NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

Northeast Site Solutions
Denise Sabo
199 Brickyard Rd Farmington, CT 06032
860-209-4690
denise@northeastsitesolutions.com

March 1, 2017

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

RE: Notice of Exempt Modification
280 Morehouse Drive, Fairfield CT 06825
Latitude: 41.20998700
Longitude: -73.26153900
T-Mobile Site#: CT11317B_L700

Dear Ms. Bachman:

T-Mobile currently maintains six (6) antennas at the 95-foot level of the existing 84-foot transmission pole (#876) located at 280 Morehouse Drive, Fairfield CT. The electric transmission pole (#876) is owned by CL&P d/b/a Eversource. The property which holds the utility easement is owned by Zhang Chijian & Hu Yuzhi. T-Mobile now intends to install three (3) new 700MHz antenna. The new antennas would be installed at the 95-foot level of the tower. T-Mobile also intends to make the following modifications.

Planned Modifications:

Remove:
NONE

Remove and Replace:
(3) APX16DWV-16DWV-SE-A20 Antenna (Remove) - (3) Commscope LNX 6515DS-A1M Antenna (Replace)

Install New:
(3) Smart Bias-T

Existing to Remain:
(3) APX16DWV-16DWV-SE-A20
(18) 1-1/4" Coax

This facility was approved by the CT Siting Council. Per the attached Petition No. 525 – Dated September 12, 2001. Sprint received approval to install with a 104' centerline (petition number 383) and Voicestream received approval to install antenna with a 95' centerline on the existing CL&P transmission structure. Please see attached.

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

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

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

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

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

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

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

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

For the foregoing reasons, T-Mobile 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,

Denise Sabo
Mobile: 860-209-4690
Fax: 413-521-0558
Office: 199 Brickyard Rd, Farmington, CT 06032
Email: denise@northeastsitesolutions.com

Attachments
cc: Mike Tetreau – First Selectman - as elected official
Joe Devonshuk- Planning Director
CL&P d/b/a Eversource - as tower owner
Zhang Chijian & Hu Yuzhi- **Utility Easement**

Exhibit A

Petition No. 525
AT&T Wireless PCS, Inc.
Fairfield, Connecticut
Staff Report
September 12, 2001

On August 31, 2001, Connecticut Siting Council (Council) member Edward S. Wilensky and Fred Cunliffe of Council staff met John Fuller of Tectonic Engineering for AT&T Wireless PCS, Inc., (AT&T) for inspection of a Connecticut Light & Power Company (CL&P) electric transmission line structure (no. 876) located off Morehouse Drive, Fairfield. AT&T, with the agreement of CL&P and the underlying landowner, propose to modify the transmission structure for telecommunications use and is petitioning the Council for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need (Certificate) is required for the modification.

This site consists of an existing installed Fort Worth Powermount™ installed by Sprint Spectrum L.P. within the 84-foot high CL&P transmission line support structure, approved by the Council on December 18, 1997 (Petition No. 383). Sprint's antennas are mounted to a platform with a centerline height of 104 feet above ground level. Also, Voicestream Wireless received Council approval on August 31, 2000 to attach a platform with three antennas, at a centerline height of 95 feet, to the existing Fort Worth Powermount™.

AT&T proposes to attach three panel antennas at the 84-foot level of the CL&P structure. AT&T would place associated equipment cabinets on a 9-foot by 10-foot steel platform supported by concrete piers south of the structure's footprint and within the CL&P right-of-way. AT&T would move the existing fence approximately 10 feet to the south and west to enclose its equipment. Clearing of vegetation is necessary for the proposed installation. AT&T would construct a fence to match the existing shadow box wood fence and replace existing vegetation with coniferous vegetation. Electric and telephone utilities exist at the site compound.

Inspection of this site revealed that the gate was open to the site, overgrown vegetation inside the site compound, dead vegetation outside the fenced compound, decomposing staked haybales, and landscaping that appears to have little or no upkeep uncharacteristic to the neighborhood. There are three homes approximately 150 feet; one each located north, east, and south, of the transmission structure.

A structural analysis concludes that bracing members near the top of the structure would need reinforcement. The tower foundation, which was reinforced in 1998, is adequate for the proposed loads.

The worst case power density for Voicestream, Sprint, and AT&T telecommunications operations at the site has been calculated to be less than 14% of the applicable standard for uncontrolled environments.

AT&T contends that the proposed installation will not cause a substantial adverse environmental effect, and for this reason would not require a Certificate.

Exhibit B

280 MOREHOUSE DRIVE

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

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2015	$232,900	$285,600	$518,500
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2015	$163,030	$199,920	$362,950

Owner of Record

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

Ownership History

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

Building Information

Building 1 : Section 1

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

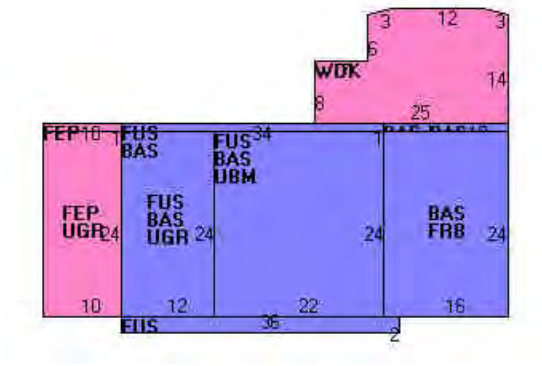
Replacement Cost
Less Depreciation: $228,200

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

Building Photo

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

Building Layout



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

Extra Features

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

Land

Land Use

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

Land Line Valuation

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

Outbuildings

Outbuildings	Legend
No Data for Outbuildings	

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2015	$232,900	$285,600	$518,500
2014	$154,100	$304,300	$458,400
2013	$154,100	$304,300	$458,400

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2015	$163,030	$199,920	$362,950
2014	$107,870	$213,010	$320,880
2013	$107,870	$213,010	$320,880


51052A0000
JAMES D & LENA (SV)
REHOUSE DRIVE
Morehouse Dr
Morehouse Hwy
0510510000
ZHANG CHIJIAN & HU YUZHI (SV)
280 MOREHOUSE DRIVE
280
051051A0000
PULLEN JEAN U
244 MOREHOUSE DRIVE
051050H0000
HESPELT ROBERT W & JACQUELINE
50 PRIMROSE LANE

Exhibit C

ANTENNA UPGRADES
BY

T-MOBILE NORTHEAST LLC

SITE NUMBER: CT11317B
SITE NAME: Fairfield/MP/X44&X42
SITE ADDRESS: 280 Morehouse Drive, Fairfield, CT 06825
CL&P STRUCTURE #876
(704Bu CONFIGURATION)

PROJECT SCOPE:

T-MOBILE, A WIRELESS TELECOMMUNICATIONS PROVIDER PROPOSES TO UPGRADE THEIR EXISTING FACILITY AS FOLLOWS:
REMOVE: (3) ANTENNAS.
ADD: (3) ANTENNAS, (3) SMART BIAS TEE, (6) COAX CABLES AND (3) PERIPHERAL REMOTE RADIO UNITS.

PROJECT NOTES:

1. THIS IS AN UNMANNED TELECOMMUNICATION FACILITY AND NOT FOR HUMAN HABITATION: HANDICAPPED ACCESS IS NOT REQUIRED. POTABLE WATER OR SANITARY SERVICE IS NOT REQUIRED. NO OUTDOOR STORAGE OR ANY SOLID WASTE RECEPTACLES REQUIRED.
2. CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON THE JOB SITE. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK. FAILURE TO NOTIFY THE ARCHITECT/ENGINEER PLACES THE RESPONSIBILITY ON THE CONTRACTOR TO CORRECT THE DISCREPANCIES AT THE CONTRACTOR'S EXPENSE.
3. DEVELOPMENT AND USE OF THE SITE WILL CONFORM TO ALL APPLICABLE CODES, ORDINANCES AND SPECIFICATIONS.
4. REFER TO STRUCTURAL ANALYSIS REPORT BY CENTEK ENGINEERING REV 1, DATED FEBRUARY 14, 2017 FOR STRUCTURAL EVALUATION OF THE TOWER.

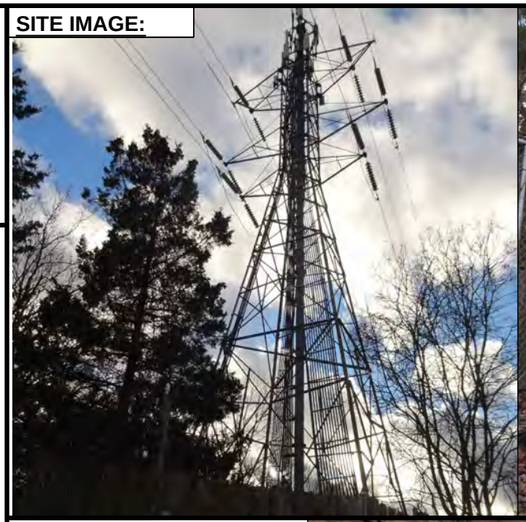
APPLICABLE STATE ADOPTION CODES:

2016 CONNECTICUT STATE BUILDING CODE (CSBC).

ANSI/TIA-222-G-2005 STRUCTURAL STANDARD FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS.

2014 NATIONAL ELECTRICAL CODE (NFPA 70) FOR POWER AND GROUNDING REQUIREMENTS.

SITE IMAGE:



SATELLITE / VICINITY MAP:

PROJECT INFORMATION:

ADDRESS:	280 MOREHOUSE DRIVE FAIRFIELD, CT 06825
STRUCTURE TYPE:	TRANSMISSION TOWER
LATITUDE: LONGITUDE:	N 41°12'35.95" W 73°15'41.66"
GROUND ELEVATION:	225.7' AMSL
HIGHEST POINT ON EXISTING STRUCTURE: (TOP OF MOUNTING POLE)	254.6' AMSL 104' AGL

PROJECT TEAM:

APPLICANT:	T-MOBILE NORTHEAST, LLC. 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002 860-692-7100
LANDLOARD:	EVERSOURCE CL&P 56 PROSPECT ST HARTFORD, CT 06103
DEVELOPER:	NORTHEAST SITE SOLUTIONS 199 BRICKYARD RD FARMINGTON, CT 06032 SHELDON FREINCLE SHELDON@NORTHEASTSITE SOLUTIONS.COM 203-376-9186
CONSULTANTS:	FORESITE LLC 462 WALNUT ST NEWTON, MA 02460 SAEED MOSSAVAT SMOSSAVAT@FORESITELLC.COM 617-212-3123

SHEET INDEX:

APPLICANT:
T-Mobile
T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
860-692-7100

TURNKEY DEVELOPER:
NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development
199 Brickyard road
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Architects . Engineers . Surveyors
462 Walnut street
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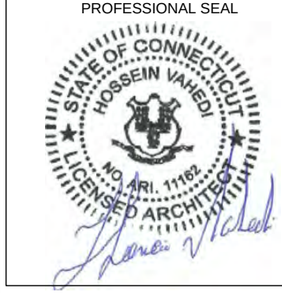
PROFESSIONAL SEAL



REV	DESCRIPTION	DATE
A	PRELIMINARY	01/19/17
0	ISSUED FOR PERMITTING	01/19/17

SITE NUMBER: CT11317B
SITE NAME: Fairfield/MP/X44&X42
SITE ADDRESS: 280 Morehouse Drive
Fairfield, CT 06825

SHEET TITLE:
T-1: TITLE SHEET

NOTES AND DISCLAIMERS:

1. THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES.

2. THE ARCHITECT/ENGINEER HAS MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONTRACT DOCUMENTS THE COMPLETE SCOPE OF WORK. THE CONTRACTOR BIDDING THE JOB IS NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS AND OR SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.

3. THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) THE CLIENT'S REPRESENTATIVE OF ANY CONFLICTS, ERRORS, OR OMISSIONS PRIOR TO THE SUBMISSION OF CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK.

5. THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OR PERFORMING WORK TO FAMILIARIZE HIMSELF WITH THE FIELD CONDITIONS AND TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS.

6. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S / VENDOR'S SPECIFICATIONS UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.

7. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS DURING CONSTRUCTION.

8. THE CONTRACTOR SHALL COMPLY WITH ALL PERTINENT SECTIONS OF THE BASIC STATE BUILDING CODE, LATEST EDITION, AND ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJEC

9. THE CONTRACTOR SHALL NOTIFY THE CLIENT'S REPRESENTATIVE IN WRITING WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS NOT TO ORDER MATERIAL OR CONSTRUCT ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL CONFLICT IS RESOLVED BY THE CLIENT'S REPRESENTATIVE.

10. THE WORK SHALL CONFORM TO THE CODES AND STANDARDS OF THE FOLLOWING AGENCIES AS FURTHER CITED HEREIN:

A. ASTM: AMERICAN SOCIETY FOR TESTING AND MATERIALS, AS PUBLISHED IN "COMPILATION OF ASTM STANDARDS BUILDING CODES" OR LATEST EDITION.

B. AWS: AMERICAN WELDING SOCIETY INC. AS PUBLISHED IN "STANDARD D1.1–08, STRUCTURAL WELDING CODE" OR LATEST EDITION.

C. AISC: AMERICAN INSTITUTE FOR STEEL CONSTRUCTION AS PUBLISHED IN "CODE FOR STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES"; "SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS" (LATEST EDITION).

11. BOLTING:

A. BOLTS SHALL BE CONFORMING TO ASTM A325 HIGH STRENGTH, HOT DIP GALVANIZED WITH ASTM A153 HEAVY HEX TYPE NUTS.

B. BOLTS SHALL BE 3/4"ø MINIMUM (UNLESS OTHERWISE NOTED)

C. ALL CONNECTIONS SHALL BE 2 BOLTS MINIMUM.

12. FABRICATION:

A. FABRICATION OF STEEL SHALL CONFORM TO THE AISC AND AWS STANDARDS AND CODES (LATEST EDITION).

B. ALL STRUCTURAL STEEL SHALL BE HOT–DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 (LATEST EDITION), UNLESS OTHERWISE NOTED.

13. ERECTION OF STEEL:

A. PROVIDE ALL ERECTION EQUIPMENT, BRACING, PLANKING, FIELD BOLTS, NUTS, WASHERS, DRIFT PINS, AND SIMILAR MATERIALS WHICH DO NOT FORM A PART OF THE COMPLETED CONSTRUCTION BUT ARE NECESSARY FOR ITS PROPER ERECTION.

B. ERECT AND ANCHOR ALL STRUCTURAL STEEL IN ACCORDANCE WITH AISC REFERENCE STANDARDS. ALL WORK SHALL BE ACCURATELY SET TO ESTABLISHED LINES AND ELEVATIONS AND RIGIDLY FASTENED IN PLACE WITH SUITABLE ATTACHMENTS TO THE CONSTRUCTION OF THE BUILDING.

C. TEMPORARY BRACING, GUYING AND SUPPORT SHALL BE PROVIDED TO KEEP THE STRUCTURE SAFE AND ALIGNED AT ALL TIMES DURING CONSTRUCTION, AND TO PREVENT DANGER TO PERSONS AND PROPERTY. CHECK ALL TEMPORARY LOADS AND STAY WITHIN SAFE CAPACITY OF ALL BUILDING COMPONENTS.

14. ANTENNA INSTALLATION:

A. INSTALL ANTENNAS AS INDICATED ON DRAWINGS AND CLIENT'S REPRESENTATIVE SPECIFICATIONS.

B. INSTALL GALVANIZED STEEL ANTENNA MOUNTS AS INDICATED ON DRAWINGS.

C. INSTALL COAXIAL / FIBER CABLES AND TERMINATIONS BETWEEN ANTENNAS AND EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS. WEATHERPROOF ALL CONNECTORS BETWEEN THE ANTENNA AND EQUIPMENT PER MANUFACTURER'S REQUIREMENTS.

15. ANTENNA AND COAXIAL / FIBER CABLE GROUNDING:

A. ALL EXTERIOR #6 GREEN GROUND WIRE "DAISY CHAIN" CONNECTIONS ARE TO BE WEATHER SEALED WITH ANDREWS CONNECTOR/SPLICE WEATHERPROOFING KIT TYPE #221213 OR EQUAL.

B. ALL COAXIAL / FIBER CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF COAXIAL / FIBER CABLE (NOT WITHIN BENDS).

16. RELATED WORK, FURNISH THE FOLLOWING WORK AS SPECIFIED UNDER CONSTRUCTION DOCUMENTS, BUT COORDINATE WITH OTHER TRADES PRIOR TO BID:

A. FLASHING OF OPENING INTO OUTSIDE WALLS

B. SEALING AND CAULKING ALL OPENINGS

C. PAINTING

D. CUTTING AND PATCHING

17. REQUIREMENTS OF REGULATORY AGENCIES:

A. FURNISH U.L. LISTED EQUIPMENT WHERE SUCH LABEL IS AVAILABLE. INSTALL IN CONFORMANCE WITH U.L. STANDARDS WHERE APPLICABLE.

B. INSTALL ANTENNA, ANTENNA CABLES, GROUNDING SYSTEM IN ACCORDANCE WITH DRAWINGS AND SPECIFICATION IN EFFECT AT PROJECT LOCATION AND RECOMMENDATIONS OF STATE AND LOCAL BUILDING CODES, AND SPECIAL CODES HAVING JURISDICTION OVER SPECIFIC PORTIONS OF WORK. THIS WORK INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING:

C. TIA–EIA – 222 (LATEST EDITION). STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES.

D. FAA – FEDERAL AVIATION ADMINISTRATION ADVISORY CIRCULAR AC 70/7460–IH, OBSTRUCTION MARKING AND LIGHTING.

E. FCC – FEDERAL COMMUNICATIONS COMMISSION RULES AND REGULATIONS FORM 715, OBSTRUCTION MARKING AND LIGHTING SPECIFICATION FOR ANTENNA STRUCTURES AND FORM 715A, HIGH INTENSITY OBSTRUCTION LIGHTING SPECIFICATIONS FOR ANTENNA STRUCTURES.

F. AISC – AMERICAN INSTITUTE OF STEEL CONSTRUCTION SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 BOLTS (LATEST EDITION).

G. NEC – NATIONAL ELECTRICAL CODE – ON TOWER LIGHTING KITS.

H. UL – UNDERWRITER'S LABORATORIES APPROVED ELECTRICAL PRODUCTS.

I. IN ALL CASES, PART 77 OF THE FAA RULES AND PARTS 17 AND 22 OF THE FCC RULES ARE APPLICABLE AND IN THE EVENT OF CONFLICT, SUPERSEDE ANY OTHER STANDARDS OR SPECIFICATIONS.

J. 2009 LIFE SAFETY CODE NFPA – 101.

APPLICANT:
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T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
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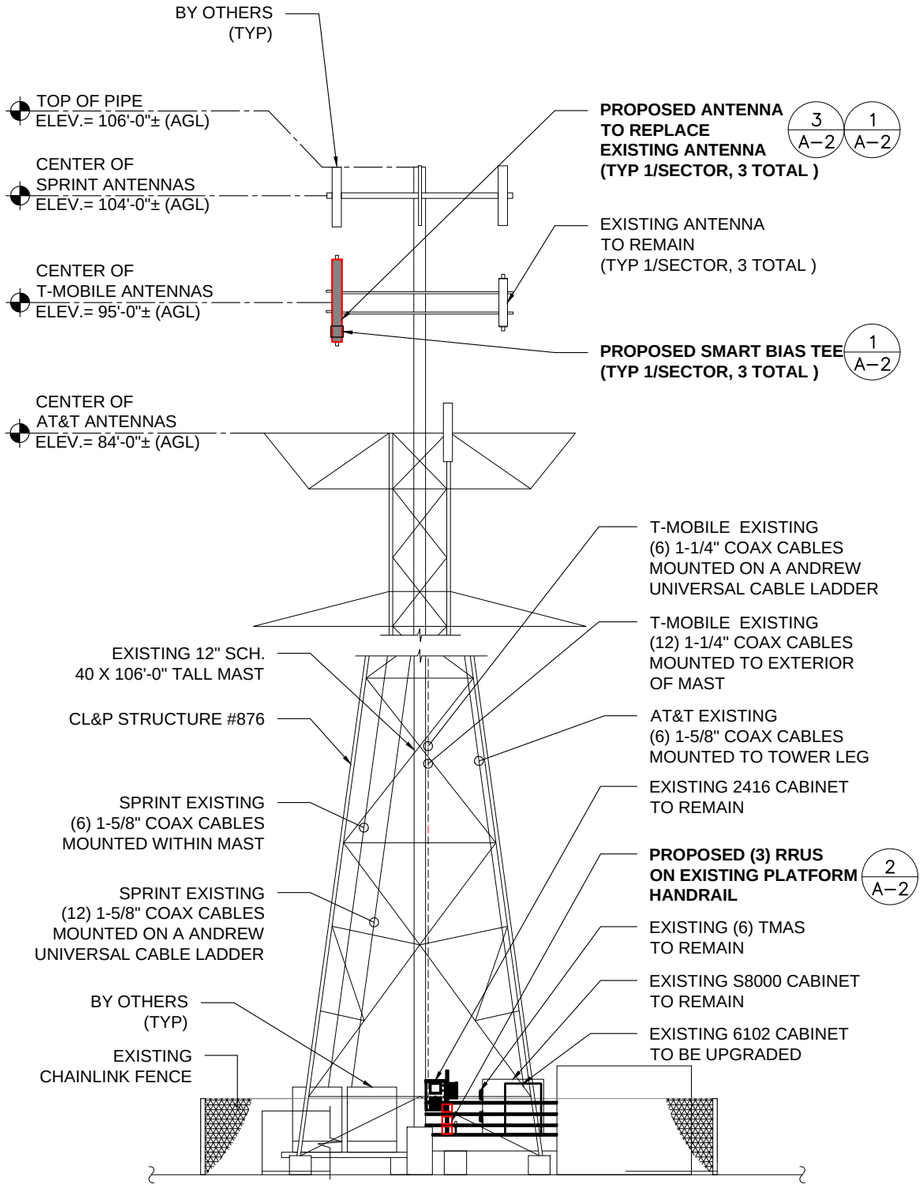
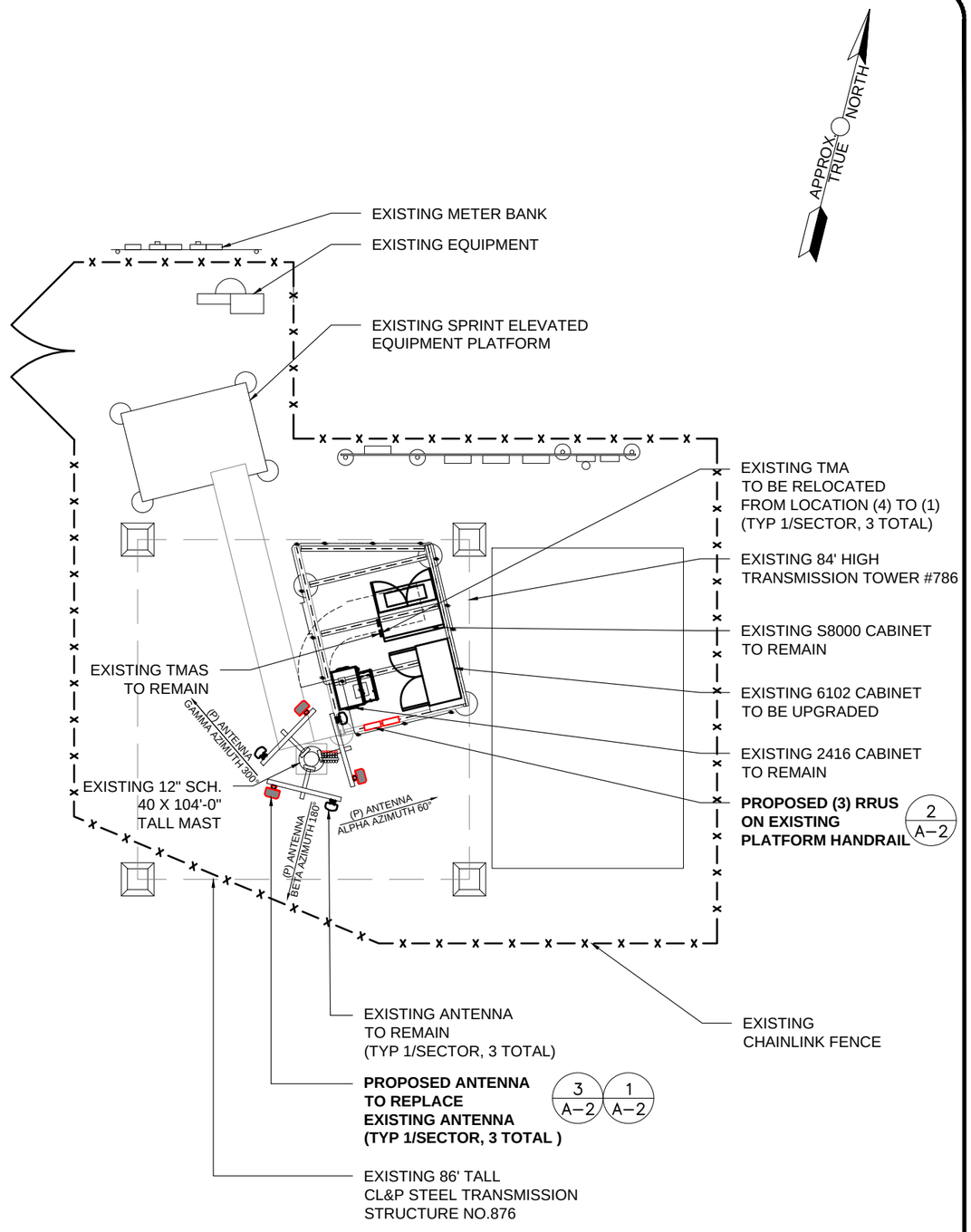
N-1: NOTES AND DISCLAIMERS



ELEVATION 1/A-1
SCALE 1"=16'



SITE PLAN 2/A-1
SCALE 1"=40'

APPLICANT:
T-Mobile
T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
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860-692-7100

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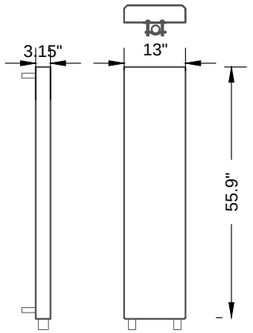
SHEET TITLE:
A-1: PLANS AND ELEVATIONS

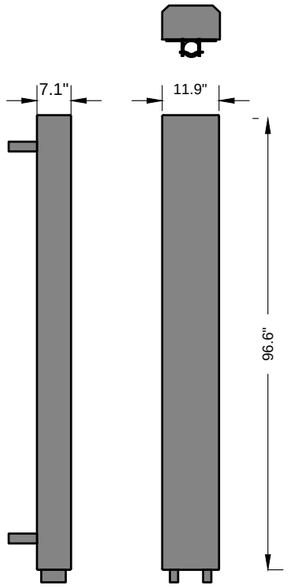
REMOVE:
(3) ANTENNAS

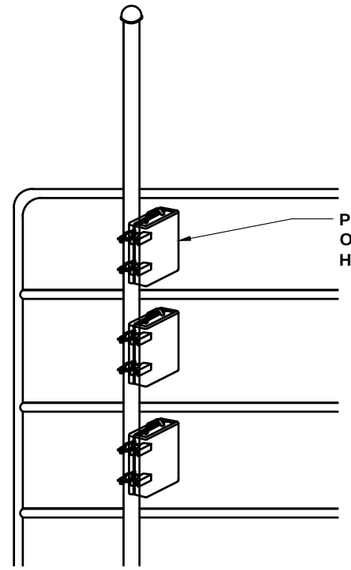
Manufacturer:	RFS
Model	APX16DWV-16DWVS-E-A20
Footprint:	55.9"Hx13"Wx3.15"D
weight:	43.7 lbs
Frequency band	698-896 MHZ
Antenna type	Single Sector
Wind loading lateral	170 km/h
Wind loading rear	92 km/h
Wind loading maximum	170 km/h



ADD:
(3) ANTENNAS

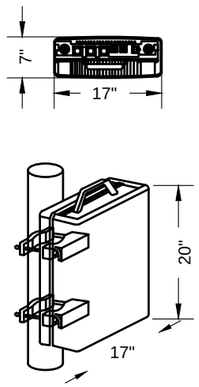
Manufacturer:	COMMSCOPE
Model	LNX-6515DS-A1M
Footprint:	96.6"Hx11.9"Wx7.1"D
weight:	43.7 lbs
Frequency band	698-896 MHZ
Antenna type	Single Sector
Wind loading lateral	150 km/h
Wind loading rear	150 km/h
Wind loading maximum	241 km/h



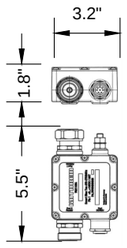


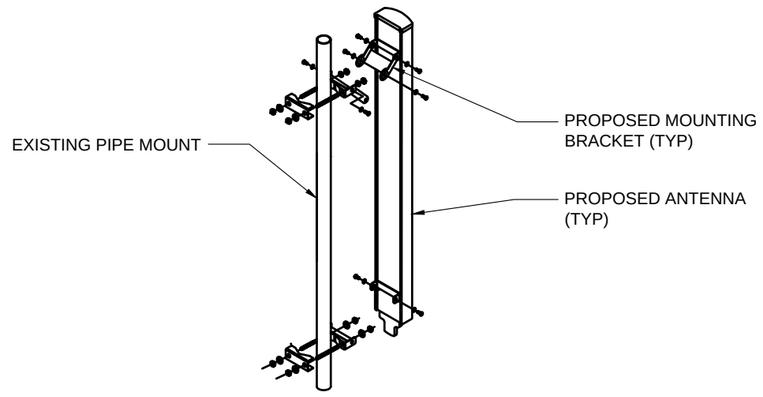
RRUS MOUNTING DETAIL
N.T.S
2 A–2

ADD:
(3) RRUS 11B12 DETAILS



ADD:
(3) SMART BIAS TEES AT ANTENNA LEVEL





ANTENNA AND EQUIPMENT DETAILS
N.T.S
1 A–2

ANTENNA MOUNTING DETAIL
N.T.S
3 A–2

APPLICANT:
T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
860-692-7100

TURNKEY DEVELOPER:
NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development
199 Brickyard road
Farmington, CT 06032
203-275-6669

CONSULTANT:
FORESITE LLC
Architects . Engineers . Surveyors
462 Walnut street
Newton, MA 02460
617-212-3123

PROFESSIONAL SEAL

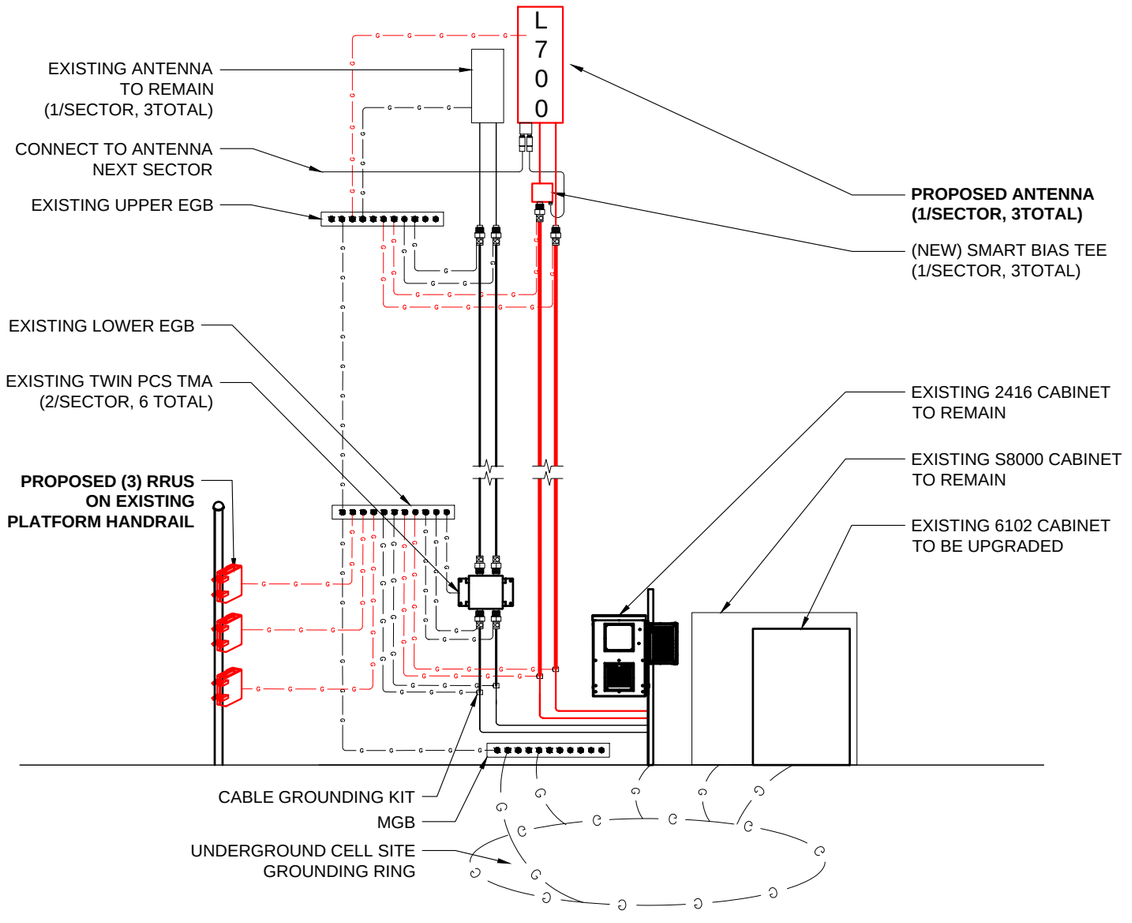
REV	DESCRIPTION	DATE
A	PRELIMINARY	01/19/17
0	ISSUED FOR PERMITTING	01/19/17

SITE NUMBER: CT11317B
SITE NAME: Fairfield/MP/X44&X42
SITE ADDRESS: 280 Morehouse Drive
Fairfield, CT 06825

SHEET TITLE:
A-2: ANTENNAS, EQUIPMENT AND DETAILS

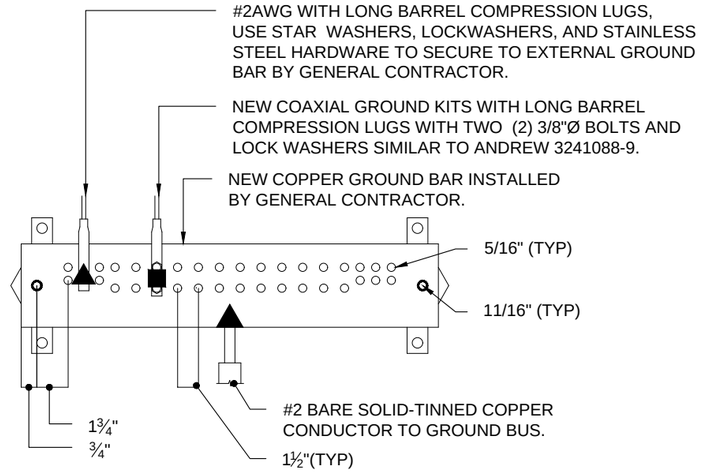
NOTES TO CONTRACTOR

1. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDED AS REQUIRED BY ALL APPLICABLE CODES.
2. ALL GROUNDING WORK SHALL BE IN ACCORDANCE WITH T-MOBILE STANDARD PRACTICE.
3. ALL BUS CONNECTORS SHALL BE TWO-HOLE, LONG-BARREL TYPE COMPRESSION LUGS, T&B OR EQUAL, UNLESS OTHERWISE NOTED ON DRAWINGS. ALL LUGS SHALL BE ATTACHED TO BUSSES USING BOLTS, NUTS, AND LOCK WASHERS. NO WASHERS ARE ALLOWED BETWEEN THE ITEMS BEING GROUNDED.
4. ALL CONNECTORS SHALL BE CRIMPED USING HYDRAULIC CRIMPING TOOLS, T&B #TBM 8 OR EQUIVALENT.
5. ALL CONNECTIONS SHALL BE MADE TO BARE METAL. ALL PAINTED SURFACES SHALL BE FILED TO ENSURE PROPER CONTACT . NO WASHERS ARE ALLOWED BETWEEN THE ITEMS BEING GROUNDED. ALL CONNECTIONS ARE TO HAVE A NON-OXIDIZING AGENT APPLIED PRIOR TO INSTALLAT ION.
6. ALL COPPER BUSSES SHALL BE CLEANED, POLISHED, AND A NON-OXIDIZING AGENT APPLIED. NO FINGERPRINTS OR DISCOLORED COPPER WILL BE PERMITTED.
7. ALL BENDS SHALL BE AS SHALLOW AS POSSIBLE, WITH NO TURN SHORTER THAN AN 8-INCH NOMINAL
8. GROUNDING CONDUCTORS SHALL BE SOLID TINNED COPPER AND ANNEALED #2. ALL GROUNDING CONDUCTORS SHALL RUN THROUGH PVC SLEEVES WHEREVER CONDUCTORS RUN THROUGH WALLS, FLOORS, OR CEILINGS. IF CONDUCTORS MUST RUN THROUGH EMT, BOTH ENDS OF CONDUIT SHALL BE GROUNDED. SEAL BOTH ENDS OF CONDUIT WITH SILICONE CAULK.
9. GROUNDING SYSTEM RESISTANCE SHALL NOT EXCEED 10 OHMS. IF THE RESISTANCE VALUE IS EXCEEDED, NOTIFY THE PROJECT MANAGER FOR FURTHER INSTRUCTION ON METHODS FOR REDUCING THE RESISTANCE
10. ALL ROOF TOP ANTENNA MOUNTS SHALL BE GROUNDED WITH A #2 GROUND WIRE CONNECTED TO THE NEAREST GROUND BUS. ALL CONNECTIONS ARE TO BE CAD-WELDED IF POSSIBLE.
11. UPON COMPLETION OF WORK, CONDUCT CONTINUITY, SHORT CIRCUIT, AND FALL OF POTENTIAL GROUNDING TESTS FOR APPROVAL. SUBMIT TEST REPORTS TO THE PROJECT MANAGER.
12. GROUNDING CONNECTION TO TRAVEL IN A DOWNWARD DIRECTION.
13. ALL EXPOSED #2 WIRE MUST BE TINN NOT BTW.



GROUNDING DIAGRAM
SCALE: N.T.S

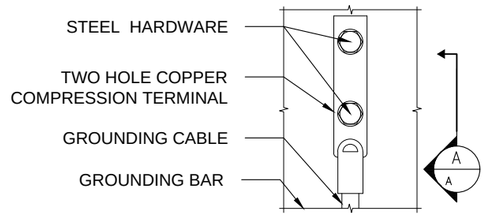
1
E–1



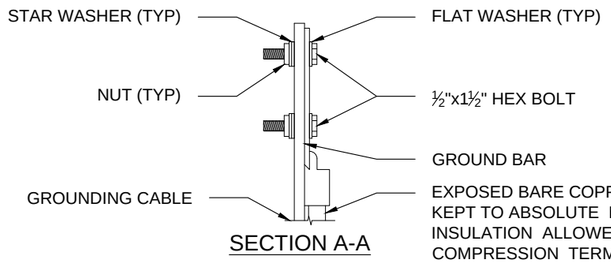
NOTES:
1. ALL HARDWARE STAINLESS STEEL COAT ALL SURFACES WITH KOPR-SHIELD BEFORE MATING.
2. FOR GROUND BOND TO STEEL ONLY: INSERT A TOOTH WASHER BETWEEN LUG AND STEEL, COAT ALL SURFACES WITH KOPR-SHIELD.
3. ALL HOLES ARE COUNTERSUNK 1/16".

GROUND BAR DETAILS
SCALE: N.T.S

2
E–1



ELEVATION



SECTION A-A

NOTES:
1. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.

TYPICAL GROUND BAR CONNECTIOS DETAIL
SCALE: N.T.S

3
E–1

APPLICANT:
T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
860-692-7100

TURNKEY DEVELOPER:
NSS NORTHEAST SITE SOLUTIONS
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SITE NUMBER: CT11317B
SITE NAME: Fairfield/MP/X44&X42
SITE ADDRESS: 280 Morehouse Drive
Fairfield, CT 06825

SHEET TITLE:
E-1: GROUNDING DETAILS

Exhibit D

CENTEK engineering

Centered on Solutions℠

Structural Analysis of Antenna Mast and Tower

T-Mobile Site Ref: CT11317B

Eversource Structure No. 876

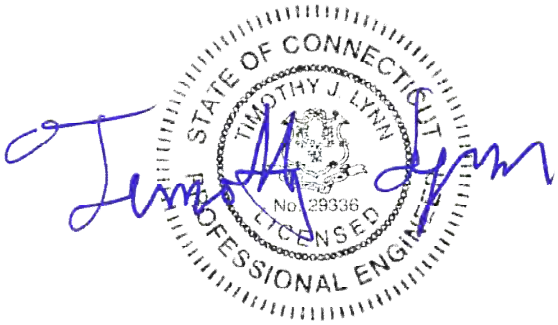
86' Electric Transmission Lattice Tower

280 Morehouse Drive
Fairfield, CT

CENTEK Project No. 16162.09

~~Date: January 16, 2017~~

Rev 1: February 14, 2017



Prepared for:
T-Mobile USA
35 Griffin Road
Bloomfield, CT 06002

Table of Contents

Introduction

The purpose of this report is to analyze the existing antenna mast and 86' utility tower located at 280 Morehouse Dr., in Fairfield, CT for the proposed antenna and equipment upgrade by T-Mobile.

The existing and proposed loads consist of the following:

- SPRINT (Existing):
  Antennas: Three (3) RFS APXVSPP18-C panel antennas mounted on a Site Pro WiMAX Monopole T-Arm p/n UDS-NP to the existing mast with a RAD center elevation of 104-ft above grade.
  Coax Cables: Six (6) 1-5/8" ∅ coax cables running on the inside of the existing mast and twelve (12) 1-5/8" ∅ coax cables mounted on a cable ladder running on a face of the existing tower as indicated in section 4 of this report.
- AT&T (Existing):
  Antennas: Three (3) KMW FX-X-CD-65-12-65-14-00T panel antennas leg mounted to the existing utility tower with a RAD center elevation of 84-ft above grade.
  Coax Cables: Six (6) 1-5/8" ∅ coax cables running on a leg of the existing utility tower.
- T-MOBILE (Existing to Remain):
  Antennas: Three (3) RFS APX16DWV-16DWVS panel antennas mounted on a Site Pro WiMAX Monopole T-Arm p/n UDS-NP to the existing mast with a RAD center elevation of 95-ft above grade.
  Coax Cables: Twelve (12) 1-1/4" ∅ coax cables running on the exterior of the existing mast and six (6) 1-1/4" ∅ coax cables mounted on a cable ladder running on a face of the existing tower as indicated in section 4 of this report.
- T-MOBILE (Existing to Remove):
  Antennas: Three (3) RFS APX16DWV-16DWVS panel antennas mounted on a Site Pro WiMAX Monopole T-Arm p/n UDS-NP to the existing mast with a RAD center elevation of 95-ft above grade.
- **T-MOBILE (Proposed):**
  Antennas: Three (3) Andrew LNX-6515DS panel antennas and three (3) Andrew ATSBT-TOP-FM-4G Smart Bias Tees mounted on a Site Pro WiMAX Monopole T-Arm p/n UDS-NP to the existing mast with a RAD center elevation of 95-ft above grade.

Primary assumptions used in the analysis

- ASCE Manual No. 10-97, "Design of Latticed Steel Transmission Structures", defines allowable steel stresses for evaluation of the utility tower.
- All utility tower members are adequately protected to prevent corrosion of steel members.
- All proposed antenna mounts are modeled as listed above.
- All coaxial cable will be installed within the antenna mast unless specified otherwise.
- Antenna mast will be properly installed and maintained.
- No residual stresses exist due to incorrect tower erection.
- All bolts are appropriately tightened providing the necessary connection continuity.
- All welds conform to the requirements of AWS D1.1.
- Antenna mast and utility tower will be in plumb condition.
- Utility tower was properly installed and maintained and all members were properly designed, detailed, fabricated, and installed and have been properly maintained since erection.
- Any deviation from the analyzed loading will require a new analysis for verification of structural adequacy.

Analysis

Structural analysis of the existing antenna mast was independently completed using the current version of RISA-3D computer program licensed to CENTEK Engineering, Inc. The RISA-3D program contains a library of all AISC shapes and corresponding section properties are computed and applied directly within the program. The program's Steel Code Check option was also utilized.

The existing antenna mast consisting of a 12" std. pipe conforming to ASTM A500 Grade C (Fy = 50ksi) connected at five points to the existing tower was analyzed for its ability to resist loads prescribed by the TIA-222-G standard. Section 5 of this report details these gravity and lateral wind loads. Load cases and combinations used in RISA-3D for TIA/EIA loading are listed in report Section 6.

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

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

Design Basis

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

- UTILITY TOWER ANALYSIS

  The purpose of this analysis is to determine the adequacy of the existing utility structure to support the proposed antenna loads. The loading and design requirements were analyzed in accordance with the NU Design Criteria Table, NESC C2-2007 ~ Construction Grade B, and ASCE Manual No. 10-97, "Design of Latticed Steel Transmission Structures".

  Load cases considered:

  Load Case 1: NESC Heavy

Wind Pressure……..	4.0 psf
Radial Ice Thickness……..	0.5"
Vertical Overload Capacity Factor…….	1.50
Wind Overload Capacity Factor……	2.50
Wire Tension Overload Capacity Factor……	1.65

  Load Case 2: NESC Extreme

Wind Speed……..	110 mph (1)
Radial Ice Thickness……..	0"

  Note 1: NESC C2-2007, Section25, Rule 250C: Extreme Wind Loading, 1.25 x Gust Response Factor (wind speed: 3-second gust)

- MAST ASSEMBLY ANALYSIS

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

  Load cases considered:

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

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

R e s u l t s

- ANTENNA MAST

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

Component	Design Limit	Stress Ratio (percentage of capacity)	Result
12” Std. Pipe	Bending	68.5%	**PASS**
L3.5x3.5x1/4 Brace	Bending	23.9%	**PASS**
Connection	Shear	68.3%	**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 **96.36%** occurs in the utility tower under the **NESC Heavy** loading condition.

  TOWER SECTION:

  The utility structure was found to be within allowable limits.

Tower Member	Stress Ratio (% of capacity)	Result
Angle g11x	96.36%	**PASS**

- FOUNDATION AND ANCHORS

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

BASE REACTIONS:

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

Foundation	Load Case	Shear	Uplift	Compression
Single Conc. Pad & Pier	NESC Heavy Wind	8.17 kips	17.01 kips	37.27 kips
	NESC Extreme Wind	14.02 kips	50.59 kips	57.18 kips
Conc. Pad & Pier (2) w/ Mat	NESC Heavy Wind	15.67 kips	33.59 kips	71.82 kips
	NESC Extreme Wind	27.00 kips	92.58 kips	111.62 kips

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

FOUNDATION:

The foundation was found to be within allowable limits.

Foundation	Design Limit	Allowable Limit	Proposed Loading (2)	Result
Single Conc. Pad & Pier	Uplift	1.0 FS (1)	1.16 FS (1)	**PASS**
Conc. Pad & Pier (2) w/ Mat	Uplift	1.0 FS (1)	1.40 FS (1)	**PASS**

Note 1: FS denotes Factor of Safety
Note 2: 10% increase to PLS base reactions used in foundation analysis per OTRM 051.

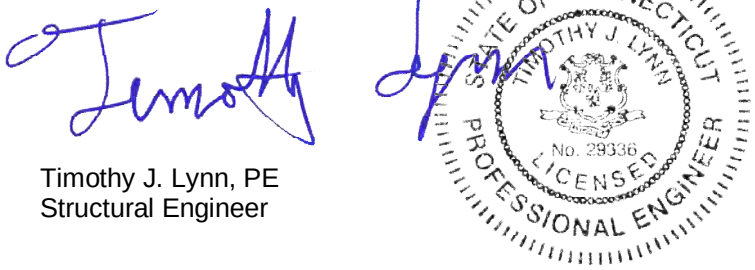
C o n c l u s i o n

This analysis shows that the subject utility tower **is adequate** to support the proposed T-Mobile equipment upgrade.

The analysis is based, in part on the information provided to this office by Eversource and T-Mobile. 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

NU Design Criteria

			Basic Wind Speed	Pressure	Height Factor	Gust Factor	Load or Stress Factor	Force Coef - Shape Factor
			V (MPH)	Q (PSF)	Kz	Gh		
Ice Condition	TIA/EIA	Antenna Mount	TIA	TIA (.75Wi)	TIA	TIA	TIA, Section 3.1.1.1 disallowed for connection design	TIA
	NESC Heavy	Tower/Pole Analysis with antennas extending above top of Tower/Pole (Yield Stress)	------	4	1.00	1.00	2.50	1.6 Flat Surfaces 1.3 Round Surfaces
		Tower/Pole Analysis with Antennas below top of Tower/Pole (on two faces)	-----	4	1.00	1.00	2.50	1.6 Flat Surfaces 1.3 Round Surfaces
		Conductors:	Conductor loads provided by NU					
High Wind Condtion	TIA/EIA	Antenna Mount	85	TIA	TIA	TIA	TIA, Section 3.1.1.1 disallowed for connection design	TIA
	NESC Extreme Wind	Tower/Pole Analysis with antennas extending above top of Tower/Pole	Use NESC C2-2007, Section 25, Rule 250C: Extreme Wind Loading 1.25 x Gust Response Factor Height above ground level based on top of Mast/Antenna					1.6 Flat Surfaces 1.3 Round Surfaces
		Tower/Pole Analysis with Antennas below top of Tower/Pole	Use NESC C2-2007, Section 25, Rule 250C: Extreme Wind Loading Height above ground level based on top of Tower/Pole					1.6 Flat Surfaces 1.3 Round Surfaces
		Conductors:	Conductor loads provided by NU					
NESC Extreme Ice with Wind Conditon*		Tower/Pole Analysis with antennas extending above top of Tower/Pole	Use NESC C2-2007, Section 25, Rule 250D: Extreme Ice with Wind Loading 4PSF Wind Load 1.25 x Gust Response Factor Height above ground level based on top of Mast/Antenna					1.6 Flat Surfaces 1.3 Round Surfaces
		Tower/Pole Analysis with Antennas below top of Tower/Pole	Use NESC C2-2007, Section 25, Rule 250D: Extreme Ice with Wind Loading 4PSF Wind Load Height above ground level based on top of Tower/Pole					1.6 Flat Surfaces 1.3 Round Surfaces
		Conductors:	Conductor loads provided by NU					
		* Only for Structures Installed after 2007						

Shape Factor Criteria shall be per TIA Shape Factors.

2) STEP 2 - The electric transmission structure analysis and evaluation shall be performed in accordance with NESC requirements and shall include the mast and antenna loads determined from NESC applied loading conditions (not TIA/EIA Loads) on the structure and mount as specified below, and shall include the wireless communication mast and antenna loads per NESC criteria)

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

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

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

c) Electric Transmission Structure

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

ii) Shape Factor Multiplier:

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

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

Mount Type	Cable Cd	Pole Cd
Coaxial Cables on outside periphery (One layer)	1.45	1.45
Coaxial Cables mounted on stand offs	1.6	1.3

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

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

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

FOCAS 96 FIBER 10/29/97

FOC PARAMETERS

F-7389EC-535-096

DIAM = 0.738 in.
WEIGHT = 0.518 lb/ft

LOADING PARAMETERS

1000 RS

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

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

876 tower Shield Wire 10/10/97
1720/1730

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

LOADING PARAMETERS

bk
ah

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

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

876 tower
1720/1730 CONDUCTOR 10/10/97

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

LOADING PARAMETERS

bk
ah

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

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

10 PSF = 62.5 MPH

℄ SPRINT ANTENNAS
EL. ±104'–0" AGL

℄ T–MOBILE ANTENNAS
EL. ±95'–0" AGL

℄ AT&T MOBILITY ANTENNAS
EL. ±84'–0" AGL

T–MOBILE (EXISTING TO REMAIN):
THREE (3) RFS APX16DWV–16DWVS PANEL ANTENNAS MOUNTED TO EXISTING PIPE MAST.
T–MOBILE (EXISTING TO REMOVE):
THREE (3) RFS APX16DWV–16DWVS PANEL ANTENNAS MOUNTED TO EXISTING PIPE MAST.
T–MOBILE (PROPOSED): THREE (3) ANDREW LNX–6515DS PANEL ANTENNAS AND THREE (3) ANDREW ATSBT–TOP–FM–4G SMART BIAS TEEs MOUNTED TO EXISTING PIPE MAST.

EXISTING 86' TALL CL&P STEEL TRANSMISSION STRUCTURE NO. 876

AT&T MOBILITY EXISTING SIX (6) 1–5/8" DIA. COAX CABLES MOUNTED TO TOWER LEG

EXISTING 12" SCH. 40 X 104'–0" TALL MAST

1
FP–1

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

T–MOBILE EXISTING SIX (6) 1–1/4" DIA. COAX CABLES MOUNTED ON A ANDREW UNIVERSAL CABLE LADDER (FRONT FACE)

SPRINT EXISTING TWELVE (12) 1–5/8" DIA. COAX CABLES MOUNTED ON A ANDREW UNIVERSAL CABLE LADDER (BACK FACE)

T–MOBILE EXISTING TWELVE (12) 1–1/4" DIA. COAX CABLES MOUNTED TO EXTERIOR OF MAST

1
EL–1

TOWER & MAST ELEVATION

SCALE: NOT TO SCALE

REVISIONS		
0	1/16/17	ISSUED FOR REVIEW
1	2/14/17	CONSTRUCTION

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280 MOREHOUSE DRIVE
FAIRFIELD, CT 06825

PROJECT NO:	16162.09
DRAWN BY:	TJL
CHECKED BY:	CFC
SCALE:	AS NOTED
DATE:	1/16/17

TOWER AND MAST ELEVATION

EL-1

DWG. 1 OF 2

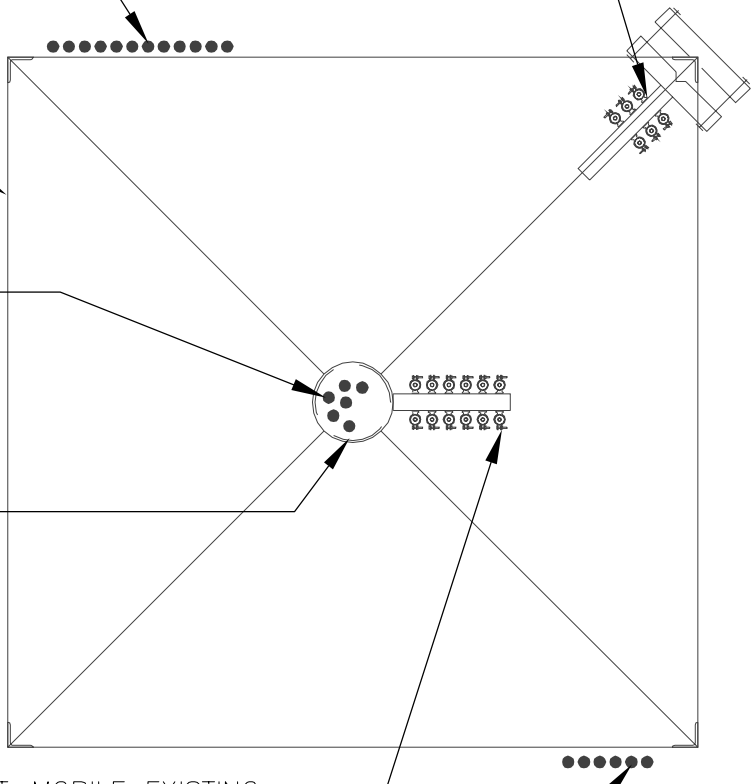
SPRINT EXISTING TWELVE (12) 1–5/8" DIA. COAX CABLES MOUNTED ON A ANDREW UNIVERSAL CABLE LADDER

AT&T MOBILITY EXISTING SIX (6) 1–5/8" DIA. COAX CABLES MOUNTED TO TOWER LEG

EXISTING 86' TALL CL&P STEEL TRANSMISSION STRUCTURE NO. 876

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

EXISTING 12" SCH. 40 X 104'–0" TALL MAST



T–MOBILE EXISTING TWELVE (12) 1–1/4" DIA. COAX CABLES MOUNTED TO EXTERIOR OF MAST

T–MOBILE EXISTING SIX (6) 1–1/4" DIA. COAX CABLES MOUNTED ON A ANDREW UNIVERSAL CABLE LADDER

1 / FP–1 FEEDLINE PLAN

SCALE: NOT TO SCALE

REVISIONS		
0	1/16/17	ISSUED FOR REVIEW
1	2/14/17	CONSTRUCTION

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FEEDLINE PLAN

FP-1

DWG. 2 OF 2

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Subject:	Loads on Equipment Structure #876
Location:	Fairfield, CT
Rev. 1: 2/14/17	Prepared by: T.J.L. Checked by: C.F.C. Job No. 16162.09

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

Wind Speeds

Basic Wind Speed: $V := 97$ mph (User Input - 2016 CSBC Appendix N)

Basic Wind Speed with Ice: $V_i := 50$ mph (User Input per Annex B of TIA-222-G)

Input

Structure Type =	Structure_Type := Lattice		(User Input)
Structure Category =	SC := III		(User Input)
Exposure Category =	Exp := C		(User Input)
Structure Height =	$h := 86$	ft	(User Input)
Height to Center of Antennas =	$z_{Sprint} := 104$	ft	(User Input)
Height to Center of Antennas =	$z_{TMo} := 95$	ft	(User Input)
Height to Center of Antennas =	$z_{AT\&T} := 84$	ft	(User Input)
Height to Center of Mast =	$z_{Mast5} := 90$	ft	(User Input)
Height to Center of Mast =	$z_{Mast4} := 70$	ft	(User Input) Mast Based on Max 20-ft Section per 2.6.9.1.3
Height to Center of Mast =	$z_{Mast3} := 50$	ft	(User Input)
Height to Center of Mast =	$z_{Mast2} := 30$	ft	(User Input)
Height to Center of Mast =	$z_{Mast1} := 10$	ft	(User Input)
Radial Ice Thickness =	$t_i := 0.75$	in	(User Input per Annex B of TIA-222-G)
Radial Ice Density =	$Id := 56.00$	pcf	(User Input)
Topograpic Factor =	$K_{zt} := 1.0$		(User Input)
	$K_a := 1.0$		(User Input)
Gust Response Factor =	$G_H := 1.35$		(User Input)

Output

Wind Direction Probability Factor =

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

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

Importance Factors =

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

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

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

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

$K_{iz} := \left(\frac{z_{Sprint}}{33}\right)^{0.1} = 1.122$

$t_{iz.Sprt} := 2.0 \cdot t_i \cdot I_{ice} \cdot K_{iz} \cdot K_{zt}^{0.35} = 2.103$

Velocity Pressure Coefficient Antennas =

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

Velocity Pressure w/o Ice Antennas =

$qz_{Sprt} := 0.00256 \cdot K_d \cdot Kz_{Sprt} \cdot V^2 \cdot I_{Wind} = 30.046$

Velocity Pressure with Ice Antennas =

$qz_{ice.Sprt} := 0.00256 \cdot K_d \cdot Kz_{Sprt} \cdot V_i^2 \cdot I_{Wind\_w\_Ice} = 6.942$

$K_{iz} := \left(\frac{z_{TMo}}{33}\right)^{0.1} = 1.112$

$t_{iz.TMo} := 2.0 \cdot t_i \cdot I_{ice} \cdot K_{iz} \cdot K_{zt}^{0.35} = 2.084$

Velocity Pressure Coefficient Antennas =

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

Velocity Pressure w/o Ice Antennas =

$qz_{TMo} := 0.00256 \cdot K_d \cdot Kz_{TMo} \cdot V^2 \cdot I_{Wind} = 29.479$

Velocity Pressure with Ice Antennas =

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

$K_{iz} := \left(\frac{z_{AT\&T}}{33}\right)^{0.1} = 1.098$

$t_{iz.AT\&T} := 2.0 \cdot t_i \cdot I_{ice} \cdot K_{iz} \cdot K_{zt}^{0.35} = 2.059$

Velocity Pressure Coefficient Antennas =

$Kz_{AT\&T} := 2.01\left(\left(\frac{z_{AT\&T}}{zg}\right)\right)^{\frac{2}{\alpha}} = 1.22$

Velocity Pressure w/o Ice Antennas =

$qz_{AT\&T} := 0.00256 \cdot K_d \cdot Kz_{AT\&T} \cdot V^2 \cdot I_{Wind} = 28.725$

Velocity Pressure with Ice Antennas =

$qz_{ice.AT\&T} := 0.00256 \cdot K_d \cdot Kz_{AT\&T} \cdot V_i^2 \cdot I_{Wind\_w\_Ice} = 6.637$

$K_{izMast5} := \left(\frac{z_{Mast5}}{33}\right)^{0.1} = 1.106$

$t_{izMast5} := 2.0 \cdot t_i \cdot I_{ice} \cdot K_{izMast5} \cdot K_{zt}^{0.35} = 2.073$

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 =

$qz_{Mast5} := 0.00256 \cdot K_d \cdot Kz_{Mast5} \cdot V^2 \cdot I_{Wind} = 29.145$

Velocity Pressure with Ice Mast =

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

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

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

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

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

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

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

Velocity Pressure w/o Ice Mast = $qz_{Mast3} := 0.00256 \cdot K_d \cdot Kz_{Mast3} \cdot V^2 \cdot I_{Wind} = 25.753$

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

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

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

Velocity Pressure w/o Ice Mast = $qz_{Mast2} := 0.00256 \cdot K_d \cdot Kz_{Mast2} \cdot V^2 \cdot I_{Wind} = 23.127$

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

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

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

Velocity Pressure w/o Ice Mast = $qz_{Mast1} := 0.00256 \cdot K_d \cdot Kz_{Mast1} \cdot V^2 \cdot I_{Wind} = 18.352$

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

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Subject:	Loads on Equipment Structure #876
Location:	Fairfield, CT
Rev. 1: 2/14/17	Prepared by: T.J.L. Checked by: C.F.C. Job No. 16162.09

Development of Wind & Ice Load on Mast

Mast Data:	(Pipe 12" SCH. 40)		(User Input)	
Mast Shape =	Round		(User Input)	
Mast Diameter =	$D_{mast} := 12.8$	in	(User Input)	
Mast Length =	$L_{mast} := 104$	ft	(User Input)	
Mast Thickness =	$t_{mast} := 0.375$	in	(User Input)	
Velocity Coefficient =	$C := \sqrt{I \cdot Kz_{Mast1}} \cdot V \cdot \frac{D_{mast}}{12} = 91$			
Mast Force Coefficient =	$CF_{mast} = 0.6$			

Wind Load (without ice)

Mast Projected Surface Area =	$A_{mast} := \frac{D_{mast}}{12} = 1.067$		sf/ft	
Total Mast Wind Force =	$qz_{Mast5} \cdot G_H \cdot CF_{mast} \cdot A_{mast} = 25$		plf	**BLC 5,7**
Total Mast Wind Force =	$qz_{Mast4} \cdot G_H \cdot CF_{mast} \cdot A_{mast} = 24$		plf	**BLC 5,7**
Total Mast Wind Force =	$qz_{Mast3} \cdot G_H \cdot CF_{mast} \cdot A_{mast} = 22$		plf	**BLC 5,7**
Total Mast Wind Force =	$qz_{Mast2} \cdot G_H \cdot CF_{mast} \cdot A_{mast} = 20$		plf	**BLC 5,7**
Total Mast Wind Force =	$qz_{Mast1} \cdot G_H \cdot CF_{mast} \cdot A_{mast} = 16$		plf	**BLC 5,7**

Wind Load (with ice)

Mast Projected Surface Area w/ Ice =	$AICE_{mast} := \frac{(D_{mast} + 2 \cdot t_{izMast5})}{12} = 1.412$		sf/ft	
Total Mast Wind Force w/ Ice =	$qz_{ice.Mast5} \cdot G_H \cdot CF_{mast} \cdot AICE_{mast} = 8$		plf	**BLC 4,6**
Mast Projected Surface Area w/ Ice =	$AICE_{mast} := \frac{(D_{mast} + 2 \cdot t_{izMast4})}{12} = 1.404$		sf/ft	
Total Mast Wind Force w/ Ice =	$qz_{ice.Mast4} \cdot G_H \cdot CF_{mast} \cdot AICE_{mast} = 7$		plf	**BLC 4,6**
Mast Projected Surface Area w/ Ice =	$AICE_{mast} := \frac{(D_{mast} + 2 \cdot t_{izMast3})}{12} = 1.392$		sf/ft	
Total Mast Wind Force w/ Ice =	$qz_{ice.Mast3} \cdot G_H \cdot CF_{mast} \cdot AICE_{mast} = 7$		plf	**BLC 4,6**
Mast Projected Surface Area w/ Ice =	$AICE_{mast} := \frac{(D_{mast} + 2 \cdot t_{izMast2})}{12} = 1.376$		sf/ft	
Total Mast Wind Force w/ Ice =	$qz_{ice.Mast2} \cdot G_H \cdot CF_{mast} \cdot AICE_{mast} = 6$		plf	**BLC 4,6**
Mast Projected Surface Area w/ Ice =	$AICE_{mast} := \frac{(D_{mast} + 2 \cdot t_{izMast1})}{12} = 1.344$		sf/ft	
Total Mast Wind Force w/ Ice =	$qz_{ice.Mast1} \cdot G_H \cdot CF_{mast} \cdot AICE_{mast} = 5$		plf	**BLC 4,6**

Gravity Loads (without ice)

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

Gravity Loads (ice only)

Ice Area per Linear Foot = $Ai_{mast} := \frac{\pi}{4}\left[\left(D_{mast} + t_{izMast5}\cdot 2\right)^2 - D_{mast}^2\right] = 96.9$ sq in

Weight of Ice on Mast = $W_{ICEmast5} := Id\cdot\frac{Ai_{mast}}{144} = 38$ plf **BLC 3**

Ice Area per Linear Foot = $Ai_{mast} := \frac{\pi}{4}\left[\left(D_{mast} + t_{izMast4}\cdot 2\right)^2 - D_{mast}^2\right] = 94.1$ sq in

Weight of Ice on Mast = $W_{ICEmast4} := Id\cdot\frac{Ai_{mast}}{144} = 37$ plf **BLC 3**

Ice Area per Linear Foot = $Ai_{mast} := \frac{\pi}{4}\left[\left(D_{mast} + t_{izMast3}\cdot 2\right)^2 - D_{mast}^2\right] = 90.6$ sq in

Weight of Ice on Mast = $W_{ICEmast3} := Id\cdot\frac{Ai_{mast}}{144} = 35$ plf **BLC 3**

Ice Area per Linear Foot = $Ai_{mast} := \frac{\pi}{4}\left[\left(D_{mast} + t_{izMast2}\cdot 2\right)^2 - D_{mast}^2\right] = 85.5$ sq in

Weight of Ice on Mast = $W_{ICEmast2} := Id\cdot\frac{Ai_{mast}}{144} = 33$ plf **BLC 3**

Ice Area per Linear Foot = $Ai_{mast} := \frac{\pi}{4}\left[\left(D_{mast} + t_{izMast1}\cdot 2\right)^2 - D_{mast}^2\right] = 75.6$ 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 Equipment Structure #876
Location:	Fairfield, CT
Rev. 1: 2/14/17	Prepared by: T.J.L. Checked by: C.F.C. Job No. 16162.09

Development of Wind & Ice Load on Antennas

Antenna Data: (Sprint)

Antenna Model =	RFS APXVSPP18-C		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 72$	in	(User Input)
Antenna Width =	$W_{ant} := 11.8$	in	(User Input)
Antenna Thickness =	$T_{ant} := 7$	in	(User Input)
Antenna Weight =	$WT_{ant} := 57$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 3$		(User Input)
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 =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 5.9$	sf	
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 17.7$	sf	
Total Antenna Wind Force =	$F_{ant} := qz_{Sprt} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ant} = 976$	lbs	**BLC 5,7**

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEant} := \frac{(L_{ant} + 2 \cdot t_{iz.Sprt}) \cdot (W_{ant} + 2 \cdot t_{iz.Sprt})}{144} = 8.5$	sf	
Antenna Projected Surface Area w/ Ice =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 25.4$	sf	
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.Sprt} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ICEant} = 324$	lbs	**BLC 4,6**

Gravity Load (without ice)

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

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 5947$	cu in	
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot t_{iz.Sprt})(W_{ant} + 2 \cdot t_{iz.Sprt}) \cdot (T_{ant} + 2 \cdot t_{iz.Sprt}) - V_{ant} = 7722$	cu in	
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 250$	lbs	
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 751$	lbs	**BLC 3**

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Development of Wind & Ice Load on Antenna Mounts

Mount Data: (Sprint)

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

Mount Shape = Flat

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

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

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

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

Wind Load (without ice)

Total Platform Wind Force = $F_{plt} := qz_{Sprt} \cdot G_H \cdot CaAa = 256$ lbs **BLC 5,7**

Wind Load (with ice)

Total Platform Wind Force w/ Ice = $Fi_{plt} := qz_{ice.Sprt} \cdot G_H \cdot CaAa_{ice} = 74$ lbs **BLC 4,6**

Gravity Load (without ice)

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

Gravity Loads (ice only)

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

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Development of Wind & Ice Load on Antennas

Antenna Data: (T-Mobile)

Antenna Model =	RFS APX16DWV-16DWVS		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 55.9$	in	(User Input)
Antenna Width =	$W_{ant} := 13$	in	(User Input)
Antenna Thickness =	$T_{ant} := 3.15$	in	(User Input)
Antenna Weight =	$WT_{ant} := 40.7$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 3$		(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 4.3$		
Antenna Force Coefficient =	$Ca_{ant} = 1.28$		

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 5$	sf	
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 15.1$	sf	
Total Antenna Wind Force =	$F_{ant} := qz_{TMo} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ant} = 771$	lbs	**BLC 5,7**

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEant} := \frac{(L_{ant} + 2 \cdot t_{iz.TMo}) \cdot (W_{ant} + 2 \cdot t_{iz.TMo})}{144} = 7.2$	sf	
Antenna Projected Surface Area w/ Ice =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 21.5$	sf	
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.TMo} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ICEant} = 253$	lbs	**BLC 4,6**

Gravity Load (without ice)

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

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 2289$	cu in	
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot t_{iz.TMo})(W_{ant} + 2 \cdot t_{iz.TMo}) \cdot (T_{ant} + 2 \cdot t_{iz.TMo}) - V_{ant} = 5258$	cu in	
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 170$	lbs	
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 511$	lbs	**BLC 3**

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Development of Wind & Ice Load on Antennas

Antenna Data: (T-Mobile)

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

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 8$	sf	
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 23.9$	sf	
Total Antenna Wind Force =	$F_{ant} := qz_{TMo} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ant} = 1370$	lbs	**BLC 5,7**

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEant} := \frac{(L_{ant} + 2 \cdot t_{iz.TMo}) \cdot (W_{ant} + 2 \cdot t_{iz.TMo})}{144} = 11.2$	sf	
Antenna Projected Surface Area w/ Ice =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 33.7$	sf	
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.TMo} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ICEant} = 446$	lbs	**BLC 4,6**

Gravity Load (without ice)

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

Gravity Loads (ice only)

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

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	Andrew ATSBT-TOP-FM-4G		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 5.63$	in	(User Input)
Antenna Width =	$W_{ant} := 3.7$	in	(User Input)
Antenna Thickness =	$T_{ant} := 2.0$	in	(User Input)
Antenna Weight =	$WT_{ant} := 2$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 3$		(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 1.5$		
Antenna Force Coefficient =	$Ca_{ant} = 1.2$		

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 0.1$	sf	
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 0.4$	sf	
Total Antenna Wind Force =	$F_{ant} := qz_{TMo} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ant} = 21$	lbs	**BLC 5**

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEant} := \frac{(L_{ant} + 2 \cdot t_{iz.TMo}) \cdot (W_{ant} + 2 \cdot t_{iz.TMo})}{144} = 0.5$	sf	
Antenna Projected Surface Area w/ Ice =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 1.6$	sf	
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.TMo} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ICEant} = 18$	lbs	**BLC 4**

Gravity Load (without ice)

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

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 42$	cu in	
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot t_{iz.TMo})(W_{ant} + 2 \cdot t_{iz.TMo}) \cdot (T_{ant} + 2 \cdot t_{iz.TMo}) - V_{ant} = 434$	cu in	
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 14$	lbs	
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 42$	lbs	**BLC 3**

Development of Wind & Ice Load on Antenna Mounts

Mount Data: (T-Mobile)

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

Mount Shape = Flat

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

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

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

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

Wind Load (without ice)

Total Platform Wind Force = $F_{plt} := qz_{TMo} \cdot G_H \cdot CaAa = 251$ lbs **BLC 5,7**

Wind Load (with ice)

Total Platform Wind Force w/ Ice = $Fi_{plt} := qz_{ice.TMo} \cdot G_H \cdot CaAa_{ice} = 72$ lbs **BLC 4,6**

Gravity Load (without ice)

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

Gravity Loads (ice only)

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

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Development of Wind & Ice Load on Coax Cables

Coax Cable Data: (Sprint)

Coax Type =	HELIAX 1-5/8"			
Shape =	Round		(User Input)	
Coax Outside Diameter =	$D_{coax} := 1.98$	in	(User Input)	
Coax Cable Length =	$L_{coax} := 104$	ft	(User Input)	
Weight of Coax per foot =	$Wt_{coax} := 1.04$	plf	(User Input)	
Total Number of Coax =	$N_{coax} := 6$		(User Input)	
Total Number of Exterior Coax =	$Ne_{coax} := 0$		(User Input)	(6 coax within mast)
No. of Coax Projecting Outside Face of Mast =	$NP_{coax} := 0$		(User Input)	

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

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

Wind Load (without ice)

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

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

Wind Load (with ice)

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

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

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

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

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

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

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

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Development of Wind & Ice Load on Coax Cables

Coax Cable Data: (T-Mobile)

Coax Type =	HELIAX 1-1/4"		
Shape =	Round		(User Input)
Coax Outside Diameter =	$D_{coax} := 1.55$	in	(User Input)
Coax Cable Length =	$L_{coax} := 95$	ft	(User Input)
Weight of Coax per foot =	$Wt_{coax} := 0.66$	plf	(User Input)
Total Number of Coax =	$N_{coax} := 12$		(User Input)
Total Number of Exterior Coax =	$Ne_{coax} := 12$		(User Input)
No. of Coax Projecting Outside Face of Mast =	$NP_{coax} := 6$		(User Input)
Coax aspect ratio,	$Ar_{coax} := \frac{(L_{coax} \cdot 12)}{D_{coax}} = 735.5$		
Coax Cable Force Factor Coefficient =	$Ca_{coax} = 1.2$		

Wind Load (without ice)

Coax projected surface area =	$A_{coax} := \frac{(NP_{coax} D_{coax})}{12} = 0.8$	sf/ft	
Total Coax Wind Force =	$F_{coax} := Ca_{coax} \cdot qz_{Mast5} \cdot G_H \cdot A_{coax} = 37$	plf	**BLC 5,7**
Total Coax Wind Force =	$F_{coax} := Ca_{coax} \cdot qz_{Mast4} \cdot G_H \cdot A_{coax} = 35$	plf	**BLC 5,7**
Total Coax Wind Force =	$F_{coax} := Ca_{coax} \cdot qz_{Mast3} \cdot G_H \cdot A_{coax} = 32$	plf	**BLC 5,7**
Total Coax Wind Force =	$F_{coax} := Ca_{coax} \cdot qz_{Mast2} \cdot G_H \cdot A_{coax} = 29$	plf	**BLC 5,7**
Total Coax Wind Force =	$F_{coax} := Ca_{coax} \cdot qz_{Mast1} \cdot G_H \cdot A_{coax} = 23$	plf	**BLC 5,7**

Wind Load (with ice)

Coax projected surface area w/ Ice =	$AICE_{coax} := \frac{(NP_{coax} \cdot D_{coax} + 2 \cdot t_{izMast5})}{12} = 1.1$	sf/ft	
Total Coax Wind Force w/ Ice =	$Fi_{coax} := Ca_{coax} \cdot qz_{ice.Mast5} \cdot G_H \cdot AICE_{coax} = 12$	plf	**BLC 4,6**
Coax projected surface area w/ Ice =	$AICE_{coax} := \frac{(NP_{coax} \cdot D_{coax} + 2 \cdot t_{izMast4})}{12} = 1.1$	sf/ft	
Total Coax Wind Force w/ Ice =	$Fi_{coax} := Ca_{coax} \cdot qz_{ice.Mast4} \cdot G_H \cdot AICE_{coax} = 12$	plf	**BLC 4,6**
Coax projected surface area w/ Ice =	$AICE_{coax} := \frac{(NP_{coax} \cdot D_{coax} + 2 \cdot t_{izMast3})}{12} = 1.1$	sf/ft	
Total Coax Wind Force w/ Ice =	$Fi_{coax} := Ca_{coax} \cdot qz_{ice.Mast3} \cdot G_H \cdot AICE_{coax} = 11$	plf	**BLC 4,6**

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

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Subject:	Loads on Equipment Structure #876
Location:	Fairfield, CT
Rev. 1: 2/14/17	Prepared by: T.J.L. Checked by: C.F.C. Job No. 16162.09

Development of Wind & Ice Load on Brace Member

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

Antenna Shape = Flat (User Input)

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

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

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

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

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

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

Wind Load (without ice)

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

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

Wind Load (with ice)

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

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

Gravity Load (without ice)

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

Gravity Loads (ice only)

Ice Area per Linear foot =

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

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

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Subject: **Analysis of TIA/EIA Wind and Ice Loads for Analysis of Mast Only**
Tabulated Load Cases
Location: **Fairfield, CT**
Date: 1/16/17 Prepared by: T.J.L. Checked by: C.F.C. Job No. 16162.09

Load Case	Description
1	Self Weight (Mast)
2	Weight of Appurtenances
3	Weight of Ice Only
4	TIA Wind with Ice X-direction
5	TIA Wind X-direction
6	TIA Wind with Ice Z-direction
7	TIA Wind Z-direction

Footnotes:

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Subject: **Analysis of TIA/EIA Wind and Ice Loads for Analysis of Mast Only**
Load Combinations Table

Location: **Fairfield, CT**

Date: 1/16/17 Prepared by: T.J.L. Checked by: C.F.C. Job No. 16162.09

Load Combination	Description	Envelope Soultion	Wind Factor	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	1.2D + 1.6W (X-direction)		1		1	1.2	2	1.2	5	1.6				
2	0.9D + 1.6W (X-direction)		1		1	0.9	2	0.9	5	1.6				
3	1.2D + 1.0Di + 1.0Wi (X-direction)		1		1	1.2	2	1.2	3	1.0	4	1.0		
4	1.2D + 1.6W (Z-direction)		1		1	1.2	2	1.2	7	1.6				
5	0.9D + 1.6W (Z-direction)		1		1	0.9	2	0.9	7	1.6				
6	1.2D + 1.0Di + 1.0Wi (Z-direction)		1		1	1.2	2	1.2	3	1.0	6	1.0		

Footnotes:
BLC = Basic Load Case
D = Dead Load
Di = Dead Load of Ice
W = Wind Load
W = Wind Load w/ Ice

Global

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

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

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, Continued

Seismic Code	UBC 1997
Seismic Base Elevation (ft)	Not Entered
Add Base Weight?	No
Ct Z	.035
Ct X	.035
T Z (sec)	Not Entered
T X (sec)	Not Entered
R Z	8.5
R X	8.5
Ca	.36
Cv	.54
Nv	1
Occupancy Category	4
Seismic Zone	3
Seismic Detailing Code	ASCE 7-05
Om Z	1
Om X	1
Rho Z	1
Rho X	1

Footing Overturning Safety Factor	1.5
Check Concrete Bearing	No
Footing Concrete Weight (k/ft^3)	0
Footing Concrete f'c (ksi)	3
Footing Concrete Ec (ksi)	4000
Lamda	1
Footing Steel fy (ksi)	60
Minimum Steel	0.0018
Maximum Steel	0.0075
Footing Top Bar	#3
Footing Top Bar Cover (in)	3.5
Footing Bottom Bar	#3
Footing Bottom Bar Cover (in)	3.5
Pedestal Bar	#3
Pedestal Bar Cover (in)	1.5
Pedestal Ties	#3

Hot Rolled Steel Properties

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

Hot Rolled Steel Design Parameters

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

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Powermount	PIPE 12.0	Beam	Pipe	A500 Gr. C 50	Typical	13.7	262	262	523
2	L3.5x3.5x1/4	L3.5x3.5x4	Beam	Single Angle	A36 Gr.36	Typical	1.7	2	2	.039
3	L2.5x2.5x3/16	L2.5x2.5x3	Beam	Single Angle	A36 Gr.36	Typical	.901	.535	.535	.011

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design R...
1	M1	N1	N7			Powermount	Beam	Pipe	A500 Gr. C 50	Typical
2	M2	N2	N8			L3.5x3.5x1/4	Beam	Single Angle	A36 Gr.36	Typical
3	M3	N2	N9			L3.5x3.5x1/4	Beam	Single Angle	A36 Gr.36	Typical
4	M4	N2	N10			L3.5x3.5x1/4	Beam	Single Angle	A36 Gr.36	Typical
5	M5	N2	N11			L3.5x3.5x1/4	Beam	Single Angle	A36 Gr.36	Typical
6	M6	N3	N12			L3.5x3.5x1/4	Beam	Single Angle	A36 Gr.36	Typical
7	M7	N3	N13			L3.5x3.5x1/4	Beam	Single Angle	A36 Gr.36	Typical
8	M8	N3	N14			L3.5x3.5x1/4	Beam	Single Angle	A36 Gr.36	Typical
9	M9	N3	N15			L3.5x3.5x1/4	Beam	Single Angle	A36 Gr.36	Typical
10	M10	N4	N16			L3.5x3.5x1/4	Beam	Single Angle	A36 Gr.36	Typical
11	M11	N4	N17			L3.5x3.5x1/4	Beam	Single Angle	A36 Gr.36	Typical
12	M12	N4	N18			L3.5x3.5x1/4	Beam	Single Angle	A36 Gr.36	Typical
13	M13	N4	N19			L3.5x3.5x1/4	Beam	Single Angle	A36 Gr.36	Typical
14	M14	N5	N20			L3.5x3.5x1/4	Beam	Single Angle	A36 Gr.36	Typical
15	M15	N5	N21			L3.5x3.5x1/4	Beam	Single Angle	A36 Gr.36	Typical
16	M16	N5	N22			L3.5x3.5x1/4	Beam	Single Angle	A36 Gr.36	Typical
17	M17	N5	N23			L3.5x3.5x1/4	Beam	Single Angle	A36 Gr.36	Typical
18	M18	N6	N24			L3.5x3.5x1/4	Beam	Single Angle	A36 Gr.36	Typical

Member Primary Data (Continued)

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

Joint Coordinates and Temperatures

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

Joint Boundary Conditions

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

Joint Boundary Conditions (Continued)

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

Member Point Loads (BLC 2 : Weight of Appurtenances)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	Y	-.171	104
2	M1	Y	-.55	104
3	M1	Y	-.122	95
4	M1	Y	-.132	95
5	M1	Y	-.006	95
6	M1	Y	-.55	95

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	Y	-.751	104
2	M1	Y	-.15	104
3	M1	Y	-.511	95
4	M1	Y	-.98	95
5	M1	Y	-.042	95
6	M1	Y	-.15	95

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	X	.324	104
2	M1	X	.074	104
3	M1	X	.253	95
4	M1	X	.446	95
5	M1	X	.018	95
6	M1	X	.072	95

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	X	.976	104
2	M1	X	.256	104
3	M1	X	.771	95
4	M1	X	1.37	95
5	M1	X	.021	95
6	M1	X	.251	95

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	Z	.324	104

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
2	M1	Z	.074	104
3	M1	Z	.253	95
4	M1	Z	.446	95
5	M1	Z	.018	95
6	M1	Z	.072	95

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

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	Z	.976	104
2	M1	Z	.256	104
3	M1	Z	.771	95
4	M1	Z	1.37	95
5	M1	Z	.021	95
6	M1	Z	.251	95

Joint Loads and Enforced Displacements

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

Member Distributed Loads (BLC 2 : Weight of Appurtenances)

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

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

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-.038	-.038	80	104
2	M1	Y	-.037	-.037	60	80
3	M1	Y	-.035	-.035	40	60
4	M1	Y	-.033	-.033	20	40
5	M1	Y	-.029	-.029	0	20
6	M1	Y	-.11	-.11	80	95
7	M1	Y	-.106	-.106	60	80
8	M1	Y	-.1	-.1	40	60
9	M1	Y	-.093	-.093	20	40
10	M1	Y	-.078	-.078	0	20
11	M2	Y	-.018	-.018	0	0
12	M3	Y	-.018	-.018	0	0
13	M4	Y	-.018	-.018	0	0
14	M5	Y	-.018	-.018	0	0
15	M6	Y	-.018	-.018	0	0
16	M7	Y	-.018	-.018	0	0
17	M8	Y	-.018	-.018	0	0
18	M9	Y	-.018	-.018	0	0
19	M10	Y	-.018	-.018	0	0
20	M11	Y	-.018	-.018	0	0
21	M12	Y	-.018	-.018	0	0
22	M13	Y	-.018	-.018	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
23	M14	Y	-.018	-.018	0	0
24	M15	Y	-.018	-.018	0	0
25	M16	Y	-.018	-.018	0	0
26	M17	Y	-.018	-.018	0	0
27	M18	Y	-.018	-.018	0	0
28	M19	Y	-.018	-.018	0	0
29	M20	Y	-.018	-.018	0	0
30	M21	Y	-.018	-.018	0	0

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

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

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

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
1	M1	X	.025	.025	80	104
2	M1	X	.024	.024	60	80
3	M1	X	.022	.022	40	60
4	M1	X	.02	.02	20	40
5	M1	X	.016	.016	0	20
6	M1	X	.037	.037	80	95
7	M1	X	.035	.035	60	80

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

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

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

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

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

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
26	M17	Z	.012	.012	0	0
27	M18	Z	.012	.012	0	0
28	M19	Z	.012	.012	0	0
29	M20	Z	.012	.012	0	0
30	M21	Z	.012	.012	0	0

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

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

Basic Load Cases

	BLC Description	Category	X Gra...	Y Gravity	Z Gra...	Joint	Point	Distrib..	Area(...	Surfa...
1	Self Weight	None		-1						
2	Weight of Appurtenances	None					6	2		
3	Weight of Ice Only	None					6	30		
4	(x) TIA Wind with Ice	None					6	30		
5	(x) TIA Wind	None					6	30		
6	(z) TIA Wind with Ice	None					6	30		
7	(z) TIA Wind	None					6	30		

Load Combinations

	Description	Solve	PDelta	S...	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-...	Yes	Y		1	1.2	2	1.2	3	1	6	1								

Envelope Member Section Forces

	Member	Sec		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torqu...	LC	y-y Mo...	LC	z-z Mo...	LC
1	M1	1	max	25.961	3	.732	2	0	1	0	1	2.829	5	2.829	2
2			min	7.301	2	0	4	-.732	5	0	1	0	1	0	4
3		2	max	21.173	3	0	4	.987	4	0	1	5.187	4	5.187	1
4			min	5.882	2	-.987	1	0	1	0	1	0	1	0	4
5		3	max	15.411	3	0	4	.747	5	0	1	0	1	0	4
6			min	4.362	2	-.747	2	0	1	0	1	-1.441	4	-1.441	1
7		4	max	9.513	3	.411	1	0	1	0	1	0	1	0	4
8			min	2.87	2	0	4	-.411	4	0	1	-5.892	4	-5.892	1
9		5	max	1.766	3	1.996	1	0	1	0	1	0	1	0	1
10			min	.649	2	0	4	-1.996	4	0	1	0	1	0	1
11	M2	1	max	.966	1	.122	6	.127	2	0	1	0	1	0	1
12			min	.205	3	.025	2	-.127	4	0	1	0	1	0	1
13		2	max	1.03	1	.061	6	.063	2	0	1	.211	3	.131	2
14			min	.226	3	.013	2	-.063	4	0	1	-.131	5	-.211	6
15		3	max	1.093	1	0	1	0	1	0	1	.281	3	.175	2
16			min	.247	3	0	1	0	1	0	1	-.175	5	-.281	6
17		4	max	1.157	1	-.013	5	.063	5	0	1	.211	3	.131	2
18			min	.267	3	-.061	3	-.063	1	0	1	-.131	5	-.211	6
19		5	max	1.22	1	-.025	5	.127	5	0	1	0	1	0	1
20			min	.288	3	-.122	3	-.127	1	0	1	0	1	0	1
21	M3	1	max	.966	1	.122	6	-.041	6	0	1	0	1	0	1
22			min	-.966	4	.025	2	-.127	1	0	1	0	1	0	1
23		2	max	1.03	1	.061	6	-.021	6	0	1	.104	6	-.197	2
24			min	-1.03	4	.013	2	-.063	1	0	1	-.131	2	-.211	3
25		3	max	1.093	1	0	1	0	1	0	1	.139	6	-.263	2
26			min	-1.093	4	0	1	0	1	0	1	-.175	2	-.281	3
27		4	max	1.157	1	-.013	5	.063	5	0	1	.104	6	-.197	2
28			min	-1.157	4	-.061	3	.021	3	0	1	-.131	2	-.211	3
29		5	max	1.22	1	-.025	5	.127	5	0	1	0	1	0	1
30			min	-1.22	4	-.122	3	.041	3	0	1	0	1	0	1
31	M4	1	max	.966	4	.122	3	.127	1	0	1	0	1	0	1
32			min	-.966	1	.025	5	.041	6	0	1	0	1	0	1
33		2	max	1.03	4	.061	3	.063	1	0	1	.211	3	.131	2
34			min	-1.03	1	.013	5	.021	6	0	1	.197	5	-.104	3
35		3	max	1.093	4	0	1	0	1	0	1	.281	3	.175	2
36			min	-1.093	1	0	1	0	1	0	1	.263	5	-.139	3
37		4	max	1.157	4	-.013	2	-.021	3	0	1	.211	3	.131	2
38			min	-1.157	1	-.061	6	-.063	5	0	1	.197	5	-.104	3
39		5	max	1.22	4	-.025	2	-.041	3	0	1	0	1	0	1
40			min	-1.22	1	-.122	6	-.127	5	0	1	0	1	0	1

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torqu...	LC	y-y Mo...	LC	z-z Mo...	LC
41	M5	1	max	-.205	3	.122	6	.127	5	0	1	0	1	0	1
42			min	-.966	1	.025	2	-.127	1	0	1	0	1	0	1
43		2	max	-.226	3	.061	3	.063	5	0	1	.211	6	.131	5
44			min	-1.03	1	.013	5	-.063	1	0	1	-.131	2	-.211	3
45		3	max	-.247	3	0	1	0	1	0	1	.281	6	.175	5
46			min	-1.093	1	0	1	0	1	0	1	-.175	2	-.281	3
47		4	max	-.267	3	-.013	2	.063	2	0	1	.211	6	.131	5
48			min	-1.157	1	-.061	6	-.063	4	0	1	-.131	2	-.211	3
49		5	max	-.288	3	-.025	2	.127	1	0	1	0	1	0	1
50			min	-1.22	1	-.122	6	-.127	4	0	1	0	1	0	1
51	M6	1	max	.839	2	.044	3	.046	2	0	1	0	1	0	1
52			min	.179	3	.009	5	-.046	4	0	1	0	1	0	1
53		2	max	.862	2	.022	3	.023	2	0	1	.028	3	.017	2
54			min	.186	3	.005	5	-.023	4	0	1	-.017	5	-.028	6
55		3	max	.885	2	0	1	0	1	0	1	.037	3	.023	2
56			min	.194	3	0	1	0	1	0	1	-.023	5	-.037	6
57		4	max	.908	2	-.005	5	.023	5	0	1	.028	3	.017	2
58			min	.201	3	-.022	3	-.023	1	0	1	-.017	5	-.028	6
59		5	max	.931	2	-.009	5	.046	5	0	1	0	1	0	1
60			min	.209	3	-.044	3	-.046	1	0	1	0	1	0	1
61	M7	1	max	.839	2	.044	6	-.015	6	0	1	0	1	0	1
62			min	-.839	5	.009	2	-.046	2	0	1	0	1	0	1
63		2	max	.862	2	.022	6	-.008	6	0	1	.014	6	-.026	2
64			min	-.862	5	.005	2	-.023	2	0	1	-.017	2	-.028	3
65		3	max	.885	2	0	1	0	1	0	1	.018	6	-.035	2
66			min	-.885	5	0	1	0	1	0	1	-.023	2	-.037	6
67		4	max	.908	2	-.005	5	.023	4	0	1	.014	6	-.026	2
68			min	-.908	5	-.022	3	.007	3	0	1	-.017	2	-.028	6
69		5	max	.931	2	-.009	5	.046	4	0	1	0	1	0	1
70			min	-.931	5	-.044	3	.015	3	0	1	0	1	0	1
71	M8	1	max	.839	5	.044	3	.046	2	0	1	0	1	0	1
72			min	-.839	2	.009	5	.015	6	0	1	0	1	0	1
73		2	max	.862	5	.022	3	.023	2	0	1	.028	3	.017	2
74			min	-.862	2	.005	5	.007	6	0	1	.026	5	-.014	3
75		3	max	.885	5	0	1	0	1	0	1	.037	3	.023	2
76			min	-.885	2	0	1	0	1	0	1	.035	5	-.018	3
77		4	max	.908	5	-.005	2	-.007	3	0	1	.028	3	.017	2
78			min	-.908	2	-.022	6	-.023	4	0	1	.026	5	-.014	3
79		5	max	.931	5	-.009	2	-.015	3	0	1	0	1	0	1
80			min	-.931	2	-.044	6	-.046	4	0	1	0	1	0	1
81	M9	1	max	-.179	3	.044	3	.046	5	0	1	0	1	0	1
82			min	-.839	2	.009	2	-.046	1	0	1	0	1	0	1
83		2	max	-.186	3	.022	3	.023	5	0	1	.028	6	.017	5
84			min	-.862	2	.005	2	-.023	1	0	1	-.017	2	-.028	3
85		3	max	-.194	3	0	1	0	1	0	1	.037	6	.023	5
86			min	-.885	2	0	1	0	1	0	1	-.023	2	-.037	3
87		4	max	-.201	3	-.005	2	.023	2	0	1	.028	6	.017	5
88			min	-.908	2	-.022	6	-.023	4	0	1	-.017	2	-.028	3
89		5	max	-.209	3	-.009	2	.046	2	0	1	0	1	0	1
90			min	-.931	2	-.044	6	-.046	4	0	1	0	1	0	1
91	M10	1	max	.507	1	.044	3	.046	1	0	1	0	1	0	1
92			min	.108	6	.009	5	-.046	5	0	1	0	1	0	1

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torqu...	LC	y-y Mo...	LC	z-z Mo...	LC
93		2	max	.53	1	.022	3	.023	1	0	1	.028	3	.017	2
94			min	.115	6	.005	5	-.023	5	0	1	-.017	5	-.028	6
95		3	max	.553	1	0	1	0	1	0	1	.037	3	.023	2
96			min	.123	6	0	1	0	1	0	1	-.023	5	-.037	6
97		4	max	.576	1	-.005	2	.023	4	0	1	.028	3	.017	2
98			min	.13	6	-.022	3	-.023	2	0	1	-.017	5	-.028	6
99		5	max	.599	1	-.009	5	.046	4	0	1	0	1	0	1
100			min	.138	6	-.044	3	-.046	2	0	1	0	1	0	1
101	M11	1	max	.507	1	.044	6	-.015	6	0	1	0	1	0	1
102			min	-.507	4	.009	2	-.046	1	0	1	0	1	0	1
103		2	max	.53	1	.022	6	-.008	6	0	1	.014	6	-.026	2
104			min	-.53	4	.005	2	-.023	1	0	1	-.017	5	-.028	3
105		3	max	.553	1	0	1	0	1	0	1	.018	6	-.035	2
106			min	-.553	4	0	1	0	1	0	1	-.023	5	-.037	3
107		4	max	.576	1	-.005	5	.023	2	0	1	.014	6	-.026	2
108			min	-.576	4	-.022	3	.007	3	0	1	-.017	5	-.028	3
109		5	max	.599	1	-.009	5	.046	2	0	1	0	1	0	1
110			min	-.599	4	-.044	3	.015	3	0	1	0	1	0	1
111	M12	1	max	.507	4	.044	3	.046	1	0	1	0	1	0	1
112			min	-.507	1	.009	5	.015	3	0	1	0	1	0	1
113		2	max	.53	4	.022	3	.023	1	0	1	.028	3	.017	2
114			min	-.53	1	.005	5	.008	6	0	1	.026	5	-.014	3
115		3	max	.553	4	0	1	0	1	0	1	.037	3	.023	2
116			min	-.553	1	0	1	0	1	0	1	.035	5	-.018	3
117		4	max	.576	4	-.005	2	-.007	6	0	1	.028	3	.017	2
118			min	-.576	1	-.022	6	-.023	4	0	1	.026	5	-.014	3
119		5	max	.599	4	-.009	2	-.015	3	0	1	0	1	0	1
120			min	-.599	1	-.044	6	-.046	4	0	1	0	1	0	1
121	M13	1	max	-.108	6	.044	6	.046	4	0	1	0	1	0	1
122			min	-.507	1	.009	2	-.046	1	0	1	0	1	0	1
123		2	max	-.115	6	.022	6	.023	4	0	1	.028	6	.017	5
124			min	-.53	1	.005	2	-.023	1	0	1	-.017	2	-.028	3
125		3	max	-.123	6	0	1	0	1	0	1	.037	6	.023	5
126			min	-.553	1	0	1	0	1	0	1	-.023	2	-.037	3
127		4	max	-.13	6	-.005	5	.023	2	0	1	.028	6	.017	5
128			min	-.576	1	-.022	6	-.023	5	0	1	-.017	2	-.028	3
129		5	max	-.138	6	-.009	2	.046	2	0	1	0	1	0	1
130			min	-.599	1	-.044	6	-.046	5	0	1	0	1	0	1
131	M14	1	max	-1.224	3	.044	3	.046	2	0	1	0	1	0	1
132			min	-6.01	1	.009	5	-.046	4	0	1	0	1	0	1
133		2	max	-1.216	3	.022	3	.023	2	0	1	.028	3	.017	2
134			min	-5.987	1	.005	5	-.023	4	0	1	-.017	5	-.028	6
135		3	max	-1.209	3	0	1	0	1	0	1	.037	3	.023	2
136			min	-5.964	1	0	1	0	1	0	1	-.023	5	-.037	6
137		4	max	-1.201	3	-.005	2	.023	5	0	1	.028	3	.017	2
138			min	-5.941	1	-.022	6	-.023	1	0	1	-.017	5	-.028	6
139		5	max	-1.194	3	-.009	2	.046	5	0	1	0	1	0	1
140			min	-5.918	1	-.044	6	-.046	1	0	1	0	1	0	1
141	M15	1	max	6.01	4	.044	3	-.015	6	0	1	0	1	0	1
142			min	-6.01	1	.009	5	-.046	4	0	1	0	1	0	1
143		2	max	5.987	4	.022	3	-.007	6	0	1	.014	6	-.026	2
144			min	-5.987	1	.005	5	-.023	4	0	1	-.017	5	-.028	3

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torqu...	LC	y-y Mo...	LC	z-z Mo...	LC
145		3	max	5.964	4	0	1	0	1	0	1	.018	6	-.035	2
146			min	-5.964	1	0	1	0	1	0	1	-.023	5	-.037	3
147		4	max	5.941	4	-.005	2	.023	2	0	1	.014	6	-.026	2
148			min	-5.941	1	-.022	6	.008	3	0	1	-.017	5	-.028	3
149		5	max	5.918	4	-.009	2	.046	2	0	1	0	1	0	1
150			min	-5.918	1	-.044	6	.015	3	0	1	0	1	0	1
151	M16	1	max	6.01	1	.044	6	.046	5	0	1	0	1	0	1
152			min	-6.01	4	.009	2	.015	3	0	1	0	1	0	1
153		2	max	5.987	1	.022	6	.023	5	0	1	.028	6	.017	2
154			min	-5.987	4	.005	2	.007	3	0	1	.026	2	-.014	3
155		3	max	5.964	1	0	1	0	1	0	1	.037	6	.023	2
156			min	-5.964	4	0	1	0	1	0	1	.035	2	-.018	3
157		4	max	5.941	1	-.005	5	-.008	6	0	1	.028	6	.017	2
158			min	-5.941	4	-.022	3	-.023	1	0	1	.026	2	-.014	3
159		5	max	5.918	1	-.009	5	-.015	6	0	1	0	1	0	1
160			min	-5.918	4	-.044	3	-.046	1	0	1	0	1	0	1
161	M17	1	max	6.01	1	.044	6	.046	5	0	1	0	1	0	1
162			min	1.224	3	.009	2	-.046	1	0	1	0	1	0	1
163		2	max	5.987	1	.022	6	.023	5	0	1	.028	6	.017	5
164			min	1.216	3	.005	2	-.023	1	0	1	-.017	2	-.028	3
165		3	max	5.964	1	0	1	0	1	0	1	.037	6	.023	5
166			min	1.209	3	0	1	0	1	0	1	-.023	2	-.037	3
167		4	max	5.941	1	-.005	5	.023	2	0	1	.028	6	.017	5
168			min	1.201	3	-.022	3	-.023	4	0	1	-.017	2	-.028	3
169		5	max	5.918	1	-.009	5	.046	2	0	1	0	1	0	1
170			min	1.194	3	-.044	3	-.046	4	0	1	0	1	0	1
171	M18	1	max	8.738	1	.044	6	.046	1	0	1	0	1	0	1
172			min	1.788	3	.009	5	-.046	4	0	1	0	1	0	1
173		2	max	8.761	1	.022	6	.023	1	0	1	.028	3	.017	2
174			min	1.796	3	.005	5	-.023	4	0	1	-.017	5	-.028	6
175		3	max	8.784	1	0	1	0	1	0	1	.037	3	.023	2
176			min	1.803	3	0	1	0	1	0	1	-.023	5	-.037	6
177		4	max	8.807	1	-.005	2	.023	5	0	1	.028	3	.017	2
178			min	1.811	3	-.022	3	-.023	2	0	1	-.017	5	-.028	6
179		5	max	8.83	1	-.009	2	.046	5	0	1	0	1	0	1
180			min	1.818	3	-.044	3	-.046	2	0	1	0	1	0	1
181	M19	1	max	8.738	1	.044	6	-.015	6	0	1	0	1	0	1
182			min	-8.738	4	.009	2	-.046	1	0	1	0	1	0	1
183		2	max	8.761	1	.022	6	-.008	6	0	1	.014	6	-.026	2
184			min	-8.761	4	.005	2	-.023	1	0	1	-.017	2	-.028	3
185		3	max	8.784	1	0	1	0	1	0	1	.018	6	-.035	2
186			min	-8.784	4	0	1	0	1	0	1	-.023	2	-.037	3
187		4	max	8.807	1	-.005	5	.023	5	0	1	.014	6	-.026	2
188			min	-8.807	4	-.022	3	.007	3	0	1	-.017	2	-.028	3
189		5	max	8.83	1	-.009	5	.046	5	0	1	0	1	0	1
190			min	-8.83	4	-.044	3	.015	3	0	1	0	1	0	1
191	M20	1	max	8.738	4	.044	3	.046	2	0	1	0	1	0	1
192			min	-8.738	1	.009	5	.015	6	0	1	0	1	0	1
193		2	max	8.761	4	.022	3	.023	2	0	1	.028	3	.017	2
194			min	-8.761	1	.005	5	.008	6	0	1	.026	5	-.014	3
195		3	max	8.784	4	0	1	0	1	0	1	.037	3	.023	2
196			min	-8.784	1	0	1	0	1	0	1	.035	5	-.018	3

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[k]	LC	y Shear[k]	LC	z Shear[k]	LC	Torqu...	LC	y-y Mo...	LC	z-z Mo...	LC
197		4	max	8.807	4	-.005	2	-.007	3	0	1	.028	3	.017	2
198			min	-8.807	1	-.022	6	-.023	4	0	1	.026	5	-.014	3
199		5	max	8.83	4	-.009	2	-.015	3	0	1	0	1	0	1
200			min	-8.83	1	-.044	6	-.046	4	0	1	0	1	0	1
201	M21	1	max	-1.788	3	.044	3	.046	4	0	1	0	1	0	1
202			min	-8.738	1	.009	2	-.046	1	0	1	0	1	0	1
203		2	max	-1.796	3	.022	3	.023	4	0	1	.028	6	.017	5
204			min	-8.761	1	.005	2	-.023	1	0	1	-.017	2	-.028	3
205		3	max	-1.803	3	0	1	0	1	0	1	.037	6	.023	5
206			min	-8.784	1	0	1	0	1	0	1	-.023	2	-.037	3
207		4	max	-1.811	3	-.005	5	.023	2	0	1	.028	6	.017	5
208			min	-8.807	1	-.022	6	-.023	5	0	1	-.017	2	-.028	3
209		5	max	-1.818	3	-.009	5	.046	2	0	1	0	1	0	1
210			min	-8.83	1	-.044	6	-.046	5	0	1	0	1	0	1

Envelope Member Section Stresses

	Member	Sec		Axial[ksi]	LC	y Shear[...	LC	z Shear[...	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC
1	M1	1	max	1.895	3	.107	2	0	1	0	4	.829	2	.829	5	0	1
2			min	.533	2	0	4	-.107	5	-.829	2	0	4	0	1	-.829	5
3		2	max	1.545	3	0	4	.144	4	0	4	1.521	1	1.521	4	0	1
4			min	.429	2	-.144	1	0	1	-1.521	1	0	4	0	1	-1.521	4
5		3	max	1.125	3	0	4	.109	5	.422	1	0	4	0	1	.422	4
6			min	.318	2	-.109	2	0	1	0	4	-.422	1	-.422	4	0	1
7		4	max	.694	3	.06	1	0	1	1.727	1	0	4	0	1	1.727	4
8			min	.209	2	0	4	-.06	4	0	4	-1.727	1	-1.727	4	0	1
9		5	max	.129	3	.291	1	0	1	0	1	0	1	0	1	0	1
10			min	.047	2	0	4	-.291	4	0	1	0	1	0	1	0	1
11	M2	1	max	.569	1	.167	3	.174	2	0	1	0	1	0	1	0	1
12			min	.121	3	.035	2	-.174	4	0	1	0	1	0	1	0	1
13		2	max	.606	1	.083	6	.087	2	1.891	6	1.178	2	3.82	3	2.644	5
14			min	.133	3	.017	2	-.087	4	-1.178	2	-1.891	6	-2.379	5	-4.245	3
15		3	max	.643	1	0	1	0	1	2.521	6	1.57	2	5.094	3	3.525	5
16			min	.145	3	0	1	0	1	-1.57	2	-2.521	6	-3.172	5	-5.66	3
17		4	max	.681	1	-.017	5	.087	5	1.891	6	1.178	2	3.82	3	2.644	5
18			min	.157	3	-.083	3	-.087	1	-1.178	2	-1.891	6	-2.379	5	-4.245	3
19		5	max	.718	1	-.035	5	.174	5	0	1	0	1	0	1	0	1
20			min	.169	3	-.167	3	-.174	1	0	1	0	1	0	1	0	1
21	M3	1	max	.569	1	.167	6	-.057	6	0	1	0	1	0	1	0	1
22			min	-.569	4	.035	2	-.174	1	0	1	0	1	0	1	0	1
23		2	max	.606	1	.083	6	-.028	6	1.891	3	-1.767	2	1.881	6	2.644	2
24			min	-.606	4	.017	2	-.087	1	1.767	2	-1.891	3	-2.379	2	-2.09	6
25		3	max	.643	1	0	1	0	1	2.521	3	-2.356	2	2.508	6	3.525	2
26			min	-.643	4	0	1	0	1	2.356	2	-2.521	3	-3.172	2	-2.787	6
27		4	max	.681	1	-.017	5	.087	5	1.891	3	-1.767	2	1.881	6	2.644	2
28			min	-.681	4	-.083	3	.028	3	1.767	2	-1.891	3	-2.379	2	-2.09	6
29		5	max	.718	1	-.035	5	.174	5	0	1	0	1	0	1	0	1
30			min	-.718	4	-.167	3	.057	3	0	1	0	1	0	1	0	1
31	M4	1	max	.569	4	.167	3	.174	1	0	1	0	1	0	1	0	1
32			min	-.569	1	.035	5	.057	6	0	1	0	1	0	1	0	1
33		2	max	.606	4	.083	3	.087	1	.931	3	1.178	2	3.82	3	-3.966	5

Envelope Member Section Stresses (Continued)

	Member	Sec		Axial[ksi]	LC	y Shear[...	LC	z Shear[...	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC
34			min	-.606	1	.017	5	.028	6	-1.178	2	-.931	3	3.569	5	-4.245	3
35		3	max	.643	4	0	1	0	1	1.241	3	1.57	2	5.094	3	-5.288	5
36			min	-.643	1	0	1	0	1	-1.57	2	-1.241	3	4.759	5	-5.66	3
37		4	max	.681	4	-.017	2	-.028	3	.931	3	1.178	2	3.82	3	-3.966	5
38			min	-.681	1	-.083	6	-.087	5	-1.178	2	-.931	3	3.569	5	-4.245	3
39		5	max	.718	4	-.035	2	-.057	3	0	1	0	1	0	1	0	1
40			min	-.718	1	-.167	6	-.174	5	0	1	0	1	0	1	0	1
41	M5	1	max	-.121	3	.167	6	.174	5	0	1	0	1	0	1	0	1
42			min	-.569	1	.035	2	-.174	1	0	1	0	1	0	1	0	1
43		2	max	-.133	3	.083	3	.087	5	1.891	3	1.178	5	3.82	6	2.644	2
44			min	-.606	1	.017	5	-.087	1	-1.178	5	-1.891	3	-2.379	2	-4.245	6
45		3	max	-.145	3	0	1	0	1	2.521	3	1.57	5	5.094	6	3.525	2
46			min	-.643	1	0	1	0	1	-1.57	5	-2.521	3	-3.172	2	-5.66	6
47		4	max	-.157	3	-.017	2	.087	2	1.891	3	1.178	5	3.82	6	2.644	2
48			min	-.681	1	-.083	3	-.087	4	-1.178	5	-1.891	3	-2.379	2	-4.245	6
49		5	max	-.169	3	-.035	2	.174	1	0	1	0	1	0	1	0	1
50			min	-.718	1	-.167	6	-.174	4	0	1	0	1	0	1	0	1
51	M6	1	max	.494	2	.06	3	.063	2	0	1	0	1	0	1	0	1
52			min	.105	3	.013	5	-.063	4	0	1	0	1	0	1	0	1
53		2	max	.507	2	.03	3	.032	2	.248	6	.155	2	.502	3	.347	5
54			min	.109	3	.006	5	-.032	4	-.155	2	-.248	6	-.312	5	-.557	3
55		3	max	.521	2	0	1	0	1	.331	6	.206	2	.669	3	.463	5
56			min	.114	3	0	1	0	1	-.206	2	-.331	6	-.416	5	-.743	3
57		4	max	.534	2	-.006	5	.032	5	.248	6	.155	2	.502	3	.347	5
58			min	.118	3	-.03	3	-.032	1	-.155	2	-.248	6	-.312	5	-.557	3
59		5	max	.548	2	-.013	5	.063	5	0	1	0	1	0	1	0	1
60			min	.123	3	-.06	3	-.063	1	0	1	0	1	0	1	0	1
61	M7	1	max	.494	2	.06	6	-.021	6	0	1	0	1	0	1	0	1
62			min	-.494	5	.013	2	-.063	2	0	1	0	1	0	1	0	1
63		2	max	.507	2	.03	6	-.01	6	.248	3	-.232	2	.247	6	.347	2
64			min	-.507	5	.006	2	-.032	2	.232	2	-.248	3	-.312	2	-.274	6
65		3	max	.521	2	0	1	0	1	.331	6	-.309	2	.329	6	.463	2
66			min	-.521	5	0	1	0	1	.309	2	-.331	6	-.416	2	-.366	6
67		4	max	.534	2	-.006	5	.032	4	.248	6	-.232	2	.247	6	.347	2
68			min	-.534	5	-.03	3	.01	3	.232	2	-.248	6	-.312	2	-.274	6
69		5	max	.548	2	-.013	5	.063	4	0	1	0	1	0	1	0	1
70			min	-.548	5	-.06	3	.021	3	0	1	0	1	0	1	0	1
71	M8	1	max	.494	5	.06	3	.063	2	0	1	0	1	0	1	0	1
72			min	-.494	2	.013	5	.021	6	0	1	0	1	0	1	0	1
73		2	max	.507	5	.03	3	.032	2	.122	3	.155	2	.502	3	-.521	5
74			min	-.507	2	.006	5	.01	6	-.155	2	-.122	3	.469	5	-.557	3
75		3	max	.521	5	0	1	0	1	.163	3	.206	2	.669	3	-.694	5
76			min	-.521	2	0	1	0	1	-.206	2	-.163	3	.625	5	-.743	3
77		4	max	.534	5	-.006	2	-.01	3	.122	3	.155	2	.502	3	-.521	5
78			min	-.534	2	-.03	6	-.032	4	-.155	2	-.122	3	.469	5	-.557	3
79		5	max	.548	5	-.013	2	-.021	3	0	1	0	1	0	1	0	1
80			min	-.548	2	-.06	6	-.063	4	0	1	0	1	0	1	0	1
81	M9	1	max	-.105	3	.06	3	.063	5	0	1	0	1	0	1	0	1
82			min	-.494	2	.013	2	-.063	1	0	1	0	1	0	1	0	1
83		2	max	-.109	3	.03	3	.032	5	.248	3	.155	5	.502	6	.347	2
84			min	-.507	2	.006	2	-.032	1	-.155	5	-.248	3	-.312	2	-.557	6
85		3	max	-.114	3	0	1	0	1	.331	3	.206	5	.669	6	.463	2

Envelope Member Section Stresses (Continued)

	Member	Sec		Axial[ksi]	LC	y Shear[...	LC	z Shear[...	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC
86			min	-.521	2	0	1	0	1	-.206	5	-.331	3	-.416	2	-.743	6
87		4	max	-.118	3	-.006	2	.032	2	.248	3	.155	5	.502	6	.347	2
88			min	-.534	2	-.03	6	-.032	4	-.155	5	-.248	3	-.312	2	-.557	6
89		5	max	-.123	3	-.013	2	.063	2	0	1	0	1	0	1	0	1
90			min	-.548	2	-.06	6	-.063	4	0	1	0	1	0	1	0	1
91	M10	1	max	.299	1	.06	3	.063	1	0	1	0	1	0	1	0	1
92			min	.063	6	.013	5	-.063	5	0	1	0	1	0	1	0	1
93		2	max	.312	1	.03	3	.032	1	.248	6	.155	2	.502	3	.347	5
94			min	.068	6	.006	5	-.032	5	-.155	2	-.248	6	-.312	5	-.557	3
95		3	max	.326	1	0	1	0	1	.331	6	.206	2	.669	3	.463	5
96			min	.072	6	0	1	0	1	-.206	2	-.331	6	-.416	5	-.743	3
97		4	max	.339	1	-.006	2	.032	4	.248	6	.155	2	.502	3	.347	5
98			min	.077	6	-.03	3	-.032	2	-.155	2	-.248	6	-.312	5	-.557	3
99		5	max	.353	1	-.013	5	.063	4	0	1	0	1	0	1	0	1
100			min	.081	6	-.06	3	-.063	2	0	1	0	1	0	1	0	1
101	M11	1	max	.299	1	.06	6	-.021	6	0	1	0	1	0	1	0	1
102			min	-.299	4	.013	2	-.063	1	0	1	0	1	0	1	0	1
103		2	max	.312	1	.03	6	-.01	6	.248	3	-.232	2	.247	6	.347	5
104			min	-.312	4	.006	2	-.032	1	.232	2	-.248	3	-.312	5	-.274	6
105		3	max	.326	1	0	1	0	1	.331	3	-.309	2	.329	6	.463	5
106			min	-.326	4	0	1	0	1	.309	2	-.331	3	-.416	5	-.366	6
107		4	max	.339	1	-.006	5	.032	2	.248	3	-.232	2	.247	6	.347	5
108			min	-.339	4	-.03	3	.01	3	.232	2	-.248	3	-.312	5	-.274	6
109		5	max	.353	1	-.013	5	.063	2	0	1	0	1	0	1	0	1
110			min	-.353	4	-.06	3	.021	3	0	1	0	1	0	1	0	1
111	M12	1	max	.299	4	.06	3	.063	1	0	1	0	1	0	1	0	1
112			min	-.299	1	.013	5	.021	3	0	1	0	1	0	1	0	1
113		2	max	.312	4	.03	3	.032	1	.122	3	.155	2	.502	3	-.521	5
114			min	-.312	1	.006	5	.01	3	-.155	2	-.122	3	.469	5	-.557	3
115		3	max	.326	4	0	1	0	1	.163	3	.206	2	.669	3	-.694	5
116			min	-.326	1	0	1	0	1	-.206	2	-.163	3	.625	5	-.743	3
117		4	max	.339	4	-.006	2	-.01	6	.122	3	.155	2	.502	3	-.521	5
118			min	-.339	1	-.03	6	-.032	4	-.155	2	-.122	3	.469	5	-.557	3
119		5	max	.353	4	-.013	2	-.021	3	0	1	0	1	0	1	0	1
120			min	-.353	1	-.06	6	-.063	4	0	1	0	1	0	1	0	1
121	M13	1	max	-.063	6	.06	6	.063	4	0	1	0	1	0	1	0	1
122			min	-.299	1	.013	2	-.063	1	0	1	0	1	0	1	0	1
123		2	max	-.068	6	.03	6	.032	4	.248	3	.155	5	.502	6	.347	2
124			min	-.312	1	.006	2	-.032	1	-.155	5	-.248	3	-.312	2	-.557	6
125		3	max	-.072	6	0	1	0	1	.331	3	.206	5	.669	6	.463	2
126			min	-.326	1	0	1	0	1	-.206	5	-.331	3	-.416	2	-.743	6
127		4	max	-.077	6	-.006	5	.032	2	.248	3	.155	5	.502	6	.347	2
128			min	-.339	1	-.03	6	-.032	5	-.155	5	-.248	3	-.312	2	-.557	6
129		5	max	-.081	6	-.013	2	.063	2	0	1	0	1	0	1	0	1
130			min	-.353	1	-.06	6	-.063	5	0	1	0	1	0	1	0	1
131	M14	1	max	-.72	3	.06	3	.063	2	0	1	0	1	0	1	0	1
132			min	-3.535	1	.013	5	-.063	4	0	1	0	1	0	1	0	1
133		2	max	-.715	3	.03	3	.032	2	.248	6	.155	2	.502	3	.347	5
134			min	-3.522	1	.006	5	-.032	4	-.155	2	-.248	6	-.312	5	-.557	3
135		3	max	-.711	3	0	1	0	1	.331	6	.206	2	.669	3	.463	5
136			min	-3.508	1	0	1	0	1	-.206	2	-.331	6	-.416	5	-.743	3
137		4	max	-.707	3	-.006	2	.032	5	.248	6	.155	2	.502	3	.347	5

Envelope Member Section Stresses (Continued)

	Member	Sec		Axial[ksi]	LC	y Shear[...	LC	z Shear[...	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC
138			min	-3.495	1	-.03	6	-.032	1	-.155	2	-.248	6	-.312	5	-.557	3
139		5	max	-.702	3	-.013	2	.063	5	0	1	0	1	0	1	0	1
140			min	-3.481	1	-.06	6	-.063	1	0	1	0	1	0	1	0	1
141	M15	1	max	3.535	4	.06	3	-.021	6	0	1	0	1	0	1	0	1
142			min	-3.535	1	.013	5	-.063	4	0	1	0	1	0	1	0	1
143		2	max	3.522	4	.03	3	-.01	6	.248	3	-.232	2	.247	6	.347	5
144			min	-3.522	1	.006	5	-.032	4	.232	2	-.248	3	-.312	5	-.274	6
145		3	max	3.508	4	0	1	0	1	.331	3	-.309	2	.329	6	.463	5
146			min	-3.508	1	0	1	0	1	.309	2	-.331	3	-.416	5	-.366	6
147		4	max	3.495	4	-.006	2	.032	2	.248	3	-.232	2	.247	6	.347	5
148			min	-3.495	1	-.03	6	.01	3	.232	2	-.248	3	-.312	5	-.274	6
149		5	max	3.481	4	-.013	2	.063	2	0	1	0	1	0	1	0	1
150			min	-3.481	1	-.06	6	.021	3	0	1	0	1	0	1	0	1
151	M16	1	max	3.535	1	.06	6	.063	5	0	1	0	1	0	1	0	1
152			min	-3.535	4	.013	2	.021	3	0	1	0	1	0	1	0	1
153		2	max	3.522	1	.03	6	.032	5	.122	3	.155	2	.502	6	-.521	2
154			min	-3.522	4	.006	2	.01	3	-.155	2	-.122	3	.469	2	-.557	6
155		3	max	3.508	1	0	1	0	1	.163	3	.206	2	.669	6	-.694	2
156			min	-3.508	4	0	1	0	1	-.206	2	-.163	3	.625	2	-.743	6
157		4	max	3.495	1	-.006	5	-.01	6	.122	3	.155	2	.502	6	-.521	2
158			min	-3.495	4	-.03	3	-.032	1	-.155	2	-.122	3	.469	2	-.557	6
159		5	max	3.481	1	-.013	5	-.021	6	0	1	0	1	0	1	0	1
160			min	-3.481	4	-.06	3	-.063	1	0	1	0	1	0	1	0	1
161	M17	1	max	3.535	1	.06	6	.063	5	0	1	0	1	0	1	0	1
162			min	.72	3	.013	2	-.063	1	0	1	0	1	0	1	0	1
163		2	max	3.522	1	.03	6	.032	5	.248	3	.155	5	.502	6	.347	2
164			min	.715	3	.006	2	-.032	1	-.155	5	-.248	3	-.312	2	-.557	6
165		3	max	3.508	1	0	1	0	1	.331	3	.206	5	.669	6	.463	2
166			min	.711	3	0	1	0	1	-.206	5	-.331	3	-.416	2	-.743	6
167		4	max	3.495	1	-.006	5	.032	2	.248	3	.155	5	.502	6	.347	2
168			min	.707	3	-.03	3	-.032	4	-.155	5	-.248	3	-.312	2	-.557	6
169		5	max	3.481	1	-.013	5	.063	2	0	1	0	1	0	1	0	1
170			min	.702	3	-.06	3	-.063	4	0	1	0	1	0	1	0	1
171	M18	1	max	5.14	1	.06	6	.063	1	0	1	0	1	0	1	0	1
172			min	1.052	3	.013	5	-.063	4	0	1	0	1	0	1	0	1
173		2	max	5.154	1	.03	6	.032	1	.248	6	.155	2	.502	3	.347	5
174			min	1.056	3	.006	5	-.032	4	-.155	2	-.248	6	-.312	5	-.557	3
175		3	max	5.167	1	0	1	0	1	.331	6	.206	2	.669	3	.463	5
176			min	1.061	3	0	1	0	1	-.206	2	-.331	6	-.416	5	-.743	3
177		4	max	5.181	1	-.006	2	.032	5	.248	6	.155	2	.502	3	.347	5
178			min	1.065	3	-.03	3	-.032	2	-.155	2	-.248	6	-.312	5	-.557	3
179		5	max	5.194	1	-.013	2	.063	5	0	1	0	1	0	1	0	1
180			min	1.07	3	-.06	3	-.063	2	0	1	0	1	0	1	0	1
181	M19	1	max	5.14	1	.06	6	-.021	6	0	1	0	1	0	1	0	1
182			min	-5.14	4	.013	2	-.063	1	0	1	0	1	0	1	0	1
183		2	max	5.154	1	.03	6	-.01	6	.248	3	-.232	2	.247	6	.347	2
184			min	-5.154	4	.006	2	-.032	1	.232	2	-.248	3	-.312	2	-.274	6
185		3	max	5.167	1	0	1	0	1	.331	3	-.309	2	.329	6	.463	2
186			min	-5.167	4	0	1	0	1	.309	2	-.331	3	-.416	2	-.366	6
187		4	max	5.181	1	-.006	5	.032	5	.248	3	-.232	2	.247	6	.347	2
188			min	-5.181	4	-.03	3	.01	3	.232	2	-.248	3	-.312	2	-.274	6
189		5	max	5.194	1	-.013	5	.063	5	0	1	0	1	0	1	0	1

Envelope Member Section Stresses (Continued)

	Member	Sec		Axial[ksi]	LC	y Shear[...	LC	z Shear[...	LC	y-Top[ksi]	LC	y-Bot[ksi]	LC	z-Top[ksi]	LC	z-Bot[ksi]	LC
190			min	-5.194	4	-.06	3	.021	3	0	1	0	1	0	1	0	1
191	M20	1	max	5.14	4	.06	3	.063	2	0	1	0	1	0	1	0	1
192			min	-5.14	1	.013	5	.021	6	0	1	0	1	0	1	0	1
193		2	max	5.154	4	.03	3	.032	2	.122	3	.155	2	.502	3	-.521	5
194			min	-5.154	1	.006	5	.01	6	-.155	2	-.122	3	.469	5	-.557	3
195		3	max	5.167	4	0	1	0	1	.163	3	.206	2	.669	3	-.694	5
196			min	-5.167	1	0	1	0	1	-.206	2	-.163	3	.625	5	-.743	3
197		4	max	5.181	4	-.006	2	-.01	3	.122	3	.155	2	.502	3	-.521	5
198			min	-5.181	1	-.03	6	-.032	4	-.155	2	-.122	3	.469	5	-.557	3
199		5	max	5.194	4	-.013	2	-.021	3	0	1	0	1	0	1	0	1
200			min	-5.194	1	-.06	6	-.063	4	0	1	0	1	0	1	0	1
201	M21	1	max	-1.052	3	.06	3	.063	4	0	1	0	1	0	1	0	1
202			min	-5.14	1	.013	2	-.063	1	0	1	0	1	0	1	0	1
203		2	max	-1.056	3	.03	3	.032	4	.248	3	.155	5	.502	6	.347	2
204			min	-5.154	1	.006	2	-.032	1	-.155	5	-.248	3	-.312	2	-.557	6
205		3	max	-1.061	3	0	1	0	1	.331	3	.206	5	.669	6	.463	2
206			min	-5.167	1	0	1	0	1	-.206	5	-.331	3	-.416	2	-.743	6
207		4	max	-1.065	3	-.006	5	.032	2	.248	3	.155	5	.502	6	.347	2
208			min	-5.181	1	-.03	6	-.032	5	-.155	5	-.248	3	-.312	2	-.557	6
209		5	max	-1.07	3	-.013	5	.063	2	0	1	0	1	0	1	0	1
210			min	-5.194	1	-.06	6	-.063	5	0	1	0	1	0	1	0	1

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N1	max	0	4	25.961	3	0	1	0	1	0	2	2.829	2
2		min	-.732	2	7.301	2	-.732	5	-2.829	5	0	3	0	4
3	N26	max	6.213	4	.046	3	6.21	1	0	1	0	1	0	1
4		min	-6.278	1	.007	5	-6.275	4	0	1	0	1	0	1
5	N27	max	-1.275	6	.046	3	-1.275	3	0	1	0	1	0	1
6		min	-6.278	1	.012	5	-6.278	4	0	1	0	1	0	1
7	N25	max	6.21	4	.046	6	6.213	1	0	1	0	1	0	1
8		min	-6.275	1	.007	2	-6.278	4	0	1	0	1	0	1
9	N24	max	-1.275	6	.042	6	-1.275	3	0	1	0	1	0	1
10		min	-6.275	1	.007	2	-6.275	4	0	1	0	1	0	1
11	N21	max	4.152	1	.045	3	4.151	4	0	1	0	1	0	1
12		min	-4.218	4	.007	5	-4.217	1	0	1	0	1	0	1
13	N20	max	4.217	4	.045	3	4.217	1	0	1	0	1	0	1
14		min	.833	3	.011	5	.833	6	0	1	0	1	0	1
15	N22	max	4.151	1	.045	6	4.152	4	0	1	0	1	0	1
16		min	-4.217	4	.007	2	-4.218	1	0	1	0	1	0	1
17	N23	max	4.218	4	.043	3	4.218	1	0	1	0	1	0	1
18		min	.833	3	.007	5	.833	6	0	1	0	1	0	1
19	N19	max	-.087	6	.044	3	-.087	3	0	1	0	1	0	1
20		min	-.456	1	.009	5	-.456	4	0	1	0	1	0	1
21	N18	max	.391	4	.044	3	.391	1	0	1	0	1	0	1
22		min	-.456	1	.009	5	-.456	4	0	1	0	1	0	1
23	N17	max	.391	4	.044	6	.391	1	0	1	0	1	0	1
24		min	-.456	1	.009	2	-.456	4	0	1	0	1	0	1
25	N16	max	-.087	6	.044	6	-.087	3	0	1	0	1	0	1
26		min	-.456	1	.009	2	-.456	4	0	1	0	1	0	1

Envelope Joint Reactions (Continued)

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
27	N14	max	.626	5	.044	3	.626	2	0	1	0	1	0	1
28		min	-.691	2	.009	5	-.691	5	0	1	0	1	0	1
29	N15	max	-.137	6	.044	6	-.137	3	0	1	0	1	0	1
30		min	-.691	2	.009	2	-.691	5	0	1	0	1	0	1
31	N12	max	-.137	6	.044	3	-.137	3	0	1	0	1	0	1
32		min	-.691	2	.009	2	-.691	5	0	1	0	1	0	1
33	N13	max	.626	5	.044	6	.626	2	0	1	0	1	0	1
34		min	-.691	2	.009	2	-.691	5	0	1	0	1	0	1
35	N10	max	.773	4	.122	3	.773	1	0	1	0	1	0	1
36		min	-.953	1	.025	5	-.953	4	0	1	0	1	0	1
37	N11	max	-.174	6	.122	3	-.174	3	0	1	0	1	0	1
38		min	-.953	1	.025	5	-.953	4	0	1	0	1	0	1
39	N8	max	-.174	6	.122	3	-.174	3	0	1	0	1	0	1
40		min	-.953	1	.025	2	-.953	4	0	1	0	1	0	1
41	N9	max	.773	4	.122	6	.773	1	0	1	0	1	0	1
42		min	-.953	1	.025	2	-.953	4	0	1	0	1	0	1
43	Totals:	max	0	4	27.153	3	0	3						
44		min	-17.63	1	7.549	2	-17.63	4						

Envelope Joint Displacements

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotatio...	LC	Y Rotatio...	LC	Z Rotation...	LC
1	N1	max	0	2	0	2	0	5	0	5	0	3	0	4
2		min	0	4	0	3	0	1	0	1	0	2	0	2
3	N2	max	.004	1	-.005	2	.004	4	3.633e-4	4	0	3	0	6
4		min	0	6	-.019	3	0	3	0	3	0	2	-3.633e-4	1
5	N3	max	.001	2	-.01	2	.001	5	0	3	0	3	4.464e-4	1
6		min	0	6	-.036	3	0	3	-4.464e-4	4	0	2	0	6
7	N4	max	0	1	-.011	2	0	4	2.603e-4	4	0	3	0	5
8		min	0	4	-.04	3	0	1	0	2	0	2	-2.603e-4	1
9	N5	max	0	5	-.012	2	0	2	0	3	0	3	7.823e-4	1
10		min	-.007	1	-.043	3	-.007	4	-7.823e-4	4	0	2	0	6
11	N6	max	.011	1	-.013	2	.011	4	3.509e-3	4	0	3	0	5
12		min	0	5	-.045	3	0	2	0	2	0	2	-3.509e-3	1
13	N7	max	2.732	1	-.013	2	2.732	4	1.597e-2	4	0	3	0	5
14		min	0	5	-.047	3	0	2	0	2	0	2	-1.597e-2	1
15	N8	max	0	1	0	2	0	4	1.516e-3	5	4.308e-3	5	4.047e-3	3
16		min	0	6	0	3	0	3	-4.123e-3	3	-5.665e-3	1	-1.153e-3	5
17	N9	max	0	1	0	2	0	4	2.783e-3	3	4.308e-3	2	2.707e-3	3
18		min	0	4	0	6	0	1	-1.153e-3	5	-1.194e-3	3	-1.516e-3	2
19	N10	max	0	1	0	5	0	4	-2.595e-3	2	-4.379e-3	3	-2.958e-3	2
20		min	0	4	0	3	0	1	-4.047e-3	3	-5.665e-3	1	-4.123e-3	3
21	N11	max	0	1	0	5	0	4	4.123e-3	6	4.308e-3	2	1.153e-3	2
22		min	0	6	0	3	0	3	-1.516e-3	2	-5.665e-3	4	-4.047e-3	6
23	N12	max	0	2	0	2	0	5	-7.494e-5	2	2.23e-4	5	8.333e-4	3
24		min	0	6	0	3	0	3	-7.695e-4	6	-2.876e-4	1	-1.206e-4	5
25	N13	max	0	2	0	2	0	5	6.775e-4	3	2.23e-4	5	7.695e-4	3
26		min	0	5	0	6	0	2	-1.206e-4	2	-5.27e-5	3	3.257e-4	2
27	N14	max	0	2	0	5	0	5	-5.212e-4	2	-2.123e-4	3	-7.494e-5	2
28		min	0	5	0	3	0	2	-8.333e-4	3	-2.876e-4	1	-7.412e-4	3
29	N15	max	0	2	0	2	0	5	7.695e-4	3	2.23e-4	2	1.206e-4	2

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotatio...	LC	Y Rotatio...	LC	Z Rotation...	LC
30		min	0	6	0	6	0	3	7.494e-5	5	-2.876e-4	4	-8.333e-4	6
31	N16	max	0	1	0	2	0	4	9.003e-6	5	2.163e-4	5	8.246e-4	3
32		min	0	6	0	6	0	3	-8.779e-4	3	-2.809e-4	1	1.865e-4	2
33	N17	max	0	1	0	2	0	4	8.141e-4	3	2.163e-4	2	7.608e-4	3
34		min	0	4	0	6	0	1	2.511e-4	2	-5.414e-5	3	-9.003e-6	2
35	N18	max	0	1	0	5	0	4	-1.865e-4	2	-2.109e-4	3	-4.466e-4	2
36		min	0	4	0	3	0	1	-8.246e-4	3	-2.809e-4	1	-8.779e-4	3
37	N19	max	0	1	0	5	0	4	8.779e-4	6	2.163e-4	2	-1.865e-4	5
38		min	0	6	0	3	0	3	-9.003e-6	2	-2.809e-4	4	-8.246e-4	6
39	N20	max	0	3	0	5	0	6	5.572e-5	2	8.431e-5	5	9.925e-4	3
40		min	0	4	0	3	0	1	-9.288e-4	6	-1.839e-4	3	-2.513e-4	5
41	N21	max	0	4	0	5	0	1	7.689e-4	6	8.431e-5	2	9.288e-4	3
42		min	0	1	0	3	0	4	-2.513e-4	2	-8.114e-5	6	5.3e-4	2
43	N22	max	0	4	0	2	0	1	-7.255e-4	2	-1.396e-4	5	5.572e-5	2
44		min	0	1	0	6	0	4	-9.925e-4	3	-1.839e-4	3	-8.327e-4	6
45	N23	max	0	3	0	5	0	6	9.288e-4	3	8.431e-5	2	2.513e-4	2
46		min	0	4	0	3	0	1	-5.572e-5	5	-1.839e-4	6	-9.925e-4	6
47	N24	max	0	1	0	2	0	4	1.606e-3	5	3.831e-4	5	1.981e-3	4
48		min	0	6	0	6	0	3	-2.177e-3	1	-4.478e-4	1	-1.411e-3	2
49	N25	max	0	1	0	2	0	4	1.981e-3	1	3.831e-4	5	5.108e-4	3
50		min	0	4	0	6	0	1	1.228e-3	3	-2.005e-5	3	-1.606e-3	2
51	N26	max	0	1	0	5	0	4	1.411e-3	2	-2.45e-4	6	-1.292e-3	6
52		min	0	4	0	3	0	1	-5.746e-4	6	-4.478e-4	1	-2.177e-3	1
53	N27	max	0	1	0	5	0	4	2.177e-3	4	3.831e-4	2	1.411e-3	5
54		min	0	6	0	3	0	3	-1.606e-3	2	-4.478e-4	4	-1.981e-3	1

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

	Member	Shape	Code Check	Loc...	LC	Sh...	Loc[ft]	Dir	LC	phi*Pn...	phi*...	phi*...	phi*...	...	Eqn
1	M1	PIPE_12.0	.685	0	3	.094	85.583		1	38.002	616.5	201...	201...	...	H1...
2	M2	L3.5x3.5x4	.239	4.981	1	.007	0	z	2	13.258	55.08	2.416	3.9	...	H2-1
3	M3	L3.5x3.5x4	.223	5.082	2	.007	0	z	1	13.258	55.08	2.416	3.9	...	H2-1
4	M4	L3.5x3.5x4	.239	4.981	4	.007	0	z	1	13.258	55.08	2.416	3.9	...	H2-1
5	M5	L3.5x3.5x4	.176	4.879	4	.007	0	z	1	13.258	55.08	2.416	3.9	...	H2-1
6	M6	L3.5x3.5x4	.039	1.805	1	.003	0	z	2	43.819	55.08	2.416	5.012	...	H2-1
7	M7	L3.5x3.5x4	.037	1.841	2	.003	3.536	z	4	43.819	55.08	2.416	5.012	...	H2-1
8	M8	L3.5x3.5x4	.039	1.805	4	.003	3.536	z	4	43.819	55.08	2.416	5.012	...	H2-1
9	M9	L3.5x3.5x4	.035	1.805	4	.003	0	z	5	43.819	55.08	2.416	5.012	...	H2-1
10	M10	L3.5x3.5x4	.032	1.805	1	.003	3.536	z	2	43.819	55.08	2.416	5.012	...	H2-1
11	M11	L3.5x3.5x4	.029	1.841	2	.003	3.536	z	2	43.819	55.08	2.416	5.012	...	H2-1
12	M12	L3.5x3.5x4	.032	1.805	4	.003	3.536	z	4	43.819	55.08	2.416	5.012	...	H2-1
13	M13	L3.5x3.5x4	.029	1.805	4	.003	3.536	z	5	43.819	55.08	2.416	5.012	...	H2-1
14	M14	L3.5x3.5x4	.128	1.731	1	.003	3.536	z	5	43.819	55.08	2.416	5.012	...	H2-1
15	M15	L3.5x3.5x4	.152	1.694	5	.003	3.536	z	2	43.819	55.08	2.416	5.012	...	H2-1
16	M16	L3.5x3.5x4	.155	1.731	1	.003	3.536	z	1	43.819	55.08	2.416	5.012	...	H2-1
17	M17	L3.5x3.5x4	.155	1.731	4	.003	3.536	z	2	43.819	55.08	2.416	5.012	...	H2-1
18	M18	L3.5x3.5x4	.220	1.805	1	.003	0	z	4	43.819	55.08	2.416	5.012	...	H2-1
19	M19	L3.5x3.5x4	.217	1.841	2	.003	0	z	1	43.819	55.08	2.416	5.012	...	H2-1
20	M20	L3.5x3.5x4	.220	1.805	4	.003	0	z	2	43.819	55.08	2.416	5.012	...	H2-1
21	M21	L3.5x3.5x4	.179	1.805	4	.003	0	z	1	43.819	55.08	2.416	5.012	...	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	-.732	9.734	0	0	0	2.829
2	1	N26	-6.278	.016	6.21	0	0	0
3	1	N27	-6.278	.016	-6.21	0	0	0
4	1	N25	-6.275	.009	6.213	0	0	0
5	1	N24	-6.275	.009	-6.213	0	0	0
6	1	N21	4.152	.015	-4.217	0	0	0
7	1	N20	4.152	.015	4.217	0	0	0
8	1	N22	4.151	.01	-4.218	0	0	0
9	1	N23	4.151	.01	4.218	0	0	0
10	1	N19	-.456	.012	-.391	0	0	0
11	1	N18	-.456	.012	.391	0	0	0
12	1	N17	-.456	.012	.391	0	0	0
13	1	N16	-.456	.012	-.391	0	0	0
14	1	N14	-.691	.013	.626	0	0	0
15	1	N15	-.691	.013	-.626	0	0	0
16	1	N12	-.691	.012	-.626	0	0	0
17	1	N13	-.691	.012	.626	0	0	0
18	1	N10	-.953	.034	.773	0	0	0
19	1	N11	-.953	.034	-.773	0	0	0
20	1	N8	-.953	.034	-.773	0	0	0
21	1	N9	-.953	.034	.773	0	0	0
22	1	Totals:	-17.63	10.066	0			
23	1	COG (ft):	X: 0	Y: 60.797	Z: 0			

Joint Reactions

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	2	N1	-.732	7.301	0	0	0	2.829
2	2	N26	-6.271	.012	6.204	0	0	0
3	2	N27	-6.271	.012	-6.204	0	0	0
4	2	N25	-6.269	.007	6.206	0	0	0
5	2	N24	-6.269	.007	-6.206	0	0	0
6	2	N21	4.146	.011	-4.21	0	0	0
7	2	N20	4.146	.011	4.21	0	0	0
8	2	N22	4.145	.007	-4.211	0	0	0
9	2	N23	4.145	.007	4.211	0	0	0
10	2	N19	-.456	.009	-.391	0	0	0
11	2	N18	-.456	.009	.391	0	0	0
12	2	N17	-.456	.009	.391	0	0	0
13	2	N16	-.456	.009	-.391	0	0	0
14	2	N14	-.691	.009	.626	0	0	0
15	2	N15	-.691	.009	-.626	0	0	0
16	2	N12	-.691	.009	-.626	0	0	0
17	2	N13	-.691	.009	.626	0	0	0
18	2	N10	-.953	.025	.773	0	0	0
19	2	N11	-.953	.025	-.773	0	0	0
20	2	N8	-.953	.025	-.773	0	0	0
21	2	N9	-.953	.025	.773	0	0	0
22	2	Totals:	-17.63	7.549	0			
23	2	COG (ft):	X: 0	Y: 60.797	Z: 0			

Joint Reactions

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	3	N1	-.139	25.961	0	0	0	.528
2	3	N26	-1.296	.046	1.275	0	0	0
3	3	N27	-1.296	.046	-1.275	0	0	0
4	3	N25	-1.296	.042	1.275	0	0	0
5	3	N24	-1.296	.042	-1.275	0	0	0
6	3	N21	.833	.045	-.855	0	0	0
7	3	N20	.833	.045	.855	0	0	0
8	3	N22	.833	.043	-.855	0	0	0
9	3	N23	.833	.043	.855	0	0	0
10	3	N19	-.108	.044	-.087	0	0	0
11	3	N18	-.108	.044	.087	0	0	0
12	3	N17	-.108	.044	.087	0	0	0
13	3	N16	-.108	.044	-.087	0	0	0
14	3	N14	-.158	.044	.137	0	0	0
15	3	N15	-.158	.044	-.137	0	0	0
16	3	N12	-.158	.044	-.137	0	0	0
17	3	N13	-.158	.044	.137	0	0	0
18	3	N10	-.233	.122	.174	0	0	0
19	3	N11	-.233	.122	-.174	0	0	0
20	3	N8	-.233	.122	-.174	0	0	0
21	3	N9	-.233	.122	.174	0	0	0
22	3	Totals:	-3.986	27.153	0			
23	3	COG (ft):	X: 0	Y: 59.667	Z: 0			

Joint Reactions

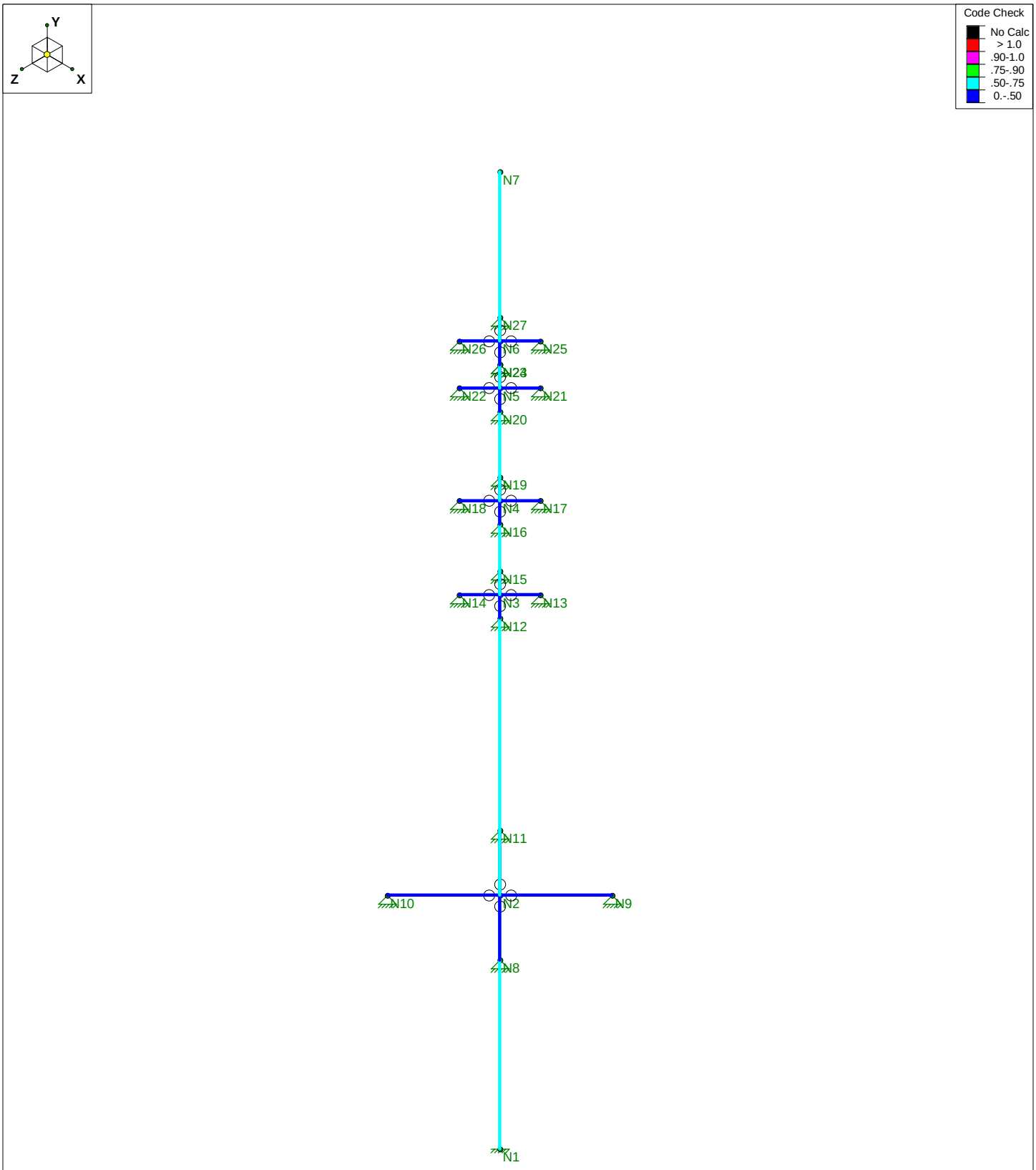
	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	4	N1	0	9.734	-.732	-2.829	0	0
2	4	N26	6.213	.009	-6.275	0	0	0
3	4	N27	-6.21	.016	-6.278	0	0	0
4	4	N25	6.21	.016	-6.278	0	0	0
5	4	N24	-6.213	.009	-6.275	0	0	0
6	4	N21	-4.218	.01	4.151	0	0	0
7	4	N20	4.217	.015	4.152	0	0	0
8	4	N22	-4.217	.015	4.152	0	0	0
9	4	N23	4.218	.01	4.151	0	0	0
10	4	N19	-.391	.012	-.456	0	0	0
11	4	N18	.391	.012	-.456	0	0	0
12	4	N17	.391	.012	-.456	0	0	0
13	4	N16	-.391	.012	-.456	0	0	0
14	4	N14	.626	.012	-.691	0	0	0
15	4	N15	-.626	.013	-.691	0	0	0
16	4	N12	-.626	.012	-.691	0	0	0
17	4	N13	.626	.013	-.691	0	0	0
18	4	N10	.773	.034	-.953	0	0	0
19	4	N11	-.773	.034	-.953	0	0	0
20	4	N8	-.773	.034	-.953	0	0	0
21	4	N9	.773	.034	-.953	0	0	0
22	4	Totals:	0	10.066	-17.63			
23	4	COG (ft):	X: 0	Y: 60.797	Z: 0			

Joint Reactions

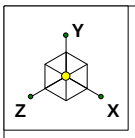
	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	5	N1	0	7.301	-.732	-2.829	0	0
2	5	N26	6.206	.007	-6.269	0	0	0
3	5	N27	-6.204	.012	-6.271	0	0	0
4	5	N25	6.204	.012	-6.271	0	0	0
5	5	N24	-6.206	.007	-6.269	0	0	0
6	5	N21	-4.211	.007	4.145	0	0	0
7	5	N20	4.21	.011	4.146	0	0	0
8	5	N22	-4.21	.011	4.146	0	0	0
9	5	N23	4.211	.007	4.145	0	0	0
10	5	N19	-.391	.009	-.456	0	0	0
11	5	N18	.391	.009	-.456	0	0	0
12	5	N17	.391	.009	-.456	0	0	0
13	5	N16	-.391	.009	-.456	0	0	0
14	5	N14	.626	.009	-.691	0	0	0
15	5	N15	-.626	.009	-.691	0	0	0
16	5	N12	-.626	.009	-.691	0	0	0
17	5	N13	.626	.009	-.691	0	0	0
18	5	N10	.773	.025	-.953	0	0	0
19	5	N11	-.773	.025	-.953	0	0	0
20	5	N8	-.773	.025	-.953	0	0	0
21	5	N9	.773	.025	-.953	0	0	0
22	5	Totals:	0	7.549	-17.63			
23	5	COG (ft):	X: 0	Y: 60.797	Z: 0			

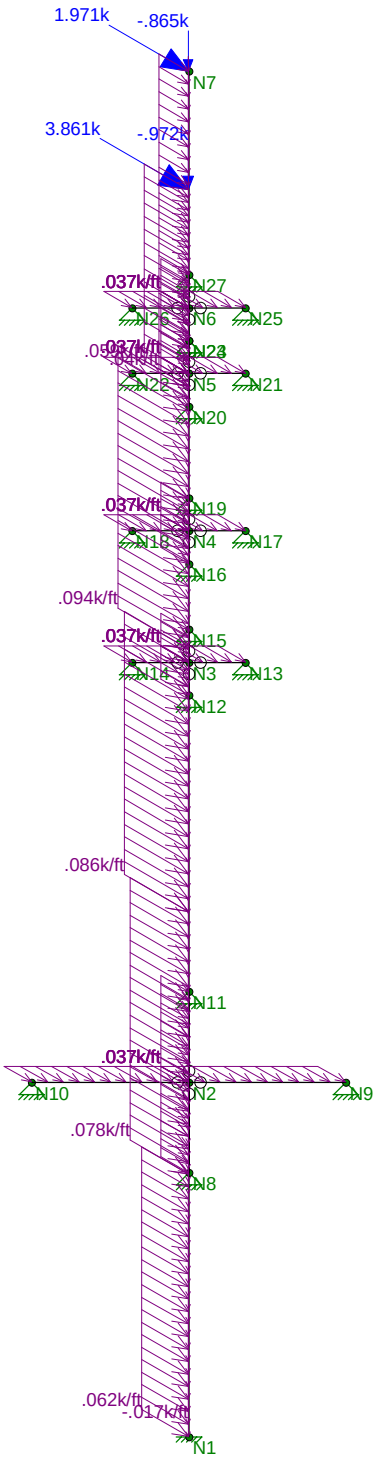
Joint Reactions

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	6	N1	0	25.961	-.139	-.528	0	0
2	6	N26	1.275	.042	-1.296	0	0	0
3	6	N27	-1.275	.046	-1.296	0	0	0
4	6	N25	1.275	.046	-1.296	0	0	0
5	6	N24	-1.275	.042	-1.296	0	0	0
6	6	N21	-.855	.043	.833	0	0	0
7	6	N20	.855	.045	.833	0	0	0
8	6	N22	-.855	.045	.833	0	0	0
9	6	N23	.855	.043	.833	0	0	0
10	6	N19	-.087	.044	-.108	0	0	0
11	6	N18	.087	.044	-.108	0	0	0
12	6	N17	.087	.044	-.108	0	0	0
13	6	N16	-.087	.044	-.108	0	0	0
14	6	N14	.137	.044	-.158	0	0	0
15	6	N15	-.137	.044	-.158	0	0	0
16	6	N12	-.137	.044	-.158	0	0	0
17	6	N13	.137	.044	-.158	0	0	0
18	6	N10	.174	.122	-.233	0	0	0
19	6	N11	-.174	.122	-.233	0	0	0
20	6	N8	-.174	.122	-.233	0	0	0
21	6	N9	.174	.122	-.233	0	0	0
22	6	Totals:	0	27.153	-3.986			
23	6	COG (ft):	X: 0	Y: 59.667	Z: 0			



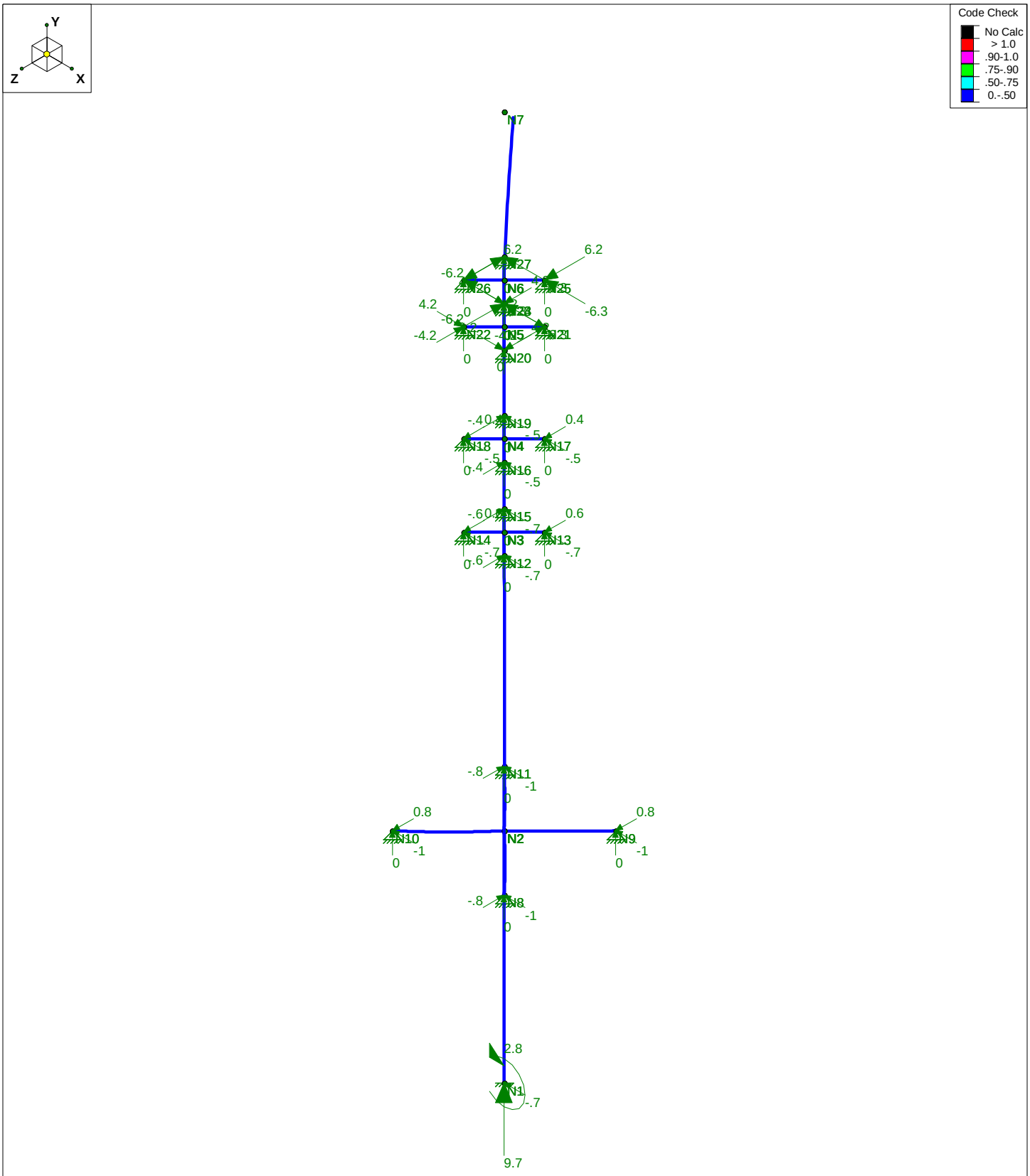
CENTEK Engineering, INC.		
TJL, CFC	Tower # 876 - Mast	Feb 14, 2017 at 9:55 AM
16162.09 - CT11317B	Unity Check	TIA-222-G - Mast.r3d



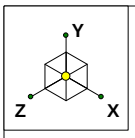


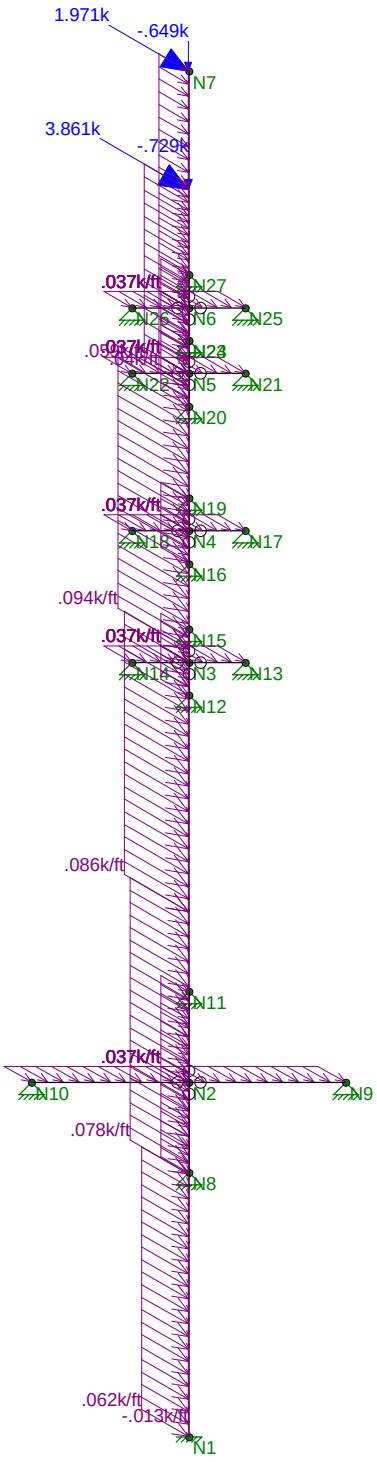
Loads: LC 1, 1.2D + 1.6W (X-direction)

CENTEK Engineering, INC.		
TJL, CFC	Tower # 876 - Mast	Feb 14, 2017 at 9:53 AM
16162.09 - CT11317B	LC #1 Loads	TIA-222-G - Mast.r3d



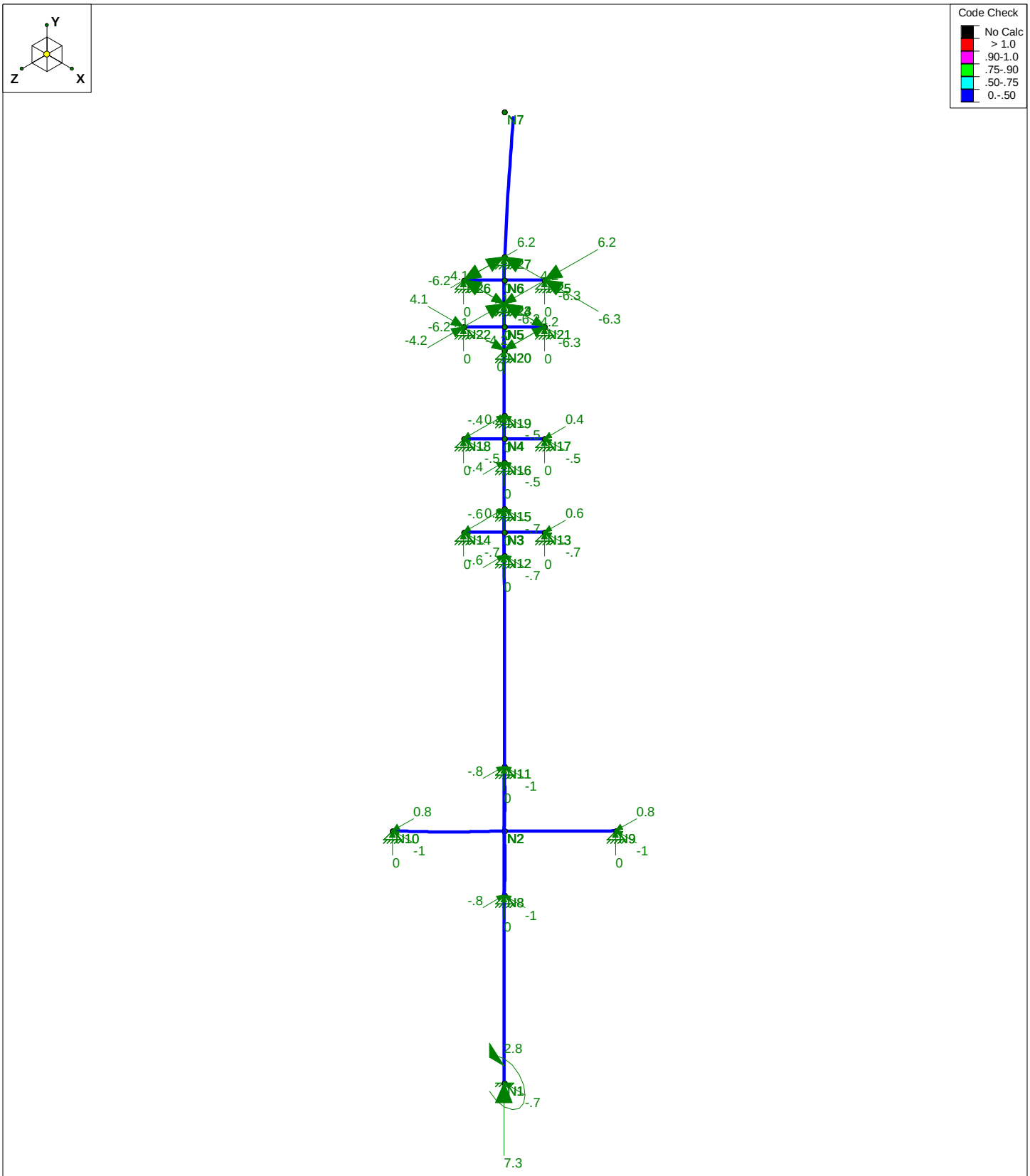
CENTEK Engineering, INC.		
TJL, CFC	Tower # 876 - Mast	Feb 14, 2017 at 9:55 AM
16162.09 - CT11317B	LC #1 Reactions and Deflected Shape	TIA-222-G - Mast.r3d



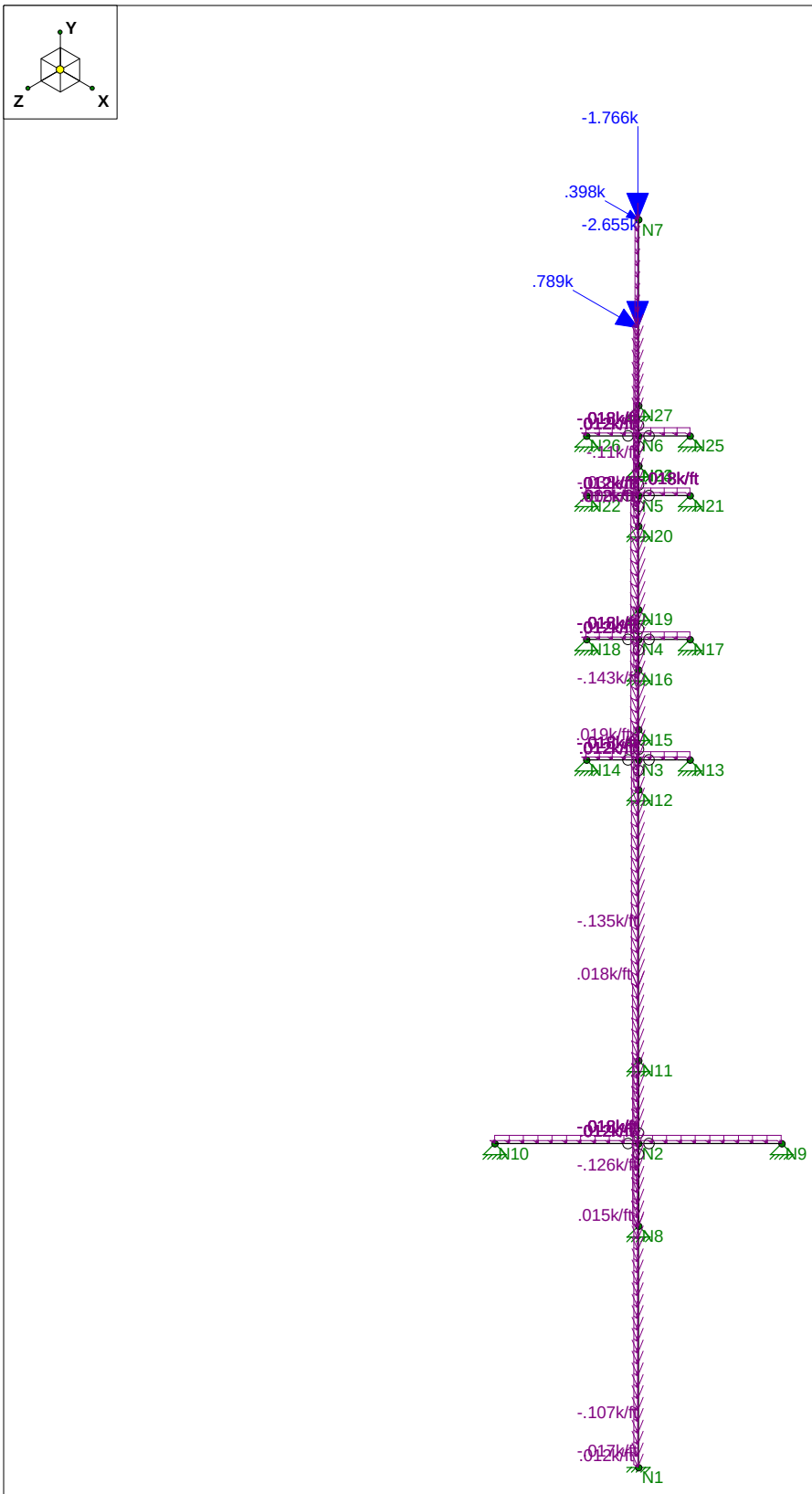


Loads: LC 2, 0.9D + 1.6W (X-direction)

CENTEK Engineering, INC.		
TJL, CFC	Tower # 876 - Mast	Feb 14, 2017 at 9:53 AM
16162.09 - CT11317B	LC #2 Loads	TIA-222-G - Mast.r3d

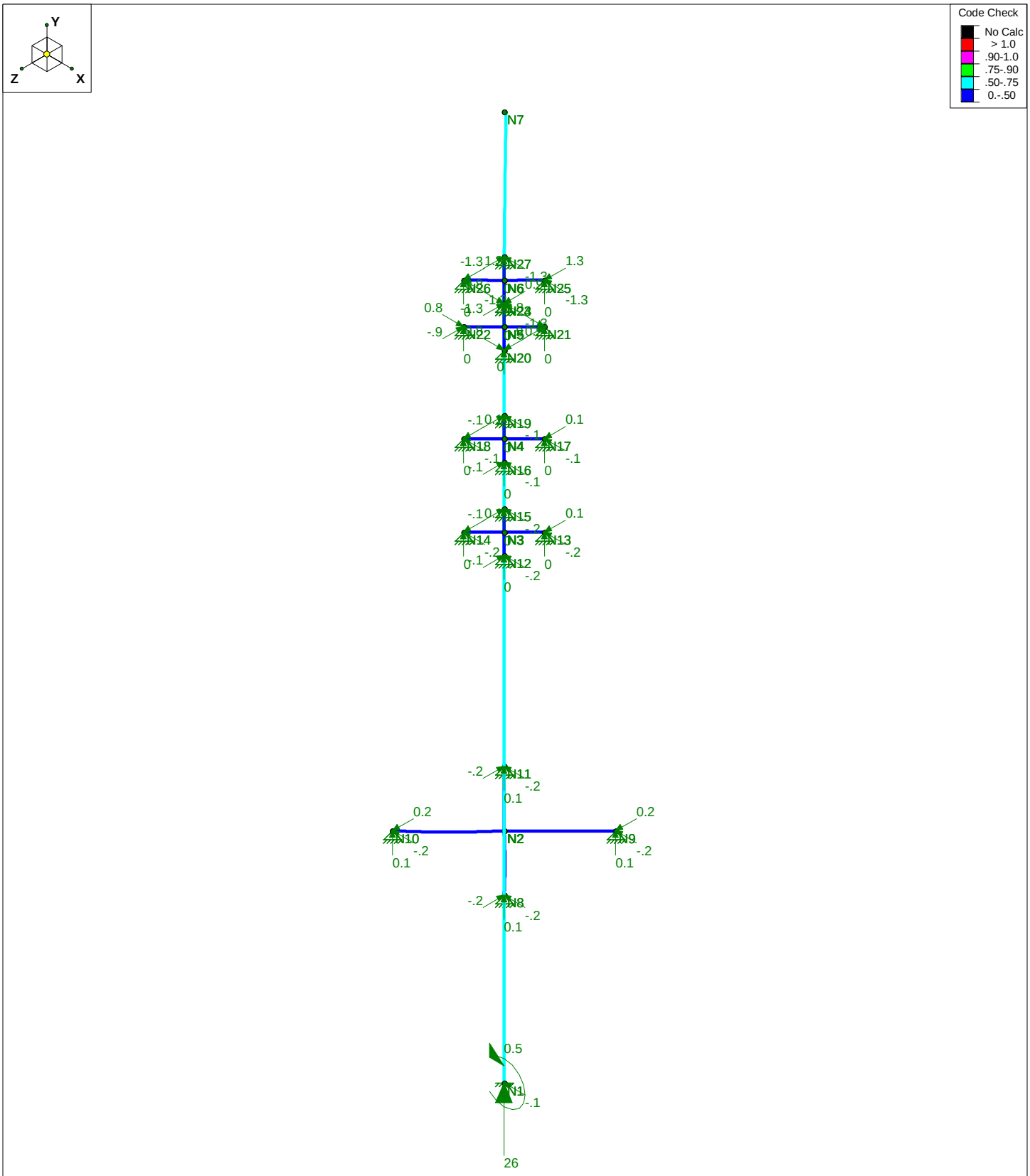


CENTEK Engineering, INC.		
TJL, CFC	Tower # 876 - Mast	Feb 14, 2017 at 9:56 AM
16162.09 - CT11317B	LC #2 Reactions and Deflected Shape	TIA-222-G - Mast.r3d

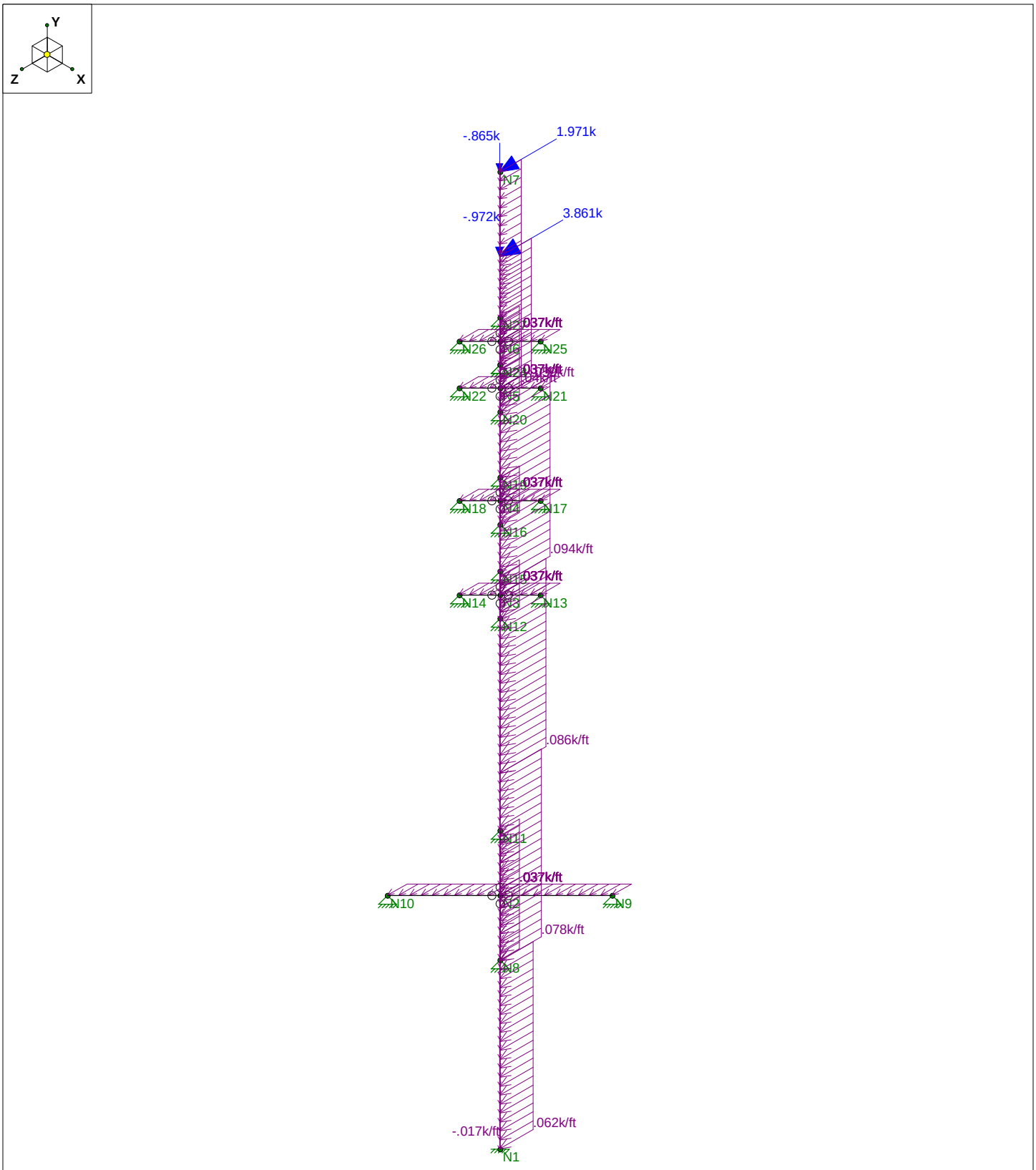


Loads: LC 3, 1.2D + 1.0Di + 1.0Wi (X-direction)

CENTEK Engineering, INC.		
TJL, CFC	Tower # 876 - Mast	Feb 14, 2017 at 9:53 AM
16162.09 - CT11317B	LC #3 Loads	TIA-222-G - Mast.r3d

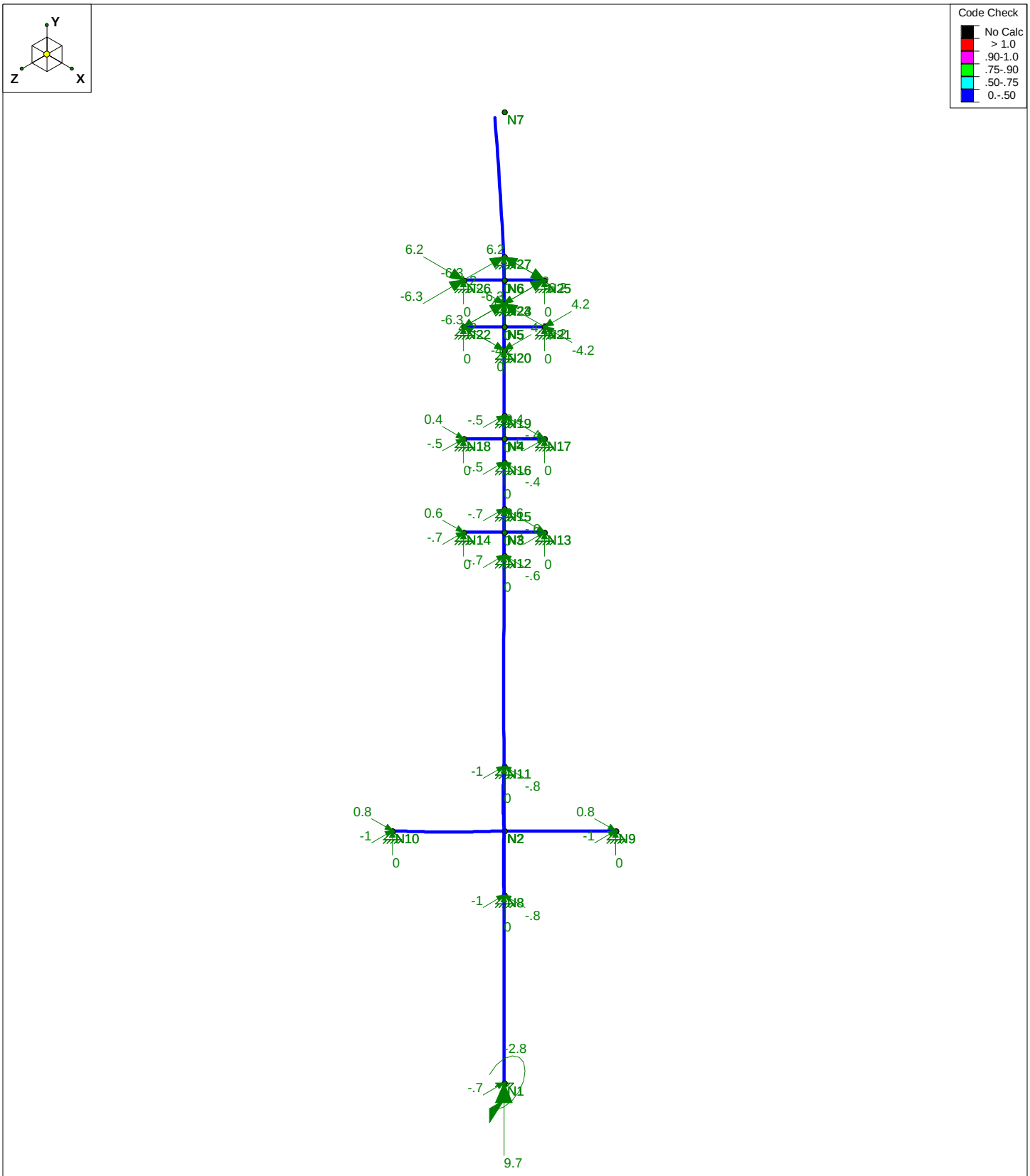


CENTEK Engineering, INC.		
TJL, CFC	Tower # 876 - Mast	Feb 14, 2017 at 9:56 AM
16162.09 - CT11317B	LC #3 Reactions and Deflected Shape	TIA-222-G - Mast.r3d

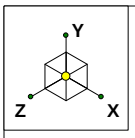


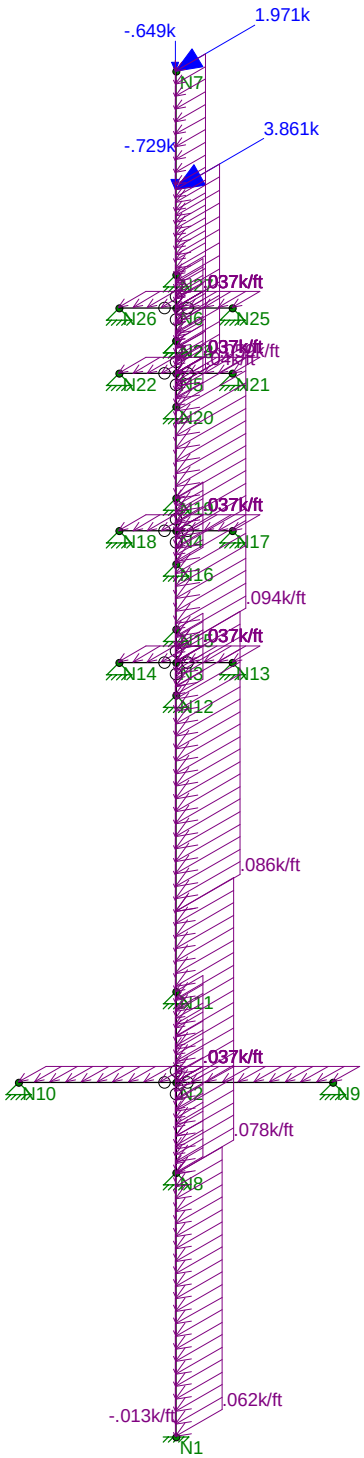
Loads: LC 4, 1.2D + 1.6W (Z-direction)

CENTEK Engineering, INC.		
TJL, CFC	Tower # 876 - Mast	Feb 14, 2017 at 9:53 AM
16162.09 - CT11317B	LC #4 Loads	TIA-222-G - Mast.r3d



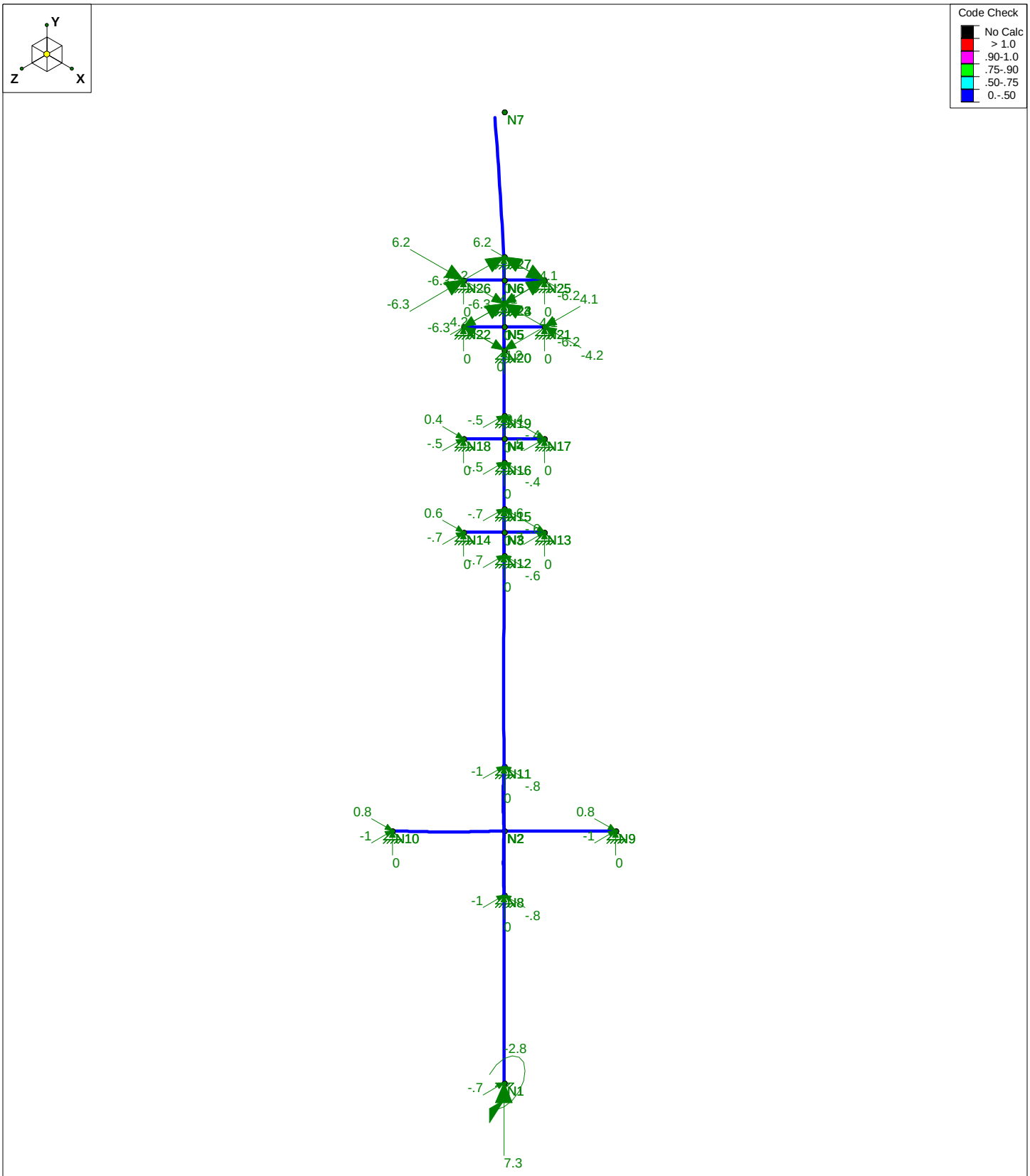
CENTEK Engineering, INC.		
TJL, CFC	Tower # 876 - Mast	Feb 14, 2017 at 9:57 AM
16162.09 - CT11317B	LC #4 Reactions and Deflected Shape	TIA-222-G - Mast.r3d



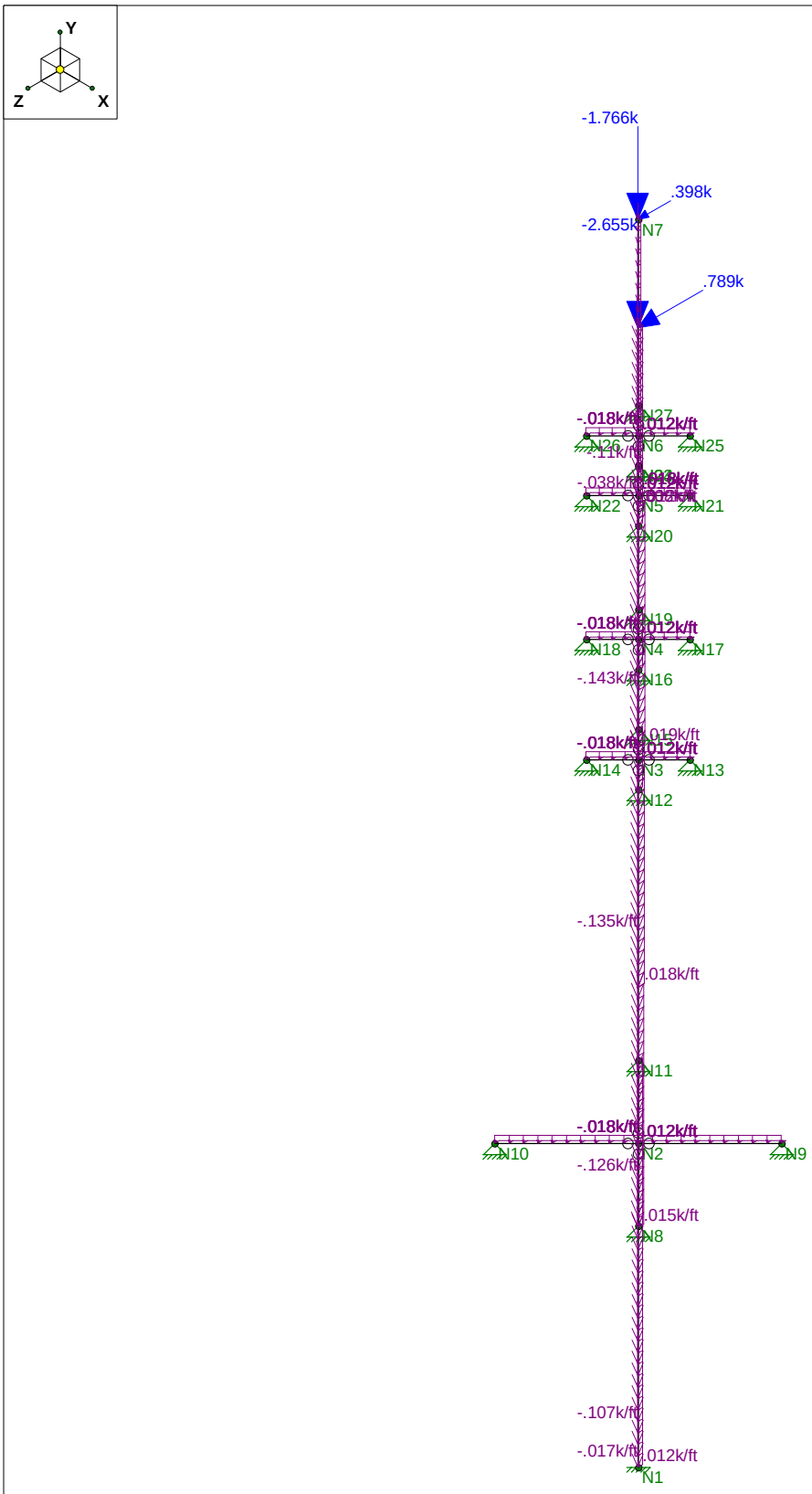


Loads: LC 5, 0.9D + 1.6W (Z-direction)

CENTEK Engineering, INC.		
TJL, CFC	Tower # 876 - Mast	Feb 14, 2017 at 9:53 AM
16162.09 - CT11317B	LC #5 Loads	TIA-222-G - Mast.r3d

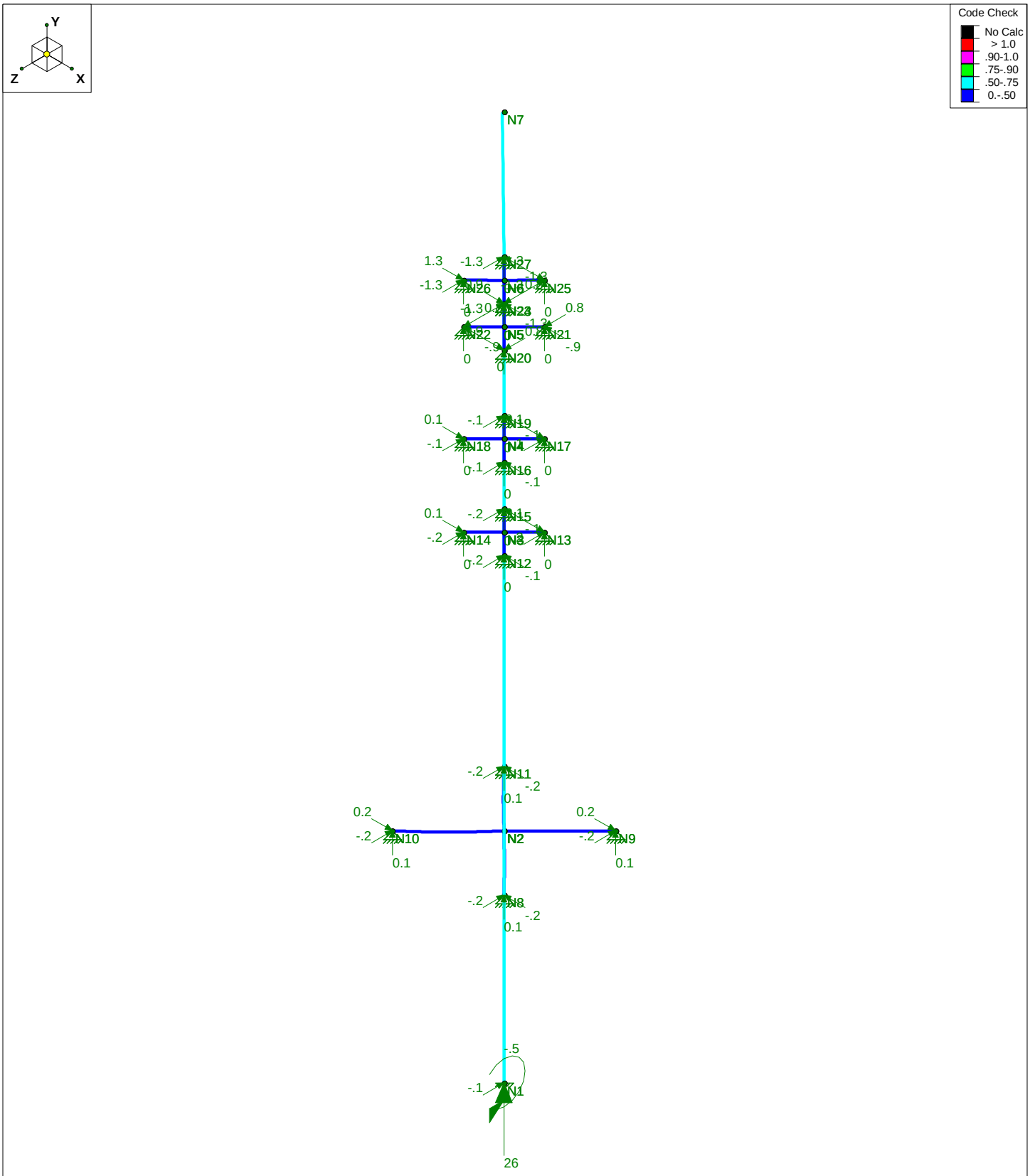


CENTEK Engineering, INC.		
TJL, CFC	Tower # 876 - Mast	Feb 14, 2017 at 9:57 AM
16162.09 - CT11317B	LC #5 Reactions and Deflected Shape	TIA-222-G - Mast.r3d



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

CENTEK Engineering, INC.		
TJL, CFC	Tower # 876 - Mast	Feb 14, 2017 at 9:54 AM
16162.09 - CT11317B	LC #6 Loads	TIA-222-G - Mast.r3d



CENTEK Engineering, INC.		
TJL, CFC	Tower # 876 - Mast	Feb 14, 2017 at 9:58 AM
16162.09 - CT11317B	LC #6 Reactions and Deflected Shape	TIA-222-G - Mast.r3d

CENTEK engineering
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63-2 North Branford Road
Branford, CT 06405
www.centekeng.com
P: (203) 488-0580
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Subject: Connection of Mast to Tower # 876

Location: Fairfield, CT

Prepared by: T.J.L. Checked by: C.F.C.
Job No. 16162.09

Rev. 1: 2/14/17

Connection to CL&P Tower:

Check Pipe Collar Bolts:

Reactions:

Tension = $Tension := 24.9 \cdot k$ (Input From Risa-3D LC #2)

Shear = $Shear := 24.9 \cdot k$ (Input From Risa-3D LC #4)

Bolt Data:

Bolt Type = ASTM A325 (User Input)

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

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

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

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

Shear Force = $f_v := \frac{Shear}{N_b} = 6.2 \cdot kips$

Bolt Shear % of Capacity = $\frac{f_v}{F_v} = 50.2 \cdot \%$

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

$Bolt\_Shear = "OK"$

Tension Force = $f_t := \frac{Tension}{N_b} = 6.2 \cdot kips$

Bolt Tenison % of Capacity = $\frac{f_t}{F_t} = 30.07 \cdot \%$

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

$Bolt\_Tension = "OK"$

Check Pipe Collar:

Plate Data:

Plate Yield Strength = $Fy_{bp} := 36 \cdot ksi$ (User Input)

Plate Thickness = $t_p := 0.75 \cdot in$ (User Input)

Plate Width = $t_w := 5 \cdot in$ (User Input)

Distance From Bolt To Pipe = $d_p := 1.25 \cdot in$ (User Input)

Maximum Moment in Plate = $M := 2 \cdot f_v \cdot d_p = 15.563 \cdot k \cdot in$

Maximum Bending Stress in Plate = $f_{bp} := \frac{4 \cdot M}{\left(t_w \cdot t_p^{\,2}\right)} = 22.1 \cdot ksi$

Allowable Bending Stress in Plate = $F_{bp} := 0.9 \cdot Fy_{bp} = 32.4 \cdot ksi$

Plate Bending Stress % of Capacity = $\frac{f_{bp}}{F_{bp}} = 68.3 \cdot \%$

Plate Bending = $Plate\_Bending := if\left(\frac{f_{bp}}{F_{bp}} < 1.00, "Ok", "Overstressed"\right)$

$Plate\_Bending = "Ok"$

Check Angle Brace Bolts:

Reactions:

Vertical = $Vertical := .02 \cdot kips$ (Input From Risa-3D LC #1)

Horizontal x-dir = $Horizontal_x := 6.28 \cdot kips$ (Input From Risa-3D LC #1)

Horizontal z-dir = $Horizontal_z := 6.22 \cdot kips$ (Input From Risa-3D LC #1)

Bolt Data:

Bolt Type = ASTM A325 (User Input)

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

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

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

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

Shear Force = $f_v := \frac{\sqrt{Horizontal_z^2 + Vertical^2}}{N_b} = 6.2 \cdot kips$

Bolt Shear % of Capacity = $\frac{f_v}{F_v} = 50.16 \cdot \%$

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

$Bolt\_Shear = "OK"$

Tension Force = $f_t := \frac{Horizontal_x}{N_b} = 6.3 \cdot kips$

Bolt Tenison % of Capacity = $\frac{f_t}{F_t} = 30.34 \cdot \%$

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

$Bolt\_Tension = "OK"$

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Subject:	Load Analysis of Equipment on Tower # 876
Location:	Fairfield, CT
Rev. 1: 2/14/17	Prepared by: T.J.L Checked by: C.F.C. Job No. 16162.09

Basic Components

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

Factors for Extreme Wind Calculation

Elevation of Top of Mast Above Grade =	TME := 104	ft	(User Input)
Multiplier Gust Response Factor =	m := 1.25		(User Input - Only for NESC Extreme wind case)
NESC Factor =	kv := 1.43		(User Input from NESC 2007 Table 250-3 equation)
Importance Factor =	I := 1.0		(User Input from NESC 2007 Section 250.C.2)
Velocity Pressure Coefficient =	$Kz := 2.01\cdot\left(\frac{TME}{900}\right)^{\frac{2}{9.5}} = 1.276$		(NESC 2007 Table 250-2)
Exposure Factor =	$Es := 0.346\left[\frac{33}{(0.67\cdot TME)}\right]^{\frac{1}{7}} = 0.311$		(NESC 2007 Table 250-3)
Response Term =	$Bs := \frac{1}{\left(1 + 0.375\cdot\frac{TME}{220}\right)} = 0.849$		(NESC 2007 Table 250-3)
Gust Response Factor =	$Grf := \frac{\left[1 + \left(2.7\cdot Es\cdot Bs^{\frac{1}{2}}\right)\right]}{kv^2} = 0.867$		(NESC 2007 Table 250-3)
Wind Pressure =	$qz := 0.00256\cdot Kz\cdot V^2\cdot Grf\cdot I = 34.3$	psf	(NESC 2007 Section 250.C.2)

Shape Factors

NUS Design Criteria Issued April 12, 2007

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

Overload Factors

NU Design Criteria Table

Overload Factors for Wind Loads:

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

Overload Factors for Vertical Loads:

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

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Development of Wind & Ice Load on Antennas

Antenna Data: (Sprint)

Antenna Model =	RFS APXVSPP18-C		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 72$	in	(User Input)
Antenna Width =	$W_{ant} := 11.8$	in	(User Input)
Antenna Thickness =	$T_{ant} := 7$	in	(User Input)
Antenna Weight =	$WT_{ant} := 57$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 3$		(User Input)

Wind Load (NESC Extreme)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 5.9$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 17.7$	sf
Total Antenna Wind Force =	$F_{ant1} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 1214$	lbs

Wind Load (NESC Heavy)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna w/ Ice =	$SA_{ICEant} := \frac{(L_{ant} + 1) \cdot (W_{ant} + 1)}{144} = 6.5$	sf
Antenna Projected Surface Area w/ Ice =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 19.5$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant1} := p \cdot Cd_F \cdot A_{ICEant} = 125$	lbs

Gravity Load (without ice)

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

Gravity Load (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 5947$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 1)(W_{ant} + 1) \cdot (T_{ant} + 1) - V_{ant} = 1528$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 50$	lbs
Weight of Ice on All Antennas =	$Wt_{ice.ant1} := W_{ICEant} \cdot N_{ant} = 149$	lbs

Development of Wind & Ice Load on Antenna Mounts

Mount Data: (Sprint)

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

Mount Shape = Flat

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

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

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

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

Gravity Loads (without ice)

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

Gravity Load (ice only)

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

Wind Load (NESC Heavy)

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

Wind Load (NESC Extreme)

Total Mount Wind Force = $F_{mnt1} := qz \cdot CdAa \cdot m = 270$ lbs **BLC 5**

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Development of Wind & Ice Load on Antennas

Antenna Data: (T-Mobile)

Antenna Model =	RFS APX16DWV-16DWVS		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 55.9$	in	(User Input)
Antenna Width =	$W_{ant} := 13$	in	(User Input)
Antenna Thickness =	$T_{ant} := 3.15$	in	(User Input)
Antenna Weight =	$WT_{ant} := 40.7$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 3$		(User Input)

Wind Load (NESC Extreme)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 5$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 15.1$	sf
Total Antenna Wind Force =	$F_{ant2} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 1038$	lbs

Wind Load (NESC Heavy)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna w/ Ice =	$SA_{ICEant} := \frac{(L_{ant} + 1) \cdot (W_{ant} + 1)}{144} = 5.5$	sf
Antenna Projected Surface Area w/ Ice =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 16.6$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant2} := p \cdot Cd_F \cdot A_{ICEant} = 106$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$Wt_{ant2} := (WT_{ant} \cdot N_{ant}) = 122.1$	lbs

Gravity Load (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 2289$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 1)(W_{ant} + 1) \cdot (T_{ant} + 1) - V_{ant} = 1017$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 33$	lbs
Weight of Ice on All Antennas =	$Wt_{ice.ant2} := W_{ICEant} \cdot N_{ant} = 99$	lbs

Development of Wind & Ice Load on Antennas

Antenna Data: (T-Mobile)

Antenna Model =	Andrew LNX-6515DS		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 96.6$	in	(User Input)
Antenna Width =	$W_{ant} := 11.9$	in	(User Input)
Antenna Thickness =	$T_{ant} := 7.1$	in	(User Input)
Antenna Weight =	$WT_{ant} := 44$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 3$		(User Input)

Wind Load (NESC Extreme)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 8$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 23.9$	sf
Total Antenna Wind Force =	$F_{ant3} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 1642$	lbs

Wind Load (NESC Heavy)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna w/ Ice =	$SA_{ICEant} := \frac{(L_{ant} + 1) \cdot (W_{ant} + 1)}{144} = 8.7$	sf
Antenna Projected Surface Area w/ Ice =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 26.2$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant3} := p \cdot Cd_F \cdot A_{ICEant} = 168$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$Wt_{ant3} := (WT_{ant} \cdot N_{ant}) = 132$	lbs

Gravity Load (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 8162$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 1)(W_{ant} + 1) \cdot (T_{ant} + 1) - V_{ant} = 2036$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 66$	lbs
Weight of Ice on All Antennas =	$Wt_{ice.ant3} := W_{ICEant} \cdot N_{ant} = 198$	lbs

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Development of Wind & Ice Load on Antennas

Antenna Data: (T-Mobile)

Antenna Model =	Andrew ATSBT-TOP-FM-4G		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 5.63$	in	(User Input)
Antenna Width =	$W_{ant} := 3.7$	in	(User Input)
Antenna Thickness =	$T_{ant} := 2.0$	in	(User Input)
Antenna Weight =	$WT_{ant} := 2$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 3$		(User Input)

Wind Load (NESC Extreme)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 0.1$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 0.4$	sf
Total Antenna Wind Force =	$F_{ant4} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 30$	lbs

Wind Load (NESC Heavy)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna w/ Ice =	$SA_{ICEant} := \frac{(L_{ant} + 1) \cdot (W_{ant} + 1)}{144} = 0.2$	sf
Antenna Projected Surface Area w/ Ice =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 0.6$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant4} := p \cdot Cd_F \cdot A_{ICEant} = 4$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$Wt_{ant4} := (WT_{ant} \cdot N_{ant}) = 6$	lbs

Gravity Load (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 42$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 1)(W_{ant} + 1) \cdot (T_{ant} + 1) - V_{ant} = 52$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 2$	lbs
Weight of Ice on All Antennas =	$Wt_{ice.ant4} := W_{ICEant} \cdot N_{ant} = 5$	lbs

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Development of Wind & Ice Load on Antenna Mounts

Mount Data: (Sprint)

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

Mount Shape = Flat

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

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

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

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

Gravity Loads (without ice)

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

Gravity Load (ice only)

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

Wind Load (NESC Heavy)

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

Wind Load (NESC Extreme)

Total Mount Wind Force = $F_{mnt2} := qz \cdot CdAa \cdot m = 270$ lbs **BLC 5**

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	KMW FX-X-CD-65-12-65-14-00T		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 24$	in	(User Input)
Antenna Width =	$W_{ant} := 11.8$	in	(User Input)
Antenna Thickness =	$T_{ant} := 6.0$	in	(User Input)
Antenna Weight =	$WT_{ant} := 16$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 3$		(User Input)

Wind Load (NESC Extreme)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 2$	sf
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 5.9$	sf
Total Antenna Wind Force =	$F_{ant5} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 405$	lbs

Wind Load (NESC Heavy)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna w/ Ice =	$SA_{ICEant} := \frac{(L_{ant} + 1) \cdot (W_{ant} + 1)}{144} = 2.2$	sf
Antenna Projected Surface Area w/ Ice =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 6.7$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant5} := p \cdot Cd_F \cdot A_{ICEant} = 43$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$Wt_{ant5} := WT_{ant} \cdot N_{ant} = 48$	lbs

Gravity Load (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 1699$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 1)(W_{ant} + 1) \cdot (T_{ant} + 1) - V_{ant} = 541$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 18$	lbs
Weight of Ice on All Antennas =	$Wt_{ice.ant5} := W_{ICEant} \cdot N_{ant} = 53$	lbs

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Development of Wind & Ice Load on Antenna Mounts

Mount Data:

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

Wind Load (NESC Extreme)

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

Total Mount Wind Force = $F_{mnt3} := qz \cdot Cd_R \cdot A_{mnt} \cdot m = 293$ lbs

Wind Load (NESC Heavy)

Mount Projected Surface Area w/ Ice = $A_{ICEmnt} := \frac{(L_{ant} + 1) \cdot (W_{ant} + 1)}{144} \cdot N_{mnt} = 6.667$ sf

Total Mount Wind Force = $Fi_{mnt3} := p \cdot Cd_R \cdot A_{ICEmnt} = 35$ lbs

Gravity Loads (without ice)

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

Weight Each Pipe Mount = $WT_{mnt} := W_{mnt} \cdot \frac{L_{mnt}}{12} = 45$ lbs

Weight of All Mounts = $Wt_{mnt3} := WT_{mnt} \cdot N_{mnt} = 136$ lbs

Gravity Load (ice only)

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

Volume of Each Pipe = $V_{mnt} := \frac{\pi}{4} \cdot D_{mnt}^2 \cdot L_{mnt} = 693$ cu in

Volume of Ice on Each Pipe = $V_{ice} := \left[\frac{\pi}{4} \cdot \left[(D_{mnt} + 1)^2\right] \cdot (L_{mnt} + 1)\right] - V_{mnt} = 468$ cu in

Weight of Ice each mount (incl, hardware) = $W_{ICEmnt} := \frac{V_{ice}}{1728} \cdot Id = 15$ lbs

Weight of Ice on All Mounts = $Wt_{ice.mnt3} := (W_{ICEmnt} \cdot N_{mnt} + 5) = 51$ lbs

Total Equipment Loads:

Sprint @ 104-ft AGL

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

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

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

NESC Extreme Wind Trasnsverse = $\left(F_{ant1} + F_{mnt1}\right) = 1484$

T-Mobile @ 95-ft AGL

NESC Heavy Wind Vertical = $\left(Wt_{ant2} + Wt_{ice.ant2} + Wt_{ant3} + Wt_{ice.ant3} + Wt_{ant4} + Wt_{ice.ant4} + Wt_{mnt2} + Wt_{ice.mnt2}\right)\cdot 1.5 = 1893$

NESC Heavy Wind Trasnsverse = $\left(Fi_{ant2} + Fi_{ant3} + Fi_{ant4} + Fi_{mnt2}\right)\cdot 2.5 = 774$

NESC Extreme Wind Vertical = $\left(Wt_{ant2} + Wt_{ant3} + Wt_{ant4} + Wt_{mnt2}\right) = 810$

NESC Extreme Wind Trasnsverse = $\left(F_{ant2} + F_{ant3} + F_{ant4} + F_{mnt2}\right) = 2980$

AT&T @ 84-ft AGL / Per Leg

NESC Heavy Wind Vertical = $\frac{\left[\left(Wt_{ant5} + Wt_{ice.ant5} + Wt_{mnt3} + Wt_{ice.mnt3}\right)\cdot 1.5\right]}{3} = 144$

NESC Heavy Wind Trasnsverse = $\frac{\left[\left(Fi_{ant5} + Fi_{mnt3}\right)\cdot 2.5\right]}{3} = 64$

NESC Extreme Wind Vertical = $\frac{\left(Wt_{ant5} + Wt_{mnt3}\right)}{3} = 61$

NESC Extreme Wind Trasnsverse = $\frac{\left(F_{ant5} + F_{mnt3}\right)}{3} = 232$

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Subject:	Coax Cable Loads Tower # 876
Location:	Fairfield, CT
Rev. 0: 1/16/17	Prepared by: T.J.L Checked by: C.F.C. Job No. 16162.09

Coax Cable within Powermount (Sprint)

Distance Between Coax Cable Attach Points =

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

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

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

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

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

Extreme Wind Pressure = $qz := 34.4 \cdot psf$ *(User Input)*

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

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

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

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

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

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

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

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

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

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

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

Weight of Ice on All Coax Cables = $W_{ice} := 0$

Heavy Vertical Load =

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

Heavy Transverse Load =

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

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

Extreme Vertical Load =

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

Extreme Transverse Load =

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

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

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Location:	Fairfield, CT
Rev. 0: 1/16/17	Prepared by: T.J.L Checked by: C.F.C. Job No. 16162.09

Coax Cable on CL&P Tower

(Sprint - NE Leg)

Distance Between Coax Cable Attach Points =

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

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

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

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

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

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

Extreme Wind Pressure = $qz := 34.4 \cdot psf$ *(User Input)*

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

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

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

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

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

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

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

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

Wind Area with Ice Transverse = $A_{Tice} := \left(NP_{Tcoax} \cdot D_{coax} + 2 \cdot Ir\right) = 2.98 \cdot in$

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

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

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

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

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

Heavy Vertical Load =

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

Heavy Transverse Load =

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

Heavy Longitudinal Load =

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

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

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

Extreme Vertical Load =

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

Extreme Transverse Load =

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

Extreme Longitudinal Load =

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

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

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

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Location:	Fairfield, CT
Rev. 0: 1/16/17	Prepared by: T.J.L Checked by: C.F.C. Job No. 16162.09

Coax Cable on Powermount

(T-Mobile)

Distance Between Coax Cable Attach Points =

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

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

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

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

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

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

Extreme Wind Pressure = $qz := 34.4 \cdot psf$ *(User Input)*

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Heavy Vertical Load =

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

Heavy Transverse Load =

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

Heavy Longitudinal Load =

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

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

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

Extreme Vertical Load =

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

Extreme Transverse Load =

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

Extreme Longitudinal Load =

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

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

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

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Location:	Fairfield, CT
Rev. 0: 1/16/17	Prepared by: T.J.L Checked by: C.F.C. Job No. 16162.09

Coax Cable on CL&P Tower

(T-Mobile - SW Leg)

Distance Between Coax Cable Attach Points =

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

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

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

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

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

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

Extreme Wind Pressure = $qz := 34.4 \cdot psf$ *(User Input)*

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

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

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

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

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

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

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

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

Wind Area with Ice Transverse = $A_{Tice} := \left(NP_{Tcoax} \cdot D_{coax} + 2 \cdot Ir\right) = 2.55 \cdot in$

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

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

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

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

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

Heavy Vertical Load =

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

Heavy Transverse Load =

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

Heavy Longitudinal Load =

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

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

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

Extreme Vertical Load =

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

Extreme Transverse Load =

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

Extreme Longitudinal Load =

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

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

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

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Location:	Fairfield, CT
Rev. 0: 1/16/17	Prepared by: T.J.L Checked by: C.F.C. Job No. 16162.09

Coax Cable on CL&P Tower

(AT&T - SE Leg)

Distance Between Coax Cable Attach Points =

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

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

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

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

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

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

Extreme Wind Pressure = $qz := 34.4 \cdot psf$ *(User Input)*

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

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

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

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

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

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

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

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

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

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

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

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

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

Weight of Ice on All Coax Cables = $W_{ice} := Ai_{coax} \cdot Id \cdot N_{coax} = 9.09 \cdot plf$

Heavy Vertical Load =

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

Heavy Transverse Load =

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

Heavy Longitudinal Load =

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

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

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

Extreme Vertical Load =

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

Extreme Transverse Load =

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

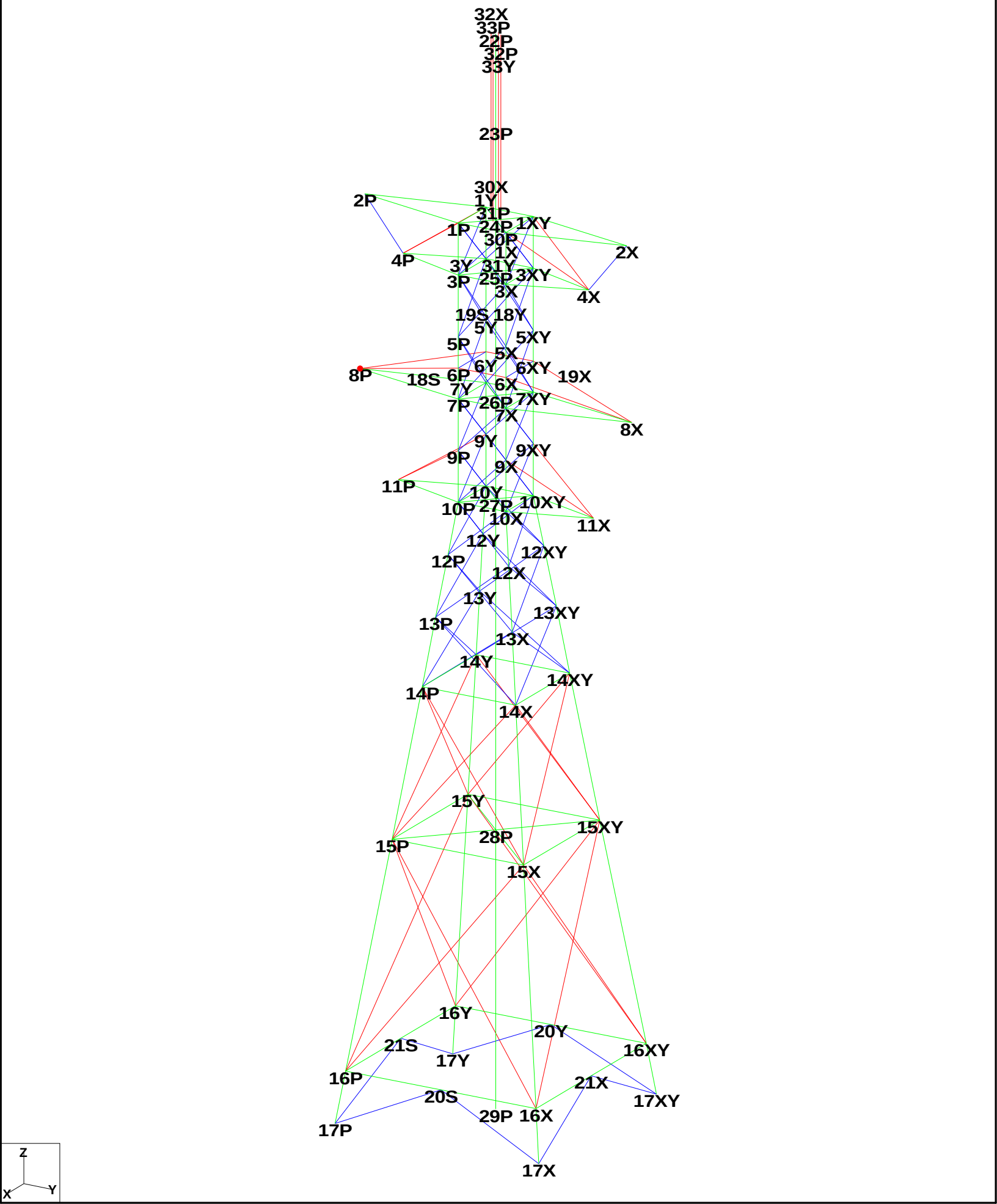
Extreme Longitudinal Load =

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

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

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

Centek Engineering Inc, Project: "cl&p # 876 w_powermnt"
Tower Version 12.50, 10:49:07 AM Tuesday, February 14, 2017
Undeformed geometry displayed



Project Name : 16162.09 - Fairfield, CT
Project Notes: Structure # 876 / T-Mobile CT11317B
Project File : J:\Jobs\1616200.WI\09_CT11317B\04_Structural\Backup Documentation\Calcs\Rev (1)\PLS Tower\cl&p # 876 w_powermnt.tow
Date run   : 10:47:59 AM Tuesday, February 14, 2017
by   : Tower Version 12.50
Licensed to : Centek Engineering Inc

Successfully performed nonlinear analysis

Member "g6P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g6X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g6XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g6Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g9P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g9X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g9XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g9Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g10P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g10X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g10XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g10Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g11P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g11X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g11XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g11Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g12P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g12X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g12XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g12Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g15P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g15X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g15XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g15Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g16P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge

and spacing distances will be checked. ??
Member "g16X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g16XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g16Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g17P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g17X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g17XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g17Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g18P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g18X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g18XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g18Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g19P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g19X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g19XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g19Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g20P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g20X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g20XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g20Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g21P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g21X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g21XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g21Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g22P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g22X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g22XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g22Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g23P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g23X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge

and spacing distances will be checked. ??
Member "g23XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g23Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g24P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g24X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g24XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g24Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Unable to calculate rupture capacity for member "g47P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g47X" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g47XY" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g47Y" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g49P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g49X" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g49XY" because it has a long and short edge distance of 0. ??
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Unable to calculate rupture capacity for member "g51P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g51X" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g51XY" because it has a long and short edge distance of 0. ??
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Unable to calculate rupture capacity for member "g57X" because it has a long and short edge distance of 0. ??
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Unable to calculate rupture capacity for member "g57Y" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g58P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g58X" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g58XY" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g58Y" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g59P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g59X" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g59XY" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g59Y" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g60P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g60X" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g60XY" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g60Y" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g61P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g61X" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g61XY" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g61Y" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g62P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g62X" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g62XY" because it has a long and short edge distance of 0. ??

Unable to calculate rupture capacity for member "g62Y" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g63P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g63X" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g63XY" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g63Y" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g64P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g64X" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g64XY" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g64Y" because it has a long and short edge distance of 0. ??
w/t equals 34.00 for member "g65P" which exceeds ASCE 10 section 3.7.1 limit of 25. ??
w/t equals 34.00 for member "g66P" which exceeds ASCE 10 section 3.7.1 limit of 25. ??
w/t equals 34.00 for member "g67P" which exceeds ASCE 10 section 3.7.1 limit of 25. ??
w/t equals 34.00 for member "g68P" which exceeds ASCE 10 section 3.7.1 limit of 25. ??
w/t equals 34.00 for member "g69P" which exceeds ASCE 10 section 3.7.1 limit of 25. ??
w/t equals 34.00 for member "g70P" which exceeds ASCE 10 section 3.7.1 limit of 25. ??
w/t equals 34.00 for member "g71P" which exceeds ASCE 10 section 3.7.1 limit of 25. ??
Unusual number of fixed joints found: 5. Towers normally have from between 1 and 4 fixed joints. ??
The model has 122 warnings. ??

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\1616200.wi\09_ct11317b\04_structural\backup documentation\calcs\rev (1)\pls tower\876 w_ powermnt.lca

*** Analysis Results:

Maximum element usage is 93.36% for Angle "g11X" in load case "Extreme Wind - Transverse"
Maximum insulator usage is 15.05% for Clamp "30" in load case "NESC Heavy - Longitudinal"

Summary of Joint Support Reactions For All Load Cases:

Load Case	Joint Label	Long. Force (kips)	Tran. Force (kips)	Vert. Force (kips)	Shear Force (kips)	Tran. Moment (ft-k)	Long. Moment (ft-k)	Bending Moment (ft-k)	Vert. Moment (ft-k)	Found. Usage %
NESC Heavy - Transverse	17P	2.37	-3.21	17.01	3.99	-0.02	0.02	0.03	0.26	0.00
NESC Heavy - Transverse	29P	0.04	-0.64	-18.33	0.64	4.93	0.75	4.99	-0.37	0.00
NESC Heavy - Transverse	17X	-5.28	-6.23	-37.27	8.17	-0.03	0.07	0.07	-0.03	0.00
NESC Heavy - Transverse	17XY	4.98	-5.60	-34.55	7.50	-0.04	-0.07	0.08	0.03	0.00
NESC Heavy - Transverse	17Y	-2.12	-2.90	16.58	3.59	-0.04	-0.01	0.04	-0.27	0.00
Extreme Wind - Transverse	17P	6.50	-9.45	47.30	11.46	-0.05	0.08	0.09	0.69	0.00
Extreme Wind - Transverse	29P	0.05	-0.84	-6.67	0.85	8.28	0.98	8.34	-0.54	0.00
Extreme Wind - Transverse	17X	-8.30	-11.29	-57.18	14.02	-0.09	0.11	0.14	0.62	0.00
Extreme Wind - Transverse	17XY	7.92	-10.29	-54.44	12.98	-0.13	-0.12	0.18	-0.63	0.00
Extreme Wind - Transverse	17Y	-6.17	-8.53	45.28	10.52	-0.11	-0.08	0.13	-0.69	0.00
NESC Heavy - Longitudinal	17P	-2.59	1.62	-13.84	3.05	-0.02	0.02	0.03	0.26	0.00
NESC Heavy - Longitudinal	29P	-0.13	-0.62	-18.20	0.64	3.17	-2.81	4.23	-0.07	0.00
NESC Heavy - Longitudinal	17X	-3.95	-4.02	-25.16	5.64	-0.04	0.03	0.05	-0.03	0.00
NESC Heavy - Longitudinal	17XY	0.80	-1.99	-7.16	2.14	0.03	-0.02	0.04	0.03	0.00
NESC Heavy - Longitudinal	17Y	-1.57	-1.87	7.80	2.44	-0.00	-0.05	0.05	-0.26	0.00
Extreme Wind - Longitudinal	17P	-4.80	1.19	-19.87	4.94	-0.06	0.03	0.06	0.67	0.00
Extreme Wind - Longitudinal	29P	-0.30	-0.81	-6.56	0.86	5.63	-6.86	8.87	-0.02	0.00
Extreme Wind - Longitudinal	17X	-9.07	-9.49	-53.17	13.13	-0.17	0.02	0.17	0.60	0.00
Extreme Wind - Longitudinal	17XY	-1.46	-3.08	3.32	3.41	0.04	-0.08	0.09	-0.64	0.00
Extreme Wind - Longitudinal	17Y	-8.85	-10.10	50.59	13.43	-0.01	-0.19	0.19	-0.66	0.00

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

Load Case	Support Joint	Origin Joint	Leg Member	Force In Leg Dir. (kips)	Residual Shear Perpendicular To Leg (kips)	Residual Shear Horizontal To Leg - Res. (kips)	Residual Shear Horizontal To Leg - Long. (kips)	Residual Shear Horizontal To Leg - Tran. (kips)	Total Long. Force (kips)	Total Tran. Force (kips)	Total Vert. Force (kips)
NESC Heavy - Transverse	17P	16P	g12P	-17.452	0.844	0.852	-0.009	0.852	2.37	-3.21	17.01
NESC Heavy - Transverse	17X	16X	g12X	38.145	1.049	1.061	0.099	1.056	-5.28	-6.23	-37.27
NESC Heavy - Transverse	17XY	16XY	g12XY	35.343	0.815	0.826	-0.181	0.806	4.98	-5.60	-34.55
NESC Heavy - Transverse	17Y	16Y	g12Y	-16.950	0.624	0.627	-0.183	0.599	-2.12	-2.90	16.58
Extreme Wind - Transverse	17P	16P	g12P	-48.585	2.852	2.877	0.073	2.876	6.50	-9.45	47.30
Extreme Wind - Transverse	17X	16X	g12X	58.778	3.334	3.373	0.360	3.353	-8.30	-11.29	-57.18
Extreme Wind - Transverse	17XY	16XY	g12XY	55.900	2.716	2.749	-0.357	2.725	7.92	-10.29	-54.44
Extreme Wind - Transverse	17Y	16Y	g12Y	-46.438	2.221	2.240	-0.123	2.237	-6.17	-8.53	45.28
NESC Heavy - Longitudinal	17P	16P	g12P	14.156	0.732	0.734	0.667	0.306	-2.59	1.62	-13.84
NESC Heavy - Longitudinal	17X	16X	g12X	25.776	0.684	0.697	0.460	0.523	-3.95	-4.02	-25.16
NESC Heavy - Longitudinal	17XY	16XY	g12XY	7.407	1.005	1.011	0.190	0.993	0.80	-1.99	-7.16
NESC Heavy - Longitudinal	17Y	16Y	g12Y	-8.118	0.911	0.928	0.482	0.792	-1.57	-1.87	7.80
Extreme Wind - Longitudinal	17P	16P	g12P	20.314	2.575	2.576	2.038	1.575	-4.80	1.19	-19.87
Extreme Wind - Longitudinal	17X	16X	g12X	54.707	2.648	2.698	1.686	2.107	-9.07	-9.49	-53.17
Extreme Wind - Longitudinal	17XY	16XY	g12XY	-3.039	3.660	3.676	1.001	3.537	-1.46	-3.08	3.32
Extreme Wind - Longitudinal	17Y	16Y	g12Y	-52.219	3.510	3.572	1.825	3.071	-8.85	-10.10	50.59

Sections Information:

Section Label	Top Z (ft)	Bottom Z (ft)	Joint Count	Member Count	Tran. Face Top Width (ft)	Tran. Face Bot Width (ft)	Tran. Face Gross Area (ft^2)	Long. Face Top Width (ft)	Long. Face Bot Width (ft)	Long. Face Gross Area (ft^2)
1	104.000	86.000	17	26	1.00	5.00	36.000	1.00	27.50	137.250
2	86.000	41.500	56	173	5.00	9.81	264.882	27.50	9.81	431.382
3	41.500	0.000	23	54	9.81	21.39	646.560	9.81	21.39	646.560

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

Group Summary (Compression Portion):

Group Label	Group Angle KL/R	Length (ft)	Angle Curve	Steel Type	Angle Size	Steel No.	Strength (ksi)	Max Usage %	Comp. Control	Max Usage Cont-rol 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
LEG1	L4x4x1/4	75.47	SAE	4X4X0.25	33.0	73.79	Comp	73.79	g6XY	-39.482	Extreme	53.509	125.640	168.750	1.000	1.000	1.000
LEG2	L4x4x5/16	77.30	SAE	4X4X0.3125	33.0	85.77	Comp	85.77	g12X	-56.226	Extreme	65.558	104.700	175.781	1.000	1.000	1.000

Group Label	L/R KL/R	Length (ft)	Curve Desc.	Type	No. Comp.	No. Member	Bolts Of Comp.
LEG1	75.47	75.47	5.000	1	12		
LEG2	77.30	77.30	5.096	1	10		

LEG3	L4x4x3/8	SAE	4X4X0.375	33.0	93.36	Comp	93.36	g11X	-55.838Extreme	59.809	104.700	210.937	0.330	0.330	0.330	112.73	112.73	22.432	1	10
XBR1	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	33.0	52.09	Comp	52.09	g13P	-6.022Extreme	11.559	20.940	21.094	0.750	0.500	0.500	123.69	122.85	7.071	5	2
XBR2	L3x2x3/16	SAU	3X2X0.1875	33.0	44.94	Cross	44.94	g16Y	-5.501Extreme	12.241	31.410	31.641	0.500	1.000	0.500	160.76	145.07	7.810	6	3
XBR3	L3x2x3/16	SAU	3X2X0.1875	33.0	37.62	Tens	36.02	g35XY	-3.552Extreme	9.860	10.470	10.547	1.000	0.500	0.500	161.63	161.63	11.826	4	1
XBR4	L2x2x3/16	SAE	2X2X0.1875	33.0	23.57	Cross	23.57	g26P	-2.560Extreme	10.862	20.940	21.094	1.000	0.560	0.560	147.29	136.78	7.573	6	2
XBR5	L2.5x2x3/16	SAU	2.5X2X0.1875	33.0	21.35	Cross	21.35	g29P	-1.475Extreme	6.910	20.940	21.094	0.560	1.000	0.560	222.71	183.17	11.135	6	2
XBR6	L1.75x1.75x1/4	SAE	1.75X1.75X0.25	33.0	90.00	Comp	90.00	g31Y	-2.031NESC Hea	2.257	20.940	28.125	0.790	0.580	0.580	383.86	321.10	18.807	5	2
XBR7	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	33.0	48.96	Tens	0.00	g34XY	0.000	1.061	20.940	21.094	0.800	0.410	0.410	499.05	408.88	27.916	5	2
PMBR1	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	36.0	55.74	Tens	52.32	g60X	-5.334Extreme	21.670	10.470	10.195	1.000	1.000	1.000	85.71	102.85	3.536	3	1
PMBR2	L3.5x3.5x1/4	SAE	3.5X3.5X0.25	36.0	29.67	Comp	29.67	g64P	-3.107Extreme	16.980	10.470	13.594	1.000	1.000	1.000	168.78	168.78	9.761	4	1
HBR1	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	33.0	73.70	Comp	73.70	g37P	-4.274Extreme	5.799	10.470	10.547	1.000	1.000	1.000	174.93	174.93	5.000	4	1
HBR2	2.5x2x3/16	SAU	2.5X2X0.1875	33.0	41.41	Comp	41.41	g41P	-4.336Extreme	10.510	10.470	10.547	1.000	0.500	0.500	148.52	148.52	9.815	4	1
HBR3	L3x2.5x1/4	SAU	3X2.5X0.25	33.0	43.84	Comp	43.84	g43P	-4.590Extreme	12.202	10.470	14.062	1.000	0.500	0.500	175.29	175.29	13.804	4	1
HBR4	**L4x3x1/4**	**SAU**	**4X3X0.25**	**33.0**	**43.44**	**Comp**	**43.44**	**g45Y**	**-4.548Extreme**	**13.759**	**10.470**	**14.062**	**2.000**	**1.000**	**1.000**	**187.50**	**187.50**	**10.000**	**4**	**1**

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

Arm1	L3x2.5x1/4	SAU	3X2.5X0.25	33.0	20.18	Comp	20.18	g49P	-5.753NESC Hea	28.509	31.410	42.187	1.000	0.500	0.500	97.38	108.69	7.669	3	3
Arm2	L3.5x2.5x1/4	SAU	3.5X2.5X0.25	33.0	26.72	Comp	26.72	g53P	-6.553NESC Hea	24.527	31.410	42.187	1.000	0.500	0.500	132.50	129.56	12.013	5	3
ArmBR1	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	33.0	29.15	Comp	29.15	g55P	-3.052NESC Hea	10.714	10.470	10.547	1.000	1.000	1.000	155.23	155.23	6.403	4	1
ArmBR2	L1.75x1/4x1/4	BAR	1.75X0.25X0.25	33.0	77.57	Tens	0.00	g59Y	0.000	0.050	10.470	14.062	1.000	1.000	1.000	1588.21	1588.21	9.556	4	1
Powermnt	12" Std. Pipe	PIP	12.75X0.375	50.0	14.98	Comp	14.98	g65P	-17.274NESC Hea	115.298	0.000	0.000	1.000	1.000	1.000	73.97	73.97	27.000	1	0
fic1	Fictitious1	Bar	fic	36.0	0.00		0.00	g72P	0.000	0.000	0.000	0.000	1.000	1.000	1.000	2160000.00	2160000.00	18.000	4	0
fic	Fictitious2	Bar	fic	36.0	0.00		0.00	g74P	0.000	0.000	0.000	0.000	1.000	1.000	1.000	60000.00	60000.00	0.500	4	0
HBR5	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	33.0	10.29	Comp	10.29	g78Y	-1.078NESC Hea	14.114	10.470	10.547	1.000	1.000	1.000	87.46	103.73	2.500	3	1

Group Summary (Tension Portion):

Group Label	**Group Desc.**	**Angle Type**	**Angle Size**	**Steel Strength (ksi)**	**Max Usage %**	**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 Tens. Bolts**	**No. Of Hole Diameter (in)**

```
------------
     LEG1        L4x4x1/4   SAE         4X4X0.25     33.0 73.79  Comp 64.51     g6Y  33.981Extreme    52.676  125.640  168.750  220.588  5.000    12
2.000   0.6875
     LEG2       L4x4x5/16   SAE        4X4X0.3125    33.0 85.77  Comp 76.45    g12Y  49.710Extreme    65.020  104.700  175.781  103.401  5.096    10
2.000   0.6875
     LEG3        L4x4x3/8   SAE         4X4X0.375    33.0 93.36  Comp 51.69    g11P  39.991Extreme    77.364  104.700  210.937  193.014 22.432    10
2.000   0.6875
     XBR1 L1.75x1.75x3/16   SAE 1.75X1.75X0.1875     33.0 52.09  Comp 38.46    g13X   5.609Extreme    14.585   20.940   21.094   16.189  7.071     2
1.000   0.6875
     XBR2       L3x2x3/16   SAU        3X2X0.1875    33.0 44.94 Cross 30.72   g23XY   7.036Extreme    22.901   31.410   31.641   28.125  7.071     3
1.000   0.6875
     XBR3       L3x2x3/16   SAU        3X2X0.1875    33.0 37.62  Tens 37.62    g35Y   2.903Extreme    17.333   10.470   10.547    7.717 11.826     1
1.000   0.6875
     XBR4       L2x2x3/16   SAE        2X2X0.1875    33.0 23.57 Cross 14.32   g25XY   2.183Extreme    17.258   20.940   21.094   15.240  7.573     2
1.000   0.6875
     XBR5     L2.5x2x3/16   SAU      2.5X2X0.1875    33.0 21.35 Cross  9.60    g28Y   1.800Extreme    20.228   20.940   21.094   18.750  9.373     2
1.000   0.6875
     XBR6  L1.75x1.75x1/4   SAE    1.75X1.75X0.25    33.0 90.00  Comp 26.99    g32X   5.139Extreme    19.041   20.940   28.125   24.820 18.807     2
1.000   0.6875
     XBR7 L1.75x1.75x3/16   SAE 1.75X1.75X0.1875     33.0 48.96  Tens 48.96   g33XY   7.142Extreme    14.585   20.940   21.094   17.420 27.916     2
1.000   0.6875
    PMBR1   L2.5x2.5x3/16   SAE    2.5X2.5X0.1875    36.0 55.74  Tens 55.74    g60Y   5.683Extreme    25.048   10.470   10.195    0.000  3.536     1
1.000   0.6875
    PMBR2    L3.5x3.5x1/4   SAE      3.5X3.5X0.25    36.0 29.67  Comp  3.60    g64Y   0.377NESC Hea   49.187   10.470   13.594    0.000  9.761     1
1.000   0.6875
     HBR1 L1.75x1.75x3/16   SAE 1.75X1.75X0.1875     33.0 73.70  Comp 50.42    g38P   3.891Extreme    14.585   10.470   10.547    7.717  5.000     1
1.000   0.6875
     HBR2      2.5x2x3/16   SAU      2.5X2X0.1875    33.0 41.41  Comp 16.92    g41X   1.306NESC Hea   17.444   10.470   10.547    7.717  9.815     1
1.000   0.6875
     HBR3      L3x2.5x1/4   SAU        3X2.5X0.25    33.0 43.84  Comp 11.43    g43X   1.196NESC Hea   30.090   10.470   14.062   12.500 13.804     1
1.000   0.6875
     HBR4        L4x3x1/4   SAU          4X3X0.25    33.0 43.44  Comp 17.43    g46X   1.825Extreme    37.663   10.470   14.062   12.500 10.000     1
1.000   0.6875 A potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize moments): g46P
g46X g46XY g46Y  ??
     Arm1      L3x2.5x1/4   SAU        3X2.5X0.25    33.0 20.18  Comp 13.74    g48P   5.940Extreme    43.230    0.000    0.000    0.000  5.000     0
0.000   0.6875
     Arm2      L3.5x2.5x1/4 SAU      3.5X2.5X0.25    33.0 26.72  Comp  0.00    g54Y   0.000           47.520    0.000    0.000    0.000  5.000     0
0.000   0.6875
   ArmBR1   L2.5x2.5x3/16   SAE    2.5X2.5X0.1875    33.0 29.15  Comp  0.00    g55X   0.000           22.961   10.470   10.547    0.000  6.403     1
1.000   0.6875
   ArmBR2   L1.75x1/4x1/4   BAR    1.75X0.25X0.25    33.0 77.57  Tens 77.57    g57Y   6.120NESC Hea    7.889   10.470   14.062    0.000 12.382     1
1.000   0.6875
 Powermnt   12" Std. Pipe   PIP       12.75X0.375    50.0 14.98  Comp  0.00    g71P   0.000          729.999    0.000    0.000    0.000  9.000     0
0.000        0
     fic1     Fictitious1   Bar               fic    36.0  0.00        0.00    g72P   0.000NESC Hea    3.600    0.000    0.000    0.000 18.000     0
0.000        0
      fic     Fictitious2   Bar               fic    36.0  0.00        0.00    g74P   0.072Extreme     3.600    0.000    0.000    0.000  0.500     0
0.000        0
     HBR5 L1.75x1.75x3/16   SAE 1.75X1.75X0.1875     33.0 10.29  Comp  0.00    g78Y   0.000           14.585   10.470   10.547    7.717  2.500     1
1.000   0.6875
```

*** Maximum Stress Summary for Each Load Case

Summary of Maximum Usages by Load Case:

Load Case Maximum Element Element

	Usage %	Label	Type
NESC Heavy - Transverse	90.00	g31Y	Angle
Extreme Wind - Transverse	93.36	g11X	Angle
NESC Heavy - Longitudinal	79.55	g32Y	Angle
Extreme Wind - Longitudinal	86.43	g11X	Angle

Summary of Insulator Usages:

Insulator Label	Insulator Type	Maximum Usage %	Load Case	Weight (lbs)
1	Clamp	8.78	NESC Heavy - Transverse	0.0
2	Clamp	5.57	NESC Heavy - Transverse	0.0
3	Clamp	10.73	NESC Heavy - Transverse	0.0
4	Clamp	10.65	NESC Heavy - Transverse	0.0
5	Clamp	10.79	NESC Heavy - Transverse	0.0
6	Clamp	10.74	NESC Heavy - Transverse	0.0
7	Clamp	10.67	NESC Heavy - Transverse	0.0
8	Clamp	10.62	NESC Heavy - Transverse	0.0
14	Clamp	3.56	Extreme Wind - Transverse	0.0
15	Clamp	3.86	NESC Heavy - Transverse	0.0
16	Clamp	4.20	Extreme Wind - Transverse	0.0
17	Clamp	1.88	Extreme Wind - Transverse	0.0
18	Clamp	1.65	Extreme Wind - Transverse	0.0
19	Clamp	4.50	Extreme Wind - Longitudinal	0.0
20	Clamp	1.18	Extreme Wind - Transverse	0.0
21	Clamp	1.59	Extreme Wind - Transverse	0.0
22	Clamp	1.18	Extreme Wind - Transverse	0.0
23	Clamp	1.18	Extreme Wind - Transverse	0.0
24	Clamp	1.04	Extreme Wind - Transverse	0.0
25	Clamp	11.11	Extreme Wind - Longitudinal	0.0
26	Clamp	2.88	NESC Heavy - Longitudinal	0.0
27	Clamp	3.55	NESC Heavy - Longitudinal	0.0
28	Clamp	4.64	NESC Heavy - Longitudinal	0.0
29	Clamp	8.95	NESC Heavy - Longitudinal	0.0
30	Clamp	15.05	NESC Heavy - Longitudinal	0.0
31	Clamp	6.35	NESC Heavy - Transverse	0.0
32	Clamp	4.11	Extreme Wind - Longitudinal	0.0
33	Clamp	5.01	Extreme Wind - Longitudinal	0.0
34	Clamp	6.60	Extreme Wind - Longitudinal	0.0
35	Clamp	7.19	Extreme Wind - Longitudinal	0.0
36	Clamp	6.33	Extreme Wind - Longitudinal	0.0
37	Clamp	1.72	Extreme Wind - Longitudinal	0.0
38	Clamp	2.06	Extreme Wind - Longitudinal	0.0
39	Clamp	3.65	Extreme Wind - Longitudinal	0.0
40	Clamp	3.45	Extreme Wind - Longitudinal	0.0
41	Clamp	3.17	Extreme Wind - Longitudinal	0.0
42	Clamp	1.72	Extreme Wind - Longitudinal	0.0

*** Weight of structure (lbs):
    Weight of Angles*Section DLF: 13519.3
    Total: 13519.3

*** End of Report

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

Project Name : 16162.09 - Fairfield, CT
Project Notes: Structure # 876 / T-Mobile CT11317B
Project File : J:\Jobs\1616200.WI\09_CT11317B\04_Structural\Backup Documentation\Calcs\Rev (1)\PLS Tower\cl&p # 876 w_powermnt.tow
Date run     : 10:47:58 AM Tuesday, February 14, 2017
by           : Tower Version 12.50
Licensed to  : Centek Engineering Inc

Successfully performed nonlinear analysis

Member "g6P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "g6X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "g6XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "g6Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "g9P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "g9X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "g9XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "g9Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "g10P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "g10X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "g10XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "g10Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "g11P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "g11X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "g11XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "g11Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "g12P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "g12X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "g12XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "g12Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "g15P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "g15X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
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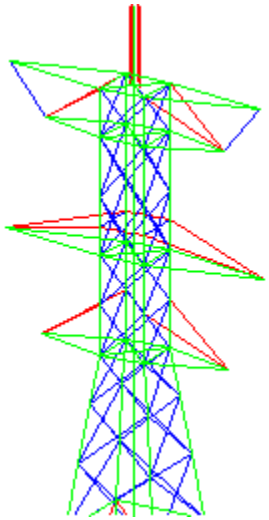
and spacing distances will be checked. ??
Member "g15XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g15Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g16P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g16X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g16XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g16Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g17P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g17X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g17XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g17Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g18P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g18X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g18XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g18Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g19P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g19X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g19XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g19Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g20P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g20X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g20XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g20Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g21P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g21X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g21XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g21Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g22P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g22X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g22XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge

and spacing distances will be checked. ??
Member "g22Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g23P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g23X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g23XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g23Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g24P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g24X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g24XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g24Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Unable to calculate rupture capacity for member "g47P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g47X" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g47XY" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g47Y" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g49P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g49X" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g49XY" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g49Y" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g51P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g51X" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g51XY" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g51Y" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g53P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g53X" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g53XY" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g53Y" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g55P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g55X" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g56P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g56X" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g56XY" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g56Y" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g57P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g57X" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g57XY" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g57Y" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g58P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g58X" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g58XY" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g58Y" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g59P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g59X" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g59XY" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g59Y" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g60P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g60X" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g60XY" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g60Y" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g61P" because it has a long and short edge distance of 0. ??

Unable to calculate rupture capacity for member "g61X" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g61XY" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g61Y" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g62P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g62X" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g62XY" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g62Y" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g63P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g63X" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g63XY" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g63Y" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g64P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g64X" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g64XY" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g64Y" because it has a long and short edge distance of 0. ??
w/t equals 34.00 for member "g65P" which exceeds ASCE 10 section 3.7.1 limit of 25. ??
w/t equals 34.00 for member "g66P" which exceeds ASCE 10 section 3.7.1 limit of 25. ??
w/t equals 34.00 for member "g67P" which exceeds ASCE 10 section 3.7.1 limit of 25. ??
w/t equals 34.00 for member "g68P" which exceeds ASCE 10 section 3.7.1 limit of 25. ??
w/t equals 34.00 for member "g69P" which exceeds ASCE 10 section 3.7.1 limit of 25. ??
w/t equals 34.00 for member "g70P" which exceeds ASCE 10 section 3.7.1 limit of 25. ??
w/t equals 34.00 for member "g71P" which exceeds ASCE 10 section 3.7.1 limit of 25. ??
Unusual number of fixed joints found: 5. Towers normally have from between 1 and 4 fixed joints. ??
The model has 122 warnings. ??



Nonlinear convergence parameters: Use Standard Parameters
Tension only member maximum compression load as a percent of compression capacity: 100%
Member check option: ASCE 10
Connection rupture check: ASCE 10
Crossing diagonal check: ASCE 10 [Alternate Unsupported RLOUT = 1]
Included angle check: None
Climbing load check: None
Redundant members checked with: Actual Force

Joints Geometry:

Joint Label	Symmetry Code	X Coord. (ft)	Y Coord. (ft)	Z Coord. (ft)	X Disp. Rest.	Y Disp. Rest.	Z Disp. Rest.	X Rot. Rest.	Y Rot. Rest.	Z Rot. Rest.
1P	XY-Symmetry	2.5	-2.5	86	Free	Free	Free	Free	Free	Free
2P	X-Symmetry	0	-13.75	86	Free	Free	Free	Free	Free	Free
3P	XY-Symmetry	2.5	-2.5	81	Free	Free	Free	Free	Free	Free
4P	X-Symmetry	0	-9.75	81	Free	Free	Free	Free	Free	Free
5P	XY-Symmetry	2.5	-2.5	75	Free	Free	Free	Free	Free	Free
6P	XY-Symmetry	2.5	-2.5	72	Free	Free	Free	Free	Free	Free
7P	XY-Symmetry	2.5	-2.5	69	Free	Free	Free	Free	Free	Free
8P	X-Symmetry	0	-14.25	69	Free	Free	Free	Free	Free	Free
9P	XY-Symmetry	2.5	-2.5	64	Free	Free	Free	Free	Free	Free
10P	XY-Symmetry	2.5	-2.5	59	Free	Free	Free	Free	Free	Free
11P	X-Symmetry	0	-10.25	59	Free	Free	Free	Free	Free	Free
12P	XY-Symmetry	3.188	-3.188	54.05	Free	Free	Free	Free	Free	Free
13P	XY-Symmetry	4.013	-4.013	48.1	Free	Free	Free	Free	Free	Free
14P	XY-Symmetry	4.907	-4.907	41.5	Free	Free	Free	Free	Free	Free
15P	XY-Symmetry	6.902	-6.902	27	Free	Free	Free	Free	Free	Free
16P	XY-Symmetry	10	-10	5	Free	Free	Free	Free	Free	Free
17P	XY-Symmetry	10.69	-10.69	0	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
22P	None	0	0	104	Free	Free	Free	Free	Free	Free
23P	None	0	0	95	Free	Free	Free	Free	Free	Free
24P	None	0	0	86	Free	Free	Free	Free	Free	Free
25P	None	0	0	81	Free	Free	Free	Free	Free	Free
26P	None	0	0	69	Free	Free	Free	Free	Free	Free
27P	None	0	0	59	Free	Free	Free	Free	Free	Free
28P	None	0	0	27	Free	Free	Free	Free	Free	Free
29P	None	0	0	0	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
30P	X-Symmetry	0	0.5	86	Free	Free	Free	Free	Free	Free
31P	Y-Symmetry	0.5	0	86	Free	Free	Free	Free	Free	Free
32P	X-Symmetry	0	0.5	104	Free	Free	Free	Free	Free	Free
33P	Y-Symmetry	0.5	0	104	Free	Free	Free	Free	Free	Free
1X	X-GenXY	2.5	2.5	86	Free	Free	Free	Free	Free	Free
1XY	XY-GenXY	-2.5	2.5	86	Free	Free	Free	Free	Free	Free
1Y	Y-GenXY	-2.5	-2.5	86	Free	Free	Free	Free	Free	Free
2X	X-Gen	0	13.75	86	Free	Free	Free	Free	Free	Free
3X	X-GenXY	2.5	2.5	81	Free	Free	Free	Free	Free	Free
3XY	XY-GenXY	-2.5	2.5	81	Free	Free	Free	Free	Free	Free
3Y	Y-GenXY	-2.5	-2.5	81	Free	Free	Free	Free	Free	Free
4X	X-Gen	0	9.75	81	Free	Free	Free	Free	Free	Free
5X	X-GenXY	2.5	2.5	75	Free	Free	Free	Free	Free	Free
5XY	XY-GenXY	-2.5	2.5	75	Free	Free	Free	Free	Free	Free
5Y	Y-GenXY	-2.5	-2.5	75	Free	Free	Free	Free	Free	Free
6X	X-GenXY	2.5	2.5	72	Free	Free	Free	Free	Free	Free
6XY	XY-GenXY	-2.5	2.5	72	Free	Free	Free	Free	Free	Free
6Y	Y-GenXY	-2.5	-2.5	72	Free	Free	Free	Free	Free	Free
7X	X-GenXY	2.5	2.5	69	Free	Free	Free	Free	Free	Free
7XY	XY-GenXY	-2.5	2.5	69	Free	Free	Free	Free	Free	Free
7Y	Y-GenXY	-2.5	-2.5	69	Free	Free	Free	Free	Free	Free
8X	X-Gen	0	14.25	69	Free	Free	Free	Free	Free	Free
9X	X-GenXY	2.5	2.5	64	Free	Free	Free	Free	Free	Free
9XY	XY-GenXY	-2.5	2.5	64	Free	Free	Free	Free	Free	Free
9Y	Y-GenXY	-2.5	-2.5	64	Free	Free	Free	Free	Free	Free
10X	X-GenXY	2.5	2.5	59	Free	Free	Free	Free	Free	Free
10XY	XY-GenXY	-2.5	2.5	59	Free	Free	Free	Free	Free	Free
10Y	Y-GenXY	-2.5	-2.5	59	Free	Free	Free	Free	Free	Free
11X	X-Gen	0	10.25	59	Free	Free	Free	Free	Free	Free
12X	X-GenXY	3.188	3.188	54.05	Free	Free	Free	Free	Free	Free

12XY	XY-GenXY	-3.188	3.188	54.05	Free	Free	Free	Free	Free	Free
12Y	Y-GenXY	-3.188	-3.188	54.05	Free	Free	Free	Free	Free	Free
13X	X-GenXY	4.013	4.013	48.1	Free	Free	Free	Free	Free	Free
13XY	XY-GenXY	-4.013	4.013	48.1	Free	Free	Free	Free	Free	Free
13Y	Y-GenXY	-4.013	-4.013	48.1	Free	Free	Free	Free	Free	Free
14X	X-GenXY	4.907	4.907	41.5	Free	Free	Free	Free	Free	Free
14XY	XY-GenXY	-4.907	4.907	41.5	Free	Free	Free	Free	Free	Free
14Y	Y-GenXY	-4.907	-4.907	41.5	Free	Free	Free	Free	Free	Free
15X	X-GenXY	6.902	6.902	27	Free	Free	Free	Free	Free	Free
15XY	XY-GenXY	-6.902	6.902	27	Free	Free	Free	Free	Free	Free
15Y	Y-GenXY	-6.902	-6.902	27	Free	Free	Free	Free	Free	Free
16X	X-GenXY	10	10	5	Free	Free	Free	Free	Free	Free
16XY	XY-GenXY	-10	10	5	Free	Free	Free	Free	Free	Free
16Y	Y-GenXY	-10	-10	5	Free	Free	Free	Free	Free	Free
17X	X-GenXY	10.69	10.69	0	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
17XY	XY-GenXY	-10.69	10.69	0	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
17Y	Y-GenXY	-10.69	-10.69	0	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
30X	X-Gen	0	-0.5	86	Free	Free	Free	Free	Free	Free
31Y	Y-Gen	-0.5	0	86	Free	Free	Free	Free	Free	Free
32X	X-Gen	0	-0.5	104	Free	Free	Free	Free	Free	Free
33Y	Y-Gen	-0.5	0	104	Free	Free	Free	Free	Free	Free

Secondary Joints:

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

The model contains 76 primary and 8 secondary joints for a total of 84 joints.

Steel Material Properties:

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

Bolt Properties:

Bolt Label	Bolt Diameter (in)	Hole Diameter (in)	Ultimate Shear Capacity (kips)	Default End Distance (in)	Default Bolt Spacing (in)	Shear Capacity Hyp. 1 (kips)	Shear Capacity Hyp. 2 (kips)
5/8 A7	0.625	0.6875	10.47	0	0	0	0

Number Bolts Used By Type:

Bolt Type	Number Bolts
5/8 A7	546

Angle Properties:

Angle Type	Angle Size	Long Leg (in)	Short Leg (in)	Thick. (in)	Unit Weight (lbs/ft)	Gross Area (in^2)	w/t Ratio	Radius of Gyration Rx (in)	Radius of Gyration Ry (in)	Radius of Gyration Rz (in)	Number of Angles	Wind Width (in)	Short Edge Dist. (in)	Long Edge Dist. (in)	Optimize Cost Factor	Section Modulus (in^3)
SAE	1.75X1.75X0.1875	1.75	1.75	0.1875	2.12	0.62	6	0.537	0.537	0.343	1	1.75	0	0	1.0000	0
SAE	1.75X1.75X0.25	1.75	1.75	0.25	2.77	0.813	4.25	0.529	0.529	0.341	1	1.75	0	0	1.0000	0
SAE	2.5X2.5X0.1875	2.5	2.5	0.1875	3.07	0.902	10.67	0.778	0.778	0.495	1	2.5	0	0	1.0000	0
SAE	2X2X0.1875	2	2	0.1875	2.44	0.71	8	0.617	0.617	0.394	1	2	0	0	1.0000	0
SAE	3.5X3.5X0.25	3.5	3.5	0.25	5.8	1.69	11.5	1.09	1.09	0.694	1	3.5	0	0	1.0000	0
SAE	4X4X0.25	4	4	0.25	6.6	1.94	13.5	1.25	1.25	0.795	1	4	0	0	1.0000	0
SAE	4X4X0.3125	4	4	0.3125	8.2	2.4	10.6	1.24	1.24	0.791	1	4	0	0	1.0000	0
SAE	4X4X0.375	4	4	0.375	9.8	2.86	8.67	1.23	1.23	0.788	1	4	0	0	1.0000	0
SAU	2.5X2X0.1875	2.5	2	0.1875	2.75	0.81	10.67	0.793	0.6	0.427	1	2.5	0	0	1.0000	0
SAU	3.5X2.5X0.25	3.5	2.5	0.25	4.9	1.44	11.25	1.12	0.735	0.544	1	3.5	0	0	1.0000	0
SAU	3X2.5X0.25	3	2.5	0.25	4.5	1.31	9.5	0.945	0.753	0.528	1	3	0	0	1.0000	0
SAU	3X2X0.1875	3	2	0.1875	3.07	0.9	13.33	0.966	0.583	0.439	1	3	0	0	1.0000	0
SAU	4X3X0.25	4	3	0.25	5.8	1.69	13.25	1.28	0.896	0.651	1	4	0	0	1.0000	0
BAR	1.75X0.25X0.25	1.75	0.25	0.25	1.49	0.4375	7	0.5052	0.0722	0.101	1	1.75	0	0	1.0000	0
PIP	12.75X0.375	12.75	12.75	0.375	49.56	14.6	34	4.38	4.38	4.38	1	12.75	0	0	1.0000	0
Bar	fic	1	0	0.1	0.005	0.1	1	0.0001	0.0001	0.0001	1	0.1	0	0	0.0000	0

Angle Groups:

Group Label	Group Description	Angle Type	Angle Size	Material Type	Element Type	Group Type	Optimize Group	Allow. Add. Angle Width For Optimize (in)
LEG1	L4x4x1/4	SAE	4X4X0.25	A7	Beam	Leg	None	12.000
LEG2	L4x4x5/16	SAE	4X4X0.3125	A7	Beam	Leg	None	12.000
LEG3	L4x4x3/8	SAE	4X4X0.375	A7	Beam	Leg	None	12.000
XBR1	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	A7	Truss Crossing Diagonal		None	12.000
XBR2	L3x2x3/16	SAU	3X2X0.1875	A7	Truss Crossing Diagonal		None	12.000
XBR3	L3x2x3/16	SAU	3X2X0.1875	A7	Truss	Other	None	12.000
XBR4	L2x2x3/16	SAE	2X2X0.1875	A7	Truss Crossing Diagonal		None	12.000
XBR5	L2.5x2x3/16	SAU	2.5X2X0.1875	A7	Truss Crossing Diagonal		None	12.000
XBR6	L1.75x1.75x1/4	SAE	1.75X1.75X0.25	A7	T-Only	Other	None	12.000
XBR7	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	A7	T-Only	Other	None	12.000
PMBR1	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	A36	Beam	Other	None	12.000
PMBR2	L3.5x3.5x1/4	SAE	3.5X3.5X0.25	A36	Beam	Other	None	12.000
HBR1	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	A7	Beam	Other	None	12.000
HBR2	2.5x2x3/16	SAU	2.5X2X0.1875	A7	Beam	Other	None	12.000
HBR3	L3x2.5x1/4	SAU	3X2.5X0.25	A7	Beam	Other	None	12.000
HBR4	L4x3x1/4	SAU	4X3X0.25	A7	Beam	Other	None	12.000
Arm1	L3x2.5x1/4	SAU	3X2.5X0.25	A7	Beam	Other	None	12.000
Arm2	L3.5x2.5x1/4	SAU	3.5X2.5X0.25	A7	Beam	Other	None	12.000
ArmBR1	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	A7	Truss	Other	None	0.000
ArmBR2	L1.75x1/4x1/4	BAR	1.75X0.25X0.25	A7	T-Only	Other	None	0.000

Powermnt	12" Std. Pipe	PIP	12.75X0.375	A572-50	Beam	Other	None	0.000
fic1	Fictitious1	Bar	fic	A 36	T-Only	Other	None	0.000
fic	Fictitious2	Bar	fic	A 36	T-Only	Fictitious	None	0.000
HBR5	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	A7	Truss	Other	None	0.000

Aggregate Angle Information:

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

Angle Type	Angle Size	Material Type	Total Length (ft)	Total Surface Area (ft^2)	Total Weight (lbs)
SAE	4X4X0.25	A7	108.00	144.00	712.80
SAE	4X4X0.3125	A7	91.69	122.26	751.90
SAE	4X4X0.375	A7	148.82	198.42	1458.39
SAE	1.75X1.75X0.1875	A7	329.89	192.44	699.37
SAU	3X2X0.1875	A7	332.71	277.26	1021.42
SAE	2X2X0.1875	A7	60.58	40.39	147.83
SAU	2.5X2X0.1875	A7	203.33	152.50	559.15
SAE	1.75X1.75X0.25	A7	150.45	87.77	416.76
SAU	3X2.5X0.25	A7	194.56	178.35	875.54
SAU	4X3X0.25	A7	80.00	93.33	464.00
SAU	3.5X2.5X0.25	A7	58.05	58.05	284.46
SAE	2.5X2.5X0.1875	A7	12.81	10.67	39.32
BAR	1.75X0.25X0.25	A7	134.37	44.79	200.21
SAE	2.5X2.5X0.1875	A36	56.57	47.14	173.67
SAE	3.5X3.5X0.25	A36	39.04	45.55	226.46
PIP	12.75X0.375	A572-50	104.00	442.00	5154.24
Bar	fic	A 36	76.00	12.67	0.38

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

Section Label	Joint Defining Section Bottom	Dead Load Adjust. Factor	Transverse Drag x Area Factor For Face	Longitudinal Drag x Area Factor For Face	Transverse Area Factor (CD From Code)	Longitudinal Area Factor (CD From Code)	Af Flat Factor For Face EIA Only	Ar Round Factor For Face EIA Only	Transverse Drag x Area Factor For All	Longitudinal Drag x Area Factor For All	SAPS Angle Drag x Area Factor	SAPS Round Drag x Area Factor	Force Solid Face
1	24P	1.000	3.200	3.200	1.000	1.000	0.000	0.000	1.000	1.000	0.000	0.000	None
2	14P	1.000	3.200	3.200	1.000	1.000	0.000	0.000	1.000	1.000	0.000	0.000	None
3	17P	1.050	3.200	3.200	1.050	1.050	0.000	0.000	1.000	1.000	0.000	0.000	None

Angle Member Connectivity:

Member Label	Group Label	Section Label	Symmetry Code	Origin Joint	End Joint	Ecc. Code	Rest. Code	Ratio RLX	Ratio RLY	Ratio RLZ	Bolt Type	# Bolts	# Bolt Holes	# Shear Planes	Connect Leg	Short Edge Dist. (in)	Long Edge Dist. (in)	End Dist. (in)	Bolt Spacing (in)	Shear Path Length (in)	Tension Path Length (in)	Rest. Coef.
g1P	LEG1		XY-Symmetry	1P	3P	1	4	1	1	1	5/8 A7	0	4	0		0	0	0	0	0	0	0

g1X	LEG1	X-GenXY	1X	3X	1	4	1	1	1 5/8	A7	0	4	0		0	0	0	0	0	0	0
g1XY	LEG1	XY-GenXY	1XY	3XY	1	4	1	1	1 5/8	A7	0	4	0		0	0	0	0	0	0	0
g1Y	LEG1	Y-GenXY	1Y	3Y	1	4	1	1	1 5/8	A7	0	4	0		0	0	0	0	0	0	0
g2P	LEG1	XY-Symmetry	3P	5P	1	4	1	1	1 5/8	A7	0	4	0		0	0	0	0	0	0	0
g2X	LEG1	X-GenXY	3X	5X	1	4	1	1	1 5/8	A7	0	4	0		0	0	0	0	0	0	0
g2XY	LEG1	XY-GenXY	3XY	5XY	1	4	1	1	1 5/8	A7	0	4	0		0	0	0	0	0	0	0
g2Y	LEG1	Y-GenXY	3Y	5Y	1	4	1	1	1 5/8	A7	0	4	0		0	0	0	0	0	0	0
g3P	LEG1	XY-Symmetry	5P	6P	1	4	1	1	1 5/8	A7	0	2	0		0	0	0	0	0	0	0
g3X	LEG1	X-GenXY	5X	6X	1	4	1	1	1 5/8	A7	0	2	0		0	0	0	0	0	0	0
g3XY	LEG1	XY-GenXY	5XY	6XY	1	4	1	1	1 5/8	A7	0	2	0		0	0	0	0	0	0	0
g3Y	LEG1	Y-GenXY	5Y	6Y	1	4	1	1	1 5/8	A7	0	2	0		0	0	0	0	0	0	0
g4P	LEG1	XY-Symmetry	6P	7P	1	4	1	1	1 5/8	A7	0	4	0		0	0	0	0	0	0	0
g4X	LEG1	X-GenXY	6X	7X	1	4	1	1	1 5/8	A7	0	4	0		0	0	0	0	0	0	0
g4XY	LEG1	XY-GenXY	6XY	7XY	1	4	1	1	1 5/8	A7	0	4	0		0	0	0	0	0	0	0
g4Y	LEG1	Y-GenXY	6Y	7Y	1	4	1	1	1 5/8	A7	0	4	0		0	0	0	0	0	0	0
g5P	LEG1	XY-Symmetry	7P	9P	1	4	1	1	1 5/8	A7	0	2	0		0	0	0	0	0	0	0
g5X	LEG1	X-GenXY	7X	9X	1	4	1	1	1 5/8	A7	0	2	0		0	0	0	0	0	0	0
g5XY	LEG1	XY-GenXY	7XY	9XY	1	4	1	1	1 5/8	A7	0	2	0		0	0	0	0	0	0	0
g5Y	LEG1	Y-GenXY	7Y	9Y	1	4	1	1	1 5/8	A7	0	2	0		0	0	0	0	0	0	0
g6P	LEG1	XY-Symmetry	9P	10P	1	4	1	1	1 5/8	A7	12	2	1	Both	1.25	2.375	1.5	4	0	0	0
g6X	LEG1	X-GenXY	9X	10X	1	4	1	1	1 5/8	A7	12	2	1	Both	1.25	2.375	1.5	4	0	0	0
g6XY	LEG1	XY-GenXY	9XY	10XY	1	4	1	1	1 5/8	A7	12	2	1	Both	1.25	2.375	1.5	4	0	0	0
g6Y	LEG1	Y-GenXY	9Y	10Y	1	4	1	1	1 5/8	A7	12	2	1	Both	1.25	2.375	1.5	4	0	0	0
g7P	LEG2	XY-Symmetry	10P	12P	1	4	1	1	1 5/8	A7	0	2	0		0	0	0	0	0	0	0
g7X	LEG2	X-GenXY	10X	12X	1	4	1	1	1 5/8	A7	0	2	0		0	0	0	0	0	0	0
g7XY	LEG2	XY-GenXY	10XY	12XY	1	4	1	1	1 5/8	A7	0	2	0		0	0	0	0	0	0	0
g7Y	LEG2	Y-GenXY	10Y	12Y	1	4	1	1	1 5/8	A7	0	2	0		0	0	0	0	0	0	0
g8P	LEG2	XY-Symmetry	12P	13P	1	4	1	1	1 5/8	A7	0	2	0		0	0	0	0	0	0	0
g8X	LEG2	X-GenXY	12X	13X	1	4	1	1	1 5/8	A7	0	2	0		0	0	0	0	0	0	0
g8XY	LEG2	XY-GenXY	12XY	13XY	1	4	1	1	1 5/8	A7	0	2	0		0	0	0	0	0	0	0

g8Y	LEG2	Y-GenXY	12Y	13Y	1	4	1	1	1	5/8	A7	0	2	0			0	0	0	0	0	0	0
g9P	LEG2	XY-Symmetry	13P	14P	1	4	1	1	1	5/8	A7	10	2.02	1	Both	0.875	2	1.5	3.5	0	0	0	
g9X	LEG2	X-GenXY	13X	14X	1	4	1	1	1	5/8	A7	10	2.02	1	Both	0.875	2	1.5	3.5	0	0	0	
g9XY	LEG2	XY-GenXY	13XY	14XY	1	4	1	1	1	5/8	A7	10	2.02	1	Both	0.875	2	1.5	3.5	0	0	0	
g9Y	LEG2	Y-GenXY	13Y	14Y	1	4	1	1	1	5/8	A7	10	2.02	1	Both	0.875	2	1.5	3.5	0	0	0	
g10P	LEG3	XY-Symmetry	14P	15P	1	4	0.5	0.5	0.5	5/8	A7	10	2	1	Both	1.3125	2.375	1.5	3.5	0	0	0	
g10X	LEG3	X-GenXY	14X	15X	1	4	0.5	0.5	0.5	5/8	A7	10	2	1	Both	1.3125	2.375	1.5	3.5	0	0	0	
g10XY	LEG3	XY-GenXY	14XY	15XY	1	4	0.5	0.5	0.5	5/8	A7	10	2	1	Both	1.3125	2.375	1.5	3.5	0	0	0	
g10Y	LEG3	Y-GenXY	14Y	15Y	1	4	0.5	0.5	0.5	5/8	A7	10	2	1	Both	1.3125	2.375	1.5	3.5	0	0	0	
g11P	LEG3	XY-Symmetry	15P	16P	1	4	0.33	0.33	0.33	5/8	A7	10	2	1	Both	0.875	1.9375	1.5	3.75	0	0	0	
g11X	LEG3	X-GenXY	15X	16X	1	4	0.33	0.33	0.33	5/8	A7	10	2	1	Both	0.875	1.9375	1.5	3.75	0	0	0	
g11XY	LEG3	XY-GenXY	15XY	16XY	1	4	0.33	0.33	0.33	5/8	A7	10	2	1	Both	0.875	1.9375	1.5	3.75	0	0	0	
g11Y	LEG3	Y-GenXY	15Y	16Y	1	4	0.33	0.33	0.33	5/8	A7	10	2	1	Both	0.875	1.9375	1.5	3.75	0	0	0	
g12P	LEG2	XY-Symmetry	16P	17P	1	4	1	1	1	5/8	A7	10	2	1	Both	0.5625	1.625	1.5625	3.75	0	0	0	
g12X	LEG2	X-GenXY	16X	17X	1	4	1	1	1	5/8	A7	10	2	1	Both	0.5625	1.625	1.5625	3.75	0	0	0	
g12XY	LEG2	XY-GenXY	16XY	17XY	1	4	1	1	1	5/8	A7	10	2	1	Both	0.5625	1.625	1.5625	3.75	0	0	0	
g12Y	LEG2	Y-GenXY	16Y	17Y	1	4	1	1	1	5/8	A7	10	2	1	Both	0.5625	1.625	1.5625	3.75	0	0	0	
g13P	XBR1	XY-Symmetry	1P	3X	2	5	0.75	0.5	0.5	5/8	A7	2	1	1	Short only	0.8125	0	1	2	0	0	0	
g13X	XBR1	X-GenXY	1X	3P	2	5	0.75	0.5	0.5	5/8	A7	2	1	1	Short only	0.8125	0	1	2	0	0	0	
g13XY	XBR1	XY-GenXY	1XY	3Y	2	5	0.75	0.5	0.5	5/8	A7	2	1	1	Short only	0.8125	0	1	2	0	0	0	
g13Y	XBR1	Y-GenXY	1Y	3XY	2	5	0.75	0.5	0.5	5/8	A7	2	1	1	Short only	0.8125	0	1	2	0	0	0	
g14P	XBR1	XY-Symmetry	1X	3XY	2	5	0.75	0.5	0.5	5/8	A7	2	1	1	Short only	0.8125	0	1	2	0	0	0	
g14X	XBR1	X-GenXY	1P	3Y	2	5	0.75	0.5	0.5	5/8	A7	2	1	1	Short only	0.8125	0	1	2	0	0	0	
g14XY	XBR1	XY-GenXY	1Y	3P	2	5	0.75	0.5	0.5	5/8	A7	2	1	1	Short only	0.8125	0	1	2	0	0	0	
g14Y	XBR1	Y-GenXY	1XY	3X	2	5	0.75	0.5	0.5	5/8	A7	2	1	1	Short only	0.8125	0	1	2	0	0	0	
g15P	XBR2	XY-Symmetry	3P	5X	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	3.125	0	0	0	
g15X	XBR2	X-GenXY	3X	5P	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	3.125	0	0	0	
g15XY	XBR2	XY-GenXY	3XY	5Y	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	3.125	0	0	0	
g15Y	XBR2	Y-GenXY	3Y	5XY	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	3.125	0	0	0	
g16P	XBR2	XY-Symmetry	3X	5XY	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	3.125	0	0	0	

g16X	XBR2	X-GenXY	3P	5Y	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	3.125	0	0	0
g16XY	XBR2	XY-GenXY	3Y	5P	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	3.125	0	0	0
g16Y	XBR2	Y-GenXY	3XY	5X	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	3.125	0	0	0
g17P	XBR3	XY-Symmetry	5P	18S	2	4	1	1.5	1	5/8	A7	3	1	1	Long only	0.875	2	1	3.125	0	0	0
g17X	XBR3	X-GenXY	5X	18S	2	4	1	1.5	1	5/8	A7	3	1	1	Long only	0.875	2	1	3.125	0	0	0
g17XY	XBR3	XY-GenXY	5XY	18Y	2	4	1	1.5	1	5/8	A7	3	1	1	Long only	0.875	2	1	3.125	0	0	0
g17Y	XBR3	Y-GenXY	5Y	18Y	2	4	1	1.5	1	5/8	A7	3	1	1	Long only	0.875	2	1	3.125	0	0	0
g18P	XBR3	XY-Symmetry	5X	19X	2	4	1	1.5	1	5/8	A7	3	1	1	Long only	0.875	2	1	3.125	0	0	0
g18X	XBR3	X-GenXY	5P	19S	2	4	1	1.5	1	5/8	A7	3	1	1	Long only	0.875	2	1	3.125	0	0	0
g18XY	XBR3	XY-GenXY	5Y	19S	2	4	1	1.5	1	5/8	A7	3	1	1	Long only	0.875	2	1	3.125	0	0	0
g18Y	XBR3	Y-GenXY	5XY	19X	2	4	1	1.5	1	5/8	A7	3	1	1	Long only	0.875	2	1	3.125	0	0	0
g19P	XBR3	XY-Symmetry	18S	7P	2	4	1	1.5	1	5/8	A7	3	1	1	Long only	0.875	2	1	3.125	0	0	0
g19X	XBR3	X-GenXY	18S	7X	2	4	1	1.5	1	5/8	A7	3	1	1	Long only	0.875	2	1	3.125	0	0	0
g19XY	XBR3	XY-GenXY	18Y	7XY	2	4	1	1.5	1	5/8	A7	3	1	1	Long only	0.875	2	1	3.125	0	0	0
g19Y	XBR3	Y-GenXY	18Y	7Y	2	4	1	1.5	1	5/8	A7	3	1	1	Long only	0.875	2	1	3.125	0	0	0
g20P	XBR3	XY-Symmetry	19X	7X	2	4	1	1.5	1	5/8	A7	3	1	1	Long only	0.875	2	1	3.125	0	0	0
g20X	XBR3	X-GenXY	19S	7P	2	4	1	1.5	1	5/8	A7	3	1	1	Long only	0.875	2	1	3.125	0	0	0
g20XY	XBR3	XY-GenXY	19S	7Y	2	4	1	1.5	1	5/8	A7	3	1	1	Long only	0.875	2	1	3.125	0	0	0
g20Y	XBR3	Y-GenXY	19X	7XY	2	4	1	1.5	1	5/8	A7	3	1	1	Long only	0.875	2	1	3.125	0	0	0
g21P	XBR2	XY-Symmetry	7P	9X	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	2.75	0	0	0
g21X	XBR2	X-GenXY	7X	9P	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	2.75	0	0	0
g21XY	XBR2	XY-GenXY	7XY	9Y	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	2.75	0	0	0
g21Y	XBR2	Y-GenXY	7Y	9XY	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	2.75	0	0	0
g22P	XBR2	XY-Symmetry	7X	9XY	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	2.75	0	0	0
g22X	XBR2	X-GenXY	7P	9Y	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	2.75	0	0	0
g22XY	XBR2	XY-GenXY	7Y	9P	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	2.75	0	0	0
g22Y	XBR2	Y-GenXY	7XY	9X	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	2.75	0	0	0
g23P	XBR2	XY-Symmetry	9P	10X	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	2.75	0	0	0
g23X	XBR2	X-GenXY	9X	10P	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	2.75	0	0	0
g23XY	XBR2	XY-GenXY	9XY	10Y	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	2.75	0	0	0

g23Y	XBR2	Y-GenXY	9Y	10XY	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	2.75	0	0
g24P	XBR2	XY-Symmetry	9X	10XY	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	2.75	0	0
g24X	XBR2	X-GenXY	9P	10Y	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	2.75	0	0
g24XY	XBR2	XY-GenXY	9Y	10P	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	2.75	0	0
g24Y	XBR2	Y-GenXY	9XY	10X	2	5	0.5	0.75	0.5	5/8	A7	3	1	1	Long only	0.875	2	1	2.75	0	0
g25P	XBR4	XY-Symmetry	10P	12X	2	5	0.78	0.56	0.56	5/8	A7	2	1	1	Short only	1	0	1	1.6875	0	0
g25X	XBR4	X-GenXY	10X	12P	2	5	0.78	0.56	0.56	5/8	A7	2	1	1	Short only	1	0	1	1.6875	0	0
g25XY	XBR4	XY-GenXY	10XY	12Y	2	5	0.78	0.56	0.56	5/8	A7	2	1	1	Short only	1	0	1	1.6875	0	0
g25Y	XBR4	Y-GenXY	10Y	12XY	2	5	0.78	0.56	0.56	5/8	A7	2	1	1	Short only	1	0	1	1.6875	0	0
g26P	XBR4	XY-Symmetry	10X	12XY	2	5	0.78	0.56	0.56	5/8	A7	2	1	1	Short only	1	0	1	1.6875	0	0
g26X	XBR4	X-GenXY	10P	12Y	2	5	0.78	0.56	0.56	5/8	A7	2	1	1	Short only	1	0	1	1.6875	0	0
g26XY	XBR4	XY-GenXY	10Y	12P	2	5	0.78	0.56	0.56	5/8	A7	2	1	1	Short only	1	0	1	1.6875	0	0
g26Y	XBR4	Y-GenXY	10XY	12X	2	5	0.78	0.56	0.56	5/8	A7	2	1	1	Short only	1	0	1	1.6875	0	0
g27P	XBR5	XY-Symmetry	12P	13X	2	5	0.56	0.78	0.56	5/8	A7	2	1	1	Long only	1	0	1	2.375	0	0
g27X	XBR5	X-GenXY	12X	13P	2	5	0.56	0.78	0.56	5/8	A7	2	1	1	Long only	1	0	1	2.375	0	0
g27XY	XBR5	XY-GenXY	12XY	13Y	2	5	0.56	0.78	0.56	5/8	A7	2	1	1	Long only	1	0	1	2.375	0	0
g27Y	XBR5	Y-GenXY	12Y	13XY	2	5	0.56	0.78	0.56	5/8	A7	2	1	1	Long only	1	0	1	2.375	0	0
g28P	XBR5	XY-Symmetry	12X	13XY	2	5	0.56	0.78	0.56	5/8	A7	2	1	1	Long only	1	0	1	2.375	0	0
g28X	XBR5	X-GenXY	12P	13Y	2	5	0.56	0.78	0.56	5/8	A7	2	1	1	Long only	1	0	1	2.375	0	0
g28XY	XBR5	XY-GenXY	12Y	13P	2	5	0.56	0.78	0.56	5/8	A7	2	1	1	Long only	1	0	1	2.375	0	0
g28Y	XBR5	Y-GenXY	12XY	13X	2	5	0.56	0.78	0.56	5/8	A7	2	1	1	Long only	1	0	1	2.375	0	0
g29P	XBR5	XY-Symmetry	13P	14X	2	5	0.56	0.78	0.56	5/8	A7	2	1	1	Long only	1	0	1	2.25	0	0
g29X	XBR5	X-GenXY	13X	14P	2	5	0.56	0.78	0.56	5/8	A7	2	1	1	Long only	1	0	1	2.25	0	0
g29XY	XBR5	XY-GenXY	13XY	14Y	2	5	0.56	0.78	0.56	5/8	A7	2	1	1	Long only	1	0	1	2.25	0	0
g29Y	XBR5	Y-GenXY	13Y	14XY	2	5	0.56	0.78	0.56	5/8	A7	2	1	1	Long only	1	0	1	2.25	0	0
g30P	XBR5	XY-Symmetry	13X	14XY	2	5	0.56	0.78	0.56	5/8	A7	2	1	1	Long only	1	0	1	2.25	0	0
g30X	XBR5	X-GenXY	13P	14Y	2	5	0.56	0.78	0.56	5/8	A7	2	1	1	Long only	1	0	1	2.25	0	0
g30XY	XBR5	XY-GenXY	13Y	14P	2	5	0.56	0.78	0.56	5/8	A7	2	1	1	Long only	1	0	1	2.25	0	0
g30Y	XBR5	Y-GenXY	13XY	14X	2	5	0.56	0.78	0.56	5/8	A7	2	1	1	Long only	1	0	1	2.25	0	0
g31P	XBR6	XY-Symmetry	14P	15X	2	5	0.79	0.58	0.58	5/8	A7	2	1	1	Short only	1	0	1	2.1875	0	0

g31X	XBR6	X-GenXY	14X	15P	2	5	0.79	0.58	0.58	5/8	A7	2	1	1	Short only	1	0	1	2.1875	0	0	0
g31XY	XBR6	XY-GenXY	14XY	15Y	2	5	0.79	0.58	0.58	5/8	A7	2	1	1	Short only	1	0	1	2.1875	0	0	0
g31Y	XBR6	Y-GenXY	14Y	15XY	2	5	0.79	0.58	0.58	5/8	A7	2	1	1	Short only	1	0	1	2.1875	0	0	0
g32P	XBR6	XY-Symmetry	14X	15XY	2	5	0.79	0.58	0.58	5/8	A7	2	1	1	Short only	1	0	1	2.1875	0	0	0
g32X	XBR6	X-GenXY	14P	15Y	2	5	0.79	0.58	0.58	5/8	A7	2	1	1	Short only	1	0	1	2.1875	0	0	0
g32XY	XBR6	XY-GenXY	14Y	15P	2	5	0.79	0.58	0.58	5/8	A7	2	1	1	Short only	1	0	1	2.1875	0	0	0
g32Y	XBR6	Y-GenXY	14XY	15X	2	5	0.79	0.58	0.58	5/8	A7	2	1	1	Short only	1	0	1	2.1875	0	0	0
g33P	XBR7	XY-Symmetry	15P	16X	2	5	0.8	0.41	0.41	5/8	A7	2	1	1	Short only	0.875	0	1	2.125	0	0	0
g33X	XBR7	X-GenXY	15X	16P	2	5	0.8	0.41	0.41	5/8	A7	2	1	1	Short only	0.875	0	1	2.125	0	0	0
g33XY	XBR7	XY-GenXY	15XY	16Y	2	5	0.8	0.41	0.41	5/8	A7	2	1	1	Short only	0.875	0	1	2.125	0	0	0
g33Y	XBR7	Y-GenXY	15Y	16XY	2	5	0.8	0.41	0.41	5/8	A7	2	1	1	Short only	0.875	0	1	2.125	0	0	0
g34P	XBR7	XY-Symmetry	15X	16XY	2	5	0.8	0.41	0.41	5/8	A7	2	1	1	Short only	0.875	0	1	2.125	0	0	0
g34X	XBR7	X-GenXY	15P	16Y	2	5	0.8	0.41	0.41	5/8	A7	2	1	1	Short only	0.875	0	1	2.125	0	0	0
g34XY	XBR7	XY-GenXY	15Y	16P	2	5	0.8	0.41	0.41	5/8	A7	2	1	1	Short only	0.875	0	1	2.125	0	0	0
g34Y	XBR7	Y-GenXY	15XY	16X	2	5	0.8	0.41	0.41	5/8	A7	2	1	1	Short only	0.875	0	1	2.125	0	0	0
g35P	XBR3	XY-Symmetry	17P	20S	3	4	1	0.5	0.5	5/8	A7	1	1	1	Short only	0.875	0	1	0	0	0	0
g35X	XBR3	X-GenXY	17X	20S	3	4	1	0.5	0.5	5/8	A7	1	1	1	Short only	0.875	0	1	0	0	0	0
g35XY	XBR3	XY-GenXY	17XY	20Y	3	4	1	0.5	0.5	5/8	A7	1	1	1	Short only	0.875	0	1	0	0	0	0
g35Y	XBR3	Y-GenXY	17Y	20Y	3	4	1	0.5	0.5	5/8	A7	1	1	1	Short only	0.875	0	1	0	0	0	0
g36P	XBR3	XY-Symmetry	17X	21X	3	4	1	0.5	0.5	5/8	A7	1	1	1	Short only	0.875	0	1	0	0	0	0
g36X	XBR3	X-GenXY	17P	21S	3	4	1	0.5	0.5	5/8	A7	1	1	1	Short only	0.875	0	1	0	0	0	0
g36XY	XBR3	XY-GenXY	17Y	21S	3	4	1	0.5	0.5	5/8	A7	1	1	1	Short only	0.875	0	1	0	0	0	0
g36Y	XBR3	Y-GenXY	17XY	21X	3	4	1	0.5	0.5	5/8	A7	1	1	1	Short only	0.875	0	1	0	0	0	0
g37P	HBR1	X-Symmetry	1P	1Y	3	4	1	1	1	5/8	A7	1	1	1	Short only	0.875	0	1	0	0	0	0
g37X	HBR1	X-Gen	1X	1XY	3	4	1	1	1	5/8	A7	1	1	1	Short only	0.875	0	1	0	0	0	0
g38P	HBR1	X-Symmetry	3P	3Y	3	4	1	1	1	5/8	A7	1	1	1	Short only	0.875	0	1	0	0	0	0
g38X	HBR1	X-Gen	3X	3XY	3	4	1	1	1	5/8	A7	1	1	1	Short only	0.875	0	1	0	0	0	0
g39P	HBR1	X-Symmetry	7P	7Y	3	4	1	1	1	5/8	A7	1	1	1	Short only	0.875	0	1	0	0	0	0
g39X	HBR1	X-Gen	7X	7XY	3	4	1	1	1	5/8	A7	1	1	1	Short only	0.875	0	1	0	0	0	0
g40P	HBR1	X-Symmetry	10P	10Y	3	4	1	1	1	5/8	A7	1	1	1	Short only	0.875	0	1	0	0	0	0

g40X	HBR1	X-Gen	10X	10XY	3	4	1	1	1	5/8	A7	1	1	1	Short only	0.875	0	1	0	0	0
g41P	HBR2	X-Symmetry	14P	14Y	3	4	1	0.5	0.5	5/8	A7	1	1	1	Short only	0.875	0	1	0	0	0
g41X	HBR2	X-Gen	14X	14XY	3	4	1	0.5	0.5	5/8	A7	1	1	1	Short only	0.875	0	1	0	0	0
g42P	HBR2	Y-Symmetry	14P	14X	3	4	1	0.5	0.5	5/8	A7	1	1	1	Short only	0.875	0	1	0	0	0
g42Y	HBR2	Y-Gen	14Y	14XY	3	4	1	0.5	0.5	5/8	A7	1	1	1	Short only	0.875	0	1	0	0	0
g43P	HBR3	X-Symmetry	15P	15Y	3	4	1	0.5	0.5	5/8	A7	1	1	1	Short only	1.25	0	1	0	0	0
g43X	HBR3	X-Gen	15X	15XY	3	4	1	0.5	0.5	5/8	A7	1	1	1	Short only	1.25	0	1	0	0	0
g44P	HBR3	Y-Symmetry	15P	15X	3	4	1	0.5	0.5	5/8	A7	1	1	1	Short only	1.25	0	1	0	0	0
g44Y	HBR3	Y-Gen	15Y	15XY	3	4	1	0.5	0.5	5/8	A7	1	1	1	Short only	1.25	0	1	0	0	0
g45P	HBR4	XY-Symmetry	16P	20S	3	4	2	1	1	5/8	A7	1	1	1	Short only	1.25	0	1	0	0	0
g45X	HBR4	X-GenXY	16X	20S	3	4	2	1	1	5/8	A7	1	1	1	Short only	1.25	0	1	0	0	0
g45XY	HBR4	XY-GenXY	16XY	20Y	3	4	2	1	1	5/8	A7	1	1	1	Short only	1.25	0	1	0	0	0
g45Y	HBR4	Y-GenXY	16Y	20Y	3	4	2	1	1	5/8	A7	1	1	1	Short only	1.25	0	1	0	0	0
g46P	HBR4	XY-Symmetry	16P	21S	3	4	2	1	1	5/8	A7	1	1	1	Short only	1.25	0	1	0	0	0
g46X	HBR4	X-GenXY	16X	21X	3	4	2	1	1	5/8	A7	1	1	1	Short only	1.25	0	1	0	0	0
g46XY	HBR4	XY-GenXY	16XY	21X	3	4	2	1	1	5/8	A7	1	1	1	Short only	1.25	0	1	0	0	0
g46Y	HBR4	Y-GenXY	16Y	21S	3	4	2	1	1	5/8	A7	1	1	1	Short only	1.25	0	1	0	0	0
g47P	Arm1	XY-Symmetry	2P	1P	3	5	1	0.5	0.5	5/8	A7	3	1	1	Long only	0	0	0	0	0	0
g47X	Arm1	X-GenXY	2X	1X	3	5	1	0.5	0.5	5/8	A7	3	1	1	Long only	0	0	0	0	0	0
g47XY	Arm1	XY-GenXY	2X	1XY	3	5	1	0.5	0.5	5/8	A7	3	1	1	Long only	0	0	0	0	0	0
g47Y	Arm1	Y-GenXY	2P	1Y	3	5	1	0.5	0.5	5/8	A7	3	1	1	Long only	0	0	0	0	0	0
g48P	Arm1	Y-Symmetry	1P	1X	3	6	1	1	1	5/8	A7	0	0	0		0	0	0	0	0	0
g48Y	Arm1	Y-Gen	1Y	1XY	3	6	1	1	1	5/8	A7	0	0	0		0	0	0	0	0	0
g49P	Arm1	XY-Symmetry	4P	3P	3	5	1	0.5	0.5	5/8	A7	3	1	1	Long only	0	0	0	0	0	0
g49X	Arm1	X-GenXY	4X	3X	3	5	1	0.5	0.5	5/8	A7	3	1	1	Long only	0	0	0	0	0	0
g49XY	Arm1	XY-GenXY	4X	3XY	3	5	1	0.5	0.5	5/8	A7	3	1	1	Long only	0	0	0	0	0	0
g49Y	Arm1	Y-GenXY	4P	3Y	3	5	1	0.5	0.5	5/8	A7	3	1	1	Long only	0	0	0	0	0	0
g50P	Arm1	Y-Symmetry	3P	3X	3	6	1	1	1	5/8	A7	0	0	0		0	0	0	0	0	0
g50Y	Arm1	Y-Gen	3Y	3XY	3	6	1	1	1	5/8	A7	0	0	0		0	0	0	0	0	0
g51P	Arm1	XY-Symmetry	11P	10P	3	5	1	0.5	0.5	5/8	A7	3	1	1	Long only	0	0	0	0	0	0

g51X	Arm1	X-GenXY	11X	10X	3	5	1	0.5	0.5	5/8	A7	3	1	1	Long only	0	0	0	0	0	0
g51XY	Arm1	XY-GenXY	11X	10XY	3	5	1	0.5	0.5	5/8	A7	3	1	1	Long only	0	0	0	0	0	0
g51Y	Arm1	Y-GenXY	11P	10Y	3	5	1	0.5	0.5	5/8	A7	3	1	1	Long only	0	0	0	0	0	0
g52P	Arm1	Y-Symmetry	10P	10X	3	6	1	1	1	5/8	A7	0	0	0		0	0	0	0	0	0
g52Y	Arm1	Y-Gen	10Y	10XY	3	6	1	1	1	5/8	A7	0	0	0		0	0	0	0	0	0
g53P	Arm2	XY-Symmetry	8P	7P	3	5	1	0.5	0.5	5/8	A7	3	1	1	Long only	0	0	0	0	0	0
g53X	Arm2	X-GenXY	8X	7X	3	5	1	0.5	0.5	5/8	A7	3	1	1	Long only	0	0	0	0	0	0
g53XY	Arm2	XY-GenXY	8X	7XY	3	5	1	0.5	0.5	5/8	A7	3	1	1	Long only	0	0	0	0	0	0
g53Y	Arm2	Y-GenXY	8P	7Y	3	5	1	0.5	0.5	5/8	A7	3	1	1	Long only	0	0	0	0	0	0
g54P	Arm2	Y-Symmetry	7P	7X	3	6	1	1	1	5/8	A7	0	0	0		0	0	0	0	0	0
g54Y	Arm2	Y-Gen	7Y	7XY	3	6	1	1	1	5/8	A7	0	0	0		0	0	0	0	0	0
g55P	ArmBR1	X-Symmetry	2P	4P	3	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0	0	0
g55X	ArmBR1	X-Gen	2X	4X	3	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0	0	0
g56P	ArmBR2	XY-Symmetry	4P	1P	3	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0	0	0
g56X	ArmBR2	X-GenXY	4X	1X	3	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0	0	0
g56XY	ArmBR2	XY-GenXY	4X	1XY	3	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0	0	0
g56Y	ArmBR2	Y-GenXY	4P	1Y	3	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0	0	0
g57P	ArmBR2	XY-Symmetry	8P	6P	3	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0	0	0
g57X	ArmBR2	X-GenXY	8X	6X	3	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0	0	0
g57XY	ArmBR2	XY-GenXY	8X	6XY	3	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0	0	0
g57Y	ArmBR2	Y-GenXY	8P	6Y	3	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0	0	0
g58P	ArmBR2	XY-Symmetry	6P	18S	2	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0	0	0
g58X	ArmBR2	X-GenXY	6X	18S	2	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0	0	0
g58XY	ArmBR2	XY-GenXY	6XY	18Y	2	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0	0	0
g58Y	ArmBR2	Y-GenXY	6Y	18Y	2	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0	0	0
g59P	ArmBR2	XY-Symmetry	11P	9P	3	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0	0	0
g59X	ArmBR2	X-GenXY	11X	9X	3	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0	0	0
g59XY	ArmBR2	XY-GenXY	11X	9XY	3	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0	0	0
g59Y	ArmBR2	Y-GenXY	11P	9Y	3	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0	0	0
g60P	PMBR1	XY-Symmetry	1P	24P	3	4	1	1	1	5/8	A7	1	1	1	Long only	0	0	0	0	0	0

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   g60X    PMBR1              X-GenXY     1X   24P    3     4     1     1     1 5/8 A7     1      1       1  Long only      0      0      0       0
0       0     0
  g60XY    PMBR1             XY-GenXY    1XY   24P    3     4     1     1     1 5/8 A7     1      1       1  Long only      0      0      0       0
0       0     0
   g60Y    PMBR1              Y-GenXY     1Y   24P    3     4     1     1     1 5/8 A7     1      1       1  Long only      0      0      0       0
0       0     0
   g61P    PMBR1           XY-Symmetry     3P   25P    3     4     1     1     1 5/8 A7     1      1       1  Long only      0      0      0       0
0       0     0
   g61X    PMBR1              X-GenXY     3X   25P    3     4     1     1     1 5/8 A7     1      1       1  Long only      0      0      0       0
0       0     0
  g61XY    PMBR1             XY-GenXY    3XY   25P    3     4     1     1     1 5/8 A7     1      1       1  Long only      0      0      0       0
0       0     0
   g61Y    PMBR1              Y-GenXY     3Y   25P    3     4     1     1     1 5/8 A7     1      1       1  Long only      0      0      0       0
0       0     0
   g62P    PMBR1           XY-Symmetry     7P   26P    3     4     1     1     1 5/8 A7     1      1       1  Long only      0      0      0       0
0       0     0
   g62X    PMBR1              X-GenXY     7X   26P    3     4     1     1     1 5/8 A7     1      1       1  Long only      0      0      0       0
0       0     0
  g62XY    PMBR1             XY-GenXY    7XY   26P    3     4     1     1     1 5/8 A7     1      1       1  Long only      0      0      0       0
0       0     0
   g62Y    PMBR1              Y-GenXY     7Y   26P    3     4     1     1     1 5/8 A7     1      1       1  Long only      0      0      0       0
0       0     0
   g63P    PMBR1           XY-Symmetry    10P   27P    3     4     1     1     1 5/8 A7     1      1       1  Long only      0      0      0       0
0       0     0
   g63X    PMBR1              X-GenXY    10X   27P    3     4     1     1     1 5/8 A7     1      1       1  Long only      0      0      0       0
0       0     0
  g63XY    PMBR1             XY-GenXY   10XY   27P    3     4     1     1     1 5/8 A7     1      1       1  Long only      0      0      0       0
0       0     0
   g63Y    PMBR1              Y-GenXY    10Y   27P    3     4     1     1     1 5/8 A7     1      1       1  Long only      0      0      0       0
0       0     0
   g64P    PMBR2           XY-Symmetry    15P   28P    3     4     1     1     1 5/8 A7     1      1       1  Long only      0      0      0       0
0       0     0
   g64X    PMBR2              X-GenXY    15X   28P    3     4     1     1     1 5/8 A7     1      1       1  Long only      0      0      0       0
0       0     0
  g64XY    PMBR2             XY-GenXY   15XY   28P    3     4     1     1     1 5/8 A7     1      1       1  Long only      0      0      0       0
0       0     0
   g64Y    PMBR2              Y-GenXY    15Y   28P    3     4     1     1     1 5/8 A7     1      1       1  Long only      0      0      0       0
0       0     0
   g65P Powermnt                 None    29P   28P    1     4     1     1     1            0      0       0                 0      0      0       0
0       0     0
   g66P Powermnt                 None    28P   27P    1     4     1     1     1            0      0       0                 0      0      0       0
0       0     0
   g67P Powermnt                 None    27P   26P    1     4     1     1     1            0      0       0                 0      0      0       0
0       0     0
   g68P Powermnt                 None    26P   25P    1     4     1     1     1            0      0       0                 0      0      0       0
0       0     0
   g69P Powermnt                 None    25P   24P    1     4     1     1     1            0      0       0                 0      0      0       0
0       0     0
   g70P Powermnt                 None    24P   23P    1     4     1     1     1            0      0       0                 0      0      0       0
0       0     0
   g71P Powermnt                 None    23P   22P    1     4     1     1     1            0      0       0                 0      0      0       0
0       0     0
   g72P     fic1           X-Symmetry    30X   32X    1     4     1     1     1            0      0       0                 0      0      0       0
0       0     0
   g72X     fic1                X-Gen    30P   32P    1     4     1     1     1            0      0       0                 0      0      0       0
0       0     0
   g73P     fic1           Y-Symmetry    33P   31P    1     4     1     1     1            0      0       0                 0      0      0       0
0       0     0
   g73Y     fic1                Y-Gen    33Y   31Y    1     4     1     1     1            0      0       0                 0      0      0       0
0       0     0
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g74P	fic	X-Symmetry	32X	22P	1	4	1	1	1		0	0	0		0	0	0	0	0	0
g74X	fic	X-Gen	32P	22P	1	4	1	1	1		0	0	0		0	0	0	0	0	0
g75P	fic	X-Symmetry	30X	24P	1	4	1	1	1		0	0	0		0	0	0	0	0	0
g75X	fic	X-Gen	30P	24P	1	4	1	1	1		0	0	0		0	0	0	0	0	0
g76P	fic	Y-Symmetry	31P	24P	1	4	1	1	1		0	0	0		0	0	0	0	0	0
g76Y	fic	Y-Gen	31Y	24P	1	4	1	1	1		0	0	0		0	0	0	0	0	0
g77P	fic	Y-Symmetry	33P	22P	1	4	1	1	1		0	0	0		0	0	0	0	0	0
g77Y	fic	Y-Gen	33Y	22P	1	4	1	1	1		0	0	0		0	0	0	0	0	0
g78P	HBR5	XY-Symmetry	6X	19X	3	4	1	1	1	5/8 A7	1	1	1	Short only	0.875	0	1	0	0	0
g78X	HBR5	X-GenXY	6P	19S	3	4	1	1	1	5/8 A7	1	1	1	Short only	0.875	0	1	0	0	0
g78XY	HBR5	XY-GenXY	6Y	19S	3	4	1	1	1	5/8 A7	1	1	1	Short only	0.875	0	1	0	0	0
g78Y	HBR5	Y-GenXY	6XY	19X	3	4	1	1	1	5/8 A7	1	1	1	Short only	0.875	0	1	0	0	0

Member Capacities and Overrides:

Member Label	Group Label	Design Comp. Capacity	Override Comp. Control	Override Tension Criterion	Comp. Capacity	Override Tension Control	Override Tension Face	Tension Capacity	L/r Length (ft)	L/r Comp. Capacity (kips)	Connection Shear Capacity (kips)	Connection Bearing Capacity (kips)	Net Section Tension Capacity (kips)	Rupture Tension Capacity (kips)	RTE End Dist. Capacity (kips)	RTE Edge Dist. Tension Capacity (kips)	Override Comp. Capacity (kips)	Warnings or Errors
g1P	LEG1	53.509	L/r	41.332	Net Sect	75	5.00	53.509	0.000	0.000	41.332	0.000	0.000	0.000	0.000	0.000	Automatic	
g1X	LEG1	53.509	L/r	41.332	Net Sect	75	5.00	53.509	0.000	0.000	41.332	0.000	0.000	0.000	0.000	0.000	Automatic	
g1XY	LEG1	53.509	L/r	41.332	Net Sect	75	5.00	53.509	0.000	0.000	41.332	0.000	0.000	0.000	0.000	0.000	Automatic	
g1Y	LEG1	53.509	L/r	41.332	Net Sect	75	5.00	53.509	0.000	0.000	41.332	0.000	0.000	0.000	0.000	0.000	Automatic	
g2P	LEG1	48.884	L/r	41.332	Net Sect	91	6.00	48.884	0.000	0.000	41.332	0.000	0.000	0.000	0.000	0.000	Automatic	
g2X	LEG1	48.884	L/r	41.332	Net Sect	91	6.00	48.884	0.000	0.000	41.332	0.000	0.000	0.000	0.000	0.000	Automatic	
g2XY	LEG1	48.884	L/r	41.332	Net Sect	91	6.00	48.884	0.000	0.000	41.332	0.000	0.000	0.000	0.000	0.000	Automatic	
g2Y	LEG1	48.884	L/r	41.332	Net Sect	91	6.00	48.884	0.000	0.000	41.332	0.000	0.000	0.000	0.000	0.000	Automatic	
g3P	LEG1	60.236	L/r	52.676	Net Sect	45	3.00	60.236	0.000	0.000	52.676	0.000	0.000	0.000	0.000	0.000		

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0.000             0.000          Automatic
    g3X     LEG1   60.236       L/r   52.676  Net Sect      45   3.00   60.236      0.000      0.000   52.676    0.000    0.000    0.000    0.000
0.000             0.000          Automatic
   g3XY     LEG1   60.236       L/r   52.676  Net Sect      45   3.00   60.236      0.000      0.000   52.676    0.000    0.000    0.000    0.000
0.000             0.000          Automatic
    g3Y     LEG1   60.236       L/r   52.676  Net Sect      45   3.00   60.236      0.000      0.000   52.676    0.000    0.000    0.000    0.000
0.000             0.000          Automatic
    g4P     LEG1   60.236       L/r   41.332  Net Sect      45   3.00   60.236      0.000      0.000   41.332    0.000    0.000    0.000    0.000
0.000             0.000          Automatic
    g4X     LEG1   60.236       L/r   41.332  Net Sect      45   3.00   60.236      0.000      0.000   41.332    0.000    0.000    0.000    0.000
0.000             0.000          Automatic
   g4XY     LEG1   60.236       L/r   41.332  Net Sect      45   3.00   60.236      0.000      0.000   41.332    0.000    0.000    0.000    0.000
0.000             0.000          Automatic
    g4Y     LEG1   60.236       L/r   41.332  Net Sect      45   3.00   60.236      0.000      0.000   41.332    0.000    0.000    0.000    0.000
0.000             0.000          Automatic
    g5P     LEG1   53.509       L/r   52.676  Net Sect      75   5.00   53.509      0.000      0.000   52.676    0.000    0.000    0.000    0.000
0.000             0.000          Automatic
    g5X     LEG1   53.509       L/r   52.676  Net Sect      75   5.00   53.509      0.000      0.000   52.676    0.000    0.000    0.000    0.000
0.000             0.000          Automatic
   g5XY     LEG1   53.509       L/r   52.676  Net Sect      75   5.00   53.509      0.000      0.000   52.676    0.000    0.000    0.000    0.000
0.000             0.000          Automatic
    g5Y     LEG1   53.509       L/r   52.676  Net Sect      75   5.00   53.509      0.000      0.000   52.676    0.000    0.000    0.000    0.000
0.000             0.000          Automatic
    g6P     LEG1   53.509       L/r   52.676  Net Sect      75   5.00   53.509    125.640    168.750   52.676  220.588    0.000    0.000    0.000
0.000             0.000          Automatic   Member "g6P" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
    g6X     LEG1   53.509       L/r   52.676  Net Sect      75   5.00   53.509    125.640    168.750   52.676  220.588    0.000    0.000    0.000
0.000             0.000          Automatic   Member "g6X" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g6XY     LEG1   53.509       L/r   52.676  Net Sect      75   5.00   53.509    125.640    168.750   52.676  220.588    0.000    0.000    0.000
0.000             0.000          Automatic   Member "g6XY" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
    g6Y     LEG1   53.509       L/r   52.676  Net Sect      75   5.00   53.509    125.640    168.750   52.676  220.588    0.000    0.000    0.000
0.000             0.000          Automatic   Member "g6Y" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
    g7P     LEG2   65.816       L/r   65.020  Net Sect      77   5.05   65.816      0.000      0.000   65.020    0.000    0.000    0.000    0.000
0.000             0.000          Automatic
    g7X     LEG2   65.816       L/r   65.020  Net Sect      77   5.05   65.816      0.000      0.000   65.020    0.000    0.000    0.000    0.000
0.000             0.000          Automatic
   g7XY     LEG2   65.816       L/r   65.020  Net Sect      77   5.05   65.816      0.000      0.000   65.020    0.000    0.000    0.000    0.000
0.000             0.000          Automatic
    g7Y     LEG2   65.816       L/r   65.020  Net Sect      77   5.05   65.816      0.000      0.000   65.020    0.000    0.000    0.000    0.000
0.000             0.000          Automatic
    g8P     LEG2   59.927       L/r   65.020  Net Sect      92   6.06   59.927      0.000      0.000   65.020    0.000    0.000    0.000    0.000
0.000             0.000          Automatic
    g8X     LEG2   59.927       L/r   65.020  Net Sect      92   6.06   59.927      0.000      0.000   65.020    0.000    0.000    0.000    0.000
0.000             0.000          Automatic
   g8XY     LEG2   59.927       L/r   65.020  Net Sect      92   6.06   59.927      0.000      0.000   65.020    0.000    0.000    0.000    0.000
0.000             0.000          Automatic
    g8Y     LEG2   59.927       L/r   65.020  Net Sect      92   6.06   59.927      0.000      0.000   65.020    0.000    0.000    0.000    0.000
0.000             0.000          Automatic
    g9P     LEG2   55.441       L/r   64.878  Net Sect     102   6.72   55.441    104.700    175.781   64.878  160.845    0.000    0.000    0.000
0.000             0.000          Automatic   Member "g9P" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
    g9X     LEG2   55.441       L/r   64.878  Net Sect     102   6.72   55.441    104.700    175.781   64.878  160.845    0.000    0.000    0.000
0.000             0.000          Automatic   Member "g9X" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g9XY     LEG2   55.441       L/r   64.878  Net Sect     102   6.72   55.441    104.700    175.781   64.878  160.845    0.000    0.000    0.000
0.000             0.000          Automatic   Member "g9XY" will not be checked for block shear since more than one gage line exists (long edge
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distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
    g9Y     LEG2   55.441       L/r   64.878  Net Sect     102   6.72   55.441    104.700    175.781   64.878  160.845    0.000    0.000    0.000
0.000             0.000          Automatic   Member "g9Y" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g10P     LEG3   59.964       L/r   77.364  Net Sect     112  14.77   59.964    104.700    210.937   77.364  281.250    0.000    0.000    0.000
0.000             0.000          Automatic  Member "g10P" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g10X     LEG3   59.964       L/r   77.364  Net Sect     112  14.77   59.964    104.700    210.937   77.364  281.250    0.000    0.000    0.000
0.000             0.000          Automatic  Member "g10X" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
  g10XY     LEG3   59.964       L/r   77.364  Net Sect     112  14.77   59.964    104.700    210.937   77.364  281.250    0.000    0.000    0.000
0.000             0.000          Automatic Member "g10XY" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g10Y     LEG3   59.964       L/r   77.364  Net Sect     112  14.77   59.964    104.700    210.937   77.364  281.250    0.000    0.000    0.000
0.000             0.000          Automatic  Member "g10Y" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g11P     LEG3   59.809       L/r   77.364  Net Sect     113  22.43   59.809    104.700    210.937   77.364  193.014    0.000    0.000    0.000
0.000             0.000          Automatic  Member "g11P" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g11X     LEG3   59.809       L/r   77.364  Net Sect     113  22.43   59.809    104.700    210.937   77.364  193.014    0.000    0.000    0.000
0.000             0.000          Automatic  Member "g11X" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
  g11XY     LEG3   59.809       L/r   77.364  Net Sect     113  22.43   59.809    104.700    210.937   77.364  193.014    0.000    0.000    0.000
0.000             0.000          Automatic Member "g11XY" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g11Y     LEG3   59.809       L/r   77.364  Net Sect     113  22.43   59.809    104.700    210.937   77.364  193.014    0.000    0.000    0.000
0.000             0.000          Automatic  Member "g11Y" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g12P     LEG2   65.558       L/r   65.020  Net Sect      77   5.10   65.558    104.700    175.781   65.020  103.401    0.000    0.000    0.000
0.000             0.000          Automatic  Member "g12P" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g12X     LEG2   65.558       L/r   65.020  Net Sect      77   5.10   65.558    104.700    175.781   65.020  103.401    0.000    0.000    0.000
0.000             0.000          Automatic  Member "g12X" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
  g12XY     LEG2   65.558       L/r   65.020  Net Sect      77   5.10   65.558    104.700    175.781   65.020  103.401    0.000    0.000    0.000
0.000             0.000          Automatic Member "g12XY" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g12Y     LEG2   65.558       L/r   65.020  Net Sect      77   5.10   65.558    104.700    175.781   65.020  103.401    0.000    0.000    0.000
0.000             0.000          Automatic  Member "g12Y" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g13P     XBR1   11.559       L/r   14.585  Net Sect     124   7.07   11.559     20.940     21.094   14.585   16.189    0.000    0.000    0.000
0.000             0.000          Automatic
   g13X     XBR1   11.559       L/r   14.585  Net Sect     124   7.07   11.559     20.940     21.094   14.585   16.189    0.000    0.000    0.000
0.000             0.000          Automatic
  g13XY     XBR1   11.559       L/r   14.585  Net Sect     124   7.07   11.559     20.940     21.094   14.585   16.189    0.000    0.000    0.000
0.000             0.000          Automatic
   g13Y     XBR1   11.559       L/r   14.585  Net Sect     124   7.07   11.559     20.940     21.094   14.585   16.189    0.000    0.000    0.000
0.000             0.000          Automatic
   g14P     XBR1   11.559       L/r   14.585  Net Sect     124   7.07   11.559     20.940     21.094   14.585   16.189    0.000    0.000    0.000
0.000             0.000          Automatic
   g14X     XBR1   11.559       L/r   14.585  Net Sect     124   7.07   11.559     20.940     21.094   14.585   16.189    0.000    0.000    0.000
0.000             0.000          Automatic
  g14XY     XBR1   11.559       L/r   14.585  Net Sect     124   7.07   11.559     20.940     21.094   14.585   16.189    0.000    0.000    0.000
0.000             0.000          Automatic
   g14Y     XBR1   11.559       L/r   14.585  Net Sect     124   7.07   11.559     20.940     21.094   14.585   16.189    0.000    0.000    0.000
0.000             0.000          Automatic
   g15P     XBR2   17.275       L/r   22.901  Net Sect     121   7.81   17.275     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000             0.000          Automatic  Member "g15P" will not be checked for block shear since more than one gage line exists (long edge
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distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g15X     XBR2   17.275       L/r   22.901  Net Sect     121   7.81   17.275     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000             0.000          Automatic  Member "g15X" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
  g15XY     XBR2   17.275       L/r   22.901  Net Sect     121   7.81   17.275     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000             0.000          Automatic Member "g15XY" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g15Y     XBR2   17.275       L/r   22.901  Net Sect     121   7.81   17.275     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000             0.000          Automatic  Member "g15Y" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g16P     XBR2   17.275       L/r   22.901  Net Sect     121   7.81   17.275     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000             0.000          Automatic  Member "g16P" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g16X     XBR2   17.275       L/r   22.901  Net Sect     121   7.81   17.275     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000             0.000          Automatic  Member "g16X" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
  g16XY     XBR2   17.275       L/r   22.901  Net Sect     121   7.81   17.275     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000             0.000          Automatic Member "g16XY" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g16Y     XBR2   17.275       L/r   22.901  Net Sect     121   7.81   17.275     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000             0.000          Automatic  Member "g16Y" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g17P     XBR3   17.255       L/r   22.901  Net Sect     121   3.91   17.255     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000             0.000          Automatic  Member "g17P" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g17X     XBR3   17.255       L/r   22.901  Net Sect     121   3.91   17.255     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000             0.000          Automatic  Member "g17X" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
  g17XY     XBR3   17.255       L/r   22.901  Net Sect     121   3.91   17.255     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000             0.000          Automatic Member "g17XY" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g17Y     XBR3   17.255       L/r   22.901  Net Sect     121   3.91   17.255     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000             0.000          Automatic  Member "g17Y" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g18P     XBR3   17.255       L/r   22.901  Net Sect     121   3.91   17.255     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000             0.000          Automatic  Member "g18P" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g18X     XBR3   17.255       L/r   22.901  Net Sect     121   3.91   17.255     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000             0.000          Automatic  Member "g18X" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
  g18XY     XBR3   17.255       L/r   22.901  Net Sect     121   3.91   17.255     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000             0.000          Automatic Member "g18XY" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g18Y     XBR3   17.255       L/r   22.901  Net Sect     121   3.91   17.255     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000             0.000          Automatic  Member "g18Y" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g19P     XBR3   17.255       L/r   22.901  Net Sect     121   3.91   17.255     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000             0.000          Automatic  Member "g19P" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g19X     XBR3   17.255       L/r   22.901  Net Sect     121   3.91   17.255     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000             0.000          Automatic  Member "g19X" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
  g19XY     XBR3   17.255       L/r   22.901  Net Sect     121   3.91   17.255     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000             0.000          Automatic Member "g19XY" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g19Y     XBR3   17.255       L/r   22.901  Net Sect     121   3.91   17.255     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000             0.000          Automatic  Member "g19Y" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
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   g20P     XBR3   17.255       L/r   22.901  Net Sect     121   3.91   17.255     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000             0.000           Automatic  Member "g20P" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g20X     XBR3   17.255       L/r   22.901  Net Sect     121   3.91   17.255     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000             0.000           Automatic  Member "g20X" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
  g20XY     XBR3   17.255       L/r   22.901  Net Sect     121   3.91   17.255     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000             0.000           Automatic Member "g20XY" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g20Y     XBR3   17.255       L/r   22.901  Net Sect     121   3.91   17.255     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000             0.000           Automatic  Member "g20Y" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g21P     XBR2   18.986       L/r   22.901  Net Sect     109   7.07   18.986     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000             0.000           Automatic  Member "g21P" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g21X     XBR2   18.986       L/r   22.901  Net Sect     109   7.07   18.986     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000             0.000           Automatic  Member "g21X" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
  g21XY     XBR2   18.986       L/r   22.901  Net Sect     109   7.07   18.986     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000             0.000           Automatic Member "g21XY" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g21Y     XBR2   18.986       L/r   22.901  Net Sect     109   7.07   18.986     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000             0.000           Automatic  Member "g21Y" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g22P     XBR2   18.986       L/r   22.901  Net Sect     109   7.07   18.986     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000             0.000           Automatic  Member "g22P" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g22X     XBR2   18.986       L/r   22.901  Net Sect     109   7.07   18.986     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000             0.000           Automatic  Member "g22X" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
  g22XY     XBR2   18.986       L/r   22.901  Net Sect     109   7.07   18.986     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000             0.000           Automatic Member "g22XY" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g22Y     XBR2   18.986       L/r   22.901  Net Sect     109   7.07   18.986     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000             0.000           Automatic  Member "g22Y" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g23P     XBR2   18.986       L/r   22.901  Net Sect     109   7.07   18.986     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000             0.000           Automatic  Member "g23P" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g23X     XBR2   18.986       L/r   22.901  Net Sect     109   7.07   18.986     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000             0.000           Automatic  Member "g23X" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
  g23XY     XBR2   18.986       L/r   22.901  Net Sect     109   7.07   18.986     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000             0.000           Automatic Member "g23XY" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g23Y     XBR2   18.986       L/r   22.901  Net Sect     109   7.07   18.986     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000             0.000           Automatic  Member "g23Y" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g24P     XBR2   18.986       L/r   22.901  Net Sect     109   7.07   18.986     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000             0.000           Automatic  Member "g24P" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g24X     XBR2   18.986       L/r   22.901  Net Sect     109   7.07   18.986     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000             0.000           Automatic  Member "g24X" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
  g24XY     XBR2   18.986       L/r   22.901  Net Sect     109   7.07   18.986     31.410     31.641   22.901   28.125    0.000    0.000    0.000
0.000             0.000           Automatic Member "g24XY" will not be checked for block shear since more than one gage line exists (long edge
distance (g) greater than zero); however, end, edge and spacing distances will be checked.  ??
   g24Y     XBR2   18.986       L/r   22.901  Net Sect     109   7.07   18.986     31.410     31.641   22.901   28.125    0.000    0.000    0.000
```

0.000 0.000 Automatic Member "g24Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

g25P	XBR4	12.533	L/r	15.240	Rupture	129	7.57	12.533	20.940	21.094	17.258	15.240	0.000	0.000	0.000
0.000		0.000		Automatic											
g25X	XBR4	12.533	L/r	15.240	Rupture	129	7.57	12.533	20.940	21.094	17.258	15.240	0.000	0.000	0.000
0.000		0.000		Automatic											
g25XY	XBR4	12.533	L/r	15.240	Rupture	129	7.57	12.533	20.940	21.094	17.258	15.240	0.000	0.000	0.000
0.000		0.000		Automatic											
g25Y	XBR4	12.533	L/r	15.240	Rupture	129	7.57	12.533	20.940	21.094	17.258	15.240	0.000	0.000	0.000
0.000		0.000		Automatic											
g26P	XBR4	12.533	L/r	15.240	Rupture	129	7.57	12.533	20.940	21.094	17.258	15.240	0.000	0.000	0.000
0.000		0.000		Automatic											
g26X	XBR4	12.533	L/r	15.240	Rupture	129	7.57	12.533	20.940	21.094	17.258	15.240	0.000	0.000	0.000
0.000		0.000		Automatic											
g26XY	XBR4	12.533	L/r	15.240	Rupture	129	7.57	12.533	20.940	21.094	17.258	15.240	0.000	0.000	0.000
0.000		0.000		Automatic											
g26Y	XBR4	12.533	L/r	15.240	Rupture	129	7.57	12.533	20.940	21.094	17.258	15.240	0.000	0.000	0.000
0.000		0.000		Automatic											
g27P	XBR5	11.661	L/r	18.750	Rupture	148	9.37	11.661	20.940	21.094	20.228	18.750	0.000	0.000	0.000
0.000		0.000		Automatic											
g27X	XBR5	11.661	L/r	18.750	Rupture	148	9.37	11.661	20.940	21.094	20.228	18.750	0.000	0.000	0.000
0.000		0.000		Automatic											
g27XY	XBR5	11.661	L/r	18.750	Rupture	148	9.37	11.661	20.940	21.094	20.228	18.750	0.000	0.000	0.000
0.000		0.000		Automatic											
g27Y	XBR5	11.661	L/r	18.750	Rupture	148	9.37	11.661	20.940	21.094	20.228	18.750	0.000	0.000	0.000
0.000		0.000		Automatic											
g28P	XBR5	11.661	L/r	18.750	Rupture	148	9.37	11.661	20.940	21.094	20.228	18.750	0.000	0.000	0.000
0.000		0.000		Automatic											
g28X	XBR5	11.661	L/r	18.750	Rupture	148	9.37	11.661	20.940	21.094	20.228	18.750	0.000	0.000	0.000
0.000		0.000		Automatic											
g28XY	XBR5	11.661	L/r	18.750	Rupture	148	9.37	11.661	20.940	21.094	20.228	18.750	0.000	0.000	0.000
0.000		0.000		Automatic											
g28Y	XBR5	11.661	L/r	18.750	Rupture	148	9.37	11.661	20.940	21.094	20.228	18.750	0.000	0.000	0.000
0.000		0.000		Automatic											
g29P	XBR5	8.819	L/r	18.750	Rupture	175	11.14	8.819	20.940	21.094	20.228	18.750	0.000	0.000	0.000
0.000		0.000		Automatic											
g29X	XBR5	8.819	L/r	18.750	Rupture	175	11.14	8.819	20.940	21.094	20.228	18.750	0.000	0.000	0.000
0.000		0.000		Automatic											
g29XY	XBR5	8.819	L/r	18.750	Rupture	175	11.14	8.819	20.940	21.094	20.228	18.750	0.000	0.000	0.000
0.000		0.000		Automatic											
g29Y	XBR5	8.819	L/r	18.750	Rupture	175	11.14	8.819	20.940	21.094	20.228	18.750	0.000	0.000	0.000
0.000		0.000		Automatic											
g30P	XBR5	8.819	L/r	18.750	Rupture	175	11.14	8.819	20.940	21.094	20.228	18.750	0.000	0.000	0.000
0.000		0.000		Automatic											
g30X	XBR5	8.819	L/r	18.750	Rupture	175	11.14	8.819	20.940	21.094	20.228	18.750	0.000	0.000	0.000
0.000		0.000		Automatic											
g30XY	XBR5	8.819	L/r	18.750	Rupture	175	11.14	8.819	20.940	21.094	20.228	18.750	0.000	0.000	0.000
0.000		0.000		Automatic											
g30Y	XBR5	8.819	L/r	18.750	Rupture	175	11.14	8.819	20.940	21.094	20.228	18.750	0.000	0.000	0.000
0.000		0.000		Automatic											
g31P	XBR6	2.257	L/r	19.041	Net Sect	384	18.81	2.257	20.940	28.125	19.041	24.820	0.000	0.000	0.000
0.000		0.000		Automatic											
g31X	XBR6	2.257	L/r	19.041	Net Sect	384	18.81	2.257	20.940	28.125	19.041	24.820	0.000	0.000	0.000
0.000		0.000		Automatic											
g31XY	XBR6	2.257	L/r	19.041	Net Sect	384	18.81	2.257	20.940	28.125	19.041	24.820	0.000	0.000	0.000
0.000		0.000		Automatic											
g31Y	XBR6	2.257	L/r	19.041	Net Sect	384	18.81	2.257	20.940	28.125	19.041	24.820	0.000	0.000	0.000
0.000		0.000		Automatic											
g32P	XBR6	2.257	L/r	19.041	Net Sect	384	18.81	2.257	20.940	28.125	19.041	24.820	0.000	0.000	0.000
0.000		0.000		Automatic											

g32X	XBR6	2.257	L/r	19.041	Net Sect	384	18.81	2.257	20.940	28.125	19.041	24.820	0.000	0.000	0.000
0.000		0.000		Automatic											
g32XY	XBR6	2.257	L/r	19.041	Net Sect	384	18.81	2.257	20.940	28.125	19.041	24.820	0.000	0.000	0.000
0.000		0.000		Automatic											
g32Y	XBR6	2.257	L/r	19.041	Net Sect	384	18.81	2.257	20.940	28.125	19.041	24.820	0.000	0.000	0.000
0.000		0.000		Automatic											
g33P	XBR7	1.061	L/r	14.585	Net Sect	499	27.92	1.061	20.940	21.094	14.585	17.420	0.000	0.000	0.000
0.000		0.000		Automatic											
g33X	XBR7	1.061	L/r	14.585	Net Sect	499	27.92	1.061	20.940	21.094	14.585	17.420	0.000	0.000	0.000
0.000		0.000		Automatic											
g33XY	XBR7	1.061	L/r	14.585	Net Sect	499	27.92	1.061	20.940	21.094	14.585	17.420	0.000	0.000	0.000
0.000		0.000		Automatic											
g33Y	XBR7	1.061	L/r	14.585	Net Sect	499	27.92	1.061	20.940	21.094	14.585	17.420	0.000	0.000	0.000
0.000		0.000		Automatic											
g34P	XBR7	1.061	L/r	14.585	Net Sect	499	27.92	1.061	20.940	21.094	14.585	17.420	0.000	0.000	0.000
0.000		0.000		Automatic											
g34X	XBR7	1.061	L/r	14.585	Net Sect	499	27.92	1.061	20.940	21.094	14.585	17.420	0.000	0.000	0.000
0.000		0.000		Automatic											
g34XY	XBR7	1.061	L/r	14.585	Net Sect	499	27.92	1.061	20.940	21.094	14.585	17.420	0.000	0.000	0.000
0.000		0.000		Automatic											
g34Y	XBR7	1.061	L/r	14.585	Net Sect	499	27.92	1.061	20.940	21.094	14.585	17.420	0.000	0.000	0.000
0.000		0.000		Automatic											
g35P	XBR3	9.860	L/r	7.717	Rupture	162	11.83	9.860	10.470	10.547	17.333	7.717	0.000	0.000	0.000
0.000		0.000		Automatic											
g35X	XBR3	9.860	L/r	7.717	Rupture	162	11.83	9.860	10.470	10.547	17.333	7.717	0.000	0.000	0.000
0.000		0.000		Automatic											
g35XY	XBR3	9.860	L/r	7.717	Rupture	162	11.83	9.860	10.470	10.547	17.333	7.717	0.000	0.000	0.000
0.000		0.000		Automatic											
g35Y	XBR3	9.860	L/r	7.717	Rupture	162	11.83	9.860	10.470	10.547	17.333	7.717	0.000	0.000	0.000
0.000		0.000		Automatic											
g36P	XBR3	9.860	L/r	7.717	Rupture	162	11.83	9.860	10.470	10.547	17.333	7.717	0.000	0.000	0.000
0.000		0.000		Automatic											
g36X	XBR3	9.860	L/r	7.717	Rupture	162	11.83	9.860	10.470	10.547	17.333	7.717	0.000	0.000	0.000
0.000		0.000		Automatic											
g36XY	XBR3	9.860	L/r	7.717	Rupture	162	11.83	9.860	10.470	10.547	17.333	7.717	0.000	0.000	0.000
0.000		0.000		Automatic											
g36Y	XBR3	9.860	L/r	7.717	Rupture	162	11.83	9.860	10.470	10.547	17.333	7.717	0.000	0.000	0.000
0.000		0.000		Automatic											
g37P	HBR1	5.799	L/r	7.717	Rupture	175	5.00	5.799	10.470	10.547	14.585	7.717	0.000	0.000	0.000
0.000		0.000		Automatic											
g37X	HBR1	5.799	L/r	7.717	Rupture	175	5.00	5.799	10.470	10.547	14.585	7.717	0.000	0.000	0.000
0.000		0.000		Automatic											
g38P	HBR1	5.799	L/r	7.717	Rupture	175	5.00	5.799	10.470	10.547	14.585	7.717	0.000	0.000	0.000
0.000		0.000		Automatic											
g38X	HBR1	5.799	L/r	7.717	Rupture	175	5.00	5.799	10.470	10.547	14.585	7.717	0.000	0.000	0.000
0.000		0.000		Automatic											
g39P	HBR1	5.799	L/r	7.717	Rupture	175	5.00	5.799	10.470	10.547	14.585	7.717	0.000	0.000	0.000
0.000		0.000		Automatic											
g39X	HBR1	5.799	L/r	7.717	Rupture	175	5.00	5.799	10.470	10.547	14.585	7.717	0.000	0.000	0.000
0.000		0.000		Automatic											
g40P	HBR1	5.799	L/r	7.717	Rupture	175	5.00	5.799	10.470	10.547	14.585	7.717	0.000	0.000	0.000
0.000		0.000		Automatic											
g40X	HBR1	5.799	L/r	7.717	Rupture	175	5.00	5.799	10.470	10.547	14.585	7.717	0.000	0.000	0.000
0.000		0.000		Automatic											
g41P	HBR2	10.470	Shear	7.717	Rupture	149	9.81	10.510	10.470	10.547	17.444	7.717	0.000	0.000	0.000
0.000		0.000		Automatic											
g41X	HBR2	10.470	Shear	7.717	Rupture	149	9.81	10.510	10.470	10.547	17.444	7.717	0.000	0.000	0.000
0.000		0.000		Automatic											
g42P	HBR2	10.470	Shear	7.717	Rupture	149	9.81	10.510	10.470	10.547	17.444	7.717	0.000	0.000	0.000
0.000		0.000		Automatic											

g42Y	HBR2	10.470	Shear	7.717	Rupture	149	9.81	10.510	10.470	10.547	17.444	7.717	0.000	0.000	0.000
0.000		0.000		Automatic											
g43P	HBR3	10.470	Shear	10.470	Shear	175	13.80	12.202	10.470	14.062	30.090	12.500	0.000	0.000	0.000
0.000		0.000		Automatic											
g43X	HBR3	10.470	Shear	10.470	Shear	175	13.80	12.202	10.470	14.062	30.090	12.500	0.000	0.000	0.000
0.000		0.000		Automatic											
g44P	HBR3	10.470	Shear	10.470	Shear	175	13.80	12.202	10.470	14.062	30.090	12.500	0.000	0.000	0.000
0.000		0.000		Automatic											
g44Y	HBR3	10.470	Shear	10.470	Shear	175	13.80	12.202	10.470	14.062	30.090	12.500	0.000	0.000	0.000
0.000		0.000		Automatic											
g45P	HBR4	10.470	Shear	10.470	Shear	188	10.00	13.759	10.470	14.062	37.663	12.500	0.000	0.000	0.000
0.000		0.000		Automatic											
g45X	HBR4	10.470	Shear	10.470	Shear	188	10.00	13.759	10.470	14.062	37.663	12.500	0.000	0.000	0.000
0.000		0.000		Automatic											
g45XY	HBR4	10.470	Shear	10.470	Shear	188	10.00	13.759	10.470	14.062	37.663	12.500	0.000	0.000	0.000
0.000		0.000		Automatic											
g45Y	HBR4	10.470	Shear	10.470	Shear	188	10.00	13.759	10.470	14.062	37.663	12.500	0.000	0.000	0.000
0.000		0.000		Automatic											
g46P	HBR4	10.470	Shear	10.470	Shear	188	10.00	13.759	10.470	14.062	37.663	12.500	0.000	0.000	0.000
0.000		0.000		Automatic											
g46X	HBR4	10.470	Shear	10.470	Shear	188	10.00	13.759	10.470	14.062	37.663	12.500	0.000	0.000	0.000
0.000		0.000		Automatic											
g46XY	HBR4	10.470	Shear	10.470	Shear	188	10.00	13.759	10.470	14.062	37.663	12.500	0.000	0.000	0.000
0.000		0.000		Automatic											
g46Y	HBR4	10.470	Shear	10.470	Shear	188	10.00	13.759	10.470	14.062	37.663	12.500	0.000	0.000	0.000
0.000		0.000		Automatic											
g47P	**Arm1**	**19.099**	**L/r**	**31.410**	**Shear**	**146**	**11.52**	**19.099**	**31.410**	**42.187**	**33.802**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**										**Unable to calculate**	
rupture capacity for member "g47P" because it has a long and short edge distance of 0. ??															
g47X	**Arm1**	**19.099**	**L/r**	**31.410**	**Shear**	**146**	**11.52**	**19.099**	**31.410**	**42.187**	**33.802**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**										**Unable to calculate**	
rupture capacity for member "g47X" because it has a long and short edge distance of 0. ??															
g47XY	**Arm1**	**19.099**	**L/r**	**31.410**	**Shear**	**146**	**11.52**	**19.099**	**31.410**	**42.187**	**33.802**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**										**Unable to calculate**	
rupture capacity for member "g47XY" because it has a long and short edge distance of 0. ??															
g47Y	**Arm1**	**19.099**	**L/r**	**31.410**	**Shear**	**146**	**11.52**	**19.099**	**31.410**	**42.187**	**33.802**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**										**Unable to calculate**	
rupture capacity for member "g47Y" because it has a long and short edge distance of 0. ??															
g48P	Arm1	26.226	L/r	43.230	Net Sect	114	5.00	26.226	0.000	0.000	43.230	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g48Y	Arm1	26.226	L/r	43.230	Net Sect	114	5.00	26.226	0.000	0.000	43.230	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g49P	**Arm1**	**28.509**	**L/r**	**31.410**	**Shear**	**97**	**7.67**	**28.509**	**31.410**	**42.187**	**33.802**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**										**Unable to calculate**	
rupture capacity for member "g49P" because it has a long and short edge distance of 0. ??															
g49X	**Arm1**	**28.509**	**L/r**	**31.410**	**Shear**	**97**	**7.67**	**28.509**	**31.410**	**42.187**	**33.802**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**										**Unable to calculate**	
rupture capacity for member "g49X" because it has a long and short edge distance of 0. ??															
g49XY	**Arm1**	**28.509**	**L/r**	**31.410**	**Shear**	**97**	**7.67**	**28.509**	**31.410**	**42.187**	**33.802**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**										**Unable to calculate**	
rupture capacity for member "g49XY" because it has a long and short edge distance of 0. ??															
g49Y	**Arm1**	**28.509**	**L/r**	**31.410**	**Shear**	**97**	**7.67**	**28.509**	**31.410**	**42.187**	**33.802**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**0.000**		**Automatic**										**Unable to calculate**	
rupture capacity for member "g49Y" because it has a long and short edge distance of 0. ??															
g50P	Arm1	26.226	L/r	43.230	Net Sect	114	5.00	26.226	0.000	0.000	43.230	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g50Y	Arm1	26.226	L/r	43.230	Net Sect	114	5.00	26.226	0.000	0.000	43.230	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g51P	**Arm1**	**27.682**	**L/r**	**31.410**	**Shear**	**103**	**8.14**	**27.682**	**31.410**	**42.187**	**33.802**	**0.000**	**0.000**	**0.000**	**0.000**

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0.000             0.000          Automatic                                                                                  Unable to calculate
rupture capacity for member "g51P" because it has a long and short edge distance of 0.  ??
   g51X     Arm1   27.682       L/r   31.410     Shear     103   8.14   27.682     31.410     42.187   33.802    0.000    0.000    0.000    0.000
0.000             0.000          Automatic                                                                                  Unable to calculate
rupture capacity for member "g51X" because it has a long and short edge distance of 0.  ??
  g51XY     Arm1   27.682       L/r   31.410     Shear     103   8.14   27.682     31.410     42.187   33.802    0.000    0.000    0.000    0.000
0.000             0.000          Automatic                                                                                  Unable to calculate
rupture capacity for member "g51XY" because it has a long and short edge distance of 0.  ??
   g51Y     Arm1   27.682       L/r   31.410     Shear     103   8.14   27.682     31.410     42.187   33.802    0.000    0.000    0.000    0.000
0.000             0.000          Automatic                                                                                  Unable to calculate
rupture capacity for member "g51Y" because it has a long and short edge distance of 0.  ??
   g52P     Arm1   26.226       L/r   43.230  Net Sect     114   5.00   26.226      0.000      0.000   43.230    0.000    0.000    0.000    0.000
0.000             0.000          Automatic
   g52Y     Arm1   26.226       L/r   43.230  Net Sect     114   5.00   26.226      0.000      0.000   43.230    0.000    0.000    0.000    0.000
0.000             0.000          Automatic
   g53P     Arm2   24.527       L/r   31.410     Shear     132  12.01   24.527     31.410     42.187   37.663    0.000    0.000    0.000    0.000
0.000             0.000          Automatic                                                                                  Unable to calculate
rupture capacity for member "g53P" because it has a long and short edge distance of 0.  ??
   g53X     Arm2   24.527       L/r   31.410     Shear     132  12.01   24.527     31.410     42.187   37.663    0.000    0.000    0.000    0.000
0.000             0.000          Automatic                                                                                  Unable to calculate
rupture capacity for member "g53X" because it has a long and short edge distance of 0.  ??
  g53XY     Arm2   24.527       L/r   31.410     Shear     132  12.01   24.527     31.410     42.187   37.663    0.000    0.000    0.000    0.000
0.000             0.000          Automatic                                                                                  Unable to calculate
rupture capacity for member "g53XY" because it has a long and short edge distance of 0.  ??
   g53Y     Arm2   24.527       L/r   31.410     Shear     132  12.01   24.527     31.410     42.187   37.663    0.000    0.000    0.000    0.000
0.000             0.000          Automatic                                                                                  Unable to calculate
rupture capacity for member "g53Y" because it has a long and short edge distance of 0.  ??
   g54P     Arm2   29.359       L/r   47.520  Net Sect     110   5.00   29.359      0.000      0.000   47.520    0.000    0.000    0.000    0.000
0.000             0.000          Automatic
   g54Y     Arm2   29.359       L/r   47.520  Net Sect     110   5.00   29.359      0.000      0.000   47.520    0.000    0.000    0.000    0.000
0.000             0.000          Automatic
   g55P   ArmBR1   10.470     Shear   10.470     Shear     155   6.40   10.714     10.470     10.547   22.961    0.000    0.000    0.000    0.000
0.000             0.000          Automatic                                                                                  Unable to calculate
rupture capacity for member "g55P" because it has a long and short edge distance of 0.  ??
   g55X   ArmBR1   10.470     Shear   10.470     Shear     155   6.40   10.714     10.470     10.547   22.961    0.000    0.000    0.000    0.000
0.000             0.000          Automatic                                                                                  Unable to calculate
rupture capacity for member "g55X" because it has a long and short edge distance of 0.  ??
   g56P   ArmBR2    0.054       L/r    7.889  Net Sect    1522   9.15    0.054     10.470     14.062    7.889    0.000    0.000    0.000    0.000
0.000             0.000          Automatic                                                                                  Unable to calculate
rupture capacity for member "g56P" because it has a long and short edge distance of 0.  ??
   g56X   ArmBR2    0.054       L/r    7.889  Net Sect    1522   9.15    0.054     10.470     14.062    7.889    0.000    0.000    0.000    0.000
0.000             0.000          Automatic                                                                                  Unable to calculate
rupture capacity for member "g56X" because it has a long and short edge distance of 0.  ??
  g56XY   ArmBR2    0.054       L/r    7.889  Net Sect    1522   9.15    0.054     10.470     14.062    7.889    0.000    0.000    0.000    0.000
0.000             0.000          Automatic                                                                                  Unable to calculate
rupture capacity for member "g56XY" because it has a long and short edge distance of 0.  ??
   g56Y   ArmBR2    0.054       L/r    7.889  Net Sect    1522   9.15    0.054     10.470     14.062    7.889    0.000    0.000    0.000    0.000
0.000             0.000          Automatic                                                                                  Unable to calculate
rupture capacity for member "g56Y" because it has a long and short edge distance of 0.  ??
   g57P   ArmBR2    0.030       L/r    7.889  Net Sect    2058  12.38    0.030     10.470     14.062    7.889    0.000    0.000    0.000    0.000
0.000             0.000          Automatic                                                                                  Unable to calculate
rupture capacity for member "g57P" because it has a long and short edge distance of 0.  ??
   g57X   ArmBR2    0.030       L/r    7.889  Net Sect    2058  12.38    0.030     10.470     14.062    7.889    0.000    0.000    0.000    0.000
0.000             0.000          Automatic                                                                                  Unable to calculate
rupture capacity for member "g57X" because it has a long and short edge distance of 0.  ??
  g57XY   ArmBR2    0.030       L/r    7.889  Net Sect    2058  12.38    0.030     10.470     14.062    7.889    0.000    0.000    0.000    0.000
0.000             0.000          Automatic                                                                                  Unable to calculate
rupture capacity for member "g57XY" because it has a long and short edge distance of 0.  ??
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   g57Y   ArmBR2    0.030       L/r    7.889  Net Sect    2058  12.38    0.030     10.470     14.062    7.889    0.000    0.000    0.000    0.000
0.000             0.000          Automatic                                                                                    Unable to calculate
rupture capacity for member "g57Y" because it has a long and short edge distance of 0.  ??
   g58P   ArmBR2    0.725       L/r    7.889  Net Sect     416   2.50    0.725     10.470     14.062    7.889    0.000    0.000    0.000    0.000
0.000             0.000          Automatic                                                                                    Unable to calculate
rupture capacity for member "g58P" because it has a long and short edge distance of 0.  ??
   g58X   ArmBR2    0.725       L/r    7.889  Net Sect     416   2.50    0.725     10.470     14.062    7.889    0.000    0.000    0.000    0.000
0.000             0.000          Automatic                                                                                    Unable to calculate
rupture capacity for member "g58X" because it has a long and short edge distance of 0.  ??
  g58XY   ArmBR2    0.725       L/r    7.889  Net Sect     416   2.50    0.725     10.470     14.062    7.889    0.000    0.000    0.000    0.000
0.000             0.000          Automatic                                                                                  Unable to calculate
rupture capacity for member "g58XY" because it has a long and short edge distance of 0.  ??
   g58Y   ArmBR2    0.725       L/r    7.889  Net Sect     416   2.50    0.725     10.470     14.062    7.889    0.000    0.000    0.000    0.000
0.000             0.000          Automatic                                                                                    Unable to calculate
rupture capacity for member "g58Y" because it has a long and short edge distance of 0.  ??
   g59P   ArmBR2    0.050       L/r    7.889  Net Sect    1588   9.56    0.050     10.470     14.062    7.889    0.000    0.000    0.000    0.000
0.000             0.000          Automatic                                                                                    Unable to calculate
rupture capacity for member "g59P" because it has a long and short edge distance of 0.  ??
   g59X   ArmBR2    0.050       L/r    7.889  Net Sect    1588   9.56    0.050     10.470     14.062    7.889    0.000    0.000    0.000    0.000
0.000             0.000          Automatic                                                                                    Unable to calculate
rupture capacity for member "g59X" because it has a long and short edge distance of 0.  ??
  g59XY   ArmBR2    0.050       L/r    7.889  Net Sect    1588   9.56    0.050     10.470     14.062    7.889    0.000    0.000    0.000    0.000
0.000             0.000          Automatic                                                                                  Unable to calculate
rupture capacity for member "g59XY" because it has a long and short edge distance of 0.  ??
   g59Y   ArmBR2    0.050       L/r    7.889  Net Sect    1588   9.56    0.050     10.470     14.062    7.889    0.000    0.000    0.000    0.000
0.000             0.000          Automatic                                                                                    Unable to calculate
rupture capacity for member "g59Y" because it has a long and short edge distance of 0.  ??
   g60P    PMBR1   10.195   Bearing   10.195   Bearing      86   3.54   21.670     10.470     10.195   25.048    0.000    0.000    0.000    0.000
0.000             0.000          Automatic                                                                                    Unable to calculate
rupture capacity for member "g60P" because it has a long and short edge distance of 0.  ??
   g60X    PMBR1   10.195   Bearing   10.195   Bearing      86   3.54   21.670     10.470     10.195   25.048    0.000    0.000    0.000    0.000
0.000             0.000          Automatic                                                                                    Unable to calculate
rupture capacity for member "g60X" because it has a long and short edge distance of 0.  ??
  g60XY    PMBR1   10.195   Bearing   10.195   Bearing      86   3.54   21.670     10.470     10.195   25.048    0.000    0.000    0.000    0.000
0.000             0.000          Automatic                                                                                  Unable to calculate
rupture capacity for member "g60XY" because it has a long and short edge distance of 0.  ??
   g60Y    PMBR1   10.195   Bearing   10.195   Bearing      86   3.54   21.670     10.470     10.195   25.048    0.000    0.000    0.000    0.000
0.000             0.000          Automatic                                                                                    Unable to calculate
rupture capacity for member "g60Y" because it has a long and short edge distance of 0.  ??
   g61P    PMBR1   10.195   Bearing   10.195   Bearing      86   3.54   21.670     10.470     10.195   25.048    0.000    0.000    0.000    0.000
0.000             0.000          Automatic                                                                                    Unable to calculate
rupture capacity for member "g61P" because it has a long and short edge distance of 0.  ??
   g61X    PMBR1   10.195   Bearing   10.195   Bearing      86   3.54   21.670     10.470     10.195   25.048    0.000    0.000    0.000    0.000
0.000             0.000          Automatic                                                                                    Unable to calculate
rupture capacity for member "g61X" because it has a long and short edge distance of 0.  ??
  g61XY    PMBR1   10.195   Bearing   10.195   Bearing      86   3.54   21.670     10.470     10.195   25.048    0.000    0.000    0.000    0.000
0.000             0.000          Automatic                                                                                  Unable to calculate
rupture capacity for member "g61XY" because it has a long and short edge distance of 0.  ??
   g61Y    PMBR1   10.195   Bearing   10.195   Bearing      86   3.54   21.670     10.470     10.195   25.048    0.000    0.000    0.000    0.000
0.000             0.000          Automatic                                                                                    Unable to calculate
rupture capacity for member "g61Y" because it has a long and short edge distance of 0.  ??
   g62P    PMBR1   10.195   Bearing   10.195   Bearing      86   3.54   21.670     10.470     10.195   25.048    0.000    0.000    0.000    0.000
0.000             0.000          Automatic                                                                                    Unable to calculate
rupture capacity for member "g62P" because it has a long and short edge distance of 0.  ??
   g62X    PMBR1   10.195   Bearing   10.195   Bearing      86   3.54   21.670     10.470     10.195   25.048    0.000    0.000    0.000    0.000
0.000             0.000          Automatic                                                                                    Unable to calculate
rupture capacity for member "g62X" because it has a long and short edge distance of 0.  ??
  g62XY    PMBR1   10.195   Bearing   10.195   Bearing      86   3.54   21.670     10.470     10.195   25.048    0.000    0.000    0.000    0.000
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0.000             0.000          Automatic                                                                                  Unable to calculate
rupture capacity for member "g62XY" because it has a long and short edge distance of 0.  ??
   g62Y    PMBR1   10.195   Bearing   10.195   Bearing      86   3.54   21.670     10.470     10.195   25.048    0.000    0.000    0.000    0.000
0.000             0.000          Automatic                                                                                  Unable to calculate
rupture capacity for member "g62Y" because it has a long and short edge distance of 0.  ??
   g63P    PMBR1   10.195   Bearing   10.195   Bearing      86   3.54   21.670     10.470     10.195   25.048    0.000    0.000    0.000    0.000
0.000             0.000          Automatic                                                                                  Unable to calculate
rupture capacity for member "g63P" because it has a long and short edge distance of 0.  ??
   g63X    PMBR1   10.195   Bearing   10.195   Bearing      86   3.54   21.670     10.470     10.195   25.048    0.000    0.000    0.000    0.000
0.000             0.000          Automatic                                                                                  Unable to calculate
rupture capacity for member "g63X" because it has a long and short edge distance of 0.  ??
  g63XY    PMBR1   10.195   Bearing   10.195   Bearing      86   3.54   21.670     10.470     10.195   25.048    0.000    0.000    0.000    0.000
0.000             0.000          Automatic                                                                                  Unable to calculate
rupture capacity for member "g63XY" because it has a long and short edge distance of 0.  ??
   g63Y    PMBR1   10.195   Bearing   10.195   Bearing      86   3.54   21.670     10.470     10.195   25.048    0.000    0.000    0.000    0.000
0.000             0.000          Automatic                                                                                  Unable to calculate
rupture capacity for member "g63Y" because it has a long and short edge distance of 0.  ??
   g64P    PMBR2   10.470    Shear   10.470    Shear     169   9.76   16.980     10.470     13.594   49.187    0.000    0.000    0.000    0.000
0.000             0.000          Automatic                                                                                  Unable to calculate
rupture capacity for member "g64P" because it has a long and short edge distance of 0.  ??
   g64X    PMBR2   10.470    Shear   10.470    Shear     169   9.76   16.980     10.470     13.594   49.187    0.000    0.000    0.000    0.000
0.000             0.000          Automatic                                                                                  Unable to calculate
rupture capacity for member "g64X" because it has a long and short edge distance of 0.  ??
  g64XY    PMBR2   10.470    Shear   10.470    Shear     169   9.76   16.980     10.470     13.594   49.187    0.000    0.000    0.000    0.000
0.000             0.000          Automatic                                                                                  Unable to calculate
rupture capacity for member "g64XY" because it has a long and short edge distance of 0.  ??
   g64Y    PMBR2   10.470    Shear   10.470    Shear     169   9.76   16.980     10.470     13.594   49.187    0.000    0.000    0.000    0.000
0.000             0.000          Automatic                                                                                  Unable to calculate
rupture capacity for member "g64Y" because it has a long and short edge distance of 0.  ??
   g65P Powermnt  115.298      L/r  729.999  Net Sect      74  27.00  115.298      0.000      0.000  729.999    0.000    0.000    0.000    0.000
0.000             0.000          Automatic
w/t equals 34.00 for member "g65P" which exceeds ASCE 10 section 3.7.1 limit of 25.  ??
   g66P Powermnt  113.390      L/r  729.999  Net Sect      88  32.00  113.390      0.000      0.000  729.999    0.000    0.000    0.000    0.000
0.000             0.000          Automatic
w/t equals 34.00 for member "g66P" which exceeds ASCE 10 section 3.7.1 limit of 25.  ??
   g67P Powermnt  119.367      L/r  729.999  Net Sect      27  10.00  119.367      0.000      0.000  729.999    0.000    0.000    0.000    0.000
0.000             0.000          Automatic
w/t equals 34.00 for member "g67P" which exceeds ASCE 10 section 3.7.1 limit of 25.  ??
   g68P Powermnt  119.082      L/r  729.999  Net Sect      33  12.00  119.082      0.000      0.000  729.999    0.000    0.000    0.000    0.000
0.000             0.000          Automatic
w/t equals 34.00 for member "g68P" which exceeds ASCE 10 section 3.7.1 limit of 25.  ??
   g69P Powermnt  119.852      L/r  729.999  Net Sect      14   5.00  119.852      0.000      0.000  729.999    0.000    0.000    0.000    0.000
0.000             0.000          Automatic
w/t equals 34.00 for member "g69P" which exceeds ASCE 10 section 3.7.1 limit of 25.  ??
   g70P Powermnt  119.490      L/r  729.999  Net Sect      25   9.00  119.490      0.000      0.000  729.999    0.000    0.000    0.000    0.000
0.000             0.000          Automatic
w/t equals 34.00 for member "g70P" which exceeds ASCE 10 section 3.7.1 limit of 25.  ??
   g71P Powermnt  119.490      L/r  729.999  Net Sect      25   9.00  119.490      0.000      0.000  729.999    0.000    0.000    0.000    0.000
0.000             0.000          Automatic
w/t equals 34.00 for member "g71P" which exceeds ASCE 10 section 3.7.1 limit of 25.  ??
   g72P     fic1    0.000      L/r    3.600  Net Sect 2160000  18.00    0.000      0.000      0.000    3.600    0.000    0.000    0.000    0.000
0.000             0.000          Automatic
   g72X     fic1    0.000      L/r    3.600  Net Sect 2160000  18.00    0.000      0.000      0.000    3.600    0.000    0.000    0.000    0.000
0.000             0.000          Automatic
   g73P     fic1    0.000      L/r    3.600  Net Sect 2160000  18.00    0.000      0.000      0.000    3.600    0.000    0.000    0.000    0.000
0.000             0.000          Automatic
   g73Y     fic1    0.000      L/r    3.600  Net Sect 2160000  18.00    0.000      0.000      0.000    3.600    0.000    0.000    0.000    0.000
0.000             0.000          Automatic
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g74P	fic	0.000	L/r	3.600	Net Sect	60000	0.50	0.000	0.000	0.000	3.600	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g74X	fic	0.000	L/r	3.600	Net Sect	60000	0.50	0.000	0.000	0.000	3.600	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g75P	fic	0.000	L/r	3.600	Net Sect	60000	0.50	0.000	0.000	0.000	3.600	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g75X	fic	0.000	L/r	3.600	Net Sect	60000	0.50	0.000	0.000	0.000	3.600	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g76P	fic	0.000	L/r	3.600	Net Sect	60000	0.50	0.000	0.000	0.000	3.600	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g76Y	fic	0.000	L/r	3.600	Net Sect	60000	0.50	0.000	0.000	0.000	3.600	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g77P	fic	0.000	L/r	3.600	Net Sect	60000	0.50	0.000	0.000	0.000	3.600	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g77Y	fic	0.000	L/r	3.600	Net Sect	60000	0.50	0.000	0.000	0.000	3.600	0.000	0.000	0.000	0.000
0.000		0.000		Automatic											
g78P	HBR5	10.470	Shear	7.717	Rupture	87	2.50	14.114	10.470	10.547	14.585	7.717	0.000	0.000	0.000
0.000		0.000		Automatic											
g78X	HBR5	10.470	Shear	7.717	Rupture	87	2.50	14.114	10.470	10.547	14.585	7.717	0.000	0.000	0.000
0.000		0.000		Automatic											
g78XY	HBR5	10.470	Shear	7.717	Rupture	87	2.50	14.114	10.470	10.547	14.585	7.717	0.000	0.000	0.000
0.000		0.000		Automatic											
g78Y	HBR5	10.470	Shear	7.717	Rupture	87	2.50	14.114	10.470	10.547	14.585	7.717	0.000	0.000	0.000
0.000		0.000		Automatic											

The model contains 253 angle members.

Sum of Unfactored Dead Load and Drag Areas From Equipment, Input and Calculated:

Joint Label	Dead Load (kips)	X-Drag Area (ft^2)	Y-Drag Area (ft^2)
1P	0.0862	4.647	3.059
2P	0.0617	3.479	1.146
3P	0.115	6.231	5.377
4P	0.058	3.764	1.961
5P	0.0657	4.089	4.089
6P	0.0335	2.067	1.467
7P	0.113	6.408	4.695
8P	0.0773	5.196	1.299
9P	0.0835	5.357	5.092
10P	0.118	6.075	5.158
11P	0.0509	3.283	1.440
12P	0.0898	4.476	4.476
13P	0.109	5.559	5.559
14P	0.21	8.854	8.854
15P	0.384	14.948	14.948
16P	0.248	9.854	9.854
17P	0.0572	2.948	2.948
22P	0.223	4.785	4.785
23P	0.446	9.563	9.563
24P	0.369	8.483	8.483
25P	0.443	10.073	10.073
26P	0.567	12.729	12.729
27P	1.06	23.354	23.354
28P	1.58	35.370	35.370
29P	0.669	14.344	14.344
30P	4.62e-005	0.077	0.075

31P	4.62e-005	0.075	0.077
32P	4.62e-005	0.077	0.075
33P	4.62e-005	0.075	0.077
1X	0.0862	4.647	3.059
1XY	0.0862	4.647	3.059
1Y	0.0862	4.647	3.059
2X	0.0617	3.479	1.146
3X	0.115	6.231	5.377
3XY	0.115	6.231	5.377
3Y	0.115	6.231	5.377
4X	0.058	3.764	1.961
5X	0.0657	4.089	4.089
5XY	0.0657	4.089	4.089
5Y	0.0657	4.089	4.089
6X	0.0335	2.067	1.467
6XY	0.0335	2.067	1.467
6Y	0.0335	2.067	1.467
7X	0.113	6.408	4.695
7XY	0.113	6.408	4.695
7Y	0.113	6.408	4.695
8X	0.0773	5.196	1.299
9X	0.0835	5.357	5.092
9XY	0.0835	5.357	5.092
9Y	0.0835	5.357	5.092
10X	0.118	6.075	5.158
10XY	0.118	6.075	5.158
10Y	0.118	6.075	5.158
11X	0.0509	3.283	1.440
12X	0.0898	4.476	4.476
12XY	0.0898	4.476	4.476
12Y	0.0898	4.476	4.476
13X	0.109	5.559	5.559
13XY	0.109	5.559	5.559
13Y	0.109	5.559	5.559
14X	0.21	8.854	8.854
14XY	0.21	8.854	8.854
14Y	0.21	8.854	8.854
15X	0.384	14.948	14.948
15XY	0.384	14.948	14.948
15Y	0.384	14.948	14.948
16X	0.248	9.854	9.854
16XY	0.248	9.854	9.854
16Y	0.248	9.854	9.854
17X	0.0572	2.948	2.948
17XY	0.0572	2.948	2.948
17Y	0.0572	2.948	2.948
30X	4.62e-005	0.077	0.075
31Y	4.62e-005	0.075	0.077
32X	4.62e-005	0.077	0.075
33Y	4.62e-005	0.075	0.077
18S	0.0277	2.317	1.500
19S	0.0293	1.500	2.317
20S	0.0943	6.285	1.262
21S	0.0943	1.262	6.285
18Y	0.0277	2.317	1.500
19X	0.0293	1.500	2.317
20Y	0.0943	6.285	1.262
21X	0.0943	1.262	6.285
Total	13.2	499.536	456.034

Unadjusted Dead Load and Drag Areas by Section:

Section Label	Unfactored Dead Load (kips)	X-Drag Area All (ft^2)	Y-Drag Area All (ft^2)	X-Drag Area Face (ft^2)	Y-Drag Area Face (ft^2)
1	1.210	35.575	25.783	7.325	1.700
2	5.307	251.672	217.963	118.987	93.298
3	6.669	212.288	212.288	120.189	120.189
Total	13.186	499.536	456.034	246.500	215.187

Angle Member Weights and Surface Areas by Section:

Section Label	Unfactored Weight (kips)	Factored Weight (kips)	Unfactored Surface Area (ft^2)	Factored Surface Area (ft^2)
1	1.210	1.210	165.438	165.438
2	5.307	5.307	1026.649	1026.649
3	6.669	7.003	962.726	1010.862
Total	13.186	13.519	2154.813	2202.950

Section Joint Information:

Section Label	Joint Label	Joint Elevation (ft)
1	1P	86.000
1	1Y	86.000
1	1X	86.000
1	1XY	86.000
1	2P	86.000
1	2X	86.000
1	24P	86.000
1	23P	95.000
1	22P	104.000
1	30X	86.000
1	32X	104.000
1	30P	86.000
1	32P	104.000
1	33P	104.000
1	31P	86.000
1	33Y	104.000
1	31Y	86.000
2	1P	86.000
2	3P	81.000
2	1X	86.000
2	3X	81.000
2	1XY	86.000
2	3XY	81.000
2	1Y	86.000
2	3Y	81.000
2	5P	75.000
2	5X	75.000
2	5XY	75.000
2	5Y	75.000
2	6P	72.000
2	6X	72.000

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2   6XY    72.000
2    6Y    72.000
2    7P    69.000
2    7X    69.000
2   7XY    69.000
2    7Y    69.000
2    9P    64.000
2    9X    64.000
2   9XY    64.000
2    9Y    64.000
2   10P    59.000
2   10X    59.000
2  10XY    59.000
2   10Y    59.000
2   12P    54.047
2   12X    54.047
2  12XY    54.047
2   12Y    54.047
2   13P    48.105
2   13X    48.105
2  13XY    48.105
2   13Y    48.105
2   14P    41.500
2   14X    41.500
2  14XY    41.500
2   14Y    41.500
2   18S    72.000
2   18Y    72.000
2   19X    72.000
2   19S    72.000
2    4P    81.000
2    4X    81.000
2   11P    59.000
2   11X    59.000
2    8P    69.000
2    8X    69.000
2    2P    86.000
2    2X    86.000
2   25P    81.000
2   26P    69.000
2   27P    59.000
2   24P    86.000
3   14P    41.500
3   15P    27.000
3   14X    41.500
3   15X    27.000
3  14XY    41.500
3  15XY    27.000
3   14Y    41.500
3   15Y    27.000
3   16P     5.000
3   16X     5.000
3  16XY     5.000
3   16Y     5.000
3   17P     0.000
3   17X     0.000
3  17XY     0.000
3   17Y     0.000
3   20S     5.000
3   20Y     5.000
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3	21X	5.000
3	21S	5.000
3	28P	27.000
3	29P	0.000
3	27P	59.000

Sections Information:

Section Label	Top Z (ft)	Bottom Z (ft)	Joint Count	Member Count	Tran. Face Top Width (ft)	Tran. Face Bot Width (ft)	Tran. Face Gross Area (ft^2)	Long. Face Top Width (ft)	Long. Face Bot Width (ft)	Long. Face Gross Area (ft^2)
1	104.000	86.000	17	26	1.00	5.00	36.000	1.00	27.50	137.250
2	86.000	41.500	56	173	5.00	9.81	264.882	27.50	9.81	431.382
3	41.500	0.000	23	54	9.81	21.39	646.560	9.81	21.39	646.560

*** Insulator Data

Clamp Properties:

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

Clamp Insulator Connectivity:

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

32	7X	clamp-prop#1	No Limit
33	10X	clamp-prop#1	No Limit
34	14X	clamp-prop#1	No Limit
35	15X	clamp-prop#1	No Limit
36	16X	clamp-prop#1	No Limit
37	7Y	clamp-prop#1	No Limit
38	10Y	clamp-prop#1	No Limit
39	14Y	clamp-prop#1	No Limit
40	15Y	clamp-prop#1	No Limit
41	16Y	clamp-prop#1	No Limit
42	3Y	clamp-prop#1	No Limit

*** Loads Data

Loads from file: j:\jobs\1616200.wi\09_ct11317b\04_structural\backup documentation\calcs\rev (1)\pls tower\876 w_ powermnt.lca

Insulator dead and wind loads are already included in the point loads printed below.

Loading Method Parameters:

Structure Height Summary (used for calculating wind/ice adjust with height):
  Z of ground for wind height adjust 0.00 (ft) and structure Z coordinate that will be put on the centerline ground profile in PLS-CADD.
  Ground elevation shift 0.00 (ft)
  Z of ground with shift 0.00 (ft)
  Z of structure top (highest joint) 104.00 (ft)
  Structure height 104.00 (ft)
  Structure height above ground 104.00 (ft)
  Tower Shape Rectangular

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

Vector Load Cases:

Load Case Description	Dead Load Factor	Wind Area Factor	SF for Steel Poles Tubular Arms and Towers	SF for Guys and Cables	SF for Insuls.	SF For Found.	Point Loads	Wind/Ice Model	Trans. Wind Pressure (psf)	Longit. Wind Pressure (psf)	Ice Thick. (in)	Ice Density (lbs/ft^3)	Temperature (deg F)	Joint Displ.
NESC Heavy - Transverse	1.5000	2.5000	1.00000	1.0000	1.0000	1.0000	46 loads	Wind on Face	4	0	0.000	56.000	0.0	
Extreme Wind - Transverse	1.0000	1.0000	1.00000	1.0000	1.0000	1.0000	46 loads	NESC 2012	31	0	0.000	56.000	0.0	
NESC Heavy - Longitudinal	1.5000	2.5000	1.00000	1.0000	1.0000	1.0000	46 loads	Wind on Face	4	0	0.000	56.000	0.0	
Extreme Wind - Longitudinal	1.0000	1.0000	1.00000	1.0000	1.0000	1.0000	46 loads	NESC 2012	31	0	0.000	56.000	0.0	

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

Joint Label	Vertical Load (lbs)	Transverse Load (lbs)	Longitudinal Load (lbs)	Load Comment
2X	1362	821	0	Shield Wire
2P	2299	1067	0	Shield Wire
4P	2882	1179	0	Conductor
4X	2882	1179	0	Conductor
8P	2882	1179	0	Conductor
8X	2882	1179	0	Conductor
11P	2882	1179	0	Conductor
11X	2882	1179	0	Conductor
1P	72	32	0	AT&T Antennas
3P	72	32	0	AT&T Antennas
1X	72	32	0	AT&T Antennas
3X	72	32	0	AT&T Antennas
1XY	72	32	0	AT&T Antennas
3XY	72	32	0	AT&T Antennas
3P	138	56	0	AT&T Coax (on tower leg)

7P	253	102	0	AT&T Coax (on tower leg)
10P	310	125	0	AT&T Coax (on tower leg)
14P	368	148	0	AT&T Coax (on tower leg)
15P	425	171	0	AT&T Coax (on tower leg)
16P	368	148	0	AT&T Coax (on tower leg)
23P	47	0	0	Sprint Coax (within powermount)
24P	66	0	0	Sprint Coax (within powermount)
25P	80	0	0	Sprint Coax (within powermount)
26P	103	0	0	Sprint Coax (within powermount)
27P	197	0	0	Sprint Coax (within powermount)
28P	402	0	0	Sprint Coax (within powermount)
23P	172	0	0	T-Mobile Coax (on powermount exterior)
24P	241	0	0	T-Mobile Coax (on powermount exterior)
25P	293	0	0	T-Mobile Coax (on powermount exterior)
26P	379	0	0	T-Mobile Coax (on powermount exterior)
27P	723	0	0	T-Mobile Coax (on powermount exterior)
28P	1480	0	0	T-Mobile Coax (on powermount exterior)
22P	1529	390	0	Sprint Antennas
23P	1893	774	0	T-Mobile Antennas
3X	506	44	0	Sprint Coax (on tower leg)
7X	506	44	0	Sprint Coax (on tower leg)
10X	621	54	0	Sprint Coax (on tower leg)
14X	736	64	0	Sprint Coax (on tower leg)
15X	851	74	0	Sprint Coax (on tower leg)
16X	736	64	0	Sprint Coax (on tower leg)
3Y	189	37	0	T-Mobile Coax (on tower leg)
7Y	189	37	0	T-Mobile Coax (on tower leg)
10Y	232	46	0	T-Mobile Coax (on tower leg)
14Y	275	54	0	T-Mobile Coax (on tower leg)
15Y	318	63	0	T-Mobile Coax (on tower leg)
16Y	275	54	0	T-Mobile Coax (on tower leg)

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

Section Label	Z of Top (ft)	Z of Bottom (ft)	Ave. Elev. Above Ground (ft)	Res. Adj. Wind Pres. (psf)	Tran Adj. Wind Pres. (psf)	Tran Drag Coef	Tran Wind Load (lbs)	Long Adj. Wind Pres. (psf)	Long Drag Coef	Long Wind Load (lbs)	Ice Weight (lbs)	Total Weight (lbs)
1	104.00	86.00	95.00	10.00	10.00	3.200	54.4	0.00	3.200	0.0	0	1814
2	86.00	41.50	63.75	10.00	10.00	3.200	2985.5	0.00	3.200	0.0	0	7961
3	41.50	0.00	20.75	10.00	10.00	3.200	3846.0	0.00	3.200	0.0	0	10504

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

Joint Label	Vertical Load (lbs)	Transverse Load (lbs)	Longitudinal Load (lbs)	Load Comment
2X	343	483	0	Shield Wire
2P	709	1042	0	Shield Wire
4P	1024	1304	0	Conductor
4X	1024	1304	0	Conductor
8P	1024	1304	0	Conductor
8X	1024	1304	0	Conductor
11P	1024	1304	0	Conductor
11X	1024	1304	0	Conductor
1P	31	116	0	AT&T Antennas

3P	31	116	0	AT&T Antennas
1X	31	116	0	AT&T Antennas
3X	31	116	0	AT&T Antennas
1XY	31	116	0	AT&T Antennas
3XY	31	116	0	AT&T Antennas
3P	37	163	0	AT&T Coax (on tower leg)
7P	69	300	0	AT&T Coax (on tower leg)
10P	84	368	0	AT&T Coax (on tower leg)
14P	100	436	0	AT&T Coax (on tower leg)
15P	115	504	0	AT&T Coax (on tower leg)
16P	100	436	0	AT&T Coax (on tower leg)
23P	31	0	0	Sprint Coax (within powermount)
24P	44	0	0	Sprint Coax (within powermount)
25P	53	0	0	Sprint Coax (within powermount)
26P	69	0	0	Sprint Coax (within powermount)
27P	131	0	0	Sprint Coax (within powermount)
28P	268	0	0	Sprint Coax (within powermount)
23P	40	0	0	T-Mobile Coax (on powermount exterior)
24P	55	0	0	T-Mobile Coax (on powermount exterior)
25P	67	0	0	T-Mobile Coax (on powermount exterior)
26P	87	0	0	T-Mobile Coax (on powermount exterior)
27P	166	0	0	T-Mobile Coax (on powermount exterior)
28P	341	0	0	T-Mobile Coax (on powermount exterior)
22P	721	1484	0	Sprint Antennas
23P	810	2980	0	T-Mobile Antennas
3X	137	100	0	Sprint Coax (on tower leg)
7X	137	100	0	Sprint Coax (on tower leg)
10X	168	123	0	Sprint Coax (on tower leg)
14X	200	145	0	Sprint Coax (on tower leg)
15X	231	168	0	Sprint Coax (on tower leg)
16X	200	145	0	Sprint Coax (on tower leg)
3Y	44	78	0	T-Mobile Coax (on tower leg)
7Y	44	78	0	T-Mobile Coax (on tower leg)
10Y	53	96	0	T-Mobile Coax (on tower leg)
14Y	63	114	0	T-Mobile Coax (on tower leg)
15Y	73	132	0	T-Mobile Coax (on tower leg)
16Y	63	114	0	T-Mobile Coax (on tower leg)

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

Section Label	Z of Top (ft)	Z of Bottom (ft)	Ave. Elev. Above Ground (ft)	Res. Wind Pres. (psf)	Tran Wind Pres. (psf)	Tran Angle Face Area (ft^2)	Tran Round Face Area (ft^2)	Tran Gross Area (ft^2)	Tran Soli- dity Ratio	Tran Drag Coef	Tran Round Drag Coef	Tran Wind Load (lbs)	Long Wind Pres. (psf)	Long Angle Face Area (ft^2)	Long Round Face Area (ft^2)	Long Gross Area (ft^2)	Long Soli- dity Ratio	Long Drag Coef	Long Round Drag Coef	Long Wind Load (lbs)	Ice Weight (lbs)	Total Weight (lbs)
1	104.00	86.00	95.00	31.51	31.51	1.25	0.45	36.00	0.047	3.200	2.000	154.4	0.00	6.88	0.45	137.25	0.053	3.200	2.000	0.0	0	1210
2	86.00	41.50	63.75	31.51	31.51	93.30	0.00	264.88	0.352	3.200	2.000	9407.9	0.00	118.99	0.00	431.38	0.276	3.200	2.000	0.0	0	5307
3	41.50	0.00	20.75	31.51	31.51	126.20	0.00	646.56	0.195	3.200	2.000	12725.5	0.00	126.20	0.00	646.56	0.195	3.200	2.000	0.0	0	7003

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

Joint Label	Vertical Load (lbs)	Transverse Load (lbs)	Longitudinal Load (lbs)	Load Comment
2X	1362	0	0	Shield Wire
2P	2299	0	0	Shield Wire
4P	2882	0	0	Conductor
4X	2882	0	0	Conductor
8P	2882	0	0	Conductor
8X	2882	0	0	Conductor
11P	2882	0	0	Conductor
11X	2882	0	0	Conductor
1P	72	0	32	AT&T Antennas
3P	72	0	32	AT&T Antennas
1X	72	0	32	AT&T Antennas
3X	72	0	32	AT&T Antennas
1XY	72	0	32	AT&T Antennas
3XY	72	0	32	AT&T Antennas
3P	138	0	56	AT&T Coax (on tower leg)
7P	253	0	102	AT&T Coax (on tower leg)
10P	310	0	125	AT&T Coax (on tower leg)
14P	368	0	148	AT&T Coax (on tower leg)
15P	425	0	171	AT&T Coax (on tower leg)
16P	368	0	148	AT&T Coax (on tower leg)
23P	47	0	0	Sprint Coax (within powermount)
24P	66	0	0	Sprint Coax (within powermount)
25P	80	0	0	Sprint Coax (within powermount)
26P	103	0	0	Sprint Coax (within powermount)
27P	197	0	0	Sprint Coax (within powermount)
28P	402	0	0	Sprint Coax (within powermount)
23P	172	0	69	T-Mobile Coax (on powermount exterior)
24P	241	0	96	T-Mobile Coax (on powermount exterior)
25P	293	0	117	T-Mobile Coax (on powermount exterior)
26P	379	0	151	T-Mobile Coax (on powermount exterior)
27P	723	0	288	T-Mobile Coax (on powermount exterior)
28P	1480	0	591	T-Mobile Coax (on powermount exterior)
22P	1529	0	390	Sprint Antennas
23P	1893	0	774	T-Mobile Antennas
3X	506	0	363	Sprint Coax (on tower leg)
7X	506	0	363	Sprint Coax (on tower leg)
10X	621	0	446	Sprint Coax (on tower leg)
14X	736	0	528	Sprint Coax (on tower leg)
15X	851	0	611	Sprint Coax (on tower leg)
16X	736	0	528	Sprint Coax (on tower leg)
3Y	189	0	151	T-Mobile Coax (on tower leg)
7Y	189	0	151	T-Mobile Coax (on tower leg)
10Y	232	0	185	T-Mobile Coax (on tower leg)
14Y	275	0	220	T-Mobile Coax (on tower leg)
15Y	318	0	254	T-Mobile Coax (on tower leg)
16Y	275	0	220	T-Mobile Coax (on tower leg)

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

Section Label	Z of Top (ft)	Z of Bottom (ft)	Ave. Elev. Above Ground (ft)	Res. Adj. Wind Pres. (psf)	Tran Adj. Wind Pres. (psf)	Tran Drag Coef	Tran Wind Load (lbs)	Long Adj. Wind Pres. (psf)	Long Drag Coef	Long Wind Load (lbs)	Ice Weight (lbs)	Total Weight (lbs)

1	104.00	86.00	95.00	10.00	10.00	3.200	54.4	0.00	3.200	0.0	0	1814
2	86.00	41.50	63.75	10.00	10.00	3.200	2985.5	0.00	3.200	0.0	0	7961
3	41.50	0.00	20.75	10.00	10.00	3.200	3846.0	0.00	3.200	0.0	0	10504

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

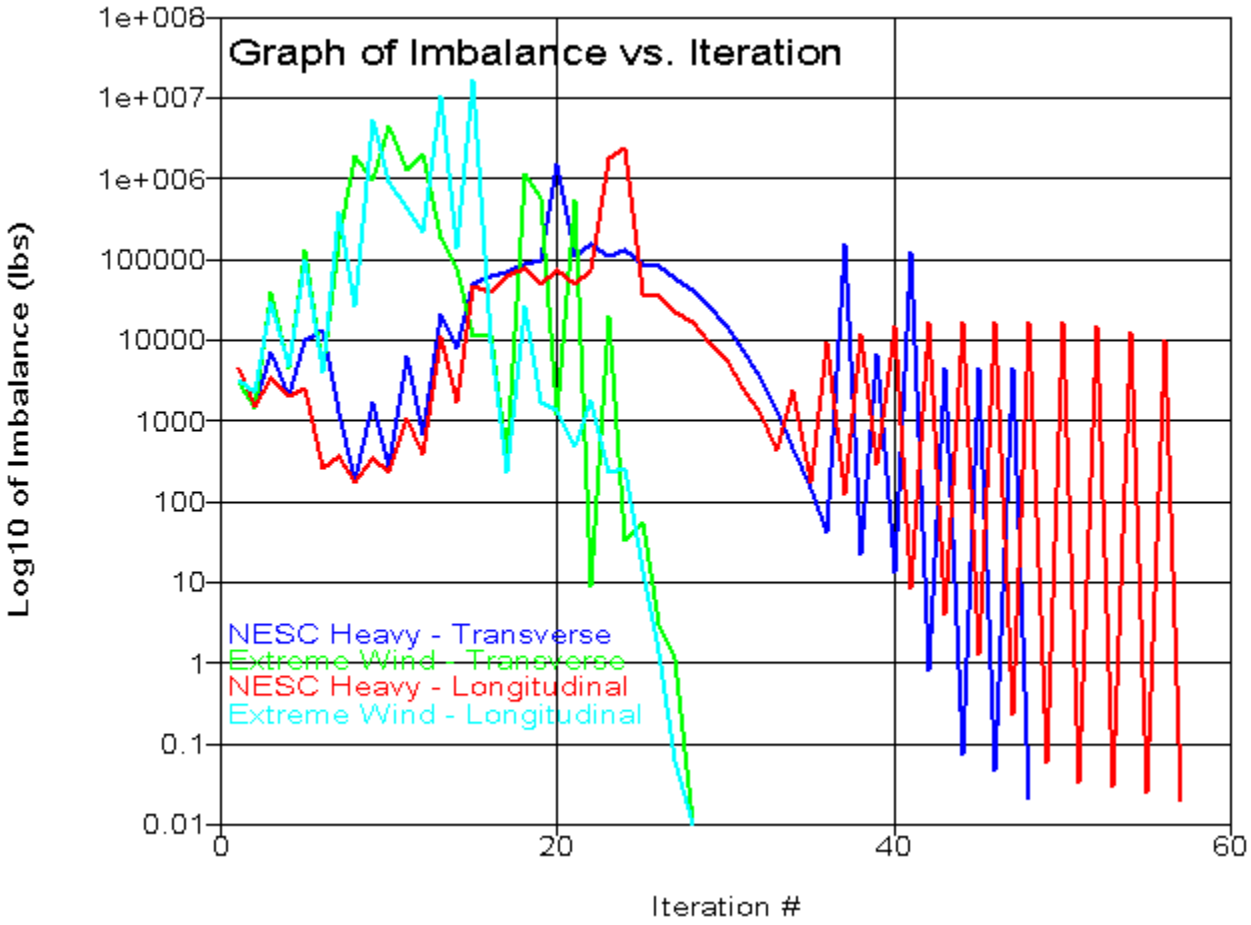
Joint Label	Vertical Load (lbs)	Transverse Load (lbs)	Longitudinal Load (lbs)	Load Comment
2X	343	0	0	Shield Wire
2P	709	0	0	Shield Wire
4P	1024	0	0	Conductor
4X	1024	0	0	Conductor
8P	1024	0	0	Conductor
8X	1024	0	0	Conductor
11P	1024	0	0	Conductor
11X	1024	0	0	Conductor
1P	31	0	116	AT&T Antennas
3P	31	0	116	AT&T Antennas
1X	31	0	116	AT&T Antennas
3X	31	0	116	AT&T Antennas
1XY	31	0	116	AT&T Antennas
3XY	31	0	116	AT&T Antennas
3P	37	0	163	AT&T Coax (on tower leg)
7P	69	0	300	AT&T Coax (on tower leg)
10P	84	0	368	AT&T Coax (on tower leg)
14P	100	0	436	AT&T Coax (on tower leg)
15P	115	0	504	AT&T Coax (on tower leg)
16P	100	0	436	AT&T Coax (on tower leg)
23P	31	0	0	Sprint Coax (within powermount)
24P	44	0	0	Sprint Coax (within powermount)
25P	53	0	0	Sprint Coax (within powermount)
26P	69	0	0	Sprint Coax (within powermount)
27P	131	0	0	Sprint Coax (within powermount)
28P	268	0	0	Sprint Coax (within powermount)
23P	40	0	213	T-Mobile Coax (on powermount exterior)
24P	55	0	299	T-Mobile Coax (on powermount exterior)
25P	67	0	363	T-Mobile Coax (on powermount exterior)
26P	87	0	469	T-Mobile Coax (on powermount exterior)
27P	166	0	896	T-Mobile Coax (on powermount exterior)
28P	341	0	1834	T-Mobile Coax (on powermount exterior)
22P	721	0	1484	Sprint Antennas
23P	810	0	2980	T-Mobile Antennas
3X	137	0	1199	Sprint Coax (on tower leg)
7X	137	0	1199	Sprint Coax (on tower leg)
10X	168	0	1471	Sprint Coax (on tower leg)
14X	200	0	1744	Sprint Coax (on tower leg)
15X	231	0	2016	Sprint Coax (on tower leg)
16X	200	0	1744	Sprint Coax (on tower leg)
3Y	44	0	469	T-Mobile Coax (on tower leg)
7Y	44	0	469	T-Mobile Coax (on tower leg)
10Y	53	0	576	T-Mobile Coax (on tower leg)
14Y	63	0	682	T-Mobile Coax (on tower leg)
15Y	73	0	789	T-Mobile Coax (on tower leg)
16Y	63	0	682	T-Mobile Coax (on tower leg)

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

Section Label	Z of Top (ft)	Z of Bottom (ft)	Ave. Elev. Above Ground (ft)	Res. Adj. Wind Pres. (psf)	Tran Adj. Wind Pres. (psf)	Tran Angle Face Area (ft^2)	Tran Round Face Area (ft^2)	Tran Gross Area (ft^2)	Tran Soli- dity Ratio	Tran Angle Drag Coef	Tran Round Drag Coef	Tran Wind Load (lbs)	Long Adj. Wind Pres. (psf)	Long Angle Face Area (ft^2)	Long Round Face Area (ft^2)	Long Gross Area (ft^2)	Long Soli- dity Ratio	Long Angle Drag Coef	Long Round Drag Coef	Long Wind Load (lbs)	Ice Weight (lbs)	Total Weight
1	104.00	86.00	95.00	31.51	31.51	1.25	0.45	36.00	0.047	3.200	2.000	154.4	0.00	6.88	0.45	137.25	0.053	3.200	2.000	0.0	0	1210
2	86.00	41.50	63.75	31.51	31.51	93.30	0.00	264.88	0.352	3.200	2.000	9407.9	0.00	118.99	0.00	431.38	0.276	3.200	2.000	0.0	0	5307
3	41.50	0.00	20.75	31.51	31.51	126.20	0.00	646.56	0.195	3.200	2.000	12725.5	0.00	126.20	0.00	646.56	0.195	3.200	2.000	0.0	0	7003

*** Analysis Results:

Maximum element usage is 93.36% for Angle "g11X" in load case "Extreme Wind - Transverse"
Maximum insulator usage is 15.05% for Clamp "30" in load case "NESC Heavy - Longitudinal"



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

Group Label	Angle Label	Max. Usage For All LC %	Max. Tens. For All LC (kips)	Max. Comp. For All LC (kips)	LC 1 (kips)	LC 2 (kips)	LC 3 (kips)	LC 4 (kips)
LEG1	g1P	8.54	3.076	-4.570	-1.435	3.076	-3.798	-4.570
LEG1	g1X	9.07	0.000	-4.856	-2.796	-4.856	-2.484	-4.848
LEG1	g1XY	9.09	2.701	-4.864	-2.838	-4.864	-0.519	2.701
LEG1	g1Y	7.52	3.110	-1.670	-1.330	3.110	-1.670	3.014

LEG1	g2P	29.76	12.301	-8.899	2.068	12.301	-5.292	-8.899
LEG1	g2X	23.63	0.000	-11.553	-6.143	-11.553	-4.421	-10.987
LEG1	g2XY	23.39	9.660	-11.434	-5.774	-11.434	1.496	9.660
LEG1	g2Y	30.07	12.429	0.000	2.311	12.429	0.498	11.808
LEG1	g3P	31.19	16.428	-14.290	3.417	16.428	-8.354	-14.290
LEG1	g3X	35.91	0.000	-21.630	-10.804	-21.630	-6.905	-19.702
LEG1	g3XY	35.80	9.202	-21.563	-10.557	-21.563	1.246	9.202
LEG1	g3Y	31.61	16.653	-0.143	3.802	16.653	-0.143	14.570
LEG1	g4P	38.18	15.782	-14.927	1.871	15.782	-9.896	-14.927
LEG1	g4X	36.96	0.000	-22.265	-12.344	-22.265	-8.450	-20.344
LEG1	g4XY	36.86	8.548	-22.206	-12.100	-22.206	-0.302	8.548
LEG1	g4Y	38.74	16.011	-1.693	2.257	16.011	-1.693	13.909
LEG1	g5P	49.56	26.108	-15.751	6.556	26.108	-10.594	-15.751
LEG1	g5X	57.30	0.000	-30.661	-18.040	-30.661	-11.678	-27.871
LEG1	g5XY	57.92	12.289	-30.994	-17.602	-30.994	-0.107	12.289
LEG1	g5Y	50.97	26.847	0.000	7.255	26.847	0.397	22.464
LEG1	g6P	61.21	32.244	-17.079	8.942	32.244	-12.164	-17.079
LEG1	g6X	71.12	0.000	-38.055	-23.050	-38.055	-14.926	-35.592
LEG1	g6XY	73.79	13.829	-39.482	-23.102	-39.482	-0.846	13.829
LEG1	g6Y	64.51	33.981	0.000	10.062	33.981	0.675	27.363
LEG2	g7P	58.20	37.843	-17.251	12.819	37.843	-11.617	-17.251
LEG2	g7X	64.68	0.000	-42.572	-25.786	-42.572	-16.580	-40.667
LEG2	g7XY	67.05	15.408	-44.130	-25.649	-44.130	-0.008	15.408
LEG2	g7Y	61.17	39.775	0.000	14.077	39.775	3.180	32.901
LEG2	g8P	62.41	40.581	-17.749	14.198	40.581	-12.276	-17.749
LEG2	g8X	78.32	0.000	-46.933	-29.317	-46.933	-18.484	-43.728
LEG2	g8XY	79.83	13.894	-47.840	-29.131	-47.840	-1.489	13.894
LEG2	g8Y	64.58	41.990	0.000	15.525	41.990	3.617	35.467
LEG2	g9P	62.19	40.348	-15.872	14.933	40.348	-11.125	-15.872
LEG2	g9X	82.69	0.000	-45.843	-28.958	-45.843	-18.335	-42.667
LEG2	g9XY	83.68	11.960	-46.393	-29.075	-46.393	-2.333	11.960
LEG2	g9Y	63.59	41.254	0.000	15.978	41.254	4.273	35.514
LEG3	g10P	47.52	36.762	-17.608	13.211	36.762	-11.596	-17.608
LEG3	g10X	85.47	0.000	-51.253	-32.675	-51.253	-19.780	-48.388
LEG3	g10XY	84.31	7.059	-50.556	-30.527	-50.556	-2.354	7.059
LEG3	g10Y	48.54	37.552	0.000	15.934	37.552	5.072	35.000
LEG3	g11P	51.69	39.991	-19.839	14.084	39.991	-13.792	-19.839
LEG3	g11X	93.36	0.000	-55.838	-36.157	-55.838	-23.888	-51.690
LEG3	g11XY	89.55	3.243	-53.559	-34.207	-53.559	-6.787	3.243
LEG3	g11Y	51.52	39.857	0.000	14.836	39.776	4.525	39.857
LEG2	g12P	72.86	47.376	-19.435	17.017	47.376	-13.792	-19.435
LEG2	g12X	85.77	0.000	-56.226	-37.265	-56.226	-25.009	-52.086
LEG2	g12XY	81.98	4.765	-53.744	-34.567	-53.744	-6.785	4.765
LEG2	g12Y	76.45	49.710	0.000	16.794	45.661	7.428	49.710
XBR1	g13P	52.09	0.143	-6.022	-1.749	-6.022	0.143	-0.854
XBR1	g13X	38.46	5.609	-1.087	1.009	5.609	-1.087	-0.332
XBR1	g13XY	38.41	5.602	-0.833	1.041	5.602	-0.833	0.483
XBR1	g13Y	51.81	0.316	-5.988	-1.768	-5.988	0.316	-0.099
XBR1	g14P	37.07	5.407	-0.279	-0.279	-0.206	1.294	5.407
XBR1	g14X	36.47	5.319	0.000	0.015	0.414	1.241	5.319
XBR1	g14XY	44.59	0.383	-5.155	-0.012	0.383	-1.577	-5.155
XBR1	g14Y	43.83	0.000	-5.067	-0.252	-0.189	-1.472	-5.067
XBR2	g15P	25.22	0.202	-4.358	-2.100	-4.358	0.202	-0.176
XBR2	g15X	22.46	5.145	0.000	2.797	5.145	0.573	1.354
XBR2	g15XY	22.00	5.038	0.000	2.814	5.038	0.606	1.314
XBR2	g15Y	24.62	0.003	-4.253	-2.114	-4.253	0.003	-0.869
XBR2	g16P	19.84	0.948	-2.428	-1.069	-2.428	-0.049	0.948
XBR2	g16X	17.41	0.653	-2.131	-1.810	-2.131	-1.026	0.653
XBR2	g16XY	42.91	0.000	-5.253	-1.892	-2.305	-2.722	-5.253
XBR2	g16Y	44.94	0.000	-5.501	-1.006	-2.292	-1.851	-5.501

XBR3	g17P	31.00	0.000	-5.349	-2.906	-5.349	-0.847	-2.102
XBR3	g17X	19.83	4.542	-0.254	2.101	4.542	-0.254	0.290
XBR3	g17XY	19.41	4.444	0.000	2.120	4.444	0.174	1.463
XBR3	g17Y	30.33	0.000	-5.234	-2.913	-5.234	-0.642	-1.194
XBR3	g18P	22.94	5.253	0.000	0.732	1.805	1.710	5.253
XBR3	g18X	22.25	5.094	0.000	1.927	2.691	2.555	5.094
XBR3	g18XY	11.00	2.518	-0.556	1.846	2.518	0.929	-0.556
XBR3	g18Y	8.47	1.940	-0.911	0.796	1.940	-0.022	-0.911
XBR3	g19P	21.96	5.028	-0.266	2.157	5.028	-0.266	0.624
XBR3	g19X	34.56	0.000	-5.963	-3.020	-5.963	-0.892	-2.561
XBR3	g19XY	34.08	0.000	-5.880	-3.038	-5.880	-0.670	-1.604
XBR3	g19Y	21.67	4.962	0.000	2.187	4.962	0.147	1.752
XBR3	g20P	8.19	1.877	-1.159	0.766	1.877	-0.098	-1.159
XBR3	g20X	10.74	2.459	-0.793	1.816	2.459	0.852	-0.793
XBR3	g20XY	22.74	5.208	0.000	1.901	2.633	2.575	5.208
XBR3	g20Y	23.48	5.376	0.000	0.705	1.746	1.729	5.376
XBR2	g21P	29.47	0.745	-5.595	-1.921	-5.595	0.745	-1.572
XBR2	g21X	29.37	6.726	0.000	4.703	6.726	1.806	2.401
XBR2	g21XY	29.93	6.853	0.000	4.833	6.853	2.103	2.671
XBR2	g21Y	29.89	0.989	-5.676	-1.977	-5.676	0.989	-1.069
XBR2	g22P	17.47	4.002	0.000	0.131	0.484	0.919	4.002
XBR2	g22X	10.86	2.487	-0.906	-0.738	-0.906	0.495	2.487
XBR2	g22XY	18.36	0.000	-3.487	-0.906	-1.392	-1.279	-3.487
XBR2	g22Y	20.42	1.057	-3.878	0.356	1.057	-1.276	-3.878
XBR2	g23P	30.61	0.374	-5.812	-1.956	-5.812	0.374	-2.921
XBR2	g23X	29.58	6.775	0.000	4.796	6.775	1.685	1.512
XBR2	g23XY	30.72	7.036	0.000	4.951	7.036	2.458	3.851
XBR2	g23Y	32.01	1.244	-6.077	-2.084	-6.077	1.244	-0.337
XBR2	g24P	16.69	3.823	-1.699	-1.495	-1.699	0.413	3.823
XBR2	g24X	15.61	3.574	0.000	0.109	1.482	0.458	3.574
XBR2	g24XY	16.63	1.040	-3.157	-0.061	1.040	-1.649	-3.157
XBR2	g24Y	25.31	0.000	-4.806	-1.302	-1.188	-2.064	-4.806
XBR4	g25P	19.68	0.000	-2.137	-1.765	-1.168	-1.533	-2.137
XBR4	g25X	11.76	0.346	-1.277	0.322	0.346	-0.602	-1.277
XBR4	g25XY	14.32	2.183	-0.120	0.432	-0.120	0.496	2.183
XBR4	g25Y	12.20	0.000	-1.529	-1.529	-0.592	-1.003	-0.315
XBR4	g26P	23.57	0.000	-2.560	-1.466	-2.560	-0.217	-0.783
XBR4	g26X	13.49	2.057	-0.148	0.812	2.057	-0.148	0.009
XBR4	g26XY	13.39	2.041	-0.007	0.872	2.041	-0.007	0.761
XBR4	g26Y	23.21	0.000	-2.521	-1.260	-2.521	-0.080	-0.425
XBR5	g27P	4.33	0.702	-0.505	-0.489	-0.505	0.203	0.702
XBR5	g27X	9.04	1.694	0.000	1.217	0.952	1.043	1.694
XBR5	g27XY	5.44	1.020	0.000	1.020	0.488	0.677	0.489
XBR5	g27Y	15.80	0.000	-1.842	-0.594	-0.146	-0.621	-1.842
XBR5	g28P	9.59	1.798	-0.001	0.882	1.798	-0.001	0.208
XBR5	g28X	15.59	0.000	-1.386	-0.630	-1.386	-0.053	-0.629
XBR5	g28XY	15.73	0.071	-1.398	-0.585	-1.398	0.071	-0.003
XBR5	g28Y	9.60	1.800	0.000	1.027	1.800	0.127	0.583
XBR5	g29P	21.35	0.000	-1.475	-1.187	-1.187	-0.933	-1.475
XBR5	g29X	3.79	0.711	-0.166	0.473	0.711	-0.082	-0.166
XBR5	g29XY	8.17	1.532	0.000	0.559	0.442	0.479	1.532
XBR5	g29Y	11.41	0.000	-1.006	-1.006	-0.824	-0.695	-0.750
XBR5	g30P	17.80	0.000	-1.230	-0.727	-1.230	-0.053	-0.305
XBR5	g30X	4.49	0.842	-0.036	0.341	0.842	-0.036	0.032
XBR5	g30XY	4.41	0.827	0.000	0.373	0.827	0.001	0.296
XBR5	g30Y	16.69	0.000	-1.153	-0.567	-1.153	-0.014	-0.270
XBR6	g31P	0.00	0.000	0.000	0.000	0.000	0.000	0.000
XBR6	g31X	22.46	4.276	0.000	1.989	4.276	1.021	3.066
XBR6	g31XY	25.88	4.928	-0.200	-0.200	3.043	0.824	4.928
XBR6	g31Y	90.00	0.758	-2.031	-2.031	0.000	-0.680	0.758

XBR6 g32P	57.62	2.059	-1.300	0.000	0.000	-1.300	2.059
XBR6 g32X	26.99	5.139	-0.362	1.962	5.139	-0.362	1.667
XBR6 g32XY	34.22	5.137	-0.772	2.014	5.137	-0.772	0.522
XBR6 g32Y	79.55	0.267	-1.795	0.267	0.111	-1.795	0.000
XBR7 g33P	0.00	0.000	0.000	0.000	0.000	0.000	0.000
XBR7 g33X	34.87	5.086	0.000	2.720	5.086	0.982	1.124
XBR7 g33XY	48.96	7.142	0.000	1.777	3.262	2.819	7.142
XBR7 g33Y	0.00	0.000	0.000	0.000	0.000	0.000	0.000
XBR7 g34P	15.14	2.209	0.000	0.000	0.000	0.491	2.209
XBR7 g34X	39.46	5.755	0.000	1.568	4.717	1.680	5.755
XBR7 g34XY	32.93	4.803	0.000	1.952	4.803	0.000	0.000
XBR7 g34Y	0.00	0.000	0.000	0.000	0.000	0.000	0.000
XBR3 g35P	35.27	2.722	0.000	0.922	2.722	0.274	1.224
XBR3 g35X	34.85	0.000	-3.437	-1.294	-3.437	-0.661	-1.993
XBR3 g35XY	36.02	0.000	-3.552	-0.999	-2.698	-1.188	-3.552
XBR3 g35Y	37.62	2.903	0.000	0.632	1.989	0.839	2.903
XBR3 g36P	21.52	0.000	-2.122	-0.154	-0.552	-0.580	-2.122
XBR3 g36X	24.59	0.018	-2.425	0.018	-0.099	-0.796	-2.425
XBR3 g36XY	27.23	2.101	-0.205	-0.205	-0.158	0.568	2.101
XBR3 g36Y	13.94	1.076	-0.564	-0.259	-0.564	0.211	1.076
HBR1 g37P	73.70	0.000	-4.274	-2.575	-4.274	-1.671	-0.727
HBR1 g37X	40.58	3.131	-1.331	-0.392	3.131	-1.331	-0.499
HBR1 g38P	50.42	3.891	0.000	3.464	3.891	2.746	1.556
HBR1 g38X	25.07	1.935	-0.813	1.131	-0.813	1.935	1.869
HBR1 g39P	14.87	1.148	-0.393	1.148	0.193	0.762	-0.393
HBR1 g39X	20.58	1.588	-1.022	1.054	-1.022	1.588	-0.004
HBR1 g40P	33.60	2.593	0.000	1.819	2.593	0.615	0.419
HBR1 g40X	35.33	1.079	-2.049	-0.114	-2.049	1.079	0.446
HBR2 g41P	41.41	0.300	-4.336	-1.761	-4.336	0.300	-1.099
HBR2 g41X	16.92	1.306	0.000	0.218	0.650	1.306	0.224
HBR2 g42P	15.68	0.000	-1.641	-0.763	-1.641	-0.270	-0.658
HBR2 g42Y	22.68	0.743	-2.375	0.743	-1.131	-0.151	-2.375
HBR3 g43P	43.84	0.000	-4.590	-1.929	-4.590	-0.444	-1.834
HBR3 g43X	11.43	1.196	0.000	0.422	1.098	1.196	0.633
HBR3 g44P	17.54	0.000	-1.837	-1.321	-1.837	-0.696	-0.060
HBR3 g44Y	31.19	0.187	-3.265	0.187	-0.768	-1.156	-3.265
HBR4 g45P	38.66	0.000	-4.047	-2.042	-4.047	-0.950	-1.469
HBR4 g45X	9.25	0.969	-0.104	-0.037	0.969	-0.104	0.887
HBR4 g45XY	8.25	0.864	-0.054	0.003	0.864	-0.054	0.736
HBR4 g45Y	43.44	0.000	-4.548	-1.472	-2.821	-1.886	-4.548
HBR4 g46P	25.07	0.298	-2.625	-1.146	-2.625	0.037	0.298
HBR4 g46X	17.43	1.825	-0.063	-0.063	0.155	0.427	1.825
HBR4 g46XY	10.20	0.166	-1.067	0.031	0.166	-0.289	-1.067
HBR4 g46Y	36.25	0.000	-3.796	-0.945	-2.571	-1.197	-3.796
Arm1 g47P	3.02	0.948	-0.280	0.401	-0.280	0.948	0.254
Arm1 g47X	3.23	1.014	0.000	1.014	0.544	0.588	0.292
Arm1 g47XY	3.24	1.018	0.000	1.018	0.547	0.600	0.306
Arm1 g47Y	3.08	0.969	-0.272	0.408	-0.272	0.969	0.278
Arm1 g48P	13.74	5.940	0.000	4.203	1.511	5.404	5.940
Arm1 g48Y	9.99	4.223	-2.619	4.223	1.561	3.136	-2.619
Arm1 g49P	20.18	0.000	-5.753	-5.753	-2.660	-5.224	-2.318
Arm1 g49X	14.33	0.000	-4.085	-3.345	-0.646	-4.085	-1.724
Arm1 g49XY	13.63	0.000	-3.885	-3.343	-0.647	-3.885	-1.004
Arm1 g49Y	20.15	0.000	-5.746	-5.746	-2.647	-5.028	-1.638
Arm1 g50P	19.62	0.000	-5.146	-4.475	-2.040	-5.146	-4.590
Arm1 g50Y	17.08	0.383	-4.480	-4.480	-1.998	-3.842	0.383
Arm1 g51P	11.03	0.000	-3.054	-3.054	-1.751	-2.030	-0.098
Arm1 g51X	7.44	0.081	-2.061	-1.725	-0.034	-2.061	0.081
Arm1 g51XY	9.86	0.000	-2.731	-1.795	-0.171	-2.731	-1.710
Arm1 g51Y	11.01	0.000	-3.049	-3.049	-1.639	-2.815	-1.909

Arm1	g52P	12.41	0.000	-3.254	-3.254	-1.204	-3.200	-1.545
Arm1	g52Y	12.69	0.000	-3.329	-3.329	-1.207	-3.303	-0.843
Arm2	g53P	26.72	0.000	-6.553	-6.553	-2.963	-5.938	-2.267
Arm2	g53X	24.16	0.000	-5.925	-5.289	-1.409	-5.925	-2.112
Arm2	g53XY	24.10	0.000	-5.911	-5.294	-1.426	-5.911	-2.127
Arm2	g53Y	26.67	0.000	-6.542	-6.542	-2.938	-5.943	-2.328
Arm2	g54P	19.44	0.000	-5.707	-5.707	-1.728	-5.519	-1.250
Arm2	g54Y	20.17	0.000	-5.922	-5.696	-1.644	-5.922	-2.261
ArmBR1	g55P	29.15	0.000	-3.052	-3.048	-1.105	-3.052	-1.118
ArmBR1	g55X	17.73	0.000	-1.856	-1.850	-0.640	-1.856	-0.649
ArmBR2	g56P	63.18	4.984	0.000	4.873	1.801	4.984	2.206
ArmBR2	g56X	52.44	4.137	0.000	4.016	1.452	4.137	1.897
ArmBR2	g56XY	50.94	4.018	0.000	4.018	1.459	3.920	1.065
ArmBR2	g56Y	61.76	4.872	0.000	4.872	1.794	4.773	1.422
ArmBR2	g57P	77.38	6.104	0.000	6.104	2.269	6.091	2.232
ArmBR2	g57X	77.33	6.101	0.000	6.081	2.229	6.101	2.252
ArmBR2	g57XY	77.44	6.110	0.000	6.092	2.255	6.110	2.298
ArmBR2	g57Y	77.57	6.120	0.000	6.103	2.253	6.120	2.326
ArmBR2	g58P	71.88	5.671	0.000	5.571	1.829	5.671	2.121
ArmBR2	g58X	72.14	5.691	0.000	5.678	2.363	5.691	2.459
ArmBR2	g58XY	72.07	5.685	0.000	5.685	2.388	5.583	2.089
ArmBR2	g58Y	70.75	5.582	0.000	5.564	1.812	5.582	1.809
ArmBR2	g59P	35.74	2.820	0.000	2.820	1.139	2.346	0.000
ArmBR2	g59X	34.93	2.756	0.000	2.756	0.949	2.412	0.000
ArmBR2	g59XY	40.75	3.215	0.000	2.844	1.115	3.215	2.121
ArmBR2	g59Y	41.62	3.284	0.000	2.821	1.016	3.284	2.146
PMBR1	g60P	51.42	5.242	-5.015	1.778	5.242	-0.948	-5.015
PMBR1	g60X	52.32	0.000	-5.334	-0.953	-4.984	-1.050	-5.334
PMBR1	g60XY	51.35	5.235	-5.017	-0.991	-5.017	1.730	5.235
PMBR1	g60Y	55.74	5.683	0.000	1.813	5.288	1.928	5.683
PMBR1	g61P	37.20	3.793	-3.112	-0.816	-3.112	1.057	3.793
PMBR1	g61X	41.30	4.211	0.000	1.149	3.990	1.143	4.211
PMBR1	g61XY	37.93	3.867	-2.965	1.107	3.867	-0.736	-2.965
PMBR1	g61Y	29.21	0.000	-2.978	-0.763	-2.978	-0.700	-2.889
PMBR1	g62P	11.07	0.000	-1.129	-0.962	-1.129	-0.751	-0.462
PMBR1	g62X	10.26	0.000	-1.046	-0.901	-0.434	-1.046	-0.933
PMBR1	g62XY	10.62	0.000	-1.082	-1.082	-0.905	-0.980	-0.471
PMBR1	g62Y	8.43	0.000	-0.859	-0.859	-0.788	-0.850	-0.855
PMBR1	g63P	5.18	0.528	-0.523	-0.011	0.528	-0.435	-0.523
PMBR1	g63X	9.87	0.000	-1.006	-1.006	-1.002	-0.964	-0.901
PMBR1	g63XY	9.59	0.000	-0.978	-0.978	-0.854	-0.632	-0.055
PMBR1	g63Y	11.17	1.139	0.000	0.040	0.512	0.102	1.139
PMBR2	g64P	29.67	0.000	-3.107	-0.486	-1.998	-0.533	-3.107
PMBR2	g64X	18.74	0.000	-1.962	-1.243	-1.962	-0.394	-0.625
PMBR2	g64XY	23.13	0.000	-2.422	-0.858	-1.824	-0.861	-2.422
PMBR2	g64Y	19.84	0.377	-2.077	-0.815	-2.077	0.377	0.318
Powermnt	g65P	14.98	0.000	-17.274	-17.274	-6.362	-17.142	-6.258
Powermnt	g66P	11.35	0.000	-12.871	-12.871	-5.419	-12.742	-5.318
Powermnt	g67P	8.22	0.000	-9.810	-9.810	-4.361	-9.711	-4.282
Powermnt	g68P	6.60	0.000	-7.863	-7.863	-3.660	-7.797	-3.604
Powermnt	g69P	5.14	0.000	-6.160	-6.160	-3.028	-6.125	-2.996
Powermnt	g70P	3.88	0.000	-4.641	-4.638	-1.957	-4.641	-1.970
Powermnt	g71P	1.56	0.000	-1.862	-1.861	-1.048	-1.862	-1.054
fic1	g72P	0.00	0.000	0.000	0.000	0.000	0.000	0.000
fic1	g72X	0.00	0.000	0.000	0.000	0.000	0.000	0.000
fic1	g73P	0.00	0.000	0.000	0.000	0.000	0.000	0.000
fic1	g73Y	0.00	0.000	0.000	0.000	0.000	0.000	0.000
fic	g74P	0.00	0.072	0.000	0.002	0.072	0.002	0.072
fic	g74X	0.00	0.072	0.000	0.000	0.072	0.000	0.072
fic	g75P	0.00	0.072	0.000	0.002	0.072	0.002	0.072

fic	g75X	0.00	0.072	0.000	0.000	0.072	0.000	0.072
fic	g76P	0.00	0.072	0.000	0.002	0.072	0.002	0.072
fic	g76Y	0.00	0.072	0.000	0.002	0.072	0.002	0.072
fic	g77P	0.00	0.072	0.000	0.002	0.072	0.002	0.072
fic	g77Y	0.00	0.072	0.000	0.002	0.072	0.002	0.072
HBR5	g78P	9.72	0.000	-1.017	-0.956	-0.042	-1.017	-0.139
HBR5	g78X	10.07	0.000	-1.055	-1.055	-0.480	-0.949	-0.179
HBR5	g78XY	10.10	0.000	-1.058	-1.058	-0.480	-1.011	-0.404
HBR5	g78Y	10.29	0.000	-1.078	-0.957	-0.045	-1.078	-0.376

*** Analysis Results for Load Case No. 1 "NESC Heavy - Transverse" - Number of iterations in SAPS 48

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

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
1P	0.008002	0.1973	0.001572	-0.2400	0.0214	0.0390	2.508	-2.303	86
2P	0.01688	0.1953	0.04285	-0.1898	0.0151	0.0426	0.01688	-13.55	86.04
3P	0.007539	0.1744	0.001752	-0.2522	0.0282	0.0484	2.508	-2.326	81
4P	0.01254	0.174	0.02682	-0.1621	0.0148	0.0426	0.01254	-9.576	81.03
5P	0.003879	0.1456	0.001602	-0.2829	0.0233	0.0478	2.504	-2.354	75
6P	0.003563	0.1316	0.001452	-0.2400	-0.0127	0.0476	2.504	-2.368	72
7P	0.004152	0.1203	0.001374	-0.2084	0.0143	0.0472	2.504	-2.38	69
8P	0.01284	0.1204	0.01314	0.0212	0.0143	0.0423	0.01284	-14.13	69.01
9P	0.001679	0.09816	0.0008408	-0.2386	0.0114	0.0442	2.502	-2.402	64
10P	0.001871	0.08183	7.268e-005	-0.1587	0.0199	0.0413	2.502	-2.418	59
11P	0.007383	0.08077	0.02096	-0.1451	0.0122	0.0418	0.007383	-10.17	59.02
12P	0.0002964	0.06758	0.0009061	-0.1592	0.0193	0.0342	3.188	-3.12	54.05
13P	0.000116	0.05428	0.001485	-0.1093	0.0060	0.0346	4.013	-3.959	48.11
14P	-0.0001912	0.04336	0.001461	-0.0922	0.0075	0.0274	4.907	-4.864	41.5
15P	-0.0007248	0.02248	0.001879	-0.0592	0.0109	-0.0012	6.901	-6.88	27
16P	-0.0003969	0.0009726	0.001079	-0.0055	-0.0301	-0.1337	10	-9.999	5.001
17P	0	0	0	0.0000	0.0000	0.0000	10.69	-10.69	0
22P	0.01118	0.3141	-0.003444	-0.4031	0.0152	0.0343	0.01118	0.3141	104
23P	0.008826	0.2516	-0.003188	-0.3862	0.0152	0.0343	0.008826	0.2516	95
24P	0.006474	0.1961	-0.002918	-0.3031	0.0151	0.0342	0.006474	0.1961	86
25P	0.005174	0.1719	-0.002786	-0.2654	0.0150	0.0337	0.005174	0.1719	81
26P	0.002122	0.1181	-0.002442	-0.2431	0.0146	0.0314	0.002122	0.1181	69
27P	-0.0002346	0.07972	-0.002137	-0.1882	0.0118	0.0282	-0.0002346	0.07972	59
28P	-0.002224	0.02084	-0.00111	-0.0649	-0.0038	0.0131	-0.002224	0.02084	27
29P	0	0	0	0.0000	0.0000	0.0000	0	0	0
30P	0.003178	-0.1472	-0.4777	0.0000	0.0000	0.0000	0.003178	0.3528	85.52
31P	-0.4935	0.6959	-0.01736	0.0000	0.0000	0.0000	0.006474	0.6959	85.98
32P	0.004176	-0.06832	-0.4894	0.0000	0.0000	0.0000	0.004176	0.4317	103.5
33P	-0.4888	0.8139	-0.01789	0.0000	0.0000	0.0000	0.01118	0.8139	104
1X	0.00453	0.1978	-0.02118	-0.2899	0.0274	0.0438	2.505	2.698	85.98
1XY	0.004641	0.194	-0.01986	-0.2898	0.0028	0.0455	-2.495	2.694	85.98
1Y	0.00872	0.1935	0.002889	-0.2400	0.0088	0.0504	-2.491	-2.306	86
2X	-0.003922	0.1961	-0.0825	-0.3300	0.0150	0.0425	-0.003922	13.95	85.92
3X	0.003441	0.1738	-0.02088	-0.2788	0.0176	0.0457	2.503	2.674	80.98
3XY	0.003129	0.17	-0.01955	-0.2790	0.0124	0.0436	-2.497	2.67	80.98
3Y	0.006577	0.1707	0.00306	-0.2518	0.0019	0.0410	-2.493	-2.329	81
4X	-0.002202	0.171	-0.06175	-0.3520	0.0149	0.0426	-0.002202	9.921	80.94
5X	0.00187	0.147	-0.02016	-0.2459	0.0341	0.0441	2.502	2.647	74.98
5XY	0.001631	0.1432	-0.01887	-0.2455	-0.0047	0.0451	-2.498	2.643	74.98
5Y	0.007134	0.1419	0.002882	-0.2832	0.0066	0.0416	-2.493	-2.358	75
6X	7.442e-005	0.1338	-0.01955	-0.2651	0.0144	0.0435	2.5	2.634	71.98
6XY	0.001916	0.13	-0.01828	-0.2645	0.0146	0.0457	-2.498	2.63	71.98
6Y	0.005916	0.1279	0.002713	-0.2405	0.0420	0.0418	-2.494	-2.372	72
7X	0.0004018	0.1196	-0.01886	-0.2661	-0.0062	0.0429	2.5	2.62	68.98
7XY	0.0001104	0.1158	-0.0176	-0.2663	0.0344	0.0463	-2.5	2.616	68.98
7Y	0.003835	0.1165	0.002615	-0.2080	0.0143	0.0422	-2.496	-2.383	69
8X	-0.008602	0.1158	-0.106	-0.5046	0.0139	0.0423	-0.008602	14.37	68.89
9X	0.0006003	0.1009	-0.01722	-0.2111	0.0177	0.0449	2.501	2.601	63.98
9XY	-0.002459	0.0971	-0.016	-0.2114	0.0094	0.0437	-2.502	2.597	63.98
9Y	0.003857	0.09444	0.002019	-0.2385	0.0165	0.0447	-2.496	-2.406	64

10X	-0.002119	0.08138	-0.01514	-0.2035	0.0226	0.0470	2.498	2.581	58.98
10XY	-0.002086	0.07765	-0.01391	-0.2009	0.0048	0.0410	-2.502	2.578	58.99
10Y	0.001367	0.07812	0.001152	-0.1582	0.0051	0.0471	-2.499	-2.422	59
11X	-0.007909	0.07904	-0.05065	-0.2997	0.0148	0.0423	-0.007909	10.33	58.95
12X	-0.002616	0.06826	-0.01511	-0.1329	-0.0097	0.0457	3.185	3.256	54.03
12XY	-0.004901	0.06379	-0.01353	-0.1314	0.0352	0.0366	-3.193	3.252	54.03
12Y	0.001974	0.06301	0.002148	-0.1540	0.0025	0.0487	-3.186	-3.125	54.05
13X	-0.004213	0.05507	-0.01455	-0.1210	0.0219	0.0435	4.009	4.068	48.09
13XY	-0.007281	0.04945	-0.01259	-0.1192	0.0123	0.0331	-4.021	4.063	48.09
13Y	0.001179	0.0491	0.002831	-0.1090	0.0137	0.0430	-4.012	-3.964	48.11
14X	-0.00788	0.04303	-0.01381	-0.0949	0.0078	0.0364	4.9	4.95	41.49
14XY	-0.007969	0.0371	-0.0113	-0.0835	-0.0039	0.0274	-4.915	4.944	41.49
14Y	0.0005468	0.0368	0.00302	-0.0864	0.0086	0.0431	-4.907	-4.871	41.5
15X	-0.003732	0.02199	-0.01019	-0.0748	-0.0179	0.0128	6.898	6.924	26.99
15XY	-0.003885	0.01893	-0.008808	-0.0574	-0.0102	0.0119	-6.906	6.921	26.99
15Y	-2.343e-005	0.01887	0.002685	-0.0468	-0.0033	0.0341	-6.902	-6.883	27
16X	-4.053e-005	0.0005468	-0.00271	-0.0148	-0.0047	0.0179	10	10	4.997
16XY	-3.104e-005	0.0004084	-0.002518	-0.0123	0.0006	-0.0159	-10	10	4.997
16Y	0.0002457	0.0007096	0.00112	-0.0009	0.0283	0.1372	-10	-9.999	5.001
17X	0	0	0	0.0000	0.0000	0.0000	10.69	10.69	0
17XY	0	0	0	0.0000	0.0000	0.0000	-10.69	10.69	0
17Y	0	0	0	0.0000	0.0000	0.0000	-10.69	-10.69	0
30X	0.006474	1.196	-0.01736	0.0000	0.0000	0.0000	0.006474	0.6959	85.98
31Y	0.5065	0.6959	-0.01736	0.0000	0.0000	0.0000	0.006474	0.6959	85.98
32X	0.01118	1.314	-0.01789	0.0000	0.0000	0.0000	0.01118	0.8139	104
33Y	0.5112	0.8139	-0.01789	0.0000	0.0000	0.0000	0.01118	0.8139	104
18S	0.002016	0.1327	-0.008571	0.0000	0.0000	0.0000	2.502	0.1327	71.99
19S	0.004685	0.2015	0.001074	0.0000	0.0000	0.0000	0.004685	-2.299	72
20S	0.003187	0.0005553	0.0002422	-0.0112	-0.0174	0.0274	10	0.0005553	5
21S	-5.57e-005	0.04663	-0.006799	-0.0040	0.0006	0.0003	-5.57e-005	-9.953	4.993
18Y	0.003714	0.1289	-0.007319	0.0000	0.0000	0.0000	-2.496	0.1289	71.99
19X	0.001043	0.06918	-0.0186	0.0000	0.0000	0.0000	0.001043	2.569	71.98
20Y	-0.003382	0.0004087	0.0002721	-0.0123	0.0144	-0.0291	-10	0.0004087	5
21X	-2.612e-005	-0.004732	-0.000881	-0.0136	0.0019	0.0001	-2.612e-005	9.995	4.999

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

Joint Label	X Force (kips)	X Usage %(kips)	Y Force	Y Usage %	H-Shear Usage %	Z Force (kips)	Comp. Usage %	Uplift Usage %	Result. Force (kips)	Result. Usage %	X Moment (ft-k)	X-M. Usage %	Y Moment (ft-k)	Y-M. Usage %	H-Bend-M Usage %	Z Moment (ft-k)	Z-M. Usage %	Max. Usage %
17P	2.37	0.0	-3.21	0.0	0.0	17.01	0.0	0.0	17.47	0.0	-0.02	0.0	0.0	0.0	0.0	0.26	0.0	0.0
29P	0.04	0.0	-0.64	0.0	0.0	-18.33	0.0	0.0	18.34	0.0	4.93	0.0	0.8	0.0	0.0	-0.37	0.0	0.0
17X	-5.28	0.0	-6.23	0.0	0.0	-37.27	0.0	0.0	38.16	0.0	-0.03	0.0	0.1	0.0	0.0	-0.03	0.0	0.0
17XY	4.98	0.0	-5.60	0.0	0.0	-34.55	0.0	0.0	35.35	0.0	-0.04	0.0	-0.1	0.0	0.0	0.03	0.0	0.0
17Y	-2.12	0.0	-2.90	0.0	0.0	16.58	0.0	0.0	16.96	0.0	-0.04	0.0	-0.0	0.0	0.0	-0.27	0.0	0.0

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

Joint Label	X External Load (kips)	Y External Load (kips)	Z External Load (kips)	X Member Force (kips)	Y Member Force (kips)	Z Member Force (kips)	X Disp. (ft)	Y Disp. (ft)	Z Disp. (ft)
1P	0.0000	0.0982	-0.2013	-0.0000	-0.0982	0.2013	0.0080	0.1973	0.0016
2P	0.0000	1.1037	-2.3915	-0.0000	-1.1037	2.3915	0.0169	0.1953	0.0428
3P	0.0000	0.2044	-0.3818	0.0000	-0.2044	0.3818	0.0075	0.1744	0.0018
4P	0.0000	1.2418	-2.9690	-0.0000	-1.2418	2.9690	0.0125	0.1740	0.0268
5P	0.0000	0.0949	-0.0985	0.0000	-0.0949	0.0985	0.0039	0.1456	0.0016

6P	0.0000	0.0469	-0.0503	-0.0000	-0.0469	0.0503	0.0036	0.1316	0.0015
7P	0.0000	0.2002	-0.4218	-0.0000	-0.2002	0.4218	0.0042	0.1203	0.0014
8P	0.0000	1.2206	-2.9980	-0.0000	-1.2206	2.9980	0.0128	0.1204	0.0131
9P	0.0000	0.1229	-0.1253	-0.0000	-0.1229	0.1253	0.0017	0.0982	0.0008
10P	0.0000	0.2367	-0.4865	0.0000	-0.2367	0.4865	0.0019	0.0818	0.0001
11P	0.0000	1.2251	-2.9583	-0.0000	-1.2251	2.9583	0.0074	0.0808	0.0210
12P	0.0000	0.1099	-0.1347	-0.0000	-0.1099	0.1347	0.0003	0.0676	0.0009
13P	0.0000	0.1357	-0.1632	-0.0000	-0.1357	0.1632	0.0001	0.0543	0.0015
14P	0.0000	0.3750	-0.6918	-0.0000	-0.3750	0.6918	-0.0002	0.0434	0.0015
15P	0.0000	0.5311	-1.0298	-0.0000	-0.5311	1.0298	-0.0007	0.0225	0.0019
16P	0.0000	0.4115	-0.7586	0.0000	-0.4115	0.7586	-0.0004	0.0010	0.0011
17P	0.0000	0.0741	-0.0901	-2.3716	3.1403	17.0998	0.0000	0.0000	0.0000
22P	0.0000	0.3900	-1.8635	-0.0000	-0.3900	1.8635	0.0112	0.3141	-0.0034
23P	0.0000	0.7740	-2.7811	-0.0000	-0.7740	2.7811	0.0088	0.2516	-0.0032
24P	0.0000	0.0000	-0.8599	-0.0000	0.0000	0.8600	0.0065	0.1961	-0.0029
25P	0.0000	0.2040	-1.0375	-0.0000	-0.2040	1.0375	0.0052	0.1719	-0.0028
26P	0.0000	0.3740	-1.3323	-0.0000	-0.3740	1.3323	0.0021	0.1181	-0.0024
27P	0.0000	0.7140	-2.5732	-0.0000	-0.7140	2.5732	-0.0002	0.0797	-0.0021
28P	0.0000	1.0030	-4.3630	-0.0000	-1.0030	4.3630	-0.0022	0.0208	-0.0011
29P	0.0000	0.4590	-1.0538	-0.0441	0.1765	-17.2741	0.0000	0.0000	0.0000
30P	0.0000	0.0000	-0.0001	0.0000	-0.0000	0.0001	0.0032	-0.1472	-0.4777
31P	0.0000	0.0024	-0.0001	-0.0000	-0.0024	0.0001	-0.4935	0.6959	-0.0174
32P	0.0000	0.0000	-0.0001	0.0000	-0.0000	0.0001	0.0042	-0.0683	-0.4894
33P	0.0000	0.0024	-0.0001	-0.0000	-0.0024	0.0001	-0.4888	0.8139	-0.0179
1X	0.0000	0.0320	-0.2013	-0.0000	-0.0320	0.2013	0.0045	0.1978	-0.0212
1XY	0.0000	0.0320	-0.2013	0.0000	-0.0320	0.2013	0.0046	0.1940	-0.0199
1Y	0.0000	0.0662	-0.1293	0.0000	-0.0662	0.1293	0.0087	0.1935	0.0029
2X	0.0000	0.8210	-1.4545	0.0000	-0.8210	1.4545	-0.0039	0.1961	-0.0825
3X	0.0000	0.0760	-0.7498	0.0000	-0.0760	0.7498	0.0034	0.1738	-0.0209
3XY	0.0000	0.0320	-0.2438	-0.0000	-0.0320	0.2438	0.0031	0.1700	-0.0195
3Y	0.0000	0.1534	-0.3608	-0.0000	-0.1534	0.3608	0.0066	0.1707	0.0031
4X	0.0000	1.1790	-2.9690	0.0000	-1.1790	2.9690	-0.0022	0.1710	-0.0618
5X	0.0000	0.0000	-0.0985	0.0000	0.0000	0.0985	0.0019	0.1470	-0.0202
5XY	0.0000	0.0000	-0.0985	0.0000	0.0000	0.0985	0.0016	0.1432	-0.0189
5Y	0.0000	0.0949	-0.0985	0.0000	-0.0949	0.0985	0.0071	0.1419	0.0029
6X	0.0000	0.0000	-0.0503	-0.0000	0.0000	0.0503	0.0001	0.1338	-0.0196
6XY	0.0000	0.0000	-0.0503	-0.0000	-0.0000	0.0503	0.0019	0.1300	-0.0183
6Y	0.0000	0.0469	-0.0503	0.0000	-0.0469	0.0503	0.0059	0.1279	0.0027
7X	0.0000	0.0440	-0.6748	-0.0000	-0.0440	0.6748	0.0004	0.1196	-0.0189
7XY	0.0000	0.0000	-0.1688	0.0000	0.0000	0.1688	0.0001	0.1158	-0.0176
7Y	0.0000	0.1352	-0.3578	-0.0000	-0.1352	0.3578	0.0038	0.1165	0.0026
8X	0.0000	1.1790	-2.9980	0.0000	-1.1790	2.9980	-0.0086	0.1158	-0.1060
9X	0.0000	0.0000	-0.1253	0.0000	-0.0000	0.1253	0.0006	0.1009	-0.0172
9XY	0.0000	0.0000	-0.1253	-0.0000	0.0000	0.1253	-0.0025	0.0971	-0.0160
9Y	0.0000	0.1229	-0.1253	-0.0000	-0.1229	0.1253	0.0039	0.0944	0.0020
10X	0.0000	0.0540	-0.7975	-0.0000	-0.0540	0.7975	-0.0021	0.0814	-0.0151
10XY	0.0000	0.0000	-0.1765	0.0000	-0.0000	0.1765	-0.0021	0.0777	-0.0139
10Y	0.0000	0.1577	-0.4085	-0.0000	-0.1577	0.4085	0.0014	0.0781	0.0012
11X	0.0000	1.1790	-2.9583	0.0000	-1.1790	2.9583	-0.0079	0.0790	-0.0507
12X	0.0000	0.0000	-0.1347	-0.0000	-0.0000	0.1347	-0.0026	0.0683	-0.0151
12XY	0.0000	0.0000	-0.1347	-0.0000	-0.0000	0.1347	-0.0049	0.0638	-0.0135
12Y	0.0000	0.1099	-0.1347	-0.0000	-0.1099	0.1347	0.0020	0.0630	0.0021
13X	0.0000	0.0000	-0.1632	-0.0000	-0.0000	0.1632	-0.0042	0.0551	-0.0145
13XY	0.0000	0.0000	-0.1632	0.0000	-0.0000	0.1632	-0.0073	0.0494	-0.0126
13Y	0.0000	0.1357	-0.1632	0.0000	-0.1357	0.1632	0.0012	0.0491	0.0028
14X	0.0000	0.0640	-1.0598	-0.0000	-0.0640	1.0598	-0.0079	0.0430	-0.0138
14XY	0.0000	0.0000	-0.3238	0.0000	-0.0000	0.3238	-0.0080	0.0371	-0.0113
14Y	0.0000	0.2810	-0.5988	-0.0000	-0.2810	0.5988	0.0005	0.0368	0.0030
15X	0.0000	0.0740	-1.4558	-0.0000	-0.0740	1.4558	-0.0037	0.0220	-0.0102
15XY	0.0000	0.0000	-0.6048	0.0000	0.0000	0.6048	-0.0039	0.0189	-0.0088

15Y	0.0000	0.4231	-0.9228	-0.0000	-0.4231	0.9228	-0.0000	0.0189	0.0027
16X	0.0000	0.0640	-1.1266	-0.0000	-0.0640	1.1266	-0.0000	0.0005	-0.0027
16XY	0.0000	0.0000	-0.3906	0.0000	-0.0000	0.3906	-0.0000	0.0004	-0.0025
16Y	0.0000	0.3175	-0.6656	-0.0000	-0.3175	0.6656	0.0002	0.0007	0.0011
17X	0.0000	0.0000	-0.0901	5.2759	6.2332	-37.1849	0.0000	0.0000	0.0000
17XY	0.0000	0.0000	-0.0901	-4.9798	5.6042	-34.4578	0.0000	0.0000	0.0000
17Y	0.0000	0.0741	-0.0901	2.1195	2.8276	16.6661	0.0000	0.0000	0.0000
30X	0.0000	0.0024	-0.0001	0.0000	-0.0024	0.0001	0.0065	1.1959	-0.0174
31Y	0.0000	0.0024	-0.0001	0.0000	-0.0024	0.0001	0.5065	0.6959	-0.0174
32X	0.0000	0.0024	-0.0001	0.0000	-0.0024	0.0001	0.0112	1.3139	-0.0179
33Y	0.0000	0.0024	-0.0001	0.0000	-0.0024	0.0001	0.5112	0.8139	-0.0179
18S	0.0000	0.0000	-0.0416	0.0000	-0.0000	0.0416	0.0020	0.1327	-0.0086
19S	0.0000	0.0741	-0.0439	0.0000	-0.0741	0.0439	0.0047	0.2015	0.0011
20S	0.0000	0.0000	-0.1485	0.0000	0.0000	0.1485	0.0032	0.0006	0.0002
21S	0.0000	0.2011	-0.1485	0.0000	-0.2011	0.1485	-0.0001	0.0466	-0.0068
18Y	0.0000	0.0000	-0.0416	0.0000	-0.0000	0.0416	0.0037	0.1289	-0.0073
19X	0.0000	0.0000	-0.0439	0.0000	-0.0000	0.0439	0.0010	0.0692	-0.0186
20Y	0.0000	0.0000	-0.1485	-0.0000	0.0000	0.1485	-0.0034	0.0004	0.0003
21X	0.0000	0.0000	-0.1485	0.0000	-0.0000	0.1485	-0.0000	-0.0047	-0.0009

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

Comp. Member Label	Tens. Member Label	Connect Leg for Comp. Member	Force In Comp. Member (kips)	Force In Tens. Member (kips)	Original Supported L/R Cap. (kips)	RLX	RLY	RLZ	L/R	KL/R	Curve No.	Alternate Unsupported L/R Cap. (kips)	RLOUT	L/R	KL/R	Curve No.
g14P	g14Y	Short only	-0.28	-0.25	11.56	0.750	0.500	0.500	123.69	122.85	5	8.63	1.000	158.01	143.38	6
g14Y	g14P	Short only	-0.25	-0.28	11.56	0.750	0.500	0.500	123.69	122.85	5	8.63	1.000	158.01	143.38	6
g16P	g16Y	Long only	-1.07	-1.01	17.27	0.500	0.750	0.500	120.57	120.47	5	12.24	1.000	160.76	145.07	6
g16X	g16XY	Long only	-1.81	-1.89	17.27	0.500	0.750	0.500	120.57	120.47	5	12.24	1.000	160.76	145.07	6
g16XY	g16X	Long only	-1.89	-1.81	17.27	0.500	0.750	0.500	120.57	120.47	5	12.24	1.000	160.76	145.07	6
g16Y	g16P	Long only	-1.01	-1.07	17.27	0.500	0.750	0.500	120.57	120.47	5	12.24	1.000	160.76	145.07	6
g22X	g22XY	Long only	-0.74	-0.91	18.99	0.500	0.750	0.500	109.16	111.87	2	13.99	1.000	145.55	135.71	6
g22XY	g22X	Long only	-0.91	-0.74	18.99	0.500	0.750	0.500	109.16	111.87	2	13.99	1.000	145.55	135.71	6
g24P	g24Y	Long only	-1.50	-1.30	18.99	0.500	0.750	0.500	109.16	111.87	2	13.99	1.000	145.55	135.71	6
g24Y	g24P	Long only	-1.30	-1.50	18.99	0.500	0.750	0.500	109.16	111.87	2	13.99	1.000	145.55	135.71	6
g25P	g25X	Short only	-1.77	0.32	12.53	0.780	0.560	0.560	129.17	127.02	5	10.86	1.000	147.29	136.78	6
g26P	g26Y	Short only	-1.47	-1.26	12.53	0.780	0.560	0.560	129.17	127.02	5	10.86	1.000	147.29	136.78	6
g26Y	g26P	Short only	-1.26	-1.47	12.53	0.780	0.560	0.560	129.17	127.02	5	10.86	1.000	147.29	136.78	6
g28X	g28XY	Long only	-0.63	-0.58	11.66	0.560	0.780	0.560	147.51	141.00	5	8.89	1.000	187.46	161.49	6
g28XY	g28X	Long only	-0.58	-0.63	11.66	0.560	0.780	0.560	147.51	141.00	5	8.89	1.000	187.46	161.49	6
g30P	g30Y	Long only	-0.73	-0.57	8.82	0.560	0.780	0.560	175.25	162.14	5	6.91	1.000	222.71	183.17	6
g30Y	g30P	Long only	-0.57	-0.73	8.82	0.560	0.780	0.560	175.25	162.14	5	6.91	1.000	222.71	183.17	6

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

Clamp Label	Force (kips)	Input Holding Capacity (kips)	Factored Holding Capacity (kips)	Usage %
1	2.634	30.00	30.00	8.78
2	1.670	30.00	30.00	5.57
3	3.218	30.00	30.00	10.73
4	3.194	30.00	30.00	10.65

5	3.237	30.00	30.00	10.79
6	3.221	30.00	30.00	10.74
7	3.202	30.00	30.00	10.67
8	3.185	30.00	30.00	10.62
14	0.863	30.00	30.00	2.88
15	1.159	30.00	30.00	3.86
16	0.787	30.00	30.00	2.62
17	0.541	30.00	30.00	1.80
18	0.467	30.00	30.00	1.56
19	0.754	30.00	30.00	2.51
20	0.224	30.00	30.00	0.75
21	0.433	30.00	30.00	1.44
22	0.204	30.00	30.00	0.68
23	0.204	30.00	30.00	0.68
24	0.246	30.00	30.00	0.82
25	2.887	30.00	30.00	9.62
26	0.860	30.00	30.00	2.87
27	1.057	30.00	30.00	3.52
28	1.384	30.00	30.00	4.61
29	2.670	30.00	30.00	8.90
30	4.477	30.00	30.00	14.92
31	1.904	30.00	30.00	6.35
32	0.676	30.00	30.00	2.25
33	0.799	30.00	30.00	2.66
34	1.062	30.00	30.00	3.54
35	1.458	30.00	30.00	4.86
36	1.128	30.00	30.00	3.76
37	0.382	30.00	30.00	1.27
38	0.438	30.00	30.00	1.46
39	0.661	30.00	30.00	2.20
40	1.015	30.00	30.00	3.38
41	0.737	30.00	30.00	2.46
42	0.392	30.00	30.00	1.31

*** Analysis Results for Load Case No. 2 "Extreme Wind - Transverse" - Number of iterations in SAPS 28

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

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
1P	0.006119	0.3976	0.0175	-0.5695	0.0174	0.0508	2.506	-2.102	86.02
2P	0.01895	0.3954	0.1301	-0.5700	0.0144	0.0612	0.01895	-13.35	86.13
3P	0.006023	0.3458	0.01749	-0.5717	0.0356	0.0696	2.506	-2.154	81.02
4P	0.01336	0.3442	0.08983	-0.5602	0.0141	0.0612	0.01336	-9.406	81.09
5P	0.0008197	0.2864	0.01648	-0.5632	0.0088	0.0674	2.501	-2.214	75.02
6P	0.001991	0.2576	0.01574	-0.5248	-0.0325	0.0666	2.502	-2.242	72.02
7P	0.002522	0.2316	0.01501	-0.4766	0.0300	0.0648	2.503	-2.268	69.02
8P	0.01506	0.2302	0.1046	-0.4109	0.0142	0.0603	0.01506	-14.02	69.1
9P	-0.001581	0.1892	0.01287	-0.4633	0.0067	0.0630	2.498	-2.311	64.01
10P	0.000457	0.1537	0.01013	-0.3482	0.0180	0.0611	2.5	-2.346	59.01
11P	0.008142	0.1518	0.06484	-0.4258	0.0097	0.0585	0.008142	-10.1	59.06
12P	-0.002267	0.1265	0.0108	-0.2892	0.0364	0.0519	3.186	-3.061	54.06
13P	-0.001744	0.1002	0.01099	-0.2203	-0.0008	0.0492	4.012	-3.913	48.12
14P	-0.001214	0.07834	0.01009	-0.1757	0.0063	0.0349	4.906	-4.829	41.51
15P	-0.001115	0.03879	0.008923	-0.1107	0.0133	-0.0147	6.901	-6.863	27.01
16P	-0.001393	0.002371	0.003012	-0.0077	-0.0836	-0.3485	9.999	-9.998	5.003
17P	0	0	0	0.0000	0.0000	0.0000	10.69	-10.69	0
22P	0.008324	0.7101	-0.005239	-1.1029	0.0146	0.0491	0.008324	0.7101	104
23P	0.006172	0.5401	-0.003612	-1.0392	0.0146	0.0490	0.006172	0.5401	95
24P	0.004	0.3964	-0.002423	-0.7245	0.0146	0.0490	0.004	0.3964	86
25P	0.002782	0.3418	-0.002089	-0.5750	0.0145	0.0482	0.002782	0.3418	81
26P	-0.0001406	0.2287	-0.001452	-0.4992	0.0147	0.0448	-0.0001406	0.2287	69
27P	-0.002485	0.1508	-0.001045	-0.3788	0.0115	0.0403	-0.002485	0.1508	59
28P	-0.003197	0.03614	-0.0004301	-0.1162	-0.0068	0.0193	-0.003197	0.03614	27
29P	0	0	0	0.0000	0.0000	0.0000	0	0	0
30P	0.004	-0.04026	-0.4984	0.0000	0.0000	0.0000	0.004	0.4597	85.5
31P	-0.496	0.4597	-0.4984	0.0000	0.0000	0.0000	0.004	0.4597	85.5
32P	0.008324	0.2734	-0.5012	0.0000	0.0000	0.0000	0.008324	0.7734	103.5
33P	-0.4917	0.7734	-0.5012	0.0000	0.0000	0.0000	0.008324	0.7734	103.5
1X	0.001723	0.3976	-0.03172	-0.6003	0.0229	0.0533	2.502	2.898	85.97
1XY	0.0008554	0.3922	-0.03045	-0.6005	0.0060	0.0749	-2.499	2.892	85.97
1Y	0.007311	0.3922	0.01878	-0.5695	0.0120	0.0776	-2.493	-2.108	86.02
2X	-0.01093	0.3943	-0.151	-0.6171	0.0142	0.0611	-0.01093	14.14	85.85
3X	-3.583e-005	0.3453	-0.03101	-0.5850	0.0119	0.0688	2.5	2.845	80.97
3XY	0.0001935	0.3398	-0.02974	-0.5850	0.0169	0.0590	-2.5	2.84	80.97
3Y	0.004944	0.3403	0.01877	-0.5713	-0.0060	0.0585	-2.495	-2.16	81.02
4X	-0.007792	0.342	-0.1085	-0.6321	0.0140	0.0611	-0.007792	10.09	80.89
5X	-0.0008658	0.2868	-0.02949	-0.5495	0.0492	0.0668	2.499	2.787	74.97
5XY	-0.001824	0.2814	-0.02823	-0.5488	-0.0209	0.0600	-2.502	2.781	74.97
5Y	0.007142	0.2811	0.01774	-0.5629	0.0213	0.0596	-2.493	-2.219	75.02
6X	-0.003755	0.2582	-0.0282	-0.5322	0.0255	0.0661	2.496	2.758	71.97
6XY	-0.0003541	0.2529	-0.02695	-0.5314	0.0029	0.0601	-2.5	2.753	71.97
6Y	0.004475	0.2523	0.01699	-0.5247	0.0620	0.0599	-2.496	-2.248	72.02
7X	-0.002906	0.2312	-0.02689	-0.5038	-0.0309	0.0658	2.497	2.731	68.97
7XY	-0.002619	0.2259	-0.02564	-0.5037	0.0584	0.0598	-2.503	2.726	68.97
7Y	0.002471	0.2263	0.01625	-0.4762	-0.0007	0.0611	-2.498	-2.274	69.02
8X	-0.01531	0.2276	-0.1451	-0.6101	0.0137	0.0602	-0.01531	14.48	68.85
9X	-0.0007002	0.1902	-0.024	-0.4499	0.0230	0.0646	2.499	2.69	63.98
9XY	-0.00705	0.1848	-0.02272	-0.4499	0.0036	0.0595	-2.507	2.685	63.98
9Y	0.004064	0.184	0.01404	-0.4630	0.0227	0.0611	-2.496	-2.316	64.01

10X	-0.005369	0.1534	-0.02048	-0.3733	0.0264	0.0635	2.495	2.653	58.98
10XY	-0.004796	0.1483	-0.01907	-0.3677	0.0054	0.0589	-2.505	2.648	58.98
10Y	-0.0002613	0.1485	0.01115	-0.3436	0.0063	0.0611	-2.5	-2.351	59.01
11X	-0.01314	0.1507	-0.07986	-0.4811	0.0179	0.0585	-0.01314	10.4	58.92
12X	-0.005085	0.1266	-0.02095	-0.2748	-0.0201	0.0564	3.183	3.314	54.03
12XY	-0.009323	0.1208	-0.01892	-0.2645	0.0532	0.0581	-3.197	3.309	54.03
12Y	0.002055	0.1207	0.01182	-0.2775	-0.0166	0.0626	-3.186	-3.067	54.06
13X	-0.007557	0.1008	-0.02066	-0.2263	0.0358	0.0530	4.006	4.114	48.08
13XY	-0.01215	0.09439	-0.0179	-0.2162	0.0112	0.0545	-4.025	4.108	48.09
13Y	0.001283	0.09394	0.01199	-0.2114	0.0178	0.0571	-4.012	-3.919	48.12
14X	-0.01269	0.0776	-0.01994	-0.1820	0.0094	0.0364	4.895	4.985	41.48
14XY	-0.01295	0.07095	-0.01636	-0.1704	-0.0084	0.0552	-4.92	4.978	41.48
14Y	0.0005998	0.07147	0.0111	-0.1642	0.0071	0.0617	-4.907	-4.836	41.51
15X	-0.005728	0.0381	-0.01507	-0.1230	-0.0242	-0.0128	6.896	6.94	26.98
15XY	-0.006126	0.03268	-0.01334	-0.1018	-0.0217	0.0563	-6.908	6.935	26.99
15Y	0.000554	0.03298	0.009639	-0.1008	-0.0059	0.0668	-6.902	-6.869	27.01
16X	-0.0005095	0.001739	-0.004025	0.0010	0.0443	-0.3085	9.999	10	4.996
16XY	0.000505	0.001349	-0.003893	0.0075	-0.0495	0.3118	-9.999	10	4.996
16Y	0.00136	0.001751	0.002974	0.0025	0.0836	0.3537	-9.999	-9.998	5.003
17X	0	0	0	0.0000	0.0000	0.0000	10.69	10.69	0
17XY	0	0	0	0.0000	0.0000	0.0000	-10.69	10.69	0
17Y	0	0	0	0.0000	0.0000	0.0000	-10.69	-10.69	0
30X	0.004	0.9597	-0.4984	0.0000	0.0000	0.0000	0.004	0.4597	85.5
31Y	0.504	0.4597	-0.4984	0.0000	0.0000	0.0000	0.004	0.4597	85.5
32X	0.008324	1.273	-0.5012	0.0000	0.0000	0.0000	0.008324	0.7734	103.5
33Y	0.5083	0.7734	-0.5012	0.0000	0.0000	0.0000	0.008324	0.7734	103.5
18S	0.002816	0.2579	-0.006066	0.0000	0.0000	0.0000	2.503	0.2579	71.99
19S	0.003151	0.3315	0.01435	0.0000	0.0000	0.0000	0.003151	-2.168	72.01
20S	-0.00587	0.001543	-0.001202	-0.0285	-0.0195	0.1602	9.994	0.001543	4.999
21S	-1.478e-005	0.1301	-0.01994	-0.0089	-0.0001	0.0013	-1.478e-005	-9.87	4.98
18Y	-0.001339	0.2525	-0.004821	0.0000	0.0000	0.0000	-2.501	0.2525	72
19X	-0.002153	0.3475	-0.02816	0.0000	0.0000	0.0000	-0.002153	2.848	71.97
20Y	0.005628	0.001174	-0.001165	-0.0319	0.0169	-0.1625	-9.994	0.001174	4.999
21X	-3.039e-006	0.1041	0.01276	0.0087	0.0019	0.0008	-3.039e-006	10.1	5.013

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

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	H-Shear Usage %	Z Force (kips)	Comp. Usage %	Uplift Usage %	Result. Force (kips)	Result. Usage %	X Moment (ft-k)	X-M. Usage %	Y Moment (ft-k)	Y-M. Usage %	H-Bend-M Usage %	Z Moment (ft-k)	Z-M. Usage %	Max. Usage %
17P	6.50	0.0	-9.45	0.0	0.0	47.30	0.0	0.0	48.67	0.0	-0.05	0.0	0.1	0.0	0.0	0.69	0.0	0.0
29P	0.05	0.0	-0.84	0.0	0.0	-6.67	0.0	0.0	6.72	0.0	8.28	0.0	1.0	0.0	0.0	-0.54	0.0	0.0
17X	-8.30	0.0	-11.29	0.0	0.0	-57.18	0.0	0.0	58.87	0.0	-0.09	0.0	0.1	0.0	0.0	0.62	0.0	0.0
17XY	7.92	0.0	-10.29	0.0	0.0	-54.44	0.0	0.0	55.97	0.0	-0.13	0.0	-0.1	0.0	0.0	-0.63	0.0	0.0
17Y	-6.17	0.0	-8.53	0.0	0.0	45.28	0.0	0.0	46.49	0.0	-0.11	0.0	-0.1	0.0	0.0	-0.69	0.0	0.0

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

Joint Label	X External Load (kips)	Y External Load (kips)	Z External Load (kips)	X Member Force (kips)	Y Member Force (kips)	Z Member Force (kips)	X Disp. (ft)	Y Disp. (ft)	Z Disp. (ft)
1P	0.0000	0.2931	-0.1969	0.0000	-0.2931	0.1969	0.0061	0.3976	0.0175
2P	0.0000	1.2191	-0.8749	0.0000	-1.2191	0.8749	0.0190	0.3954	0.1301
3P	0.0000	0.4470	-0.1628	-0.0000	-0.4470	0.1628	0.0060	0.3458	0.0175
4P	0.0000	1.4720	-1.1188	0.0000	-1.4720	1.1188	0.0134	0.3442	0.0898
5P	0.0000	0.1680	-0.0948	-0.0000	-0.1680	0.0948	0.0008	0.2864	0.0165

6P	0.0000	0.1680	-0.0948	0.0000	-0.1680	0.0948	0.0020	0.2576	0.0157
7P	0.0000	0.4680	-0.1638	0.0000	-0.4680	0.1638	0.0025	0.2316	0.0150
8P	0.0000	1.4720	-1.1188	0.0000	-1.4720	1.1188	0.0151	0.2302	0.1046
9P	0.0000	0.1680	-0.0948	0.0000	-0.1680	0.0948	-0.0016	0.1892	0.0129
10P	0.0000	0.5360	-0.1788	-0.0000	-0.5360	0.1788	0.0005	0.1537	0.0101
11P	0.0000	1.4720	-1.1188	0.0000	-1.4720	1.1188	0.0081	0.1518	0.0648
12P	0.0000	0.1680	-0.0948	0.0000	-0.1680	0.0948	-0.0023	0.1265	0.0108
13P	0.0000	0.1680	-0.0948	0.0000	-0.1680	0.0948	-0.0017	0.1002	0.0110
14P	0.0000	1.1573	-0.4992	0.0000	-1.1573	0.4992	-0.0012	0.0783	0.0101
15P	0.0000	1.0573	-0.4195	0.0000	-1.0573	0.4195	-0.0011	0.0388	0.0089
16P	0.0000	0.9893	-0.4045	-0.0000	-0.9893	0.4045	-0.0014	0.0024	0.0030
17P	0.0000	0.5533	-0.3045	-6.4965	8.8921	47.6034	0.0000	0.0000	0.0000
22P	0.0000	1.4931	-0.7921	-0.0000	-1.4931	0.7921	0.0083	0.7101	-0.0052
23P	0.0000	2.9891	-0.9521	0.0000	-2.9891	0.9521	0.0062	0.5401	-0.0036
24P	0.0000	0.1771	-0.2649	-0.0000	-0.1771	0.2649	0.0040	0.3964	-0.0024
25P	0.0000	0.1680	-0.2148	0.0000	-0.1680	0.2148	0.0028	0.3418	-0.0021
26P	0.0000	0.1680	-0.2508	0.0000	-0.1680	0.2508	-0.0001	0.2287	-0.0015
27P	0.0000	0.7213	-0.6962	0.0000	-0.7213	0.6962	-0.0025	0.1508	-0.0010
28P	0.0000	0.5533	-0.9135	0.0000	-0.5533	0.9135	-0.0032	0.0361	-0.0004
29P	0.0000	0.5533	-0.3045	-0.0536	0.2909	-6.3623	0.0000	0.0000	0.0000
30P	0.0000	0.0091	-0.0711	0.0000	-0.0091	0.0711	0.0040	-0.0403	-0.4984
31P	0.0000	0.0091	-0.0711	0.0000	-0.0091	0.0711	-0.4960	0.4597	-0.4984
32P	0.0000	0.0091	-0.0711	0.0000	-0.0091	0.0711	0.0083	0.2734	-0.5012
33P	0.0000	0.0091	-0.0711	0.0000	-0.0091	0.0711	-0.4917	0.7734	-0.5012
1X	0.0000	0.2931	-0.1969	0.0000	-0.2931	0.1969	0.0017	0.3976	-0.0317
1XY	0.0000	0.2931	-0.1969	-0.0000	-0.2931	0.1969	0.0009	0.3922	-0.0304
1Y	0.0000	0.1771	-0.1659	-0.0000	-0.1771	0.1659	0.0073	0.3922	0.0188
2X	0.0000	0.6601	-0.5089	-0.0000	-0.6601	0.5089	-0.0109	0.3943	-0.1510
3X	0.0000	0.3840	-0.2628	-0.0000	-0.3840	0.2628	-0.0000	0.3453	-0.0310
3XY	0.0000	0.2840	-0.1258	0.0000	-0.2840	0.1258	0.0002	0.3398	-0.0297
3Y	0.0000	0.2460	-0.1388	0.0000	-0.2460	0.1388	0.0049	0.3403	0.0188
4X	0.0000	1.4720	-1.1188	-0.0000	-1.4720	1.1188	-0.0078	0.3420	-0.1085
5X	0.0000	0.1680	-0.0948	-0.0000	-0.1680	0.0948	-0.0009	0.2868	-0.0295
5XY	0.0000	0.1680	-0.0948	-0.0000	-0.1680	0.0948	-0.0018	0.2814	-0.0282
5Y	0.0000	0.1680	-0.0948	0.0000	-0.1680	0.0948	0.0071	0.2811	0.0177
6X	0.0000	0.1680	-0.0948	0.0000	-0.1680	0.0948	-0.0038	0.2582	-0.0282
6XY	0.0000	0.1680	-0.0948	0.0000	-0.1680	0.0948	-0.0004	0.2529	-0.0269
6Y	0.0000	0.1680	-0.0948	-0.0000	-0.1680	0.0948	0.0045	0.2523	0.0170
7X	0.0000	0.2680	-0.2318	0.0000	-0.2680	0.2318	-0.0029	0.2312	-0.0269
7XY	0.0000	0.1680	-0.0948	-0.0000	-0.1680	0.0948	-0.0026	0.2259	-0.0256
7Y	0.0000	0.2460	-0.1388	-0.0000	-0.2460	0.1388	0.0025	0.2263	0.0162
8X	0.0000	1.4720	-1.1188	-0.0000	-1.4720	1.1188	-0.0153	0.2276	-0.1451
9X	0.0000	0.1680	-0.0948	-0.0000	-0.1680	0.0948	-0.0007	0.1902	-0.0240
9XY	0.0000	0.1680	-0.0948	0.0000	-0.1680	0.0948	-0.0070	0.1848	-0.0227
9Y	0.0000	0.1680	-0.0948	0.0000	-0.1680	0.0948	0.0041	0.1840	0.0140
10X	0.0000	0.2910	-0.2628	0.0000	-0.2910	0.2628	-0.0054	0.1534	-0.0205
10XY	0.0000	0.1680	-0.0948	0.0000	-0.1680	0.0948	-0.0048	0.1483	-0.0191
10Y	0.0000	0.2640	-0.1478	0.0000	-0.2640	0.1478	-0.0003	0.1485	0.0111
11X	0.0000	1.4720	-1.1188	-0.0000	-1.4720	1.1188	-0.0131	0.1507	-0.0799
12X	0.0000	0.1680	-0.0948	0.0000	-0.1680	0.0948	-0.0051	0.1266	-0.0210
12XY	0.0000	0.1680	-0.0948	-0.0000	-0.1680	0.0948	-0.0093	0.1208	-0.0189
12Y	0.0000	0.1680	-0.0948	0.0000	-0.1680	0.0948	0.0021	0.1207	0.0118
13X	0.0000	0.1680	-0.0948	0.0000	-0.1680	0.0948	-0.0076	0.1008	-0.0207
13XY	0.0000	0.1680	-0.0948	-0.0000	-0.1680	0.0948	-0.0122	0.0944	-0.0179
13Y	0.0000	0.1680	-0.0948	-0.0000	-0.1680	0.0948	0.0013	0.0939	0.0120
14X	0.0000	0.8663	-0.5992	0.0000	-0.8663	0.5992	-0.0127	0.0776	-0.0199
14XY	0.0000	0.7213	-0.3992	-0.0000	-0.7213	0.3992	-0.0130	0.0709	-0.0164
14Y	0.0000	0.8353	-0.4622	-0.0000	-0.8353	0.4622	0.0006	0.0715	0.0111
15X	0.0000	0.7213	-0.5355	0.0000	-0.7213	0.5355	-0.0057	0.0381	-0.0151
15XY	0.0000	0.5533	-0.3045	0.0000	-0.5533	0.3045	-0.0061	0.0327	-0.0133

15Y	0.0000	0.6853	-0.3775	-0.0000	-0.6853	0.3775	0.0006	0.0330	0.0096
16X	0.0000	0.6983	-0.5045	-0.0000	-0.6983	0.5045	-0.0005	0.0017	-0.0040
16XY	0.0000	0.5533	-0.3045	0.0000	-0.5533	0.3045	0.0005	0.0013	-0.0039
16Y	0.0000	0.6673	-0.3675	0.0000	-0.6673	0.3675	0.0014	0.0018	0.0030
17X	0.0000	0.5533	-0.3045	8.3016	10.7416	-56.8754	0.0000	0.0000	0.0000
17XY	0.0000	0.5533	-0.3045	-7.9180	9.7331	-54.1348	0.0000	0.0000	0.0000
17Y	0.0000	0.5533	-0.3045	6.1665	7.9728	45.5891	0.0000	0.0000	0.0000
30X	0.0000	0.0091	-0.0711	-0.0000	-0.0091	0.0711	0.0040	0.9597	-0.4984
31Y	0.0000	0.0091	-0.0711	0.0000	-0.0091	0.0711	0.5040	0.4597	-0.4984
32X	0.0000	0.0091	-0.0711	0.0000	-0.0091	0.0712	0.0083	1.2734	-0.5012
33Y	0.0000	0.0091	-0.0711	0.0000	-0.0091	0.0711	0.5083	0.7734	-0.5012
18S	0.0000	0.1680	-0.0948	0.0000	-0.1680	0.0948	0.0028	0.2579	-0.0061
19S	0.0000	0.1680	-0.0948	-0.0000	-0.1680	0.0948	0.0032	0.3315	0.0143
20S	0.0000	0.5533	-0.3045	-0.0000	-0.5533	0.3045	-0.0059	0.0015	-0.0012
21S	0.0000	0.5533	-0.3045	0.0000	-0.5533	0.3045	-0.0000	0.1301	-0.0199
18Y	0.0000	0.1680	-0.0948	-0.0000	-0.1680	0.0948	-0.0013	0.2525	-0.0048
19X	0.0000	0.1680	-0.0948	0.0000	-0.1680	0.0948	-0.0022	0.3475	-0.0282
20Y	0.0000	0.5533	-0.3045	0.0000	-0.5533	0.3045	0.0056	0.0012	-0.0012
21X	0.0000	0.5533	-0.3045	-0.0000	-0.5533	0.3045	-0.0000	0.1041	0.0128

Crossing Diagonal Check for Load Case "Extreme Wind - Transverse" (RLOUT controls):

Comp. Member Label	Tens. Member Label	Connect Leg for Comp. Member	Force In Comp. Member (kips)	Force In Tens. Member (kips)	Original Supported L/R Cap. (kips)	Original Supported RLX	Original Supported RLY	Original Supported RLZ	Original Supported L/R	Original Supported KL/R	Original Supported Curve No.	Alternate Unsupported L/R Cap. (kips)	Alternate Unsupported RLOUT	Alternate Unsupported L/R	Alternate Unsupported KL/R	Alternate Unsupported Curve No.
g14P	g14Y	Short only	-0.21	-0.19	11.56	0.750	0.500	0.500	123.69	122.85	5	8.63	1.000	158.01	143.38	6
g14Y	g14P	Short only	-0.19	-0.21	11.56	0.750	0.500	0.500	123.69	122.85	5	8.63	1.000	158.01	143.38	6
g16P	g16Y	Long only	-2.43	-2.29	17.27	0.500	0.750	0.500	120.57	120.47	5	12.24	1.000	160.76	145.07	6
g16X	g16XY	Long only	-2.13	-2.31	17.27	0.500	0.750	0.500	120.57	120.47	5	12.24	1.000	160.76	145.07	6
g16XY	g16X	Long only	-2.31	-2.13	17.27	0.500	0.750	0.500	120.57	120.47	5	12.24	1.000	160.76	145.07	6
g16Y	g16P	Long only	-2.29	-2.43	17.27	0.500	0.750	0.500	120.57	120.47	5	12.24	1.000	160.76	145.07	6
g22X	g22XY	Long only	-0.91	-1.39	18.99	0.500	0.750	0.500	109.16	111.87	2	13.99	1.000	145.55	135.71	6
g22XY	g22X	Long only	-1.39	-0.91	18.99	0.500	0.750	0.500	109.16	111.87	2	13.99	1.000	145.55	135.71	6
g24P	g24Y	Long only	-1.70	-1.19	18.99	0.500	0.750	0.500	109.16	111.87	2	13.99	1.000	145.55	135.71	6
g24Y	g24P	Long only	-1.19	-1.70	18.99	0.500	0.750	0.500	109.16	111.87	2	13.99	1.000	145.55	135.71	6
g25XY	g25Y	Short only	-0.12	-0.59	12.53	0.780	0.560	0.560	129.17	127.02	5	10.86	1.000	147.29	136.78	6
g25Y	g25XY	Short only	-0.59	-0.12	12.53	0.780	0.560	0.560	129.17	127.02	5	10.86	1.000	147.29	136.78	6
g26P	g26Y	Short only	-2.56	-2.52	12.53	0.780	0.560	0.560	129.17	127.02	5	10.86	1.000	147.29	136.78	6
g26Y	g26P	Short only	-2.52	-2.56	12.53	0.780	0.560	0.560	129.17	127.02	5	10.86	1.000	147.29	136.78	6
g28X	g28XY	Long only	-1.39	-1.40	11.66	0.560	0.780	0.560	147.51	141.00	5	8.89	1.000	187.46	161.49	6
g28XY	g28X	Long only	-1.40	-1.39	11.66	0.560	0.780	0.560	147.51	141.00	5	8.89	1.000	187.46	161.49	6
g30P	g30Y	Long only	-1.23	-1.15	8.82	0.560	0.780	0.560	175.25	162.14	5	6.91	1.000	222.71	183.17	6
g30Y	g30P	Long only	-1.15	-1.23	8.82	0.560	0.780	0.560	175.25	162.14	5	6.91	1.000	222.71	183.17	6

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

Clamp Label	Force (kips)	Input Holding Capacity (kips)	Factored Holding Capacity (kips)	Usage %
1	1.501	30.00	30.00	5.00
2	0.833	30.00	30.00	2.78
3	1.849	30.00	30.00	6.16

4	1.849	30.00	30.00	6.16
5	1.849	30.00	30.00	6.16
6	1.849	30.00	30.00	6.16
7	1.849	30.00	30.00	6.16
8	1.849	30.00	30.00	6.16
14	1.069	30.00	30.00	3.56
15	1.137	30.00	30.00	3.79
16	1.260	30.00	30.00	4.20
17	0.565	30.00	30.00	1.88
18	0.496	30.00	30.00	1.65
19	0.465	30.00	30.00	1.55
20	0.353	30.00	30.00	1.18
21	0.476	30.00	30.00	1.59
22	0.353	30.00	30.00	1.18
23	0.353	30.00	30.00	1.18
24	0.311	30.00	30.00	1.04
25	3.137	30.00	30.00	10.46
26	0.319	30.00	30.00	1.06
27	0.273	30.00	30.00	0.91
28	0.302	30.00	30.00	1.01
29	1.002	30.00	30.00	3.34
30	1.068	30.00	30.00	3.56
31	1.690	30.00	30.00	5.63
32	0.354	30.00	30.00	1.18
33	0.392	30.00	30.00	1.31
34	1.053	30.00	30.00	3.51
35	0.898	30.00	30.00	2.99
36	0.861	30.00	30.00	2.87
37	0.282	30.00	30.00	0.94
38	0.303	30.00	30.00	1.01
39	0.955	30.00	30.00	3.18
40	0.782	30.00	30.00	2.61
41	0.762	30.00	30.00	2.54
42	0.282	30.00	30.00	0.94

*** Analysis Results for Load Case No. 3 "NESC Heavy - Longitudinal" - Number of iterations in SAPS 57

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

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
1P	0.07485	0.02795	-0.0126	0.0112	0.1217	0.0036	2.575	-2.472	85.99
2P	0.07642	0.02731	-0.01737	0.0670	0.1121	0.0072	0.07642	-13.72	85.98
3P	0.06535	0.02759	-0.01226	-0.0039	0.1190	0.0121	2.565	-2.472	80.99
4P	0.06623	0.0284	-0.01552	0.0942	0.1062	0.0100	0.06623	-9.722	80.98
5P	0.05291	0.02422	-0.01168	-0.0334	0.1210	0.0116	2.553	-2.476	74.99
6P	0.0472	0.02324	-0.01123	-0.0017	0.0818	0.0113	2.547	-2.477	71.99
7P	0.04377	0.02359	-0.0107	0.0040	0.0761	0.0110	2.544	-2.476	68.99
8P	0.04547	0.02502	-0.04113	0.2436	0.0869	0.0087	0.04547	-14.22	68.96
9P	0.03627	0.0196	-0.009748	-0.0339	0.0852	0.0086	2.536	-2.48	63.99
10P	0.02956	0.01988	-0.008663	0.0044	0.0718	0.0060	2.53	-2.48	58.99
11P	0.03059	0.02	-0.01092	0.0553	0.0662	0.0077	0.03059	-10.23	58.99
12P	0.02476	0.01765	-0.008158	-0.0324	0.0458	0.0020	3.213	-3.17	54.04
13P	0.0201	0.01645	-0.007549	-0.0011	0.0410	0.0038	4.033	-3.997	48.1
14P	0.01598	0.01643	-0.007009	-0.0094	0.0274	0.0012	4.923	-4.891	41.49
15P	0.01004	0.01084	-0.00495	-0.0167	0.0284	-0.0150	6.912	-6.891	27
16P	0.0002437	0.0004288	-0.001055	0.0031	-0.0183	-0.1338	10	-10	4.999
17P	0	0	0	0.0000	0.0000	0.0000	10.69	-10.69	0
22P	0.1449	0.03229	-0.002907	-0.0141	0.2496	0.0070	0.1449	0.03229	104
23P	0.1065	0.03008	-0.002785	-0.0138	0.2332	0.0070	0.1065	0.03008	95
24P	0.07507	0.02797	-0.002631	-0.0129	0.1491	0.0070	0.07507	0.02797	86
25P	0.0644	0.02682	-0.002547	-0.0146	0.1089	0.0070	0.0644	0.02682	81
26P	0.04327	0.02294	-0.002307	-0.0213	0.0922	0.0066	0.04327	0.02294	69
27P	0.02908	0.01931	-0.002067	-0.0182	0.0669	0.0060	0.02908	0.01931	59
28P	0.01002	0.01067	-0.001097	-0.0243	0.0252	0.0026	0.01002	0.01067	27
29P	0	0	0	0.0000	0.0000	0.0000	0	0	0
30P	0.06257	-0.3271	-0.481	0.0000	0.0000	0.0000	0.06257	0.1729	85.52
31P	-0.4249	0.5278	-0.01708	0.0000	0.0000	0.0000	0.07507	0.5278	85.98
32P	0.1247	-0.3236	-0.4813	0.0000	0.0000	0.0000	0.1247	0.1764	103.5
33P	-0.3551	0.5321	-0.01735	0.0000	0.0000	0.0000	0.1449	0.5321	104
1X	0.07416	0.02866	-0.01394	-0.0358	0.1248	0.0132	2.574	2.529	85.99
1XY	0.07454	0.02777	-0.004506	-0.0370	0.1049	0.0093	-2.425	2.528	86
1Y	0.07532	0.02736	-0.003177	0.0123	0.1082	0.0088	-2.425	-2.473	86
2X	0.07232	0.02843	-0.0212	-0.0745	0.1120	0.0097	0.07232	13.78	85.98
3X	0.0645	0.02691	-0.01371	-0.0253	0.1188	0.0068	2.564	2.527	80.99
3XY	0.06397	0.02625	-0.004449	-0.0300	0.1042	0.0087	-2.436	2.526	81
3Y	0.06459	0.02675	-0.003017	0.0008	0.1036	0.0078	-2.435	-2.473	81
4X	0.06331	0.02563	-0.01837	-0.0967	0.1063	0.0069	0.06331	9.776	80.98
5X	0.05254	0.0265	-0.01323	-0.0045	0.1148	0.0066	2.553	2.527	74.99
5XY	0.0536	0.02484	-0.004599	0.0034	0.0941	0.0111	-2.446	2.525	75
5Y	0.05482	0.02431	-0.003062	-0.0422	0.0870	0.0083	-2.445	-2.476	75
6X	0.04696	0.02548	-0.01285	-0.0385	0.0867	0.0065	2.547	2.525	71.99
6XY	0.04845	0.02466	-0.004661	-0.0269	0.1093	0.0123	-2.452	2.525	72
6Y	0.04983	0.02246	-0.00305	-0.0139	0.1134	0.0084	-2.45	-2.478	72
7X	0.04305	0.02293	-0.0124	-0.0453	0.0828	0.0064	2.543	2.523	68.99
7XY	0.04262	0.02209	-0.004638	-0.0532	0.0977	0.0136	-2.457	2.522	69
7Y	0.04356	0.0228	-0.002953	0.0116	0.1033	0.0085	-2.456	-2.477	69
8X	0.04081	0.02065	-0.05098	-0.2834	0.0871	0.0093	0.04081	14.27	68.95
9X	0.0354	0.02321	-0.01136	-0.0088	0.0850	0.0096	2.535	2.523	63.99
9XY	0.03493	0.0215	-0.004623	-0.0071	0.0829	0.0118	-2.465	2.522	64
9Y	0.03588	0.01964	-0.002981	-0.0359	0.0814	0.0113	-2.464	-2.48	64

10X	0.02873	0.01946	-0.01002	-0.0396	0.0694	0.0129	2.529	2.519	58.99
10XY	0.02844	0.01855	-0.004543	-0.0407	0.0580	0.0101	-2.472	2.519	59
10Y	0.02939	0.01898	-0.003037	0.0011	0.0585	0.0138	-2.471	-2.481	59
11X	0.02693	0.01841	-0.01803	-0.0993	0.0628	0.0123	0.02693	10.27	58.98
12X	0.02401	0.01906	-0.009508	0.0032	0.0413	0.0145	3.212	3.207	54.04
12XY	0.02335	0.01686	-0.004066	-0.0127	0.0535	0.0068	-3.164	3.205	54.04
12Y	0.02445	0.01682	-0.002283	-0.0262	0.0553	0.0176	-3.163	-3.171	54.05
13X	0.0195	0.01795	-0.008648	-0.0150	0.0368	0.0110	4.033	4.031	48.1
13XY	0.01862	0.01477	-0.003566	-0.0192	0.0374	0.0070	-3.995	4.028	48.1
13Y	0.01977	0.01496	-0.001693	-0.0115	0.0405	0.0169	-3.994	-3.998	48.1
14X	0.01546	0.01632	-0.007611	-0.0148	0.0257	0.0091	4.923	4.924	41.49
14XY	0.01491	0.01304	-0.003067	-0.0096	0.0262	0.0058	-4.892	4.92	41.5
14Y	0.01585	0.01311	-0.001331	-0.0127	0.0320	0.0176	-4.892	-4.894	41.5
15X	0.009983	0.01059	-0.005561	-0.0217	0.0186	0.0025	6.912	6.913	26.99
15XY	0.009549	0.009954	-0.002325	-0.0208	0.0197	0.0032	-6.893	6.912	27
15Y	0.01021	0.01037	-0.001097	-0.0023	0.0153	0.0173	-6.892	-6.892	27
16X	0.0002843	0.0002125	-0.001797	-0.0093	0.0044	0.0162	10	10	4.998
16XY	0.0002583	0.000496	-0.0004733	-0.0111	0.0098	-0.0145	-10	10	5
16Y	0.0006902	0.0008932	0.0003342	-0.0026	0.0363	0.1331	-9.999	-9.999	5
17X	0	0	0	0.0000	0.0000	0.0000	10.69	10.69	0
17XY	0	0	0	0.0000	0.0000	0.0000	-10.69	10.69	0
17Y	0	0	0	0.0000	0.0000	0.0000	-10.69	-10.69	0
30X	0.07507	1.028	-0.01708	0.0000	0.0000	0.0000	0.07507	0.5278	85.98
31Y	0.5751	0.5278	-0.01708	0.0000	0.0000	0.0000	0.07507	0.5278	85.98
32X	0.1449	1.032	-0.01735	0.0000	0.0000	0.0000	0.1449	0.5321	104
33Y	0.6449	0.5321	-0.01735	0.0000	0.0000	0.0000	0.1449	0.5321	104
18S	0.04696	0.02436	-0.01139	0.0000	0.0000	0.0000	2.547	0.02436	71.99
19S	0.0485	0.09949	-0.007554	0.0000	0.0000	0.0000	0.0485	-2.401	71.99
20S	0.003405	0.0002344	0.0002643	-0.0016	-0.0070	0.0292	10	0.0002344	5
21S	0.0003417	0.04601	-0.006728	-0.0003	0.0015	-0.0018	0.0003417	-9.954	4.993
18Y	0.04919	0.02356	-0.003558	0.0000	0.0000	0.0000	-2.451	0.02356	72
19X	0.04771	-0.02962	-0.009002	0.0000	0.0000	0.0000	0.04771	2.47	71.99
20Y	-0.002958	0.0005076	0.000223	-0.0001	0.0231	-0.0278	-10	0.0005076	5
21X	0.0001982	-0.004314	-0.0007991	-0.0102	0.0022	-0.0017	0.0001982	9.996	4.999

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

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	H-Shear Usage %	Z Force (kips)	Comp. Usage %	Uplift Usage %	Result. Force (kips)	Result. Usage %	X Moment (ft-k)	X-M. Usage %	Y Moment (ft-k)	Y-M. Usage %	H-Bend-M Usage %	Z Moment (ft-k)	Z-M. Usage %	Max. Usage %
17P	-2.59	0.0	1.62	0.0	0.0	-13.84	0.0	0.0	14.17	0.0	-0.02	0.0	0.0	0.0	0.0	0.26	0.0	0.0
29P	-0.13	0.0	-0.62	0.0	0.0	-18.20	0.0	0.0	18.21	0.0	3.17	0.0	-2.8	0.0	0.0	-0.07	0.0	0.0
17X	-3.95	0.0	-4.02	0.0	0.0	-25.16	0.0	0.0	25.78	0.0	-0.04	0.0	0.0	0.0	0.0	-0.03	0.0	0.0
17XY	0.80	0.0	-1.99	0.0	0.0	-7.16	0.0	0.0	7.48	0.0	0.03	0.0	-0.0	0.0	0.0	0.03	0.0	0.0
17Y	-1.57	0.0	-1.87	0.0	0.0	7.80	0.0	0.0	8.17	0.0	-0.00	0.0	-0.1	0.0	0.0	-0.26	0.0	0.0

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

Joint Label	X External Load (kips)	Y External Load (kips)	Z External Load (kips)	X Member Force (kips)	Y Member Force (kips)	Z Member Force (kips)	X Disp. (ft)	Y Disp. (ft)	Z Disp. (ft)
1P	0.0320	0.0662	-0.2013	-0.0320	-0.0662	0.2013	0.0748	0.0280	-0.0126
2P	0.0000	0.0367	-2.3915	-0.0000	-0.0367	2.3915	0.0764	0.0273	-0.0174
3P	0.0880	0.1164	-0.3818	-0.0880	-0.1164	0.3818	0.0653	0.0276	-0.0123
4P	0.0000	0.0628	-2.9690	-0.0000	-0.0628	2.9690	0.0662	0.0284	-0.0155
5P	0.0000	0.0949	-0.0985	0.0000	-0.0949	0.0985	0.0529	0.0242	-0.0117

6P	0.0000	0.0469	-0.0503	0.0000	-0.0469	0.0503	0.0472	0.0232	-0.0112
7P	0.1020	0.0982	-0.4218	-0.1020	-0.0982	0.4218	0.0438	0.0236	-0.0107
8P	0.0000	0.0416	-2.9980	-0.0000	-0.0416	2.9980	0.0455	0.0250	-0.0411
9P	0.0000	0.1229	-0.1253	-0.0000	-0.1229	0.1253	0.0363	0.0196	-0.0097
10P	0.1250	0.1117	-0.4865	-0.1250	-0.1117	0.4865	0.0296	0.0199	-0.0087
11P	0.0000	0.0461	-2.9583	-0.0000	-0.0461	2.9583	0.0306	0.0200	-0.0109
12P	0.0000	0.1099	-0.1347	-0.0000	-0.1099	0.1347	0.0248	0.0176	-0.0082
13P	0.0000	0.1357	-0.1632	-0.0000	-0.1357	0.1632	0.0201	0.0165	-0.0075
14P	0.1480	0.2270	-0.6918	-0.1480	-0.2270	0.6918	0.0160	0.0164	-0.0070
15P	0.1710	0.3601	-1.0298	-0.1710	-0.3601	1.0298	0.0100	0.0108	-0.0049
16P	0.1480	0.2635	-0.7586	-0.1480	-0.2635	0.7586	0.0002	0.0004	-0.0011
17P	0.0000	0.0741	-0.0901	2.5893	-1.6904	-13.7519	0.0000	0.0000	0.0000
22P	0.3900	0.0000	-1.8635	-0.3900	0.0000	1.8635	0.1449	0.0323	-0.0029
23P	0.8430	0.0000	-2.7811	-0.8430	-0.0000	2.7811	0.1065	0.0301	-0.0028
24P	0.0960	0.0000	-0.8599	-0.0960	0.0000	0.8600	0.0751	0.0280	-0.0026
25P	0.1170	0.2040	-1.0375	-0.1170	-0.2040	1.0375	0.0644	0.0268	-0.0025
26P	0.1510	0.3740	-1.3323	-0.1510	-0.3740	1.3323	0.0433	0.0229	-0.0023
27P	0.2880	0.7140	-2.5732	-0.2880	-0.7140	2.5732	0.0291	0.0193	-0.0021
28P	0.5910	1.0030	-4.3630	-0.5910	-1.0030	4.3630	0.0100	0.0107	-0.0011
29P	0.0000	0.4590	-1.0538	0.1335	0.1623	-17.1425	0.0000	0.0000	0.0000
30P	0.0000	0.0000	-0.0001	0.0000	-0.0000	0.0001	0.0626	-0.3271	-0.4810
31P	0.0000	0.0024	-0.0001	0.0000	-0.0024	0.0001	-0.4249	0.5278	-0.0171
32P	0.0000	0.0000	-0.0001	0.0000	-0.0000	0.0001	0.1247	-0.3236	-0.4813
33P	0.0000	0.0024	-0.0001	0.0000	-0.0024	0.0001	-0.3551	0.5321	-0.0174
1X	0.0320	0.0000	-0.2013	-0.0320	0.0000	0.2013	0.0742	0.0287	-0.0139
1XY	0.0320	0.0000	-0.2013	-0.0320	-0.0000	0.2013	0.0745	0.0278	-0.0045
1Y	0.0000	0.0662	-0.1293	-0.0000	-0.0662	0.1293	0.0753	0.0274	-0.0032
2X	0.0000	0.0000	-1.4545	0.0000	-0.0000	1.4545	0.0723	0.0284	-0.0212
3X	0.3950	0.0000	-0.7498	-0.3950	-0.0000	0.7498	0.0645	0.0269	-0.0137
3XY	0.0320	0.0000	-0.2438	-0.0320	0.0000	0.2438	0.0640	0.0262	-0.0044
3Y	0.1510	0.1164	-0.3608	-0.1510	-0.1164	0.3608	0.0646	0.0268	-0.0030
4X	0.0000	0.0000	-2.9690	0.0000	-0.0000	2.9690	0.0633	0.0256	-0.0184
5X	0.0000	0.0000	-0.0985	0.0000	0.0000	0.0985	0.0525	0.0265	-0.0132
5XY	0.0000	0.0000	-0.0985	0.0000	0.0000	0.0985	0.0536	0.0248	-0.0046
5Y	0.0000	0.0949	-0.0985	0.0000	-0.0949	0.0985	0.0548	0.0243	-0.0031
6X	0.0000	0.0000	-0.0503	-0.0000	0.0000	0.0503	0.0470	0.0255	-0.0129
6XY	0.0000	0.0000	-0.0503	0.0000	-0.0000	0.0503	0.0485	0.0247	-0.0047
6Y	0.0000	0.0469	-0.0503	-0.0000	-0.0469	0.0503	0.0498	0.0225	-0.0030
7X	0.3630	0.0000	-0.6748	-0.3630	-0.0000	0.6748	0.0431	0.0229	-0.0124
7XY	0.0000	0.0000	-0.1688	0.0000	-0.0000	0.1688	0.0426	0.0221	-0.0046
7Y	0.1510	0.0982	-0.3578	-0.1510	-0.0982	0.3578	0.0436	0.0228	-0.0030
8X	0.0000	0.0000	-2.9980	0.0000	-0.0000	2.9980	0.0408	0.0206	-0.0510
9X	0.0000	0.0000	-0.1253	0.0000	0.0000	0.1253	0.0354	0.0232	-0.0114
9XY	0.0000	0.0000	-0.1253	-0.0000	0.0000	0.1253	0.0349	0.0215	-0.0046
9Y	0.0000	0.1229	-0.1253	-0.0000	-0.1229	0.1253	0.0359	0.0196	-0.0030
10X	0.4460	0.0000	-0.7975	-0.4460	-0.0000	0.7975	0.0287	0.0195	-0.0100
10XY	0.0000	0.0000	-0.1765	0.0000	0.0000	0.1765	0.0284	0.0185	-0.0045
10Y	0.1850	0.1117	-0.4085	-0.1850	-0.1117	0.4085	0.0294	0.0190	-0.0030
11X	0.0000	0.0000	-2.9583	0.0000	-0.0000	2.9583	0.0269	0.0184	-0.0180
12X	0.0000	0.0000	-0.1347	0.0000	-0.0000	0.1347	0.0240	0.0191	-0.0095
12XY	0.0000	0.0000	-0.1347	0.0000	-0.0000	0.1347	0.0233	0.0169	-0.0041
12Y	0.0000	0.1099	-0.1347	-0.0000	-0.1099	0.1347	0.0245	0.0168	-0.0023
13X	0.0000	0.0000	-0.1632	-0.0000	-0.0000	0.1632	0.0195	0.0180	-0.0086
13XY	0.0000	0.0000	-0.1632	0.0000	-0.0000	0.1632	0.0186	0.0148	-0.0036
13Y	0.0000	0.1357	-0.1632	-0.0000	-0.1357	0.1632	0.0198	0.0150	-0.0017
14X	0.5280	0.0000	-1.0598	-0.5280	-0.0000	1.0598	0.0155	0.0163	-0.0076
14XY	0.0000	0.0000	-0.3238	0.0000	-0.0000	0.3238	0.0149	0.0130	-0.0031
14Y	0.2200	0.2270	-0.5988	-0.2200	-0.2270	0.5988	0.0159	0.0131	-0.0013
15X	0.6110	0.0000	-1.4558	-0.6110	-0.0000	1.4558	0.0100	0.0106	-0.0056
15XY	0.0000	0.0000	-0.6048	0.0000	0.0000	0.6048	0.0095	0.0100	-0.0023

15Y	0.2540	0.3601	-0.9228	-0.2540	-0.3601	0.9228	0.0102	0.0104	-0.0011
16X	0.5280	0.0000	-1.1266	-0.5280	-0.0000	1.1266	0.0003	0.0002	-0.0018
16XY	0.0000	0.0000	-0.3906	0.0000	-0.0000	0.3906	0.0003	0.0005	-0.0005
16Y	0.2200	0.2635	-0.6656	-0.2200	-0.2635	0.6656	0.0007	0.0009	0.0003
17X	0.0000	0.0000	-0.0901	3.9548	4.0181	-25.0710	0.0000	0.0000	0.0000
17XY	0.0000	0.0000	-0.0901	-0.8048	1.9879	-7.0708	0.0000	0.0000	0.0000
17Y	0.0000	0.0741	-0.0901	1.5651	1.8008	7.8853	0.0000	0.0000	0.0000
30X	0.0000	0.0024	-0.0001	0.0000	-0.0024	0.0001	0.0751	1.0278	-0.0171
31Y	0.0000	0.0024	-0.0001	0.0000	-0.0024	0.0001	0.5751	0.5278	-0.0171
32X	0.0000	0.0024	-0.0001	0.0000	-0.0024	0.0001	0.1449	1.0321	-0.0174
33Y	0.0000	0.0024	-0.0001	0.0000	-0.0024	0.0001	0.6449	0.5321	-0.0174
18S	0.0000	0.0000	-0.0416	0.0000	-0.0000	0.0416	0.0470	0.0244	-0.0114
19S	0.0000	0.0741	-0.0439	-0.0000	-0.0741	0.0439	0.0485	0.0995	-0.0076
20S	0.0000	0.0000	-0.1485	0.0000	0.0000	0.1485	0.0034	0.0002	0.0003
21S	0.0000	0.2011	-0.1485	0.0000	-0.2011	0.1485	0.0003	0.0460	-0.0067
18Y	0.0000	0.0000	-0.0416	0.0000	-0.0000	0.0416	0.0492	0.0236	-0.0036
19X	0.0000	0.0000	-0.0439	0.0000	-0.0000	0.0439	0.0477	-0.0296	-0.0090
20Y	0.0000	0.0000	-0.1485	-0.0000	-0.0000	0.1485	-0.0030	0.0005	0.0002
21X	0.0000	0.0000	-0.1485	-0.0000	-0.0000	0.1485	0.0002	-0.0043	-0.0008

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

Comp. Member Label	Tens. Member Label	Connect Leg for Comp. Member	Force In Comp. Member (kips)	Force In Tens. Member (kips)	Original Supported L/R Cap. (kips)	RLX	RLY	RLZ	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.
g13X	g13P	Short only	-1.09	0.14	11.56	0.750	0.500	0.500	123.69	122.85	5	8.63	1.000	158.01	143.38	6
g16P	g16Y	Long only	-0.05	-1.85	17.27	0.500	0.750	0.500	120.57	120.47	5	12.24	1.000	160.76	145.07	6
g16X	g16XY	Long only	-1.03	-2.72	17.27	0.500	0.750	0.500	120.57	120.47	5	12.24	1.000	160.76	145.07	6
g16XY	g16X	Long only	-2.72	-1.03	17.27	0.500	0.750	0.500	120.57	120.47	5	12.24	1.000	160.76	145.07	6
g16Y	g16P	Long only	-1.85	-0.05	17.27	0.500	0.750	0.500	120.57	120.47	5	12.24	1.000	160.76	145.07	6
g25P	g25X	Short only	-1.53	-0.60	12.53	0.780	0.560	0.560	129.17	127.02	5	10.86	1.000	147.29	136.78	6
g25X	g25P	Short only	-0.60	-1.53	12.53	0.780	0.560	0.560	129.17	127.02	5	10.86	1.000	147.29	136.78	6
g26P	g26Y	Short only	-0.22	-0.08	12.53	0.780	0.560	0.560	129.17	127.02	5	10.86	1.000	147.29	136.78	6
g26X	g26XY	Short only	-0.15	-0.01	12.53	0.780	0.560	0.560	129.17	127.02	5	10.86	1.000	147.29	136.78	6
g26XY	g26X	Short only	-0.01	-0.15	12.53	0.780	0.560	0.560	129.17	127.02	5	10.86	1.000	147.29	136.78	6
g26Y	g26P	Short only	-0.08	-0.22	12.53	0.780	0.560	0.560	129.17	127.02	5	10.86	1.000	147.29	136.78	6
g29P	g29X	Long only	-0.93	-0.08	8.82	0.560	0.780	0.560	175.25	162.14	5	6.91	1.000	222.71	183.17	6
g29X	g29P	Long only	-0.08	-0.93	8.82	0.560	0.780	0.560	175.25	162.14	5	6.91	1.000	222.71	183.17	6
g30P	g30Y	Long only	-0.05	-0.01	8.82	0.560	0.780	0.560	175.25	162.14	5	6.91	1.000	222.71	183.17	6
g30X	g30XY	Long only	-0.04	0.00	8.82	0.560	0.780	0.560	175.25	162.14	5	6.91	1.000	222.71	183.17	6
g30Y	g30P	Long only	-0.01	-0.05	8.82	0.560	0.780	0.560	175.25	162.14	5	6.91	1.000	222.71	183.17	6

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

Clamp Label	Force (kips)	Input Holding Capacity (kips)	Factored Holding Capacity (kips)	Usage %
1	2.392	30.00	30.00	7.97
2	1.455	30.00	30.00	4.85
3	2.970	30.00	30.00	9.90
4	2.969	30.00	30.00	9.90
5	2.998	30.00	30.00	9.99

6	2.998	30.00	30.00	9.99
7	2.959	30.00	30.00	9.86
8	2.958	30.00	30.00	9.86
14	0.817	30.00	30.00	2.72
15	1.104	30.00	30.00	3.68
16	0.743	30.00	30.00	2.48
17	0.515	30.00	30.00	1.72
18	0.445	30.00	30.00	1.48
19	0.847	30.00	30.00	2.82
20	0.214	30.00	30.00	0.71
21	0.409	30.00	30.00	1.36
22	0.204	30.00	30.00	0.68
23	0.204	30.00	30.00	0.68
24	0.246	30.00	30.00	0.82
25	2.906	30.00	30.00	9.69
26	0.865	30.00	30.00	2.88
27	1.064	30.00	30.00	3.55
28	1.392	30.00	30.00	4.64
29	2.686	30.00	30.00	8.95
30	4.516	30.00	30.00	15.05
31	1.904	30.00	30.00	6.35
32	0.766	30.00	30.00	2.55
33	0.914	30.00	30.00	3.05
34	1.184	30.00	30.00	3.95
35	1.579	30.00	30.00	5.26
36	1.244	30.00	30.00	4.15
37	0.401	30.00	30.00	1.34
38	0.462	30.00	30.00	1.54
39	0.677	30.00	30.00	2.26
40	1.023	30.00	30.00	3.41
41	0.749	30.00	30.00	2.50
42	0.408	30.00	30.00	1.36

*** Analysis Results for Load Case No. 4 "Extreme Wind - Longitudinal" - Number of iterations in SAPS 28

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

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
1P	0.2481	0.1146	-0.0161	-0.1150	0.3993	-0.0148	2.748	-2.385	85.98
2P	0.2464	0.115	0.02052	-0.0993	0.3838	-0.0086	0.2464	-13.63	86.02
3P	0.2137	0.1042	-0.01557	-0.1291	0.3917	0.0011	2.714	-2.396	80.98
4P	0.2138	0.1047	0.01275	-0.0860	0.3615	0.0024	0.2138	-9.645	81.01
5P	0.1742	0.08866	-0.01447	-0.1204	0.3643	0.0003	2.674	-2.411	74.99
6P	0.1561	0.08336	-0.01365	-0.1012	0.3106	-0.0001	2.656	-2.417	71.99
7P	0.141	0.07737	-0.01281	-0.1219	0.2951	-0.0004	2.641	-2.423	68.99
8P	0.1407	0.07812	0.01085	-0.0249	0.2923	-0.0026	0.1407	-14.17	69.01
9P	0.115	0.06473	-0.01132	-0.1180	0.2798	-0.0005	2.615	-2.435	63.99
10P	0.09336	0.05787	-0.009754	-0.0763	0.2240	-0.0008	2.593	-2.442	58.99
11P	0.0933	0.05795	0.01279	-0.1026	0.2213	-0.0008	0.0933	-10.19	59.01
12P	0.07629	0.04974	-0.009684	-0.0928	0.1713	-0.0036	3.264	-3.138	54.04
13P	0.06037	0.04316	-0.009383	-0.0384	0.1341	-0.0006	4.074	-3.97	48.1
14P	0.0467	0.03981	-0.009203	-0.0433	0.0978	-0.0065	4.954	-4.868	41.49
15P	0.02604	0.02158	-0.006317	-0.0535	0.0786	-0.0376	6.928	-6.881	26.99
16P	0.0004004	0.001107	-0.001548	0.0094	-0.0528	-0.3403	10	-9.999	4.998
17P	0	0	0	0.0000	0.0000	0.0000	10.69	-10.69	0
22P	0.5005	0.1578	-0.003558	-0.1380	0.9014	-0.0023	0.5005	0.1578	104
23P	0.3621	0.1362	-0.002445	-0.1360	0.8397	-0.0022	0.3621	0.1362	95
24P	0.2497	0.1153	-0.001678	-0.1297	0.5228	-0.0015	0.2497	0.1153	86
25P	0.2129	0.1041	-0.001494	-0.1283	0.3718	-0.0011	0.2129	0.1041	81
26P	0.1411	0.07738	-0.001148	-0.1231	0.3109	-0.0004	0.1411	0.07738	69
27P	0.09329	0.05769	-0.0009126	-0.0982	0.2281	0.0001	0.09329	0.05769	59
28P	0.02664	0.0213	-0.0004206	-0.0582	0.0752	0.0005	0.02664	0.0213	27
29P	0	0	0	0.0000	0.0000	0.0000	0	0	0
30P	0.2497	-0.3214	-0.4977	0.0000	0.0000	0.0000	0.2497	0.1786	85.5
31P	-0.2503	0.1786	-0.4977	0.0000	0.0000	0.0000	0.2497	0.1786	85.5
32P	0.5005	-0.2789	-0.4995	0.0000	0.0000	0.0000	0.5005	0.2211	103.5
33P	0.0005221	0.2211	-0.4995	0.0000	0.0000	0.0000	0.5005	0.2211	103.5
1X	0.2484	0.1154	-0.02711	-0.1382	0.3990	0.0056	2.748	2.615	85.97
1XY	0.2487	0.1152	0.005044	-0.1435	0.3887	0.0053	-2.251	2.615	86.01
1Y	0.2484	0.1156	0.01606	-0.1112	0.3894	-0.0126	-2.252	-2.384	86.02
2X	0.2479	0.1154	-0.03981	-0.1505	0.3828	0.0010	0.2479	13.87	85.96
3X	0.214	0.1036	-0.02655	-0.1255	0.3898	-0.0096	2.714	2.604	80.97
3XY	0.2136	0.1042	0.004939	-0.1423	0.3725	-0.0063	-2.286	2.604	81
3Y	0.2134	0.1042	0.01593	-0.1131	0.3694	-0.0006	-2.287	-2.396	81.02
4X	0.2149	0.1035	-0.02997	-0.1623	0.3610	-0.0093	0.2149	9.854	80.97
5X	0.1746	0.09234	-0.02523	-0.1366	0.3725	-0.0054	2.675	2.592	74.97
5XY	0.1771	0.08935	0.004038	-0.1079	0.3402	-0.0026	-2.323	2.589	75
5Y	0.1772	0.09195	0.01479	-0.1515	0.3429	-0.0002	-2.323	-2.408	75.01
6X	0.156	0.08425	-0.02412	-0.1526	0.3168	-0.0031	2.656	2.584	71.98
6XY	0.1591	0.08429	0.003606	-0.1096	0.3500	-0.0007	-2.341	2.584	72
6Y	0.1589	0.08354	0.01408	-0.1452	0.3521	-0.0002	-2.341	-2.416	72.01
7X	0.141	0.07721	-0.02299	-0.1203	0.2847	-0.0011	2.641	2.577	68.98
7XY	0.1411	0.07724	0.003213	-0.1488	0.3251	0.0015	-2.359	2.577	69
7Y	0.1412	0.07752	0.0134	-0.0935	0.3119	-0.0004	-2.359	-2.422	69.01
8X	0.1409	0.07653	-0.05065	-0.2276	0.2934	-0.0005	0.1409	14.33	68.95
9X	0.1158	0.06906	-0.02044	-0.1123	0.2861	0.0018	2.616	2.569	63.98
9XY	0.1144	0.06582	0.002205	-0.1065	0.2803	0.0042	-2.386	2.566	64
9Y	0.1159	0.06804	0.01147	-0.1264	0.2807	0.0018	-2.384	-2.432	64.01

10X	0.09309	0.05766	-0.01721	-0.1030	0.2186	0.0049	2.593	2.558	58.98
10XY	0.093	0.05739	0.001029	-0.1080	0.2057	0.0071	-2.407	2.557	59
10Y	0.09328	0.05751	0.009104	-0.0886	0.2109	0.0039	-2.407	-2.442	59.01
11X	0.09193	0.0573	-0.02518	-0.1376	0.2083	0.0081	0.09193	10.31	58.97
12X	0.07759	0.05233	-0.01707	-0.0426	0.1474	0.0028	3.265	3.24	54.03
12XY	0.0766	0.04817	0.0009238	-0.0961	0.1677	0.0098	-3.111	3.236	54.05
12Y	0.07718	0.05054	0.009906	-0.0733	0.1653	0.0098	-3.111	-3.137	54.06
13X	0.06309	0.04638	-0.01602	-0.0545	0.1210	-0.0031	4.076	4.06	48.09
13XY	0.06147	0.04015	0.0007037	-0.0665	0.1156	0.0100	-3.952	4.053	48.11
13Y	0.06114	0.04207	0.01019	-0.0720	0.1369	0.0156	-3.952	-3.971	48.11
14X	0.0501	0.03953	-0.01449	-0.0589	0.1011	-0.0071	4.958	4.947	41.49
14XY	0.05002	0.03304	0.0001277	-0.0555	0.0903	0.0176	-4.857	4.94	41.5
14Y	0.04717	0.03404	0.009694	-0.0568	0.1051	0.0201	-4.86	-4.873	41.51
15X	0.0262	0.02156	-0.01144	-0.0425	0.0733	-0.0267	6.928	6.924	26.99
15XY	0.02597	0.01996	0.0003805	-0.0460	0.0719	0.0411	-6.876	6.922	27
15Y	0.02671	0.02114	0.007952	-0.0244	0.0592	0.0352	-6.875	-6.881	27.01
16X	0.0006318	0.0009851	-0.003662	0.0102	0.0670	-0.3072	10	10	4.996
16XY	0.001547	0.001766	0.0003854	0.0062	-0.0260	0.3126	-9.998	10	5
16Y	0.002694	0.002547	0.00298	-0.0078	0.1033	0.3362	-9.997	-9.997	5.003
17X	0	0	0	0.0000	0.0000	0.0000	10.69	10.69	0
17XY	0	0	0	0.0000	0.0000	0.0000	-10.69	10.69	0
17Y	0	0	0	0.0000	0.0000	0.0000	-10.69	-10.69	0
30X	0.2497	0.6786	-0.4977	0.0000	0.0000	0.0000	0.2497	0.1786	85.5
31Y	0.7497	0.1786	-0.4977	0.0000	0.0000	0.0000	0.2497	0.1786	85.5
32X	0.5005	0.7211	-0.4995	0.0000	0.0000	0.0000	0.5005	0.2211	103.5
33Y	1.001	0.2211	-0.4995	0.0000	0.0000	0.0000	0.5005	0.2211	103.5
18S	0.155	0.08377	-0.01806	0.0000	0.0000	0.0000	2.655	0.08377	71.98
19S	0.1575	0.1645	-0.0005381	0.0000	0.0000	0.0000	0.1575	-2.335	72
20S	-0.005038	0.0008059	-0.001115	-0.0139	0.0072	0.1606	9.995	0.0008059	4.999
21S	0.001134	0.1259	-0.01928	-0.0043	0.0068	-0.0051	0.001134	-9.874	4.981
18Y	0.1594	0.08389	0.008369	0.0000	0.0000	0.0000	-2.341	0.08389	72.01
19X	0.1575	0.17	-0.01095	0.0000	0.0000	0.0000	0.1575	2.67	71.99
20Y	0.007219	0.001617	-0.001355	-0.0107	0.0386	-0.1571	-9.993	0.001617	4.999
21X	0.0008011	0.1038	0.01276	0.0118	0.0071	-0.0047	0.0008011	10.1	5.013

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

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	H-Shear Usage %	Z Force (kips)	Comp. Usage %	Uplift Usage %	Result. Force (kips)	Result. Usage %	X Moment (ft-k)	X-M. Usage %	Y Moment (ft-k)	Y-M. Usage %	H-Bend-M Usage %	Z Moment (ft-k)	Z-M. Usage %	Max. Usage %
17P	-4.80	0.0	1.19	0.0	0.0	-19.87	0.0	0.0	20.48	0.0	-0.06	0.0	0.0	0.0	0.0	0.67	0.0	0.0
29P	-0.30	0.0	-0.81	0.0	0.0	-6.56	0.0	0.0	6.62	0.0	5.63	0.0	-6.9	0.0	0.0	-0.02	0.0	0.0
17X	-9.07	0.0	-9.49	0.0	0.0	-53.17	0.0	0.0	54.77	0.0	-0.17	0.0	0.0	0.0	0.0	0.60	0.0	0.0
17XY	-1.46	0.0	-3.08	0.0	0.0	3.32	0.0	0.0	4.76	0.0	0.04	0.0	-0.1	0.0	0.0	-0.64	0.0	0.0
17Y	-8.85	0.0	-10.10	0.0	0.0	50.59	0.0	0.0	52.34	0.0	-0.01	0.0	-0.2	0.0	0.0	-0.66	0.0	0.0

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

Joint Label	X External Load (kips)	Y External Load (kips)	Z External Load (kips)	X Member Force (kips)	Y Member Force (kips)	Z Member Force (kips)	X Disp. (ft)	Y Disp. (ft)	Z Disp. (ft)
1P	0.1160	0.1771	-0.1969	-0.1160	-0.1771	0.1969	0.2481	0.1146	-0.0161
2P	0.0000	0.1771	-0.8749	-0.0000	-0.1771	0.8749	0.2464	0.1150	0.0205
3P	0.2790	0.1680	-0.1628	-0.2790	-0.1680	0.1628	0.2137	0.1042	-0.0156
4P	0.0000	0.1680	-1.1188	-0.0000	-0.1680	1.1188	0.2138	0.1047	0.0127
5P	0.0000	0.1680	-0.0948	-0.0000	-0.1680	0.0948	0.1742	0.0887	-0.0145

6P	0.0000	0.1680	-0.0948	0.0000	-0.1680	0.0948	0.1561	0.0834	-0.0136
7P	0.3000	0.1680	-0.1638	-0.3000	-0.1680	0.1638	0.1410	0.0774	-0.0128
8P	0.0000	0.1680	-1.1188	-0.0000	-0.1680	1.1188	0.1407	0.0781	0.0109
9P	0.0000	0.1680	-0.0948	-0.0000	-0.1680	0.0948	0.1150	0.0647	-0.0113
10P	0.3680	0.1680	-0.1788	-0.3680	-0.1680	0.1788	0.0934	0.0579	-0.0098
11P	0.0000	0.1680	-1.1188	-0.0000	-0.1680	1.1188	0.0933	0.0579	0.0128
12P	0.0000	0.1680	-0.0948	-0.0000	-0.1680	0.0948	0.0763	0.0497	-0.0097
13P	0.0000	0.1680	-0.0948	-0.0000	-0.1680	0.0948	0.0604	0.0432	-0.0094
14P	0.4360	0.7213	-0.4992	-0.4360	-0.7213	0.4992	0.0467	0.0398	-0.0092
15P	0.5040	0.5533	-0.4195	-0.5040	-0.5533	0.4195	0.0260	0.0216	-0.0063
16P	0.4360	0.5533	-0.4045	-0.4360	-0.5533	0.4045	0.0004	0.0011	-0.0015
17P	0.0000	0.5533	-0.3045	4.7980	-1.7384	-19.5669	0.0000	0.0000	0.0000
22P	1.4840	0.0091	-0.7921	-1.4840	-0.0091	0.7921	0.5005	0.1578	-0.0036
23P	3.1930	0.0091	-0.9521	-3.1930	-0.0091	0.9521	0.3621	0.1362	-0.0024
24P	0.2990	0.1771	-0.2649	-0.2990	-0.1771	0.2649	0.2497	0.1153	-0.0017
25P	0.3630	0.1680	-0.2148	-0.3630	-0.1680	0.2148	0.2129	0.1041	-0.0015
26P	0.4690	0.1680	-0.2508	-0.4690	-0.1680	0.2508	0.1411	0.0774	-0.0011
27P	0.8960	0.7213	-0.6962	-0.8960	-0.7213	0.6962	0.0933	0.0577	-0.0009
28P	1.8340	0.5533	-0.9135	-1.8340	-0.5533	0.9135	0.0266	0.0213	-0.0004
29P	0.0000	0.5533	-0.3045	0.2989	0.2550	-6.2584	0.0000	0.0000	0.0000
30P	0.0000	0.0091	-0.0711	-0.0000	-0.0091	0.0711	0.2497	-0.3214	-0.4977
31P	0.0000	0.0091	-0.0711	-0.0000	-0.0091	0.0711	-0.2503	0.1786	-0.4977
32P	0.0000	0.0091	-0.0711	-0.0000	-0.0091	0.0711	0.5005	-0.2789	-0.4995
33P	0.0000	0.0091	-0.0711	-0.0000	-0.0091	0.0711	0.0005	0.2211	-0.4995
1X	0.1160	0.1771	-0.1969	-0.1160	-0.1771	0.1969	0.2484	0.1154	-0.0271
1XY	0.1160	0.1771	-0.1969	-0.1160	-0.1771	0.1969	0.2487	0.1152	0.0050
1Y	0.0000	0.1771	-0.1659	-0.0000	-0.1771	0.1659	0.2484	0.1156	0.0161
2X	0.0000	0.1771	-0.5089	0.0000	-0.1771	0.5089	0.2479	0.1154	-0.0398
3X	1.3150	0.1680	-0.2628	-1.3150	-0.1680	0.2628	0.2140	0.1036	-0.0265
3XY	0.1160	0.1680	-0.1258	-0.1160	-0.1680	0.1258	0.2136	0.1042	0.0049
3Y	0.4690	0.1680	-0.1388	-0.4690	-0.1680	0.1388	0.2134	0.1042	0.0159
4X	0.0000	0.1680	-1.1188	0.0000	-0.1680	1.1188	0.2149	0.1035	-0.0300
5X	0.0000	0.1680	-0.0948	0.0000	-0.1680	0.0948	0.1746	0.0923	-0.0252
5XY	0.0000	0.1680	-0.0948	-0.0000	-0.1680	0.0948	0.1771	0.0894	0.0040
5Y	0.0000	0.1680	-0.0948	-0.0000	-0.1680	0.0948	0.1772	0.0920	0.0148
6X	0.0000	0.1680	-0.0948	-0.0000	-0.1680	0.0948	0.1560	0.0842	-0.0241
6XY	0.0000	0.1680	-0.0948	-0.0000	-0.1680	0.0948	0.1591	0.0843	0.0036
6Y	0.0000	0.1680	-0.0948	0.0000	-0.1680	0.0948	0.1589	0.0835	0.0141
7X	1.1990	0.1680	-0.2318	-1.1990	-0.1680	0.2318	0.1410	0.0772	-0.0230
7XY	0.0000	0.1680	-0.0948	0.0000	-0.1680	0.0948	0.1411	0.0772	0.0032
7Y	0.4690	0.1680	-0.1388	-0.4690	-0.1680	0.1388	0.1412	0.0775	0.0134
8X	0.0000	0.1680	-1.1188	0.0000	-0.1680	1.1188	0.1409	0.0765	-0.0507
9X	0.0000	0.1680	-0.0948	0.0000	-0.1680	0.0948	0.1158	0.0691	-0.0204
9XY	0.0000	0.1680	-0.0948	-0.0000	-0.1680	0.0948	0.1144	0.0658	0.0022
9Y	0.0000	0.1680	-0.0948	-0.0000	-0.1680	0.0948	0.1159	0.0680	0.0115
10X	1.4710	0.1680	-0.2628	-1.4710	-0.1680	0.2628	0.0931	0.0577	-0.0172
10XY	0.0000	0.1680	-0.0948	0.0000	-0.1680	0.0948	0.0930	0.0574	0.0010
10Y	0.5760	0.1680	-0.1478	-0.5760	-0.1680	0.1478	0.0933	0.0575	0.0091
11X	0.0000	0.1680	-1.1188	0.0000	-0.1680	1.1188	0.0919	0.0573	-0.0252
12X	0.0000	0.1680	-0.0948	-0.0000	-0.1680	0.0948	0.0776	0.0523	-0.0171
12XY	0.0000	0.1680	-0.0948	0.0000	-0.1680	0.0948	0.0766	0.0482	0.0009
12Y	0.0000	0.1680	-0.0948	-0.0000	-0.1680	0.0948	0.0772	0.0505	0.0099
13X	0.0000	0.1680	-0.0948	0.0000	-0.1680	0.0948	0.0631	0.0464	-0.0160
13XY	0.0000	0.1680	-0.0948	0.0000	-0.1680	0.0948	0.0615	0.0402	0.0007
13Y	0.0000	0.1680	-0.0948	0.0000	-0.1680	0.0948	0.0611	0.0421	0.0102
14X	1.7440	0.7213	-0.5992	-1.7440	-0.7213	0.5992	0.0501	0.0395	-0.0145
14XY	0.0000	0.7213	-0.3992	0.0000	-0.7213	0.3992	0.0500	0.0330	0.0001
14Y	0.6820	0.7213	-0.4622	-0.6820	-0.7213	0.4622	0.0472	0.0340	0.0097
15X	2.0160	0.5533	-0.5355	-2.0160	-0.5533	0.5355	0.0262	0.0216	-0.0114
15XY	0.0000	0.5533	-0.3045	-0.0000	-0.5533	0.3045	0.0260	0.0200	0.0004

15Y	0.7890	0.5533	-0.3775	-0.7890	-0.5533	0.3775	0.0267	0.0211	0.0080
16X	1.7440	0.5533	-0.5045	-1.7440	-0.5533	0.5045	0.0006	0.0010	-0.0037
16XY	0.0000	0.5533	-0.3045	-0.0000	-0.5533	0.3045	0.0015	0.0018	0.0004
16Y	0.6820	0.5533	-0.3675	-0.6820	-0.5533	0.3675	0.0027	0.0025	0.0030
17X	0.0000	0.5533	-0.3045	9.0710	8.9388	-52.8696	0.0000	0.0000	0.0000
17XY	0.0000	0.5533	-0.3045	1.4625	2.5224	3.6251	0.0000	0.0000	0.0000
17Y	0.0000	0.5533	-0.3045	8.8506	9.5437	50.8898	0.0000	0.0000	0.0000
30X	0.0000	0.0091	-0.0711	-0.0000	-0.0091	0.0711	0.2497	0.6786	-0.4977
31Y	0.0000	0.0091	-0.0711	-0.0000	-0.0091	0.0711	0.7497	0.1786	-0.4977
32X	0.0000	0.0091	-0.0711	-0.0000	-0.0091	0.0711	0.5005	0.7211	-0.4995
33Y	0.0000	0.0091	-0.0711	-0.0000	-0.0091	0.0711	1.0005	0.2211	-0.4995
18S	0.0000	0.1680	-0.0948	-0.0000	-0.1680	0.0948	0.1550	0.0838	-0.0181
19S	0.0000	0.1680	-0.0948	-0.0000	-0.1680	0.0948	0.1575	0.1645	-0.0005
20S	0.0000	0.5533	-0.3045	0.0000	-0.5533	0.3045	-0.0050	0.0008	-0.0011
21S	0.0000	0.5533	-0.3045	0.0000	-0.5533	0.3045	0.0011	0.1259	-0.0193
18Y	0.0000	0.1680	-0.0948	-0.0000	-0.1680	0.0948	0.1594	0.0839	0.0084
19X	0.0000	0.1680	-0.0948	-0.0000	-0.1680	0.0948	0.1575	0.1700	-0.0110
20Y	0.0000	0.5533	-0.3045	0.0000	-0.5533	0.3045	0.0072	0.0016	-0.0014
21X	0.0000	0.5533	-0.3045	-0.0000	-0.5533	0.3045	0.0008	0.1038	0.0128

Crossing Diagonal Check for Load Case "Extreme Wind - Longitudinal" (RLOUT controls):

Comp. Member Label	Tens. Member Label	Connect Leg for Comp. Member	Force In Comp. Member (kips)	Force In Tens. Member (kips)	Original Supported L/R Cap. (kips)	RLX	RLY	RLZ	Original Supported L/R	Original Supported KL/R	Original Supported Curve No.	Alternate Unsupported L/R Cap. (kips)	Alternate Unsupported RLOUT	Alternate Unsupported L/R	Alternate Unsupported KL/R	Alternate Unsupported Curve No.
g13P	g13X	Short only	-0.85	-0.33	11.56	0.750	0.500	0.500	123.69	122.85	5	8.63	1.000	158.01	143.38	6
g13X	g13P	Short only	-0.33	-0.85	11.56	0.750	0.500	0.500	123.69	122.85	5	8.63	1.000	158.01	143.38	6
g16XY	g16X	Long only	-5.25	0.65	17.27	0.500	0.750	0.500	120.57	120.47	5	12.24	1.000	160.76	145.07	6
g16Y	g16P	Long only	-5.50	0.95	17.27	0.500	0.750	0.500	120.57	120.47	5	12.24	1.000	160.76	145.07	6
g25P	g25X	Short only	-2.14	-1.28	12.53	0.780	0.560	0.560	129.17	127.02	5	10.86	1.000	147.29	136.78	6
g25X	g25P	Short only	-1.28	-2.14	12.53	0.780	0.560	0.560	129.17	127.02	5	10.86	1.000	147.29	136.78	6
g26P	g26Y	Short only	-0.78	-0.43	12.53	0.780	0.560	0.560	129.17	127.02	5	10.86	1.000	147.29	136.78	6
g26Y	g26P	Short only	-0.43	-0.78	12.53	0.780	0.560	0.560	129.17	127.02	5	10.86	1.000	147.29	136.78	6
g28X	g28XY	Long only	-0.63	-0.00	11.66	0.560	0.780	0.560	147.51	141.00	5	8.89	1.000	187.46	161.49	6
g28XY	g28X	Long only	-0.00	-0.63	11.66	0.560	0.780	0.560	147.51	141.00	5	8.89	1.000	187.46	161.49	6
g29P	g29X	Long only	-1.48	-0.17	8.82	0.560	0.780	0.560	175.25	162.14	5	6.91	1.000	222.71	183.17	6
g29X	g29P	Long only	-0.17	-1.48	8.82	0.560	0.780	0.560	175.25	162.14	5	6.91	1.000	222.71	183.17	6
g30P	g30Y	Long only	-0.31	-0.27	8.82	0.560	0.780	0.560	175.25	162.14	5	6.91	1.000	222.71	183.17	6
g30Y	g30P	Long only	-0.27	-0.31	8.82	0.560	0.780	0.560	175.25	162.14	5	6.91	1.000	222.71	183.17	6

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

Clamp Label	Force (kips)	Input Holding Capacity (kips)	Factored Holding Capacity (kips)	Usage %
1	0.893	30.00	30.00	2.98
2	0.539	30.00	30.00	1.80
3	1.131	30.00	30.00	3.77
4	1.131	30.00	30.00	3.77
5	1.131	30.00	30.00	3.77
6	1.131	30.00	30.00	3.77
7	1.131	30.00	30.00	3.77

8	1.131	30.00	30.00	3.77
14	0.812	30.00	30.00	2.71
15	0.858	30.00	30.00	2.86
16	0.980	30.00	30.00	3.27
17	0.442	30.00	30.00	1.47
18	0.381	30.00	30.00	1.27
19	1.351	30.00	30.00	4.50
20	0.289	30.00	30.00	0.96
21	0.364	30.00	30.00	1.21
22	0.289	30.00	30.00	0.96
23	0.289	30.00	30.00	0.96
24	0.240	30.00	30.00	0.80
25	3.332	30.00	30.00	11.11
26	0.437	30.00	30.00	1.46
27	0.454	30.00	30.00	1.51
28	0.558	30.00	30.00	1.86
29	1.345	30.00	30.00	4.48
30	2.122	30.00	30.00	7.07
31	1.682	30.00	30.00	5.61
32	1.233	30.00	30.00	4.11
33	1.504	30.00	30.00	5.01
34	1.980	30.00	30.00	6.60
35	2.158	30.00	30.00	7.19
36	1.898	30.00	30.00	6.33
37	0.517	30.00	30.00	1.72
38	0.618	30.00	30.00	2.06
39	1.095	30.00	30.00	3.65
40	1.035	30.00	30.00	3.45
41	0.952	30.00	30.00	3.17
42	0.517	30.00	30.00	1.72

*** 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 Size	Angle Type	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 Comp. (ft)	KL/R	Length	Curve No.	No. Of Bolts
LEG1	L4x4x1/4	4X4X0.25	SAE	33.0	73.79	Comp	73.79	g6XY	-39.482	Extreme	53.509	125.640	168.750	1.000	1.000	1.000	75.47	75.47	5.000	1	12
LEG2	L4x4x5/16	4X4X0.3125	SAE	33.0	85.77	Comp	85.77	g12X	-56.226	Extreme	65.558	104.700	175.781	1.000	1.000	1.000	77.30	77.30	5.096	1	10
LEG3	L4x4x3/8	4X4X0.375	SAE	33.0	93.36	Comp	93.36	g11X	-55.838	Extreme	59.809	104.700	210.937	0.330	0.330	0.330	112.73	112.73	22.432	1	10
XBR1	L1.75x1.75x3/16	1.75X1.75X0.1875	SAE	33.0	52.09	Comp	52.09	g13P	-6.022	Extreme	11.559	20.940	21.094	0.750	0.500	0.500	123.69	122.85	7.071	5	2
XBR2	L3x2x3/16	3X2X0.1875	SAU	33.0	44.94	Cross	44.94	g16Y	-5.501	Extreme	12.241	31.410	31.641	0.500	1.000	0.500	160.76	145.07	7.810	6	3
XBR3	L3x2x3/16	3X2X0.1875	SAU	33.0	37.62	Tens	36.02	g35XY	-3.552	Extreme	9.860	10.470	10.547	1.000	0.500	0.500	161.63	161.63	11.826	4	1
XBR4	L2x2x3/16	2X2X0.1875	SAE	33.0	23.57	Cross	23.57	g26P	-2.560	Extreme	10.862	20.940	21.094	1.000	0.560	0.560	147.29	136.78	7.573	6	2
XBR5	L2.5x2x3/16	2.5X2X0.1875	SAU	33.0	21.35	Cross	21.35	g29P	-1.475	Extreme	6.910	20.940	21.094	0.560	1.000	0.560	222.71	183.17	11.135	6	2
XBR6	L1.75x1.75x1/4	1.75X1.75X0.25	SAE	33.0	90.00	Comp	90.00	g31Y	-2.031	NESC Hea	2.257	20.940	28.125	0.790	0.580	0.580	383.86	321.10	18.807	5	2
XBR7	L1.75x1.75x3/16	1.75X1.75X0.1875	SAE	33.0	48.96	Tens	0.00	g34XY	0.000		1.061	20.940	21.094	0.800	0.410	0.410	499.05	408.88	27.916	5	2
PMBR1	L2.5x2.5x3/16	2.5X2.5X0.1875	SAE	36.0	55.74	Tens	52.32	g60X	-5.334	Extreme	21.670	10.470	10.195	1.000	1.000	1.000	85.71	102.85	3.536	3	1
PMBR2	L3.5x3.5x1/4	3.5X3.5X0.25	SAE	36.0	29.67	Comp	29.67	g64P	-3.107	Extreme	16.980	10.470	13.594	1.000	1.000	1.000	168.78	168.78	9.761	4	1
HBR1	L1.75x1.75x3/16	1.75X1.75X0.1875	SAE	33.0	73.70	Comp	73.70	g37P	-4.274	Extreme	5.799	10.470	10.547	1.000	1.000	1.000	174.93	174.93	5.000	4	1
HBR2	2.5x2x3/16	2.5X2X0.1875	SAU	33.0	41.41	Comp	41.41	g41P	-4.336	Extreme	10.510	10.470	10.547	1.000	0.500	0.500	148.52	148.52	9.815	4	1
HBR3	L3x2.5x1/4	3X2.5X0.25	SAU	33.0	43.84	Comp	43.84	g43P	-4.590	Extreme	12.202	10.470	14.062	1.000	0.500	0.500	175.29	175.29	13.804	4	1
HBR4	**L4x3x1/4**	**4X3X0.25**	**SAU**	**33.0**	**43.44**	**Comp**	**43.44**	**g45Y**	**-4.548**	**Extreme**	**13.759**	**10.470**	**14.062**	**2.000**	**1.000**	**1.000**	**187.50**	**187.50**	**10.000**	**4**	**1**
Arm1	L3x2.5x1/4	3X2.5X0.25	SAU	33.0	20.18	Comp	20.18	g49P	-5.753	NESC Hea	28.509	31.410	42.187	1.000	0.500	0.500	97.38	108.69	7.669	3	3
Arm2	L3.5x2.5x1/4	3.5X2.5X0.25	SAU	33.0	26.72	Comp	26.72	g53P	-6.553	NESC Hea	24.527	31.410	42.187	1.000	0.500	0.500	132.50	129.56	12.013	5	3

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

ArmBR1	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	33.0	29.15	Comp	29.15	g55P	-3.052	NESC Hea	10.714	10.470	10.547	1.000	1.000	1.000	155.23	155.23	6.403	4	1
ArmBR2	L1.75x1/4x1/4	BAR	1.75X0.25X0.25	33.0	77.57	Tens	0.00	g59Y	0.000		0.050	10.470	14.062	1.000	1.000	1.000	1588.21	1588.21	9.556	4	1
Powermnt	12" Std. Pipe	PIP	12.75X0.375	50.0	14.98	Comp	14.98	g65P	-17.274	NESC Hea	115.298	0.000	0.000	1.000	1.000	1.000	73.97	73.97	27.000	1	0
fic1	Fictitious1	Bar	fic	36.0	0.00		0.00	g72P	0.000		0.000	0.000	0.000	1.000	1.000	1.000	2160000.00	2160000.00	18.000	4	0
fic	Fictitious2	Bar	fic	36.0	0.00		0.00	g74P	0.000		0.000	0.000	0.000	1.000	1.000	1.000	60000.00	60000.00	0.500	4	0
HBR5	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	33.0	10.29	Comp	10.29	g78Y	-1.078	NESC Hea	14.114	10.470	10.547	1.000	1.000	1.000	87.46	103.73	2.500	3	1

Group Summary (Tension Portion):

Group Label	Group Desc.	Angle Type	Angle Size	Steel Strength (ksi)	Max Usage %	Usage Control	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 Tens. Bolts	No. Of Holes	Hole Diameter (in)
LEG1	L4x4x1/4	SAE	4X4X0.25	33.0	73.79	Comp	64.51	g6Y	33.981	Extreme	52.676	125.640	168.750	220.588	5.000	12	2.000	0.6875
LEG2	L4x4x5/16	SAE	4X4X0.3125	33.0	85.77	Comp	76.45	g12Y	49.710	Extreme	65.020	104.700	175.781	103.401	5.096	10	2.000	0.6875
LEG3	L4x4x3/8	SAE	4X4X0.375	33.0	93.36	Comp	51.69	g11P	39.991	Extreme	77.364	104.700	210.937	193.014	22.432	10	2.000	0.6875
XBR1	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	33.0	52.09	Comp	38.46	g13X	5.609	Extreme	14.585	20.940	21.094	16.189	7.071	2	1.000	0.6875
XBR2	L3x2x3/16	SAU	3X2X0.1875	33.0	44.94	Cross	30.72	g23XY	7.036	Extreme	22.901	31.410	31.641	28.125	7.071	3	1.000	0.6875
XBR3	L3x2x3/16	SAU	3X2X0.1875	33.0	37.62	Tens	37.62	g35Y	2.903	Extreme	17.333	10.470	10.547	7.717	11.826	1	1.000	0.6875
XBR4	L2x2x3/16	SAE	2X2X0.1875	33.0	23.57	Cross	14.32	g25XY	2.183	Extreme	17.258	20.940	21.094	15.240	7.573	2	1.000	0.6875
XBR5	L2.5x2x3/16	SAU	2.5X2X0.1875	33.0	21.35	Cross	9.60	g28Y	1.800	Extreme	20.228	20.940	21.094	18.750	9.373	2	1.000	0.6875
XBR6	L1.75x1.75x1/4	SAE	1.75X1.75X0.25	33.0	90.00	Comp	26.99	g32X	5.139	Extreme	19.041	20.940	28.125	24.820	18.807	2	1.000	0.6875
XBR7	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	33.0	48.96	Tens	48.96	g33XY	7.142	Extreme	14.585	20.940	21.094	17.420	27.916	2	1.000	0.6875
PMBR1	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	36.0	55.74	Tens	55.74	g60Y	5.683	Extreme	25.048	10.470	10.195	0.000	3.536	1	1.000	0.6875
PMBR2	L3.5x3.5x1/4	SAE	3.5X3.5X0.25	36.0	29.67	Comp	3.60	g64Y	0.377	NESC Hea	49.187	10.470	13.594	0.000	9.761	1	1.000	0.6875
HBR1	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	33.0	73.70	Comp	50.42	g38P	3.891	Extreme	14.585	10.470	10.547	7.717	5.000	1	1.000	0.6875
HBR2	2.5x2x3/16	SAU	2.5X2X0.1875	33.0	41.41	Comp	16.92	g41X	1.306	NESC Hea	17.444	10.470	10.547	7.717	9.815	1	1.000	0.6875
HBR3	L3x2.5x1/4	SAU	3X2.5X0.25	33.0	43.84	Comp	11.43	g43X	1.196	NESC Hea	30.090	10.470	14.062	12.500	13.804	1	1.000	0.6875
HBR4	**L4x3x1/4**	**SAU**	**4X3X0.25**	**33.0**	**43.44**	**Comp**	**17.43**	**g46X**	**1.825**	**Extreme**	**37.663**	**10.470**	**14.062**	**12.500**	**10.000**	**1**	**1.000**	**0.6875**

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

g46X g46XY g46Y ??

Arm1	L3x2.5x1/4	SAU	3X2.5X0.25	33.0	20.18	Comp	13.74	g48P	5.940Extreme	43.230	0.000	0.000	0.000	5.000	0
0.000	0.6875														
Arm2	L3.5x2.5x1/4	SAU	3.5X2.5X0.25	33.0	26.72	Comp	0.00	g54Y	0.000	47.520	0.000	0.000	0.000	5.000	0
0.000	0.6875														
ArmBR1	L2.5x2.5x3/16	SAE	2.5X2.5X0.1875	33.0	29.15	Comp	0.00	g55X	0.000	22.961	10.470	10.547	0.000	6.403	1
1.000	0.6875														
ArmBR2	L1.75x1/4x1/4	BAR	1.75X0.25X0.25	33.0	77.57	Tens	77.57	g57Y	6.120NESC Hea	7.889	10.470	14.062	0.000	12.382	1
1.000	0.6875														
Powermnt	12" Std. Pipe	PIP	12.75X0.375	50.0	14.98	Comp	0.00	g71P	0.000	729.999	0.000	0.000	0.000	9.000	0
0.000	0														
fic1	Fictitious1	Bar	fic	36.0	0.00		0.00	g72P	0.000NESC Hea	3.600	0.000	0.000	0.000	18.000	0
0.000	0														
fic	Fictitious2	Bar	fic	36.0	0.00		0.00	g74P	0.072Extreme	3.600	0.000	0.000	0.000	0.500	0
0.000	0														
HBR5	L1.75x1.75x3/16	SAE	1.75X1.75X0.1875	33.0	10.29	Comp	0.00	g78Y	0.000	14.585	10.470	10.547	7.717	2.500	1
1.000	0.6875														

*** Maximum Stress Summary for Each Load Case

Summary of Maximum Usages by Load Case:

Load Case	Maximum Usage %	Element Label	Element Type
NESC Heavy - Transverse	90.00	g31Y	Angle
Extreme Wind - Transverse	93.36	g11X	Angle
NESC Heavy - Longitudinal	79.55	g32Y	Angle
Extreme Wind - Longitudinal	86.43	g11X	Angle

Summary of Insulator Usages:

Insulator Label	Insulator Type	Maximum Usage %	Load Case	Weight (lbs)
1	Clamp	8.78	NESC Heavy - Transverse	0.0
2	Clamp	5.57	NESC Heavy - Transverse	0.0
3	Clamp	10.73	NESC Heavy - Transverse	0.0
4	Clamp	10.65	NESC Heavy - Transverse	0.0
5	Clamp	10.79	NESC Heavy - Transverse	0.0
6	Clamp	10.74	NESC Heavy - Transverse	0.0
7	Clamp	10.67	NESC Heavy - Transverse	0.0
8	Clamp	10.62	NESC Heavy - Transverse	0.0
14	Clamp	3.56	Extreme Wind - Transverse	0.0
15	Clamp	3.86	NESC Heavy - Transverse	0.0
16	Clamp	4.20	Extreme Wind - Transverse	0.0
17	Clamp	1.88	Extreme Wind - Transverse	0.0
18	Clamp	1.65	Extreme Wind - Transverse	0.0
19	Clamp	4.50	Extreme Wind - Longitudinal	0.0
20	Clamp	1.18	Extreme Wind - Transverse	0.0
21	Clamp	1.59	Extreme Wind - Transverse	0.0
22	Clamp	1.18	Extreme Wind - Transverse	0.0
23	Clamp	1.18	Extreme Wind - Transverse	0.0
24	Clamp	1.04	Extreme Wind - Transverse	0.0

25	Clamp	11.11	Extreme Wind - Longitudinal	0.0
26	Clamp	2.88	NESC Heavy - Longitudinal	0.0
27	Clamp	3.55	NESC Heavy - Longitudinal	0.0
28	Clamp	4.64	NESC Heavy - Longitudinal	0.0
29	Clamp	8.95	NESC Heavy - Longitudinal	0.0
30	Clamp	15.05	NESC Heavy - Longitudinal	0.0
31	Clamp	6.35	NESC Heavy - Transverse	0.0
32	Clamp	4.11	Extreme Wind - Longitudinal	0.0
33	Clamp	5.01	Extreme Wind - Longitudinal	0.0
34	Clamp	6.60	Extreme Wind - Longitudinal	0.0
35	Clamp	7.19	Extreme Wind - Longitudinal	0.0
36	Clamp	6.33	Extreme Wind - Longitudinal	0.0
37	Clamp	1.72	Extreme Wind - Longitudinal	0.0
38	Clamp	2.06	Extreme Wind - Longitudinal	0.0
39	Clamp	3.65	Extreme Wind - Longitudinal	0.0
40	Clamp	3.45	Extreme Wind - Longitudinal	0.0
41	Clamp	3.17	Extreme Wind - Longitudinal	0.0
42	Clamp	1.72	Extreme Wind - Longitudinal	0.0

Loads At Insulator Attachments For All Load Cases:

Load Case	Insulator Label	Insulator Type	Structure Attach Label	Structure Attach Load X (kips)	Structure Attach Load Y (kips)	Structure Attach Load Z (kips)	Structure Attach Load Res. (kips)
NESC Heavy - Transverse	1	Clamp	2P	0.000	1.104	2.392	2.634
NESC Heavy - Transverse	2	Clamp	2X	0.000	0.821	1.455	1.670
NESC Heavy - Transverse	3	Clamp	4P	0.000	1.242	2.969	3.218
NESC Heavy - Transverse	4	Clamp	4X	0.000	1.179	2.969	3.194
NESC Heavy - Transverse	5	Clamp	8P	0.000	1.221	2.998	3.237
NESC Heavy - Transverse	6	Clamp	8X	0.000	1.179	2.998	3.221
NESC Heavy - Transverse	7	Clamp	11P	0.000	1.225	2.958	3.202
NESC Heavy - Transverse	8	Clamp	11X	0.000	1.179	2.958	3.185
NESC Heavy - Transverse	14	Clamp	16P	0.000	0.411	0.759	0.863
NESC Heavy - Transverse	15	Clamp	15P	0.000	0.531	1.030	1.159
NESC Heavy - Transverse	16	Clamp	14P	0.000	0.375	0.692	0.787
NESC Heavy - Transverse	17	Clamp	10P	0.000	0.237	0.487	0.541
NESC Heavy - Transverse	18	Clamp	7P	0.000	0.200	0.422	0.467
NESC Heavy - Transverse	19	Clamp	3X	0.000	0.076	0.750	0.754
NESC Heavy - Transverse	20	Clamp	1P	0.000	0.098	0.201	0.224
NESC Heavy - Transverse	21	Clamp	3P	0.000	0.204	0.382	0.433
NESC Heavy - Transverse	22	Clamp	1X	0.000	0.032	0.201	0.204
NESC Heavy - Transverse	23	Clamp	1XY	0.000	0.032	0.201	0.204
NESC Heavy - Transverse	24	Clamp	3XY	0.000	0.032	0.244	0.246
NESC Heavy - Transverse	25	Clamp	23P	0.000	0.774	2.781	2.887
NESC Heavy - Transverse	26	Clamp	24P	0.000	0.000	0.860	0.860
NESC Heavy - Transverse	27	Clamp	25P	0.000	0.204	1.037	1.057
NESC Heavy - Transverse	28	Clamp	26P	0.000	0.374	1.332	1.384
NESC Heavy - Transverse	29	Clamp	27P	0.000	0.714	2.573	2.670
NESC Heavy - Transverse	30	Clamp	28P	0.000	1.003	4.363	4.477
NESC Heavy - Transverse	31	Clamp	22P	0.000	0.390	1.864	1.904
NESC Heavy - Transverse	32	Clamp	7X	0.000	0.044	0.675	0.676
NESC Heavy - Transverse	33	Clamp	10X	0.000	0.054	0.798	0.799
NESC Heavy - Transverse	34	Clamp	14X	0.000	0.064	1.060	1.062
NESC Heavy - Transverse	35	Clamp	15X	0.000	0.074	1.456	1.458
NESC Heavy - Transverse	36	Clamp	16X	0.000	0.064	1.127	1.128
NESC Heavy - Transverse	37	Clamp	7Y	0.000	0.135	0.358	0.382
NESC Heavy - Transverse	38	Clamp	10Y	0.000	0.158	0.409	0.438

NESC Heavy - Transverse	39	Clamp	14Y	0.000	0.281	0.599	0.661
NESC Heavy - Transverse	40	Clamp	15Y	0.000	0.423	0.923	1.015
NESC Heavy - Transverse	41	Clamp	16Y	0.000	0.317	0.666	0.737
NESC Heavy - Transverse	42	Clamp	3Y	0.000	0.153	0.361	0.392
Extreme Wind - Transverse	1	Clamp	2P	0.000	1.219	0.875	1.501
Extreme Wind - Transverse	2	Clamp	2X	0.000	0.660	0.509	0.833
Extreme Wind - Transverse	3	Clamp	4P	0.000	1.472	1.119	1.849
Extreme Wind - Transverse	4	Clamp	4X	0.000	1.472	1.119	1.849
Extreme Wind - Transverse	5	Clamp	8P	0.000	1.472	1.119	1.849
Extreme Wind - Transverse	6	Clamp	8X	0.000	1.472	1.119	1.849
Extreme Wind - Transverse	7	Clamp	11P	0.000	1.472	1.119	1.849
Extreme Wind - Transverse	8	Clamp	11X	0.000	1.472	1.119	1.849
Extreme Wind - Transverse	14	Clamp	16P	0.000	0.989	0.404	1.069
Extreme Wind - Transverse	15	Clamp	15P	0.000	1.057	0.419	1.137
Extreme Wind - Transverse	16	Clamp	14P	0.000	1.157	0.499	1.260
Extreme Wind - Transverse	17	Clamp	10P	0.000	0.536	0.179	0.565
Extreme Wind - Transverse	18	Clamp	7P	0.000	0.468	0.164	0.496
Extreme Wind - Transverse	19	Clamp	3X	0.000	0.384	0.263	0.465
Extreme Wind - Transverse	20	Clamp	1P	0.000	0.293	0.197	0.353
Extreme Wind - Transverse	21	Clamp	3P	0.000	0.447	0.163	0.476
Extreme Wind - Transverse	22	Clamp	1X	0.000	0.293	0.197	0.353
Extreme Wind - Transverse	23	Clamp	1XY	0.000	0.293	0.197	0.353
Extreme Wind - Transverse	24	Clamp	3XY	0.000	0.284	0.126	0.311
Extreme Wind - Transverse	25	Clamp	23P	0.000	2.989	0.952	3.137
Extreme Wind - Transverse	26	Clamp	24P	0.000	0.177	0.265	0.319
Extreme Wind - Transverse	27	Clamp	25P	0.000	0.168	0.215	0.273
Extreme Wind - Transverse	28	Clamp	26P	0.000	0.168	0.251	0.302
Extreme Wind - Transverse	29	Clamp	27P	0.000	0.721	0.696	1.002
Extreme Wind - Transverse	30	Clamp	28P	0.000	0.553	0.913	1.068
Extreme Wind - Transverse	31	Clamp	22P	0.000	1.493	0.792	1.690
Extreme Wind - Transverse	32	Clamp	7X	0.000	0.268	0.232	0.354
Extreme Wind - Transverse	33	Clamp	10X	0.000	0.291	0.263	0.392
Extreme Wind - Transverse	34	Clamp	14X	0.000	0.866	0.599	1.053
Extreme Wind - Transverse	35	Clamp	15X	0.000	0.721	0.535	0.898
Extreme Wind - Transverse	36	Clamp	16X	0.000	0.698	0.504	0.861
Extreme Wind - Transverse	37	Clamp	7Y	0.000	0.246	0.139	0.282
Extreme Wind - Transverse	38	Clamp	10Y	0.000	0.264	0.148	0.303
Extreme Wind - Transverse	39	Clamp	14Y	0.000	0.835	0.462	0.955
Extreme Wind - Transverse	40	Clamp	15Y	0.000	0.685	0.377	0.782
Extreme Wind - Transverse	41	Clamp	16Y	0.000	0.667	0.367	0.762
Extreme Wind - Transverse	42	Clamp	3Y	0.000	0.246	0.139	0.282
NESC Heavy - Longitudinal	1	Clamp	2P	0.000	0.037	2.392	2.392
NESC Heavy - Longitudinal	2	Clamp	2X	0.000	0.000	1.455	1.455
NESC Heavy - Longitudinal	3	Clamp	4P	0.000	0.063	2.969	2.970
NESC Heavy - Longitudinal	4	Clamp	4X	0.000	0.000	2.969	2.969
NESC Heavy - Longitudinal	5	Clamp	8P	0.000	0.042	2.998	2.998
NESC Heavy - Longitudinal	6	Clamp	8X	0.000	0.000	2.998	2.998
NESC Heavy - Longitudinal	7	Clamp	11P	0.000	0.046	2.958	2.959
NESC Heavy - Longitudinal	8	Clamp	11X	0.000	0.000	2.958	2.958
NESC Heavy - Longitudinal	14	Clamp	16P	0.148	0.263	0.759	0.817
NESC Heavy - Longitudinal	15	Clamp	15P	0.171	0.360	1.030	1.104
NESC Heavy - Longitudinal	16	Clamp	14P	0.148	0.227	0.692	0.743
NESC Heavy - Longitudinal	17	Clamp	10P	0.125	0.112	0.487	0.515
NESC Heavy - Longitudinal	18	Clamp	7P	0.102	0.098	0.422	0.445
NESC Heavy - Longitudinal	19	Clamp	3X	0.395	0.000	0.750	0.847
NESC Heavy - Longitudinal	20	Clamp	1P	0.032	0.066	0.201	0.214
NESC Heavy - Longitudinal	21	Clamp	3P	0.088	0.116	0.382	0.409
NESC Heavy - Longitudinal	22	Clamp	1X	0.032	0.000	0.201	0.204
NESC Heavy - Longitudinal	23	Clamp	1XY	0.032	0.000	0.201	0.204
NESC Heavy - Longitudinal	24	Clamp	3XY	0.032	0.000	0.244	0.246

NESC Heavy - Longitudinal	25	Clamp	23P	0.843	0.000	2.781	2.906
NESC Heavy - Longitudinal	26	Clamp	24P	0.096	0.000	0.860	0.865
NESC Heavy - Longitudinal	27	Clamp	25P	0.117	0.204	1.037	1.064
NESC Heavy - Longitudinal	28	Clamp	26P	0.151	0.374	1.332	1.392
NESC Heavy - Longitudinal	29	Clamp	27P	0.288	0.714	2.573	2.686
NESC Heavy - Longitudinal	30	Clamp	28P	0.591	1.003	4.363	4.516
NESC Heavy - Longitudinal	31	Clamp	22P	0.390	0.000	1.864	1.904
NESC Heavy - Longitudinal	32	Clamp	7X	0.363	0.000	0.675	0.766
NESC Heavy - Longitudinal	33	Clamp	10X	0.446	0.000	0.798	0.914
NESC Heavy - Longitudinal	34	Clamp	14X	0.528	0.000	1.060	1.184
NESC Heavy - Longitudinal	35	Clamp	15X	0.611	0.000	1.456	1.579
NESC Heavy - Longitudinal	36	Clamp	16X	0.528	0.000	1.127	1.244
NESC Heavy - Longitudinal	37	Clamp	7Y	0.151	0.098	0.358	0.401
NESC Heavy - Longitudinal	38	Clamp	10Y	0.185	0.112	0.409	0.462
NESC Heavy - Longitudinal	39	Clamp	14Y	0.220	0.227	0.599	0.677
NESC Heavy - Longitudinal	40	Clamp	15Y	0.254	0.360	0.923	1.023
NESC Heavy - Longitudinal	41	Clamp	16Y	0.220	0.263	0.666	0.749
NESC Heavy - Longitudinal	42	Clamp	3Y	0.151	0.116	0.361	0.408
Extreme Wind - Longitudinal	1	Clamp	2P	0.000	0.177	0.875	0.893
Extreme Wind - Longitudinal	2	Clamp	2X	0.000	0.177	0.509	0.539
Extreme Wind - Longitudinal	3	Clamp	4P	0.000	0.168	1.119	1.131
Extreme Wind - Longitudinal	4	Clamp	4X	0.000	0.168	1.119	1.131
Extreme Wind - Longitudinal	5	Clamp	8P	0.000	0.168	1.119	1.131
Extreme Wind - Longitudinal	6	Clamp	8X	0.000	0.168	1.119	1.131
Extreme Wind - Longitudinal	7	Clamp	11P	0.000	0.168	1.119	1.131
Extreme Wind - Longitudinal	8	Clamp	11X	0.000	0.168	1.119	1.131
Extreme Wind - Longitudinal	14	Clamp	16P	0.436	0.553	0.404	0.812
Extreme Wind - Longitudinal	15	Clamp	15P	0.504	0.553	0.419	0.858
Extreme Wind - Longitudinal	16	Clamp	14P	0.436	0.721	0.499	0.980
Extreme Wind - Longitudinal	17	Clamp	10P	0.368	0.168	0.179	0.442
Extreme Wind - Longitudinal	18	Clamp	7P	0.300	0.168	0.164	0.381
Extreme Wind - Longitudinal	19	Clamp	3X	1.315	0.168	0.263	1.351
Extreme Wind - Longitudinal	20	Clamp	1P	0.116	0.177	0.197	0.289
Extreme Wind - Longitudinal	21	Clamp	3P	0.279	0.168	0.163	0.364
Extreme Wind - Longitudinal	22	Clamp	1X	0.116	0.177	0.197	0.289
Extreme Wind - Longitudinal	23	Clamp	1XY	0.116	0.177	0.197	0.289
Extreme Wind - Longitudinal	24	Clamp	3XY	0.116	0.168	0.126	0.240
Extreme Wind - Longitudinal	25	Clamp	23P	3.193	0.009	0.952	3.332
Extreme Wind - Longitudinal	26	Clamp	24P	0.299	0.177	0.265	0.437
Extreme Wind - Longitudinal	27	Clamp	25P	0.363	0.168	0.215	0.454
Extreme Wind - Longitudinal	28	Clamp	26P	0.469	0.168	0.251	0.558
Extreme Wind - Longitudinal	29	Clamp	27P	0.896	0.721	0.696	1.345
Extreme Wind - Longitudinal	30	Clamp	28P	1.834	0.553	0.913	2.122
Extreme Wind - Longitudinal	31	Clamp	22P	1.484	0.009	0.792	1.682
Extreme Wind - Longitudinal	32	Clamp	7X	1.199	0.168	0.232	1.233
Extreme Wind - Longitudinal	33	Clamp	10X	1.471	0.168	0.263	1.504
Extreme Wind - Longitudinal	34	Clamp	14X	1.744	0.721	0.599	1.980
Extreme Wind - Longitudinal	35	Clamp	15X	2.016	0.553	0.535	2.158
Extreme Wind - Longitudinal	36	Clamp	16X	1.744	0.553	0.504	1.898
Extreme Wind - Longitudinal	37	Clamp	7Y	0.469	0.168	0.139	0.517
Extreme Wind - Longitudinal	38	Clamp	10Y	0.576	0.168	0.148	0.618
Extreme Wind - Longitudinal	39	Clamp	14Y	0.682	0.721	0.462	1.095
Extreme Wind - Longitudinal	40	Clamp	15Y	0.789	0.553	0.377	1.035
Extreme Wind - Longitudinal	41	Clamp	16Y	0.682	0.553	0.367	0.952
Extreme Wind - Longitudinal	42	Clamp	3Y	0.469	0.168	0.139	0.517

Overturning Moments For User Input Concentrated Loads:

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

Load Case	Total Tran. Load (kips)	Total Long. Load (kips)	Total Vert. Load (kips)	Transverse Overturning Moment (ft-k)	Longitudinal Overturning Moment (ft-k)	Torsional Moment (ft-k)
NESC Heavy - Transverse	11.703	0.000	36.286	833.409	23.641	4.534
Extreme Wind - Transverse	18.109	0.000	12.183	1317.284	6.800	13.524
NESC Heavy - Longitudinal	0.000	7.438	36.286	-9.587	424.333	-4.834
Extreme Wind - Longitudinal	0.000	24.481	12.183	-3.752	1361.461	-18.712

*** Weight of structure (lbs):
Weight of Angles*Section DLF: 13519.3
Total: 13519.3

*** End of Report

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

Subject:	Foundation Analysis Tower # 876
Location:	Fairfield, CT
Rev. 1: 2/14/17	Prepared by: T.J.L. Checked by: C.F.C. Job No. 16162.09

Foundation Analysis

Input Data:

Max. Reactions at Tower Leg:

Shear =	Shear := 14.1·1.1·kips = 15.5·kips	(User Input)
Compression =	Comp := 57.2·1.1·kips = 62.9·kips	(User Input)
Uplift =	Uplift := 50.6·1.1·kips = 55.7·kips	(User Input)

Tower Properties:

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

Foundation Properties:

Pier Height =	$P_H := 3.75 \cdot ft$	(User Input)
Pier Width Top =	$P_{w1} := 1.67 \cdot ft$	(User Input)
Pier Width Botttom =	$P_{w2} := 2.14 \cdot ft$	(User Input)
Pier Projection Above Grade =	$P_P := 2.75 \cdot ft$	(User Input)
Pad Width =	$Pd_w := 10 \cdot ft$	(User Input)
Pad Thickness =	$Pd_t := 3.5 \cdot ft$	(User Input)
Mat Width =	$Mat_w := 0 \cdot ft$	(User Input)
Mat Thickness =	$Mat_t := 0 \cdot ft$	(User Input)

Subgrade Properties:

Concrete Unit Weight =	$\gamma c := 150 \cdot pcf$	(User Input)
Water Unit Weight =	$\gamma w := 62.4 \cdot pcf$	(User Input)
Soil Unit Weight =	$\gamma s := 100 \cdot pcf$	(User Input)
Uplift Angle =	$\psi := 30.0 \cdot deg$	(User Input)
Soil Bearing Capacity =	$BC_{soil} := 4000 \cdot psf$	(User Input)

Calculated Data:

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

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

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

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

Volume of Soil = $V_{soil} := \left[\frac{(P_H - P_P)}{3} \cdot \left(B_1 + B_2 + \sqrt{B_1 \cdot B_2}\right)\right] - V_{pier} = 98.31 \cdot ft^3$

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

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

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

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

<u>Check Uplift:</u>

Required Factor of Safety = $F_S := 1.0$

$ActualFS := \frac{Mass_{tot}}{Uplift} = 1.16$

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

Uplift_Check = "OK"

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

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

<u>Check Bearing:</u>

$Bearing := \frac{Comp + Mass_{Conc}}{A_{pad}} + \frac{Shear \cdot (P_H + Pd_t)}{S_{pad}} = 1.85 \cdot ksf$

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

Bearing_Check = "OK"

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Subject:	Foundation Analysis Tower # 876
Location:	Fairfield, CT
Rev. 1: 2/14/17	Prepared by: T.J.L. Checked by: C.F.C. Job No. 16162.09

Foundation Analysis

Input Data:

Max. Reactions at Tower Leg:

Shear =	Shear := 27.0·1.1·kips = 29.7·kips	(User Input)	Combined Reactions from Two Adjacents Legs
Compression =	Comp := 111.62·1.1·kips = 122.8·kips	(User Input)	
Uplift =	Uplift := 92.58·1.1·kips = 101.8·kips	(User Input)	

Tower Properties:

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

Foundation Properties:

Pier Height =	$P_H := 2.25 \cdot ft$	(User Input)
Pier Width Top =	$P_{w1} := 2.0 \cdot ft$	(User Input)
Pier Width Botttom =	$P_{w2} := 2.33 \cdot ft$	(User Input)
Pier Projection Above Grade =	$P_P := 0 \cdot ft$	(User Input)
Pad Width =	$Pd_w := 5 \cdot ft$	(User Input)
Pad Thickness =	$Pd_t := 2 \cdot ft$	(User Input)
Mat Width =	$Mat_w := 10 \cdot ft$	(User Input)
Mat Width =	$Mat_L := 24 \cdot ft$	(User Input)
Mat Thickness =	$Mat_t := 3 \cdot ft$	(User Input)

Subgrade Properties:

Concrete Unit Weight =	$\gamma c := 150 \cdot pcf$	(User Input)
Water Unit Weight =	$\gamma w := 62.4 \cdot pcf$	(User Input)
Soil Unit Weight =	$\gamma s := 100 \cdot pcf$	(User Input)
Uplift Angle =	$\psi := 30.0 \cdot deg$	(User Input)
Soil Bearing Capacity =	$BC_{soil} := 9000 \cdot psf$	(User Input)
Coefficient of Friction =	$\mu := 0.45$	(User Input)

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Subject:	Foundation Analysis Tower # 876
Location:	Fairfield, CT
Rev. 1: 2/14/17	Prepared by: T.J.L. Checked by: C.F.C. Job No. 16162.09

Calculated Data:

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

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

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

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

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

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

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

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

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

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

Check Uplift:

Required Factor of Safety = $F_S := 1.0$

$ActualFS := \frac{Mass_{tot}}{Uplift} = 1.4$

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

Uplift_Check = "OK"

Check Sliding:

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

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

Sliding_Check = "OK"

Check Bearing:

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

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

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

$$Bearing := \frac{Comp + Mass_{pad.pier}}{A_{pad}\cdot 2} + \frac{Shear\cdot(P_H + Pd_t)}{S_{pad}\cdot 2} = 5.85\cdot ksf$$

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

Bearing_Check = "OK"

RAN Template: 704Bu Outdoor	A&L Template: 1HP_704Bu

CT11317B_1.1_L700

Section 1 - Site Information

Site ID: CT11317B
Status: Draft
Version: 1.1
Project Type: L700
Approved: Not Approved
Approved By: Not Approved
Last Modified: 12/1/2016 6:55:33 AM
Last Modified By: GSM1900\MSEDDIK

Site Name: Fairfield/MP/X44&X42
Site Class: Utility Lattice Tower
Site Type: Structure Non Building
Solution Type:
Plan Year:
Market: CONNECTICUT
Vendor: Ericsson
Landlord: CL&P

Latitude: 41.20998700
Longitude: -73.26153900
Address: 280 Morehouse Drive (Tower 876 Line 1730)
City, State: Fairfield, CT
Region: NORTHEAST

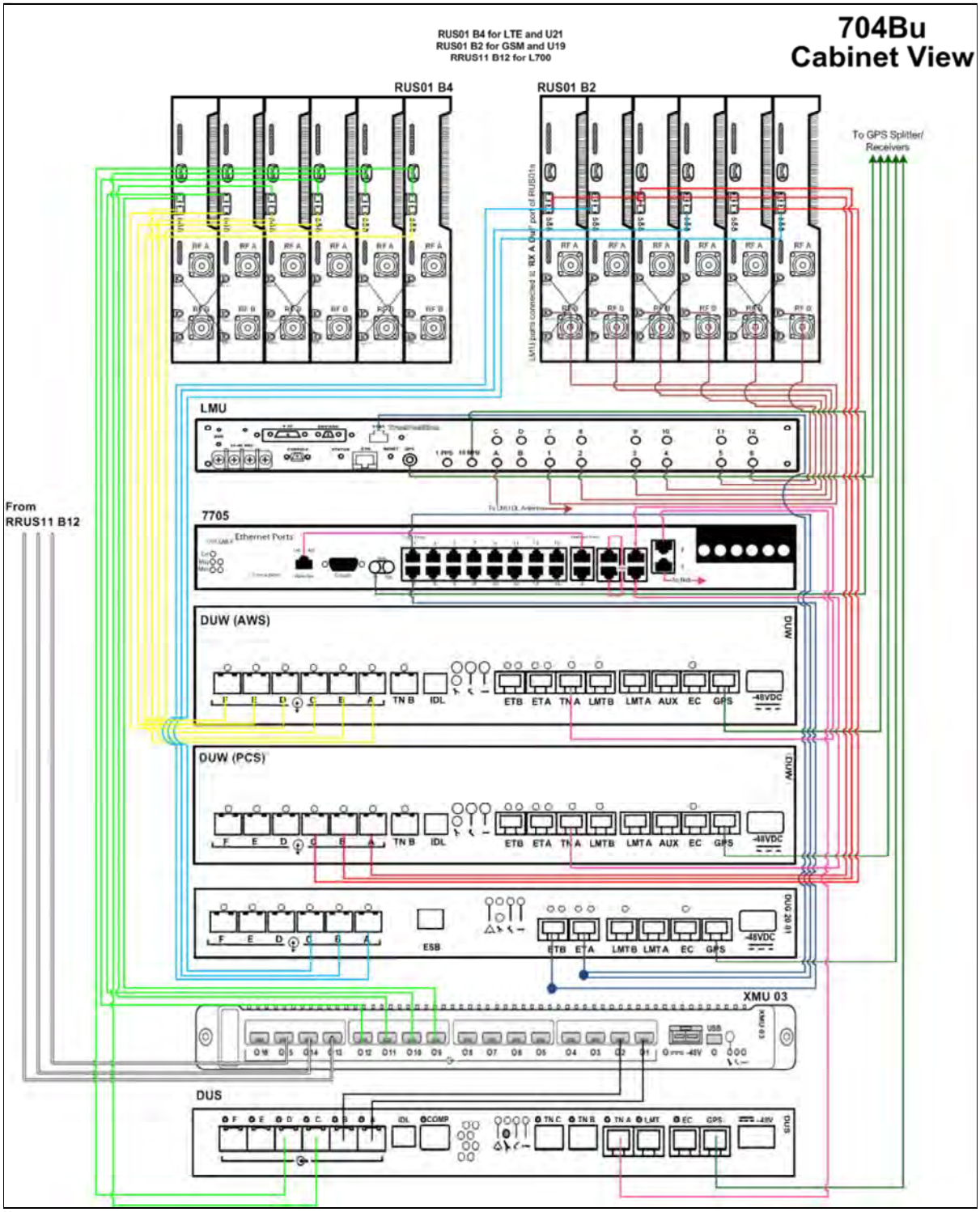
RAN Template: 704Bu Outdoor			AL Template: 1HP_704Bu	
Sector Count: 3	Antenna Count: 6	Coax Line Count: 18	TMA Count: 6	RRU Count: 0

Section 2 - Existing Template Images

— This section is intentionally blank. —

Section 3 - Proposed Template Images

704Bu.png



Notes:

Section 4 - Siteplan Images

— This section is intentionally blank. —

RAN Template: 704Bu Outdoor	A&L Template: 1HP_704Bu

CT11317B_1.1_L700

Section 5 - RAN Equipment

Existing RAN Equipment	
Template: 4B	
Enclosure	1
Enclosure Type	RBS 6102
Baseband	DUW30 (x2) DUG20 DUL20
Radio	RUS01 B4 (x6) RUS01 B2 (x6)

Proposed RAN Equipment		
Template: 704Bu Outdoor		
Enclosure	1	2
Enclosure Type	RBS 6102	Ground Mount
Baseband	DUG20 G1900 / DUW30 U1900 / DUW30 U2100 / DUS41 L2100 L700	
Multiplexer	XMU L2100 L700	
Radio	RUS01 B2 (x3) G1900 / RUS01 B2 (x3) U1900 / RUS01 B4 (x6) U2100 L2100	RRUS11 B12 (x3) L700

RAN Scope of Work:

RAN Template: 704Bu Outdoor	A&L Template: 1HP_704Bu

CT11317B_1.1_L700

Section 6 - A&L Equipment

Existing Template: 4B
Proposed Template: 1HP_704Bu

Sector 1 (Existing) view from behind

Coverage Type	A - Outdoor Macro					
Antenna	1		2	3	4	
Antenna Model	APX16DWV-16DWV-S-E-A20 (Quad)		Empty Antenna Mount (Empty mount)	Empty Antenna Mount (Empty mount)	APX16DWV-16DWV-S-E-A20 (Quad)	
Azimuth	60				60	
M. Tilt	0				0	
Height	95				95	
Ports	P1	P2			P3	P4
Active Tech.	U1900 G1900				U2100 L2100	
Dark Tech.						
Restricted Tech.						
Decomm. Tech.						
E. Tilt	2				2	
Cables	1-1/4" Coax - 12 5 ft. 1-1/4" Coax - 12 5 ft. 1-1/4" Coax - 12 5 ft. 1-1/4" Coax - 12 5 ft.				1-1/4" Coax - 12 5 ft. 1-1/4" Coax - 12 5 ft. 1-1/4" Coax - 12 5 ft. 1-1/4" Coax - 12 5 ft.	
TMAs	Generic Style 1A - Twin PCS				Generic Style 1B - Twin AWS	
Diplexers / Combiners						
Radio						
Sector Equipment						

Unconnected Equipment:

Scope of Work:

RAN Template: 704Bu Outdoor	A&L Template: 1HP_704Bu

CT11317B_1.1_L700

Sector 1 (Proposed) view from behind			
Coverage Type	A - Outdoor Macro		
Antenna	1		2
Antenna Model	APX16DWV-16DWV-S-E-A20 (Quad)		LNX-6515DS-A1M (Dual)
Azimuth	60		60
M. Tilt	0		0
Height	95		95
Ports	P1	P2	P3
Active Tech.	U1900 G1900	U2100 L2100	L700
Dark Tech.			
Restricted Tech.			
Decomm. Tech.			
E. Tilt	2		2
Cables	1-1/4" Coax - 125 ft. 1-1/4" Coax - 125 ft.	1-1/4" Coax 1-1/4" Coax	7/8" Coax 7/8" Coax
TMAs	Generic Style 1A - Twin PCS	Generic Style 1B - Twin AWS	
Diplexers / Combiners			
Radio			
Sector Equipment			Andrew Smart Bias T

Unconnected Equipment:

Scope of Work:

Ground TMA's

RAN Template: 704Bu Outdoor	A&L Template: 1HP_704Bu

CT11317B_1.1_L700

Sector 2 (Existing) view from behind						
Coverage Type	A - Outdoor Macro					
Antenna	1		2	3	4	
Antenna Model	APX16DWV-16DWV-S-E-A20 (Quad)		Empty Antenna Mount (Empty mount)	Empty Antenna Mount (Empty mount)	APX16DWV-16DWV-S-E-A20 (Quad)	
Azimuth	180				180	
M. Tilt	0				0	
Height	95				95	
Ports	P1	P2			P3	P4
Active Tech.	U1900 G1900				U2100 L2100	
Dark Tech.						
Restricted Tech.						
Decomm. Tech.						
E. Tilt	2				2	
Cables	1-1/4" Coax - 12 5 ft. 1-1/4" Coax - 12 5 ft. 1-1/4" Coax - 12 5 ft. 1-1/4" Coax - 12 5 ft.				1-1/4" Coax - 12 5 ft. 1-1/4" Coax - 12 5 ft. 1-1/4" Coax - 12 5 ft. 1-1/4" Coax - 12 5 ft.	
TMAs	Generic Style 1A - Twin PCS				Generic Style 1B - Twin AWS	
Diplexers / Combiners						
Radio						
Sector Equipment						

Unconnected Equipment:

Scope of Work:

RAN Template: 704Bu Outdoor	A&L Template: 1HP_704Bu

CT11317B_1.1_L700

Sector 2 (Proposed) view from behind			
Coverage Type	A - Outdoor Macro		
Antenna	1		2
Antenna Model	APX16DWV-16DWV-S-E-A20 (Quad)		LNX-6515DS-A1M (Dual)
Azimuth	180		180
M. Tilt	0		0
Height	95		95
Ports	P1	P2	P3
Active Tech.	U1900 G1900	U2100 L2100	L700
Dark Tech.			
Restricted Tech.			
Decomm. Tech.			
E. Tilt	2		2
Cables	1-1/4" Coax - 125 ft. 1-1/4" Coax - 125 ft.	1-1/4" Coax 1-1/4" Coax	7/8" Coax 7/8" Coax
TMAs	Generic Style 1A - Twin PCS	Generic Style 1B - Twin AWS	
Diplexers / Combiners			
Radio			
Sector Equipment			Andrew Smart Bias T

Unconnected Equipment:

Scope of Work:

RAN Template: 704Bu Outdoor	A&L Template: 1HP_704Bu

CT11317B_1.1_L700

Sector 3 (Existing) view from behind						
Coverage Type	A - Outdoor Macro					
Antenna	1		2	3	4	
Antenna Model	APX16DWV-16DWV-S-E-A20 (Quad)		Empty Antenna Mount (Empty mount)	Empty Antenna Mount (Empty mount)	APX16DWV-16DWV-S-E-A20 (Quad)	
Azimuth	300				300	
M. Tilt	0				0	
Height	95				95	
Ports	P1	P2			P3	P4
Active Tech.	U1900 G1900				U2100 L2100	
Dark Tech.						
Restricted Tech.						
Decomm. Tech.						
E. Tilt	2				2	
Cables	1-1/4" Coax - 12 5 ft. 1-1/4" Coax - 12 5 ft. 1-1/4" Coax - 12 5 ft. 1-1/4" Coax - 12 5 ft.				1-1/4" Coax - 12 5 ft. 1-1/4" Coax - 12 5 ft. 1-1/4" Coax - 12 5 ft. 1-1/4" Coax - 12 5 ft.	
TMAs	Generic Style 1A - Twin PCS				Generic Style 1B - Twin AWS	
Diplexers / Combiners						
Radio						
Sector Equipment						

Unconnected Equipment:

Scope of Work:

RAN Template: 704Bu Outdoor	A&L Template: 1HP_704Bu

CT11317B_1.1_L700

Sector 3 (Proposed) view from behind			
Coverage Type	A - Outdoor Macro		
Antenna	1		2
Antenna Model	APX16DWV-16DWV-S-E-A20 (Quad)		LNX-6515DS-A1M (Dual)
Azimuth	300		300
M. Tilt	0		0
Height	95		95
Ports	P1	P2	P3
Active Tech.	U1900 G1900	U2100 L2100	L700
Dark Tech.			
Restricted Tech.			
Decomm. Tech.			
E. Tilt	2		2
Cables	1-1/4" Coax - 125 ft. 1-1/4" Coax - 125 ft.	1-1/4" Coax 1-1/4" Coax	7/8" Coax 7/8" Coax
TMAs	Generic Style 1A - Twin PCS	Generic Style 1B - Twin AWS	
Diplexers / Combiners			
Radio			
Sector Equipment			Andrew Smart Bias T

Unconnected Equipment:

Scope of Work:

Product Data Sheet **APX16DWV-16DWVS-E-A20**

Optimizer® Side-by-Side Dual Polarized Antenna, 1710-2200, 65deg, 18.4dBi, 1.4m, VET, 0-10deg RET

Product Description

A combination of two X-Polarized antennas in a single radome, this pair of variable tilt antennas provides exceptional suppression of all upper sidelobes at all downtilt angles. It also features a wide downtilt range. This antenna is optimized for performance across the entire frequency band (1710-2200 MHz). The antenna comes pre-connected with two antenna control units (ACU).

Features/Benefits

- **Variable electrical downtilt - provides enhanced precision in controlling intercell interference. The tilt is infield adjustable 0-10 deg.**
- **High Suppression of all Upper Sidelobes (Typically <-20dB).**
- **Gain tracking – difference between AWS UL (1710-1755 MHz) and DL (2110-2155 MHz) <1dB.**
- **Two X-Polarised panels in a single radome.**
- **Azimuth horizontal beamwidth difference <4deg between AWS UL (1710-1755 MHz) and DL (2110-2155 MHz).**
- **Low profile for low visual impact.**
- **Dual polarization; Broadband design.**
- **Includes (2) AISG 2.0 Compatible ACU-A20-N antenna control units.**

Technical Specifications

Electrical Specifications

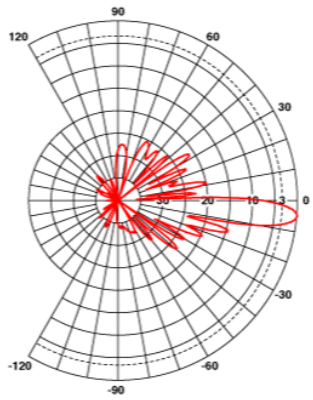
Frequency Range, MHz	1710-2200
Horizontal Beamwidth, deg	65
Vertical Beamwidth, deg	5.9 to 7.7
Electrical Downtilt, deg	0-10
Gain, dBi (dBd)	18.4 (16.3)
1st Upper Sidelobe Suppression, dB	> 18 (typically > 20)
Upper Sidelobe Suppression, dB	> 18 all (typically > 20)
Front-To-Back Ratio, dB	>26 (typically 28)
Polarization	Dual pol +/-45°
VSWR	< 1.5:1
Isolation between Ports, dB	> 30
3rd Order IMP @ 2 x 43 dBm, dBc	> 150 (155 Typical)
Impedance, Ohms	50
Maximum Power Input, W	300
Lightning Protection	Direct Ground
Connector Type	(4) 7-16 Long Neck Female

Mechanical Specifications

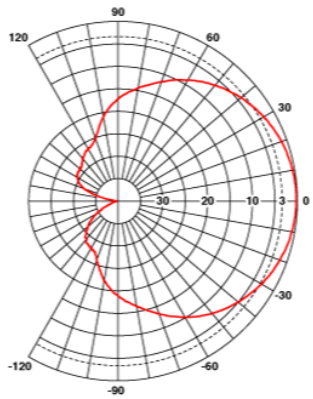
Dimensions - HxWxD, mm (in)	1420 x 331 x 80 (55.9 x 13 x 3.15)
Weight w/o Mtg Hardware, kg (lb)	18.5 (40.7)
Survival Wind Speed, km/h (mph)	200 (125)
Rated Wind Speed, km/h (mph)	160 (100)
Max Wind Loading Area, m² (ft²)	0.47 (5.03)
Front Thrust @ Rated Wind, N (lbf)	756 (170)
Maximum Thrust @ Rated Wind, N (lbf)	756 (170)
Wind Load - Side @ Rated Wind, N (lbf)	231 (52)
Wind Load - Rear @ Rated Wind, N (lbf)	408 (92)
Radome Material	Fiberglass
Radome Color	Light Grey RAL7035
Mounting Hardware Material	Diecasted Aluminum
Shipping Weight, kg (lb)	24.5 (53.9)
Packing Dimensions, HxWxD, mm (in)	1520 x 408 x 198 (59.8 x 16 x 7.8)

Ordering Information

Mounting Hardware	APM40-2 + APM40-E2

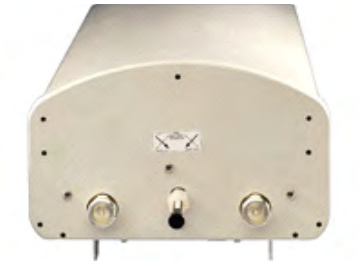


Vertical Pattern



Horizontal Pattern

Product Specifications



LNX-6515DS-VTM

Andrew® Antenna, 698–896 MHz, 65° horizontal beamwidth, RET compatible

- Excellent choice to maximize both coverage and capacity in suburban and rural applications
- Fully compatible with Andrew remote electrical tilt system for greater OpEx savings
- Exceptional horizontal pattern roll-off and strong front-to-back ratio
- Extended bandwidth allows one antenna to serve multiple frequency allocations
- Great solution to maximize network coverage and capacity
- The RF connectors are designed for IP67 rating and the radome for IP56 rating
- The values presented on this datasheet have been calculated based on N-P-BASTA White Paper version 9.6 by the NGMN Alliance

Electrical Specifications

Frequency Band, MHz	**698–806**	**806–896**
Gain by all Beam Tilts, average, dBi	16.6	16.9
Gain by all Beam Tilts Tolerance, dB	±0.4	±0.3
Gain by Beam Tilt, average, dBi	0 ° | 16.6 4 ° | 16.6 8 ° | 16.4	0 ° | 17.0 4 ° | 17.0 8 ° | 16.8
Beamwidth, Horizontal, degrees	65	64
Beamwidth, Horizontal Tolerance, degrees	±1	±0.9
Beamwidth, Vertical, degrees	9.7	8.6
Beamwidth, Vertical Tolerance, degrees	±0.6	±0.4
Beam Tilt, degrees	0–8	0–8
USLS, dB	18	18
Front-to-Back Total Power at 180° ± 30°, dB	25	23
CPR at Boresight, dB	24	27
CPR at Sector, dB	15	13
Isolation, dB	30	30
VSWR | Return Loss, dB	1.4 | 15.6	1.4 | 15.6
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153
Input Power per Port, maximum, watts	400	400
Polarization	±45°	±45°
Impedance	50 ohm	50 ohm

General Specifications

Antenna Brand	Andrew®
Antenna Type	DualPol®
Band	Single band
Brand	DualPol® | Teletilt®
Operating Frequency Band	698 – 896 MHz

Mechanical Specifications

Color	Light gray
Lightning Protection	dc Ground
Radiator Material	Aluminum
Radome Material	Fiberglass, UV resistant

Product Specifications

LNX-6515DS-VTM

RF Connector Interface	7-16 DIN Female
RF Connector Location	Bottom
RF Connector Quantity, total	2
Wind Loading, maximum	878.0 N @ 150 km/h 197.4 lbf @ 150 km/h
Wind Speed, maximum	241.0 km/h | 149.8 mph

Dimensions

Depth	181.0 mm | 7.1 in
Length	2449.0 mm | 96.4 in
Width	301.0 mm | 11.9 in
Net Weight	19.8 kg | 43.7 lb

Remote Electrical Tilt (RET) Information

Model with Factory Installed AISG 1.1 Actuator	LNX-6515DS-R2M
Model with Factory Installed AISG 2.0 Actuator	LNX-6515DS-A1M
RET System	Teletilt®

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	Designed, manufactured and/or distributed under this quality management system

Included Products

DB380-3 — Pipe Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Used for wide panel antennas. Includes three clamp sets.

DB5083D — Downtilt Mounting Kit for 2.4"-4.5" (60-115 mm) OD round members. Consists of two DB5083 heavy-duty, galvanized steel downtilt mounting brackets. This kit is compatible with the DB380-3 pipe mount for panel antennas with three mounting points.

Exhibit E

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

T-Mobile Existing Facility

Site ID: CT11317B

Fairfield/MP/X44&X42
280 Morehouse Drive
Fairfield, CT 06825

February 11, 2017

EBI Project Number: 6217000479

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	9.50 %

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

EBI Consulting
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February 11, 2017

T-Mobile USA
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 06002

Emissions Analysis for Site: **CT11317B – Fairfield/MP/X44&X42**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **280 Morehouse Drive, Fairfield, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limit for the 700 MHz Band is approximately 467 $\mu W/cm^2$, and the general population exposure limit for the 1900 MHz (PCS) and 2100 MHz (AWS) bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at **280 Morehouse Drive, Fairfield, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

1) 2 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 2 UMTS channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

3) 2 UMTS channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

4) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel

5) 1 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. This channel has a transmit power of 30 Watts.

6) Since all radios are ground mounted there are additional cabling losses accounted for. For each ground mounted RF path the following losses were calculated. 1.19 dB of additional cable loss for all ground mounted 700 MHz Channels, 1.53 dB of additional cable loss for all ground mounted 1900 MHz channels and 1.61 dB of additional cable loss for all ground mounted 2100 MHz channels were factored into the calculations used for this analysis. This is based on manufacturers Specifications for 125 feet of 1-1/4" coax cable on each 1900 MHz & 2100 MHz RF path and 125 feet of 7/8" coax cable on each 700 MHz RF path.

7) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

8) For the following calculations the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

9) The antennas used in this modeling are the **RFS APX16DWV-16DWVS-E-A20** for 1900 MHz (PCS) and 2100 MHz (AWS) channels and the **Commscope LNX-6515DS-A1M** for 700 MHz channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **RFS APX16DWV-16DWVS-E-A20** has a maximum gain of **16.3 dBd** at its main lobe at 1900 MHz and 2100 MHz. The **Commscope LNX-6515DS-A1M** has a maximum gain of **14.6 dBd** at its main lobe at 700 MHz. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

10) The antenna mounting height centerline of the proposed antennas is **95 feet** above ground level (AGL).

11) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

12) All calculations were done with respect to uncontrolled / general public threshold limits.

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T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	RFS APX16DWV-16DWVS-E-A20	Make / Model:	RFS APX16DWV-16DWVS-E-A20	Make / Model:	RFS APX16DWV-16DWVS-E-A20
Gain:	16.3 dBd	Gain:	16.3 dBd	Gain:	16.3 dBd
Height (AGL):	95	Height (AGL):	95	Height (AGL):	95
Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)
Channel Count	8	Channel Count	8	Channel Count	8
Total TX Power(W):	300	Total TX Power(W):	300	Total TX Power(W):	300
ERP (W):	8,898.95	ERP (W):	8,898.95	ERP (W):	8,898.95
Antenna A1 MPE%	4.04	Antenna B1 MPE%	4.04	Antenna C1 MPE%	4.04
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Commscope LNX-6515DS-A1M	Make / Model:	Commscope LNX-6515DS-A1M	Make / Model:	Commscope LNX-6515DS-A1M
Gain:	14.6 dBd	Gain:	14.6 dBd	Gain:	14.6 dBd
Height (AGL):	95	Height (AGL):	95	Height (AGL):	95
Frequency Bands	700 MHz	Frequency Bands	700 MHz	Frequency Bands	700 MHz
Channel Count	1	Channel Count	1	Channel Count	1
Total TX Power(W):	30	Total TX Power(W):	30	Total TX Power(W):	30
ERP (W):	657.84	ERP (W):	657.84	ERP (W):	657.84
Antenna A2 MPE%	0.64	Antenna B2 MPE%	0.64	Antenna C2 MPE%	0.64

Site Composite MPE%	
Carrier	**MPE%**
T-Mobile (Per Sector Max)	**4.68 %**
Sprint	1.30 %
AT&T	3.52 %
Site Total MPE %:	**9.50 %**

T-Mobile Sector A Total:	4.68 %
T-Mobile Sector B Total:	4.68 %
T-Mobile Sector C Total:	4.68 %
Site Total:	9.50 %

T-Mobile _per sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
T-Mobile AWS - 2100 MHz LTE	2	1,766.65	95	16.04	AWS - 2100 MHz	1000	1.60%
T-Mobile AWS - 2100 MHz UMTS	2	883.33	95	8.02	AWS - 2100 MHz	1000	0.80%
T-Mobile PCS - 1950 MHz UMTS	2	899.75	95	8.17	PCS - 1950 MHz	1000	0.82%
T-Mobile PCS - 1950 MHz GSM	2	899.75	95	8.17	PCS - 1950 MHz	1000	0.82%
T-Mobile 700 MHz LTE	1	657.84	95	2.99	700 MHz	467	0.64%
						Total:	**4.68%**

Summary

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

The anticipated maximum composite contributions from the T-Mobile facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general public exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector A:	4.68 %
Sector B:	4.68 %
Sector C:	4.68 %
T-Mobile Per Sector Maximum:	4.68 %
Site Total:	9.50 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **9.50%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

Exhibit F

EVERSOURCE ENERGY

56 Prospect Street,
Hartford, CT 06103

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

February 27, 2017

Mr. Mark Richard
T-Mobile
35 Griffin Rd.
Bloomfield, CT 06002

RE: T-Mobile Antenna Site, CT11317B, 280 Morehouse Rd., Fairfield CT, structure 876.

Dear Mr. Richard:

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

Since there are no outstanding structural or site related issues to resolve at this time, please contact Hank O'Brien (860-665-6987) to complete the lease amendment issues

Sincerely,

Robert Gray
Transmission Line Engineering

Ref: CT11317B-L700-CD.pdf
16162.09 - CT11317B Structural Analysis Rev1 17.02.14.pdf