	7.071	6	1.940	0.6875
XBR4	L4X4X1/4	SAE	4X4X0.25	33.0	89.68	Comp	72.97	g29Y	13.441	NESC Hea	48.991	18.420	42.187	84.539	9.269	3	1.690	

0.6875

XBR5	L4X3X5/16	SAU	4X3X0.3125	33.0	83.01	Comp	39.49	g37X	12.124	NESC Hea	51.289	30.700	87.890	87.890	25.819	5	1.690
0.6875																	
XBR6	L3.5X2.5X1/4	SAU	3.5X2.5X0.25	33.0	72.87	Comp	56.09	g39XY	10.331	NESC Ext	37.663	18.420	42.187	32.812	29.692	3	1.000
0.6875																	
DIAG1	L4X3X1/4	SAU	4X3X0.25	33.0	42.17	Tens	42.17	g36Y	7.768	NESC Hea	37.663	18.420	42.187	32.812	9.765	3	1.000
0.6875																	
DIAG2	L5X3.5X5/16	SAU	5X3.5X0.3125	33.0	89.93	Comp	82.72	g41Y	10.158	NESC Ext	55.729	12.280	35.156	27.344	24.357	2	1.000
0.6875																	
HORZ1	**L4X4X1/4**	**SAE**	**4X4X0.25**	**33.0**	**56.79**	**Comp**	**24.77**	**g44Y**	**6.084**	**NESC Ext**	**48.225**	**24.560**	**56.250**	**43.750**	**6.619**	**4**	**1.840**
0.6875 A potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize moments): g48P g48X g48XY g48Y ??																	
ARM1	L5X3.5X5/16	SAU	5X3.5X0.3125	33.0	56.20	Comp	54.34	g49Y	16.681	NESC Hea	64.036	30.700	87.890	68.359	11.524	5	1.880
0.6875																	
ARM2	L4X4X1/4	SAE	4X4X0.25	33.0	90.14	Comp	71.95	g51Y	13.253	NESC Hea	50.982	18.420	42.187	60.662	7.669	3	1.300
0.6875																	
M1	LL3.5X3.5X1/4	DAE	3.5X3.5X0.25	33.0	3.96	Comp	0.00	g57X	0.000		90.176	24.560	56.250	43.750	10.770	2	2.000
0.6875																	
M2	L3X3X3/16	SAE	3X3X0.1875	33.0	31.65	Tens	31.65	g68X	3.887	NESC Hea	28.544	12.280	21.094	19.301	3.536	2	1.000
0.6875																	
M3	L3X3X1/4	SAE	3X3X0.25	33.0	16.17	Tens	16.17	g61P	2.979	NESC Ext	37.663	18.420	42.187	32.812	5.000	3	1.000
0.6875																	
M4	BAR 2X3/16	Bar	2x3/16	33.0	57.95	Tens	57.95	g63XY	4.706	NESC Hea	8.121	12.280	21.094	16.406	12.661	2	1.000
0.6875																	
M5	1.75x1.75x3/16	SAE	1.75X1.75X0.1875	33.0	75.34	Comp	13.11	g72P	0.805	NESC Ext	14.585	6.140	10.547	6.873	9.361	1	1.000
0.6875																	
Pwmnt	12" Std. Pipe Pwmnt		Pipe 12" Std.	50.0	3.30	Comp	0.00	g82P	0.000		679.999	0.000	0.000	0.000	19.000	0	0.000
0																	
PMBR1	**L2x2x3/16**	**SAE**	**2X2X0.1875**	**36.0**	**41.69**	**Tens**	**41.69**	**g83P**	**4.251**	**NESC Ext**	**18.827**	**16.800**	**10.195**	**10.343**	**2.693**	**1**	**1.000**
0.6875 A potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize moments): g83X g87P g88P ??																	
PMBR2	L3x3x3/16	SAE	3X3X0.1875	36.0	7.24	Tens	7.24	g91P	0.738	NESC Ext	31.139	16.800	10.195	11.328	8.368	1	1.000
0.6875																	
PMBR3	L4x4x1/4	SAE	4X4X0.25	36.0	4.57	Tens	4.57	g93P	0.621	NESC Hea	57.287	16.800	13.594	15.104	12.364	1	1.000
0.6875																	
PMBR4	L5x5x3/8	SAE	5X5X0.375	36.0	5.12	Tens	5.12	g94P	0.860	NESC Ext	108.611	16.800	20.391	22.656	16.370	1	1.000
0.6875																	
HORZ2	**L3X2.5X1/4**	**SAU**	**3X2.5X0.25**	**33.0**	**3.43**	**Tens**	**3.43**	**g98P**	**0.211**	**NESC Hea**	**30.090**	**6.140**	**14.062**	**10.937**	**1.500**	**1**	**1.000**
0.6875 A potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize moments): g98P ??																	
HORZ3	L4X3X1/4	SAU	4X3X0.25	33.0	1.78	Tens	1.78	g96P	0.109	NESC Hea	37.663	6.140	14.062	10.937	1.500	1	1.000
0.6875																	
M6	1.75x1.75x3/16	SAE	1.75X1.75X0.1875	33.0	0.00		0.00		0.000		0.000	0.000	0.000	0.000	0.000	0	0.000
0																	
M7	BAR 2X3/16	Bar	2x3/16	33.0	39.92	Tens	39.92	g66P	2.451	NESC Hea	8.121	6.140	10.547	8.203	5.000	1	1.000
0.6875																	
M8	BAR 1.75X3/16	Bar	1.75x3/16	33.0	58.79	Tens	58.79	g67P	3.609	NESC Hea	6.636	6.140	10.547	8.203	5.000	1	1.000
0.6875																	

*** Maximum Stress Summary for Each Load Case

Summary of Maximum Usages by Load Case:

Load Case	Maximum Usage %	Element Label	Element Type
NESC Heavy	72.87	g39Y	Angle

NESC Extreme	89.93	g41XY	Angle
NESC Heavy Broken Wire	90.14	g51P	Angle

Summary of Insulator Usages:

Insulator Label	Insulator Type	Maximum Usage %	Load Case	Weight (lbs)
CLAMP1	Clamp	2.72	NESC Heavy	0.0
CLAMP2	Clamp	15.00	NESC Heavy Broken Wire	0.0
CLAMP3	Clamp	6.53	NESC Extreme	0.0
CLAMP4	Clamp	19.98	NESC Heavy Broken Wire	0.0
CLAMP5	Clamp	6.53	NESC Extreme	0.0
CLAMP6	Clamp	6.53	NESC Extreme	0.0
CLAMP7	Clamp	6.53	NESC Extreme	0.0
CLAMP8	Clamp	6.53	NESC Extreme	0.0
CLAMP9	Clamp	0.76	NESC Extreme	0.0
CLAMP10	Clamp	0.76	NESC Extreme	0.0
CLAMP11	Clamp	0.76	NESC Extreme	0.0
CLAMP12	Clamp	0.76	NESC Extreme	0.0
CLAMP13	Clamp	0.86	NESC Heavy	0.0
CLAMP14	Clamp	0.92	NESC Heavy	0.0
CLAMP15	Clamp	1.07	NESC Heavy	0.0
CLAMP16	Clamp	1.17	NESC Heavy	0.0
CLAMP17	Clamp	2.92	NESC Extreme	0.0
CLAMP18	Clamp	2.92	NESC Extreme	0.0
CLAMP19	Clamp	3.58	NESC Heavy	0.0
CLAMP20	Clamp	3.99	NESC Heavy	0.0
CLAMP21	Clamp	2.82	NESC Heavy	0.0
CLAMP22	Clamp	3.13	NESC Heavy	0.0
CLAMP23	Clamp	17.35	NESC Heavy	0.0
CLAMP24	Clamp	2.26	NESC Heavy	0.0
CLAMP25	Clamp	2.10	NESC Heavy	0.0
CLAMP26	Clamp	2.10	NESC Heavy	0.0
CLAMP27	Clamp	3.71	NESC Heavy	0.0
CLAMP28	Clamp	4.74	NESC Heavy	0.0
CLAMP29	Clamp	4.05	NESC Heavy	0.0
CLAMP30	Clamp	4.57	NESC Heavy	0.0
CLAMP31	Clamp	1.26	NESC Extreme	0.0
CLAMP32	Clamp	1.88	NESC Extreme	0.0
CLAMP33	Clamp	2.01	NESC Heavy	0.0
CLAMP34	Clamp	3.09	NESC Heavy	0.0
CLAMP35	Clamp	5.37	NESC Extreme	0.0
CLAMP36	Clamp	6.07	NESC Heavy	0.0
CLAMP37	Clamp	6.27	NESC Heavy	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	CLAMP1	Clamp	20P	0.010	0.991	0.933	1.361
NESC Heavy	CLAMP2	Clamp	20X	0.010	1.075	0.933	1.423
NESC Heavy	CLAMP3	Clamp	21P	0.014	1.546	2.001	2.528
NESC Heavy	CLAMP4	Clamp	21X	0.014	1.654	2.001	2.596

NESC Heavy	CLAMP5	Clamp	22P	0.014	1.546	1.994	2.523
NESC Heavy	CLAMP6	Clamp	22X	0.014	1.607	1.994	2.561
NESC Heavy	CLAMP7	Clamp	23P	0.014	1.546	1.906	2.454
NESC Heavy	CLAMP8	Clamp	23X	0.014	1.601	1.906	2.489
NESC Heavy	CLAMP9	Clamp	1P	0.000	0.000	0.219	0.219
NESC Heavy	CLAMP10	Clamp	1X	0.000	0.075	0.219	0.231
NESC Heavy	CLAMP11	Clamp	3P	0.000	0.000	0.269	0.269
NESC Heavy	CLAMP12	Clamp	3X	0.000	0.131	0.269	0.299
NESC Heavy	CLAMP13	Clamp	6P	0.000	0.000	0.431	0.431
NESC Heavy	CLAMP14	Clamp	6X	0.000	0.168	0.431	0.462
NESC Heavy	CLAMP15	Clamp	8P	0.000	0.000	0.535	0.535
NESC Heavy	CLAMP16	Clamp	8X	0.000	0.236	0.535	0.584
NESC Heavy	CLAMP17	Clamp	13S	0.000	0.000	1.072	1.072
NESC Heavy	CLAMP18	Clamp	13X	0.000	0.513	1.072	1.188
NESC Heavy	CLAMP19	Clamp	14S	0.000	0.000	1.792	1.792
NESC Heavy	CLAMP20	Clamp	14X	0.000	0.882	1.792	1.997
NESC Heavy	CLAMP21	Clamp	15S	0.000	0.000	1.410	1.410
NESC Heavy	CLAMP22	Clamp	15X	0.000	0.682	1.410	1.567
NESC Heavy	CLAMP23	Clamp	31P	0.000	0.952	8.625	8.677
NESC Heavy	CLAMP24	Clamp	32P	0.000	0.445	1.037	1.128
NESC Heavy	CLAMP25	Clamp	33P	0.000	0.392	0.976	1.051
NESC Heavy	CLAMP26	Clamp	34P	0.000	0.392	0.976	1.051
NESC Heavy	CLAMP27	Clamp	35P	0.000	0.694	1.720	1.854
NESC Heavy	CLAMP28	Clamp	36P	0.000	0.888	2.195	2.368
NESC Heavy	CLAMP29	Clamp	37P	0.000	0.744	1.883	2.025
NESC Heavy	CLAMP30	Clamp	38P	0.000	0.725	2.168	2.286
NESC Heavy	CLAMP31	Clamp	1XY	0.000	0.161	0.454	0.482
NESC Heavy	CLAMP32	Clamp	3XY	0.000	0.320	0.780	0.843
NESC Heavy	CLAMP33	Clamp	6XY	0.000	0.357	0.942	1.007
NESC Heavy	CLAMP34	Clamp	8XY	0.000	0.571	1.437	1.546
NESC Heavy	CLAMP35	Clamp	13XY	0.000	0.934	2.224	2.412
NESC Heavy	CLAMP36	Clamp	14XY	0.000	1.225	2.776	3.034
NESC Heavy	CLAMP37	Clamp	15XY	0.000	1.180	2.903	3.134
NESC Extreme	CLAMP1	Clamp	20P	0.343	1.227	0.468	1.357
NESC Extreme	CLAMP2	Clamp	20X	0.343	1.227	0.468	1.357
NESC Extreme	CLAMP3	Clamp	21P	1.093	2.894	1.040	3.264
NESC Extreme	CLAMP4	Clamp	21X	1.093	2.894	1.040	3.264
NESC Extreme	CLAMP5	Clamp	22P	1.093	2.894	1.040	3.264
NESC Extreme	CLAMP6	Clamp	22X	1.093	2.894	1.040	3.264
NESC Extreme	CLAMP7	Clamp	23P	1.093	2.894	1.040	3.264
NESC Extreme	CLAMP8	Clamp	23X	1.093	2.894	1.040	3.264
NESC Extreme	CLAMP9	Clamp	1P	0.000	0.296	0.239	0.380
NESC Extreme	CLAMP10	Clamp	1X	0.000	0.296	0.239	0.380
NESC Extreme	CLAMP11	Clamp	3P	0.000	0.296	0.239	0.380
NESC Extreme	CLAMP12	Clamp	3X	0.000	0.296	0.239	0.380
NESC Extreme	CLAMP13	Clamp	6P	0.000	0.296	0.239	0.380
NESC Extreme	CLAMP14	Clamp	6X	0.000	0.296	0.239	0.380
NESC Extreme	CLAMP15	Clamp	8P	0.000	0.296	0.239	0.380
NESC Extreme	CLAMP16	Clamp	8X	0.000	0.296	0.239	0.380
NESC Extreme	CLAMP17	Clamp	13S	0.000	1.121	0.936	1.460
NESC Extreme	CLAMP18	Clamp	13X	0.000	1.121	0.936	1.460
NESC Extreme	CLAMP19	Clamp	14S	0.000	0.825	0.697	1.080
NESC Extreme	CLAMP20	Clamp	14X	0.000	0.825	0.697	1.080
NESC Extreme	CLAMP21	Clamp	15S	0.000	0.825	0.697	1.080
NESC Extreme	CLAMP22	Clamp	15X	0.000	0.825	0.697	1.080
NESC Extreme	CLAMP23	Clamp	31P	0.000	2.842	3.903	4.828
NESC Extreme	CLAMP24	Clamp	32P	0.000	0.296	0.270	0.401
NESC Extreme	CLAMP25	Clamp	33P	0.000	0.296	0.308	0.427
NESC Extreme	CLAMP26	Clamp	34P	0.000	0.296	0.308	0.427

NESC Extreme	CLAMP27	Clamp	35P	0.000	0.296	0.361	0.467
NESC Extreme	CLAMP28	Clamp	36P	0.000	1.121	1.089	1.563
NESC Extreme	CLAMP29	Clamp	37P	0.000	0.825	0.822	1.165
NESC Extreme	CLAMP30	Clamp	38P	0.000	0.825	0.878	1.205
NESC Extreme	CLAMP31	Clamp	1XY	0.000	0.553	0.301	0.630
NESC Extreme	CLAMP32	Clamp	3XY	0.000	0.862	0.376	0.941
NESC Extreme	CLAMP33	Clamp	6XY	0.000	0.862	0.376	0.941
NESC Extreme	CLAMP34	Clamp	8XY	0.000	1.299	0.482	1.386
NESC Extreme	CLAMP35	Clamp	13XY	0.000	2.381	1.242	2.685
NESC Extreme	CLAMP36	Clamp	14XY	0.000	1.853	0.947	2.081
NESC Extreme	CLAMP37	Clamp	15XY	0.000	2.316	1.059	2.546
NESC Heavy Broken Wire	CLAMP1	Clamp	20P	0.010	0.991	0.933	1.361
NESC Heavy Broken Wire	CLAMP2	Clamp	20X	7.425	0.866	0.595	7.499
NESC Heavy Broken Wire	CLAMP3	Clamp	21P	0.014	1.546	2.001	2.528
NESC Heavy Broken Wire	CLAMP4	Clamp	21X	9.900	0.764	1.099	9.990
NESC Heavy Broken Wire	CLAMP5	Clamp	22P	0.014	1.546	1.994	2.523
NESC Heavy Broken Wire	CLAMP6	Clamp	22X	0.014	1.607	1.994	2.561
NESC Heavy Broken Wire	CLAMP7	Clamp	23P	0.014	1.546	1.906	2.454
NESC Heavy Broken Wire	CLAMP8	Clamp	23X	0.014	1.601	1.906	2.489
NESC Heavy Broken Wire	CLAMP9	Clamp	1P	0.000	0.000	0.219	0.219
NESC Heavy Broken Wire	CLAMP10	Clamp	1X	0.000	0.075	0.219	0.231
NESC Heavy Broken Wire	CLAMP11	Clamp	3P	0.000	0.000	0.269	0.269
NESC Heavy Broken Wire	CLAMP12	Clamp	3X	0.000	0.131	0.269	0.299
NESC Heavy Broken Wire	CLAMP13	Clamp	6P	0.000	0.000	0.431	0.431
NESC Heavy Broken Wire	CLAMP14	Clamp	6X	0.000	0.168	0.431	0.462
NESC Heavy Broken Wire	CLAMP15	Clamp	8P	0.000	0.000	0.535	0.535
NESC Heavy Broken Wire	CLAMP16	Clamp	8X	0.000	0.236	0.535	0.584
NESC Heavy Broken Wire	CLAMP17	Clamp	13S	0.000	0.000	1.072	1.072
NESC Heavy Broken Wire	CLAMP18	Clamp	13X	0.000	0.513	1.072	1.188
NESC Heavy Broken Wire	CLAMP19	Clamp	14S	0.000	0.000	1.792	1.792
NESC Heavy Broken Wire	CLAMP20	Clamp	14X	0.000	0.882	1.792	1.997
NESC Heavy Broken Wire	CLAMP21	Clamp	15S	0.000	0.000	1.410	1.410
NESC Heavy Broken Wire	CLAMP22	Clamp	15X	0.000	0.682	1.410	1.567
NESC Heavy Broken Wire	CLAMP23	Clamp	31P	0.000	0.952	8.625	8.677
NESC Heavy Broken Wire	CLAMP24	Clamp	32P	0.000	0.445	1.037	1.128
NESC Heavy Broken Wire	CLAMP25	Clamp	33P	0.000	0.392	0.976	1.051
NESC Heavy Broken Wire	CLAMP26	Clamp	34P	0.000	0.392	0.976	1.051
NESC Heavy Broken Wire	CLAMP27	Clamp	35P	0.000	0.694	1.720	1.854
NESC Heavy Broken Wire	CLAMP28	Clamp	36P	0.000	0.888	2.195	2.368
NESC Heavy Broken Wire	CLAMP29	Clamp	37P	0.000	0.744	1.883	2.025
NESC Heavy Broken Wire	CLAMP30	Clamp	38P	0.000	0.725	2.168	2.286
NESC Heavy Broken Wire	CLAMP31	Clamp	1XY	0.000	0.161	0.454	0.482
NESC Heavy Broken Wire	CLAMP32	Clamp	3XY	0.000	0.320	0.780	0.843
NESC Heavy Broken Wire	CLAMP33	Clamp	6XY	0.000	0.357	0.942	1.007
NESC Heavy Broken Wire	CLAMP34	Clamp	8XY	0.000	0.571	1.437	1.546
NESC Heavy Broken Wire	CLAMP35	Clamp	13XY	0.000	0.934	2.224	2.412
NESC Heavy Broken Wire	CLAMP36	Clamp	14XY	0.000	1.225	2.776	3.034
NESC Heavy Broken Wire	CLAMP37	Clamp	15XY	0.000	1.180	2.903	3.134

Overturning Moments For User Input Concentrated Loads:

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

Load Case	Total Tran. Load (kips)	Total Long. Load (kips)	Total Vert. Load (kips)	Transverse Overturning Moment (ft-k)	Longitudinal Overturning Moment (ft-k)	Torsional Moment (ft-k)
NESC Heavy	14.004	0.104	26.860	1334.416	-40.976	-15.183

NESC Extreme	26.167	7.244	11.175	2474.468	712.464	-46.205
NESC Heavy Broken Wire	12.905	17.405	25.620	1224.878	1936.284	183.162

*** Weight of structure (lbs):

Weight of Angles*Section DLF:	35070.6
Total:	35070.6

*** End of Report

CENTEK engineering
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Subject:	Foundation Analysis Tower # 1217
Location:	Stamford, CT
Rev. 2: 12/14/18	Prepared by: T.J.L. Checked by: C.F.C. Job No. 17159.05

Foundation Analysis

Input Data:

Max. Reactions at Tower Leg:

Shear =	Shear := 23.54·1.1·kips = 25.9·kips	(User Input)
Compression =	Comp := 102.06·1.1·kips = 112.3·kips	(User Input)
Uplift =	Uplift := 89.65·1.1·kips = 98.6·kips	(User Input)

Tower Properties:

Tower Height =	$H_t := 120 \cdot ft$	(User Input)

Foundation Properties:

Pier Height =	$P_H := 12.5 \cdot ft$	(User Input)
Pier Width Top =	$P_{w1} := 2.5 \cdot ft$	(User Input)
Pier Width Botttom =	$P_{w2} := 7.0 \cdot ft$	(User Input)
Pier Projection Above Grade =	$P_P := 0.5 \cdot ft$	(User Input)
Pad Width =	$Pd_w := 0 \cdot ft$	(User Input)
Pad Thickness =	$Pd_t := 0 \cdot ft$	(User Input)

Subgrade Properties:

Concrete Unit Weight =	$\gamma c := 150 \cdot pcf$	(User Input)
Water Unit Weight =	$\gamma w := 62.4 \cdot pcf$	(User Input)
Soil Unit Weight =	$\gamma s := 90 \cdot pcf$	(User Input)
Uplift Angle =	$\psi := 30.0 \cdot deg$	(User Input)
Soil Bearing Capacity =	$BC_{soil} := 4000 \cdot psf$	(User Input)
Coefficient of Friction =	$\mu := 0.45$	(User Input)
Coefficient of Lateral Soil Pressure =	$K_p := \frac{1 + \sin(\psi)}{1 - \sin(\psi)} = 3$	

Calculated Data:

Volume of the Concrete Pad = $V_{pad} := Pd_w^2 \cdot Pd_t = 0 \cdot ft^3$

Volume of the Concrete Pier = $V_{pier} := \frac{(P_H)}{3} \cdot \left(P_{w1}^2 + P_{w2}^2 + \sqrt{P_{w1}^2 \cdot P_{w2}^2}\right) = 303.13 \cdot ft^3$

Resisting Pyramid Base 1 = $B_1 := P_{w2}^2 = 49\,ft^2$

Resisting Pyramid Base 2 = $B_2 := \left[2 \cdot \tan(\psi) \cdot (P_H - P_P) + P_{w2}\right]^2 = 435\,ft^2$

Volume of Soil = $V_{soil} := \left[\frac{(P_H - P_P)}{3} \cdot \left(B_1 + B_2 + \sqrt{B_1 \cdot B_2}\right)\right] - V_{pier} = 2217 \cdot ft^3$

Total Vdume of Concrete = $V_{Conc} := V_{pad} + V_{pier} = 303 \cdot ft^3$

Mass of Concrete = $Mass_{Conc} := V_{Conc} \cdot \gamma c = 45.5 \cdot kips$

Mass of Soil = $Mass_{Soil} := V_{soil} \cdot \gamma s = 200 \cdot kips$

Total Mass = $Mass_{tot} := Mass_{Conc} + Mass_{Soil} = 245 \cdot kips$

Check Uplift:

Required Factor of Safety = $F_S := 1.0$

$ActualFS := \frac{Mass_{tot}}{Uplift} = 2.48$

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

Uplift_Check = "OK"

Check Sliding:

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

Sliding_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

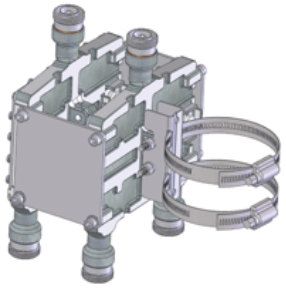
Mechanical

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□□

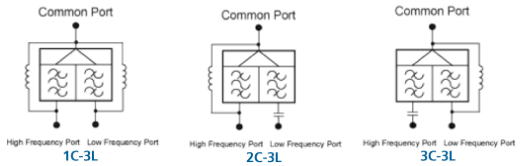
KIT-FD9R6004/1C-DL Installation Instructions

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)	