10 Industrial Ave,
Suite 3
Mahwah NJ 07430

Phone: 201.684.0055
Fax: 201.684.0066

Transcend Wireless

January 17, 2023

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

RE: Notice of Exempt Modification
63-69 Myrtle Avenue, Stamford, CT 06902
Latitude: 41.0314
Longitude: -73.3132
T-Mobile Site#: CTFF740A - Sprint Keep Project

Dear Ms. Bachman:

Sprint currently maintains three (3) antennas at the 135-foot level of the existing 135-foot Utility Tower at 63-69 Myrtle Ave, Stamford, Connecticut. The 135-foot Utility Tower is owned and operated by Connecticut Light and Power Company (% Eversoucre). The property is owned by Riley General Partners. T-Mobile now intends to remove all existing Sprint equipment and replace it with their own. T-Mobile will be installing (6) antennas at the 135-foot level of the tower. The new antennas support 5G services.

Planned Modifications:
Tower:
Remove
(3) Sprint Antennas
All Existing Sprint RRHs
All Existing Sprint Hybrid Cables

Install New:
(3) APXVAALL24 43-U-NA20 Antennas
(3) Commscope VV-65A-R1 Antennas
(3) Ericsson Radio 4460 B25+B66
(3) Ericsson 4480 B71+B85
(6) Commscope Bias-T-ATSBT-TOP-MF-4G
(18) 1 ⅝" Coax Cables

Ground:
Install New:
(1) 6160 Cabinet and (1) B160 Battery Cabinet.

To Be Removed:
All Sprint Ground Equipment

This facility was originally approved by the Connecticut Siting Council in Petition No. 393 dated June 25, 1998. A copy of this approval is attached. This modification complies with this approval.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies§ 16- SOj-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.SA. § 16-SOj-73, a copy of this letter is being sent to Mayor Caroline Simmons, Elected Official, and James Lunney, Zoning Enforcement Officer, as well as the tower and property 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,

Eric Breun
Transcend Wireless
Cell: 201-658-7728
Email: ebreun@transcendwireless.com

Attachments
cc: Caroline Simmons - Mayor of Stamford
James Lunney - Zoning Enforcement Officer
Connecticut Light and Power Co (% Eversource) - Land Owner
Riley General Partners - Property Owner

ERIC BREUN
2016587728
1 INTERNATIONAL BLVD.
MAHWAH NJ 07495

1 LBS **1 OF 1**

SHIP TO:
ZEO JAMES LUNNEY
888 WASHINGTON BOULEVARD
STAMFORD CT 06901

CT 069 9-01

UPS GROUND
TRACKING #: 1Z V25 742 03 9846 9706

BILLING: P/P

Reference #1: CTFF740A

XOL 22.12.20 NV45 2.0A 01/2023*

ERIC BREUN
2016587728
1 INTERNATIONAL BLVD.
MAHWAH NJ 07495

1 LBS **1 OF 1**

SHIP TO:
MAYOR CAROLINE SIMMONS
888 WASHINGTON BOULEVARD
STAMFORD CT 06901

CT 069 9-01

UPS GROUND
TRACKING #: 1Z V25 742 03 9905 9693

BILLING: P/P

Reference #1: CTFF740A

XOL 22.12.20 NV45 2.0A 01/2023*

ERIC BREUN
2016587728
1 INTERNATIONAL BLVD.
MAHWAH NJ 07495

1 LBS **1 OF 1**

SHIP TO:
RILEY GENERAL PARTNERS
107 MYRTLE AVENUE
EAST SIDE OF STAMFORD CT 06902

CT 069 9-01

UPS GROUND
TRACKING #: 1Z V25 742 03 9097 2060

BILLING: P/P

Reference #1: CTFF740A

XOL 22.12.20 NV45 2.0A 01/2023*

ERIC BREUN
2016587728
1 INTERNATIONAL BLVD.
MAHWAH NJ 07495

1 LBS **1 OF 1**

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

CT 061 9-02

UPS GROUND
TRACKING #: 1Z V25 742 03 9254 6053

BILLING: P/P

Reference #1: CTFF740A

XOL 22.12.20 NV45 2.0A 01/2023*

Hello, your package has been delivered.

Delivery Date: Friday, 01/13/2023

Delivery Time: 10:22 AM

Signed by: KEITH

TRANSCEND WIRELESS

Tracking Number:	1ZV257420392546053
Ship To:	EVERSOURCE ENERGY 107 SELDEN ST. BERLIN, CT 06037 US
Number of Packages:	1
UPS Service:	UPS Ground
Package Weight:	1.0 LBS
Reference Number:	CTFF740A

Hello, your package has been delivered.

Delivery Date: Friday, 01/13/2023

Delivery Time: 10:36 AM

TRANSCEND WIRELESS

Tracking Number:	1ZV257420399059693
Ship To:	MAYOR CAROLINE SIMMONS 888 WASHINGTON BOULEVARD STAMFORD, CT 06901 US
Number of Packages:	1
UPS Service:	UPS Ground
Package Weight:	1.0 LBS
Reference Number:	CTFF740A

Hello, your package has been delivered.

Delivery Date: Friday, 01/13/2023

Delivery Time: 10:36 AM

TRANSCEND WIRELESS

Tracking Number:	1ZV257420398469706
Ship To:	ZEO JAMES LUNNEY 888 WASHINGTON BOULEVARD STAMFORD, CT 06901 US
Number of Packages:	1
UPS Service:	UPS Ground
Package Weight:	1.0 LBS
Reference Number:	CTFF740A

Hello, your package has been delivered.

Delivery Date: Friday, 01/13/2023

Delivery Time: 4:02 PM

Signed by: C LOMBARDI

TRANSCEND WIRELESS

Tracking Number:	1ZV257420390972060
Ship To:	RILEY GENERAL PARTNERS 107 MYRTLE AVENUE EAST SIDE OF STAMFORD, CT 06902 US
Number of Packages:	1
UPS Service:	UPS Ground
Package Weight:	1.0 LBS
Reference Number:	CTFF740A


S 039 2636
S 042 2636
S 041 2636
W 004 5944
S 049 2636
Connecticut Turnpik
E 005
N State St
95
5944
W 006 5944
E 007 5944
E 006 5944
E 008 5944
W 008 5944
E 009 5944
N 004 3528
Gregory St
Gregory St
E 010 5944
E 011 5944
W 010 5944
E 012 5944
N 003 9624
N 004 9624
Myrtle Ave
William St
W 013 5944
N 006 9624
E 013 5944
William St
W 015 5944
S 002 9624
E 017A 5944
S 003 9624
W 018 5944
S 005 9624
S 006 9624
E 018A 5944

69 MYRTLE AVENUE

Sales | Print | Map It

Location	69 MYRTLE AVENUE	**Mblu**	003/ 5429/ / /
Acct#	003-5429	**Owner**	RILEY GENERAL PARTNERS
Assessment	$1,611,900	**Appraisal**	$2,302,710
PID	14373	**Building Count**	2

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2022	$853,690	$1,449,020	$2,302,710
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2022	$597,590	$1,014,310	$1,611,900

Owner of Record

Owner	RILEY GENERAL PARTNERS	**Sale Price**	$1,900,000
Co-Owner		**Book & Page**	11633/0223
Address	107 MYRTLE AVENUE STAMFORD, CT 06902-3905	**Sale Date**	12/06/2016
		Instrument	00

Ownership History

Ownership History				
Owner	**Sale Price**	**Book & Page**	**Instrument**	**Sale Date**
RILEY GENERAL PARTNERS	$1,900,000	11633/0223	00	12/06/2016
SIXTY 3 MYRTLE AVENUE LLC	$725,000	5705/0312	00	03/01/2001
ACME ELECTRO-PLATING INC	$0	5698/0158		02/21/2001
ACME ELECTRO-PLATING INC	$0	1273/0056	25	06/16/1972

Building Information

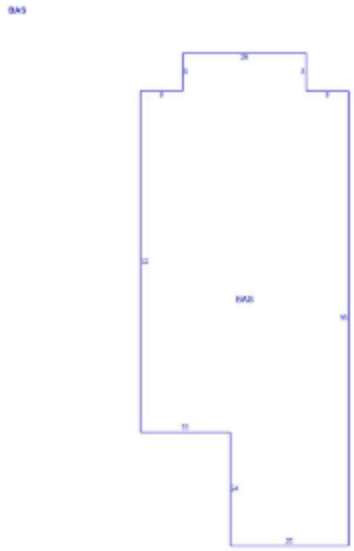
Building 1 : Section 1

Year Built: 1945
Living Area: 3,732

Building Attributes	
Field	**Description**
Style:	Industry Light
Model	Ind/Comm
Grade	C+
Stories:	1
Occupancy	1.00
Exterior Wall 1	Concr/Cinder
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	T&G/Rubber
Interior Wall 1	Minimum
Interior Wall 2	
Interior Floor 1	Concrete Slab
Interior Floor 2	
Heating Fuel	Gas/LP
Heating Type	Hot Air-no Duc
AC Type	None
Struct Class	
Bldg Use	Industrial MDL-98
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	300
Heat/AC	None
Frame Type	Masonry
Baths/Plumbing	Average
Ceiling/Wall	Ceiling Only
Rooms/Prtns	Average
Wall Height	14.00
% Comm Wall	

Building Photo

Building Layout



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

Building 2 : Section 1

Year Built: 1900
Living Area: 5,840

Building Attributes : Bldg 2 of 2	
Field	**Description**
Style:	Off/Warehouse
Model	Ind/Comm
Grade	C+
Stories:	1
Occupancy	1.00
Exterior Wall 1	Concr/Cinder
Exterior Wall 2	Brick
Roof Structure	Flat
Roof Cover	T&G/Rubber
Interior Wall 1	Minimum
Interior Wall 2	Drywall/Plaste
Interior Floor 1	Ceram Clay Til
Interior Floor 2	
Heating Fuel	Gas/LP
Heating Type	Hot Air-no Duc
AC Type	None
Struct Class	
Bldg Use	Commercial MDL-94
Total Rooms	
Total Bedrms	
Total Baths	
1st Floor Use:	
Heat/AC	None
Frame Type	Wood Frame
Baths/Plumbing	Average
Ceiling/Wall	Sus-Ceil/Mn WL
Rooms/Prtns	Average
Wall Height	14.00
% Comm Wall	

Building Photo

Building Layout

Extra Features

Extra Features				Legend
Code	Description	Size	Value	Bldg #
RP2	Porch Coverd	240.00 S.F	$5,880	2
OH1	Door Overhd Co	2.00 UNITS	$11,100	1

Land

Land Use

Use Code	300
Description	Industrial MDL-96
Zone	ML
Neighborhood	0200
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	0.68
Depth	
Assessed Value	$1,014,310
Appraised Value	$1,449,020

Outbuildings

Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
AP1	Fence Chn Lk			200.00 L.F.	$1,680	1
FC1	Shed Wood			604.00 S.F.	$15,400	1
LP4	Pavng Asphlt			10000.00 S.F	$12,750	1

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2021	$624,100	$1,271,220	$1,895,320
2020	$624,100	$1,271,220	$1,895,320
2019	$624,100	$1,271,220	$1,895,320

Assessment			
Valuation Year	Improvements	Land	Total
2021	$436,870	$889,850	$1,326,720
2020	$436,870	$889,850	$1,326,720
2019	$436,870	$889,850	$1,326,720

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

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

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

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

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

EVERSOURCE ENERGY

56 Prospect Street,
Hartford, CT 06103

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

January 3, 2023

Kyle Richers
Transcend Wireless
10 Industrial Ave Suite 3
Mahwah NJ 07430

RE: T-Mobile Antenna Site CTFF740A, Myrtle Ave, Stamford CT, Eversource Structure 1217

Dear Mr. Richers:

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 and Company, we accept the proposed modification.

Please work with Christopher Gelinas of Eversource Real Estate to process the site lease amendment. Please do not hesitate to contact us with questions or concerns. Christopher can be contacted at 860-665-2008, and I can be contacted at (203) 623-0409.

Sincerely,

Richard Badon

Richard Badon
Transmission Line Engineering

Ref: 2022-1117 - CTFF740A - Structural Analysis Rev5 (21005.42)
2022-1215_21005.42 CTFF740A_CT03XC329 - Rev1 CDs (S&S)

Sprint Now part of T-Mobile™

SPRINT ID: CT03XC329
SITE ID: CTFF740A
EVERSOURCE STR :1217
63 MYRTLE AVE
STAMFORD, CT 06902

T-MOBILE RAN TEMPLATE (PROVIDED BY RFDS)

67E3998E 6160

T-MOBILE A+L TEMPLATE (PROVIDED BY RFDS)

67E3998E_1OP+1QP

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2021 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2022 CONNECTICUT SUPPLEMENT, INCLUDING THE TIA/EIA–222 REVISION "H" "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES." 2022 CONNECTICUT FIRE SAFETY CODE, NATIONAL ELECTRICAL CODE AND LOCAL CODES.
2. CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND ALL RELATED PARTIES. THE SUBCONTRACTORS SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
3. CONTRACTOR SHALL PROVIDE A COMPLETE BUILD–OUT WITH ALL FINISHES, STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS AND PROVIDE ALL ITEMS AS SHOWN OR INDICATED ON THE DRAWINGS OR IN THE WRITTEN SPECIFICATIONS.
4. CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR AND EQUIPMENT TO COMPLETE THE WORK AND FURNISH A COMPLETED JOB ALL IN ACCORDANCE WITH LOCAL AND STATE GOVERNING AUTHORITIES AND OTHER AUTHORITIES HAVING LAWFUL JURISDICTION OVER THE WORK.
5. CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND ALL INSPECTIONS REQUIRED AND SHALL ALSO PAY FEES REQUIRED FOR THE GENERAL CONSTRUCTION, PLUMBING, ELECTRICAL, AND HVAC. PERMITS SHALL BE PAID FOR BY THE RESPECTIVE SUBCONTRACTORS.
6. CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS AND SPECIFICATIONS ON SITE AT ALL TIMES AND INSURE DISTRIBUTION OF NEW DRAWINGS TO SUBCONTRACTORS AND OTHER RELEVANT PARTIES AS SOON AS THEY ARE MADE AVAILABLE. ALL OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA. THE CONTRACTOR SHALL FURNISH AN 'AS–BUILT' SET OF DRAWINGS TO OWNER UPON COMPLETION OF PROJECT.
7. LOCATION OF EQUIPMENT, AND WORK SUPPLIED BY OTHERS THAT IS DIAGRAMMATICALLY INDICATED ON THE DRAWINGS SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL DETERMINE LOCATIONS AND DIMENSIONS SUBJECT TO STRUCTURAL CONDITIONS AND WORK OF THE SUBCONTRACTORS.
8. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY.
9. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
10. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
11. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUBCONTRACTORS FOR ANY CONDITION PER MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
12. ANY AND ALL ERRORS, DISCREPANCIES, AND 'MISSED' ITEMS ARE TO BE BROUGHT TO THE ATTENTION OF THE T–MOBILE CONSTRUCTION MANAGER DURING THE BIDDING PROCESS BY THE CONTRACTOR. ALL THESE ITEMS ARE TO BE INCLUDED IN THE BID. NO 'EXTRA' WILL BE ALLOWED FOR MISSED ITEMS.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON–SITE SAFETY FROM THE TIME THE JOB IS AWARDED UNTIL ALL WORK IS COMPLETE AND ACCEPTED BY THE OWNER.
14. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE CONSTRUCTION MANAGER FOR REVIEW.
15. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES AND EXISTING CONDITIONS AT THE SITE, PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA.
16. COORDINATION, LAYOUT, FURNISHING AND INSTALLATION OF CONDUITS AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
17. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
18. THE CONTRACTOR SHALL CONTACT 'CALL BEFORE YOU DIG' AT LEAST 48 HOURS PRIOR TO ANY EXCAVATIONS AT 1–800–922–4455. ALL UTILITIES SHALL BE IDENTIFIED AND CLEARLY MARKED. CONTRACTOR SHALL MAINTAIN AND PROTECT MARKED UTILITIES THROUGHOUT PROJECT COMPLETION.
19. CONTRACTOR SHALL COMPLY WITH THE OWNER'S ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR ALL EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.

SITE DIRECTIONS

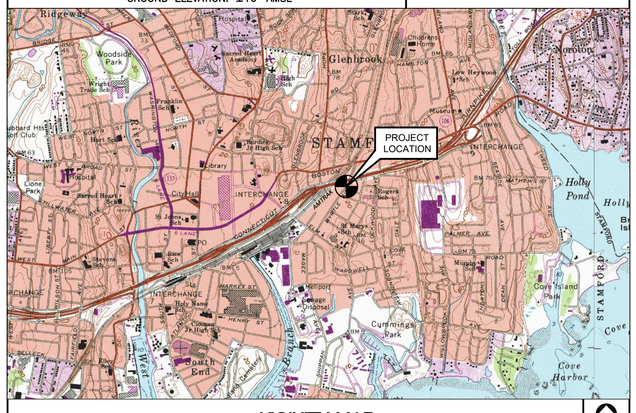
FROM: 35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

TO: 63 MYRTLE AVE
STAMFORD, CT 06902

1.	GET ON I–91 S IN WINDSOR FROM DAY HILL RD.	4.30 MI.
2.	MERGE ONTO I–91 S.	45.4 MI.
3.	TAKE THE EXIT ON THE LEFT ONTO I–95 S TOWARD N.Y. CITY.	38.3 MI.
4.	TAKE EXIT 9 FOR US–1 TOWARD CT–106/GLENBROOK.	0.30 MI.
5.	USE THE RIGHT 2 LANES TO TURN RIGHT ONTO US–1 S/E MAIN ST.	0.60 MI.
6.	TURN LEFT ONTO MYRTLE AVE.	0.20 MI.
7.	TURN RIGHT. DESTINATION WILL BE ON THE RIGHT.	0.02 MI.

SITE COORDINATES: LATITUDE: 41° 03' 14" N
LONGITUDE: 73° 31' 32" W
GROUND ELEVATION: ±16' AMSL

COORDINATES AND GROUND ELEVATION ARE REFERENCED FROM GOOGLE EARTH



VICINITY MAP

NORTH

PROJECT SUMMARY

THE PROPOSED SCOPE OF WORK CONSISTS OF A MODIFICATION TO THE EXISTING UNMANNED TELECOMMUNICATIONS FACILITY INCLUDING THE FOLLOWING:

1. REMOVE EXISTING SPRINT EQUIPMENT.
2. REMOVE EXISTING SPRINT ANTENNAS.
3. INSTALL (1) RADIO 4460 B25+B66 PER SECTOR AT GRADE, TOTAL (3).
4. INSTALL (1) RADIO 4480 B71+B85 PER SECTOR AT GRADE, TOTAL (3).
5. INSTALL (1) ANTENNA RFS: APXVAALL24_43 U–NA20 PER SECTOR, TOTAL (3).
6. INSTALL (1) ANTENNA COMMSCOPE: VV–65A–R1 PER SECTOR, TOTAL (3).
7. INSTALL (2) 8' PIPE MAST PER SECTOR, TOTAL OF (6).
8. INSTALL (6) BIAS–T FOR RET CONTROL.
9. INSTALL NEW POWER ENCLOSURE 6160.
10. INSTALL NEW BATTERY ENCLOSURE B160.
11. INSTALL (18) 1–5/8" COAX CABLES.
12. INSTALL 150A/2P CIRCUIT BREAKER
13. INSTALL HANDRAIL KIT AT ANTENNA MOUNT

PROJECT SUMMARY (STRUCTURAL)

FOR REQUIRED STRUCTURAL MODIFICATIONS, SEE SHEET(S) S–1/S–2 FOR ADDITIONAL INFORMATION AND DETAILS.

1. HANDRAIL KIT TO BE INSTALLED FOR ANTENNA SUPPORT.
2. TOWER REINFORCEMENT MODIFICATIONS REQUIRED.
3. SPECIAL INSPECTIONS REQUIRED. SEE SHEET N–1 FOR ADDITIONAL INFORMATION AND DETAILS.

PROJECT INFORMATION

SPRINT ID:	CT03XC329
SITE ID:	CTFF740A
SITE ADDRESS:	63 MYRTLE AVE STAMFORD, CT 06902
APPLICANT:	T–MOBILE NORTHEAST, LLC 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002
CONTACT PERSON:	KYLE RICHERS TRANSCEND WIRELESS, (908) 447–4716
ENGINEER OF RECORD:	CENTEK ENGINEERING, INC. 63–2 NORTH BRANFORD RD. BRANFORD, CT 06405 CARLO F. CENTORE, PE (203) 488–0580 EXT. 122
PROJECT COORDINATES:	LATITUDE: 41°–03'–14" N LONGITUDE: 73°–31'–32" W GROUND ELEVATION: 16'± AMSL SITE COORDINATES AND GROUND ELEVATION REFERENCED FROM GOOGLE EARTH.

SHEET INDEX

SHT. NO.	DESCRIPTION	REV.
T–1	TITLE SHEET	1
N–1	GENERAL NOTES AND SPECIFICATIONS	1
C–1	SITE LOCATION PLAN	1
C–2	COMPOUND PLAN, EQUIPMENT PLAN, AND ELEVATION	1
C–3	ANTENNA PLANS AND ELEVATIONS	1
C–4	TYPICAL EQUIPMENT DETAILS	1
S–1	TOWER ELEVATION	1
S–2	CONNECTION DETAILS	1
E–1	ELECTRICAL RISER DIAGRAM AND CONDUIT ROUTING	1
E–2	TYPICAL ELECTRICAL DETAILS	1
E–3	ELECTRICAL SPECIFICATIONS	1

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	12/08/22	RTS	TJR	CONSTRUCTION DRAWINGS – ISSUED FOR CONSTRUCTION
	12/15/22	RTS	TJR	CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS

PROFESSIONAL ENGINEER SEAL

Sprint Now part of T-Mobile — Transcend Wireless

CENTEK engineering
Centered on Solutions℠
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T-MOBILE NORTHEAST LLC

SPRINT ID: CT03XC329
SITE ID: CTFF740A
63 MYRTLE AVE
STAMFORD, CT 06902

DATE: 12/23/21
SCALE: AS NOTED
JOB NO. 21005.42

TITLE SHEET

T-1

Sheet No. 1 of 11

NOTES AND SPECIFICATIONS

DESIGN BASIS:

GOVERNING CODE: 2021 INTERNATIONAL BUILDING (IBC) AS MODIFIED BY THE 2022 CONNECTICUT STATE BUILDING CODE.

1. DESIGN CRITERIA:

- RISK CATEGORY II (BASED ON IBC TABLE 1604.5)
- NOMINAL DESIGN SPEED (OTHER STRUCTURE): 93 MPH (Vasd) (EXPOSURE B/ IMPORTANCE FACTOR 1.0 BASED ON ASCE 7–16).

SITE NOTES

1. THE CONTRACTOR SHALL CALL UTILITIES PRIOR TO THE START OF CONSTRUCTION.
2. ACTIVE EXISTING UTILITIES, WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY, PRIOR TO PROCEEDING, SHOULD ANY UNCOVERED EXISTING UTILITY PRECLUDE COMPLETION OF THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
3. THE AREAS OF THE COMPOUND DISTURBED BY THE WORK SHALL BE RETURNED TO THEIR ORIGINAL CONDITION.
4. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
5. IF ANY FIELD CONDITIONS EXIST WHICH PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL PROCEED WITH AFFECTED WORK AFTER CONFLICT IS SATISFACTORILY RESOLVED.

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2021 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2022 CONNECTICUT SUPPLEMENT, INCLUDING THE TIA/EIA–222 REVISION "H" "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES." 2022 CONNECTICUT FIRE SAFETY CODE, NATIONAL ELECTRICAL CODE AND LOCAL CODES.
2. CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND ALL RELATED PARTIES. THE SUBCONTRACTORS SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
3. CONTRACTOR SHALL PROVIDE A COMPLETE BUILD–OUT WITH ALL FINISHES, STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS AND PROVIDE ALL ITEMS AS SHOWN OR INDICATED ON THE DRAWINGS OR IN THE WRITTEN SPECIFICATIONS.
4. CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR AND EQUIPMENT TO COMPLETE THE WORK AND FURNISH A COMPLETED JOB ALL IN ACCORDANCE WITH LOCAL AND STATE GOVERNING AUTHORITIES AND OTHER AUTHORITIES HAVING LAWFUL JURISDICTION OVER THE WORK.
5. CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND ALL INSPECTIONS REQUIRED AND SHALL ALSO PAY FEES REQUIRED FOR THE GENERAL CONSTRUCTION, PLUMBING, ELECTRICAL AND HVAC. PERMITS SHALL BE PAID FOR BY THE RESPECTIVE SUBCONTRACTORS.
6. CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS AND SPECIFICATIONS ON SITE AT ALL TIMES AND INSURE DISTRIBUTION OF NEW DRAWINGS TO SUBCONTRACTORS AND OTHER RELEVANT PARTIES AS SOON AS THEY ARE MADE AVAILABLE. ALL OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA. THE CONTRACTOR SHALL FURNISH AN 'AS–BUILT' SET OF DRAWINGS TO OWNER UPON COMPLETION OF PROJECT.
7. LOCATION OF EQUIPMENT AND WORK SUPPLIED BY OTHERS THAT IS DIAGRAMMATICALLY INDICATED ON THE DRAWINGS, SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL DETERMINE LOCATIONS AND DIMENSIONS SUBJECT TO STRUCTURAL CONDITIONS AND WORK OF THE SUBCONTRACTORS.
8. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND IT'S COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY.
9. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
10. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
11. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUBCONTRACTORS FOR ANY CONDITION PER MFR.'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
12. ANY AND ALL ERRORS, DISCREPANCIES, AND "MISSED" ITEMS, ARE TO BE BROUGHT TO THE ATTENTION OF THE SITE OWNER'S CONSTRUCTION MANAGER DURING THE BIDDING PROCESS BY THE CONTRACTOR. ALL THESE ITEMS ARE TO BE INCLUDED IN THE BID. NO 'EXTRA' WILL BE ALLOWED FOR MISSED ITEMS.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON–SITE SAFETY FROM THE TIME THE JOB IS AWARDED UNTIL ALL WORK IS COMPLETE AND ACCEPTED BY THE OWNER.
14. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE CONSTRUCTION MANAGER FOR REVIEW.
15. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES, AND EXISTING CONDITIONS AT THE SITE, PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA.
16. COORDINATION, LAYOUT, FURNISHING AND INSTALLATION OF CONDUIT AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
17. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
18. THE CONTRACTOR SHALL CONTACT 'CALL BEFORE YOU DIG' AT LEAST 48 HOURS PRIOR TO ANY EXCAVATIONS AT 1–800–922–4455. ALL UTILITIES SHALL BE IDENTIFIED AND CLEARLY MARKED. CONTRACTOR SHALL MAINTAIN AND PROTECT MARKED UTILITIES THROUGHOUT PROJECT COMPLETION.
18. CONTRACTOR SHALL COMPLY WITH OWNER'S ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR ALL EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.
19. THE COUNTY/CITY/TOWN WILL MAKE PERIODIC FIELD OBSERVATION AND INSPECTIONS TO MONITOR THE INSTALLATION, MATERIALS, WORKMANSHIP AND EQUIPMENT INCORPORATED INTO THE PROJECT TO ENSURE COMPLIANCE WITH THE DESIGN PLANS, SPECIFICATIONS, CONTRACT DOCUMENTS AND APPROVED SHOP DRAWINGS.
20. THE COUNTY/CITY/TOWN MUST BE NOTIFIED (2) WORKING DAYS PRIOR TO CONCEALMENT/BURIAL OF ANY SYSTEM OR MATERIAL THAT WILL PREVENT THE DIRECT INSPECTION OF MATERIALS, METHODS OR WORKMANSHIP. EXAMPLES OF THESE PROCESSES ARE BACKFILLING A GROUND RING OR TOWER FOUNDATION, POURING TOWER FOUNDATIONS, BURYING GROUND RODS, PLATES OR GRIDS, ETC. THE CONTRACTOR MAY PROCEED WITH THE SCHEDULED PROCESS (2) WORKING DAYS AFTER PROVIDING NOTICE UNLESS NOTIFIED OTHERWISE BY THE COUNTY/CITY/TOWN.

MODIFICATION INSPECTION NOTES:

GENERAL

1. THE MODIFICATION INSPECTION IS A VISUAL INSPECTION OF STRUCTURAL MODIFICATIONS, TO INCLUDE A REVIEW AND COMPILATION OF SPECIFIED SUBMITTALS AND CONSTRUCTION INSPECTIONS, AS AN ASSURANCE OF COMPLIANCE WITH THE CONSTRUCTION DOCUMENTS PREPARED UNDER THE DIRECTION OF THE ENGINEER OF RECORD (EOR).
2. THE MODIFICATION INSPECTION IS TO CONFIRM INSTALLATION CONFIGURATION AND GENERAL WORKMANSHIP AND IS NOT A REVIEW OF THE MODIFICATION DESIGN. OWNERSHIP OF THE MODIFICATION DESIGN EFFECTIVENESS AND INTENT RESIDES WITH THE ENGINEER OF RECORD.
3. TO ENSURE COMPLIANCE WITH THE MODIFICATION INSPECTION REQUIREMENTS THE GENERAL CONTRACTOR (GC) AND THE MODIFICATION INSPECTOR (MI) COMMENCE COMMUNICATION UPON AUTHORIZATION TO PROCEED BY THE CLIENT. EACH PARTY SHALL BE PROACTIVE IN CONTACTING THE OTHER. THE EOR SHALL BE CONTACTED IF SPECIFIC GC/MI CONTACT INFORMATION IS NOT MADE AVAILABLE.
4. THE GC SHALL PROVIDE THE MI WITH A MINIMUM OF 5 BUSINESS DAYS NOTICE OF IMPENDING INSPECTIONS.
5. WHEN POSSIBLE, THE GC AND MI SHALL BE ON SITE DURING THE MODIFICATION INSPECTION TO HAVE ANY NOTED DEFICIENCIES ADDRESSED DURING THE INITIAL MODIFICATION INSPECTION.

MODIFICATION INSPECTOR (MI)

1. THE MI SHALL CONTACT THE GC UPON AUTHORIZATION BY THE CLIENT TO:
   - REVIEW THE MODIFICATION INSPECTION REPORT REQUIREMENTS.
   - WORK WITH THE GC IN DEVELOPMENT OF A SCHEDULE FOR ON–SITE INSPECTIONS.
   - DISCUSS CRITICAL INSPECTIONS AND PROJECT CONCERNS.
2. THE MI IS RESPONSIBLE FOR COLLECTION OF ALL INSPECTION AND TEST REPORTS, REVIEWING REPORTS FOR ADHERENCE TO THE CONTRACT DOCUMENTS, CONDUCTING ON–SITE INSPECTIONS AND COMPILATION & SUBMISSION OF THE MODIFICATION INSPECTION REPORT TO THE CLIENT AND THE EOR.

GENERAL CONTRACTOR (GC)

1. THE GC IS REQUIRED TO CONTACT THE MI UPON AUTHORIZATION TO PROCEED WITH CONSTRUCTION BY THE CLIENT TO:
   - REVIEW THE MODIFICATION INSPECTION REPORT REQUIREMENTS.
   - WORK WITH THE MI IN DEVELOPMENT OF A SCHEDULE FOR ON–SITE INSPECTIONS.
   - DISCUSS CRITICAL INSPECTIONS AND PROJECT CONCERNS.
2. THE GC IS RESPONSIBLE FOR COORDINATING AND SCHEDULING IN ADVANCE ALL REQUIRED INSPECTIONS AND TESTS WITH THE MI.

CORRECTION OF FAILING MODIFICATION INSPECTION

1. SHOULD THE STRUCTURAL MODIFICATION NOT COMPLY WITH THE REQUIREMENTS OF THE CONSTRUCTION DOCUMENTS, THE GC SHALL WORK WITH THE MODIFICATION INSPECTOR IN A VIABLE REMEDIATION PLAN AS FOLLOWS:
   - CORRECT ALL DEFICIENCIES TO COMPLY WITH THE CONTRACT DOCUMENTS AND COORDINATE WITH THE MI FOR A FOLLOW UP INSPECTION.
   - WITH CLIENT AUTHORIZATION, THE GC MAY WORK WITH THE EOR TO REANALYZE THE MODIFICATION USING THE AS–BUILT CONDITION.

REQUIRED PHOTOGRAPHS

1. THE GC AND MI SHALL AT MINIMUM PHOTO DOCUMENT THE FOLLOWING FOR INCLUSION IN THE MODIFICATION INSPECTION REPORT:
   - PRE–CONSTRUCTION: GENERAL CONDITION OF THE SITE.
   - DURING CONSTRUCTION: RAW MATERIALS, CRITICAL DETAILS, WELD PREPARATION, BOLT INSTALLATION & TORQUE, FINAL INSTALLED CONDITION & SURFACE COATING REPAIRS.
   - POST–CONSTRUCTION: FINAL CONDITION OF THE SITE.

MODIFICATION INSPECTION REPORT REQUIREMENTS

PRE-CONSTRUCTION		DURING CONSTRUCTION		POST-CONSTRUCTION	
SCHEDULED ITEM	REPORT ITEM	SCHEDULED ITEM	REPORT ITEM	SCHEDULED ITEM	REPORT ITEM
X	EOR MODIFICATION INSPECTION DRAWING	–	FOUNDATIONS	X	MODIFICATION INSPECTOR RECORD REDLINE DRAWING
X	EOR APPROVED SHOP DRAWINGS	–	EARTHWORK BACKFILL MATERIAL AND COMPACTION	–	POST–INSTALLED ANCHOR ROD PULL–OUT TEST
–	EOR APPROVED POST–INSTALLED ANCHOR MPII	–	REBAR AND FORMWORK GEOMETRY VERIFICATION	X	PHOTOGRAPHS
–	FABRICATION INSPECTION	–	CONCRETE TESTING	–	STEEL INSPECTION
–	FABRICATOR CERTIFIED WELDER INSPECTION	X	STEEL INSPECTION		
X	MATERIAL CERTIFICATIONS	–	POST INSTALLED ANCHOR ROD VERIFICATION		
		–	BASE PLATE GROUT VERIFICATION		
		–	CONTRACTOR'S CERTIFIED WELD INSPECTION		
		X	ON–SITE COLD GALVANIZED VERIFICATION		
		X	CONTRACTOR AS–BUILT REDLINE DRAWINGS		
		–	HOST BUILDING (BEARING WALL/PARAPET ETC..)		
			INTEGRITY VERIFICATION PRIOR TO ANY INSTALLATIONS		
		–	HOST BUILDING (ROOF OPENING)		
			FRAMING VERIFICATION PRIOR TO ANY INSTALLATIONS		

NOTES
1. REFER TO MODIFICATION INSPECTION NOTES FOR ADDITIONAL REQUIREMENTS
2. (X) DENOTES DOCUMENT REQUIRED FOR INCLUSION IN MODIFICATION INSPECTION FINAL REPORT
3. (–) DENOTES DOCUMENT NOT REQUIRED FOR INCLUSION IN MODIFICATION INSPECTION FINAL REPORT
4. EOR – ENGINEER OF RECORD
5. MPII – MANUFACTURER'S PRINTED INSTALLATION GUIDELINES

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	12/15/22	RTS	TJR	CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS

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GENERAL NOTES AND SPECIFICATIONS

N–1

NOTE:
ALL COAX LENGTHS TO BE MEASURED
AND VERIFIED IN FIELD BEFORE ORDERING

ANTENNA SCHEDULE

SECTOR	EXISTING/PROPOSED	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	AZIMUTH	(E/P) RRU (QTY)	(E/P) TMA (QTY)	(QTY) PROPOSED COAX
A1	PROPOSED	RFS: APXVAALL24_43-U-NA20	95.9 x 24 x 8.5	135'	70°	(P) RADIO 4480 B71+B85 (1)	(P) COMMSCOPE - BIAST - ATSBT-TOP-MF-4G	(6) 1-5/8" COAX CABLES
A2	PROPOSED	COMMSCOPE: VV65A-R1	54.7 x 12.1 x 4.6	135'	70°	(P) RADIO 4460 B25+B66 (1)	(P) COMMSCOPE - BIAST - ATSBT-TOP-MF-4G	
B1	PROPOSED	RFS: APXVAALL24_43-U-NA20	95.9 x 24 x 8.5	135'	220°	(P) RADIO 4480 B71+B85 (1)	(P) COMMSCOPE - BIAST - ATSBT-TOP-MF4G	(6) 1-5/8" COAX CABLES
B2	PROPOSED	COMMSCOPE: VV65A-R1	54.7 x 12.1 x 4.6	135'	220°	(P) RADIO 4460 B25+B66 (1)	(P) COMMSCOPE - BIAST - ATSBT-TOP-MF-4G	
C1	PROPOSED	RFS: APXVAALL24_43-U-NA20	95.9 x 24 x 8.5	135'	340°	(P) RADIO 4480 B71+B85 (1)	(P) COMMSCOPE - BIAST - ATSBT-TOP-MF-4G	(6) 1-5/8" COAX CABLES
C2	PROPOSED	COMMSCOPE: VV65A-R1	54.7 x 12.1 x 4.6	135'	340°	(P) RADIO 4460 B25+B66 (1)	(P) COMMSCOPE - BIAST - ATSBT-TOP-MF-4G	

1 C-1 **SITE LOCATION PLAN**
SCALE: NOT TO SCALE
TRUE NORTH

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SITE LOCATION PLAN

C-1

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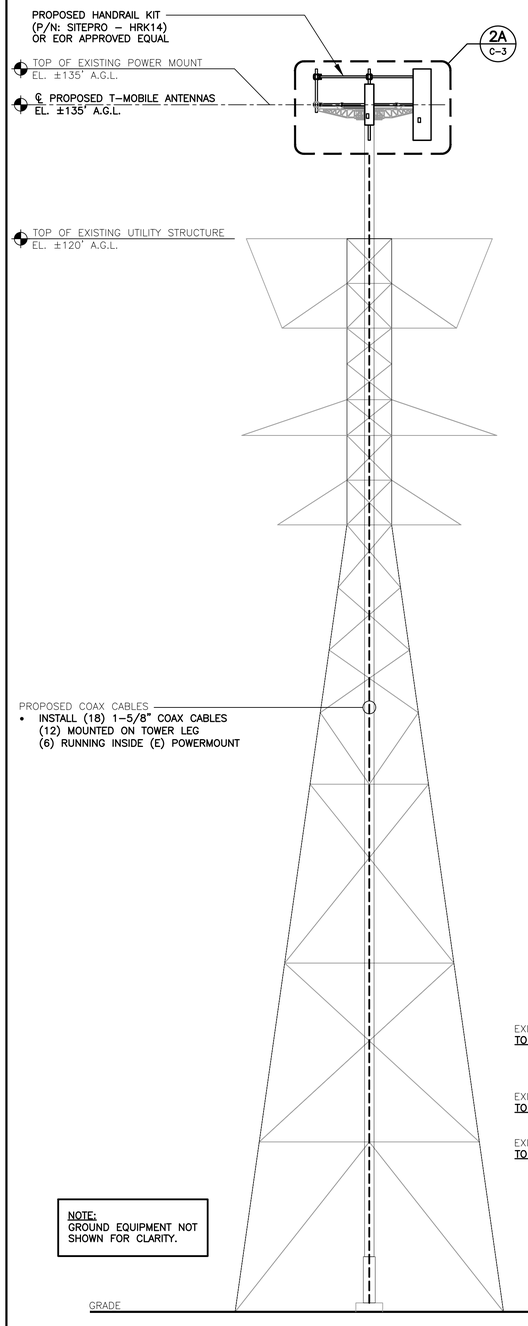
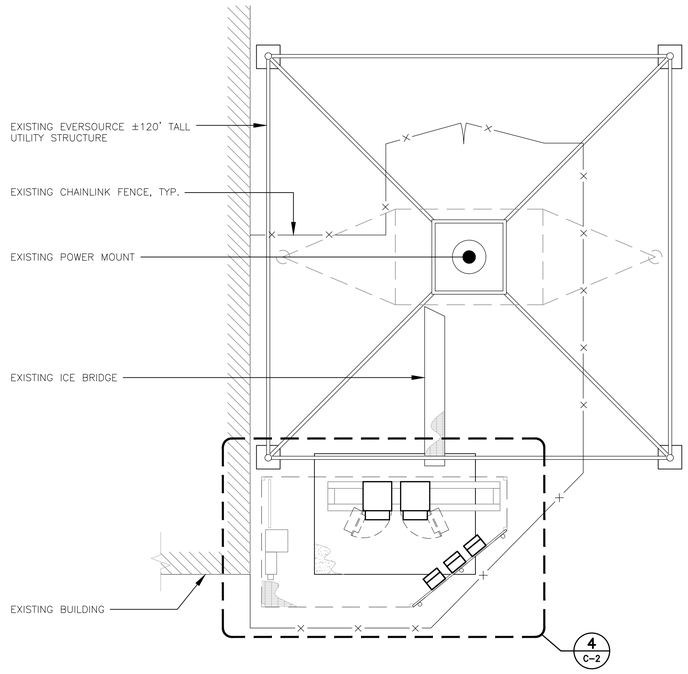
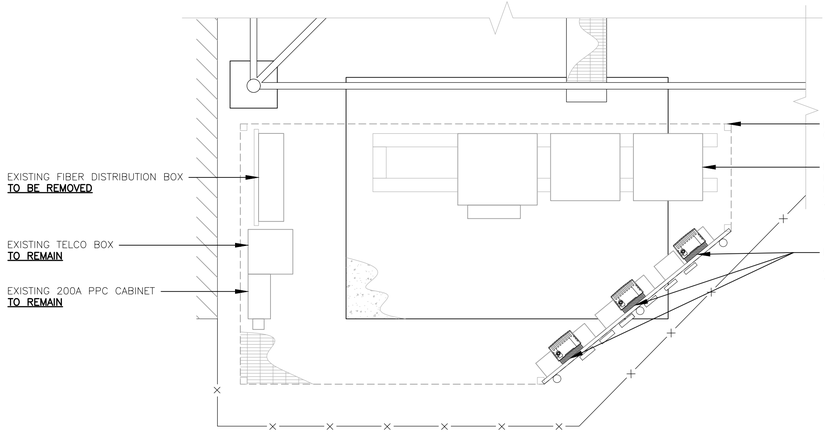


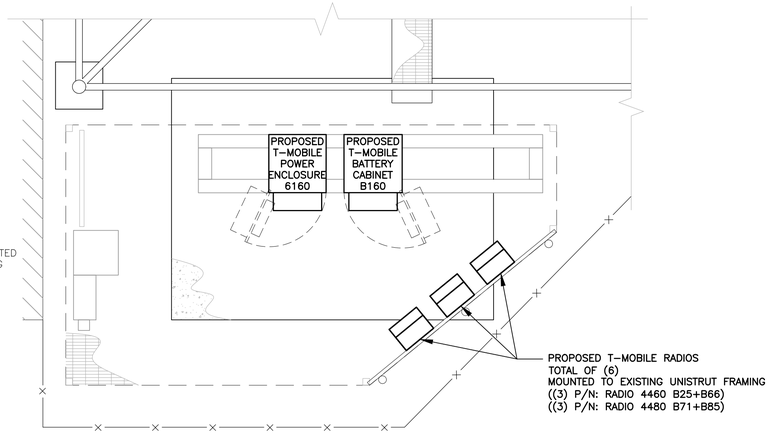
1 C-2 **PROPOSED TOWER ELEVATION**
SCALE: 1/8" = 1'



2 C-2 **PROPOSED COMPOUND PLAN**
SCALE: 3/16" = 1'
TRUE NORTH



3 C-2 **EXISTING EQUIPMENT PLAN**
SCALE: 3/8" = 1'
TRUE NORTH



4 C-2 **PROPOSED EQUIPMENT PLAN**
SCALE: 3/8" = 1'
TRUE NORTH

STRUCTURAL COMPLIANCE

ANTENNA MOUNTS

TOWER AND TOWER FOUNDATION

A STRUCTURAL ANALYSIS OF THE TOWER AND TOWER FOUNDATION WAS PERFORMED FOR THE PROPOSED EQUIPMENT INSTALLATION AND THEY WERE FOUND TO BE STRUCTURALLY SUFFICIENT WITH REINFORCEMENT MODIFICATIONS TO ACCOMMODATE THE PROPOSED LOADING. SEE SHEETS S-1/S-2 FOR ADDITIONAL DETAILS.

REFER TO THE STRUCTURAL ANALYSIS REPORT PREPARED BY CENTEK ENGINEERING (PROJECT # 21005.42) DATED 11/17/22 REV.5 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

NOTE: NO EQUIPMENT SHALL BE INSTALLED ON THE HOSTING STRUCTURE WITHOUT A PASSING STRUCTURAL ANALYSIS REPORT AND CONTRACTOR PRIOR CONFIRMATION THAT ANY AND ALL REQUISITE MODIFICATIONS HAVE BEEN COMPLETED.

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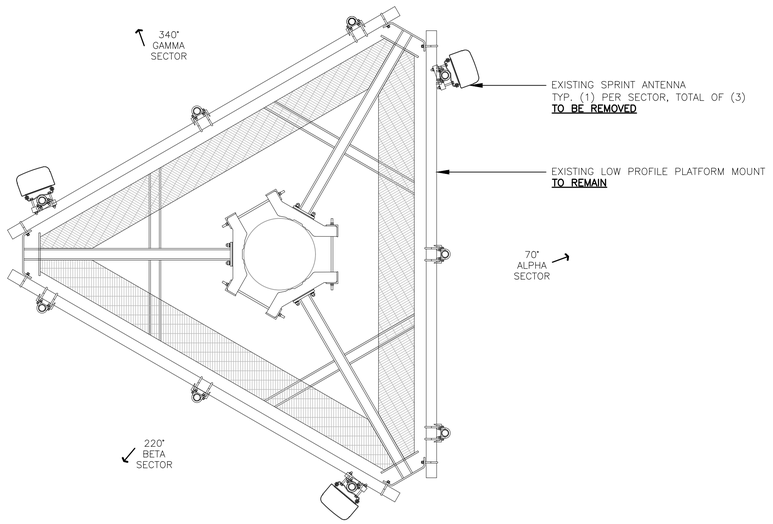
COMPOUND PLAN, EQUIPMENT PLAN, AND ELEVATION

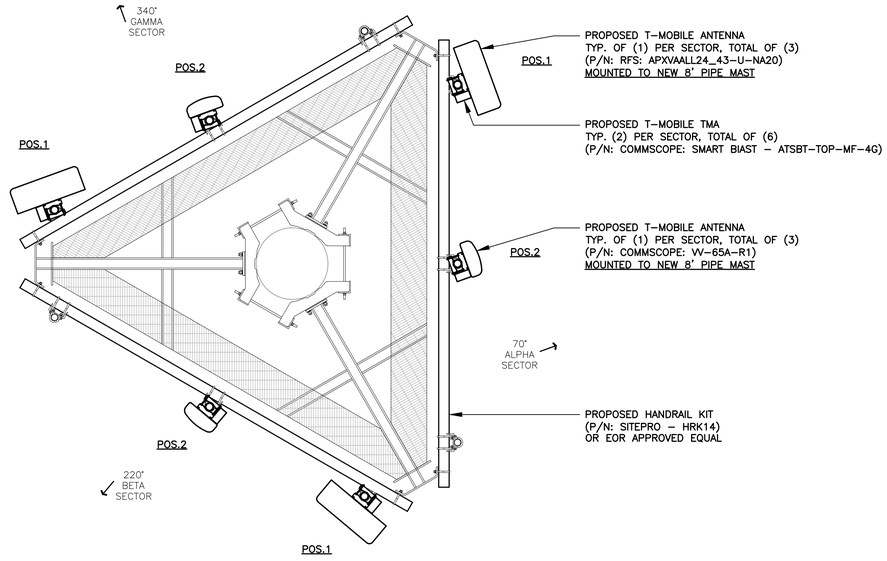
C-2

Sheet No. 4 of 11



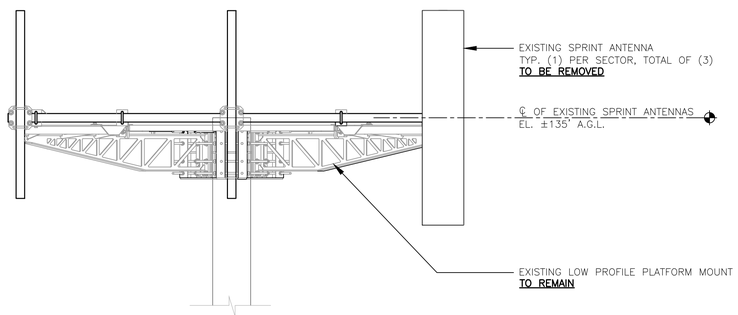
1 / C-3 **EXISTING ANTENNA PLAN** TRUE NORTH

SCALE: 1/2" = 1'



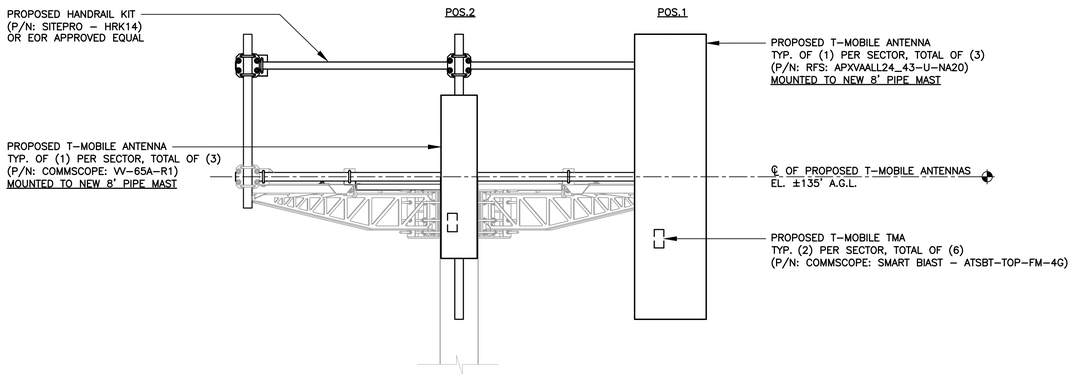
2 / C-3 **PROPOSED ANTENNA PLAN** TRUE NORTH

SCALE: 1/2" = 1'



1A / C-3 **EXISTING ANTENNA ELEVATION (TYP.)**

SCALE: 1/2" = 1'



2A / C-3 **PROPOSED ANTENNA ELEVATION (TYP.)**

SCALE: 1/2" = 1'

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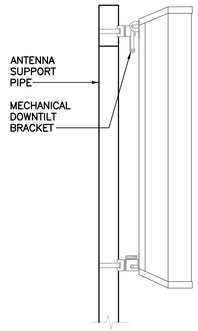
ANTENNA PLANS AND ELEVATIONS

C-3

Sheet No. 5 of 11



APXVAALL24_43-U-NA20

VV-65A-R1

ALPHA/BETA/GAMMA ANTENNA		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: RFS MODEL: APXVAALL24_43-U-NA20	95.9"L x 24.0"W x 8.5"D	±150 LBS.
MAKE: COMMSCOPE MODEL: VV-65A-R1	54.7"L x 12.1"W x 4.6"D	±41 LBS.

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

1 C-4 PROPOSED ANTENNA DETAIL

SCALE: NOT TO SCALE

RADIO 4460 B25+B66

RADIO 4480 B71+B85

RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: RADIO 4460 B25+B66	19.6"L x 15.7"W x 12.1"D	±109 LBS.	BEHIND ANT.: 8" MIN. BELOW ANT.: 20" MIN. BELOW RRU: 16" MIN.
MAKE: ERICSSON MODEL: RADIO 4480 B71+B85	21.8"L x 15.7"W x 7.5"D	±84 LBS.	BEHIND ANT.: 8" MIN. BELOW ANT.: 20" MIN. BELOW RRU: 16" MIN.

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

2 C-4 PROPOSED RRU DETAIL

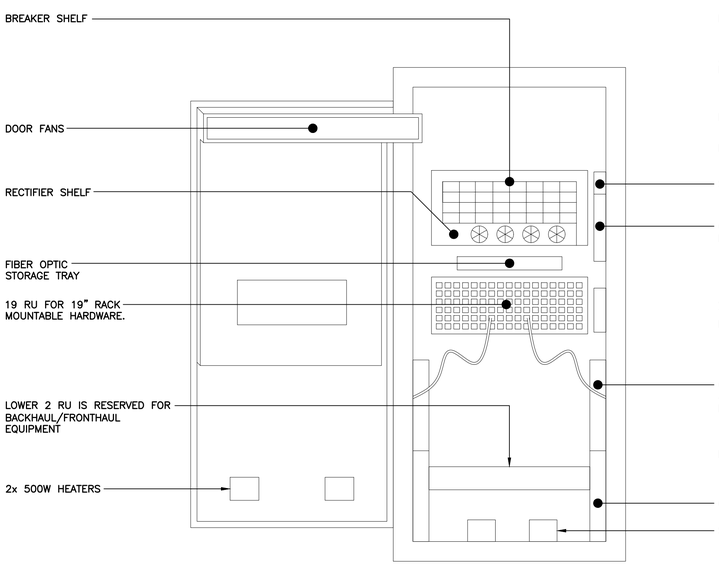
SCALE: NOT TO SCALE

ANDREW SMART BIAS-T		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: COMMSCOPE MODEL: ATSBT-TOP-MF-4G	5.63"L x 3.7"W x 2"D	±1.7 LBS.

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

3 C-4 PROPOSED BIAS-TEE DETAIL

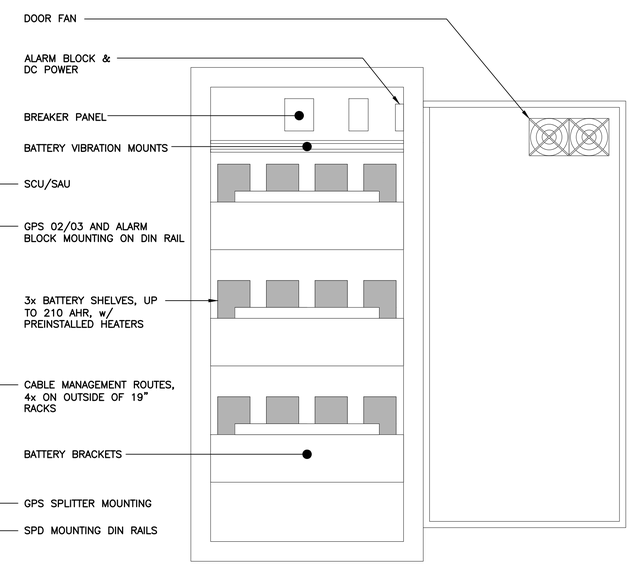
SCALE: NOT TO SCALE



EQUIPMENT CABINET		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: ERICSSON MODEL: ENCLOSURE 6160 CABINET	62.0"H x 26.0"W x 26.0"D	±1200 LBS

4 C-4 ENCLOSURE 6160 CABINET DETAIL

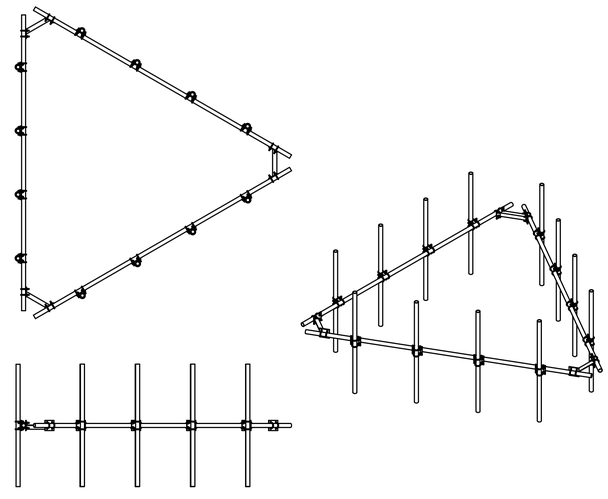
SCALE: NOT TO SCALE



EQUIPMENT CABINET		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: ERICSSON MODEL: BATTERY B160 CABINET	62.0"H x 26.0"W x 26.0"D	±1883 LBS

5 C-4 BATTERY B160 CABINET DETAIL

SCALE: NOT TO SCALE



6 C-4 SITE PRO HANDRAIL KIT DETAIL P/N: HRK14

SCALE: NOT TO SCALE

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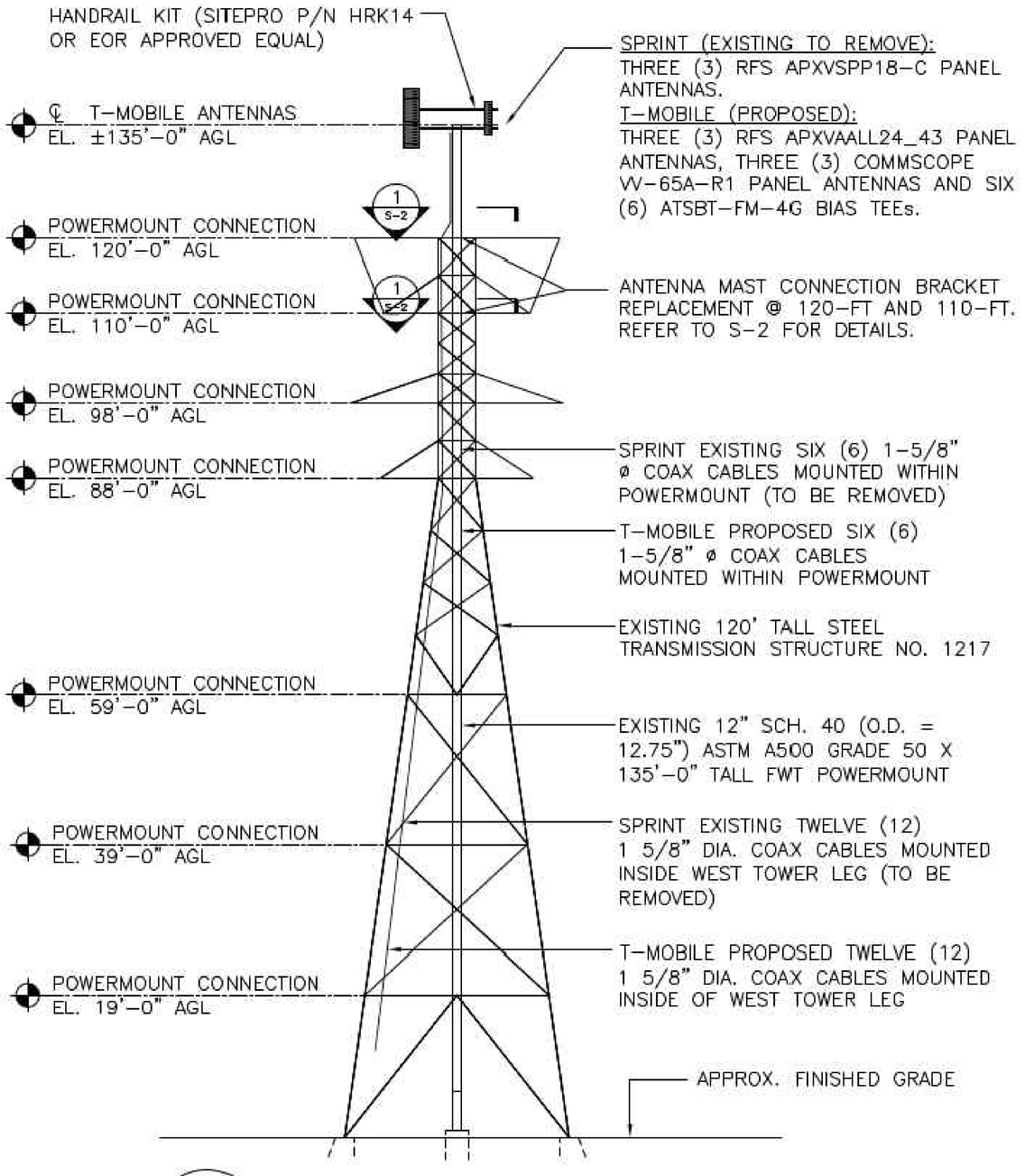
TYPICAL EQUIPMENT DETAILS

C-4

Sheet No. 6 of 11



1 / S-1 **TOWER AND MAST ELEVATION**

SCALE: NTS

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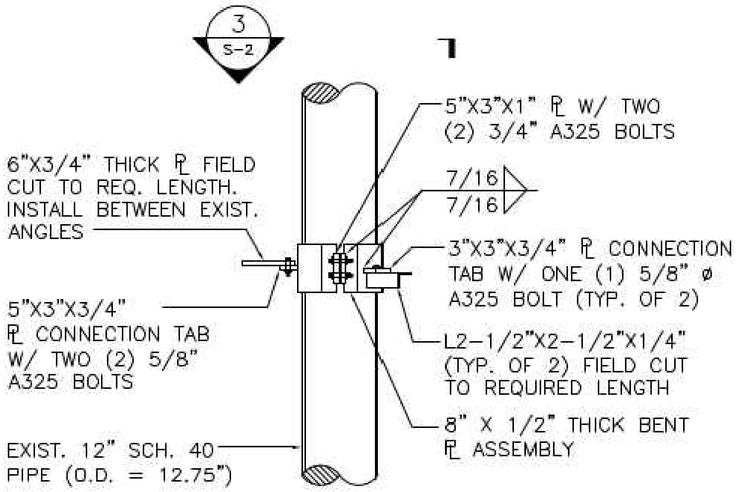
TOWER ELEVATION

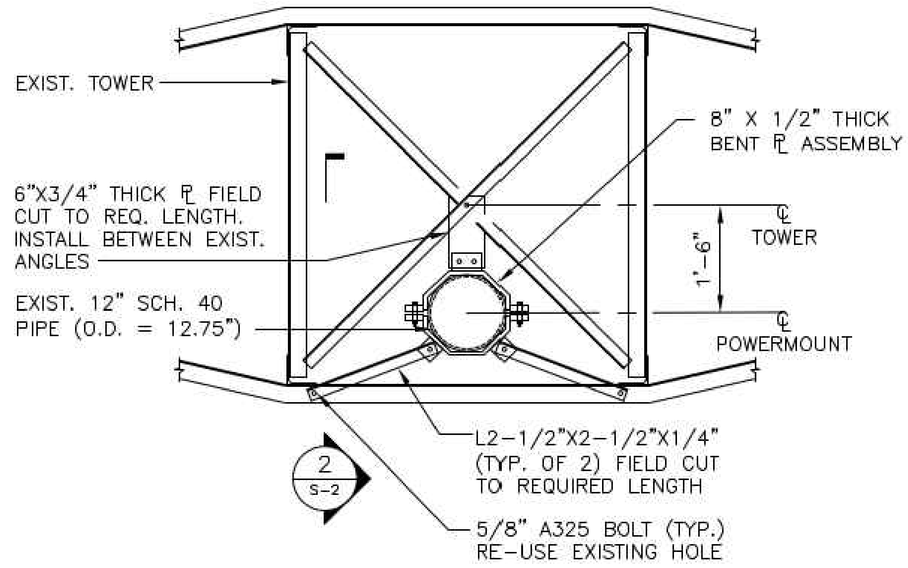
S-1

Sheet No. 7 of 11



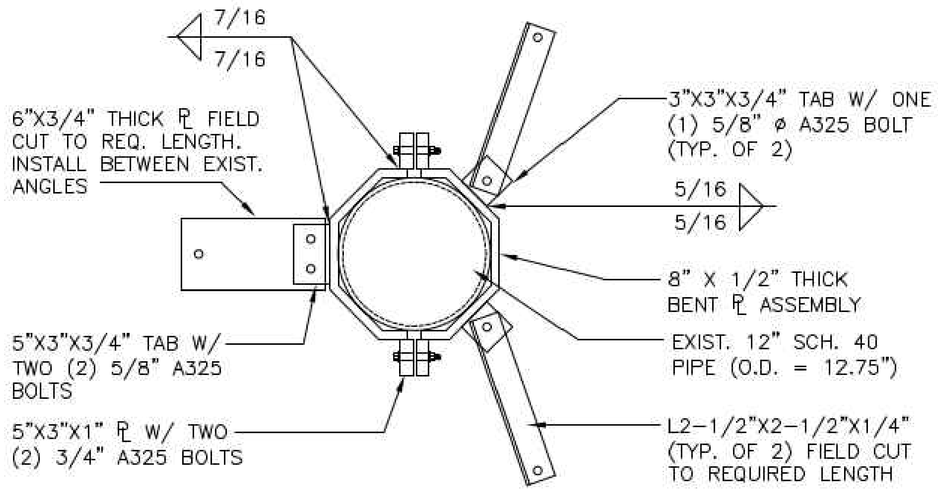
2 S-2 BRACKET ELEVATION

SCALE: 1/2" = 1'-0"



1 S-2 BRACKET PLAN

SCALE: 1/2" = 1'-0"



3 S-2 BRACKET DETAIL

SCALE: 1/2" = 1'-0"

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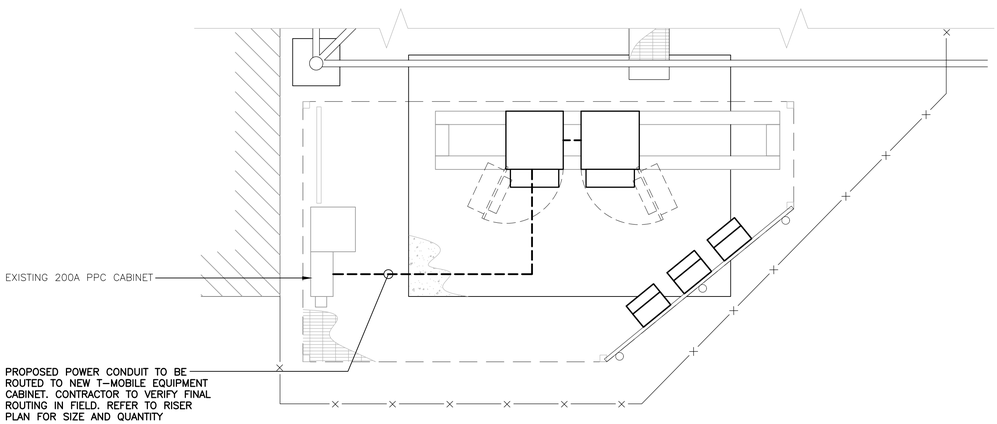
CONNECTION DETAILS

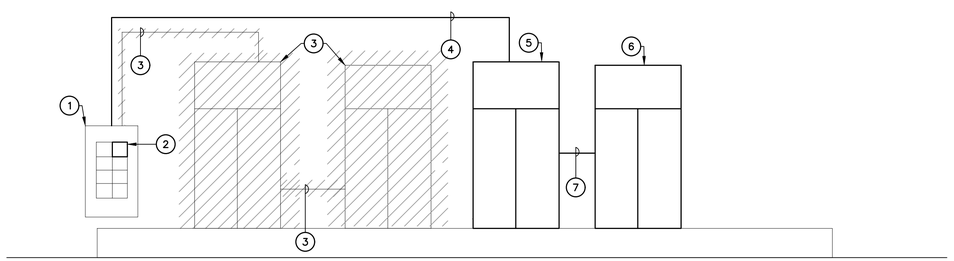
S-2



1 / E-1 **ELECTRICAL CONDUIT ROUTING PLAN**
SCALE: 3/8" = 1'

RISER DIAGRAM NOTES

1. EXISTING 200A, PPC CABINET TO REMAIN.
2. NEW 150A/2P CIRCUIT BREAKER TO SERVE NEW EQUIPMENT CABINET.
3. EXISTING CABINETS AND ASSOCIATED CONDUITS, CONDUCTORS, AND CIRCUIT BREAKERS TO BE REMOVED.
4. (3) 1/0 AWG, (1) #6 AWG GROUND, 1-1/2" CONDUIT.
5. NEW T-MOBILE EQUIPMENT CABINET
6. NEW T-MOBILE BATTERY CABINET
7. DC CONDUIT AND CONDUCTORS FOR BATTERY CABINET CONNECTION PER MANUFACTURERS SPECIFICATIONS.



2 / E-1 **ELECTRICAL POWER RISER DIAGRAM**
SCALE: NOT TO SCALE

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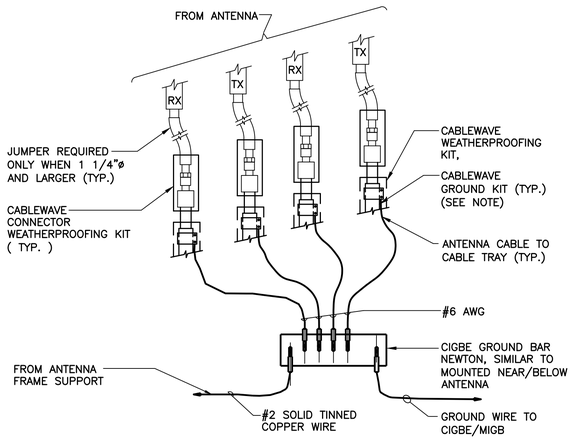
ELECTRICAL RISER DIAGRAM AND CONDUIT ROUTING

E-1

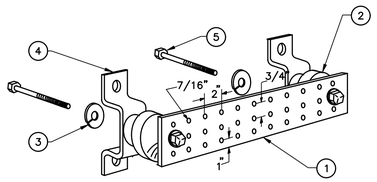


NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE

1 E-2 CONNECTION OF GROUND WIRES TO GROUND BAR

SCALE: NOT TO SCALE

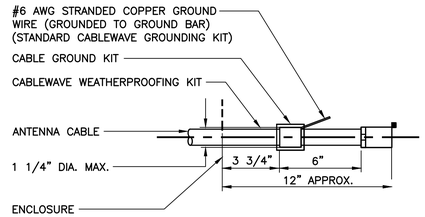


NOTES

1. TINNED COPPER GROUND BAR, 1/4" x 4" x 20", NEWTON INSTRUMENT CO. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.
2. INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061-4.
3. 5/8" LOCK WASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8.
4. WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT NO. A-6056.
5. 5/8-11 x 1" STAINLESS STEEL TRUSS SPANNER MACHINE SCREWS.

2 E-2 GROUND BAR DETAIL

SCALE: NOT TO SCALE

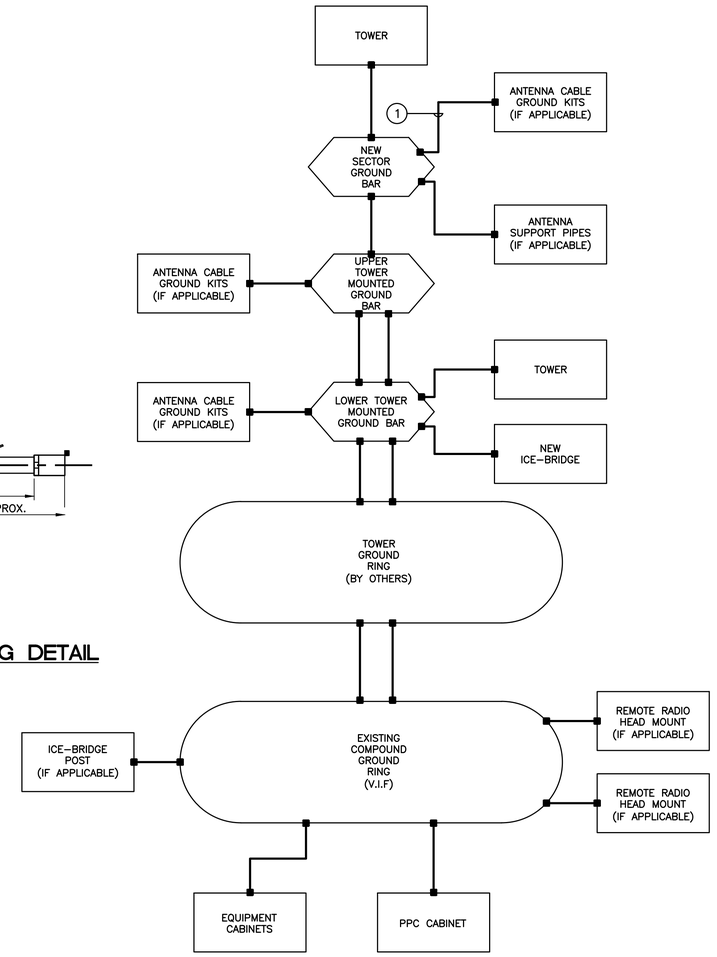


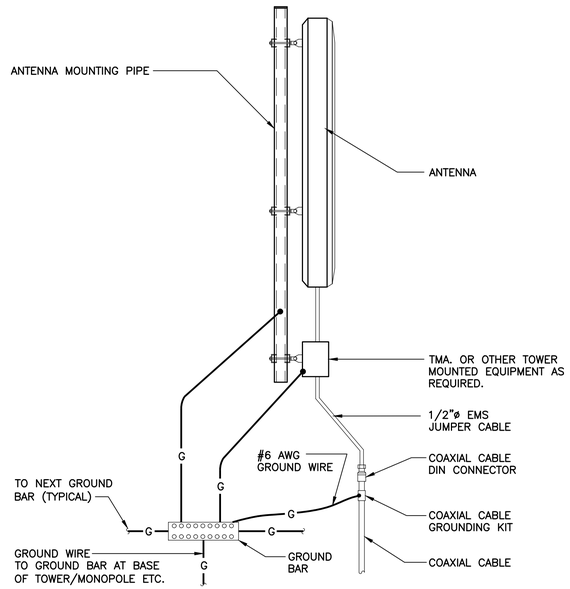
NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.

3 E-2 ANTENNA CABLE GROUNDING DETAIL

SCALE: NOT TO SCALE

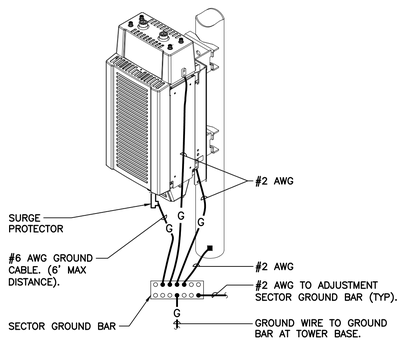




4 E-2 TYPICAL ANTENNA GROUNDING DETAIL

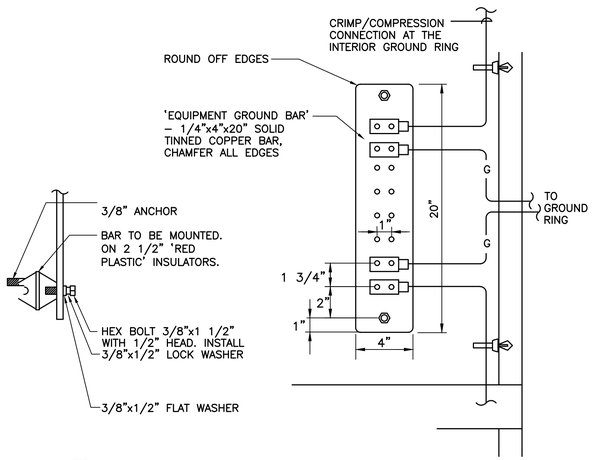
SCALE: NOT TO SCALE

EACH RRH CABINET SHALL BE GROUNDED IN THE FOLLOWING MANNER:
1. AT TOP OF THE CABINET
2. AT RIGHT SIDE OF THE CABINET.



5 E-2 RRH POLE MOUNT GROUNDING

SCALE: NOT TO SCALE



6 E-2 EQUIPMENT GROUND BAR DETAIL

SCALE: NOT TO SCALE

GROUNDING SCHEMATIC NOTES

#6 AWG

GENERAL NOTES:

1. ALL SURGE SUPPRESSION EQUIPMENT SHALL BE BONDED TO GROUND PER MANUFACTURER'S SPECIFICATIONS
2. UNLESS OTHERWISE NOTED OR REQUIRED BY CODE, GROUND CONDUCTORS SHOWN SHALL BE #2 AWG (SOLID TINNED BCW – EXTERIOR; STRANDED GREEN INSULATED – INTERIOR).
3. BOND CABLE TRAY SECTIONS TOGETHER WITH #6 AWG STRANDED GREEN INSULATED JUMPERS.
4. ALL SECTOR GROUND BARS SHALL BE BONDED TOGETHER WITH #2 AWG SOLID TINNED BCW.
5. BOND ALL EQUIPMENT CABINETS AND BATTERY CABINETS TO GROUND PER MANUFACTURER'S SPECIFICATIONS.
6. REFER TO ALL ELECTRICAL AND GROUNDING DETAILS.
7. COORDINATE ALL TOWER MOUNTED EQUIPMENT WITH OWNER.
8. ALL ROOF MOUNTED AMPLIFIERS AND ASSOCIATED EQUIPMENT SHALL BE BONDED TO THE SECTOR GROUND BAR PER MANUFACTURER'S SPECIFICATIONS.
9. ALL GROUNDING SHALL BE IN ACCORDANCE WITH NEC AND OWNER'S REQUIREMENTS.

7 E-2 ELECTRICAL SCHEMATIC DIAGRAM

SCALE: NOT TO SCALE

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TYPICAL ELECTRICAL DETAILS

E-2

Sheet No. 10 of 11

ELECTRICAL SPECIFICATIONS

SECTION 16010

1.1. SCOPE OF WORK

A. WORK SHALL INCLUDE ALL LABOR, EQUIPMENT AND SERVICES REQUIRED TO COMPLETE (MAKE READY FOR OPERATION) ALL THE ELECTRICAL WORK INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:

1. INSTALL 150A/2P CIRCUIT BREAKER TO SERVE NEW EQUIPMENT
2. EXISTING 100A CIRCUIT BREAKER TO BE REMOVED
3. FEEDERS AND BRANCH CIRCUIT WIRING TO PANELS AND EQUIPMENTS AS INDICATED OR NOTED ON PLANS.
4. FIELD MEASURE EXISTING ELECTRICAL SERVICES TO CONFIRM AVAILABLE EXISTING POWER.

1.02. GENERAL REQUIREMENTS

A. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE MADE IN STRICT ACCORDANCE WITH ALL LOCAL, STATE AND NATIONAL CODES AND REGULATIONS WHICH MAY APPLY AND NOTHING IN THE DRAWINGS OR SPECIFICATIONS SHALL BE INTERPRETED AS AN INFRINGEMENT OF SUCH CODES OR REGULATIONS.

B. THE ELECTRICAL CONTRACTOR IS TO BE RESPONSIBLE FOR THE COMPLETE INSTALLATION AND COORDINATION OF THE ENTIRE ELECTRICAL SERVICE. ALL ACTIVITIES TO BE COORDINATED THROUGH OWNERS REPRESENTATIVE, DESIGN ENGINEER AND OTHER AUTHORITIES HAVING JURISDICTION OF TRADES.

C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND PAY ALL FEES THAT MAY BE REQUIRED FOR THE ELECTRICAL WORK AND FOR THE SCHEDULING OF ALL INSPECTIONS THAT MAY BE REQUIRED BY THE LOCAL AUTHORITY.

D. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH THE BUILDING OWNER FOR NEW AND/OR DEMOLITION WORK INVOLVED.

E. NO MATERIAL OTHER THAN THAT CONTAINED IN THE "LATEST LIST OF ELECTRICAL FITTINGS" APPROVED BY THE UNDERWRITERS' LABORATORIES, SHALL BE USED IN ANY PART OF THE WORK. ALL MATERIAL FOR WHICH LABEL SERVICE HAS BEEN ESTABLISHED SHALL BEAR THE U.L. LABEL.

F. THE CONTRACTOR SHALL GUARANTEE ALL NEW WORK FOR A PERIOD OF ONE YEAR FROM THE ACCEPTANCE DATE BY THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING WARRANTIES FROM ALL EQUIPMENT MANUFACTURERS FOR SUBMISSION TO THE OWNER.

G. DRAWINGS INDICATE GENERAL ARRANGEMENT OF WORK INCLUDED IN CONTRACT. CONTRACTOR SHALL, WITHOUT EXTRA CHARGE, MAKE MODIFICATIONS TO THE LAYOUT OF THE WORK TO PREVENT CONFLICT WITH WORK OF OTHER TRADES AND FOR THE PROPER INSTALLATION OF WORK. CHECK ALL DRAWINGS AND VISIT JOB SITE TO VERIFY SPACE AND TYPE OF EXISTING CONDITIONS IN WHICH WORK WILL BE DONE, PRIOR TO SUBMITTAL OF BID.

H. THE ELECTRICAL CONTRACTOR SHALL SUPPLY THREE (3) COMPLETE SETS OF APPROVED DRAWINGS, ENGINEERING DATA SHEETS, MAINTENANCE AND OPERATING INSTRUCTION MANUALS FOR ALL SYSTEMS AND THEIR RESPECTIVE EQUIPMENT. THESE MANUALS SHALL BE INSERTED IN VINYL COVERED 3-RING BINDERS AND TURNED OVER TO OWNER'S REPRESENTATIVE ONE (1) WEEK PRIOR TO FINAL PUNCH LIST.

I. ALL WORK SHALL BE INSTALLED IN A NEAT AND WORKMAN LIKE MANNER AND WILL BE SUBJECT TO THE APPROVAL OF THE OWNER'S REPRESENTATIVE.

J. ALL EQUIPMENT AND MATERIALS TO BE INSTALLED SHALL BE NEW, UNLESS OTHERWISE NOTED.

K. BEFORE FINAL PAYMENT, THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF PRINTS (AS-BUILTS), LEGIBLY MARKED IN RED PENCIL TO SHOW ALL CHANGES FROM THE ORIGINAL PLANS.

L. PROVIDE TEMPORARY POWER AND LIGHTING IN WORK AREAS AS REQUIRED.

M. SHOP DRAWINGS:

1. CONTRACTOR SHALL SUBMIT SIX (6) COPIES OF SHOP DRAWINGS ON ALL EQUIPMENT AND MATERIALS PROPOSED FOR USE ON THIS PROJECT, GIVING ALL DETAILS, WHICH INCLUDE DIMENSIONS, CAPACITIES, ETC.
2. CONTRACTOR SHALL SUBMIT SIX (6) COPIES OF ALL TEST REPORTS CALLED FOR IN THE SPECIFICATIONS AND DRAWINGS.

N. ENTIRE ELECTRICAL INSTALLATION SHALL BE IN ACCORDANCE WITH OWNER'S SPECIFICATIONS, AND REQUIREMENTS OF ALL LOCAL AUTHORITIES HAVING JURISDICTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH APPROPRIATE INDIVIDUALS TO OBTAIN ALL SUCH SPECIFICATIONS AND REQUIREMENTS. NOTHING CONTAINED IN, OR OMITTED FROM, THESE DOCUMENTS SHALL RELIEVE CONTRACTOR FROM THIS OBLIGATION.

SECTION 16111

1.01. CONDUIT

A. MINIMUM CONDUIT SIZE FOR BRANCH CIRCUITS, LOW VOLTAGE CONTROL AND ALARM CIRCUITS SHALL BE 3/4". CONDUITS SHALL BE PROPERLY FASTENED AS REQUIRED BY THE N.E.C.

B. THE INTERIOR OF RACEWAYS/ENCLOSURES INSTALLED UNDERGROUND SHALL BE CONSIDERED TO BE WET LOCATION, INSULATED CONDUCTORS SHALL BE LISTED FOR USE IN WET LOCATIONS. PROVIDE WEATHERPROOF CONSTRUCTION IN WET LOCATIONS.

C. CONDUIT INSTALLED UNDERGROUND SHALL BE INSTALLED TO MEET MINIMUM COVER REQUIREMENTS OF TABLE 300.5.

D. PROVIDE RIGID GALVANIZED STEEL CONDUIT (RMC) FOR THE FIRST 10 FOOT SECTION WHEN LEAVING A BUILDING OR SECTIONS PASSING THROUGH FLOOR SLABS

E. ONLY LISTED PVC CONDUIT AND FITTINGS ARE PERMITTED FOR THE INSTALLATION OF ELECTRICAL CONDUCTORS, SUITABLE FOR UNDERGROUND APPLICATIONS.

CONDUIT SCHEDULE SECTION 16111

CONDUIT TYPE	NEC REFERENCE	APPLICATION	MIN. BURIAL DEPTH (PER NEC TABLE 300.5) [2,3]
EMT	ARTICLE 358	INTERIOR CIRCUITING, EQUIPMENT ROOMS, SHELTERS	N/A
RMC, RIGID GALV. STEEL	ARTICLE 344, 300.5, 300.50	ALL INTERIOR/ EXTERIOR CIRCUITING, ALL UNDERGROUND INSTALLATIONS.	6 INCHES
PVC, SCHEDULE 40	ARTICLE 352, 300.5, 300.50	INTERIOR/ EXTERIOR CIRCUITING AND GROUNDING SYSTEMS, UNDERGROUND INSTALLATIONS, WHERE NOT SUBJECT TO PHYSICAL DAMAGE. [1]	18 INCHES
PVC, SCHEDULE 80	ARTICLE 352, 300.5, 300.50	INTERIOR/ EXTERIOR CIRCUITING AND GROUNDING SYSTEMS, UNDERGROUND INSTALLATIONS, WHERE SUBJECT TO PHYSICAL DAMAGE. [1]	18 INCHES
LIQUID TIGHT FLEX. METAL	ARTICLE 350	SHORT LENGTHS (MAX. 3FT.) WIRING TO VIBRATING EQUIPMENT IN WET LOCATIONS.	N/A
FLEX. METAL	ARTICLE 348	SHORT LENGTHS (MAX. 3FT.) WIRING TO VIBRATING EQUIPMENT IN WET LOCATIONS.	N/A

[1] PHYSICAL DAMAGE IS SUBJECT TO THE AUTHORITY HAVING JURISDICTION.

[2] UNDERGROUND CONDUIT INSTALLED UNDER ROADS, HIGHWAYS, DRIVEWAYS, PARKING LOTS SHALL HAVE MINIMUM DEPTH OF 24".

[3] WHERE SOLID ROCK PREVENTS COMPLIANCE WITH MINIMUM COVER DEPTHS, WIRING SHALL BE INSTALLED IN PERMITTED RACEWAY FOR DIRECT BURIAL. THE RACEWAY SHALL BE COVERED BY A MINIMUM OF 2" OF CONCRETE EXTENDING DOWN TO ROCK.

SECTION 16123

1.01. CONDUCTORS

A. ALL CONDUCTORS SHALL BE TYPE THWN (INT. APPLICATION) AND XHHW (EXT. APPLICATION), 75 DEGREE C, 600 VOLT INSULATION, SOFT ANNEALED STRANDED COPPER. #10 AWG AND SMALLER SHALL BE SPLICED USING ACCEPTABLE SOLDERLESS PRESSURE CONNECTORS. #8 AWG AND LARGER SHALL BE SPLICED USING COMPRESSION SPLIT-BOLT TYPE CONNECTORS. #12 AWG SHALL BE THE MINIMUM SIZE CONDUCTOR FOR LINE VOLTAGE BRANCH CIRCUITS. REFER TO PANEL SCHEDULE FOR BRANCH CIRCUIT CONDUCTOR SIZE(S). CONDUCTORS SHALL BE COLOR CODED FOR CONSISTENT PHASE IDENTIFICATION:

	120/208/240V	277/480V
LINE	COLOR	COLOR
A	BLACK	BROWN
B	RED	ORANGE
C	BLUE	YELLOW
N	CONTINUOUS WHITE	GREY
G	CONTINUOUS GREEN	GREEN WITH YELLOW STRIPE

B. MINIMUM BENDING RADIUS FOR CONDUCTORS SHALL BE 12 TIMES THE LARGEST DIAMETER OF BRANCH CIRCUIT CONDUCTOR.

SECTION 16130

1.01. BOXES

A. FURNISH AND INSTALL OUTLET BOXES FOR ALL DEVICES, SWITCHES, RECEPTACLES, ETC.. BOXES TO BE ZINC COATED STEEL.

B. FURNISH AND INSTALL PULL BOXES IN MAIN FEEDERS RUNS WHERE REQUIRED. PULL BOXES SHALL BE GALVANIZED STEEL WITH SCREW REMOVABLE COVERS, SIZE AND QUANTITY AS REQUIRED. PROVIDE WEATHERPROOF CONSTRUCTION IN WET LOCATIONS.

SECTION 16140

1.01. WIRING DEVICES

A. THE FOLLOWING LIST IS PROVIDED TO CONVEY THE QUALITY AND RATING OF WIRING DEVICES WHICH ARE TO BE INSTALLED. A COMPLETE LIST OF ALL DEVICES MUST BE SUBMITTED BEFORE INSTALLATION FOR APPROVAL.

1. 15 MINUTE TIMER SWITCH – INTERMATIC #FF15M (INTERIOR LIGHTS)
2. DUPLEX RECEPTACLE – P&S #2095 (GFCI) SPECIFICATION GRADE
3. SINGLE POLE SWITCH – P&S #CSB20AC2 (20A-120V HARD USE) SPECIFICATION GRADE
4. DUPLEX RECEPTACLE – P&S #5362 (20A-120V HARD USE) SPECIFICATION GRADE

B. PLATES – ALL PLATES USED SHALL BE CORROSION RESISTANT TYPE 304 STAINLESS STEEL. PLATES SHALL BE FROM SAME MANUFACTURER AS SWITCHES AND RECEPTACLES. PROVIDE WEATHERPROOF HOUSING FOR DEVICES LOCATED IN WET LOCATIONS.

C. OTHER MANUFACTURERS OF THE SWITCHES, RECEPTACLES AND PLATES MAY BE SUBMITTED FOR APPROVAL BY THE ENGINEER.

SECTION 16170

1.01. DISCONNECT SWITCHES

A. FUSIBLE AND NON-FUSIBLE, 600V, HEAVY DUTY DISCONNECT SWITCHES SHALL BE AS MANUFACTURED BY SQUARE "D". PROVIDE FUSES AS CALLED FOR ON THE CONTRACT DRAWINGS. AMPERE RATING SHALL BE CONSISTENT WITH LOAD BEING SERVED. DISCONNECT SWITCH COVER SHALL BE MECHANICALLY INTERLOCKED TO PREVENT COVER FROM OPENING WHEN THE SWITCH IS IN THE "ON" POSITION. EXTERIOR APPLICATIONS SHALL BE NEMA 3R CONSTRUCTION WITH PADLOCK FEATURE.

SECTION 16190

1.01. SEISMIC RESTRAINT

A. ALL DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH ZONE 2 SEISMIC REQUIREMENTS.

SECTION 16195

1.01. LABELING AND IDENTIFICATION NOMENCLATURE FOR ELECTRICAL EQUIPMENT

A. CONTRACTOR SHALL FURNISH AND INSTALL NON-METALLIC ENGRAVED BACK-LIT NAMEPLATES ON ALL PANELS AND MAJOR ITEMS OF ELECTRICAL EQUIPMENT.

B. LETTERS TO BE WHITE ON BLACK BACKGROUND WITH LETTERS 1-1/2 INCH HIGH WITH 1/4 INCH MARGIN.

C. IDENTIFICATION NOMENCLATURE SHALL BE IN ACCORDANCE WITH OWNER'S STANDARDS.

SECTION 16450

1.01. GROUNDING

A. ALL NON-CURRENT CARRYING PARTS OF THE ELECTRICAL AND TELEPHONE CONDUIT SYSTEMS SHALL BE MECHANICALLY AND ELECTRICALLY CONNECTED TO PROVIDE AN INDEPENDENT RETURN PATH TO THE EQUIPMENT GROUNDING SOURCES.

B. GROUNDING SYSTEM WILL BE IN ACCORDANCE WITH THE LATEST ACCEPTABLE EDITION OF THE NATIONAL ELECTRICAL CODE AND REQUIREMENTS PER LOCAL INSPECTOR HAVING JURISDICTION.

C. GROUNDING OF PANELBOARDS:

1. CONDUIT(S) TERMINATING INTO THE PANELBOARD SHALL HAVE GROUNDING TYPE BUSHINGS. THE BUSHINGS SHALL BE BONDED TOGETHER WITH BARE #10 AWG COPPER CONDUCTOR WHICH IN TURN IS TERMINATED INTO THE PANELBOARD'S EQUIPMENT GROUND BAR KIT(S).

D. EQUIPMENT GROUNDING CONDUCTOR:

1. EACH EQUIPMENT GROUND CONDUCTOR SHALL BE SIZED IN ACCORDANCE WITH THE N.E.C. ARTICLE 250-122.
2. THE MINIMUM SIZE OF EQUIPMENT GROUND CONDUCTOR SHALL BE #12 AWG COPPER.
3. EACH FEEDER OR BRANCH CIRCUIT SHALL HAVE EQUIPMENT GROUND CONDUCTOR(S) INSTALLED IN THE SAME RACEWAY(S).

E. GROUNDING SYSTEM:

CONTRACTOR SHALL PROVIDE A GROUNDING SYSTEM WITH THE MAXIMUM AC RESISTANCE TO GROUND OF 10 OHM BETWEEN ANY POINT ON THE GROUNDING SYSTEM AS MEASURED BY 3-POINT GROUNDING TEST. (REFER TO SECTION 16960).

PROVIDE THE GROUNDING SYSTEM AS SPECIFIED ON DRAWINGS, INCLUDING, BUT NOT LIMITED TO:

1. GROUND BARS
2. EXTERIOR GROUNDING (WHERE REQUIRED DUE TO MEASURED AC RESISTANCE GREATER THAN SPECIFIED).
3. ANTENNA GROUND CONNECTIONS AND PLATES.

F. CONTRACTOR, AFTER COMPLETION OF THE COMPLETE GROUNDING SYSTEM BUT PRIOR TO CONCEALMENT/BURIAL OF SAME, SHALL NOTIFY OWNER'S PROJECT ENGINEER WHO WILL HAVE A DESIGN ENGINEER VISIT SITE AND MAKE A VISUAL INSPECTION OF THE GROUNDING GRID AND CONNECTIONS OF THE SYSTEM.

G. ALL EQUIPMENT SHALL BE BONDED TO GROUND AS REQUIRED BY N.E.C., MFG. SPECIFICATIONS, AND OWNER'S SPECIFICATIONS.

SECTION 16477

1.01. FUSES

A. FUSES SHALL BE NONRENEWABLE TYPE AS MANUFACTURED BY "BUSSMAN" OR APPROVED EQUAL. FUSES RATED TO 1/10 AMPERE UP TO 600 AMPERES SHALL BE EQUIVALENT TO BUSSMAN TYPE LPN-RK (250V) UL CLASS RK1, LOW PEAK, DUAL ELEMENT, TIME-DELAY FUSES. FUSES SHALL HAVE SEPARATE SHORT CIRCUIT AND OVERLOAD ELEMENTS AND HAVE AN INTERRUPTING RATING OF 200 KAIC. UPON COMPLETION OF WORK, PROVIDE ONE SPARE SET OF FUSES FOR EACH TYPE INSTALLED.

SECTION 16960

1.01. TESTS BY INDEPENDENT ELECTRICAL TESTING FIRM

A. CONTRACTOR SHALL RETAIN THE SERVICES OF A LOCAL INDEPENDENT ELECTRICAL TESTING FIRM (WITH MINIMUM 5 YEARS COMMERCIAL EXPERIENCE IN THE ELECTRICAL TESTING INDUSTRY) AS SPECIFIED BY OWNER TO PERFORM:

TEST 1: THERMAL OVERLOAD AND MAGNETIC TRIP TEST, AND CABLE INSULATION TEST FOR ALL CIRCUIT BREAKERS RATED 100 AMPS OR GREATER.

TEST 2: RESISTANCE TO GROUND TEST ON THE GROUNDING SYSTEM.

THE TESTING FIRM SHALL INCLUDE THE FOLLOWING INFORMATION WITH THE REPORT:

1. TESTING PROCEDURE INCLUDING THE MAKE AND MODEL OF TEST EQUIPMENT.
2. CERTIFICATION OF TESTING EQUIPMENT CALIBRATION WITHIN SIX (6) MONTHS OF DATE OF TESTING. INCLUDE CERTIFICATION LAB ADDRESS AND TELEPHONE NUMBER.
3. GRAPHICAL DESCRIPTION OF TESTING METHOD ACTUALLY IMPLEMENTED.

B. THESE TESTS SHALL BE PERFORMED IN THE PRESENCE AND TO THE SATISFACTION OF OWNER'S CONSTRUCTION REPRESENTATIVE. TESTING DATA SHALL BE INITIALED AND DATED BY THE CONSTRUCTION REPRESENTATIVE AND INCLUDED WITH THE WRITTEN REPORT/ANALYSIS.

C. THE CONTRACTOR SHALL FORWARD SIX (6) COPIES OF THE INDEPENDENT ELECTRICAL TESTING FIRM'S REPORT/ANALYSIS TO ENGINEER A MINIMUM OF TEN (10) WORKING DAYS PRIOR TO THE JOB TURNOVER.

D. CONTRACTOR TO PROVIDE A MINIMUM OF ONE (1) WEEK NOTICE TO OWNER AND ENGINEER FOR ALL TESTS REQUIRING WITNESSING.

SECTION 16961

1.01. TESTS BY CONTRACTOR

A. ALL TESTS AS REQUIRED UPON COMPLETION OF WORK, SHALL BE MADE BY THIS CONTRACTOR. THESE SHALL BE CONTINUITY AND INSULATION TESTS; TEST TO DETERMINE THE QUALITY OF MATERIALS, ETC. AND SHALL BE MADE IN ACCORDANCE WITH N.E.C. RECOMMENDATIONS. ALL FEEDERS AND BRANCH CIRCUIT WIRING (EXCEPT CLASS 2 SIGNAL CIRCUITS) MUST BE TESTED FREE FROM SHORT CIRCUIT AND GROUND FAULT CONDITIONS AT 500V IN A REASONABLY DRY AMBIENT OF APPROXIMATELY 70 DEGREES F.

B. CONTRACTOR SHALL PERFORM LOAD PHASE BALANCING TESTS. CIRCUITS SHALL BE SO CONNECTED TO THE PANELBOARDS SUCH THAT THE NEW LOAD IS DISTRIBUTED AS EQUALLY AS POSSIBLE BETWEEN EACH LOAD AND NEUTRAL. 10% SHALL BE CONSIDERED AS A REASONABLE AND ACCEPTABLE ALLOWANCE. BRANCH CIRCUITS SHALL BE BALANCED ON THEIR OWN PANELBOARDS; FEEDER LOADS SHALL, IN TURN, BE BALANCED ON THE SERVICE EQUIPMENT. REASONABLE LOAD TEST SHALL BE ARRANGED TO VERIFY LOAD BALANCE IF REQUESTED BY THE ENGINEER.

C. ALL TESTS, UPON REQUEST, SHALL BE REPEATED IN THE PRESENCE OF OWNER'S REPRESENTATIVE. ALL TESTS SHALL BE DOCUMENTED AND TURNED OVER TO OWNER. OWNER SHALL HAVE THE AUTHORITY TO STOP ANY OF THE WORK NOT BEING PROPERLY INSTALLED. ALL SUCH DETECTED WORK SHALL BE REPAIRED OR REPLACED AT NO ADDITIONAL EXPENSE TO THE OWNER AND THE TESTS SHALL BE REPEATED.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	12/08/22	RTS	TJR	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION
	12/15/22	RTS	TJR	CONSTRUCTION DRAWINGS - REVISED PER CLIENT COMMENTS

PROFESSIONAL ENGINEER SEAL

Sprint T-Mobile Transcend Wireless

CENTEK engineering
Centered on Solutions℠
(203) 488-0580
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63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

T-MOBILE NORTHEAST LLC

SPRINT ID: CT03XC329
SITE ID: CTFF740A
63 MYRTLE AVE
STAMFORD, CT 06902

DATE: 12/23/21
SCALE: AS NOTED
JOB NO. 21005.42

ELECTRICAL SPECIFICATIONS

E-3

Sheet No. 11 of 11

CENTEK engineering

Centered on Solutions℠

Structural Analysis of Antenna Mast and Tower

T-Mobile Site Ref: CTFF740A

Eversource Structure No. 1217

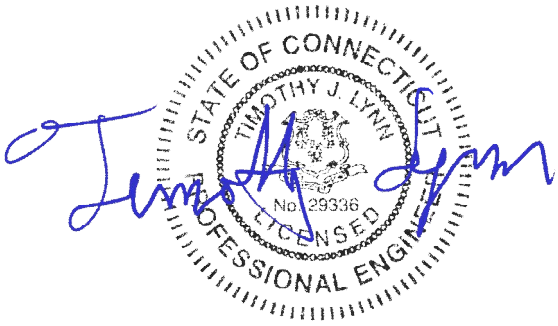
120' Electric Transmission Lattice Tower

63-69 Myrtle Ave
Stamford, CT

CENTEK Project No. 21005.42

~~Date: May 6, 2022~~

Rev 5: November 17, 2022



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

Table of Contents

Introduction

The purpose of this report is to analyze the existing 135' FWT Powermount job no. 17532 dated August 8, 1998 and 120' utility tower located at 63-63 Myrtle Ave., Stamford, CT for the proposed antenna and equipment upgrade by T-Mobile.

The proposed loads consist of the following:

- **SPRINT (Existing to Remove)**
  Antennas: Three (3) RFS APXVSPP18-C panel antennas mounted on an existing 14-ft low profile platform to the existing powermount with a RAD center elevation of 135-ft above grade.
  Coax Cables: Six (6) 1-5/8" ∅ coax cables running on the inside of the existing powermount. Twelve (12) 1-5/8" ∅ coax cables mounted on T-Brackets running on a leg of the existing tower as indicated in section 4 of this report.
- **T-MOBILE (Proposed):**
  Antennas: Three (3) RFS APXVAALL24_43 panel antennas, three (3) Commscope VV-65A-R1 panel antennas and six (6) ATSBT-FM-4G Bias Tees mounted on an existing 14-ft low profile platform to the powermount with a RAD center elevation of 135-ft above grade. Handrail to be installed on existing platform.
  Coax Cables: Six (6) 1-5/8" ∅ coax cables running on the inside of the existing powermount. Twelve (12) 1-5/8" ∅ coax cables mounted on T-Brackets running on a leg of the existing tower as indicated in section 4 of this report.

Primary assumptions used in the analysis

- Design steel stresses are defined by AISC-LRFD 14th edition for design of the antenna Mast and antenna supporting elements.
- ASCE Manual No. 10-15, "Design of Latticed Steel Transmission Structures", defines allowable steel stresses for evaluation of the utility tower.
- All utility tower members are adequately protected to prevent corrosion of steel members.
- All proposed antenna mounts are modeled as listed above.
- All coaxial cable will be installed as indicated in Section 4 of this report.
- Antenna Mast will be properly installed and maintained.
- No residual stresses exist due to incorrect tower erection.
- All bolts are appropriately tightened providing the necessary connection continuity.
- All welds conform to the requirements of AWS D1.1.
- Antenna Mast and utility tower will be in plumb condition.
- Utility tower was properly installed and maintained and all members were properly designed, detailed, fabricated, and installed and have been properly maintained since erection.
- Any deviation from the analyzed loading will require a new analysis for verification of structural adequacy.
- For TIA analysis, shielding of antennas was accounted for using Ka factor per TIA-H, Section 2.6.11.2.

Analysis

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

The existing Antenna Mast consisting of a 12" Sch. 40 pipe connected at seven elevations to the existing tower was analyzed for its ability to resist loads prescribed by the TIA-222-H standard. Section 5 of this report details these gravity and lateral wind loads. Load cases and combinations used in RISA-3D for TIA/EIA loading are listed in report Section 6.

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

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

Design Basis

Our analysis was performed in accordance with TIA-222-H, ASCE Manual No. 10-15, "Design of Latticed Steel Transmission Structures", NESC C2-2017 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 Eversource Design Criteria Table, NESC C2-2017 ~ Construction Grade B, and ASCE Manual No. 10-15, "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 C2-2017, 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 Eversource Design Criteria Table, TIA-222-H and AISC standards.

  Load cases considered:

  Load Case 1:
  Wind Speed…….. 130 mph (2022 CSBC Appendix-P)
  Radial Ice Thickness…….. 0”

  Load Case 2:
  Wind Pressure…….. 50 mph wind pressure
  Radial Ice Thickness…….. 1.0”

R e s u l t s

- POWERMOUNT

  The existing powermount **with the reinforcements detailed in section 4 was determined to be structurally adequate.**

Component	Design Limit	Stress Ratio (percentage of capacity)	Result
12” Sch. 40 Pipe	Bending	52.6%	**PASS**
L2.5x2.5x1/4 Brace	Axial/Bending	39.2%	**PASS**
Connection	Shear	95.2%	**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. 10-15, “Design of Latticed Steel Transmission Structures”, for the applied NESC Heavy and Hi-Wind load cases. The detailed analysis results are provided in Section 8 of this report. The analysis results are summarized as follows:

  A maximum usage of **97.17%** occurs in the utility structure under the **NESC Extreme** loading condition.

  TOWER SECTION:

  The utility structure was found to be within allowable limits.

Tower Member	Stress Ratio (% of capacity)	Result
Angle g39p	97.17%	**PASS**

- FOUNDATION AND ANCHORS

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

BASE REACTIONS:

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

Load Case	Shear	Uplift	Compression
NESC Heavy Wind	12.50 kips	24.42 kips	55.11 kips
NESC Extreme Wind	24.38 kips	94.66 kips	107.39 kips
Broken Wire	17.52 kips	55.59 kips	83.72 kips
NESC Extreme Wind Long	20.45 kips	64.38 kips	83.89 kips

Note 1 – 10% increase to be applied to tower base reactions for foundation verification per OTRM 051

FOUNDATION:

The foundation was found to be within allowable limits.

Foundation	Design Limit	Allowable Limit	Proposed Loading (2)	Result
Concrete Pier	Uplift	1.0 FS (1)	2.35 FS (1)	**PASS**
	Sliding	1.0 FS (1)	2.00 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.

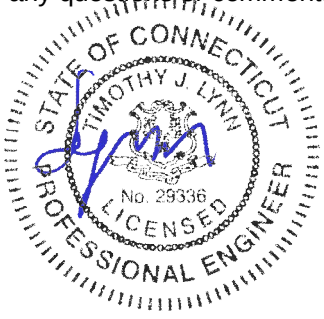
C o n c l u s i o n

This analysis shows that the subject utility tower and antenna mast **with the reinforcements detailed in section 4 are adequate** to support the proposed equipment installation.

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 drawing/editing environment: draw, generate, modify and load elements as well as snap, move, rotate, copy, mirror, scale, split, merge, mesh, delete, apply, trim, extend, etc.
- Versatile drawing grids (orthogonal, radial, skewed, DXF underlay)
- Universal snaps and object snaps allow drawing without grids
- Powerful graphic select/unselect tools including box, line, polygon, invert, criteria, spreadsheet based, save/recall selections with locking
- True spreadsheet editing with cut, paste, fill, math, sort, find, etc.
- Dynamic synchronization between spreadsheets and graphics
- Open multiple spreadsheets simultaneously
- Constant in-stream error checking and data validation
- Unlimited undo/redo capability, automatic timed backup
- Generation templates for grids, disks, cylinders, cones, arcs, trusses, tanks, hydrostatic loads, geodesic domes, etc.
- Support for all units systems & conversions at any time
- Automatic interaction with RISASection custom shape libraries
- Light Gage Shapes: AISI, SSMA, Dale/Incor, Dietrich, Marino\WARE
- Import DXF, RISA-2D, STAAD and CIS/2 files
- Export DXF, SDNF and CIS/2 files
- Robust two-way link with Autodesk Revit 2022 & 2021
- Link with Tekla Structures 2021 & 2020

Design Codes:

- Steel Design Codes: AISC 360-16/10/05: ASD & LRFD, AISC 2nd & 3rd: LRFD, AISC 9th: ASD, CSA S16-14/09/05/01/CSA-S16.1-94, BS 5950-1: 2000, EN 1993-1-1:2014/2005, ENV 1993-1-1:1992, IS 800: 2007/1998, AS 4100-1998, NZS 3404: 1997
- Seismic design per AISC 341-16/10/05, including 358 prequalified connections
- Concrete Design Codes: ACI 318-19/14/11/08/05/02/99, CSA A23.3-14/04/94, NTC-DF 2004, BS 8110-1: 1997, BS EN 1992-1-1: 2004+A1: 2014/2004, EN 1992-1-1:1992, IS 456: 2000, AS 3600-2001, NZS 3101: 1995, SBC 304-2007
- Cold Formed Steel Design Codes: AISI S100-16/12/10/07: ASD & LRFD, AISI NAS-04/01: ASD & LRFD, AISI 1999: ASD & LRFD, AISI 400-15 & AISI S240-15 (Walls), CSA S136-16/12/10/07/04/01: LSD, CANACERO 16: ASD, CANACERO 12/10/07/04/01: ASD & LRFD
- Aluminum Design Codes: AA ADM1-15/10: ASD & LRFD, AA ADM1-05: ASD
- Wood Design Codes: AWC NDS-18/15/12: ASD, AF&PA NDS-08/05/01/97/91: ASD, CSA 086-14/09 Ultimate, Structural Composite Lumber, multi-ply, full sawn, Glulam, shear walls
- Masonry Design Codes: TMS 402-16: ASD & Strength, ACI 530-13/11/08/05/02: ASD & Strength, ACI 530-99: ASD, UBC 1997: ASD & Strength
- Stainless Steel Design Code: AISC 360-10: ASD & LRFD
- Wind loads are generated automatically (ASCE 7-16/10/05/02/98/95, NBC 15/10/05, NTC 2004, & IS 875: 1987) for building-type structures, including partial wind cases
- Seismic loads are generated automatically (ASCE 7-16/10/05/02, CBC 2001, IBC 2000, UBC 1997, NBC 15/10/05, NTC 2004, & IS 1893: 2002) for building-type structures, including accidental torsion

Analysis Features:

- Analysis of 1D members (beams, columns, braces, etc.) using Finite Element Method
- Analysis of 2D elements (plates, walls) using Finite Element Method
- Analysis of 3D elements (solids) using Finite Element Method
- Partial fixity member end releases using rotational spring constants
- Simpson Strong-Tie Yield Link as member end releases
- Orthotropic Plate Material
- Time History Analysis
- Accelerated true sparse solver for static analysis
- Accelerated Sparse Lanczos dynamics solver, very fast and robust
- Flexible modeling of P-Delta effects
- Multiple simultaneous dynamic and response spectra analysis using Gupta, CQC or SRSS with automatic calc of scaling factors
- Automatic inclusion of mass offset (5% or user defined) for dynamics when integrated with RISAFloor
- Ritz vector dynamic solver
- True physical member modeling (members are aware of interior joints)
- Plate/shell elements with plane stress only option
- 8 node solid elements
- High end mesh generation — draw a polygon with any number of sides to create a mesh of well formed quadrilateral (NO triangular) elements
- Automatic rigid diaphragm modeling with detachable joints
- Area loads with one-way or two-way distributions with optional “blow through” distribution for loading open structures
- Plate thermal loads
- Simultaneous moving loads, AASHTO/custom for bridges, cranes…
- Torsional warping calculations for stiffness, stress and design of hot rolled steel
- Member end releases, rigid end offsets, analysis offsets
- Enforced joint displacements
- One Way members, for tension only bracing, slipping, etc.
- One Way springs, for modeling soils and other effects
- Euler members: Compression up to buckling load, then disable
- Stress calculations on any arbitrary shape
- Inactivate members, plates, solids and diaphragms without deleting them
- Story drift calculations provide relative drift and ratio to height
- Automatic self-weight calculations for members, plates and solids

Graphics Features:

- Unlimited simultaneous model view windows
- “True to scale” rendering with translucency, even when drawing
- High-speed redraw algorithm for instant refreshing
- Dynamically zoom, pan, rotate, scroll, snap views
- Font and color control
- Saved views to quickly restore frequent or desired views
- Rendered or wire-frame animations of deflected model and mode shapes
- Animation of moving loads with speed control
- Distance tool for measuring between points
- Force/moment summation about any arbitrary cut line
- High quality customizable graphics printing

Design Features:

- Designs/optimizes concrete, hot rolled & cold formed steel, masonry, wood and aluminum
- Program selected or user-defined rebar layouts for flexure and shear
- Concrete beam detailing (Rectangular, T and L).
- Concrete column interaction diagrams
- Concrete wall design including in-plane, out-of-plane & bearing loads
- Automatic spectra generation for ASCE 7, NBC, IS 1893, NTC
- Extensive user controlled generation of load combinations
- Intelligent unbraced length calculations for physical members
- Tapered wide flange design per AISC Design Guide 25
- Masonry wall design for in-plane and out-of-plane
- Wood Shapes: Complete NDS species/grade and Glulam database
- Complete wood wall design for bearing & shear walls: Segmented, Perforated & Force Transfer Around Openings design methods
- Strap and Hold Down design for Wood Shear Walls
- Seismic design of concrete walls using ACI 318-14 Chapter 18
- Concrete seismic coupling beams for multi-story walls with diaphragms
- Capacity-Limited Seismic Design for Special Concentrated Braced Frames (SCBF)
- Buckling Restrained Brace (BRB) seismic checks using CoreBrace elements

Results Features:

- Graphic presentation of color-coded results and plotted designs
- Color contours on plates, solid stresses/forces with smoothing and animation
- Spreadsheet results with sorting and filtering of: deflections, forces, stresses, optimized sizes for strength or deflection, code designs, concrete reinforcing, material takeoffs, etc.
- Standard and user-defined reports
- Graphic member detail reports with force/stress/deflection diagrams and detailed design calculations and expanded diagrams

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, 2009
  - NESC 2002, 2007, 2012, 2017
  - IEC 60826:2003, 2017
  - IS 802 : 1995, 2015
  - ISEC-NCR-83
  - EN50341-1:2001 and 2012 (CENELEC)
  - EN50341-3-2:2001 (Belgium NNA)
  - EN50341-3-9:2001, EN50341-2-9:2015, 2017 (UK NNA)
  - EN50341-3-17:2001 (Portugal NNA)
  - EN50341-2-22:2016 (Poland NNA)
  - AS/NZS 7000:2010, 2016
  - ESAA C(b)1-2003 (Austalia)
  - TPNZ (New Zealand)
  - REE (Spain)
  - SP 16.13330.2011 (SNiP Russia)
- 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 10
  - AS 3995 (Australian Standard 3995)
  - BS 8100 (British Standard 8100)
  - EN50341-1 2001 and 2012 (CENELEC, both empirical and analytical methods are available)
  - EN50341-2-9:2015, 2017 (UK NNA)
  - ECCS 1985
  - NGT-ECCS
  - PN-90/B-03200
  - EN50341-2-22:2016 (Poland NNA)
  - SP 16.13330.2011 (SNiP Russia)
  - 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-222 covering the design of telecommunications structures specifies LRFD design approach. This approach applies the loads from extreme weather loading conditions, and designs the structure so that it does not exceed code defined percentage of failure strength.

ANSI Standard C2-2017 (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 222-G:

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 “Eversource 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 2017 Edition Extreme Wind (Rule 250C) and Combined Ice and Wind (Rule 250B-Heavy) Loadings. These provide equivalent loadings compared to TIA and its loads and factors with the exceptions noted above. (Note that the NESC does not require the projected wind surfaces of structures and equipment to be increased by the ice covering.)

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

Attachment A
Eversource Design Criteria

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

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

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

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

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

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

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

c) Electric Transmission Structure

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

   ii) Shape Factor Multiplier:

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

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

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

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

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

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

Wire Loads

Project Name	Structure 1217 Recheck		
Work Order			
Structure #	1217		
Line #	1440/1450		
Prepared By	JS	Date	6/27/2018
Checked By		Date	

Structure Data

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

Wire Data

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

Line Geometry

	Circuit 1			Circuit 2		
	Ahead	Back	Total	Ahead	Back	Total
Wind Span	310	161	471	310	161	471
Weight Span	434	-30	404	434	-30	404
Minimum Line Angle	0	3	3	0	3	3
Maximum Line Angle	0	3	3	0	3	3

Wire Tensions

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

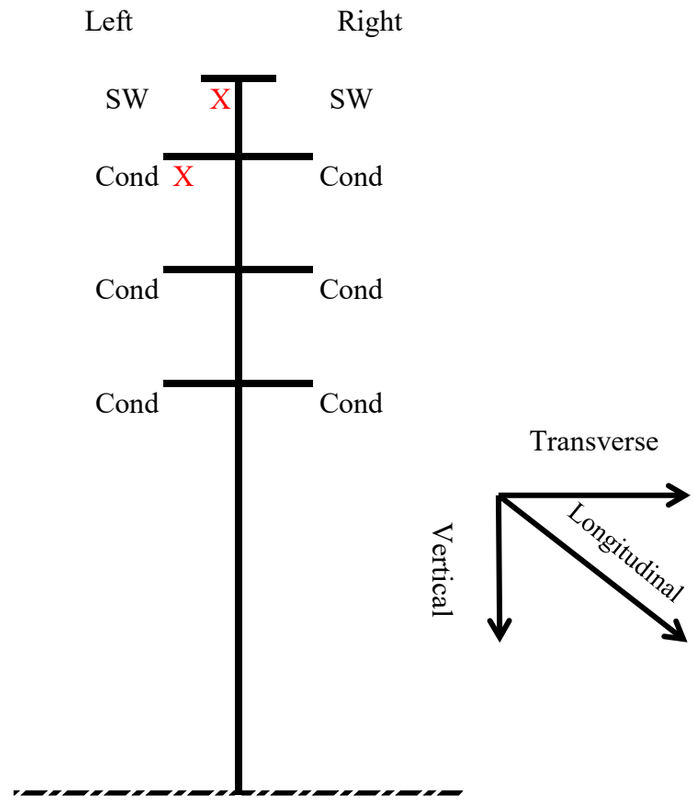
All Loads include Overload Factors but not Pole Shape Factors

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

EVERSOURCE

Wire Loads
Load Tree

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

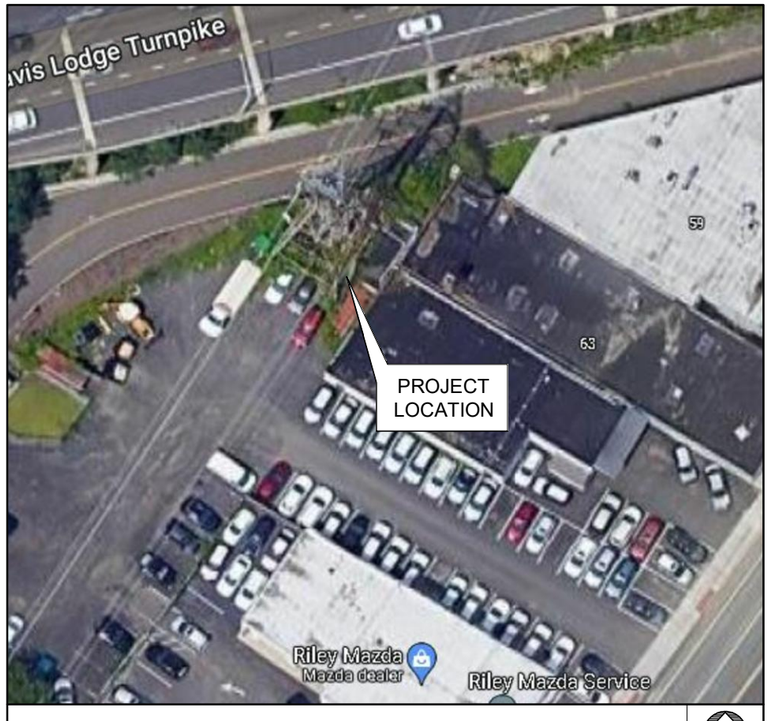


Double Circuit Steel Pole Configuration
X Denotes Broken Wire Location. This attachment receives case 7 loads. All others receive Case 1 Loads for Case 7

	Left Circuit				Right Circuit			
Conductor	Case	Vertical	Transverse	Longitudinal	Case	Vertical	Transverse	Longitudinal
	1	2013.2315	1538.5385	13.567606	1	2013.2315	1538.5385	13.567606
	2	878.528	2330.8198	1092.4188	2	878.528	2330.8198	1092.4188
	~~3~~	~~878.528~~	~~130.47354~~	~~255.41657~~	~~3~~	~~878.528~~	~~130.47354~~	~~255.41657~~
	~~4~~	~~2057.0687~~	~~565.165~~	~~0~~	~~4~~	~~2057.0687~~	~~565.165~~	~~0~~
	~~5~~	~~1342.1544~~	~~722.18074~~	~~8.2227915~~	~~5~~	~~1342.1544~~	~~722.18074~~	~~8.2227915~~
	6	878.528	130.47354	255.41657	6	878.528	130.47354	255.41657
	7a	1904.3131	655.79167	9900	7a	1904.3131	655.79167	9900
	7b	1904.3131	655.79167	9900	7b	1904.3131	655.79167	9900
Shield Wire	Case	Vertical	Transverse	Longitudinal	Case	Vertical	Transverse	Longitudinal
	1	781.1243	985.97948	10.175704	1	781.1243	985.97948	10.175704
	2	263.9332	842.5237	342.89393	2	263.9332	842.5237	342.89393
	~~3~~	~~263.9332~~	~~118.17459~~	~~-343.9055~~	~~3~~	~~263.9332~~	~~118.17459~~	~~-343.9055~~
	~~4~~	~~1028.8539~~	~~395.954~~	~~0~~	~~4~~	~~1028.8539~~	~~395.954~~	~~0~~
	~~5~~	~~520.74954~~	~~474.4658~~	~~6.1670936~~	~~5~~	~~520.74954~~	~~474.4658~~	~~6.1670936~~
	6	263.9332	118.17459	-343.9055	6	263.9332	118.17459	-343.9055
	7a	839.12858	781.77781	7425	7a	839.12858	393.18333	7425
	7b	839.12858	393.18333	7425	7b	839.12858	393.18333	7425

MASTER CONNECTION REPLACEMENT DESIGN

STRUCTURE NO. 1217
T-MOBILE - CTFF740A
63 MYRTLE AVE
STAMFORD, CT 06902



VICINITY MAP

NORTH

PROJECT SUMMARY

SITE ADDRESS:	63 MYRTLE AVE STAMFORD, CT 06902
PROJECT COORDINATES:	LAT: 41°–03'–14.60"N LON: 73°–31'–31.90"W ELEV:±12' AMSL
EVERSOURCE STRUCT NO:	1217
EVERSOURCE CONTACT:	RICHARD BADON 860.728.4852
T–MOBILE SITE REF.:	CTFF740A
T–MOBILE CONTACT:	KYLE RICHERS 908.447.4716
ANTENNA CL HEIGHT:	135'–0"
ENGINEER OF RECORD:	CENTEK ENGINEERING, INC. 63–2 NORTH BRANFORD ROAD BRANFORD, CT 06405
CENTEK CONTACT:	TIMOTHY J. LYNN, PE 203.433.7507

SHEET INDEX

SHT. NO.	DESCRIPTION	REV.
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4	11/17/22	TJL	CFC	ISSUED FOR CONSTRUCTION
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TITLE SHEET

SHEET NO.
T-1
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DESIGN BASIS

1. GOVERNING CODE: 2021 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2022 CT STATE SUPPLEMENT.

2. TIA–222–H, ASCE MANUAL NO. 10–15 – "DESIGN OF LATTICE STEEL TRANSMISSION STRUCTURES", NESC C2–2017 AND EVERSOURCE DESIGN CRITERIA.

3. DESIGN CRITERIA

   WIND LOAD: (ANTENNA MAST)
   ULTIMATE DESIGN WIND SPEED (V) = 130 MPH (2022 CSBC: APPENDIX 'P')

   WIND LOAD: (UTILITY TOWER & FOUNDATION)
   BASIC WIND SPEED (V) =110 MPH (3–SECOND GUST) BASED ON NESC C2–2017, SECTION 25 RULE 250C.

GENERAL NOTES

1. REFER TO STRUCTURAL ANALYSIS AND MAST DESIGN PREPARED BY CENTEK ENGINEERING, INC., FOR T–MOBILE, DATED 11/17/22.

2. TOWER GEOMETRY AND STRUCTURE MEMBER SIZES WERE OBTAINED FROM THE TOWER DESIGN DRAWINGS PREPARED BY BLAW–KNOX COMPANY; CONTRACT NO. KA–2329 DATED FEBRUARY 16, 1956.

3. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE GOVERNING BUILDING CODE.

4. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS SCOPE OF WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.

5. BEFORE BEGINNING THE WORK, THE CONTRACTOR IS RESPONSIBLE FOR MAKING SUCH INVESTIGATIONS CONCERNING PHYSICAL CONDITIONS (SURFACE AND SUBSURFACE) AT OR CONTIGUOUS TO THE SITE WHICH MAY AFFECT PERFORMANCE AND COST OF THE WORK. THIS INCLUDES VERIFYING ALL DIMENSIONS, ELEVATIONS, ANGLES, AND EXISTING CONDITIONS AT THE SITE, PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA. CONTRACTOR SHALL TAKE FIELD MEASUREMENTS NECESSARY TO ASSURE PROPER FIT OF ALL FINISHED WORK.

6. PCS MAST INSTALLATION SHALL BE CONDUCTED BY FIELD CREWS EXPERIENCED IN THE ASSEMBLY AND ERECTION OF TRANSMISSION STRUCTURES. ALL SAFETY PROCEDURES, RIGGING AND ERECTION METHODS SHALL BE STANDARD TO THE INDUSTRY AND IN COMPLIANCE WITH OSHA.

7. IF ANY FIELD CONDITIONS EXIST WHICH PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL PROCEED WITH AFFECTED WORK AFTER CONFLICT IS SATISFACTORILY RESOLVED.

8. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.

9. NO DRILLING WELDING OR TAPING IS PERMITTED ON CL&P OWNED EQUIPMENT.

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DESIGN BASIS AND GENERAL NOTES

SHEET NO.
N-1
Sheet No. 2 of 6

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL IS DESIGNED BY LOAD RESISTANCE FACTOR DESIGN (LRFD).

2. MATERIAL SPECIFICATIONS

   A. STRUCTURAL STEEL (W SHAPES)---ASTM A992 (FY = 50 KSI)
   B. STRUCTURAL STEEL (OTHER SHAPES)---ASTM A36 (FY = 36 KSI).
   C. STRUCTURAL STEEL (SOLID ROUND BAR)--- ASTM A572_GR50 (50 KSI)
   D. STRUCTURAL HSS (RECTANGULAR SHAPES)---ASTM A500 GRADE B, (FY = 46 KSI)
   E. STRUCTURAL HSS (ROUND SHAPES)---ASTM A500 GRADE B, (FY = 42 KSI)
   F. PIPE---ASTM A53 GRADE B (FY = 35 KSI)

3. FASTENER SPECIFICATIONS

   A. CONNECTION BOLTS---ASTM A325-N, UNLESS OTHERWISE SCHEDULED.
   B. U-BOLTS---ASTM A307
   C. THREADED ROD---ASTM A36
   D. ANCHOR RODS---ASTM F1554
   E. WELDING ELECTRODES---ASTM E70XX FOR A36 & A572_GR50 STEEL, ASTM E80XX FOR A572_65.
   F. BLIND BOLTS---AS1252 PROPERTY CLASS 8.8 (FU=120 KSI).

4. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE ENGINEER FOR REVIEW. SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING: SECTION PROFILES, SIZES, CONNECTION ATTACHMENTS, REINFORCING, ANCHORAGE, SIZE AND TYPE OF FASTENERS AND ACCESSORIES. INCLUDE ERECTION DRAWINGS, ELEVATIONS AND DETAILS.

5. STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST PROVISIONS OF AISC MANUAL OF STEEL CONSTRUCTION.

6. PROVIDE ALL PLATES, CLIP ANGLES, CLOSURE PIECES, STRAP ANCHORS, MISCELLANEOUS PIECES AND HOLES REQUIRED TO COMPLETE THE STRUCTURE.

7. FIT AND SHOP ASSEMBLE FABRICATIONS IN THE LARGEST PRACTICAL SECTIONS FOR DELIVERY TO SITE.

8. INSTALL FABRICATIONS PLUMB AND LEVEL, ACCURATELY FITTED, AND FREE FROM DISTORTIONS OR DEFECTS.

9. AFTER ERECTION OF STRUCTURES, TOUCHUP ALL WELDS, ABRASIONS AND NON-GALVANIZED SURFACES WITH A 95% ORGANIC ZINC RICH PAINT IN ACCORDANCE WITH ASTM 780.

10. ALL STEEL MATERIAL (EXPOSED TO WEATHER) SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT DIPPED GALVANIZED) COATINGS" ON IRONS AND STEEL PRODUCTS.

11. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE".

12. CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES APPEARANCE AND QUALITY OF WELDS, AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING THE SCHEDULED ELECTRODES AND WELDING SHALL CONFORM TO AISC AND D1.1 WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLET J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION" 14TH EDITION. AT THE COMPLETION OF WELDING, ALL DAMAGE TO GALVANIZED COATING SHALL BE REPAIRED.

13. THE ENGINEER SHALL BE NOTIFIED OF ANY INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON CONFORMING MATERIALS OR CONDITIONS TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER REVIEW.

14. CONNECTION ANGLES SHALL HAVE A MINIMUM THICKNESS OF 1/4 INCHES.

15. STRUCTURAL CONNECTION BOLTS SHALL CONFORM TO ASTM A325. ALL BOLTS SHALL BE 3/4" DIAMETER MINIMUM AND SHALL HAVE A MINIMUM OF TWO BOLTS, UNLESS OTHERWISE ON THE DRAWINGS.

16. ALL BOLTS SHALL BE INSTALLED PER THE REQUIREMENTS OF AISC 14TH EDITION & RCSC "SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH STRENGTH BOLTS".

17. ALL BOLTS SHALL BE INSTALLED AS SNUG-TIGHT CONNECTIONS UNLESS OTHERWISE INDICATED. CONNECTIONS SPECIFIED AS PRETENSIONED OR SLIP-CRITICAL SHALL BE TIGHTENED TO A BOLT TENSION NOT LESS THAN THAT GIVEN IN TABLE J3.1 OF AISC 14TH EDITION.

18. LOCK WASHER ARE NOT PERMITTED FOR A325 BOLTED STEEL ASSEMBLIES.

19. LOAD INDICATOR WASHERS SHALL BE UTILIZED ON ALL PRETENSIONED OR SLIP-CRITICAL CONNECTIONS.

20. SHOP CONNECTIONS SHALL BE WELDED OR HIGH STRENGTH BOLTED.

21. MILL BEARING ENDS OF COLUMNS, STIFFENERS, AND OTHER BEARING SURFACES TO TRANSFER LOAD OVER ENTIRE CROSS SECTION.

22. FABRICATE BEAMS WITH MILL CAMBER UP.

23. LEVEL AND PLUMB INDIVIDUAL MEMBERS OF THE STRUCTURE TO AN ACCURACY OF 1:500, BUT NOT TO EXCEED 1/4" IN THE FULL HEIGHT OF THE COLUMN.

24. COMMENCEMENT OF STRUCTURAL STEEL WORK WITHOUT NOTIFYING THE ENGINEER OF ANY DISCREPANCIES WILL BE CONSIDERED ACCEPTANCE OF PRECEDING WORK.

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STRUCTURAL STEEL NOTES

SHEET NO.
N-2
Sheet No. 3 of 6

MODIFICATION INSPECTION REPORT REQUIREMENTS

PRE-CONSTUCTION		DURING CONSTRUCTION		POST-CONSTRUCTION	
SCHEDULED ITEM	REPORT ITEM	SCHEDULED ITEM	REPORT ITEM	SCHEDULED ITEM	REPORT ITEM
X	EOR MODIFICATION INSPECTION DRAWING	–	FOUNDATIONS	X	MODIFICATION INSPECTOR RECORD REDLINE DRAWING
X	EOR APPROVED SHOP DRAWINGS	–	EARTHWORK: BACKFILL MATERIAL & COMPACTION	–	POST–INSTALLED ANCHOR ROD PULL–OUT TEST
–	EOR APPROVED POST–INSTALLED ANCHOR MPII	–	REBAR & FORMWORK GEOMETRY VERIFICATION	X	PHOTOGRAPHS
–	FABRICATION INSPECTION	–	CONCRETE TESTING		
–	FABRICATOR CERTIFIED WELDER INSPECTION	X	STEEL INSPECTION		
X	MATERIAL CERTIFICATIONS	–	POST INSTALLED ANCHOR ROD VERIFICATION		
		–	BASE PLATE GROUT VERIFICATION		
		–	CONTRACTOR'S CERTIFIED WELD INSPECTION		
		X	ON–SITE COLD GALVANIZING VERIFICATION		
		X	CONTRACTOR AS–BUILT REDLINE DRAWINGS		

NOTES:
1. REFER TO MODIFICATION INSPECTION NOTES FOR ADDITIONAL REQUIREMENTS
2. "X" DENOTES DOCUMENT REQUIRED FOR INCLUSION IN MODIFICATION INSPECTION FINAL REPORT.
3. "–" DENOTES DOCUMENT NOT REQUIRED FOR INCLUSION IN MODIFICATION INSPECTION FINAL REPORT.
4. EOR – ENGINEER OF RECORD
4. MPII – "MANUFACTURER'S PRINTED INSTALLATION GUIDELINES"

GENERAL

1. THE MODIFICATION INSPECTION IS A VISUAL INSPECTION OF STRUCTURAL MODIFICATIONS, TO INCLUDE A REVIEW AND COMPILATION OF SPECIFIED SUBMITTALS AND CONSTRUCTION INSPECTIONS, AS AN ASSURANCE OF COMPLIANCE WITH THE CONSTRUCTION DOCUMENTS PREPARED UNDER THE DIRECTION OF THE ENGINEER OF RECORD (EOR).

2. THE MODIFICATION INSPECTION IS TO CONFIRM INSTALLATION CONFIGURATION AND GENERAL WORKMANSHIP AND IS NOT A REVIEW OF THE MODIFICATION DESIGN. OWNERSHIP OF THE MODIFICATION DESIGN EFFECTIVENESS AND INTENT RESIDES WITH THE ENGINEER OF RECORD.

3. TO ENSURE COMPLIANCE WITH THE MODIFICATION INSPECTION REQUIREMENTS THE GENERAL CONTRACTOR (GC) AND THE MODIFICATION INSPECTOR (MI) COMMENCE COMMUNICATION UPON AUTHORIZATION TO PROCEED BY THE CLIENT. EACH PARTY SHALL BE PROACTIVE IN CONTACTING THE OTHER. THE EOR SHALL BE CONTACTED IF SPECIFIC GC/MI CONTACT INFORMATION IS NOT MADE AVAILABLE.

4. THE GC SHALL PROVIDE THE MI WITH A MINIMUM OF 5 BUSINESS DAYS NOTICE OF IMPENDING INSPECTIONS.

5. WHEN POSSIBLE, THE GC AND MI SHALL BE ON SITE DURING THE MODIFICATION INSPECTION TO HAVE ANY NOTED DEFICIENCIES ADDRESSED DURING THE INITIAL MODIFICATION INSPECTION.

MODIFICATION INSPECTOR (MI)

1. THE MI SHALL CONTACT THE GC UPON AUTHORIZATION BY THE CLIENT TO:

   – REVIEW THE MODIFICATION INSPECTION REPORT REQUIREMENTS.
   – WORK WITH THE GC IN DEVELOPMENT OF A SCHEDULE FOR ON–SITE INSPECTIONS.
   – DISCUSS CRITICAL INSPECTIONS AND PROJECT CONCERNS.

2. THE MI IS RESPONSIBLE FOR COLLECTION OF ALL INSPECTION AND TEST REPORTS, REVIEWING REPORTS FOR ADHERENCE TO THE CONTRACT DOCUMENTS, CONDUCTING ON–SITE INSPECTIONS AND COMPILATION & SUBMISSION OF THE MODIFICATION INSPECTION REPORT TO THE CLIENT AND THE EOR.

GENERAL CONTRACTOR (GC)

1. THE GC IS REQUIRED TO CONTACT THE GC UPON AUTHORIZATION TO PROCEED WITH CONSTRUCTION BY THE CLIENT TO:

   – REVIEW THE MODIFICATION INSPECTION REPORT REQUIREMENTS.
   – WORK WITH THE MI IN DEVELOPMENT OF A SCHEDULE FOR ON–SITE INSPECTIONS.
   – DISCUSS CRITICAL INSPECTIONS AND PROJECT CONCERNS.

2. THE GC IS RESPONSIBLE FOR COORDINATING AND SCHEDULING IN ADVANCE ALL REQUIRED INSPECTIONS AND TESTS WITH THE MI.

CORRECTION OF FAILING MODIFICATION INSPECTION

1. SHOULD THE STRUCTURAL MODIFICATION NOT COMPLY WITH THE REQUIREMENTS OF THE CONSTRUCTION DOCUMENTS, THE GC SHALL WORK WITH THE MODIFICATION INSPECTOR IN A VIABLE REMEDIATION PLAN AS FOLLOWS:

   – CORRECT ALL DEFICIENCIES TO COMPLY WITH THE CONTRACT DOCUMENTS AND COORDINATE WITH THE MI FOR A FOLLOW UP INSPECTION.
   – WITH CLIENT AUTHORIZATION, THE GC MAY WORK WITH THE EOR TO REANALYZE THE MODIFICATION USING THE AS–BUILT CONDITION.

REQUIRED PHOTOGRAPHS

1. THE GC AND MI SHALL AT MINIMUM PHOTO DOCUMENT THE FOLLOWING FOR INCLUSION IN THE MODIFICATION INSPECTION REPORT:

   – PRE–CONSTRUCTION: GENERAL CONDITION OF THE SITE.
   – DURING CONSTRUCTION: RAW MATERIALS, CRITICAL DETAILS, WELD PREPARATION, BOLT INSTALLATION & TORQUE, FINAL INSTALLED CONDITION & SURFACE COATING REPAIRS.
   – POST–CONSTRUCTION: FINAL CONDITION OF THE SITE

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
4	11/17/22	TJL	CFC	ISSUED FOR CONSTRUCTION
3	10/20/22	TJL	CFC	ISSUED FOR CONSTRUCTION
2	9/28/22	TJL	CFC	ISSUED FOR REVIEW
1	8/25/22	TJL	CFC	ISSUED FOR REVIEW
0	6/30/22	TJL	CFC	ISSUED FOR REVIEW

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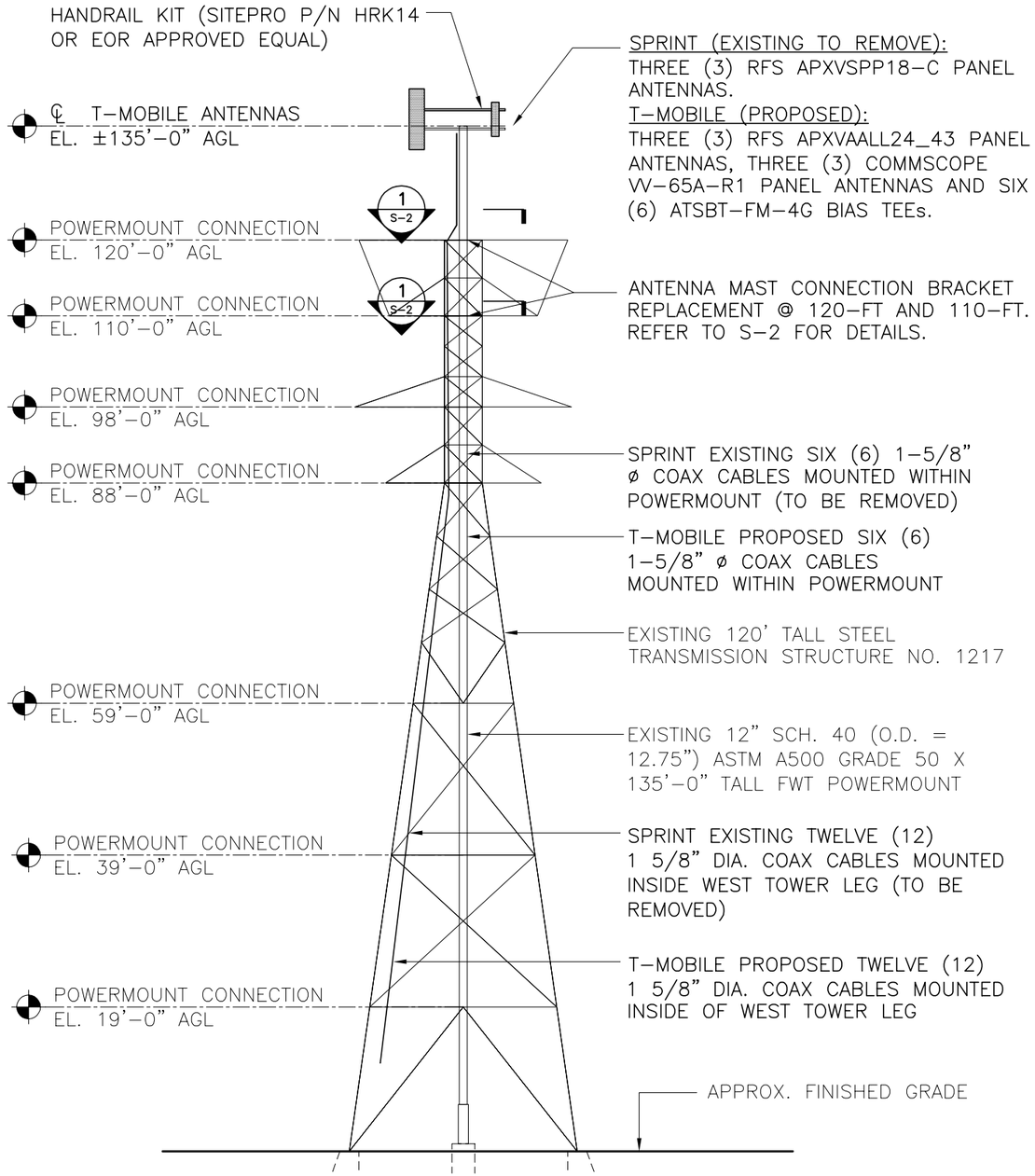
CTFF740A
STRUCTURE 1217
63 MYRTLE AVE
STAMFORD, CT 06902

DATE:	6/30/22
SCALE:	AS SHOWN
JOB NO.	21005.42

MODIFICATION INSPECTION REQUIREMENTS

SHEET NO.
MI-1
Sheet No. 4 of 6



1 / S-1 **TOWER AND MAST ELEVATION**

SCALE: NTS

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4	11/17/22	TJL	CFC	ISSUED FOR CONSTRUCTION
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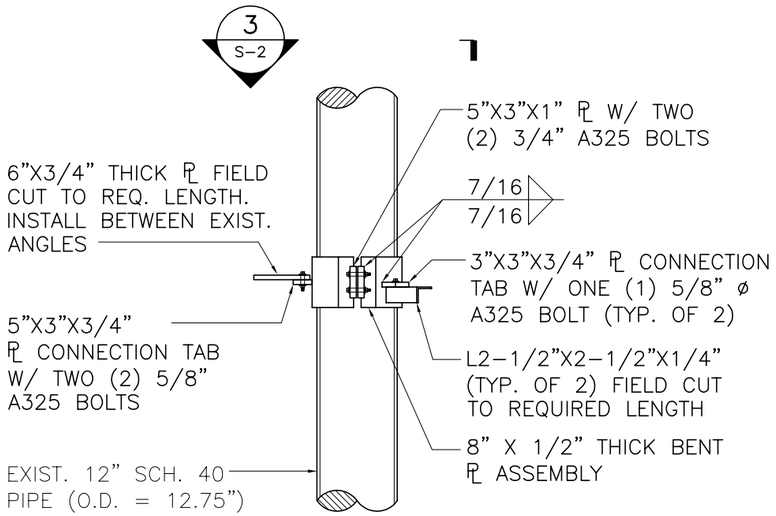
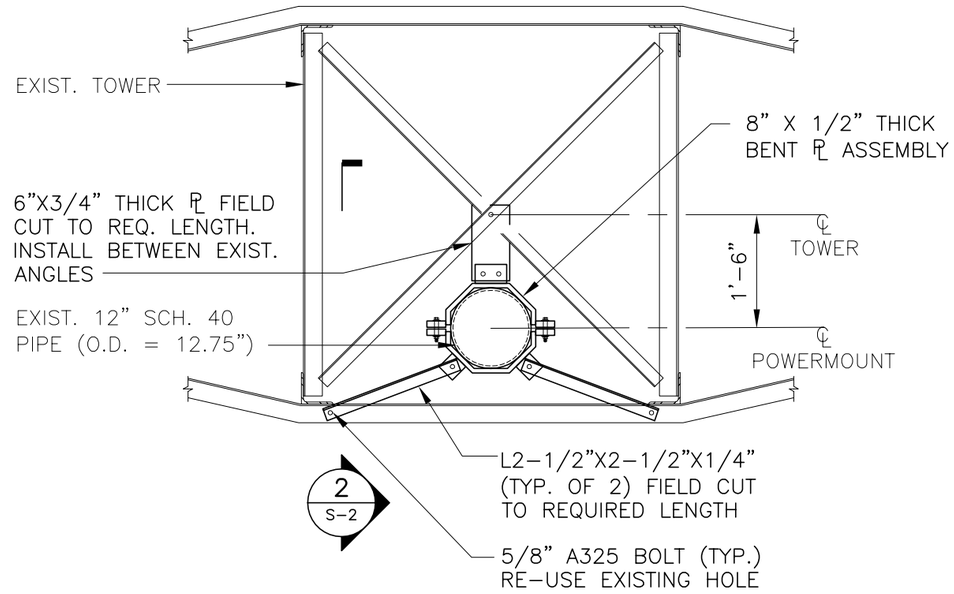
TOWER ELEVATION

SHEET NO.
S-1
Sheet No. 5 of 6



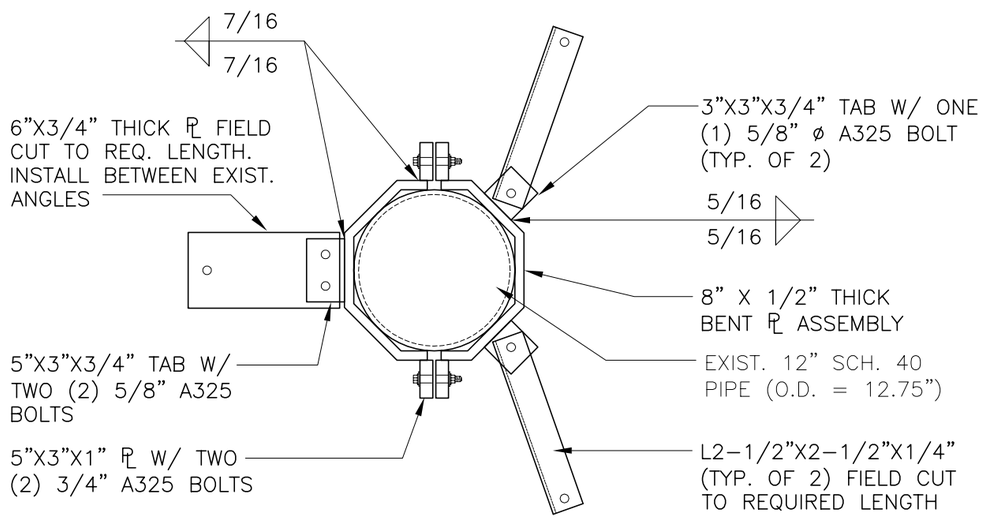
2 S-2 BRACKET ELEVATION

SCALE: 1/2" = 1'-0"



1 S-2 BRACKET PLAN

SCALE: 1/2" = 1'-0"



3 S-2 BRACKET DETAIL

SCALE: 1/2" = 1'-0"

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
4	11/17/22	TJL	CFC	ISSUED FOR CONSTRUCTION
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CONNECTION DETAILS

SHEET NO.
S-2
Sheet No. 6 of 6

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Subject: Loads on Equipmnet Structure 1217

Location: Stamford, CT

Rev. 5: 11/17/22

Prepared by: T.J.L. Checked by: C.F.C.
Job No. 21005.42

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

Wind Speeds

Basic Wind Speed	$V := 130$	mph	(User Input - 2022 CSBC Appendix P)
Basic Wind Speed with Ice	$V_i := 50$	mph	(User Input per Annex B of TIA-222-H)

Input

Structure Type =	Structure_Type := Lattice		(User Input)	
Structure Category =	SC := III		(User Input)	
Exposure Category =	Exp := C		(User Input)	
Structure Height =	$h := 120$	ft	(User Input)	
Height to Center of Antennas =	$z_{ant} := 135$	ft	(User Input)	
Height to Center of Mast =	$z_{Mast7} := 127.5$	ft	(User Input)	
Height to Center of Mast =	$z_{Mast6} := 110$	ft	(User Input)	
Height to Center of Mast =	$z_{Mast5} := 90$	ft	(User Input)	
Height to Center of Mast =	$z_{Mast4} := 70$	ft	(User Input)	Mast Based on Max 20-ft Section per 2.6.11.1.3
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 =	$t_i := 1.00$	in	(User Input per Annex B of TIA-222-H)	
Radial Ice Density =	Id := 56.00	pcf	(User Input)	
Topograpic Factor =	$K_{zt} := 1.0$		(User Input)	
Shielding Factor for Appurtenances =	$K_a := 0.8$		(User Input)	
Ground Elevation Factor =	$K_e = 0.996$		(User Input)	
Gust Response Factor =	$G_H := 1.35$		(User Input - Section 2.6.9.4 of TIA-222-H)	

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-H)

Importance Factors =

$$I_{ice} := \begin{cases} 0 & \text{if SC = 1} \\ 1.00 & \text{if SC = 2} \\ 1.15 & \text{if SC = 3} \\ 1.25 & \text{if SC = 4} \end{cases} = 1.15$$

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

$$K_{iz} := \left(\frac{z_{ant}}{33}\right)^{0.1} = 1.151 \qquad t_{izant} := t_i \cdot I_{ice} \cdot K_{iz} \cdot K_{zt}^{0.35} = 1.324$$

Velocity Pressure Coefficient Antennas =

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

Velocity Pressure w/o Ice Antennas =

$$qz_{ant} := 0.00256 \cdot K_{zt} \cdot K_e \cdot K_d \cdot Kz_{ant} \cdot V^2 = 49.359$$

Velocity Pressure with Ice Antennas =

$$qz_{ice.ant} := 0.00256 \cdot K_{zt} \cdot K_e \cdot K_d \cdot Kz_{ant} \cdot V_i^2 = 7.302$$

$$K_{izMast7} := \left(\frac{z_{Mast7}}{33}\right)^{0.1} = 1.145 \qquad t_{izMast7} := t_i \cdot I_{ice} \cdot K_{izMast7} \cdot K_{zt}^{0.35} = 1.316$$

Velocity Pressure Coefficient Mast =

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

Velocity Pressure w/o Ice Mast=

$$qz_{Mast7} := 0.00257 \cdot K_{zt} \cdot K_e \cdot K_d \cdot Kz_{Mast7} \cdot V^2 = 48.959$$

Velocity Pressure with Ice Mast =

$$qz_{ice.Mast7} := 0.00257 \cdot K_{zt} \cdot K_e \cdot K_d \cdot Kz_{Mast7} \cdot V_i^2 = 7.243$$

$$K_{izMast6} := \left(\frac{z_{Mast6}}{33}\right)^{0.1} = 1.128 \qquad t_{izMast6} := t_i \cdot I_{ice} \cdot K_{izMast6} \cdot K_{zt}^{0.35} = 1.297$$

Velocity Pressure Coefficient Mast =

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

Velocity Pressure w/o Ice Mast=

$$qz_{Mast6} := 0.00256 \cdot K_{zt} \cdot K_e \cdot K_d \cdot Kz_{Mast6} \cdot V^2 = 47.276$$

Velocity Pressure with Ice Mast =

$$qz_{ice.Mast6} := 0.00256 \cdot K_{zt} \cdot K_e \cdot K_d \cdot Kz_{Mast6} \cdot V_i^2 = 6.994$$

$$K_{izMast5} := \left(\frac{z_{Mast5}}{33}\right)^{0.1} = 1.106 \qquad t_{izMast5} := t_i \cdot I_{ice} \cdot K_{izMast5} \cdot K_{zt}^{0.35} = 1.271$$

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=

$$qz_{Mast5} := 0.00256 \cdot K_{zt} \cdot K_e \cdot K_d \cdot Kz_{Mast5} \cdot V^2 = 45.321$$

Velocity Pressure with Ice Mast =

$$qz_{ice.Mast5} := 0.00256 \cdot K_{zt} \cdot K_e \cdot K_d \cdot Kz_{Mast5} \cdot V_i^2 = 6.704$$

$$K_{izMast4} := \left(\frac{z_{Mast4}}{33}\right)^{0.1} = 1.078 \qquad t_{izMast4} := t_i \cdot I_{ice} \cdot K_{izMast4} \cdot K_{zt}^{0.35} = 1.24$$

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=

$$qz_{Mast4} := 0.00256 \cdot K_{zt} \cdot K_e \cdot K_d \cdot Kz_{Mast4} \cdot V^2 = 42.985$$

Velocity Pressure with Ice Mast =

$$qz_{ice.Mast4} := 0.00256 \cdot K_{zt} \cdot K_e \cdot K_d \cdot Kz_{Mast4} \cdot V_i^2 = 6.359$$

$$K_{izMast3} := \left(\frac{z_{Mast3}}{33}\right)^{0.1} = 1.042 \qquad t_{izMast3} := t_i \cdot I_{ice} \cdot K_{izMast3} \cdot K_{zt}^{0.35} = 1.199$$

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=

$$qz_{Mast3} := 0.00256 \cdot K_{zt} \cdot K_e \cdot K_d \cdot Kz_{Mast3} \cdot V^2 = 40.046$$

Velocity Pressure with Ice Mast =

$$qz_{ice.Mast3} := 0.00256 \cdot K_{zt} \cdot K_e \cdot K_d \cdot Kz_{Mast3} \cdot V_i^2 = 5.924$$

$$K_{izMast2} := \left(\frac{z_{Mast2}}{33}\right)^{0.1} = 0.991 \qquad t_{izMast2} := t_i \cdot I_{ice} \cdot K_{izMast2} \cdot K_{zt}^{0.35} = 1.139$$

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=

$$qz_{Mast2} := 0.00256 \cdot K_{zt} \cdot K_e \cdot K_d \cdot Kz_{Mast2} \cdot V^2 = 35.963$$

Velocity Pressure with Ice Mast =

$$qz_{ice.Mast2} := 0.00256 \cdot K_{zt} \cdot K_e \cdot K_d \cdot Kz_{Mast2} \cdot V_i^2 = 5.32$$

$$K_{izMast1} := \left(\frac{z_{Mast1}}{33}\right)^{0.1} = 0.887 \qquad t_{izMast1} := t_i \cdot I_{ice} \cdot K_{izMast1} \cdot K_{zt}^{0.35} = 1.021$$

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=

$$qz_{Mast1} := 0.00256 \cdot K_{zt} \cdot K_e \cdot K_d \cdot Kz_{Mast1} \cdot V^2 = 28.537$$

Velocity Pressure with Ice Mast =

$$qz_{ice.Mast1} := 0.00256 \cdot K_{zt} \cdot K_e \cdot K_d \cdot Kz_{Mast1} \cdot V_i^2 = 4.221$$

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Subject:	Loads on Equipmnet Structure 1217
Location:	Stamford, CT
Rev. 5: 11/17/22	Prepared by: T.J.L. Checked by: C.F.C. Job No. 21005.42

Development of Wind & Ice Load on Mast

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

Mast Shape = Round (User Input)

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

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

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

Mast Aspect Ratio = $Ar_{mast} := \frac{12 L_{mast}}{D_{mast}} = 127.1$

Mast Force Coefficient = $Ca_{mast} = 1.2$

Gravity Loads (without ice)

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

Gravity Loads (ice only)

Ice Area per Linear Foot = $Ai_{mast} := \frac{\pi}{4}\left[\left(D_{mast} + t_{izMast7}\cdot 2\right)^2 - D_{mast}^2\right] = 58.2$ sq in

Weight of Ice on Mast = $W_{ICEmast7} := Id\cdot\frac{Ai_{mast}}{144} = 23$ plf **BLC 3**

Ice Area per Linear Foot = $Ai_{mast} := \frac{\pi}{4}\left[\left(D_{mast} + t_{izMast6}\cdot 2\right)^2 - D_{mast}^2\right] = 57.2$ sq in

Weight of Ice on Mast = $W_{ICEmast6} := Id\cdot\frac{Ai_{mast}}{144} = 22$ plf **BLC 3**

Ice Area per Linear Foot = $Ai_{mast} := \frac{\pi}{4}\left[\left(D_{mast} + t_{izMast5}\cdot 2\right)^2 - D_{mast}^2\right] = 56$ sq in

Weight of Ice on Mast = $W_{ICEmast5} := Id\cdot\frac{Ai_{mast}}{144} = 22$ plf **BLC 3**

Ice Area per Linear Foot = $Ai_{mast} := \frac{\pi}{4}\left[\left(D_{mast} + t_{izMast4}\cdot 2\right)^2 - D_{mast}^2\right] = 54.5$ sq in

Weight of Ice on Mast = $W_{ICEmast4} := Id\cdot\frac{Ai_{mast}}{144} = 21$ plf **BLC 3**

Ice Area per Linear Foot = $Ai_{mast} := \frac{\pi}{4}\left[\left(D_{mast} + t_{izMast3}\cdot 2\right)^2 - D_{mast}^2\right] = 52.5$ sq in

Weight of Ice on Mast = $W_{ICEmast3} := Id\cdot\frac{Ai_{mast}}{144} = 20$ plf **BLC 3**

Ice Area per Linear Foot = $Ai_{mast} := \frac{\pi}{4}\left[\left(D_{mast} + t_{izMast2}\cdot 2\right)^2 - D_{mast}^2\right] = 49.7$ sq in

Weight of Ice on Mast = $W_{ICEmast2} := Id\cdot\frac{Ai_{mast}}{144} = 19$ plf **BLC 3**

Ice Area per Linear Foot = $Ai_{mast} := \frac{\pi}{4}\left[\left(D_{mast} + t_{izMast1}\cdot 2\right)^2 - D_{mast}^2\right] = 44.2$ sq in

Weight of Ice on Mast = $W_{ICEmast1} := Id\cdot\frac{Ai_{mast}}{144} = 17$ plf **BLC 3**

Wind Load (with ice)			
Mast Projected Surface Area w/ Ice =	$AICE_{mast} := \frac{\left(D_{mast} + 2 \cdot t_{izMast7}\right)}{12} = 1.282$	sf/ft	
Total Mast Wind Force w/ Ice =	$qz_{ice.Mast7} \cdot G_H \cdot Ca_{mast} \cdot AICE_{mast} = 15$	plf	**BLC 4**
Mast Projected Surface Area w/ Ice =	$AICE_{mast} := \frac{\left(D_{mast} + 2 \cdot t_{izMast6}\right)}{12} = 1.279$	sf/ft	
Total Mast Wind Force w/ Ice =	$qz_{ice.Mast6} \cdot G_H \cdot Ca_{mast} \cdot AICE_{mast} = 14$	plf	**BLC 4**
Mast Projected Surface Area w/ Ice =	$AICE_{mast} := \frac{\left(D_{mast} + 2 \cdot t_{izMast5}\right)}{12} = 1.274$	sf/ft	
Total Mast Wind Force w/ Ice =	$qz_{ice.Mast5} \cdot G_H \cdot Ca_{mast} \cdot AICE_{mast} = 14$	plf	**BLC 4**
Mast Projected Surface Area w/ Ice =	$AICE_{mast} := \frac{\left(D_{mast} + 2 \cdot t_{izMast4}\right)}{12} = 1.269$	sf/ft	
Total Mast Wind Force w/ Ice =	$qz_{ice.Mast4} \cdot G_H \cdot Ca_{mast} \cdot AICE_{mast} = 13$	plf	**BLC 4**
Mast Projected Surface Area w/ Ice =	$AICE_{mast} := \frac{\left(D_{mast} + 2 \cdot t_{izMast3}\right)}{12} = 1.262$	sf/ft	
Total Mast Wind Force w/ Ice =	$qz_{ice.Mast3} \cdot G_H \cdot Ca_{mast} \cdot AICE_{mast} = 12$	plf	**BLC 4**
Mast Projected Surface Area w/ Ice =	$AICE_{mast} := \frac{\left(D_{mast} + 2 \cdot t_{izMast2}\right)}{12} = 1.252$	sf/ft	
Total Mast Wind Force w/ Ice =	$qz_{ice.Mast2} \cdot G_H \cdot Ca_{mast} \cdot AICE_{mast} = 11$	plf	**BLC 4**
Mast Projected Surface Area w/ Ice =	$AICE_{mast} := \frac{\left(D_{mast} + 2 \cdot t_{izMast1}\right)}{12} = 1.233$	sf/ft	
Total Mast Wind Force w/ Ice =	$qz_{ice.Mast1} \cdot G_H \cdot Ca_{mast} \cdot AICE_{mast} = 8$	plf	**BLC 4**
Wind Load (without ice)			
Mast Projected Surface Area =	$A_{mast} := \frac{D_{mast}}{12} = 1.063$	sf/ft	
Total Mast Wind Force =	$qz_{Mast7} \cdot G_H \cdot Ca_{mast} \cdot A_{mast} = 84$	plf	**BLC 5**
Total Mast Wind Force =	$qz_{Mast6} \cdot G_H \cdot Ca_{mast} \cdot A_{mast} = 81$	plf	**BLC 5**
Total Mast Wind Force =	$qz_{Mast5} \cdot G_H \cdot Ca_{mast} \cdot A_{mast} = 78$	plf	**BLC 5**
Total Mast Wind Force =	$qz_{Mast4} \cdot G_H \cdot Ca_{mast} \cdot A_{mast} = 74$	plf	**BLC 5**
Total Mast Wind Force =	$qz_{Mast3} \cdot G_H \cdot Ca_{mast} \cdot A_{mast} = 69$	plf	**BLC 5**
Total Mast Wind Force =	$qz_{Mast2} \cdot G_H \cdot Ca_{mast} \cdot A_{mast} = 62$	plf	**BLC 5**
Total Mast Wind Force =	$qz_{Mast1} \cdot G_H \cdot Ca_{mast} \cdot A_{mast} = 49$	plf	**BLC 5**

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Subject:	Loads on Equipmnet Structure 1217
Location:	Stamford, CT
Rev. 5: 11/17/22	Prepared by: T.J.L. Checked by: C.F.C. Job No. 21005.42

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	RFSAPXVAALL24_43			
Antenna Shape =	Flat		(User Input)	
Antenna Height =	$L_{ant} := 95.9$	in	(User Input)	
Antenna Width =	$W_{ant} := 24$	in	(User Input)	
Antenna Thickness =	$T_{ant} := 8.5$	in	(User Input)	
Antenna Weight =	$WT_{ant} := 150$	lbs	(User Input)	
Number of Antennas =	$N_{ant} := 3$		(User Input)	
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 4.0$			
Antenna Force Coefficient =	$Ca_{ant} = 1.27$			

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 450$	lbs	**BLC 2**

Gravity Loads (ice only)

cu in

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 2 \times 10^4$	cu in	
Volume of Ice on Each Antenna =	$V_{ice} := \left(L_{ant} + 2 \cdot t_{izant}\right)\left(W_{ant} + 2 \cdot t_{izant}\right) \cdot \left(T_{ant} + 2 \cdot t_{izant}\right) - V_{ant} = 9712$		
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 315$	lbs	
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 944$	lbs	**BLC 3**

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEant} := \frac{\left(L_{ant} + 2 \cdot t_{izant}\right) \cdot \left(W_{ant} + 2 \cdot t_{izant}\right)}{144} = 18.2$	sf	
Antenna Projected Surface Area w/ Ice =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 54.7$	sf	
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ICEant} = 546$	lbs	**BLC 4**

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 16$	sf	
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 48$	sf	
Total Antenna Wind Force =	$F_{ant} := qz_{ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ant} = 3237$	lbs	**BLC 5**

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Subject: Loads on Equipmnet Structure 1217

Location: Stamford, CT

Rev. 5: 11/17/22

Prepared by: T.J.L. Checked by: C.F.C.
Job No. 21005.42

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	Commscope VV-65A-R1			
Antenna Shape =	Flat		(User Input)	
Antenna Height =	$L_{ant} := 54.724$	in	(User Input)	
Antenna Width =	$W_{ant} := 12.087$	in	(User Input)	
Antenna Thickness =	$T_{ant} := 4.646$	in	(User Input)	
Antenna Weight =	$WT_{ant} := 30$	lbs	(User Input)	
Number of Antennas =	$N_{ant} := 3$		(User Input)	
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 4.5$			
Antenna Force Coefficient =	$Ca_{ant} = 1.29$			

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 90$	lbs	**BLC 2**

Gravity Loads (ice only)

			cu in
Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 3073$	cu in	
Volume of Ice on Each Antenna =	$V_{ice} := \left(L_{ant} + 2 \cdot t_{izant}\right)\left(W_{ant} + 2 \cdot t_{izant}\right) \cdot \left(T_{ant} + 2 \cdot t_{izant}\right) - V_{ant} = 3093$		
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 100$	lbs	
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 301$	lbs	**BLC 3**

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEant} := \frac{\left(L_{ant} + 2 \cdot t_{izant}\right) \cdot \left(W_{ant} + 2 \cdot t_{izant}\right)}{144} = 5.9$	sf	
Antenna Projected Surface Area w/ Ice =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 17.6$	sf	
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ICEant} = 179$	lbs	**BLC 4**

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 4.6$	sf	
Antenna Projected Surface Area =	$A_{ant} := SA_{ant} \cdot N_{ant} = 13.8$	sf	
Total Antenna Wind Force =	$F_{ant} := qz_{ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ant} = 948$	lbs	**BLC 5**

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	ATSBT-TOP-FM4G Bias Tee			
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 =	$T_{ant} := 2$	in	(User Input)	
Antenna Weight =	$WT_{ant} := 2$	lbs	(User Input)	
Number of Antennas =	$N_{ant} := 6$		(User Input)	
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 1.5$			
Antenna Force Coefficient =	$Ca_{ant} = 1.2$			

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 12$	lbs	**BLC 2**

Gravity Loads (ice only) cu in

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 42$	cu in	
Volume of Ice on Each Antenna =	$V_{ice} := \left(L_{ant} + 2 \cdot t_{izant}\right)\left(W_{ant} + 2 \cdot t_{izant}\right) \cdot \left(T_{ant} + 2 \cdot t_{izant}\right) - V_{ant} = 203$		
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 7$	lbs	
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 39$	lbs	**BLC 3**

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEant} := \frac{\left(L_{ant} + 2 \cdot t_{izant}\right) \cdot \left(W_{ant} + 2 \cdot t_{izant}\right)}{144} = 0.4$	sf	
Antenna Projected Surface Area w/ Ice =	$A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 2.2$	sf	
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ICEant} = 21$	lbs	**BLC 4**

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 =	$A_{ant} := SA_{ant} \cdot N_{ant} = 0.9$	sf	
Total Antenna Wind Force =	$F_{ant} := qz_{ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot A_{ant} = 56$	lbs	**BLC 5**

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Development of Wind & Ice Load on Antennas

Mount Data:

Mount Type:	FWT Low Profile Platform w/ Handrail		
Mount Shape =	Flat		
Mount Projected Surface Area =	$CaAa := 33.5$	sf	(User Input)
Mount Projected Surface Area w/ Ice =	$CaAa_{ice} := 68.4$	sf	(User Input)
Mount Weight =	$WT_{mnt} := 3502$	lbs	(User Input)
Mount Weight w/ Ice =	$WT_{mnt.ice} := 6900$	lbs	(User Input)

Gravity Loads (without ice)

Weight of All Mounts =	$WT_{mnt} = 3502$	lbs	**BLC 2**

Gravity Loads (ice only)

Weight of Ice on All Mounts =	$WT_{mnt.ice} - WT_{mnt} = 3398$	lbs	**BLC 3**

Wind Load (with ice)

Total Mount Wind Force =	$Fi_{mnt} := qz_{ice.ant} \cdot G_H \cdot CaAa_{ice} = 674$	lbs	**BLC 4**

Wind Load (without ice)

Total Mount Wind Force =	$F_{mnt} := qz_{ant} \cdot G_H \cdot CaAa = 2232$	lbs	**BLC 5**

Development of Wind & Ice Load on Coax Cables

Coax Cable Data: (Above Top of Tower)

Coax Type =	HELIAX 1-5/8"		
Shape =	Round		(User Input)
Coax Outside Diameter =	$D_{coax} := 1.98$	in	(User Input)
Coax Cable Length =	$L_{coax} := 15$	ft	(User Input)
Weight of Coax per foot =	$Wt_{coax} := 1.04$	plf	(User Input)
Total Number of Coax =	$N_{coax} := 18$		(User Input)
Total Number of Exterior Coax =	$Ne_{coax} := 12$		(User Input)
No. of Coax Projecting Outside Face of Mast =	$NP_{coax} := 2$		(User Input)
Coax aspect ratio,	$Ar_{coax} := \frac{(L_{coax} \cdot 12)}{D_{coax}} = 90.9$		
Coax Cable Force Factor Coefficient =	$Ca_{coax} = 1.2$		

Gravity Loads (without ice)

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

Gravity Loads (ice only)

Ice Area per Linear Foot =	$Ai_{coax} := \frac{\pi}{4}\left[\left(D_{coax} + 2 \cdot t_{izMast7}\right)^2 - D_{coax}^2\right] = 13.6$	sq in	
Ice Weight All Coax per foot =	$WTi_{coax} := N_{coax} \cdot Id \cdot \frac{Ai_{coax}}{144} = 95$	plf	BLC 3

Wind Load (with ice)

Coax projected surface area w/ Ice =	$AICE_{coax} := \frac{\left(NP_{coax} \cdot D_{coax} + 2 \cdot t_{izMast7}\right)}{12} = 0.5$	sf/ft	
Total Coax Wind Force w/ Ice =	$Fi_{coax} := Ca_{coax} \cdot qz_{ice.Mast7} \cdot G_H \cdot AICE_{coax} = 6$	plf	BLC 4

Wind Load (without ice)

Coax projected surface area =	$A_{coax} := \frac{\left(NP_{coax} D_{coax}\right)}{12} = 0.3$	sf/ft	
Total Coax Wind Force =	$F_{coax} := Ca_{coax} \cdot qz_{Mast7} \cdot G_H \cdot A_{coax} = 26$	plf	BLC 5

Development of Wind & Ice Load on Coax Cables

Coax Cable Data: (Below Top of Tower)

Coax Type =	HELIAX 1-5/8"		
Shape =	Round		(User Input)
Coax Outside Diameter =	$D_{coax} := 1.98$	in	(User Input)
Coax Cable Length =	$L_{coax} := 120$	ft	(User Input)
Weight of Coax per foot =	$Wt_{coax} := 1.04$	plf	(User Input)
Total Number of Coax =	$N_{coax} := 6$		(User Input)
Total Number of Exterior Coax =	$Ne_{coax} := 0$		(User Input)
No. of Coax Projecting Outside Face of Mast =	$NP_{coax} := 0$		(User Input)
Coax aspect ratio,	$Ar_{coax} := \frac{(L_{coax} \cdot 12)}{D_{coax}} = 727.3$		
Coax Cable Force Factor Coefficient =	$Ca_{coax} = 1.2$		

Gravity Loads (without ice)

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

Gravity Loads (ice only)

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

Wind Load (with ice)

Coax projected surface area w/ Ice =	$AICE_{coax} := 0$	sf/ft	
Total Coax Wind Force w/ Ice =	$Fi_{coax} := Ca_{coax} \cdot qz_{ice.Mast7} \cdot G_H \cdot AICE_{coax} = 0$	plf	**BLC 4**

Wind Load (without ice)

Coax projected surface area =	$A_{coax} := \frac{(NP_{coax} D_{coax})}{12} = 0$	sf/ft	
Total Coax Wind Force =	$F_{coax} := Ca_{coax} \cdot qz_{Mast7} \cdot G_H \cdot A_{coax} = 0$	plf	**BLC 5**

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Development of Wind & Ice Load on Brace Member

Member Data: L2x2x3/16

Antenna Shape = Flat (User Input)

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

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

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

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

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

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

Gravity Load (without ice)

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

Gravity Loads (ice only)

Ice Area per Linear foot =

$$Ai_{mem} := \left[\left(H_{mem} + 2\cdot t_{izMast5}\right) + \left(W_{mem} - t_{mem}\right)\right]\cdot\left(t_{mem} + 2\cdot t_{izMast5}\right) - \left[H_{mem} + \left(W_{mem} + t_{mem}\right)\right]\cdot t_{mem} = 17 \text{ sq in}$$

Weight of Ice on Member = $W_{ICE.mem} := Id\cdot\frac{Ai_{mem}}{144} = 6$ plf **BLC 3**

Wind Load (with ice)

Member Projected Surface Area w/ Ice = $A_{ICEmem} := \frac{\left(H_{mem} + 2\cdot t_{izMast5}\right)}{12} = 0.4$ sf/ft

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

Wind Load (without ice)

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

Total Member Wind Force = $F_{mem} := qz_{Mast5}\cdot G_H\cdot Ca_{mem}\cdot A_{mem} = 18$ plf **BLC 5**

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Development of Wind & Ice Load on Brace Member

Member Data: L3x3x3/16

Antenna Shape = Flat (User Input)

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

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

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

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

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

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

Gravity Load (without ice)

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

Gravity Loads (ice only)

Ice Area per Linear foot =

$$Ai_{mem} := \left[\left(H_{mem} + 2\cdot t_{izMast4}\right) + \left(W_{mem} - t_{mem}\right)\right]\cdot\left(t_{mem} + 2\cdot t_{izMast4}\right) - \left[H_{mem} + \left(W_{mem} + t_{mem}\right)\right]\cdot t_{mem} = 21 \text{ sq in}$$

Weight of Ice on Member = $W_{ICE.mem} := Id\cdot\frac{Ai_{mem}}{144} = 8$ plf **BLC 3**

Wind Load (with ice)

Member Projected Surface Area w/ Ice = $A_{ICEmem} := \frac{\left(H_{mem} + 2\cdot t_{izMast4}\right)}{12} = 0.5$ sf/ft

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

Wind Load (without ice)

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

Total Member Wind Force = $F_{mem} := qz_{Mast4}\cdot G_H\cdot Ca_{mem}\cdot A_{mem} = 29$ plf **BLC 5**

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Development of Wind & Ice Load on Brace Member

Member Data: L4x4x1/4

Antenna Shape = Flat (User Input)

Height = $H_{mem} := 4$ in (User Input)

Width = $W_{mem} := 4$ in (User Input)

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

Length = $L_{mem} := 150$ in (User Input)

Member Aspect Ratio = $Ar_{mem} := \frac{L_{mem}}{W_{mem}} = 37.5$

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

Gravity Load (without ice)

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

Gravity Loads (ice only)

Ice Area per Linear foot =

$$Ai_{mem} := \left[\left(H_{mem} + 2\cdot t_{izMast4}\right) + \left(W_{mem} - t_{mem}\right)\right]\cdot\left(t_{mem} + 2\cdot t_{izMast4}\right) - \left[H_{mem} + \left(W_{mem} + t_{mem}\right)\right]\cdot t_{mem} = 26 \text{ sq in}$$

Weight of Ice on Member = $W_{ICE.mem} := Id\cdot\frac{Ai_{mem}}{144} = 10$ plf **BLC 3**

Wind Load (with ice)

Member Projected Surface Area w/ Ice = $A_{ICEmem} := \frac{\left(H_{mem} + 2\cdot t_{izMast4}\right)}{12} = 0.5$ sf/ft

Total Member Wind Force w/ Ice = $Fi_{mem} := qz_{ice.Mast4}\cdot G_H\cdot Ca_{mem}\cdot A_{ICEmem} = 9$ plf **BLC 4**

Wind Load (without ice)

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

Total Member Wind Force = $F_{mem} := qz_{Mast4}\cdot G_H\cdot Ca_{mem}\cdot A_{mem} = 39$ plf **BLC 5**

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Development of Wind & Ice Load on Brace Member

Member Data: L5x5x3/8

Antenna Shape = Flat (User Input)

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

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

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

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

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

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

Gravity Load (without ice)

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

Gravity Loads (ice only)

Ice Area per Linear foot =

$$Ai_{mem} := \left[\left(H_{mem} + 2\cdot t_{izMast4}\right) + \left(W_{mem} - t_{mem}\right)\right]\cdot\left(t_{mem} + 2\cdot t_{izMast4}\right) - \left[H_{mem} + \left(W_{mem} + t_{mem}\right)\right]\cdot t_{mem} = 31 \text{ sq in}$$

Weight of Ice on Member = $W_{ICE.mem} := Id\cdot\frac{Ai_{mem}}{144} = 12$ plf **BLC 3**

Wind Load (with ice)

Member Projected Surface Area w/ Ice = $A_{ICEmem} := \frac{\left(H_{mem} + 2\cdot t_{izMast4}\right)}{12} = 0.6$ sf/ft

Total Member Wind Force w/ Ice = $Fi_{mem} := qz_{ice.Mast4}\cdot G_H\cdot Ca_{mem}\cdot A_{ICEmem} = 11$ plf **BLC 4**

Wind Load (without ice)

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

Total Member Wind Force = $F_{mem} := qz_{Mast4}\cdot G_H\cdot Ca_{mem}\cdot A_{mem} = 48$ plf **BLC 5**

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Development of Wind & Ice Load on Brace Member

Member Data: L2.5x2.5x1/4

Antenna Shape = Flat (User Input)

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

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

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

Length = $L_{mem} := 31$ in (User Input)

Member Aspect Ratio = $Ar_{mem} := \frac{L_{mem}}{W_{mem}} = 12.4$

Member Force Coefficient = $Ca_{mem} = 1.58$

Gravity Load (without ice)

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

Gravity Loads (ice only)

Ice Area per Linear foot =

$$Ai_{mem} := \left[\left(H_{mem} + 2\cdot t_{izMast7}\right) + \left(W_{mem} - t_{mem}\right)\right]\cdot\left(t_{mem} + 2\cdot t_{izMast7}\right) - \left[H_{mem} + \left(W_{mem} + t_{mem}\right)\right]\cdot t_{mem} = 20 \text{ sq in}$$

Weight of Ice on Member = $W_{ICE.mem} := Id\cdot\frac{Ai_{mem}}{144} = 8$ plf **BLC 3**

Wind Load (with ice)

Member Projected Surface Area w/ Ice = $A_{ICEmem} := \frac{\left(H_{mem} + 2\cdot t_{izMast7}\right)}{12} = 0.4$ sf/ft

Total Member Wind Force w/ Ice = $Fi_{mem} := qz_{ice.Mast7}\cdot G_H\cdot Ca_{mem}\cdot A_{ICEmem} = 7$ plf **BLC 4**

Wind Load (without ice)

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

Total Member Wind Force = $F_{mem} := qz_{Mast7}\cdot G_H\cdot Ca_{mem}\cdot A_{mem} = 22$ plf **BLC 5**

Pole := 1 B ≡ 2 I ≡ 1

Lattice := 2 C ≡ 3 II ≡ 2

Flexible := 3 D ≡ 4 III ≡ 3

IV ≡ 4

Mean Base Elevation of structure above sea level, Zs = $Z_S := 122$

$$K_e := e^{-0.0000362 \cdot Z_S}$$

Roof Wind Speed-Up Factor, Ks =

$$zg := \begin{cases} 1200 & \text{if Exp = B} \\ 900 & \text{if Exp = C} \\ 700 & \text{if Exp = D} \end{cases} = 900$$

$$\alpha := \begin{cases} 7 & \text{if Exp = B} \\ 9.5 & \text{if Exp = C} \\ 11.5 & \text{if Exp = D} \end{cases} = 9.5$$

$$K_{Z.min} := \begin{cases} 0.7 & \text{if Exp = B} \\ 0.85 & \text{if Exp = C} \\ 1.03 & \text{if Exp = D} \end{cases} = 0.85$$

$$G_H := \begin{cases} 1.10 & \text{if Structure\_Type = Pole} \\ 0.85 & \text{if Structure\_Type = Lattice} \\ 1.35 & \text{if Structure\_Type = Flexible} \end{cases}$$

$$Ca_{mast} := \begin{cases} 0.7 & \text{if } Ar_{mast} \le 2.5 \\ 0.7 + \dfrac{(Ar_{mast} - 2.5)\cdot(0.8 - 0.7)}{(7 - 2.5)} & \text{if } 2.5 < Ar_{mast} < 7 \\ 0.8 & \text{if } Ar_{mast} = 7 \\ 0.8 + \dfrac{(Ar_{mast} - 7)\cdot(1.2 - 0.8)}{(25 - 7)} & \text{if } 7 < Ar_{mast} < 25 \\ 1.2 & \text{if } Ar_{mast} \ge 25 \end{cases}$$

$$Ca_{ant} := \begin{cases} 1.2 & \text{if } Ar_{ant} \le 2.5 \\ 1.2 + \dfrac{(Ar_{ant} - 2.5)\cdot(1.4 - 1.2)}{(7 - 2.5)} & \text{if } 2.5 < Ar_{ant} < 7 \\ 1.4 & \text{if } Ar_{ant} = 7 \\ 1.4 + \dfrac{(Ar_{ant} - 7)\cdot(2.0 - 1.4)}{(25 - 7)} & \text{if } 7 < Ar_{ant} < 25 \\ 2.0 & \text{if } Ar_{ant} \ge 25 \end{cases}$$

$$Ca_{ant} := \begin{cases} 1.2 \text{ if } Ar_{ant} \le 2.5 \\ 1.2 + \dfrac{(Ar_{ant} - 2.5)\cdot(1.4 - 1.2)}{(7 - 2.5)} \text{ if } 2.5 < Ar_{ant} < 7 \\ 1.4 \text{ if } Ar_{ant} = 7 \\ 1.4 + \dfrac{(Ar_{ant} - 7)\cdot(2.0 - 1.4)}{(25 - 7)} \text{ if } 7 < Ar_{ant} < 25 \\ 2.0 \text{ if } Ar_{ant} \ge 25 \end{cases}$$

$$Ca_{ant} := \begin{cases} 1.2 \text{ if } Ar_{ant} \le 2.5 \\ 1.2 + \dfrac{(Ar_{ant} - 2.5)\cdot(1.4 - 1.2)}{(7 - 2.5)} \text{ if } 2.5 < Ar_{ant} < 7 \\ 1.4 \text{ if } Ar_{ant} = 7 \\ 1.4 + \dfrac{(Ar_{ant} - 7)\cdot(2.0 - 1.4)}{(25 - 7)} \text{ if } 7 < Ar_{ant} < 25 \\ 2.0 \text{ if } Ar_{ant} \ge 25 \end{cases}$$

$$Ca_{coax} := \begin{cases} 0.7 \text{ if } Ar_{coax} \le 2.5 \\ 0.7 + \frac{\left(Ar_{coax} - 2.5\right)\cdot(0.8 - 0.7)}{(7 - 2.5)} \text{ if } 2.5 < Ar_{coax} < 7 \\ 0.8 \text{ if } Ar_{coax} = 7 \\ 0.8 + \frac{\left(Ar_{coax} - 7\right)\cdot(1.2 - 0.8)}{(25 - 7)} \text{ if } 7 < Ar_{coax} < 25 \\ 1.2 \text{ if } Ar_{coax} \ge 25 \end{cases}$$

$$Ca_{coax} := \begin{cases} 0.7 \text{ if } Ar_{coax} \le 2.5 \\ 0.7 + \frac{\left(Ar_{coax} - 2.5\right)\cdot(0.8 - 0.7)}{(7 - 2.5)} \text{ if } 2.5 < Ar_{coax} < 7 \\ 0.8 \text{ if } Ar_{coax} = 7 \\ 0.8 + \frac{\left(Ar_{coax} - 7\right)\cdot(1.2 - 0.8)}{(25 - 7)} \text{ if } 7 < Ar_{coax} < 25 \\ 1.2 \text{ if } Ar_{coax} \ge 25 \end{cases}$$

$$\left(\left(Ca_{mem}\right)\right) := \begin{cases} 1.2 \text{ if } Ar_{mem} \le 2.5 \\ 1.2 + \dfrac{\left(Ar_{mem} - 2.5\right)\cdot(1.4 - 1.2)}{(7 - 2.5)} \text{ if } 2.5 < Ar_{mem} < 7 \\ 1.4 \text{ if } Ar_{mem} = 7 \\ 1.4 + \dfrac{\left(Ar_{mem} - 7\right)\cdot(2.0 - 1.4)}{(25 - 7)} \text{ if } 7 < Ar_{mem} < 25 \\ 2.0 \text{ if } Ar_{mem} \ge 25 \end{cases}$$

$$\left(\left(Ca_{mem}\right)\right) := \begin{cases} 1.2 \text{ if } Ar_{mem} \le 2.5 \\ 1.2 + \dfrac{\left(Ar_{mem} - 2.5\right)\cdot(1.4 - 1.2)}{(7 - 2.5)} \text{ if } 2.5 < Ar_{mem} < 7 \\ 1.4 \text{ if } Ar_{mem} = 7 \\ 1.4 + \dfrac{\left(Ar_{mem} - 7\right)\cdot(2.0 - 1.4)}{(25 - 7)} \text{ if } 7 < Ar_{mem} < 25 \\ 2.0 \text{ if } Ar_{mem} \ge 25 \end{cases}$$

$$\left(\left(Ca_{mem}\right)\right) := \begin{cases} 1.2 \text{ if } Ar_{mem} \le 2.5 \\ 1.2 + \dfrac{\left(Ar_{mem} - 2.5\right)\cdot(1.4 - 1.2)}{(7 - 2.5)} \text{ if } 2.5 < Ar_{mem} < 7 \\ 1.4 \text{ if } Ar_{mem} = 7 \\ 1.4 + \dfrac{\left(Ar_{mem} - 7\right)\cdot(2.0 - 1.4)}{(25 - 7)} \text{ if } 7 < Ar_{mem} < 25 \\ 2.0 \text{ if } Ar_{mem} \ge 25 \end{cases}$$

$$\left(\left(Ca_{mem}\right)\right) := \begin{cases} 1.2 \text{ if } Ar_{mem} \le 2.5 \\ 1.2 + \dfrac{\left(Ar_{mem} - 2.5\right)\cdot(1.4 - 1.2)}{(7 - 2.5)} \text{ if } 2.5 < Ar_{mem} < 7 \\ 1.4 \text{ if } Ar_{mem} = 7 \\ 1.4 + \dfrac{\left(Ar_{mem} - 7\right)\cdot(2.0 - 1.4)}{(25 - 7)} \text{ if } 7 < Ar_{mem} < 25 \\ 2.0 \text{ if } Ar_{mem} \ge 25 \end{cases}$$

$$\left(\left(Ca_{mem}\right)\right) := \begin{cases} 1.2 \text{ if } Ar_{mem} \le 2.5 \\ 1.2 + \dfrac{\left(Ar_{mem} - 2.5\right)\cdot(1.4 - 1.2)}{(7 - 2.5)} \text{ if } 2.5 < Ar_{mem} < 7 \\ 1.4 \text{ if } Ar_{mem} = 7 \\ 1.4 + \dfrac{\left(Ar_{mem} - 7\right)\cdot(2.0 - 1.4)}{(25 - 7)} \text{ if } 7 < Ar_{mem} < 25 \\ 2.0 \text{ if } Ar_{mem} \ge 25 \end{cases}$$

(Global) Model Settings

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

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

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

(Global) Model Settings, Continued

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

Hot Rolled Steel Properties

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

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Ru...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Powermount	12" Powermount	Column	Pipe	A500 Gr. 50	Typical	13.587	261.4...	261.4...	522.81
2	Brace 1	L2x2x3	Beam	Single Angle	A36 Gr.36	Typical	.722	.271	.271	.009
3	Brace 2	L3X3X3	Beam	Single Angle	A36 Gr.36	Typical	1.09	.948	.948	.014
4	Brace 3	L4X4X4	Beam	Single Angle	A36 Gr.36	Typical	1.93	3	3	.044
5	Brace 4	L5X5X6	Beam	Single Angle	A36 Gr.36	Typical	3.65	8.76	8.76	.183
6	Brace 5	L3X2.5X4	Beam	Single Angle	A36 Gr.36	Typical	1.32	.734	1.16	.03
7	Brace 6	L4X3X4	Beam	Single Angle	A36 Gr.36	Typical	1.69	1.33	2.75	.039
8	Brace 7	L2.5x2.5x4	Beam	Single Angle	A36 Gr.36	Typical	1.19	.692	.692	.026
9	Plate	Plate 6"x3/4"	Beam	BAR	A36 Gr.36	Typical	4.5	.211	13.5	.777

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[...	Lcomp bot[...	L-torq...	Kyy	Kzz	Cb	Functi...
1	M1	Powermount	135	Segment	Segment	Lbyy						Lateral
2	M2	Brace 6	1.5			Lbyy						Lateral
3	M3	Brace 6	10.8			Lbyy						Lateral
4	M4	Brace 5	1.5			Lbyy						Lateral
5	M5	Brace 5	7.96			Lbyy						Lateral
6	M6	Brace 4	16.369			Lbyy						Lateral
7	M7	Brace 4	16.369			Lbyy						Lateral
8	M8	Brace 3	12.363			Lbyy						Lateral
9	M9	Brace 3	12.363			Lbyy						Lateral
10	M10	Brace 2	8.369			Lbyy						Lateral
11	M11	Brace 2	8.369			Lbyy						Lateral
12	M12	Brace 1	1.5			Lbyy						Lateral
13	M13	Brace 1	2.693			Lbyy						Lateral
14	M14	Brace 1	2.693			Lbyy						Lateral
15	M15	Brace 1	1.5			Lbyy						Lateral
16	M16	Brace 1	2.693			Lbyy						Lateral
17	M17	Brace 1	2.693			Lbyy						Lateral
18	M18	Brace 1	1.5			Lbyy						Lateral
19	M19	Brace 7	2.693			Lbyy						Lateral
20	M20	Brace 7	2.693			Lbyy						Lateral
21	M21	Plate	1.5			Lbyy						Lateral
22	M22	Brace 7	2.693			Lbyy						Lateral
23	M23	Brace 7	2.693			Lbyy						Lateral
24	M24	Plate	1.5			Lbyy						Lateral

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design ...
1	M1	N1	N9			Powermount	Column	Pipe	A500 Gr. 50	Typical
2	M2	N10	N2			Brace 6	Beam	Single An...	A36 Gr.36	Typical
3	M3	N2	N11			Brace 6	Beam	Single An...	A36 Gr.36	Typical
4	M4	N14	N3			Brace 5	Beam	Single An...	A36 Gr.36	Typical
5	M5	N3	N15			Brace 5	Beam	Single An...	A36 Gr.36	Typical
6	M6	N12	N2			Brace 4	Beam	Single An...	A36 Gr.36	Typical
7	M7	N2	N13			Brace 4	Beam	Single An...	A36 Gr.36	Typical
8	M8	N16	N3			Brace 3	Beam	Single An...	A36 Gr.36	Typical
9	M9	N3	N17			Brace 3	Beam	Single An...	A36 Gr.36	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design ...
10	M10	N19	N4			Brace 2	Beam	Single An...	A36 Gr.36	Typical
11	M11	N4	N20			Brace 2	Beam	Single An...	A36 Gr.36	Typical
12	M12	N4	N18			Brace 1	Beam	Single An...	A36 Gr.36	Typical
13	M13	N22	N5			Brace 1	Beam	Single An...	A36 Gr.36	Typical
14	M14	N5	N23			Brace 1	Beam	Single An...	A36 Gr.36	Typical
15	M15	N5	N21			Brace 1	Beam	Single An...	A36 Gr.36	Typical
16	M16	N25	N6			Brace 1	Beam	Single An...	A36 Gr.36	Typical
17	M17	N6	N26			Brace 1	Beam	Single An...	A36 Gr.36	Typical
18	M18	N6	N24			Brace 1	Beam	Single An...	A36 Gr.36	Typical
19	M19	N28	N7			Brace 7	Beam	Single An...	A36 Gr.36	Typical
20	M20	N7	N29			Brace 7	Beam	Single An...	A36 Gr.36	Typical
21	M21	N7	N27		90	Plate	Beam	BAR	A36 Gr.36	Typical
22	M22	N31	N8			Brace 7	Beam	Single An...	A36 Gr.36	Typical
23	M23	N8	N32			Brace 7	Beam	Single An...	A36 Gr.36	Typical
24	M24	N8	N30		90	Plate	Beam	BAR	A36 Gr.36	Typical

Joint Coordinates and Temperatures

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

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N1	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N2						
3	N3						
4	N4						
5	N5						
6	N6						
7	N7						
8	N8						
9	N9						
10	N10	Reaction	Reaction	Reaction			
11	N11	Reaction	Reaction	Reaction			
12	N12	Reaction	Reaction	Reaction			
13	N13	Reaction	Reaction	Reaction			
14	N14	Reaction	Reaction	Reaction			
15	N15	Reaction	Reaction	Reaction			
16	N16	Reaction	Reaction	Reaction			
17	N17	Reaction	Reaction	Reaction			
18	N18	Reaction	Reaction	Reaction			
19	N19	Reaction	Reaction	Reaction			
20	N20	Reaction	Reaction	Reaction			
21	N21	Reaction	Reaction	Reaction			
22	N22	Reaction	Reaction	Reaction			
23	N23	Reaction	Reaction	Reaction			
24	N24	Reaction	Reaction	Reaction			
25	N25	Reaction	Reaction	Reaction			
26	N27	Reaction	Reaction	Reaction			
27	N28	Reaction	Reaction	Reaction			
28	N30	Reaction	Reaction	Reaction			
29	N31	Reaction	Reaction	Reaction			
30	N26	Reaction	Reaction	Reaction			
31	N29	Reaction	Reaction	Reaction			
32	N32	Reaction	Reaction	Reaction			

Member Point Loads

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

Joint Loads and Enforced Displacements (BLC 2 : Weight of Appurtenances)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	N9	L	Y	-.45
2	N9	L	Y	-.09
3	N9	L	Y	-.012
4	N9	L	Y	-3.502

Joint Loads and Enforced Displacements (BLC 3 : Weight of Ice Only)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	N9	L	Y	-.944

Joint Loads and Enforced Displacements (BLC 3 : Weight of Ice Only) (Continued)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
2	N9	L	Y	-.301
3	N9	L	Y	-.039
4	N9	L	Y	-3.398

Joint Loads and Enforced Displacements (BLC 4 : (x) TIA Wind with Ice)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	N9	L	X	.546
2	N9	L	X	.179
3	N9	L	X	.021
4	N9	L	X	.674

Joint Loads and Enforced Displacements (BLC 5 : (x) TIA Wind)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	N9	L	X	3.237
2	N9	L	X	.948
3	N9	L	X	.056
4	N9	L	X	2.232

Joint Loads and Enforced Displacements (BLC 6 : (z) TIA Wind with Ice)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	N9	L	Z	.546
2	N9	L	Z	.179
3	N9	L	Z	.021
4	N9	L	Z	.674

Joint Loads and Enforced Displacements (BLC 7 : (z) TIA Wind)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	N9	L	Z	3.237
2	N9	L	Z	.948
3	N9	L	Z	.056
4	N9	L	Z	2.232

Member Distributed Loads (BLC 2 : Weight of Appurtenances)

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

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

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,k...	Start Location[ft..	End Location[ft,...
1	M1	Y	-.017	-.017	0	20
2	M1	Y	-.019	-.019	20	40
3	M1	Y	-.02	-.02	40	60
4	M1	Y	-.021	-.021	60	80
5	M1	Y	-.022	-.022	80	100
6	M1	Y	-.022	-.022	100	120
7	M1	Y	-.023	-.023	120	0
8	M1	Y	-.095	-.095	120	0
9	M22	Y	-.008	-.008	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,k...	Start Location[ft..	End Location[ft,...
10	M24	Y	-.008	-.008	0	0
11	M23	Y	-.008	-.008	0	0
12	M19	Y	-.008	-.008	0	0
13	M21	Y	-.008	-.008	0	0
14	M20	Y	-.008	-.008	0	0
15	M16	Y	-.006	-.006	0	0
16	M18	Y	-.006	-.006	0	0
17	M17	Y	-.006	-.006	0	0
18	M13	Y	-.006	-.006	0	0
19	M15	Y	-.006	-.006	0	0
20	M14	Y	-.006	-.006	0	0
21	M12	Y	-.013	-.013	0	0
22	M10	Y	-.008	-.008	0	0
23	M11	Y	-.008	-.008	0	0
24	M8	Y	-.01	-.01	0	0
25	M5	Y	-.002	-.002	0	0
26	M4	Y	-.002	-.002	0	0
27	M9	Y	-.01	-.01	0	0
28	M6	Y	-.012	-.012	0	0
29	M2	Y	-.002	-.002	0	0
30	M3	Y	-.002	-.002	0	0
31	M7	Y	-.012	-.012	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,k...	Start Location[ft..	End Location[ft,...
1	M1	X	.008	.008	0	20
2	M1	X	.011	.011	20	40
3	M1	X	.012	.012	40	60
4	M1	X	.013	.013	60	80
5	M1	X	.014	.014	80	100
6	M1	X	.014	.014	100	120
7	M1	X	.015	.015	120	0
8	M1	X	.006	.006	120	0
9	M24	X	.007	.007	0	0
10	M21	X	.007	.007	0	0
11	M18	X	.006	.006	0	0
12	M15	X	.006	.006	0	0
13	M12	X	.01	.01	0	0
14	M4	X	.012	.012	0	0
15	M5	X	.012	.012	0	0
16	M2	X	.013	.013	0	0
17	M3	X	.013	.013	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,k...	Start Location[ft..	End Location[ft,...
1	M1	X	.049	.049	0	20
2	M1	X	.062	.062	20	40
3	M1	X	.069	.069	40	60
4	M1	X	.074	.074	60	80
5	M1	X	.078	.078	80	100
6	M1	X	.081	.081	100	120

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

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,k...	Start Location[ft..	End Location[ft,...
7	M1	X	.084	.084	120	0
8	M1	X	.026	.026	120	0
9	M24	X	.022	.022	0	0
10	M21	X	.022	.022	0	0
11	M18	X	.018	.018	0	0
12	M15	X	.018	.018	0	0
13	M12	X	.017	.017	0	0
14	M4	X	.023	.023	0	0
15	M5	X	.023	.023	0	0
16	M2	X	.029	.029	0	0
17	M3	X	.029	.029	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,k...	Start Location[ft..	End Location[ft,...
1	M1	Z	.008	.008	0	20
2	M1	Z	.011	.011	20	40
3	M1	Z	.012	.012	40	60
4	M1	Z	.013	.013	60	80
5	M1	Z	.014	.014	80	100
6	M1	Z	.014	.014	100	120
7	M1	Z	.015	.015	120	0
8	M1	Z	.006	.006	120	0
9	M22	Z	.007	.007	0	0
10	M23	Z	.007	.007	0	0
11	M19	Z	.007	.007	0	0
12	M20	Z	.007	.007	0	0
13	M16	Z	.006	.006	0	0
14	M17	Z	.006	.006	0	0
15	M13	Z	.006	.006	0	0
16	M14	Z	.006	.006	0	0
17	M10	Z	.008	.008	0	0
18	M11	Z	.008	.008	0	0
19	M8	Z	.009	.009	0	0
20	M9	Z	.009	.009	0	0
21	M6	Z	.011	.011	0	0
22	M7	Z	.011	.011	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,k...	Start Location[ft..	End Location[ft,...
1	M1	Z	.049	.049	0	20
2	M1	Z	.062	.062	20	40
3	M1	Z	.069	.069	40	60
4	M1	Z	.074	.074	60	80
5	M1	Z	.078	.078	80	100
6	M1	Z	.081	.081	100	120
7	M1	Z	.084	.084	120	0
8	M1	Z	.026	.026	120	0
9	M22	Z	.022	.022	0	0
10	M23	Z	.022	.022	0	0
11	M19	Z	.022	.022	0	0
12	M20	Z	.022	.022	0	0

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

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,k...	Start Location[ft..	End Location[ft,...
13	M16	Z	.018	.018	0	0
14	M17	Z	.018	.018	0	0
15	M13	Z	.018	.018	0	0
16	M14	Z	.018	.018	0	0
17	M10	Z	.029	.029	0	0
18	M11	Z	.029	.029	0	0
19	M8	Z	.039	.039	0	0
20	M9	Z	.039	.039	0	0
21	M6	Z	.048	.048	0	0
22	M7	Z	.048	.048	0	0

Basic Load Cases

	BLC Description	Category	X Gra...	Y Gra...	Z Gra...	Joint	Point	Distrib..	Area(...	Surfa...
1	Self Weight	None		-1						
2	Weight of Appurtenances	None				4		2		
3	Weight of Ice Only	None				4		31		
4	(x) TIA Wind with Ice	None				4		17		
5	(x) TIA Wind	None				4		17		
6	(z) TIA Wind with Ice	None				4		22		
7	(z) TIA Wind	None				4		22		

Load Combinations

	Description	Sol..	PD...	SR..	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...
1	1.2D + 1.0..	Yes	Y		1	1.2	2	1.2	5	1																
2	0.9D + 1.0..	Yes	Y		1	.9	2	.9	5	1																
3	1.2D + 1.0..	Yes	Y		1	1.2	2	1.2	3	1	4	1														
4	1.2D + 1.0..	Yes	Y		1	1.2	2	1.2	7	1																
5	0.9D + 1.0..	Yes	Y		1	.9	2	.9	7	1																
6	1.2D + 1.0..	Yes	Y		1	1.2	2	1.2	3	1	6	1														

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N1	max	0	6	23.481	6	0	3	0	3	0	6	1.356	2
2		min	-.438	2	10.563	2	-.432	5	-1.276	5	0	1	0	4
3	N10	max	0	6	.007	3	0	3	0	6	0	6	0	6
4		min	-.022	1	.003	5	-1.453	4	0	1	0	1	0	1
5	N11	max	0	6	.048	6	0	3	0	6	0	6	0	6
6		min	-.157	1	.028	2	-.202	4	0	1	0	1	0	1
7	N12	max	-.028	6	.22	3	-.114	6	0	6	0	6	0	6
8		min	-.643	1	.091	5	-.565	1	0	1	0	1	0	1
9	N13	max	.143	4	.22	6	.565	1	0	6	0	6	0	6
10		min	-.643	1	.091	2	-.518	4	0	1	0	1	0	1
11	N14	max	0	6	.006	3	0	3	0	6	0	6	0	6
12		min	-.017	1	.002	5	-1.217	5	0	1	0	1	0	1
13	N15	max	0	6	.029	6	0	3	0	6	0	6	0	6
14		min	-.092	1	.016	2	-.229	5	0	1	0	1	0	1
15	N16	max	-.02	6	.111	3	-.073	6	0	6	0	6	0	6

Envelope Joint Reactions (Continued)

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
16		min	-.632	2	.037	5	-.532	2	0	1	0	1	0	1
17	N17	max	.106	5	.111	6	.532	2	0	6	0	6	0	6
18		min	-.632	2	.036	2	-.331	5	0	1	0	1	0	1
19	N18	max	0	6	.012	3	0	3	0	6	0	6	0	6
20		min	-.013	1	0	4	-1.817	4	0	1	0	1	0	1
21	N19	max	-.045	6	.052	3	-.068	6	0	6	0	6	0	6
22		min	-.969	1	.014	5	-.75	1	0	1	0	1	0	1
23	N20	max	.238	4	.052	6	.75	1	0	6	0	6	0	6
24		min	-.969	1	.014	2	-.305	4	0	1	0	1	0	1
25	N21	max	0	6	.007	3	0	3	0	6	0	6	0	6
26		min	-.013	1	0	5	-1.068	5	0	1	0	1	0	1
27	N22	max	-.032	6	.012	3	-.021	6	0	6	0	6	0	6
28		min	-.647	2	.003	5	-.259	2	0	1	0	1	0	1
29	N23	max	.205	5	.012	6	.259	2	0	6	0	6	0	6
30		min	-.647	2	.002	2	-.106	5	0	1	0	1	0	1
31	N24	max	0	6	.007	3	0	3	0	6	0	6	0	6
32		min	-.013	1	-.005	4	-3.24	4	0	1	0	1	0	1
33	N25	max	-.135	6	.013	3	-.062	6	0	6	0	6	0	6
34		min	-1.721	1	.004	5	-.688	1	0	1	0	1	0	1
35	N27	max	0	6	.049	4	14.529	4	0	6	0	6	0	6
36		min	-.017	1	.01	2	-.002	1	0	1	0	1	0	1
37	N28	max	7.425	1	.017	6	2.971	1	0	6	0	6	0	6
38		min	.164	6	-.004	1	.056	6	0	1	0	1	0	1
39	N30	max	0	6	.02	3	0	3	0	6	0	6	0	6
40		min	-.016	1	-.04	4	-21.25	4	0	1	0	1	0	1
41	N31	max	-.234	6	.024	3	-.103	6	0	6	0	6	0	6
42		min	-10.969	1	.006	5	-4.385	1	0	1	0	1	0	1
43	N26	max	.622	4	.012	6	.688	1	0	6	0	6	0	6
44		min	-1.72	1	.001	2	-.273	4	0	1	0	1	0	1
45	N29	max	7.426	1	.022	3	.266	4	0	6	0	6	0	6
46		min	-.738	4	.004	5	-2.97	1	0	1	0	1	0	1
47	N32	max	1.079	4	.018	6	4.389	1	0	6	0	6	0	6
48		min	-10.967	1	-.01	1	-.462	4	0	1	0	1	0	1
49	Totals:	max	0	6	24.508	6	0	3						
50		min	-17.103	1	10.955	2	-19.835	4						

Envelope Joint Displacements

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
1	N1	max	0	6	0	6	0	6	0	6	0	6	0	6
2		min	0	1	0	1	0	1	0	1	0	1	0	1
3	N2	max	.003	1	-.007	2	0	4	5.48e-05	5	0	6	0	6
4		min	0	4	-.016	6	0	1	0	1	0	1	-6.25e-05	1
5	N3	max	.004	2	-.014	2	0	5	0	3	0	6	6.831e-05	1
6		min	0	4	-.032	6	0	1	-7.505e-05	4	0	1	0	4
7	N4	max	.006	1	-.02	2	.002	4	3.211e-04	4	0	6	0	6
8		min	0	4	-.046	6	0	3	0	1	0	1	-3.142e-04	1
9	N5	max	.001	2	-.028	2	.001	5	0	3	0	6	4.283e-04	1
10		min	0	4	-.065	6	0	3	-4.433e-04	4	0	1	0	4
11	N6	max	.004	1	-.03	2	.003	4	5.987e-04	4	0	6	0	6
12		min	0	4	-.07	6	0	3	0	1	0	1	-5.479e-04	1

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
13	N7	max	0	6	-.032	2	0	2	0	3	0	6	2.149e-03	1
14		min	-.01	1	-.077	6	-.003	4	-2.194e-03	4	0	1	0	4
15	N8	max	.015	1	-.034	2	.004	4	7.986e-03	4	0	6	0	6
16		min	0	4	-.082	6	0	3	0	1	0	1	-8.197e-03	1
17	N9	max	3.817	1	-.036	2	3.767	4	2.705e-02	4	0	6	0	6
18		min	0	4	-.088	6	0	3	0	1	0	1	-2.726e-02	1
19	N10	max	0	6	0	6	0	6	-3.967e-04	2	3.836e-06	6	0	6
20		min	0	1	0	1	0	1	-9.177e-04	6	-1.751e-04	2	-6.25e-05	1
21	N11	max	0	6	0	6	0	6	1.776e-03	6	1.031e-02	2	0	6
22		min	0	1	0	1	0	1	-3.62e-03	2	-1.423e-03	6	-6.25e-05	1
23	N12	max	0	6	0	6	0	6	3.608e-03	3	3.21e-03	3	1.546e-03	5
24		min	0	1	0	1	0	1	-1.303e-03	5	-5.903e-03	5	-4.122e-03	3
25	N13	max	0	6	0	6	0	6	3.621e-03	3	5.903e-03	5	4.111e-03	3
26		min	0	1	0	1	0	1	-1.303e-03	5	-3.206e-03	3	-1.546e-03	5
27	N14	max	0	6	0	6	0	6	-7.712e-04	2	6.492e-06	6	6.831e-05	1
28		min	0	1	0	1	0	1	-1.796e-03	6	-2.382e-04	2	0	4
29	N15	max	0	6	0	6	0	6	1.629e-03	6	5.851e-03	2	6.831e-05	1
30		min	0	1	0	1	0	1	-2.156e-03	2	-9.674e-04	6	0	4
31	N16	max	0	6	0	6	0	6	3.11e-03	3	2.789e-03	3	2.283e-03	5
32		min	0	1	0	1	0	1	-1.996e-03	5	-6.765e-03	5	-3.682e-03	3
33	N17	max	0	6	0	6	0	6	3.096e-03	3	6.765e-03	5	3.693e-03	3
34		min	0	1	0	1	0	1	-1.996e-03	5	-2.782e-03	3	-2.283e-03	5
35	N18	max	0	6	0	6	0	6	-1.137e-03	5	-6.603e-06	5	0	6
36		min	0	1	0	1	0	1	-2.69e-03	3	-4.365e-04	1	-3.142e-04	1
37	N19	max	0	6	0	6	0	6	2.179e-03	3	1.908e-03	3	2.1e-03	5
38		min	0	1	0	1	0	1	-1.303e-03	5	-5.298e-03	5	-2.874e-03	3
39	N20	max	0	6	0	6	0	6	2.234e-03	3	5.298e-03	5	2.831e-03	3
40		min	0	1	0	1	0	1	-1.303e-03	5	-1.894e-03	3	-2.1e-03	5
41	N21	max	0	6	0	6	0	6	-1.553e-03	5	-6.603e-06	5	4.283e-04	1
42		min	0	1	0	1	0	1	-3.66e-03	3	-1.801e-04	1	0	4
43	N22	max	0	6	0	6	0	6	8.686e-04	3	1.572e-04	3	-7.418e-04	5
44		min	0	1	0	1	0	1	-1.459e-04	5	-4.8e-04	5	-2.09e-03	3
45	N23	max	0	6	0	6	0	6	8.126e-04	3	4.8e-04	5	2.113e-03	3
46		min	0	1	0	1	0	1	-1.459e-04	5	-1.519e-04	3	7.418e-04	5
47	N24	max	0	6	0	6	0	6	-1.677e-03	5	-6.603e-06	5	0	6
48		min	0	1	0	1	0	1	-3.975e-03	3	-3.137e-04	1	-5.479e-04	1
49	N25	max	0	6	0	6	0	6	9.808e-04	6	1.641e-04	3	-4.476e-04	5
50		min	0	1	0	1	0	1	1.794e-04	2	-5.468e-04	5	-2.281e-03	3
51	N26	max	0	6	0	6	0	6	9.808e-04	6	5.468e-04	5	2.249e-03	3
52		min	0	1	0	1	0	1	5.56e-04	2	-1.45e-04	3	4.476e-04	5
53	N27	max	0	6	0	6	0	6	-1.854e-03	2	5.586e-04	1	2.149e-03	1
54		min	0	1	0	1	0	1	-4.378e-03	6	0	4	0	4
55	N28	max	0	6	0	6	0	6	1.258e-03	1	6.225e-05	3	-6.729e-04	2
56		min	0	1	0	1	0	1	-1.548e-03	5	-1.376e-04	5	-2.469e-03	6
57	N29	max	0	6	0	6	0	6	7.749e-04	3	1.376e-04	5	2.469e-03	6
58		min	0	1	0	1	0	1	-1.548e-03	5	-1.492e-04	1	1.264e-03	2
59	N30	max	0	6	0	6	0	6	-1.955e-03	2	0	6	0	6
60		min	0	1	0	1	0	1	-4.652e-03	6	-8.287e-04	1	-8.197e-03	1
61	N31	max	0	6	0	6	0	6	7.378e-03	4	2.044e-04	1	1.85e-03	5
62		min	0	1	0	1	0	1	-2.407e-03	2	-3.143e-04	5	-2.734e-03	3
63	N32	max	0	6	0	6	0	6	7.378e-03	4	3.143e-04	5	2.237e-03	3
64		min	0	1	0	1	0	1	1.616e-03	3	-5.098e-05	3	-1.85e-03	5

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

	Memb...	Shape	Code Check	L...	LC	Sh...	L...	Dir	...	phi*P...	phi*Pn...	phi*Mn y-y [k-ft]	phi*...	Cb	Eqn
1	M1	12" Powerm...	.526	1...	1	.076	1...		4	578.8...	611.423	201.183	201...	4....	H1...
2	M2	L4X3X4	.031	.75	4	.001	1.5	z	2	48.049	54.756	1.795	4.609	1....	H2...
3	M3	L4X3X4	.266	5.4	1	.011	0	z	2	9.282	54.756	1.844	3.189	1....	H2...
4	M4	L3X2.5X4	.031	.75	4	.001	0	z	2	40.154	42.768	1.251	2.963	1....	H2...
5	M5	L3X2.5X4	.163	3....	2	.008	7....	z	2	8.838	42.768	1.251	2.273	1....	H2...
6	M6	L5X5X6	.179	8....	5	.008	1...	z	5	20.778	118.26	7.418	11....	1....	H2...
7	M7	L5X5X6	.179	8....	5	.008	1...	z	5	20.778	118.26	7.418	11....	1....	H2...
8	M8	L4X4X4	.209	6....	5	.009	1...	z	5	12.145	62.532	3.138	4.661	1....	H2...
9	M9	L4X4X4	.209	6....	5	.009	1...	z	5	12.145	62.532	3.138	4.661	1....	H2...
10	M10	L3X3X3	.180	4....	5	.009	8....	z	5	8.384	35.316	1.32	2.057	1....	H2...
11	M11	L3X3X3	.180	4....	1	.009	8....	z	5	8.384	35.316	1.32	2.057	1....	H2...
12	M12	L2x2x3	.088	.75	4	.002	0	z	2	20.899	23.393	.558	1.239	1....	H2...
13	M13	L2x2x3	.036	1....	5	.003	2....	z	5	16.268	23.393	.558	1.192	1....	H2...
14	M14	L2x2x3	.048	1....	1	.003	2....	z	5	16.268	23.393	.558	1.192	1....	H2...
15	M15	L2x2x3	.053	.75	4	.002	0	z	2	20.899	23.393	.558	1.239	1....	H2...
16	M16	L2x2x3	.084	1....	1	.003	2....	z	5	16.268	23.393	.558	1.192	1....	H2...
17	M17	L2x2x3	.119	1....	1	.003	0	z	5	16.268	23.393	.558	1.192	1....	H2...
18	M18	L2x2x3	.157	.75	4	.002	0	z	2	20.899	23.393	.558	1.239	1....	H2...
19	M19	L2.5x2.5x4	.267	1....	1	.002	2....	z	5	30.433	38.556	1.114	2.537	1....	H2...
20	M20	L2.5x2.5x4	.211	1....	1	.002	2....	z	5	30.433	38.556	1.114	2.537	1....	H2...
21	M21	Plate 6"x3/4"	.052	.75	4	.000	1.5	y	2	101.3...	145.8	2.278	17....	1	H1...
22	M22	L2.5x2.5x4	.310	1....	1	.002	2....	z	5	30.433	38.556	1.114	2.537	1....	H2...
23	M23	L2.5x2.5x4	.392	1....	1	.002	0	z	5	30.433	38.556	1.114	2.537	1....	H2...
24	M24	Plate 6"x3/4"	.212	.75	4	.000	0	y	2	101.3...	145.8	2.278	17....	1	H1...

Joint Reactions (By Combination)

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	1	N1	-.438	14.084	0	0	0	1.356
2	1	N10	-.022	.005	0	0	0	0
3	1	N11	-.157	.037	0	0	0	0
4	1	N12	-.643	.122	-.565	0	0	0
5	1	N13	-.643	.122	.565	0	0	0
6	1	N14	-.017	.004	0	0	0	0
7	1	N15	-.092	.021	0	0	0	0
8	1	N16	-.632	.049	-.532	0	0	0
9	1	N17	-.632	.049	.532	0	0	0
10	1	N18	-.013	.002	0	0	0	0
11	1	N19	-.969	.019	-.75	0	0	0
12	1	N20	-.969	.018	.75	0	0	0
13	1	N21	-.013	.002	0	0	0	0
14	1	N22	-.646	.005	-.258	0	0	0
15	1	N23	-.646	.003	.258	0	0	0
16	1	N24	-.013	.002	0	0	0	0
17	1	N25	-1.721	.006	-.688	0	0	0
18	1	N27	-.017	.014	-.002	0	0	0
19	1	N28	7.425	-.004	2.971	0	0	0
20	1	N30	-.016	.014	-.004	0	0	0
21	1	N31	-10.969	.023	-4.385	0	0	0
22	1	N26	-1.72	.002	.688	0	0	0
23	1	N29	7.426	.017	-2.97	0	0	0
24	1	N32	-10.967	-.01	4.389	0	0	0
25	1	Totals:	-17.103	14.606	0			
26	1	COG (ft):	X: 0	Y: 88.936	Z: -.284			

Joint Reactions (By Combination)

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	2	N1	-.438	10.563	0	0	0	1.356
2	2	N10	-.022	.004	0	0	0	0
3	2	N11	-.157	.028	0	0	0	0
4	2	N12	-.643	.092	-.565	0	0	0
5	2	N13	-.643	.091	.565	0	0	0
6	2	N14	-.017	.003	0	0	0	0
7	2	N15	-.092	.016	0	0	0	0
8	2	N16	-.632	.037	-.532	0	0	0
9	2	N17	-.632	.036	.532	0	0	0
10	2	N18	-.013	.002	0	0	0	0
11	2	N19	-.969	.014	-.75	0	0	0
12	2	N20	-.969	.014	.75	0	0	0
13	2	N21	-.013	.002	0	0	0	0
14	2	N22	-.647	.004	-.259	0	0	0
15	2	N23	-.647	.002	.259	0	0	0
16	2	N24	-.013	.002	0	0	0	0
17	2	N25	-1.714	.005	-.686	0	0	0
18	2	N27	-.017	.01	-.002	0	0	0
19	2	N28	7.394	-.003	2.958	0	0	0
20	2	N30	-.016	.01	-.004	0	0	0
21	2	N31	-10.942	.017	-4.375	0	0	0
22	2	N26	-1.714	.001	.686	0	0	0
23	2	N29	7.395	.013	-2.957	0	0	0
24	2	N32	-10.94	-.008	4.378	0	0	0
25	2	Totals:	-17.103	10.955	0			
26	2	COG (ft):	X: 0	Y: 88.936	Z: -.284			

Joint Reactions (By Combination)

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	3	N1	-.07	23.47	0	0	0	.216
2	3	N10	-.01	.007	0	0	0	0
3	3	N11	-.07	.048	0	0	0	0
4	3	N12	-.135	.22	-.118	0	0	0
5	3	N13	-.135	.22	.118	0	0	0
6	3	N14	-.009	.006	0	0	0	0
7	3	N15	-.048	.029	0	0	0	0
8	3	N16	-.13	.111	-.109	0	0	0
9	3	N17	-.13	.11	.109	0	0	0
10	3	N18	-.007	.012	0	0	0	0
11	3	N19	-.173	.052	-.134	0	0	0
12	3	N20	-.173	.052	.134	0	0	0
13	3	N21	-.004	.007	0	0	0	0
14	3	N22	-.102	.012	-.041	0	0	0
15	3	N23	-.102	.012	.041	0	0	0
16	3	N24	-.004	.007	0	0	0	0
17	3	N25	-.372	.013	-.149	0	0	0
18	3	N27	-.005	.02	0	0	0	0
19	3	N28	1.657	.013	.663	0	0	0
20	3	N30	-.005	.02	0	0	0	0
21	3	N31	-2.379	.024	-.952	0	0	0
22	3	N26	-.372	.011	.149	0	0	0
23	3	N29	1.657	.022	-.663	0	0	0
24	3	N32	-2.379	.011	.952	0	0	0
25	3	Totals:	-3.502	24.508	0			
26	3	COG (ft):	X: 0	Y: 96.159	Z: -.318			

Joint Reactions (By Combination)

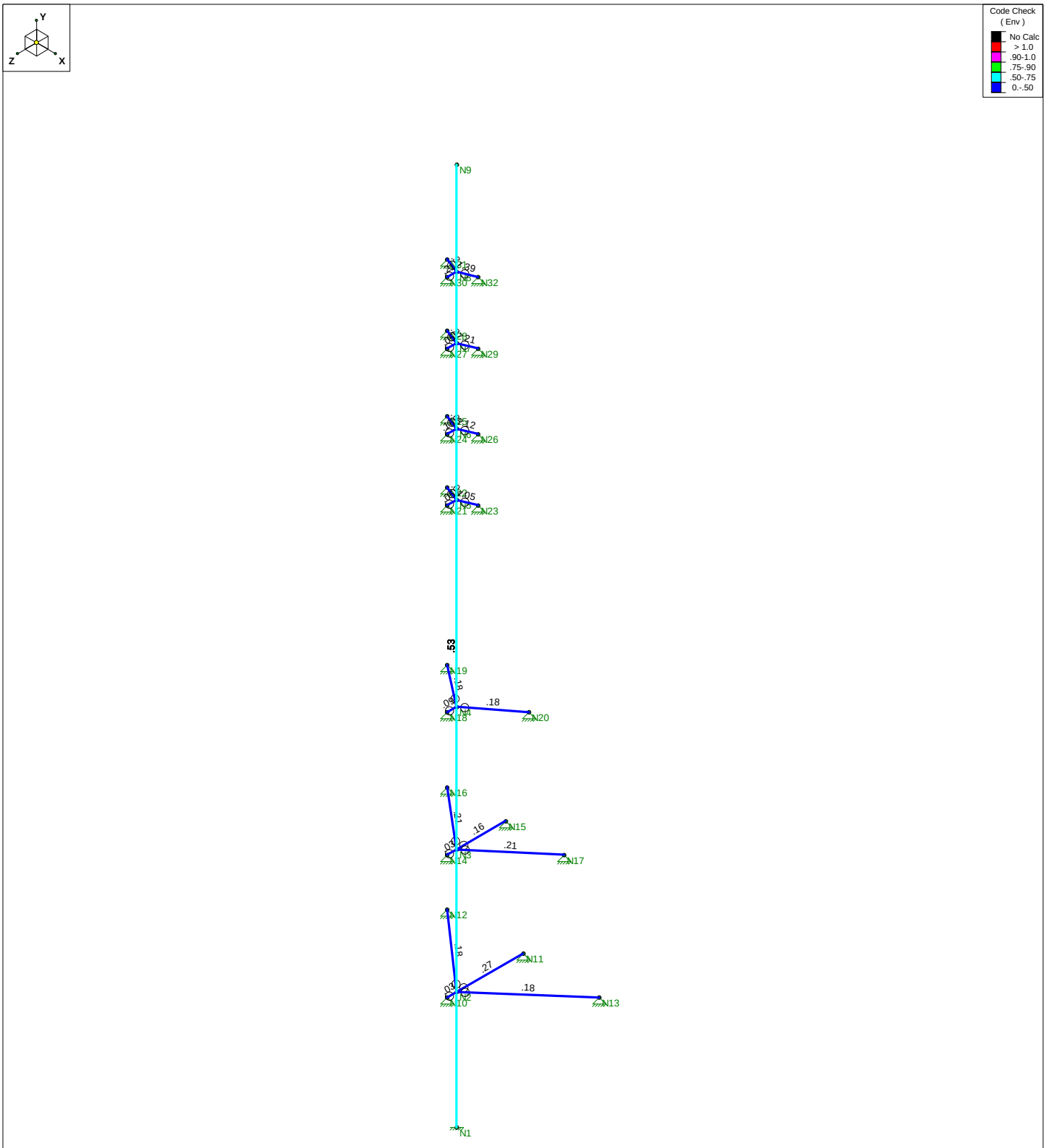
	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	4	N1	0	14.113	-.432	-1.276	0	0
2	4	N10	0	.004	-1.453	0	0	0
3	4	N11	0	.037	-.202	0	0	0
4	4	N12	-.143	.122	-.518	0	0	0
5	4	N13	.143	.122	-.518	0	0	0
6	4	N14	0	.003	-1.217	0	0	0
7	4	N15	0	.021	-.229	0	0	0
8	4	N16	-.106	.049	-.331	0	0	0
9	4	N17	.106	.049	-.331	0	0	0
10	4	N18	0	0	-1.817	0	0	0
11	4	N19	-.238	.019	-.305	0	0	0
12	4	N20	.238	.019	-.305	0	0	0
13	4	N21	0	0	-1.066	0	0	0
14	4	N22	-.205	.004	-.106	0	0	0
15	4	N23	.205	.004	-.106	0	0	0
16	4	N24	0	-.005	-3.24	0	0	0
17	4	N25	-.622	.005	-.273	0	0	0
18	4	N27	0	.049	14.529	0	0	0
19	4	N28	.738	.005	.266	0	0	0
20	4	N30	0	-.04	-21.25	0	0	0
21	4	N31	-1.079	.008	-.462	0	0	0
22	4	N26	.622	.005	-.273	0	0	0
23	4	N29	-.738	.005	.266	0	0	0
24	4	N32	1.079	.008	-.462	0	0	0
25	4	Totals:	0	14.606	-19.835			
26	4	COG (ft):	X: 0	Y: 88.936	Z: -.284			

Joint Reactions (By Combination)

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	5	N1	0	10.585	-.432	-1.276	0	0
2	5	N10	0	.003	-1.453	0	0	0
3	5	N11	0	.028	-.202	0	0	0
4	5	N12	-.143	.091	-.518	0	0	0
5	5	N13	.143	.091	-.518	0	0	0
6	5	N14	0	.002	-1.217	0	0	0
7	5	N15	0	.016	-.229	0	0	0
8	5	N16	-.106	.037	-.331	0	0	0
9	5	N17	.106	.037	-.331	0	0	0
10	5	N18	0	0	-1.816	0	0	0
11	5	N19	-.238	.014	-.305	0	0	0
12	5	N20	.238	.014	-.305	0	0	0
13	5	N21	0	0	-1.068	0	0	0
14	5	N22	-.205	.003	-.106	0	0	0
15	5	N23	.205	.003	-.106	0	0	0
16	5	N24	0	-.004	-3.229	0	0	0
17	5	N25	-.62	.004	-.272	0	0	0
18	5	N27	0	.036	14.468	0	0	0
19	5	N28	.735	.004	.264	0	0	0
20	5	N30	0	-.03	-21.199	0	0	0
21	5	N31	-1.077	.006	-.46	0	0	0
22	5	N26	.62	.004	-.272	0	0	0
23	5	N29	-.735	.004	.264	0	0	0
24	5	N32	1.077	.006	-.46	0	0	0
25	5	Totals:	0	10.955	-19.835			
26	5	COG (ft):	X: 0	Y: 88.936	Z: -.284			

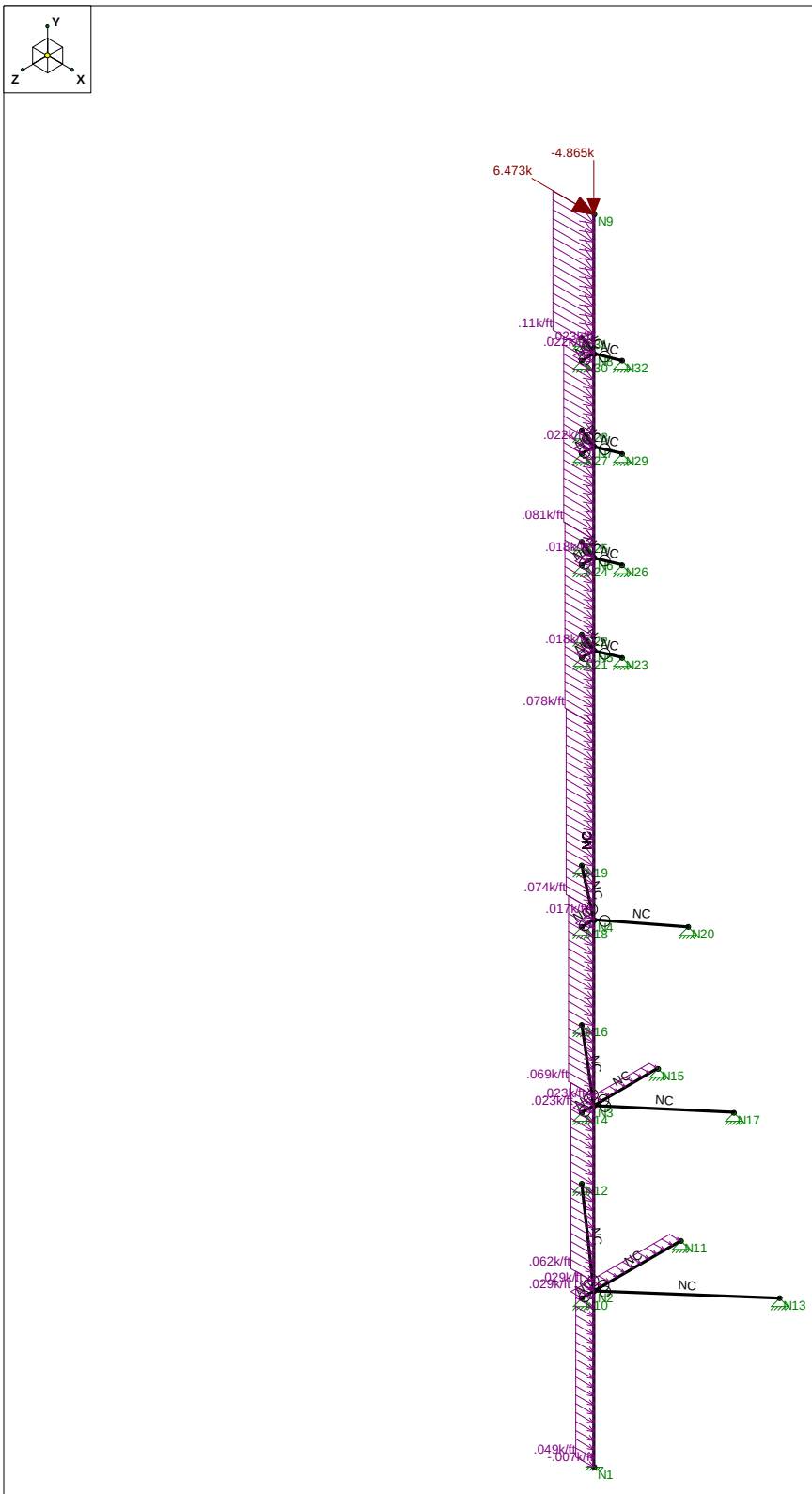
Joint Reactions (By Combination)

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	6	N1	0	23.481	-.069	-.2	0	0
2	6	N10	0	.006	-.284	0	0	0
3	6	N11	0	.048	-.039	0	0	0
4	6	N12	-.028	.22	-.114	0	0	0
5	6	N13	.028	.22	-.114	0	0	0
6	6	N14	0	.005	-.234	0	0	0
7	6	N15	0	.029	-.044	0	0	0
8	6	N16	-.02	.111	-.073	0	0	0
9	6	N17	.02	.111	-.073	0	0	0
10	6	N18	0	.011	-.34	0	0	0
11	6	N19	-.045	.052	-.068	0	0	0
12	6	N20	.045	.052	-.068	0	0	0
13	6	N21	0	.006	-.169	0	0	0
14	6	N22	-.032	.012	-.021	0	0	0
15	6	N23	.032	.012	-.021	0	0	0
16	6	N24	0	.004	-.705	0	0	0
17	6	N25	-.135	.012	-.062	0	0	0
18	6	N27	0	.034	3.236	0	0	0
19	6	N28	.164	.017	.056	0	0	0
20	6	N30	0	-.001	-4.614	0	0	0
21	6	N31	-.234	.018	-.103	0	0	0
22	6	N26	.135	.012	-.062	0	0	0
23	6	N29	-.164	.017	.056	0	0	0
24	6	N32	.234	.018	-.103	0	0	0
25	6	Totals:	0	24.508	-4.032			
26	6	COG (ft):	X: 0	Y: 96.159	Z: -.318			



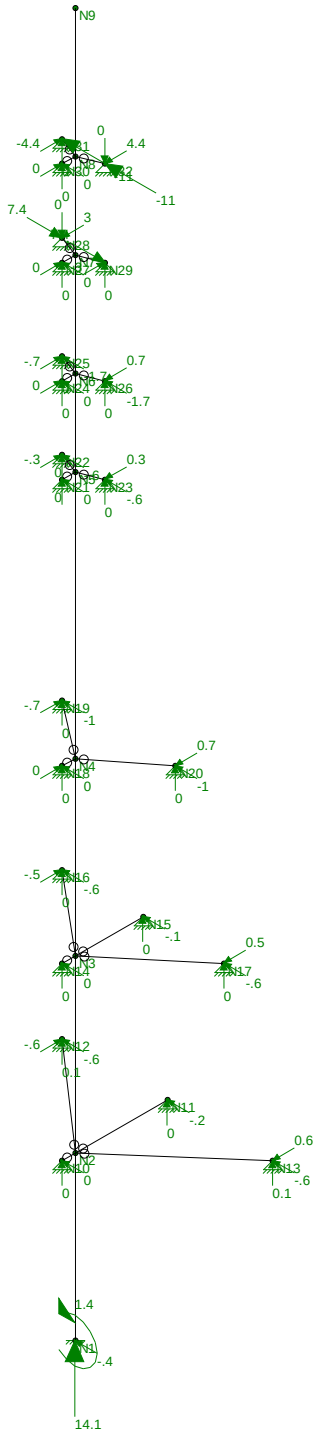
Member Code Checks Displayed (Enveloped)
Envelope Only Solution

CENTEK Engineering, INC.		
tjl, cfc	Structure # 1217 - Antenna Mast	Oct 19, 2022 at 4:45 PM
21005.42 - CTFF740A	Unity Check	Antenna Mast.r3d



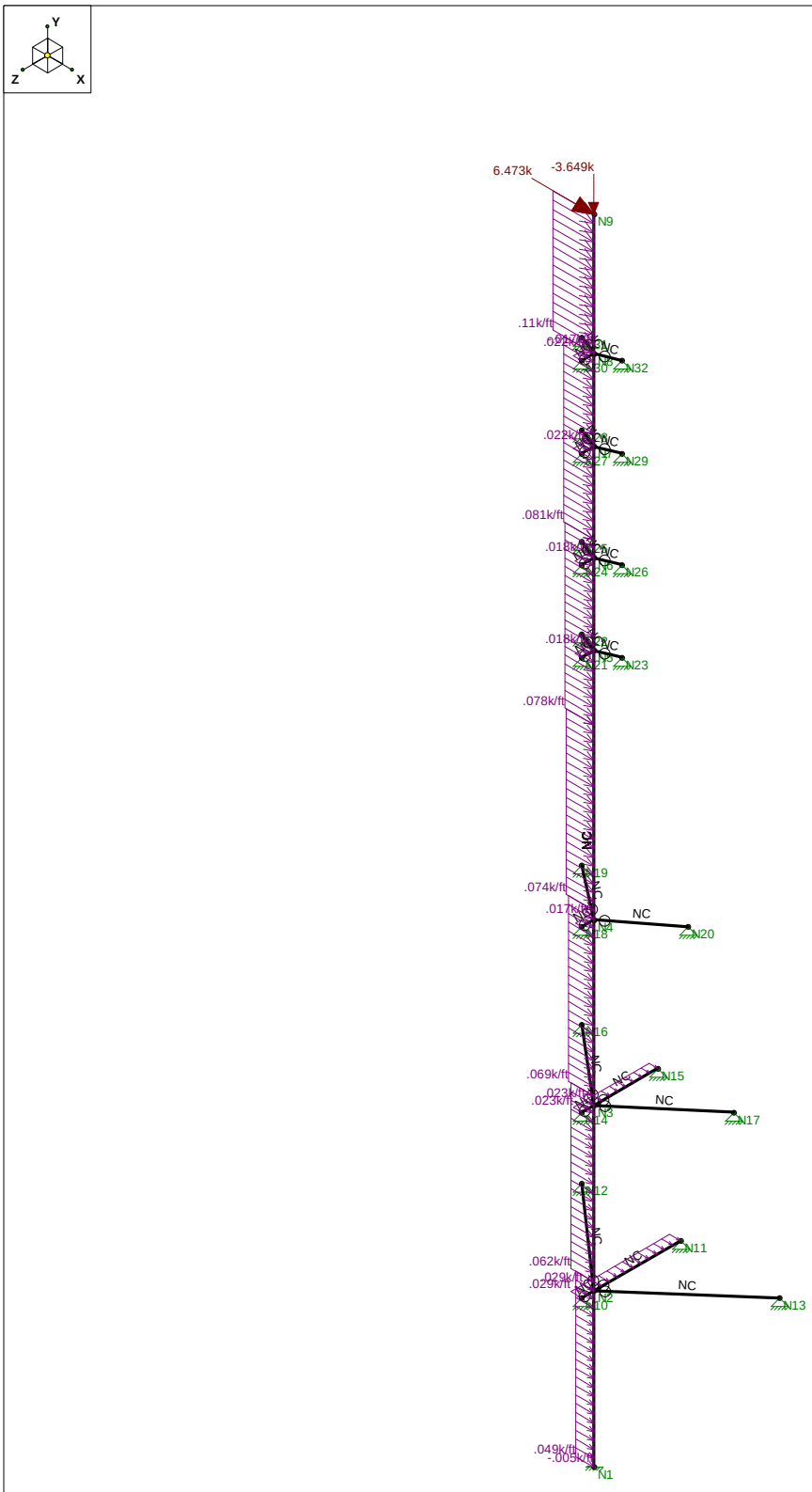
Member Code Checks Displayed
Loads: LC 1, 1.2D + 1.0W (X-direction)

CENTEK Engineering, INC.		
tjl, cfc	Structure # 1217 - Antenna Mast	Oct 19, 2022 at 4:45 PM
21005.42 - CTFF740A	LC #1 Loads	Antenna Mast.r3d



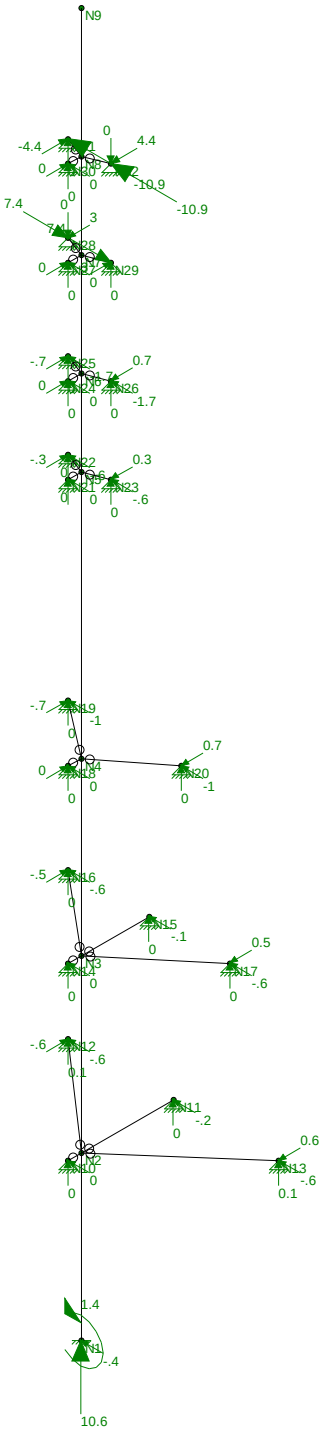
Results for LC 1, 1.2D + 1.0W (X-direction)
Reaction and Moment Units are k and k-ft

CENTEK Engineering, INC.		
tjl, cfc	Structure # 1217 - Antenna Mast	Oct 19, 2022 at 4:47 PM
21005.42 - CTFF740A	LC #1 Reactions	Antenna Mast.r3d



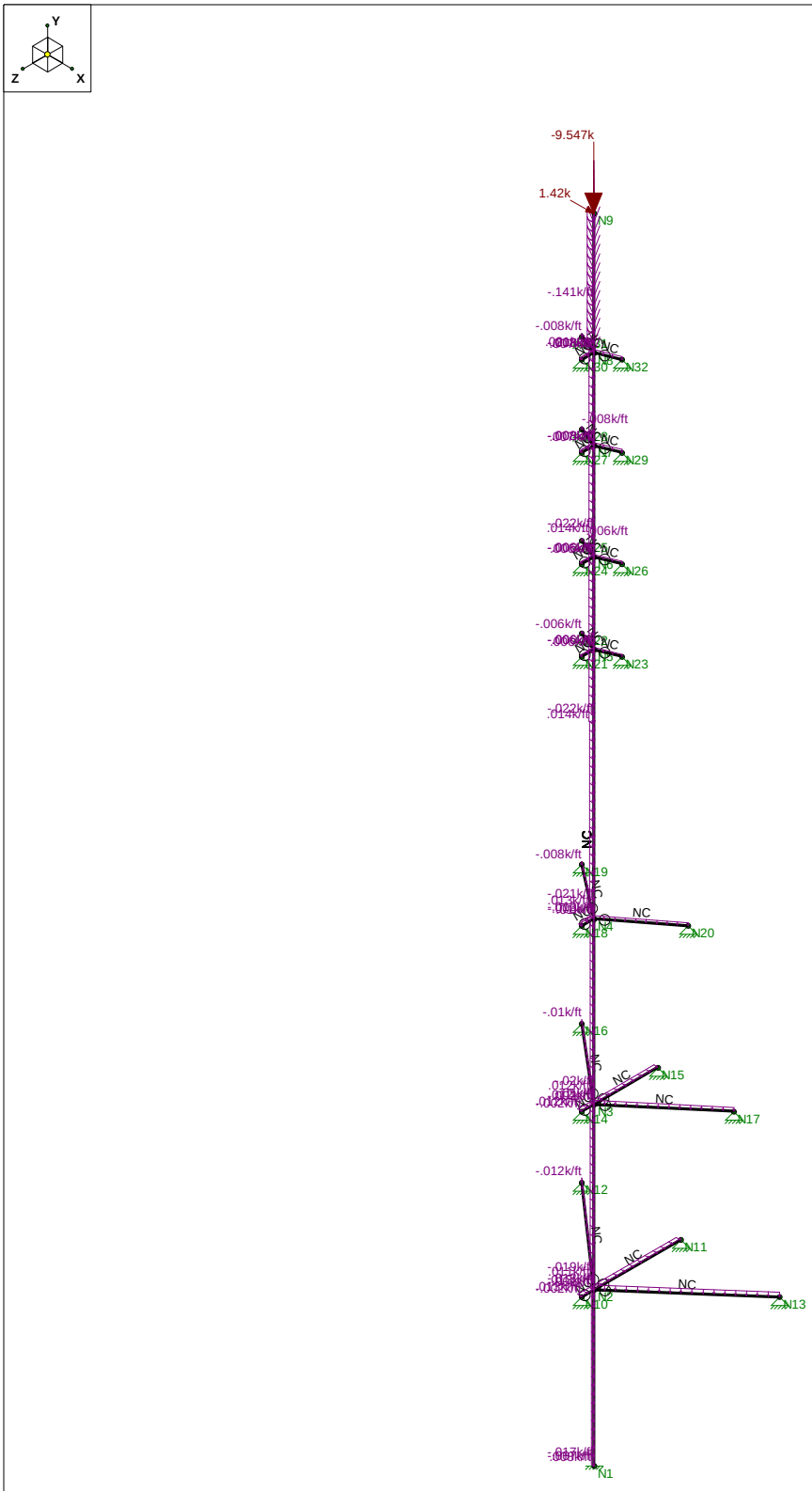
Member Code Checks Displayed
Loads: LC 2, 0.9D + 1.0W (X-direction)

CENTEK Engineering, INC.		
tjl, cfc	Structure # 1217 - Antenna Mast	Oct 19, 2022 at 4:45 PM
21005.42 - CTFF740A	LC #2 Loads	Antenna Mast.r3d



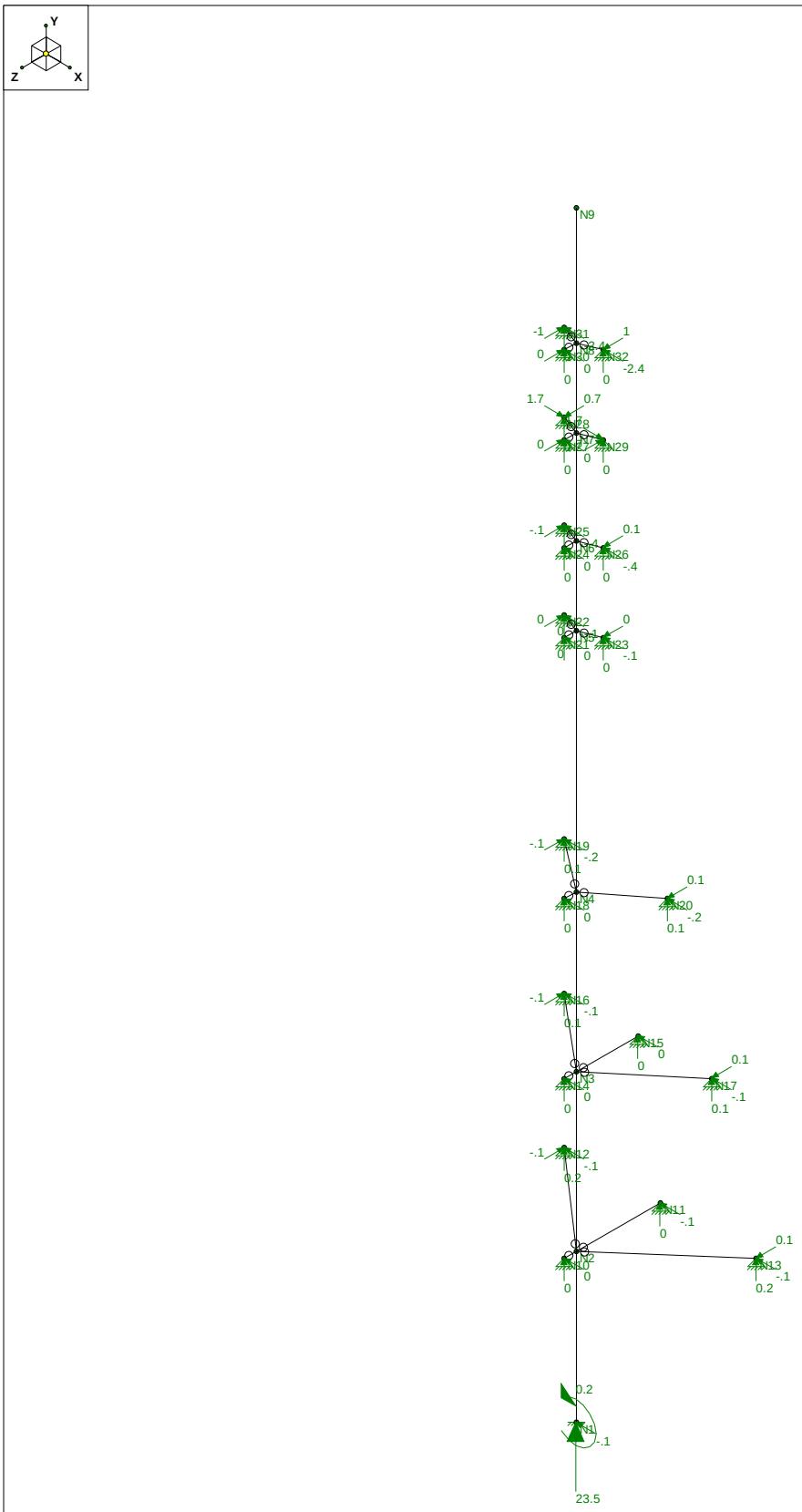
Results for LC 2, 0.9D + 1.0W (X-direction)
Reaction and Moment Units are k and k-ft

CENTEK Engineering, INC.		
tjl, cfc	Structure # 1217 - Antenna Mast	Oct 19, 2022 at 4:49 PM
21005.42 - CTFF740A	LC #2 Reactions	Antenna Mast.r3d



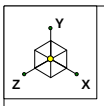
Member Code Checks Displayed
Loads: LC 3, 1.2D + 1.0Di + 1.0Wi (X-direction)

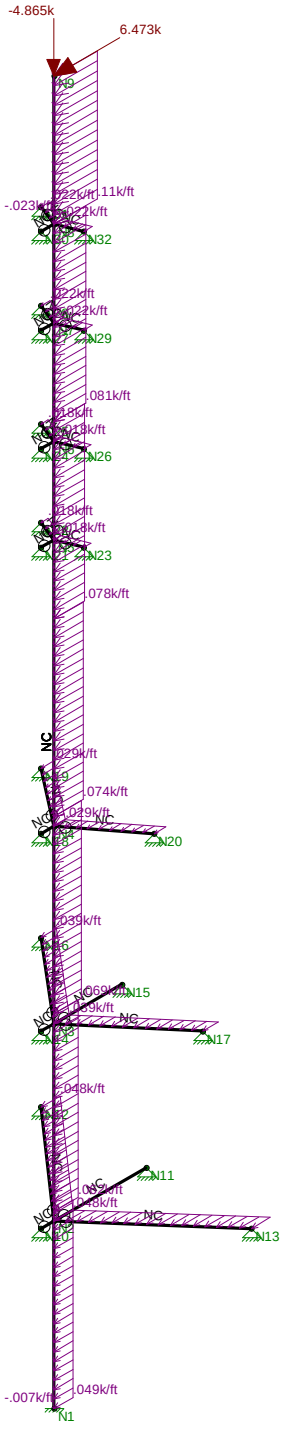
CENTEK Engineering, INC.		
tjl, cfc	Structure # 1217 - Antenna Mast	Oct 19, 2022 at 4:46 PM
21005.42 - CTFF740A	LC #3 Loads	Antenna Mast.r3d



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

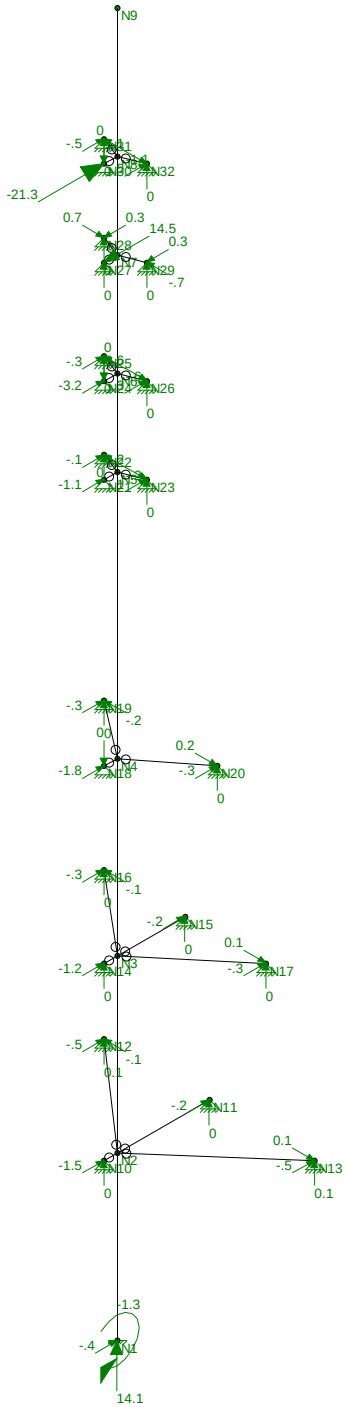
CENTEK Engineering, INC.		
tjl, cfc	Structure # 1217 - Antenna Mast	Oct 19, 2022 at 4:50 PM
21005.42 - CTFF740A	LC #3 Reactions	Antenna Mast.r3d





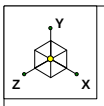
Member Code Checks Displayed
Loads: LC 4, 1.2D + 1.0W (Z-direction)

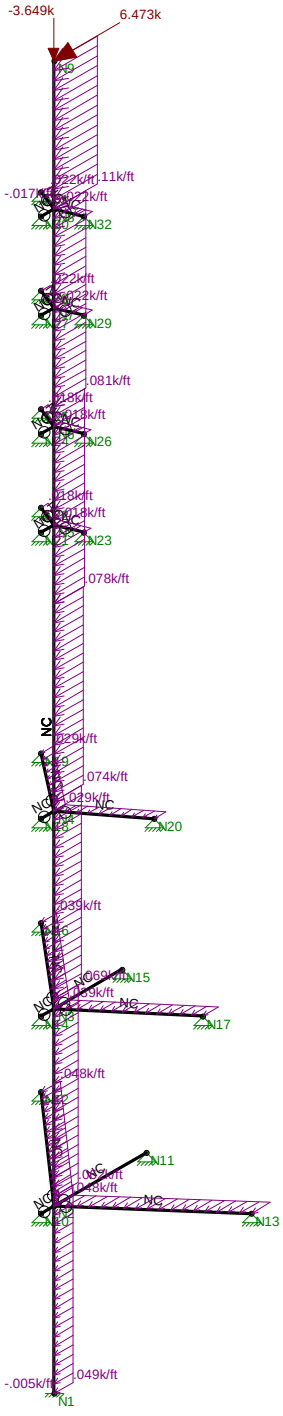
CENTEK Engineering, INC.		
tjl, cfc	Structure # 1217 - Antenna Mast	Oct 19, 2022 at 4:46 PM
21005.42 - CTFF740A	LC #4 Loads	Antenna Mast.r3d



Results for LC 4, 1.2D + 1.0W (Z-direction)
Reaction and Moment Units are k and k-ft

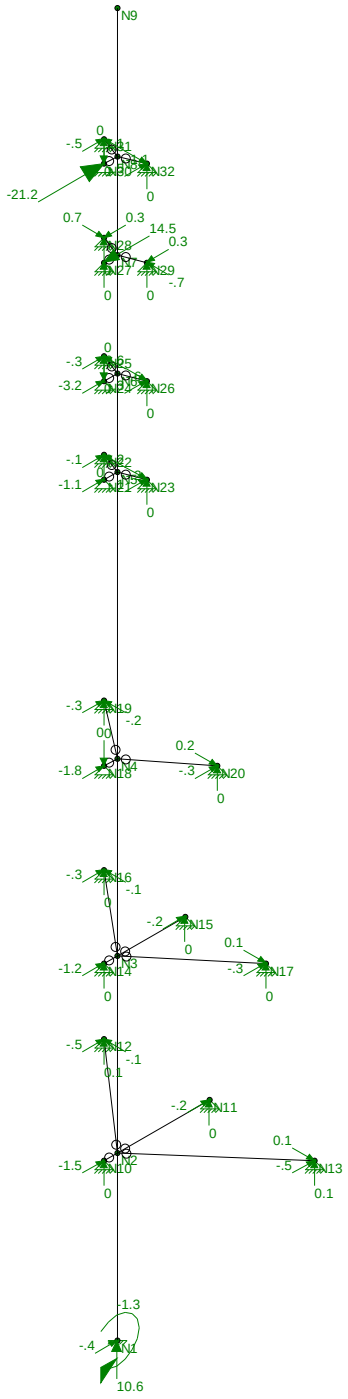
CENTEK Engineering, INC.		
tjl, cfc	Structure # 1217 - Antenna Mast	Oct 19, 2022 at 4:50 PM
21005.42 - CTFF740A	LC #4 Reactions	Antenna Mast.r3d





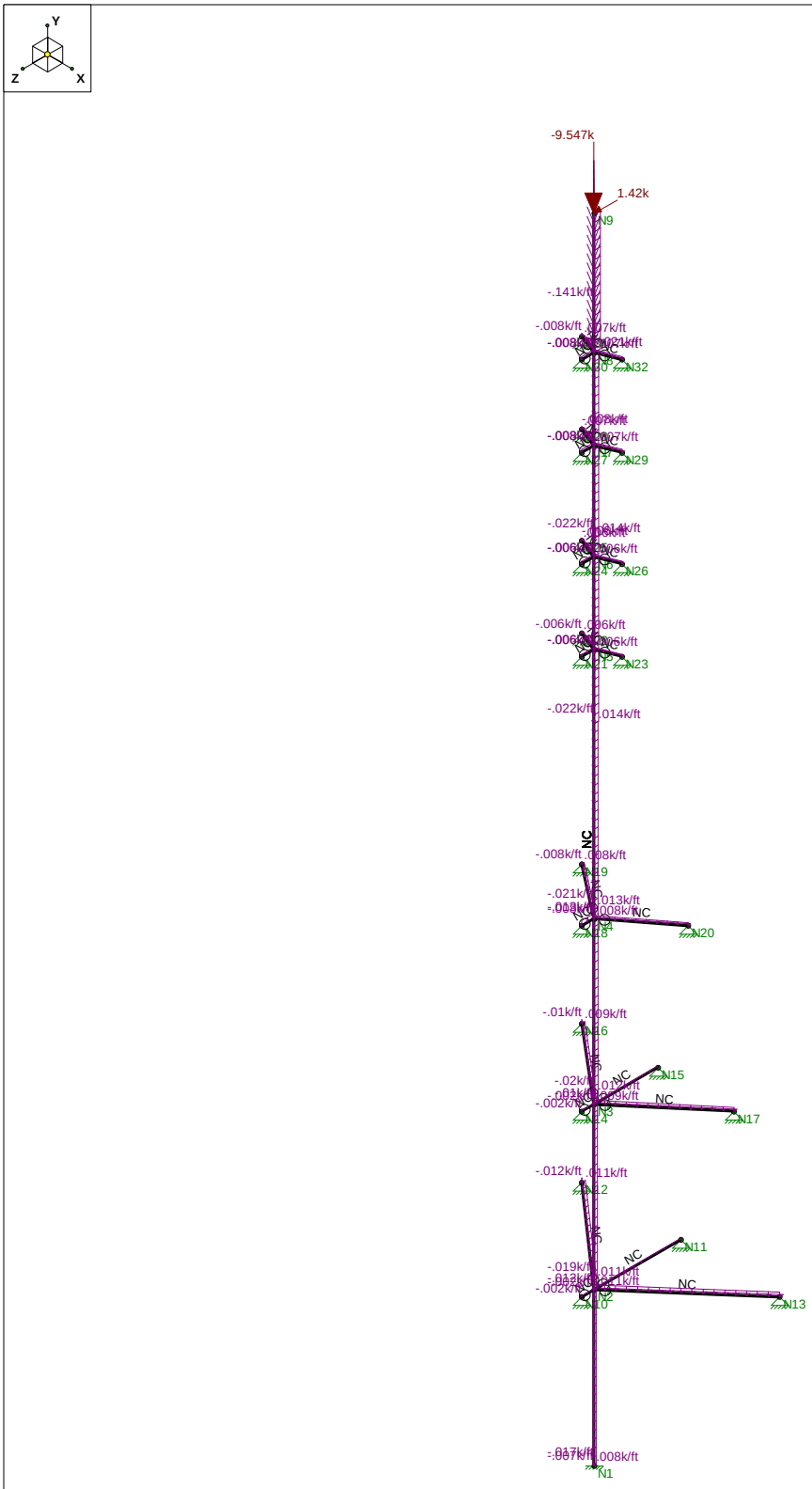
Member Code Checks Displayed
Loads: LC 5, 0.9D + 1.0W (Z-direction)

CENTEK Engineering, INC.		
tjl, cfc	Structure # 1217 - Antenna Mast	Oct 19, 2022 at 4:46 PM
21005.42 - CTFF740A	LC #5 Loads	Antenna Mast.r3d



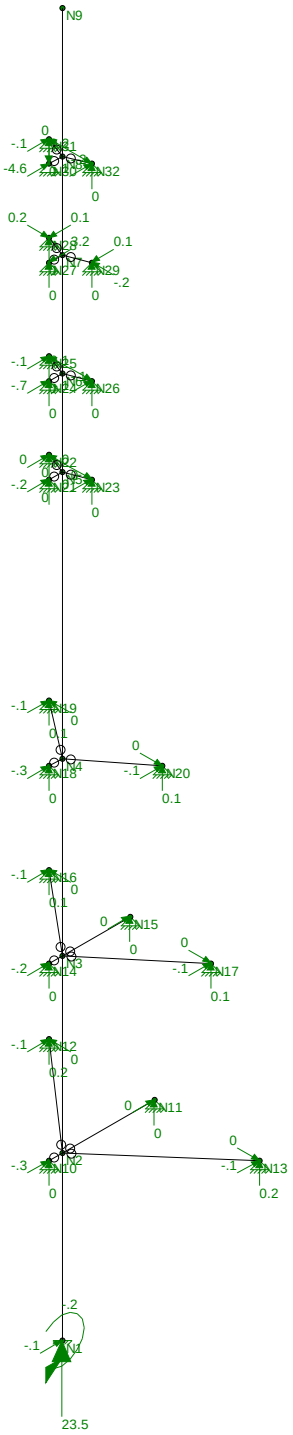
Results for LC 5, 0.9D + 1.0W (Z-direction)
Reaction and Moment Units are k and k-ft

CENTEK Engineering, INC.		
tjl, cfc	Structure # 1217 - Antenna Mast	Oct 19, 2022 at 4:51 PM
21005.42 - CTFF740A	LC #5 Reactions	Antenna Mast.r3d



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

CENTEK Engineering, INC.		
tjl, cfc	Structure # 1217 - Antenna Mast	Oct 19, 2022 at 4:46 PM
21005.42 - CTFF740A	LC #6 Loads	Antenna Mast.r3d



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

CENTEK Engineering, INC.		
tjl, cfc	Structure # 1217 - Antenna Mast	Oct 19, 2022 at 4:51 PM
21005.42 - CTFF740A	LC #6 Reactions	Antenna Mast.r3d

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

Subject:	Connection of Antenna Mast to Tower # 1217
Location:	Stamford, CT
Rev. 4: 10/19/22	Prepared by: T.J.L. Checked by: C.F.C. Job No. 21005.42

Antenna Mast Connection to Tower:

Check Pipe Collar:

Reactions:

Horz =	Horz := 22.1·kips	(User Input)

Bolt Data:

Bolt Type =	ASTMA325	(User Input)
Bolt Diameter =	D := 0.75·in	(User Input)
Number of Bolts =	$N_b := 4$	(User Input)
Design Tensile Strength =	$F_t := 29.8 \cdot kips$	(User Input)
Design Shear Strength =	$F_V := 17.9 \cdot kips$	(User Input)

Plate Data:

Plate Width =	$W_{plt} := 5 \cdot in$	(User Input)
Plate Thickness =	$t_{plt} := 1 \cdot in$	(User Input)
Distance from Bolt to Collar =	$d_{st} := 1.5 \cdot in$	(User Input)
Yield Strength =	$F_y := 36 \cdot ksi$	(User Input)

Weld Data:

Weld Size =	$sw := \frac{7}{16} \cdot in$	(User Input)
Weld Length =	$l_w := 5 \cdot in$	(User Input)
Number of Welds =	$n_w := 2$	(User Input)
Weld Spacing =	$sp_w := 0.5 \cdot in$	(User Input)
Weld Strength =	$F_w := 70 \cdot ksi$	(User Input)

Check Pipe Collar Bolts:

Tension Force = $f_t := \frac{Horz}{N_b} = 5.5 \cdot kips$

Bolt Tenison % of Capacity = $\frac{f_t}{F_t} = 18.54 \cdot \%$

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:

Design Bending Strength = $F_b := 0.9F_y = 32.4 \cdot ksi$

Plate Section Modulus = $Z_{plt} := \frac{1}{4} \cdot W_{plt} \cdot t_{plt}^{2} = 1.25 \cdot in^3$

Plate Bending Moment = $M := \frac{Horz}{2} \cdot d_{st} = 16.575 \cdot in \cdot kips$

Plate Bending Stress = $f_b := \frac{M}{Z_{plt}} = 13.26 \cdot ksi$

$Plate\_Bending := if\left(f_b < F_b, "OK", "Overstressed"\right)$

Plate_Bending = "OK"

Check Pipe Collar Weld:

Design Weld Strength = $F_w := 0.45 \cdot F_w = 31.5 \cdot ksi$

Weld Section Modulus = $S_w := \frac{1}{6} \cdot .707 \cdot sw \cdot l_w^{2} = 1.289 \cdot in^3$

Weld Area = $A_w := .707 \cdot sw \cdot l_w = 1.547 \cdot in^2$

Plate Stress = $f_w := \frac{\frac{Horz}{2}}{A_w \cdot n_w} + \frac{M}{A_w \cdot sp_w} = 25.007 \cdot ksi$

$Weld := if\left(f_w < F_w, "OK", "Overstressed"\right)$

Weld = "OK"

Check Plate Brace to Pipe Collar Connection:

Reactions:

Plate Force =	Fab := 21.2·kips	(User Input)

Bolt Data:

Bolt Type =	ASTMA325	(User Input)
Bolt Diameter =	D := 0.625·in	(User Input)
Number of Bolts =	$N_b := 2$	(User Input)
Design Tensile Strength =	$F_t := 20.7 \cdot kips$	(User Input)
Design Shear Strength =	$F_v := 12.4 \cdot kips$	(User Input)

Plate Data:

Plate Width =	$W_{plt} := 5 \cdot in$	(User Input)
Plate Thickness =	$t_{plt} := 0.75 \cdot in$	(User Input)
Distance from Bolt to Collar =	$d_{st} := 1.5 \cdot in$	(User Input)
Yield Strength =	$F_y := 36 \cdot ksi$	(User Input)
Tensile Strength =	$F_u := 58 \cdot ksi$	(User Input)
Hole Diamter =	$Hole_d := .6875 \cdot in$	(User Input)

Weld Data:

Weld Size =	$sw := \frac{7}{16} \cdot in$	(User Input)
Weld Length =	$l_w := 5 \cdot in$	(User Input)
Number of Welds =	$n_w := 2$	(User Input)
Weld Strength =	$F_w := 70 \cdot ksi$	(User Input)

Check Plate Brace Bolts:

Shear Force = $f_v := \frac{Fab}{N_b} = 10.6 \cdot kips$

Bolt Shear % of Capacity = $\frac{f_v}{F_v} = 85.48 \cdot \%$

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

Bolt_Shear = "OK"

Check Plate Connection Plate:

Plate Gross Area = $A_g := W_{plt} \cdot t_{plt} = 3.75 \cdot in^2$

Plate Net Area = $A_n := \left[W_{plt} - \left(Hole_d + .0625 \cdot in\right) \cdot 2\right] \cdot t_{plt} = 2.625 \cdot in^2$

Shear Lag Factor = $U := 1.0$

Plate Effective Net Area = $A_e := A_n \cdot U = 2.625 \cdot in^2$

Yielding Factor = $\phi_t := 0.9$

Rupture Factor = $\phi_r := 0.75$

Bearing Strength Factor = $\phi_b := 0.75$

Clear Distance = $l_c := d_{st} - \frac{Hole_d}{2} = 1.156 \cdot in$

Tensile Yielding = $P_{at} := \phi_t \cdot F_y \cdot A_g = 121.5 \cdot kips$

Tensile Rupture = $P_{ar} := \phi_r \cdot F_u \cdot A_e = 114.188 \cdot kips$

Bearing Strength = $R_a := \phi_b \cdot 1.2 \cdot l_c \cdot t_{plt} \cdot F_u = 45.267 \cdot kips$

$Pa := \min\left(P_{at}, P_{ar}, 2 \cdot R_a\right) = 90.534 \cdot kips$

$Plate := if\left(Fab < Pa, "OK", "Overstressed"\right)$

Plate = "OK"

Check Plate Connection Weld:

Design Weld Strength = $F_w := 0.45 \cdot F_w = 31.5 \cdot ksi$

Weld Area = $A_w := .707 \cdot sw \cdot l_w = 1.547 \cdot in^2$

Plate Stress = $f_w := \frac{Fab}{A_w \cdot n_w} = 6.854 \cdot ksi$

$Weld := if\left(f_w < F_w, "OK", "Overstressed"\right)$

Weld = "OK"

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Subject:	Connection of Antenna Mast to Tower # 1217
Location:	Stamford, CT
Rev. 4: 10/19/22	Prepared by: T.J.L. Checked by: C.F.C. Job No. 21005.42

Check Plate Brace to Tower Connection :

Reactions:

Plate Force = $Fab := 21.2 \cdot kips$ (User Input)

Bolt Data:

Bolt Type = ASTMA325 (User Input)

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

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

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

Design Shear Strength = $F_v := 24.9 \cdot kips$ (User Input) Double Shear

Check Plate Brace Bolts:

Shear Force = $f_v := \frac{Fab}{N_b} = 21.2 \cdot kips$

Bolt Shear % of Capacity = $\frac{f_v}{F_v} = 85.14 \cdot \%$

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

$Bolt\_Shear = "OK"$

Check Angle Brace to Pipe Collar Connection:

Reactions:

Force =	Fab := 11.8·kips	(User Input)

Bolt Data:

Bolt Type =	ASTMA325	(User Input)
Bolt Diameter =	D := 0.625·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)

Plate Data:

Plate Width =	$W_{plt} := 3 \cdot in$	(User Input)
Plate Thickness =	$t_{plt} := 0.75 \cdot in$	(User Input)
Distance from Bolt to Collar =	$d_{st} := 1.5 \cdot in$	(User Input)
Yield Strength =	$F_y := 36 \cdot ksi$	(User Input)
Tensile Strength =	$F_u := 58 \cdot ksi$	(User Input)
Hole Diamter =	$Hole_d := .6875 \cdot in$	(User Input)

Weld Data:

Weld Size =	$sw := \frac{5}{16} \cdot in$	(User Input)
Weld Length =	$l_w := 3 \cdot in$	(User Input)
Number of Welds =	$n_w := 2$	(User Input)
Weld Strength =	$F_w := 70 \cdot ksi$	(User Input)

Check Angle Brace Bolts:

Shear Force = $f_v := \frac{Fab}{N_b} = 11.8 \cdot kips$

Bolt Shear % of Capacity = $\frac{f_v}{F_v} = 95.16 \cdot \%$

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

Bolt_Shear = "OK"

Check Angle Connection Plate:

Plate Gross Area = $A_g := W_{plt} \cdot t_{plt} = 2.25 \cdot in^2$

Plate Net Area = $A_n := \left[W_{plt} - \left(Hole_d + .0625 \cdot in\right)\right] \cdot t_{plt} = 1.687 \cdot in^2$

Shear Lag Factor = $U := 1.0$

Plate Effective Net Area = $A_e := A_n \cdot U = 1.687 \cdot in^2$

Yielding Factor = $\phi_t := 0.9$

Rupture Factor = $\phi_r := 0.75$

Bearing Strength Factor = $\phi_b := 0.75$

Clear Distance = $l_c := d_{st} - \frac{Hole_d}{2} = 1.156 \cdot in$

Tensile Yielding = $P_{at} := \phi_t \cdot F_y \cdot A_g = 72.9 \cdot kips$

Tensile Rupture = $P_{ar} := \phi_r \cdot F_u \cdot A_e = 73.406 \cdot kips$

Bearing Strength = $R_a := \phi_b \cdot 1.2 \cdot l_c \cdot t_{plt} \cdot F_u = 45.267 \cdot kips$

$Pa := \min\left(P_{at}, P_{ar}, R_a\right) = 45.267 \cdot kips$

$Plate := if\left(Fab < Pa, "OK", "Overstressed"\right)$

Plate = "OK"

Check Angle Connection Plate Weld:

Design Weld Strength = $F_w := 0.45 \cdot F_w = 31.5 \cdot ksi$

Weld Area = $A_w := .707 \cdot sw \cdot l_w = 0.663 \cdot in^2$

Plate Stress = $f_w := \frac{Fab}{A_w \cdot n_w} = 8.901 \cdot ksi$

$Weld := if\left(f_w < F_w, "OK", "Overstressed"\right)$

Weld = "OK"

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Subject:	Load Analysis of Antenna Mast Structure # 1217
Location:	Stamford, CT
Rev. 1: 6/29/22	Prepared by: T.J.L Checked by: C.F.C. Job No. 21005.42

Basic Components

Heavy Wind Pressure =	p := 4.00	psf	(User Input NESC 2017 Figure 250-1 & Table 250-1)
Basic Windspeed =	V := 110	mph	(User Input NESC 2017 Figure 250-2(e))
Radial Ice Thickness =	Ir := 0.50	in	(User Input)
Radial Ice Density =	Id := 56.0	pcf	(User Input)

Factors for Extreme Wind Calculation

Elevation of Top of PCS Mast Above Grade =	TME := 135	ft	(User Input)
Multiplier Gust Response Factor =	m := 1.25		(User Input - Only for NESC Extreme wind case)
NESC Factor =	kv := 1.43		(User Input from NESC 2017 Table 250-3 equation)
Importance Factor =	I := 1.0		(User Input from NESC 2017 Section 250.C.2)
Velocity Pressure Coefficient =	$Kz := 2.01\cdot\left(\frac{TME}{900}\right)^{\frac{2}{9.5}} = 1.348$		(NESC 2017 Table 250-2)
Exposure Factor =	$Es := 0.346\left[\frac{33}{(0.67\cdot TME)}\right]^{\frac{1}{7}} = 0.3$		(NESC 2017 Table 250-3)
Response Term =	$Bs := \frac{1}{\left(1 + 0.375\cdot\frac{TME}{220}\right)} = 0.813$		(NESC 2017 Table 250-3)
Gust Response Factor =	$Grf := \frac{\left[1 + \left(2.7\cdot Es\cdot Bs^{\frac{1}{2}}\right)\right]}{kv^2} = 0.846$		(NESC 2017 Table 250-3)
Wind Pressure =	$qz := 0.00256\cdot Kz\cdot V^2\cdot Grf\cdot I = 35.3$	psf	(NESC 2017 Section 250.C.2)

Shape Factors

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

Overload Factors

Eversource Design Criteria Table

Overload Factors for Wind Loads:

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

Overload Factors for Vertical Loads:

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

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Subject:	Load Analysis of Antenna Mast Structure # 1217
Location:	Stamford, CT
Rev. 1: 6/29/22	Prepared by: T.J.L Checked by: C.F.C. Job No. 21005.42

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	RFSAPXVAALL24_43		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 95.9$	in	(User Input)
Antenna Width =	$W_{ant} := 24$	in	(User Input)
Antenna Thickness =	$T_{ant} := 8.5$	in	(User Input)
Antenna Weight =	$WT_{ant} := 150$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 3$		(User Input)

Gravity Load (without ice)

Weight of All Antennas = $Wt_{ant1} := WT_{ant} \cdot N_{ant} = 450$ lbs

Gravity Load (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 2 \times 10^4$ cu in

Volume of Ice on Each Antenna = $V_{ice} := \left(L_{ant} + 2 \cdot Ir\right)\left(W_{ant} + 2 \cdot Ir\right)\left(T_{ant} + 2 \cdot Ir\right) - V_{ant} = 3450$ cu in

Weight of Ice on Each Antenna = $W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 112$ lbs

Weight of Ice on All Antennas = $Wt_{ice.ant1} := W_{ICEant} \cdot N_{ant} = 335$ lbs

Wind Load (NESC Heavy)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := \frac{\left(L_{ant} + 2 \cdot Ir\right) \cdot \left(W_{ant} + 2 \cdot Ir\right)}{144} = 16.8$ sf

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 50.5$ sf

Total Antenna Wind Force w/ Ice = $Fi_{ant1} := p \cdot Cd_F \cdot A_{ICEant} = 323$ lbs

Wind Load (NESC Extreme)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna = $SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 16$ sf

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 48$ sf

Total Antenna Wind Force = $F_{ant1} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 3387$ lbs

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Subject: Load Analysis of Antenna Mast Structure # 1217

Location: Stamford, CT

Rev. 1: 6/29/22

Prepared by: T.J.L Checked by: C.F.C.
Job No. 21005.42

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	Commscope VV-65A-R1		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 54.724$	in	(User Input)
Antenna Width =	$W_{ant} := 12.087$	in	(User Input)
Antenna Thickness =	$T_{ant} := 4.646$	in	(User Input)
Antenna Weight =	$WT_{ant} := 30$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 3$		(User Input)

Gravity Load (without ice)

Weight of All Antennas = $Wt_{ant2} := WT_{ant} \cdot N_{ant} = 90$ lbs

Gravity Load (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 3073$ cu in

Volume of Ice on Each Antenna = $V_{ice} := \left(L_{ant} + 2 \cdot Ir\right)\left(W_{ant} + 2 \cdot Ir\right)\left(T_{ant} + 2 \cdot Ir\right) - V_{ant} = 1044$ cu in

Weight of Ice on Each Antenna = $W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 34$ lbs

Weight of Ice on All Antennas = $Wt_{ice.ant2} := W_{ICEant} \cdot N_{ant} = 102$ lbs

Wind Load (NESC Heavy)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := \frac{\left(L_{ant} + 2 \cdot Ir\right) \cdot \left(W_{ant} + 2 \cdot Ir\right)}{144} = 5.1$ sf

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 15.2$ sf

Total Antenna Wind Force w/ Ice = $Fi_{ant2} := p \cdot Cd_F \cdot A_{ICEant} = 97$ lbs

Wind Load (NESC Extreme)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna = $SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 4.6$ sf

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 13.8$ sf

Total Antenna Wind Force = $F_{ant2} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 973$ lbs

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Subject:	Load Analysis of Antenna Mast Structure # 1217
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Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	AT SBT-TOP-F M4G Bias Tee		
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 =	$N_{ant} := 6$		(User Input)

Gravity Load (without ice)

Weight of All Antennas = $Wt_{ant3} := WT_{ant} \cdot N_{ant} = 12$ 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 = $V_{ice} := \left(L_{ant} + 2 \cdot Ir\right)\left(W_{ant} + 2 \cdot Ir\right)\left(T_{ant} + 2 \cdot Ir\right) - V_{ant} = 52$ cu in

Weight of Ice on Each Antenna = $W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 2$ lbs

Weight of Ice on All Antennas = $Wt_{ice.ant3} := W_{ICEant} \cdot N_{ant} = 10$ lbs

Wind Load (NESC Heavy)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := \frac{\left(L_{ant} + 2 \cdot Ir\right) \cdot \left(W_{ant} + 2 \cdot Ir\right)}{144} = 0.2$ sf

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 1.3$ sf

Total Antenna Wind Force w/ Ice = $Fi_{ant3} := p \cdot Cd_F \cdot A_{ICEant} = 8$ lbs

Wind Load (NESC Extreme)

Assumes Maximum Possible Wind Pressure Applied to all Antennas Simultaneously

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

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

Total Antenna Wind Force = $F_{ant3} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 61$ lbs

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Subject:	Load Analysis of Antenna Mast Structure # 1217
Location:	Stamford, CT
Rev. 1: 6/29/22	Prepared by: T.J.L Checked by: C.F.C. Job No. 21005.42

Development of Wind & Ice Load on Platform

Platform Data:

Platform Model =	14' Low Profile Platform w/ Handrail		
Mount Shape =	Flat		
Mount Projected Surface Area =	$CdAa := 33.5$	sf	(User Input)
Mount Projected Surface Area w/ Ice =	$CdAa_{ice} := 42.1$	sf	(User Input)
Mount Weight =	$WT_{mnt} := 3502$	lbs	(User Input)
Mount Weight w/ Ice =	$WT_{mnt.ice} := 4142$	lbs	(User Input)

Gravity Loads (without ice)

Weight of All Mounts = $Wt_{mnt1} := WT_{mnt} = 3502$ lbs

Gravity Load (ice only)

Weight of Ice on All Mounts = $Wt_{ice.mnt1} := \left(WT_{mnt.ice} - WT_{mnt}\right) = 640$ lbs

Wind Load (NESC Heavy)

Total Mount Wind Force w/ Ice = $Fi_{mnt1} := p \cdot CdAa_{ice} = 168$ lbs

Wind Load (NESC Extreme)

Total Mount Wind Force = $F_{mnt1} := qz \cdot CdAa \cdot m = 1479$ lbs

Total Equipment Loads:

NESC Heavy Wind Vertical =

$$\left(Wt_{ant1} + Wt_{ice.ant1} + Wt_{ant2} + Wt_{ice.ant2} + Wt_{ant3} + Wt_{ice.ant3} + Wt_{mnt1} + Wt_{ice.mnt1}\right)\cdot 1.5 = 7712$$

NESC Heavy Wind Trasnsverse =

$$\left(Fi_{ant1} + Fi_{ant2} + Fi_{ant3} + Fi_{mnt1}\right)\cdot 2.5 = 1492$$

NESC Extreme Wind Vertical =

$$\left(Wt_{ant1} + Wt_{ant2} + Wt_{ant3} + Wt_{mnt1}\right) = 4054$$

NESC Extreme Wind Trasnsverse =

$$\left(F_{ant1} + F_{ant2} + F_{ant3} + F_{mnt1}\right) = 5900$$

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Subject:	Coax Cable on Antenna Mast Tower # 1217
Location:	Stamford, CT
Rev. 0: 1/27/22	Prepared by: T.J.L Checked by: C.F.C. Job No. 21005.42

Coax Cable on Antenna Mast

Basic Components

Heavy Wind Pressure =	$p := 4.00 \cdot psf$		(User Input NESC 2017 Figure 250-1 & Table 250-1)
Basic Windspeed =	$V := 110$	mph	(User Input NESC 2017 Figure 250-2(e))
Radial Ice Thickness =	$Ir := 0.50in$		(User Input)
Radial Ice Density =	$Id := 56.0 \cdot pcf$		(User Input)

Factors for Extreme Wind Calculation

Elevation of Top of Pole Above Grade =	$TME := 135$	ft	(User Input)
Multiplier Gust Response Factor =	$m := 1.25$		(User Input - Only for NESC Extreme wind case)
NESC Factor =	$kv := 1.43$		(User Input from NESC 2017 Table 250-3 equation)
Importance Factor =	$I := 1.0$		(User Input from NESC 2017 Section 250.C.2)
Velocity Pressure Coefficient =	$Kz := 2.01 \cdot \left(\frac{0.67TME}{900}\right)^{\frac{2}{9.5}} = 1.239$		(NESC 2017 Table 250-2)
Exposure Factor =	$Es := 0.346 \left[\frac{33}{(0.67 \cdot TME)}\right]^{\frac{1}{7}} = 0.3$		(NESC 2017 Table 250-3)
Response Term =	$Bs := \frac{1}{\left(1 + 0.375 \cdot \frac{TME}{220}\right)} = 0.813$		(NESC 2017 Table 250-3)
Gust Response Factor =	$Grf := \frac{\left[1 + \left(2.7 \cdot Es \cdot Bs^{\frac{1}{2}}\right)\right]}{kv^2} = 0.846$		(NESC 2017 Table 250-3)
Wind Pressure =	$qz := 0.00256 \cdot Kz \cdot V^2 \cdot Grf \cdot I = 32.5$	psf	(NESC 2017 Section 250.C.1

Shape Factors

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

Overload Factors

Eversource Design Criteria Table

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

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Subject:	Coax Cable on Antenna Mast Tower # 1217
Location:	Stamford, CT
Rev. 0: 1/27/22	Prepared by: T.J.L Checked by: C.F.C. Job No. 21005.42

Below Top of Tower

Distance Between Coax Cable Attach Points =

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

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

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

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

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

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

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

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

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

Weight of Ice on All Coax Cables = $W_{ice} := Ai_{coax} \cdot Id \cdot NX_{coax} = 0 \cdot plf$

Heavy Wind Vertical Load =

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

Heavy Wind Transverse Load =

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

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

Extreme Wind Vertical Load =

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

Extreme Wind Transverse Load =

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

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

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Location:	Stamford, CT
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Above Top of Tower

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

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

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

Number of Coax Cables = $N_{coax} := 18$ *(User Input)*

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

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

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

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

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

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

Heavy Wind Vertical Load =

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

Heavy Wind Transverse Load =

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

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

Extreme Wind Vertical Load =

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

Extreme Wind Transverse Load =

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

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

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

Subject:	Coax Cable on Tower # 1217
Location:	Stamford, CT
Rev. 0: 1/27/22	Prepared by: T.J.L Checked by: C.F.C. Job No. 21005.42

Coax Cable on Tower

Basic Components

Heavy Wind Pressure =	p := 4.00·psf		(User Input NESC 2017 Figure 250-1 & Table 250-1)
Basic Windspeed =	V := 110	mph	(User Input NESC 2017 Figure 250-2(e))
Radial Ice Thickness =	Ir := 0.50in		(User Input)
Radial Ice Density =	Id := 56.0·pcf		(User Input)

Factors for Extreme Wind Calculation

Elevation of Top of Pole Above Grade =	TME := 135	ft	(User Input)
Multiplier Gust Response Factor =	m := 1.25		(User Input - Only for NESC Extreme wind case)
NESC Factor =	kv := 1.43		(User Input from NESC 2017 Table 250-3 equation)
Importance Factor =	I := 1.0		(User Input from NESC 2017 Section 250.C.2)
Velocity Pressure Coefficient =	$Kz := 2.01\cdot\left(\frac{0.67TME}{900}\right)^{\frac{2}{9.5}} = 1.239$		(NESC 2017 Table 250-2)
Exposure Factor =	$Es := 0.346\left[\frac{33}{(0.67\cdot TME)}\right]^{\frac{1}{7}} = 0.3$		(NESC 2017 Table 250-3)
Response Term =	$Bs := \frac{1}{\left(1+0.375\cdot\frac{TME}{220}\right)} = 0.813$		(NESC 2017 Table 250-3)
Gust Response Factor =	$Grf := \frac{\left[1+\left(2.7\cdot Es\cdot Bs^{\frac{1}{2}}\right)\right]}{kv^2} = 0.846$		(NESC 2017 Table 250-3)
Wind Pressure =	$qz := 0.00256\cdot Kz\cdot V^2\cdot Grf\cdot I = 32.5$	psf	(NESC 2017 Section 250.C.

Shape Factors

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

Overload Factors

Eversource Design Criteria Table

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

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Distance Between Coax Cable Attach Points =

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

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

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

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

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

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

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

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

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

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

Heavy Wind Vertical Load =

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

Heavy Wind Transverse Load =

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

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

Extreme Wind Vertical Load =

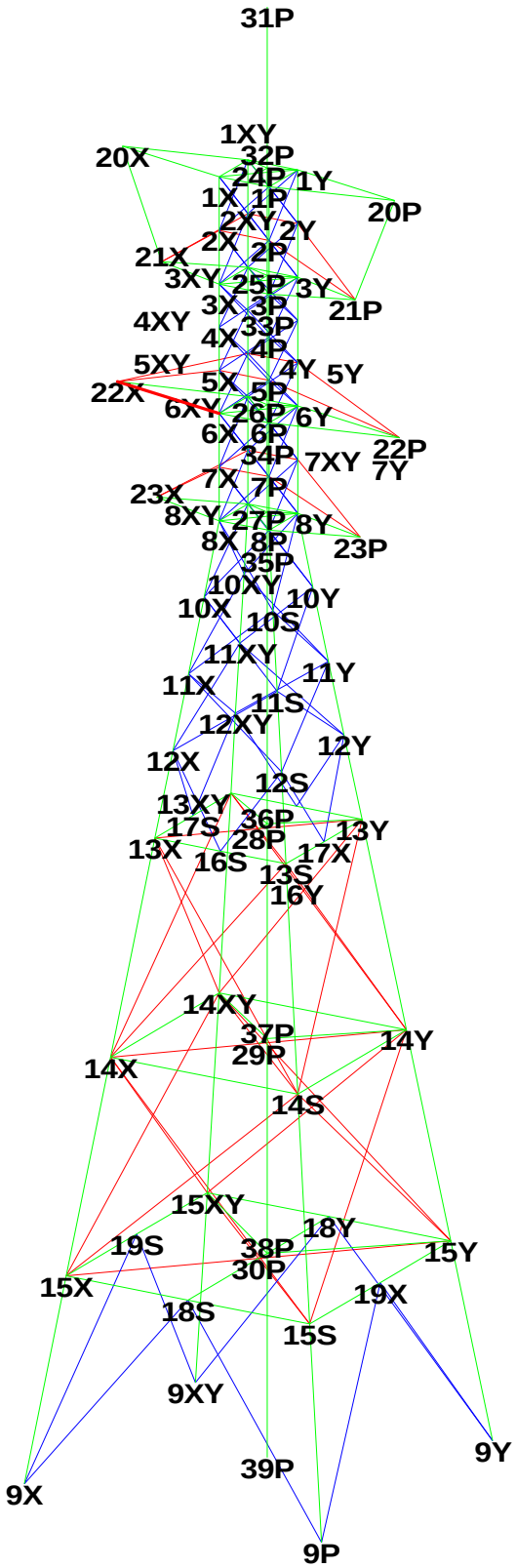
$$\overrightarrow{Extreme\_Wind_{Vert} := \left(N_{coax} \cdot W_{coax} \cdot Coax_{Span} \cdot OF_{EWV}\right)}$$

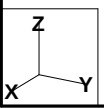
Extreme Wind Transverse Load =

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

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

Centek Engineering Inc, Project: "CL&P # 1217"
Tower Version 12.50, 3:19:48 PM Thursday, January 27, 2022
Undeformed geometry displayed





Project Name : 21005.42 - Stamford, CT
Project Notes: Structure #1217 / T-Mobile - CTFF740A
Project File : J:\Jobs\2100500.WI\42_CTFF740A_CT03XC329\05_Structural\Calcs\Rev (2)\PLS Tower\CL&P # 1217.tow
Date run   : 2:29:09 PM Thursday, August 25, 2022
by   : Tower Version 12.50
Licensed to : Centek Engineering Inc

Successfully performed nonlinear analysis

Member "g5P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g5X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
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Member "g71Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge

and spacing distances will be checked. ??
Unable to calculate rupture capacity for member "g87P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g88P" because it has a long and short edge distance of 0. ??
KL/R value of 226.75 exceeds maximum of 200.00 for member "g95P" ??
Member "g98P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Unusual number of fixed joints found: 5. Towers normally have from between 1 and 4 fixed joints. ??
The model has 117 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\2100500.wi\42_ctff740a_ct03xc329\05_structural\calcs\rev (2)\pls tower\cl&p # 1217.lca

*** Analysis Results:

Maximum element usage is 97.17% for Angle "g39P" in load case "NESC Extreme Longitudinal"
Maximum insulator usage is 20.30% for Clamp "CLAMP4" in load case "NESC Heavy Broken Wire"

Summary of Joint Support Reactions For All Load Cases:

Load Case	Joint Label	Long. Force (kips)	Tran. Force (kips)	Vert. Force (kips)	Shear Force (kips)	Tran. Moment (ft-k)	Long. Moment (ft-k)	Bending Moment (ft-k)	Vert. Moment (ft-k)	Found. Usage %
NESC Heavy	9P	-7.75	-8.85	-53.55	11.76	-0.01	0.05	0.05	-0.11	0.00
NESC Heavy	39P	-0.02	-0.38	-21.08	0.38	1.08	-0.25	1.11	0.21	0.00
NESC Heavy	9X	3.38	-5.01	24.42	6.05	-0.16	0.13	0.20	0.90	0.00
NESC Heavy	9XY	-3.47	-5.67	23.80	6.65	0.05	-0.14	0.14	-0.63	0.00
NESC Heavy	9Y	7.75	-9.81	-55.11	12.50	0.10	-0.07	0.12	0.05	0.00
NESC Extreme	9P	-15.30	-18.99	-107.39	24.38	-0.45	0.37	0.58	1.14	0.00
NESC Extreme	39P	-0.00	-0.84	-11.07	0.84	2.31	-0.62	2.39	0.48	0.00
NESC Extreme	9X	8.87	-12.74	65.08	15.52	-0.34	0.28	0.44	1.53	0.00
NESC Extreme	9XY	-13.69	-19.29	94.66	23.65	0.15	-0.20	0.25	-1.02	0.00
NESC Extreme	9Y	12.88	-18.62	-88.80	22.64	-0.06	0.14	0.15	-0.77	0.00
NESC Heavy Broken Wire	9P	-9.78	-14.54	-83.72	17.52	-0.11	0.49	0.50	-0.32	0.00
NESC Heavy Broken Wire	39P	0.00	-0.33	-18.47	0.33	0.78	-0.16	0.80	-1.37	0.00
NESC Heavy Broken Wire	9X	-3.43	-1.14	-12.68	3.61	0.02	0.06	0.06	0.67	0.00
NESC Heavy Broken Wire	9XY	-9.52	-8.84	55.59	13.00	-0.20	-0.19	0.27	-0.72	0.00
NESC Heavy Broken Wire	9Y	5.33	-3.78	-22.18	6.54	-0.05	0.19	0.19	-0.02	0.00
NESC Extreme Longitudinal	9P	-16.25	-12.27	-83.89	20.36	-0.01	0.09	0.09	-0.25	0.00
NESC Extreme Longitudinal	39P	-0.85	-0.02	-7.41	0.85	0.27	-2.28	2.29	-0.12	0.00
NESC Extreme Longitudinal	9X	-16.92	11.49	-81.25	20.45	0.05	-0.03	0.06	0.24	0.00
NESC Extreme Longitudinal	9XY	-14.34	-8.89	64.38	16.87	-0.02	-0.39	0.39	-0.05	0.00
NESC Extreme Longitudinal	9Y	-12.75	8.67	60.65	15.41	-0.04	-0.19	0.20	0.03	0.00

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

Load Case	Support Joint	Origin Joint	Member Leg Dir.	Leg Force In (kips)	Residual Shear Perpendicular To Leg (kips)	Residual Shear Horizontal To Leg - Res. (kips)	Residual Shear Horizontal To Leg - Long. (kips)	Residual Shear Horizontal To Leg - Tran. (kips)	Total Long. Force (kips)	Total Tran. Force (kips)	Total Vert. Force (kips)
NESC Heavy	9P	15S	g14X	54.810	1.239	1.254	0.142	1.246	-7.75	-8.85	-53.55
NESC Heavy	9X	15X	g14P	-25.111	1.532	1.546	0.087	1.543	3.38	-5.01	24.42

NESC Heavy	9XY	15XY	g14Y	-24.609	2.270	2.294	0.086	2.292	-3.47	-5.67	23.80
NESC Heavy	9Y	15Y	g14XY	56.475	1.963	1.980	0.078	1.979	7.75	-9.81	-55.11
NESC Extreme	9P	15S	g14X	110.059	3.699	3.736	0.044	3.736	-15.30	-18.99	-107.39
NESC Extreme	9X	15X	g14P	-66.817	3.490	3.517	0.377	3.497	8.87	-12.74	65.08
NESC Extreme	9XY	15XY	g14Y	-97.402	5.784	5.846	0.245	5.840	-13.69	-19.29	94.66
NESC Extreme	9Y	15Y	g14XY	91.447	5.951	6.015	-0.265	6.009	12.88	-18.62	-88.80
NESC Heavy Broken Wire	9P	15S	g14X	85.469	3.382	3.383	-2.109	2.646	-9.78	-14.54	-83.72
NESC Heavy Broken Wire	9X	15X	g14P	12.754	3.356	3.361	1.625	2.943	-3.43	-1.14	-12.68
NESC Heavy Broken Wire	9XY	15XY	g14Y	-57.057	1.850	1.885	1.628	0.948	-9.52	-8.84	55.59
NESC Heavy Broken Wire	9Y	15Y	g14XY	23.017	2.234	2.268	-2.178	0.633	5.33	-3.78	-22.18
NESC Extreme Longitudinal	9P	15S	g14X	86.216	4.297	4.346	4.332	0.351	-16.25	-12.27	-83.89
NESC Extreme Longitudinal	9X	15X	g14P	83.619	5.324	5.375	5.375	0.056	-16.92	11.49	-81.25
NESC Extreme Longitudinal	9XY	15XY	g14Y	-66.356	5.154	5.200	5.193	-0.256	-14.34	-8.89	64.38
NESC Extreme Longitudinal	9Y	15Y	g14XY	-62.447	4.091	4.132	4.132	-0.050	-12.75	8.67	60.65

Sections Information:

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

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

Group Summary (Compression Portion):

Group Label	Group Desc.	Angle Type	Angle Size	Steel Strength (ksi)	Max Usage %	Cont-rol	Max Use In Comp. %	Comp. Control	Comp. Force (kips)	Comp. Control Load Case	L/R Capacity (kips)	Comp. Connect. Shear Capacity (kips)	Comp. Connect. Bearing Capacity (kips)	RLX	RLY	RLZ	L/R	KL/R	Length (ft)	Curve No.	Comp. No.	Member Bolts	Comp. Of
LEG1	L4X4X1/4	SAE	4X4X0.25	33.0	46.98	Comp	46.98	g2XY	-17.308	NESC Ext	53.509	36.840	84.375	1.000	1.000	1.000	75.47	75.47	5.000	1	6		
LEG2	L5X5X3/8	SAE	5X5X0.375	33.0	52.99	Comp	52.99	g5X	-45.548	NESC Ext	111.058	85.960	295.312	1.000	1.000	1.000	48.48	48.48	4.000	1	14		
LEG3	L6X6X1/2	SAE	6X6X0.5	33.0	47.13	Comp	47.13	g7X	-75.243	NESC Ext	175.609	159.640	731.249	1.000	1.000	1.000	50.85	50.85	5.000	1	26		
LEG4	L8X8X1/2	SAE	8X8X0.5	33.0	49.77	Comp	49.77	g11X	-91.675	NESC Ext	227.792	184.200	843.749	1.000	1.000	1.000	61.58	61.58	8.160	1	30		
LEG5	L8X8X5/8	SAE	8X8X0.625	33.0	52.42	Comp	52.42	g13X	-102.994	NESC Ext	262.274	196.480	1124.998	0.500	0.500	0.500	77.47	77.47	20.400	1	32		
XBR1	L3x3x1/4	SAE	3X3X0.25	33.0	54.84	Tens	53.56	g16XY	-9.866	NESC Hea	37.913	18.420	42.187	0.750	0.500	0.500	71.67	83.75	7.071	2	3		
XBR2	L3.5X3.5X1/4	SAE	3.5X3.5X0.25	33.0	73.79	Comp	73.79	g22XY	-18.122	NESC Hea	47.548	24.560	56.250	0.750	0.500	0.500	55.36	71.52	6.403	2	4		
XBR3	L5X5X5/16	SAE	5X5X0.3125	33.0	54.83	Comp	54.83	g27P	-20.198	NESC Hea	88.907	36.840	105.469	0.750	0.500	0.500	42.68						

62.01 7.071   2   6
  XBR4   L4X4X1/4   SAE   4X4X0.25   33.0 89.91 Comp 89.91   g30P -16.561NESC Hea   49.239   18.420   42.187 0.783 0.567 0.567 79.33
89.50 9.269   2   3
  XBR5   L4X3X5/16 SAU   4X3X0.3125   33.0 91.60 Comp 91.60   g38Y   -9.323NESC Ext   10.178   30.700   87.890 0.586 0.793 0.586 280.62
242.43 25.819   5   5
  XBR6   L3.5X2.5X1/4   SAU   3.5X2.5X0.25   33.0 97.17 Comp 97.17   g39P   -3.983NESC Ext   4.099   18.420   42.187 0.563 0.781 0.563 378.61
317.10 29.692   5   3
 DIAG1   L4X3X1/4   SAU   4X3X0.25   33.0 41.76 Tens 41.17   g36P   -7.584NESC Hea   37.785   18.420   42.187 1.000 0.500 0.500 91.55
105.77 9.765   3   3
 DIAG2   L5X3.5X5/16   SAU   5X3.5X0.3125   33.0 86.30 Comp 86.30   g41XY -10.597NESC Ext   24.206   12.280   35.156 1.000 0.500 0.500 190.79
173.98 24.357   5   2
 HORZ1   L4X4X1/4   SAE   4X4X0.25   33.0 53.99 Comp 53.99   g47Y   -9.945NESC Ext   19.194   18.420   42.187 1.000 1.000 1.000 185.68
170.09 12.301   5   3 A potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize
moments): g48P g48X g48XY g48Y ??
  ARM1   L5X3.5X5/16   SAU   5X3.5X0.3125   33.0 55.90 Comp 55.90   g49P -17.162NESC Hea   57.564   30.700   87.890 1.000 0.500 0.500 90.27
105.13 11.524   3   5
  ARM2   L4X4X1/4   SAE   4X4X0.25   33.0 96.20 Comp 96.20   g51P -17.720NESC Hea   38.378   18.420   42.187 1.000 1.000 1.000 115.76
117.88 7.669   3   3
    M1 LL3.5X3.5X1/4   DAE   3.5X3.5X0.25   33.0 4.45 Comp 4.45   g57P   -1.093NESC Hea   66.338   24.560   56.250 1.000 1.000 1.000 118.57
118.57 10.770   1   2
    M2   L3X3X3/16 SAE   3X3X0.1875   33.0 47.18 Comp 47.18   g68X   -5.793NESC Ext   24.499   12.280   21.094 2.000 1.000 1.000 90.37
105.18 3.536   3   2
    M3   L3X3X1/4   SAE   3X3X0.25   33.0 19.81 Tens 17.42   g61X   -3.209NESC Ext   30.742   18.420   42.187 1.000 1.000 1.000 101.35
110.68 5.000   3   3
    M4   BAR 2X3/16   Bar   2x3/16   33.0 61.62 Tens 0.00   g63Y   0.000   4.649   12.280   21.094 1.000 1.000 1.000 151.94
151.94 12.661   4   2
    M5 1.75x1.75x3/16   SAE 1.75X1.75X0.1875   33.0 76.74 Comp 76.74   g73XY   -0.381NESC Ext   0.496   6.140   10.547 2.000 1.000 1.000 597.93
597.93 13.379   4   1
 Pwmnt 12" Std. Pipe Pwmnt   Pipe 12" Std.   50.0 3.39 Comp 3.39   g82P -20.343NESC Hea 599.894   0.000   0.000 1.000 1.000 1.000 51.94
51.94 19.000   1   0
 PMBR1   L2x2x3/16   SAE   2X2X0.1875   36.0 24.31 Comp 24.31   g89P   -2.478NESC Ext   20.044   16.800   10.195 1.000 1.000 1.000 45.69
82.84 1.500   3   1
 PMBR2   L3x3x3/16   SAE   3X3X0.1875   36.0 6.85 Tens 5.44   g91X   -0.555NESC Ext   10.990   16.800   10.195 1.000 1.000 1.000 168.48
168.48 8.368   4   1
 PMBR3   L4x4x1/4   SAE   4X4X0.25   36.0 5.52 Tens 4.42   g93X   -0.601NESC Ext   15.943   16.800   13.594 1.000 1.000 1.000 186.62
186.62 12.364   4   1
 PMBR4   L5x5x3/8   SAE   5X5X0.375   36.0 12.11 Tens 4.43   g94X   -0.744NESC Ext   26.243   16.800   20.391 1.000 1.000 1.000 198.43
198.43 16.370   4   1
 HORZ2   L3X2.5X1/4   SAU   3X2.5X0.25   33.0 5.78 Tens 1.21   g98P   -0.074NESC Hea   35.833   6.140   14.062 1.000 1.000 1.000 34.09
77.05 1.500   3   1 A potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize
moments): g98P ??
 HORZ3   L4X3X1/4   SAU   4X3X0.25   33.0 14.86 Tens 14.69   g97P   -0.902NESC Ext   12.202   6.140   14.062 1.000 1.000 1.000 199.10
199.10 10.801   4   1
    M6 1.75x1.75x3/16   SAE 1.75X1.75X0.1875   33.0 0.00   0.00   0.000   0.000   0.000   0.000 0.000 0.000 0.000   0.00
0.00 0.000   0   0
    M7   BAR 2X3/16   Bar   2x3/16   33.0 43.07 Tens 17.84   g65Y   -1.095NESC Ext   11.091   6.140   10.547 1.000 1.000 1.000 60.00
60.00 5.000   1   1
    M8 BAR 1.75X3/16   Bar   1.75x3/16   33.0 71.66 Tens 49.72   g67Y   -3.053NESC Ext   7.015   6.140   10.547 1.000 1.000 1.000 111.11
111.11 5.000   1   1
 Plate   PL6x3/4   Bar   6x3/4   36.0 87.81 Comp 87.81   g87P -14.753NESC Ext 109.447   16.800   40.781 1.000 1.000 1.000 83.14
101.57 1.500   3   1
 PMBR5   L2.5x2.5x1/4   SAE   2.5X2.5X0.25   36.0 62.14 Tens 61.15   g83X   -8.312NESC Ext   31.213   16.800   13.594 1.000 1.000 1.000 65.81
92.90 2.693   3   1 A potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize
moments): g83P g83X g84P g84X ??

Group Summary (Tension Portion):

Group	Group Angle	Angle	Steel	Max Usage	Max Tension	Tension	Tension	Net	Tension	Tension	Tension	Length	No.	No.

Label	Desc.	Type	Size	Strength (ksi)	Usage %	Control	Use In Tens. %	Control Member	Force (kips)	Control Load Case	Section Capacity (kips)	Connect. Shear Capacity (kips)	Connect. Bearing Capacity (kips)	Connect. Rupture Capacity (kips)	Tens. Member (ft)	Of Bolts	Of Holes	Hole Diameter (in)
LEG1	L4X4X1/4	SAE	4X4X0.25	33.0	46.98	Comp	42.41	g2Y	15.625	NESC Ext	52.676	36.840	84.375	93.750	5.000	6	2.000	0.6875
LEG2	L5X5X3/8	SAE	5X5X0.375	33.0	52.99	Comp	46.58	g5Y	39.635	NESC Ext	85.099	85.960	295.312	328.124	4.000	14	4.000	0.6875
LEG3	L6X6X1/2	SAE	6X6X0.5	33.0	47.13	Comp	45.93	g7Y	68.346	NESC Ext	148.799	159.640	731.249	812.499	5.000	26	3.610	0.6875
LEG4	L8X8X1/2	SAE	8X8X0.5	33.0	49.77	Comp	43.74	g11Y	80.560	NESC Ext	213.211	184.200	843.749	937.499	8.160	30	3.750	0.6875
LEG5	L8X8X5/8	SAE	8X8X0.625	33.0	52.42	Comp	42.79	g14Y	89.321	NESC Ext	260.411	208.760	1195.311	1328.123	19.380	34	4.000	0.6875
XBR1	L3x3x1/4	SAE	3X3X0.25	33.0	54.84	Tens	54.84	g15XY	10.102	NESC Ext	37.663	18.420	42.187	26.977	7.071	3	1.000	0.6875
XBR2	L3.5X3.5X1/4	SAE	3.5X3.5X0.25	33.0	73.79	Comp	73.15	g20X	17.965	NESC Hea	42.893	24.560	56.250	43.750	6.403	4	1.430	0.6875
XBR3	L5X5X5/16	SAE	5X5X0.3125	33.0	54.83	Comp	52.71	g28X	19.418	NESC Hea	77.612	36.840	105.469	82.031	7.071	6	1.940	0.6875
XBR4	L4X4X1/4	SAE	4X4X0.25	33.0	89.91	Comp	73.06	g29Y	13.457	NESC Hea	48.991	18.420	42.187	84.539	9.269	3	1.690	0.6875
XBR5	L4X3X5/16	SAU	4X3X0.3125	33.0	91.60	Comp	38.63	g37X	11.858	NESC Hea	51.289	30.700	87.890	87.890	25.819	5	1.690	0.6875
XBR6	L3.5X2.5X1/4	SAU	3.5X2.5X0.25	33.0	97.17	Comp	51.54	g39XY	9.495	NESC Ext	37.663	18.420	42.187	32.812	29.692	3	1.000	0.6875
DIAG1	L4X3X1/4	SAU	4X3X0.25	33.0	41.76	Tens	41.76	g36Y	7.692	NESC Hea	37.663	18.420	42.187	32.812	9.765	3	1.000	0.6875
DIAG2	L5X3.5X5/16	SAU	5X3.5X0.3125	33.0	86.30	Comp	79.08	g41Y	9.711	NESC Ext	55.729	12.280	35.156	27.344	24.357	2	1.000	0.6875
HORZ1	**L4X4X1/4**	**SAE**	**4X4X0.25**	**33.0**	**53.99**	**Comp**	**32.58**	**g45P**	**6.001**	**NESC Ext**	**52.513**	**18.420**	**42.187**	**32.812**	**18.920**	**3**	**1.000**	**0.6875**
A potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize moments): g48P g48X g48XY g48Y ??																		
ARM1	L5X3.5X5/16	SAU	5X3.5X0.3125	33.0	55.90	Comp	54.74	g49Y	16.804	NESC Hea	64.036	30.700	87.890	68.359	11.524	5	1.880	0.6875
ARM2	L4X4X1/4	SAE	4X4X0.25	33.0	96.20	Comp	64.93	g51Y	11.961	NESC Hea	50.982	18.420	42.187	60.662	7.669	3	1.300	0.6875
M1	LL3.5X3.5X1/4	DAE	3.5X3.5X0.25	33.0	4.45	Comp	0.00	g57X	0.000		90.176	24.560	56.250	43.750	10.770	2	2.000	0.6875
M2	L3X3X3/16	SAE	3X3X0.1875	33.0	47.18	Comp	40.16	g68XY	4.931	NESC Ext	28.544	12.280	21.094	19.301	3.536	2	1.000	0.6875
M3	L3X3X1/4	SAE	3X3X0.25	33.0	19.81	Tens	19.81	g61P	3.650	NESC Ext	37.663	18.420	42.187	32.812	5.000	3	1.000	0.6875
M4	BAR 2X3/16	Bar	2x3/16	33.0	61.62	Tens	61.62	g63XY	5.004	NESC Hea	8.121	12.280	21.094	16.406	12.661	2	1.000	0.6875
M5	1.75x1.75x3/16	SAE	1.75X1.75X0.1875	33.0	76.74	Comp	12.63	g72P	0.775	NESC Ext	14.585	6.140	10.547	6.873	9.361	1	1.000	0.6875
Pwmnt	12" Std. Pipe Pwmnt		Pipe 12" Std.	50.0	3.39	Comp	0.00	g82P	0.000		679.999	0.000	0.000	0.000	19.000	0	0.000	0
PMBR1	L2x2x3/16	SAE	2X2X0.1875	36.0	24.31	Comp	13.41	g85P	1.367	NESC Ext	18.827	16.800	10.195	10.343	2.693	1	1.000	0.6875
PMBR2	L3x3x3/16	SAE	3X3X0.1875	36.0	6.85	Tens	6.85	g91P	0.698	NESC Ext	31.139	16.800	10.195	11.328	8.368	1	1.000	0.6875
PMBR3	L4x4x1/4	SAE	4X4X0.25	36.0	5.52	Tens	5.52	g93X	0.751	NESC Ext	57.287	16.800	13.594	15.104	12.364	1	1.000	0.6875

0.6875
PMBR4 L5x5x3/8 SAE 5X5X0.375 36.0 12.11 Tens 12.11 g94X 2.035NESC Ext 108.611 16.800 20.391 22.656 16.370 1 1.000
0.6875
HORZ2 L3X2.5X1/4 SAU 3X2.5X0.25 33.0 5.78 Tens 5.78 g98P 0.355NESC Ext 30.090 6.140 14.062 10.937 1.500 1 1.000
0.6875 A potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize moments): g98P ??
HORZ3 L4X3X1/4 SAU 4X3X0.25 33.0 14.86 Tens 14.86 g96P 0.912NESC Ext 37.663 6.140 14.062 10.937 1.500 1 1.000
0.6875
M6 1.75x1.75x3/16 SAE 1.75X1.75X0.1875 33.0 0.00 0.00 0.000 0.000 0.000 0.000 0.000 0.000 0 0.000
0
M7 BAR 2X3/16 Bar 2x3/16 33.0 43.07 Tens 43.07 g65P 2.644NESC Ext 8.121 6.140 10.547 8.203 5.000 1 1.000
0.6875
M8 BAR 1.75X3/16 Bar 1.75x3/16 33.0 71.66 Tens 71.66 g67P 4.400NESC Ext 6.636 6.140 10.547 8.203 5.000 1 1.000
0.6875
Plate PL6x3/4 Bar 6x3/4 36.0 87.81 Comp 61.45 g88P 10.323NESC Ext 129.094 16.800 40.781 0.000 1.500 1 1.000
0.6875
PMBR5 L2.5x2.5x1/4 SAE 2.5X2.5X0.25 36.0 62.14 Tens 62.14 g83P 8.447NESC Ext 32.987 16.800 13.594 15.104 2.693 1 1.000
0.6875 A potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize moments): g83P g83X g84P g84X ??

*** Maximum Stress Summary for Each Load Case

Summary of Maximum Usages by Load Case:

Load Case	Maximum Usage %	Element Label	Element Type
NESC Heavy	70.79	g39Y	Angle
NESC Extreme	91.60	g38Y	Angle
NESC Heavy Broken Wire	96.20	g51P	Angle
NESC Extreme Longitudinal	97.17	g39P	Angle

Summary of Insulator Usages:

Insulator Label	Insulator Type	Maximum Usage %	Load Case	Weight (lbs)
CLAMP1	Clamp	2.86	NESC Heavy	0.0
CLAMP2	Clamp	15.11	NESC Heavy Broken Wire	0.0
CLAMP3	Clamp	6.12	NESC Extreme	0.0
CLAMP4	Clamp	20.30	NESC Heavy Broken Wire	0.0
CLAMP5	Clamp	6.12	NESC Extreme	0.0
CLAMP6	Clamp	6.12	NESC Extreme	0.0
CLAMP7	Clamp	6.12	NESC Extreme	0.0
CLAMP8	Clamp	6.12	NESC Extreme	0.0
CLAMP9	Clamp	0.86	NESC Extreme Longitudinal	0.0
CLAMP10	Clamp	0.86	NESC Extreme Longitudinal	0.0
CLAMP11	Clamp	0.86	NESC Extreme Longitudinal	0.0
CLAMP12	Clamp	0.86	NESC Extreme Longitudinal	0.0
CLAMP13	Clamp	0.86	NESC Heavy	0.0
CLAMP14	Clamp	0.92	NESC Heavy	0.0
CLAMP15	Clamp	1.07	NESC Heavy	0.0
CLAMP16	Clamp	1.17	NESC Heavy	0.0
CLAMP17	Clamp	3.02	NESC Extreme Longitudinal	0.0
CLAMP18	Clamp	3.02	NESC Extreme Longitudinal	0.0

CLAMP19	Clamp	3.58		NESC Heavy	0.0
CLAMP20	Clamp	3.99		NESC Heavy	0.0
CLAMP21	Clamp	2.82		NESC Heavy	0.0
CLAMP22	Clamp	3.13		NESC Heavy	0.0
CLAMP23	Clamp	18.63		NESC Heavy	0.0
CLAMP24	Clamp	2.30		NESC Heavy	0.0
CLAMP25	Clamp	2.14		NESC Heavy	0.0
CLAMP26	Clamp	2.10		NESC Heavy	0.0
CLAMP27	Clamp	3.71		NESC Heavy	0.0
CLAMP28	Clamp	4.74		NESC Heavy	0.0
CLAMP29	Clamp	4.05		NESC Heavy	0.0
CLAMP30	Clamp	4.57		NESC Heavy	0.0
CLAMP31	Clamp	1.37	NESC Extreme	Longitudinal	0.0
CLAMP32	Clamp	1.99	NESC Extreme	Longitudinal	0.0
CLAMP33	Clamp	2.01		NESC Heavy	0.0
CLAMP34	Clamp	3.09		NESC Heavy	0.0
CLAMP35	Clamp	5.48	NESC Extreme	Longitudinal	0.0
CLAMP36	Clamp	6.07		NESC Heavy	0.0
CLAMP37	Clamp	6.27		NESC Heavy	0.0

*** Weight of structure (lbs):
Weight of Angles*Section DLF: 35129.8
Total: 35129.8

*** End of Report

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*****************************************************************************
*                                                                           *
* TOWER - Analysis and Design -  Copyright Power Line Systems, Inc. 1986-2011 *
*                                                                           *
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Project Name : 21005.42 - Stamford, CT
Project Notes: Structure #1217 / T-Mobile - CTFF740A
Project File : J:\Jobs\2100500.WI\42_CTFF740A_CT03XC329\05_Structural\Calcs\Rev (2)\PLS Tower\CL&P # 1217.tow
Date run     : 2:29:08 PM Thursday, August 25, 2022
by           : Tower Version 12.50
Licensed to  : Centek Engineering Inc

Successfully performed nonlinear analysis

Member "g5P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "g5X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "g5XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "g5Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "g7P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "g7X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "g7XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
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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 "g13P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "g13X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "g13XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "g13Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "g14P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
and spacing distances will be checked. ??
Member "g14X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge
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and spacing distances will be checked. ??
Member "g14XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g14Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
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. ??
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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. ??
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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. ??
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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. ??
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Member "g25Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g26P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g26X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
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Member "g28P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
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Member "g28Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g37P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g37X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g37XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g37Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g38P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g38X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g38XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g38Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g43P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
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Member "g49P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
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Member "g51P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g51X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
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Member "g55Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g68P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g68X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
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Member "g68Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g69P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
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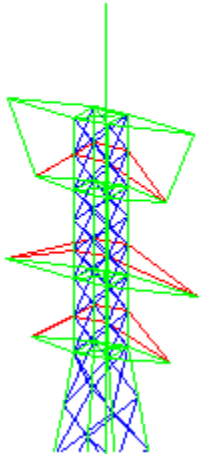
Member "g70P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g70X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g70XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g70Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g71P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge

and spacing distances will be checked. ??
Member "g71X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g71XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Member "g71Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Unable to calculate rupture capacity for member "g87P" because it has a long and short edge distance of 0. ??
Unable to calculate rupture capacity for member "g88P" because it has a long and short edge distance of 0. ??
KL/R value of 226.75 exceeds maximum of 200.00 for member "g95P" ??
Member "g98P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??
Unusual number of fixed joints found: 5. Towers normally have from between 1 and 4 fixed joints. ??
The model has 117 warnings. ??



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

Joints Geometry:

Joint Label	Symmetry Code	X Coord. (ft)	Y Coord. (ft)	Z Coord. (ft)	X Disp. Rest.	Y Disp. Rest.	Z Disp. Rest.	X Rot. Rest.	Y Rot. Rest.	Z Rot. Rest.
1P	XY-Symmetry	2.5	2.5	120	Free	Free	Free	Free	Free	Free
2P	XY-Symmetry	2.5	2.5	115	Free	Free	Free	Free	Free	Free
3P	XY-Symmetry	2.5	2.5	110	Free	Free	Free	Free	Free	Free
4P	XY-Symmetry	2.5	2.5	106	Free	Free	Free	Free	Free	Free
5P	XY-Symmetry	2.5	2.5	102	Free	Free	Free	Free	Free	Free
6P	XY-Symmetry	2.5	2.5	98	Free	Free	Free	Free	Free	Free

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

Secondary Joints:

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

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

The model contains 60 primary and 32 secondary joints for a total of 92 joints.

Steel Material Properties:

Steel Material Label	Modulus of Elasticity (ksi)	Yield Stress Fy (ksi)	Ultimate Stress Fu (ksi)	Member All. Stress Hyp. 1 (ksi)	Member All. Stress Hyp. 2 (ksi)	Member Rupture Hyp. 1 (ksi)	Member Rupture Hyp. 2 (ksi)	Member Bearing Hyp. 1 (ksi)	Member Bearing Hyp. 2 (ksi)
A 36	2.9e+004	36	58	0	0	0	0	0	0
A7	2.9e+004	33	60	0	0	0	0	0	0
A500-50	2.9e+004	50	62	0	0	0	0	0	0

Bolt Properties:

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

Number Bolts Used By Type:

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

Angle Properties:

Angle Type	Angle Size	Long Leg (in)	Short Leg (in)	Thick. (in)	Unit Weight (lbs/ft)	Gross Area (in^2)	w/t Ratio	Radius of Gyration Rx (in)	Radius of Gyration Ry (in)	Radius of Gyration Rz (in)	Number of Angles	Wind Width (in)	Short Edge Dist. (in)	Long Edge Dist. (in)	Optimize Cost Factor	Section Modulus (in^3)
SAE	8X8X0.625	8	8	0.625	32.7	9.61	10.8	2.49	2.49	1.58	1	8	4	0	1.0000	0
SAE	8X8X0.5	8	8	0.5	26.4	7.75	13.75	2.5	2.5	1.59	1	8	4	0	1.0000	0
SAE	6X6X0.5	6	6	0.5	19.6	5.75	10	1.86	1.86	1.18	1	6	3	0	1.0000	0
SAE	5X5X0.375	5	5	0.375	12.3	3.61	11	1.56	1.56	0.99	1	5	2.5	0	1.0000	0
SAE	5X5X0.3125	5	5	0.3125	10.3	3.03	13.4	1.57	1.57	0.994	1	5	2.5	0	1.0000	0
SAE	4X4X0.25	4	4	0.25	6.6	1.94	13.5	1.25	1.25	0.795	1	4	2	0	1.0000	0
SAE	3.5X3.5X0.25	3.5	3.5	0.25	5.8	1.69	11.5	1.09	1.09	0.694	1	3.5	1.75	0	1.0000	0
SAE	3X3X0.25	3	3	0.25	4.9	1.44	9.75	0.93	0.93	0.592	1	3	1.5	0	1.0000	0
SAE	3X3X0.1875	3	3	0.1875	3.71	1.09	13.33	0.939	0.939	0.596	1	3	1.5	0	1.0000	0
SAE	2.5X2.5X0.25	2.5	2.5	0.25	4.1	1.19	7.75	0.769	0.769	0.491	1	2.5	1.25	0	1.0000	0
SAE	2X2X0.1875	2	2	0.1875	2.44	0.71	8	0.617	0.617	0.394	1	2	1	0	1.0000	0
SAE	1.75X1.75X0.1875	1.75	1.75	0.1875	2.12	0.62	6	0.537	0.537	0.343	1	1.75	0.875	0	1.0000	0
SAU	5X3.5X0.3125	5	3.5	0.3125	8.7	2.56	13.4	1.61	1.03	0.766	1	5	1.75	0	1.0000	0
SAU	4X3X0.3125	4	3	0.3125	7.2	2.09	10.4	1.27	0.887	0.647	1	4	1.5	0	1.0000	0
SAU	4X3X0.25	4	3	0.25	5.8	1.69	13.25	1.28	0.896	0.651	1	4	1.5	0	1.0000	0
SAU	3.5X2.5X0.25	3.5	2.5	0.25	4.9	1.44	11.25	1.12	0.735	0.544	1	3.5	1.25	0	1.0000	0
SAU	3X2.5X0.25	3	2.5	0.25	4.5	1.31	9.5	0.945	0.753	0.528	1	3	1.25	0	1.0000	0
DAE	3.5X3.5X0.25	3.5	3.5	0.25	11.6	3.38	11.5	1.09	1.59	1.09	2	3.5	1.75	0	1.0000	0
Pwmnt	Pipe 12" Std.	12.75	12	0	49.6	13.6	1	4.39	4.39	4.39	1	12.75	0	0	0.0000	0
Bar	6x3/4	6	0.75	0.75	15.3	4.5	8	0.2165	1.732	1.732	1	6	0	0	0.0000	0
Bar	2x3/16	2	0	0.1875	1.28	0.375	10.67	1	1	1	1	2	0	0	0.0000	0
Bar	1.75x3/16	1.75	0	0.1875	1.12	0.33	9.33	0.54	2.69	0.54	1	1.75	0	0	0.0000	0

Angle Groups:

Group Label	Group Description	Angle Type	Angle Size	Material Type	Element Type	Group Type	Optimize Group	Allow. Add. Angle Width For Optimize (in)
LEG1	L4X4X1/4	SAE	4X4X0.25	A7	Beam	Leg	None	0.000
LEG2	L5X5X3/8	SAE	5X5X0.375	A7	Beam	Leg	None	0.000
LEG3	L6X6X1/2	SAE	6X6X0.5	A7	Beam	Leg	None	0.000
LEG4	L8X8X1/2	SAE	8X8X0.5	A7	Beam	Leg	None	0.000
LEG5	L8X8X5/8	SAE	8X8X0.625	A7	Beam	Leg	None	0.000
XBR1	L3x3x1/4	SAE	3X3X0.25	A7	Truss	Crossing Diagonal	None	0.000
XBR2	L3.5X3.5X1/4	SAE	3.5X3.5X0.25	A7	Truss	Crossing Diagonal	None	0.000
XBR3	L5X5X5/16	SAE	5X5X0.3125	A7	Truss	Crossing Diagonal	None	0.000
XBR4	L4X4X1/4	SAE	4X4X0.25	A7	Truss	Crossing Diagonal	None	0.000
XBR5	L4X3X5/16	SAU	4X3X0.3125	A7	T-Only	Other	None	0.000
XBR6	L3.5X2.5X1/4	SAU	3.5X2.5X0.25	A7	T-Only	Other	None	0.000
DIAG1	L4X3X1/4	SAU	4X3X0.25	A7	Truss	Other	None	0.000
DIAG2	L5X3.5X5/16	SAU	5X3.5X0.3125	A7	Truss	Other	None	0.000
HORZ1	L4X4X1/4	SAE	4X4X0.25	A7	Beam	Other	None	0.000
ARM1	L5X3.5X5/16	SAU	5X3.5X0.3125	A7	Beam	Other	None	0.000

ARM2	L4X4X1/4	SAE	4X4X0.25	A7		Beam	Other	None	0.000
M1	LL3.5X3.5X1/4	DAE	3.5X3.5X0.25	A7		Beam	Other	None	0.000
M2	L3X3X3/16	SAE	3X3X0.1875	A7		Beam	Other	None	0.000
M3	L3X3X1/4	SAE	3X3X0.25	A7		Beam	Other	None	0.000
M4	BAR 2X3/16	Bar	2x3/16	A7	T-Only	Beam	Other	None	0.000
M5	1.75x1.75x3/16	SAE	1.75X1.75X0.1875	A7	T-Only	Beam	Other	None	0.000
Pwmnt	12" Std. Pipe	Pwmnt	Pipe 12" Std.	A500-50		Beam	Other	None	0.000
PMBR1	L2x2x3/16	SAE	2X2X0.1875	A 36		Beam	Other	None	12.000
PMBR2	L3x3x3/16	SAE	3X3X0.1875	A 36		Beam	Other	None	12.000
PMBR3	L4x4x1/4	SAE	4X4X0.25	A 36		Beam	Other	None	12.000
PMBR4	L5x5x3/8	SAE	5X5X0.375	A 36		Beam	Other	None	12.000
HORZ2	L3X2.5X1/4	SAU	3X2.5X0.25	A7		Beam	Other	None	0.000
HORZ3	L4X3X1/4	SAU	4X3X0.25	A7		Beam	Other	None	0.000
M6	1.75x1.75x3/16	SAE	1.75X1.75X0.1875	A7	T-Only	Beam	Other	None	0.000
M7	BAR 2X3/16	Bar	2x3/16	A7	T-Only		Other	None	0.000
M8	BAR 1.75X3/16	Bar	1.75x3/16	A7	T-Only		Other	None	0.000
Plate	PL6x3/4	Bar	6x3/4	A 36		Beam	Other	None	0.000
PMBR5	L2.5x2.5x1/4	SAE	2.5X2.5X0.25	A 36		Beam	Other	None	0.000

Aggregate Angle Information:

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

Angle Type	Angle Size	Material Type	Total Length (ft)	Total Surface Area (ft^2)	Total Weight (lbs)
SAE	4X4X0.25	A7	509.76	679.68	3364.41
SAE	5X5X0.375	A7	48.00	80.00	590.40
SAE	6X6X0.5	A7	40.00	80.00	784.00
SAE	8X8X0.5	A7	118.32	315.51	3123.58
SAE	8X8X0.625	A7	240.71	641.91	7871.37
SAE	3X3X0.25	A7	123.14	123.14	603.37
SAE	3.5X3.5X0.25	A7	251.47	293.38	1458.50
SAE	5X5X0.3125	A7	113.14	188.56	1165.31
SAU	4X3X0.25	A7	102.72	119.84	595.79
SAU	4X3X0.3125	A7	206.55	240.98	1487.18
SAU	3.5X2.5X0.25	A7	237.54	237.54	1163.93
SAU	5X3.5X0.3125	A7	309.01	437.76	2688.38
DAE	3.5X3.5X0.25	A7	21.54	25.13	249.87
SAE	3X3X0.1875	A7	86.57	86.57	321.17
Bar	2x3/16	A7	107.27	35.76	137.30
Bar	1.75x3/16	A7	48.22	14.07	54.01
SAE	1.75X1.75X0.1875	A7	160.55	93.65	340.36
Pwmnt	Pipe 12" Std.	A500-50	135.00	556.88	6696.00
SAE	2.5X2.5X0.25	A 36	10.77	8.98	44.16
SAE	2X2X0.1875	A 36	15.27	10.18	37.26
Bar	6x3/4	A 36	3.00	3.38	45.90
SAE	3X3X0.1875	A 36	16.74	16.74	62.09
SAE	4X4X0.25	A 36	24.73	32.97	163.20
SAE	5X5X0.375	A 36	32.74	54.57	402.71
SAU	3X2.5X0.25	A7	1.50	1.38	6.75

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

Section	Joint	Dead	Transverse	Longitudinal	Transverse	Longitudinal	Af Flat Ar Round	Transverse	Longitudinal	SAPS Angle	SAPS Round Force

Label	Defining Section Bottom	Load Adjust. Factor	Drag x Area Factor For Face	Drag x Area Factor For Face	Area Factor (CD From Code)	Area Factor (CD From Code)	Factor For Face EIA Only	Factor For Face EIA Only	Drag x Area Factor For All	Drag x Area Factor For All	Drag x Area Factor	Drag x Area Factor	Solid Face
1	13X	1.050	3.350	3.350	1.050	1.050	0.000	0.000	0.000	0.000	0.000	0.000	None
2	9X	1.050	3.500	3.500	1.100	1.100	0.000	0.000	0.000	0.000	0.000	0.000	None

Angle Member Connectivity:

Member Label	Group Label	Section Label	Symmetry Code	Origin Joint	End Joint	Ecc. Code	Rest. Code	Ratio RLX	Ratio RLY	Ratio RLZ	Bolt Type	# Bolts	# Bolt Holes	# Shear Planes	Connect Leg	Short Edge Dist. (in)	Long Edge Dist. (in)	End Dist. (in)	Bolt Spacing (in)	Shear Rest. Path Length (in)	Tension Rest. Path Length (in)	Coef.
g1P	LEG1		XY-Symmetry	1X	2X	1	4	1	1	1	5/8 A307	0	0	0		0	0	0	0	0	0	0
g1X	LEG1		X-GenXY	1P	2P	1	4	1	1	1	5/8 A307	0	0	0		0	0	0	0	0	0	0
g1XY	LEG1		XY-GenXY	1Y	2Y	1	4	1	1	1	5/8 A307	0	0	0		0	0	0	0	0	0	0
g1Y	LEG1		Y-GenXY	1XY	2XY	1	4	1	1	1	5/8 A307	0	0	0		0	0	0	0	0	0	0
g2P	LEG1		XY-Symmetry	2X	3X	1	4	1	1	1	5/8 A307	6	2	1	Both	2	0	1.25	4	0	0	0
g2X	LEG1		X-GenXY	2P	3P	1	4	1	1	1	5/8 A307	6	2	1	Both	2	0	1.25	4	0	0	0
g2XY	LEG1		XY-GenXY	2Y	3Y	1	4	1	1	1	5/8 A307	6	2	1	Both	2	0	1.25	4	0	0	0
g2Y	LEG1		Y-GenXY	2XY	3XY	1	4	1	1	1	5/8 A307	6	2	1	Both	2	0	1.25	4	0	0	0
g3P	LEG2		XY-Symmetry	3X	4X	1	4	1	1	1	5/8 A307	0	4	0		0	0	0	0	0	0	0
g3X	LEG2		X-GenXY	3P	4P	1	4	1	1	1	5/8 A307	0	4	0		0	0	0	0	0	0	0
g3XY	LEG2		XY-GenXY	3Y	4Y	1	4	1	1	1	5/8 A307	0	4	0		0	0	0	0	0	0	0
g3Y	LEG2		Y-GenXY	3XY	4XY	1	4	1	1	1	5/8 A307	0	4	0		0	0	0	0	0	0	0
g4P	LEG2		XY-Symmetry	4X	5X	1	4	1	1	1	5/8 A307	0	4	0		0	0	0	0	0	0	0
g4X	LEG2		X-GenXY	4P	5P	1	4	1	1	1	5/8 A307	0	4	0		0	0	0	0	0	0	0
g4XY	LEG2		XY-GenXY	4Y	5Y	1	4	1	1	1	5/8 A307	0	4	0		0	0	0	0	0	0	0
g4Y	LEG2		Y-GenXY	4XY	5XY	1	4	1	1	1	5/8 A307	0	4	0		0	0	0	0	0	0	0
g5P	LEG2		XY-Symmetry	5X	6X	1	4	1	1	1	5/8 A307	14	4	1	Both	1.5	3.125	1.25	3.5	0	0	0
g5X	LEG2		X-GenXY	5P	6P	1	4	1	1	1	5/8 A307	14	4	1	Both	1.5	3.125	1.25	3.5	0	0	0
g5XY	LEG2		XY-GenXY	5Y	6Y	1	4	1	1	1	5/8 A307	14	4	1	Both	1.5	3.125	1.25	3.5	0	0	0
g5Y	LEG2		Y-GenXY	5XY	6XY	1	4	1	1	1	5/8 A307	14	4	1	Both	1.5	3.125	1.25	3.5	0	0	0

g6P	LEG3	XY-Symmetry	6X	7X	1	4	1	1	1	5/8	A307	0	4	0		0	0	0	0	0	0	0
g6X	LEG3	X-GenXY	6P	7P	1	4	1	1	1	5/8	A307	0	4	0		0	0	0	0	0	0	0
g6XY	LEG3	XY-GenXY	6Y	7Y	1	4	1	1	1	5/8	A307	0	4	0		0	0	0	0	0	0	0
g6Y	LEG3	Y-GenXY	6XY	7XY	1	4	1	1	1	5/8	A307	0	4	0		0	0	0	0	0	0	0
g7P	LEG3	XY-Symmetry	7X	8X	1	4	1	1	1	5/8	A307	26	3.61	1	Both	1.875	4.25	1.25	2.25	0	0	0
g7X	LEG3	X-GenXY	7P	8P	1	4	1	1	1	5/8	A307	26	3.61	1	Both	1.875	4.25	1.25	2.25	0	0	0
g7XY	LEG3	XY-GenXY	7Y	8Y	1	4	1	1	1	5/8	A307	26	3.61	1	Both	1.875	4.25	1.25	2.25	0	0	0
g7Y	LEG3	Y-GenXY	7XY	8XY	1	4	1	1	1	5/8	A307	26	3.61	1	Both	1.875	4.25	1.25	2.25	0	0	0
g8P	LEG4	XY-Symmetry	8X	10X	1	4	1	1	1	5/8	A307	0	4	0		0	0	0	0	0	0	0
g8X	LEG4	X-GenXY	8P	10S	1	4	1	1	1	5/8	A307	0	4	0		0	0	0	0	0	0	0
g8XY	LEG4	XY-GenXY	8Y	10Y	1	4	1	1	1	5/8	A307	0	4	0		0	0	0	0	0	0	0
g8Y	LEG4	Y-GenXY	8XY	10XY	1	4	1	1	1	5/8	A307	0	4	0		0	0	0	0	0	0	0
g9P	LEG4	XY-Symmetry	10X	11X	1	4	1	1	1	5/8	A307	0	2	0		0	0	0	0	0	0	0
g9X	LEG4	X-GenXY	10S	11S	1	4	1	1	1	5/8	A307	0	2	0		0	0	0	0	0	0	0
g9XY	LEG4	XY-GenXY	10Y	11Y	1	4	1	1	1	5/8	A307	0	2	0		0	0	0	0	0	0	0
g9Y	LEG4	Y-GenXY	10XY	11XY	1	4	1	1	1	5/8	A307	0	2	0		0	0	0	0	0	0	0
g10P	LEG4	XY-Symmetry	11X	12X	1	4	1	1	1	5/8	A307	0	2	0		0	0	0	0	0	0	0
g10X	LEG4	X-GenXY	11S	12S	1	4	1	1	1	5/8	A307	0	2	0		0	0	0	0	0	0	0
g10XY	LEG4	XY-GenXY	11Y	12Y	1	4	1	1	1	5/8	A307	0	2	0		0	0	0	0	0	0	0
g10Y	LEG4	Y-GenXY	11XY	12XY	1	4	1	1	1	5/8	A307	0	2	0		0	0	0	0	0	0	0
g11P	LEG4	XY-Symmetry	12X	13X	1	4	1	1	1	5/8	A307	30	3.75	1	Both	2	5.75	1.25	2.5	0	0	0
g11X	LEG4	X-GenXY	12S	13S	1	4	1	1	1	5/8	A307	30	3.75	1	Both	2	5.75	1.25	2.5	0	0	0
g11XY	LEG4	XY-GenXY	12Y	13Y	1	4	1	1	1	5/8	A307	30	3.75	1	Both	2	5.75	1.25	2.5	0	0	0
g11Y	LEG4	Y-GenXY	12XY	13XY	1	4	1	1	1	5/8	A307	30	3.75	1	Both	2	5.75	1.25	2.5	0	0	0
g12P	LEG5	XY-Symmetry	13X	14X	1	4	0.5	0.5	0.5	5/8	A307	32	3.75	1	Both	1.375	5.125	1.25	2.25	0	0	0
g12X	LEG5	X-GenXY	13S	14S	1	4	0.5	0.5	0.5	5/8	A307	32	3.75	1	Both	1.375	5.125	1.25	2.25	0	0	0
g12XY	LEG5	XY-GenXY	13Y	14Y	1	4	0.5	0.5	0.5	5/8	A307	32	3.75	1	Both	1.375	5.125	1.25	2.25	0	0	0
g12Y	LEG5	Y-GenXY	13XY	14XY	1	4	0.5	0.5	0.5	5/8	A307	32	3.75	1	Both	1.375	5.125	1.25	2.25	0	0	0
g13P	LEG5	XY-Symmetry	14X	15X	1	4	0.5	0.5	0.5	5/8	A307	32	6	1	Both	2	5.75	1.25	2.25	0	0	0
g13X	LEG5	X-GenXY	14S	15S	1	4	0.5	0.5	0.5	5/8	A307	32	6	1	Both	2	5.75	1.25	2.25			

0	0	0																			
g13XY	LEG5		XY-GenXY	14Y	15Y	1	4	0.5	0.5	0.5	5/8	A307	32	6	1	Both	2	5.75	1.25	2.25	
0	0	0																			
g13Y	LEG5		Y-GenXY	14XY	15XY	1	4	0.5	0.5	0.5	5/8	A307	32	6	1	Both	2	5.75	1.25	2.25	
0	0	0																			
g14P	LEG5		XY-Symmetry	15X	9X	1	4	0.5	0.5	0.5	5/8	A307	34	4	1	Both	2	5.75	1.25	2	
0	0	0																			
g14X	LEG5		X-GenXY	15S	9P	1	4	0.5	0.5	0.5	5/8	A307	34	4	1	Both	2	5.75	1.25	2	
0	0	0																			
g14XY	LEG5		XY-GenXY	15Y	9Y	1	4	0.5	0.5	0.5	5/8	A307	34	4	1	Both	2	5.75	1.25	2	
0	0	0																			
g14Y	LEG5		Y-GenXY	15XY	9XY	1	4	0.5	0.5	0.5	5/8	A307	34	4	1	Both	2	5.75	1.25	2	
0	0	0																			
g15P	XBR1		XY-Symmetry	1X	2P	2	5	0.75	0.5	0.5	5/8	A307	3	1	1	Long only	1.125	0	0.875	1.5625	
0	0	0																			
g15X	XBR1		X-GenXY	1P	2X	2	5	0.75	0.5	0.5	5/8	A307	3	1	1	Long only	1.125	0	0.875	1.5625	
0	0	0																			
g15XY	XBR1		XY-GenXY	1Y	2XY	2	5	0.75	0.5	0.5	5/8	A307	3	1	1	Long only	1.125	0	0.875	1.5625	
0	0	0																			
g15Y	XBR1		Y-GenXY	1XY	2Y	2	5	0.75	0.5	0.5	5/8	A307	3	1	1	Long only	1.125	0	0.875	1.5625	
0	0	0																			
g16P	XBR1		XY-Symmetry	1P	2Y	2	5	0.75	0.5	0.5	5/8	A307	3	1	1	Long only	1.125	0	0.875	1.5625	
0	0	0																			
g16X	XBR1		X-GenXY	1X	2XY	2	5	0.75	0.5	0.5	5/8	A307	3	1	1	Long only	1.125	0	0.875	1.5625	
0	0	0																			
g16XY	XBR1		XY-GenXY	1XY	2X	2	5	0.75	0.5	0.5	5/8	A307	3	1	1	Long only	1.125	0	0.875	1.5625	
0	0	0																			
g16Y	XBR1		Y-GenXY	1Y	2P	2	5	0.75	0.5	0.5	5/8	A307	3	1	1	Long only	1.125	0	0.875	1.5625	
0	0	0																			
g17P	XBR1		XY-Symmetry	2X	3P	2	5	0.75	0.5	0.5	5/8	A307	3	1	1	Long only	1.125	0	0.875	1.5625	
0	0	0																			
g17X	XBR1		X-GenXY	2P	3X	2	5	0.75	0.5	0.5	5/8	A307	3	1	1	Long only	1.125	0	0.875	1.5625	
0	0	0																			
g17XY	XBR1		XY-GenXY	2Y	3XY	2	5	0.75	0.5	0.5	5/8	A307	3	1	1	Long only	1.125	0	0.875	1.5625	
0	0	0																			
g17Y	XBR1		Y-GenXY	2XY	3Y	2	5	0.75	0.5	0.5	5/8	A307	3	1	1	Long only	1.125	0	0.875	1.5625	
0	0	0																			
g18P	XBR1		XY-Symmetry	2P	3Y	2	5	0.75	0.5	0.5	5/8	A307	3	1	1	Long only	1.125	0	0.875	1.5625	
0	0	0																			
g18X	XBR1		X-GenXY	2X	3XY	2	5	0.75	0.5	0.5	5/8	A307	3	1	1	Long only	1.125	0	0.875	1.5625	
0	0	0																			
g18XY	XBR1		XY-GenXY	2XY	3X	2	5	0.75	0.5	0.5	5/8	A307	3	1	1	Long only	1.125	0	0.875	1.5625	
0	0	0																			
g18Y	XBR1		Y-GenXY	2Y	3P	2	5	0.75	0.5	0.5	5/8	A307	3	1	1	Long only	1.125	0	0.875	1.5625	
0	0	0																			
g19P	XBR2		XY-Symmetry	3X	4P	2	5	0.75	0.5	0.5	5/8	A307	4	1.43	1	Long only	0.9375	1.9375	0.875	1.25	
0	0	0																			
g19X	XBR2		X-GenXY	3P	4X	2	5	0.75	0.5	0.5	5/8	A307	4	1.43	1	Long only	0.9375	1.9375	0.875	1.25	
0	0	0																			
g19XY	XBR2		XY-GenXY	3Y	4XY	2	5	0.75	0.5	0.5	5/8	A307	4	1.43	1	Long only	0.9375	1.9375	0.875	1.25	
0	0	0																			
g19Y	XBR2		Y-GenXY	3XY	4Y	2	5	0.75	0.5	0.5	5/8	A307	4	1.43	1	Long only	0.9375	1.9375	0.875	1.25	
0	0	0																			
g20P	XBR2		XY-Symmetry	3P	4Y	2	5	0.75	0.5	0.5	5/8	A307	4	1.43	1	Long only	0.9375	1.9375	0.875	1.25	
0	0	0																			
g20X	XBR2		X-GenXY	3X	4XY	2	5	0.75	0.5	0.5	5/8	A307	4	1.43	1	Long only	0.9375	1.9375	0.875	1.25	
0	0	0																			
g20XY	XBR2		XY-GenXY	3XY	4X	2	5	0.75	0.5	0.5	5/8	A307	4	1.43	1	Long only	0.9375	1.9375	0.875	1.25	
0	0	0																			

g20Y	XBR2		Y-GenXY	3Y	4P	2	5	0.75	0.5	0.5	5/8	A307	4	1.43		1	Long only	0.9375	1.9375	0.875	1.25
0		0	0																		
g21P	XBR2		XY-Symmetry	4X	5P	2	5	0.75	0.5	0.5	5/8	A307	4	1.43		1	Long only	0.9375	1.9375	0.875	1.25
0		0	0																		
g21X	XBR2		X-GenXY	4P	5X	2	5	0.75	0.5	0.5	5/8	A307	4	1.43		1	Long only	0.9375	1.9375	0.875	1.25
0		0	0																		
g21XY	XBR2		XY-GenXY	4Y	5XY	2	5	0.75	0.5	0.5	5/8	A307	4	1.43		1	Long only	0.9375	1.9375	0.875	1.25
0		0	0																		
g21Y	XBR2		Y-GenXY	4XY	5Y	2	5	0.75	0.5	0.5	5/8	A307	4	1.43		1	Long only	0.9375	1.9375	0.875	1.25
0		0	0																		
g22P	XBR2		XY-Symmetry	4P	5Y	2	5	0.75	0.5	0.5	5/8	A307	4	1.43		1	Long only	0.9375	1.9375	0.875	1.25
0		0	0																		
g22X	XBR2		X-GenXY	4X	5XY	2	5	0.75	0.5	0.5	5/8	A307	4	1.43		1	Long only	0.9375	1.9375	0.875	1.25
0		0	0																		
g22XY	XBR2		XY-GenXY	4XY	5X	2	5	0.75	0.5	0.5	5/8	A307	4	1.43		1	Long only	0.9375	1.9375	0.875	1.25
0		0	0																		
g22Y	XBR2		Y-GenXY	4Y	5P	2	5	0.75	0.5	0.5	5/8	A307	4	1.43		1	Long only	0.9375	1.9375	0.875	1.25
0		0	0																		
g23P	XBR2		XY-Symmetry	5X	6P	2	5	0.75	0.5	0.5	5/8	A307	4	1.43		1	Long only	0.9375	1.9375	0.875	1.25
0		0	0																		
g23X	XBR2		X-GenXY	5P	6X	2	5	0.75	0.5	0.5	5/8	A307	4	1.43		1	Long only	0.9375	1.9375	0.875	1.25
0		0	0																		
g23XY	XBR2		XY-GenXY	5Y	6XY	2	5	0.75	0.5	0.5	5/8	A307	4	1.43		1	Long only	0.9375	1.9375	0.875	1.25
0		0	0																		
g23Y	XBR2		Y-GenXY	5XY	6Y	2	5	0.75	0.5	0.5	5/8	A307	4	1.43		1	Long only	0.9375	1.9375	0.875	1.25
0		0	0																		
g24P	XBR2		XY-Symmetry	5P	6Y	2	5	0.75	0.5	0.5	5/8	A307	4	1.43		1	Long only	0.9375	1.9375	0.875	1.25
0		0	0																		
g24X	XBR2		X-GenXY	5X	6XY	2	5	0.75	0.5	0.5	5/8	A307	4	1.43		1	Long only	0.9375	1.9375	0.875	1.25
0		0	0																		
g24XY	XBR2		XY-GenXY	5XY	6X	2	5	0.75	0.5	0.5	5/8	A307	4	1.43		1	Long only	0.9375	1.9375	0.875	1.25
0		0	0																		
g24Y	XBR2		Y-GenXY	5Y	6P	2	5	0.75	0.5	0.5	5/8	A307	4	1.43		1	Long only	0.9375	1.9375	0.875	1.25
0		0	0																		
g25P	XBR3		XY-Symmetry	6X	7P	2	5	0.75	0.5	0.5	5/8	A307	6	1.65		1	Long only	1.875	3.5	0.875	1.25
0		0	0																		
g25X	XBR3		X-GenXY	6P	7X	2	5	0.75	0.5	0.5	5/8	A307	6	1.65		1	Long only	1.875	3.5	0.875	1.25
0		0	0																		
g25XY	XBR3		XY-GenXY	6Y	7XY	2	5	0.75	0.5	0.5	5/8	A307	6	1.65		1	Long only	1.875	3.5	0.875	1.25
0		0	0																		
g25Y	XBR3		Y-GenXY	6XY	7Y	2	5	0.75	0.5	0.5	5/8	A307	6	1.65		1	Long only	1.875	3.5	0.875	1.25
0		0	0																		
g26P	XBR3		XY-Symmetry	6P	7Y	2	5	0.75	0.5	0.5	5/8	A307	6	1.65		1	Long only	1.875	3.5	0.875	1.25
0		0	0																		
g26X	XBR3		X-GenXY	6X	7XY	2	5	0.75	0.5	0.5	5/8	A307	6	1.65		1	Long only	1.875	3.5	0.875	1.25
0		0	0																		
g26XY	XBR3		XY-GenXY	6XY	7X	2	5	0.75	0.5	0.5	5/8	A307	6	1.65		1	Long only	1.875	3.5	0.875	1.25
0		0	0																		
g26Y	XBR3		Y-GenXY	6Y	7P	2	5	0.75	0.5	0.5	5/8	A307	6	1.65		1	Long only	1.875	3.5	0.875	1.25
0		0	0																		
g27P	XBR3		XY-Symmetry	7X	8P	2	5	0.75	0.5	0.5	5/8	A307	6	1.94		1	Long only	1.5	2.625	0.875	1.875
0		0	0																		
g27X	XBR3		X-GenXY	7P	8X	2	5	0.75	0.5	0.5	5/8	A307	6	1.94		1	Long only	1.5	2.625	0.875	1.875
0		0	0																		
g27XY	XBR3		XY-GenXY	7Y	8XY	2	5	0.75	0.5	0.5	5/8	A307	6	1.94		1	Long only	1.5	2.625	0.875	1.875
0		0	0																		
g27Y	XBR3		Y-GenXY	7XY	8Y	2	5	0.75	0.5	0.5	5/8	A307	6	1.94		1	Long only	1.5	2.625	0.875	1.875
0		0	0																		
g28P	XBR3		XY-Symmetry	7P	8Y	2	5	0.75	0.5	0.5	5/8	A307	6	1.94		1	Long only	1.5	2.625	0.875	1.875

0	0	0																			
	g28X	XBR3		X-GenXY	7X	8XY	2	5	0.75	0.5	0.5	5/8	A307	6	1.94	1	Long only	1.5	2.625	0.875	1.875
0	0	0																			
	g28XY	XBR3		XY-GenXY	7XY	8X	2	5	0.75	0.5	0.5	5/8	A307	6	1.94	1	Long only	1.5	2.625	0.875	1.875
0	0	0																			
	g28Y	XBR3		Y-GenXY	7Y	8P	2	5	0.75	0.5	0.5	5/8	A307	6	1.94	1	Long only	1.5	2.625	0.875	1.875
0	0	0																			
	g29P	XBR4		XY-Symmetry	8X	10S	2	5	0.783	0.567	0.567	5/8	A307	3	1.69	1	Long only	2.375	0	2.375	3.4375
0	0	0																			
	g29X	XBR4		X-GenXY	8P	10X	2	5	0.783	0.567	0.567	5/8	A307	3	1.69	1	Long only	2.375	0	2.375	3.4375
0	0	0																			
	g29XY	XBR4		XY-GenXY	8Y	10XY	2	5	0.783	0.567	0.567	5/8	A307	3	1.69	1	Long only	2.375	0	2.375	3.4375
0	0	0																			
	g29Y	XBR4		Y-GenXY	8XY	10Y	2	5	0.783	0.567	0.567	5/8	A307	3	1.69	1	Long only	2.375	0	2.375	3.4375
0	0	0																			
	g30P	XBR4		XY-Symmetry	8P	10Y	2	5	0.783	0.567	0.567	5/8	A307	3	1.69	1	Long only	2.375	0	2.375	3.4375
0	0	0																			
	g30X	XBR4		X-GenXY	8X	10XY	2	5	0.783	0.567	0.567	5/8	A307	3	1.69	1	Long only	2.375	0	2.375	3.4375
0	0	0																			
	g30XY	XBR4		XY-GenXY	8XY	10X	2	5	0.783	0.567	0.567	5/8	A307	3	1.69	1	Long only	2.375	0	2.375	3.4375
0	0	0																			
	g30Y	XBR4		Y-GenXY	8Y	10S	2	5	0.783	0.567	0.567	5/8	A307	3	1.69	1	Long only	2.375	0	2.375	3.4375
0	0	0																			
	g31P	XBR4		XY-Symmetry	10X	11S	2	5	0.78	0.56	0.56	5/8	A307	3	1	1	Long only	2.375	0	1.375	2.9375
0	0	0																			
	g31X	XBR4		X-GenXY	10S	11X	2	5	0.78	0.56	0.56	5/8	A307	3	1	1	Long only	2.375	0	1.375	2.9375
0	0	0																			
	g31XY	XBR4		XY-GenXY	10Y	11XY	2	5	0.78	0.56	0.56	5/8	A307	3	1	1	Long only	2.375	0	1.375	2.9375
0	0	0																			
	g31Y	XBR4		Y-GenXY	10XY	11Y	2	5	0.78	0.56	0.56	5/8	A307	3	1	1	Long only	2.375	0	1.375	2.9375
0	0	0																			
	g32P	XBR4		XY-Symmetry	10S	11Y	2	5	0.78	0.56	0.56	5/8	A307	3	1	1	Long only	2.375	0	1.375	2.9375
0	0	0																			
	g32X	XBR4		X-GenXY	10X	11XY	2	5	0.78	0.56	0.56	5/8	A307	3	1	1	Long only	2.375	0	1.375	2.9375
0	0	0																			
	g32XY	XBR4		XY-GenXY	10XY	11X	2	5	0.78	0.56	0.56	5/8	A307	3	1	1	Long only	2.375	0	1.375	2.9375
0	0	0																			
	g32Y	XBR4		Y-GenXY	10Y	11S	2	5	0.78	0.56	0.56	5/8	A307	3	1	1	Long only	2.375	0	1.375	2.9375
0	0	0																			
	g33P	XBR2		XY-Symmetry	11X	12S	2	5	0.774	0.548	0.548	5/8	A307	3	1	1	Long only	1.9375	0	1.375	2.625
0	0	0																			
	g33X	XBR2		X-GenXY	11S	12X	2	5	0.774	0.548	0.548	5/8	A307	3	1	1	Long only	1.9375	0	1.375	2.625
0	0	0																			
	g33XY	XBR2		XY-GenXY	11Y	12XY	2	5	0.774	0.548	0.548	5/8	A307	3	1	1	Long only	1.9375	0	1.375	2.625
0	0	0																			
	g33Y	XBR2		Y-GenXY	11XY	12Y	2	5	0.774	0.548	0.548	5/8	A307	3	1	1	Long only	1.9375	0	1.375	2.625
0	0	0																			
	g34P	XBR2		XY-Symmetry	11S	12Y	2	5	0.774	0.548	0.548	5/8	A307	3	1	1	Long only	1.9375	0	1.375	2.625
0	0	0																			
	g34X	XBR2		X-GenXY	11X	12XY	2	5	0.774	0.548	0.548	5/8	A307	3	1	1	Long only	1.9375	0	1.375	2.625
0	0	0																			
	g34XY	XBR2		XY-GenXY	11XY	12X	2	5	0.774	0.548	0.548	5/8	A307	3	1	1	Long only	1.9375	0	1.375	2.625
0	0	0																			
	g34Y	XBR2		Y-GenXY	11Y	12S	2	5	0.774	0.548	0.548	5/8	A307	3	1	1	Long only	1.9375	0	1.375	2.625
0	0	0																			
	g35P	DIAG1		XY-Symmetry	12X	16S	3	5	1	0.5	0.5	5/8	A307	3	1	1	Short only	1.44	0	0.875	2.5
0	0	0																			
	g35X	DIAG1		X-GenXY	12S	16S	3	5	1	0.5	0.5	5/8	A307	3	1	1	Short only	1.44	0	0.875	2.5
0	0	0																			

g35XY	DIAG1		XY-GenXY	12Y	16Y	3	5	1	0.5	0.5	5/8	A307	3	1	1	Short only	1.44	0	0.875	2.5	0	0	0
g35Y	DIAG1		Y-GenXY	12XY	16Y	3	5	1	0.5	0.5	5/8	A307	3	1	1	Short only	1.44	0	0.875	2.5	0	0	0
g36P	DIAG1		XY-Symmetry	12S	17X	3	5	1	0.5	0.5	5/8	A307	3	1	1	Short only	1.44	0	0.875	2.5	0	0	0
g36X	DIAG1		X-GenXY	12X	17S	3	5	1	0.5	0.5	5/8	A307	3	1	1	Short only	1.44	0	0.875	2.5	0	0	0
g36XY	DIAG1		XY-GenXY	12XY	17S	3	5	1	0.5	0.5	5/8	A307	3	1	1	Short only	1.44	0	0.875	2.5	0	0	0
g36Y	DIAG1		Y-GenXY	12Y	17X	3	5	1	0.5	0.5	5/8	A307	3	1	1	Short only	1.44	0	0.875	2.5	0	0	0
g37P	XBR5		XY-Symmetry	13X	14S	2	5	0.586	0.793	0.586	5/8	A307	5	1.69	1	Long only	1	2.5	1.125	2.5625	0	0	0
g37X	XBR5		X-GenXY	13S	14X	2	5	0.586	0.793	0.586	5/8	A307	5	1.69	1	Long only	1	2.5	1.125	2.5625	0	0	0
g37XY	XBR5		XY-GenXY	13Y	14XY	2	5	0.586	0.793	0.586	5/8	A307	5	1.69	1	Long only	1	2.5	1.125	2.5625	0	0	0
g37Y	XBR5		Y-GenXY	13XY	14Y	2	5	0.586	0.793	0.586	5/8	A307	5	1.69	1	Long only	1	2.5	1.125	2.5625	0	0	0
g38P	XBR5		XY-Symmetry	13S	14Y	2	5	0.586	0.793	0.586	5/8	A307	5	1.69	1	Long only	1	2.5	1.125	2.5625	0	0	0
g38X	XBR5		X-GenXY	13X	14XY	2	5	0.586	0.793	0.586	5/8	A307	5	1.69	1	Long only	1	2.5	1.125	2.5625	0	0	0
g38XY	XBR5		XY-GenXY	13XY	14X	2	5	0.586	0.793	0.586	5/8	A307	5	1.69	1	Long only	1	2.5	1.125	2.5625	0	0	0
g38Y	XBR5		Y-GenXY	13Y	14S	2	5	0.586	0.793	0.586	5/8	A307	5	1.69	1	Long only	1	2.5	1.125	2.5625	0	0	0
g39P	XBR6		XY-Symmetry	14X	15S	2	5	0.563	0.781	0.563	5/8	A307	3	1	1	Long only	1.75	0	0.875	2.25	0	0	0
g39X	XBR6		X-GenXY	14S	15X	2	5	0.563	0.781	0.563	5/8	A307	3	1	1	Long only	1.75	0	0.875	2.25	0	0	0
g39XY	XBR6		XY-GenXY	14Y	15XY	2	5	0.563	0.781	0.563	5/8	A307	3	1	1	Long only	1.75	0	0.875	2.25	0	0	0
g39Y	XBR6		Y-GenXY	14XY	15Y	2	5	0.563	0.781	0.563	5/8	A307	3	1	1	Long only	1.75	0	0.875	2.25	0	0	0
g40P	XBR6		XY-Symmetry	14S	15Y	2	5	0.563	0.781	0.563	5/8	A307	3	1	1	Long only	1.75	0	0.875	2.25	0	0	0
g40X	XBR6		X-GenXY	14X	15XY	2	5	0.563	0.781	0.563	5/8	A307	3	1	1	Long only	1.75	0	0.875	2.25	0	0	0
g40XY	XBR6		XY-GenXY	14XY	15X	2	5	0.563	0.781	0.563	5/8	A307	3	1	1	Long only	1.75	0	0.875	2.25	0	0	0
g40Y	XBR6		Y-GenXY	14Y	15S	2	5	0.563	0.781	0.563	5/8	A307	3	1	1	Long only	1.75	0	0.875	2.25	0	0	0
g41P	DIAG2		XY-Symmetry	18S	9X	3	5	1	0.5	0.5	5/8	A307	2	1	1	Short only	1.75	0	0.875	3	0	0	0
g41X	DIAG2		X-GenXY	18S	9P	3	5	1	0.5	0.5	5/8	A307	2	1	1	Short only	1.75	0	0.875	3	0	0	0
g41XY	DIAG2		XY-GenXY	18Y	9Y	3	5	1	0.5	0.5	5/8	A307	2	1	1	Short only	1.75	0	0.875	3	0	0	0
g41Y	DIAG2		Y-GenXY	18Y	9XY	3	5	1	0.5	0.5	5/8	A307	2	1	1	Short only	1.75	0	0.875	3	0	0	0
g42P	DIAG2		XY-Symmetry	19X	9P	3	5	1	0.5	0.5	5/8	A307	2	1	1	Short only	1.75	0	0.875	3	0	0	0
g42X	DIAG2		X-GenXY	19S	9X	3	5	1	0.5	0.5	5/8	A307	2	1	1	Short only	1.75	0	0.875	3	0	0	0
g42XY	DIAG2		XY-GenXY	19S	9XY	3	5	1	0.5	0.5	5/8	A307	2	1	1	Short only	1.75	0	0.875	3	0	0	0
g42Y	DIAG2		Y-GenXY	19X	9Y	3	5	1	0.5	0.5	5/8	A307	2	1	1	Short only	1.75	0	0.875	3			

0	0	0																			
g43P	HORZ1		XY-Symmetry	13X	16S	3	6	1	2	1	5/8	A307	4	1.84	1	Long only	1	2.25	0.875	1.875	
0	0	0																			
g43X	HORZ1		X-GenXY	13S	16S	3	6	1	2	1	5/8	A307	4	1.84	1	Long only	1	2.25	0.875	1.875	
0	0	0																			
g43XY	HORZ1		XY-GenXY	13Y	16Y	3	6	1	2	1	5/8	A307	4	1.84	1	Long only	1	2.25	0.875	1.875	
0	0	0																			
g43Y	HORZ1		Y-GenXY	13XY	16Y	3	6	1	2	1	5/8	A307	4	1.84	1	Long only	1	2.25	0.875	1.875	
0	0	0																			
g44P	HORZ1		XY-Symmetry	13S	17X	3	6	1	2	1	5/8	A307	4	1.84	1	Long only	1	2.25	0.875	1.875	
0	0	0																			
g44X	HORZ1		X-GenXY	13X	17S	3	6	1	2	1	5/8	A307	4	1.84	1	Long only	1	2.25	0.875	1.875	
0	0	0																			
g44XY	HORZ1		XY-GenXY	13XY	17S	3	6	1	2	1	5/8	A307	4	1.84	1	Long only	1	2.25	0.875	1.875	
0	0	0																			
g44Y	HORZ1		Y-GenXY	13Y	17X	3	6	1	2	1	5/8	A307	4	1.84	1	Long only	1	2.25	0.875	1.875	
0	0	0																			
g45P	HORZ1		Y-Symmetry	14X	14S	3	5	0.5	0.5	0.5	5/8	A307	3	1	1	Long only	2.25	0	0.875	1.875	
0	0	0																			
g45Y	HORZ1		Y-Gen	14XY	14Y	3	5	0.5	0.5	0.5	5/8	A307	3	1	1	Long only	2.25	0	0.875	1.875	
0	0	0																			
g46P	HORZ1		X-Symmetry	14S	14Y	3	5	0.5	0.5	0.5	5/8	A307	3	1	1	Long only	2.25	0	0.875	1.875	
0	0	0																			
g46X	HORZ1		X-Gen	14X	14XY	3	5	0.5	0.5	0.5	5/8	A307	3	1	1	Long only	2.25	0	0.875	1.875	
0	0	0																			
g47P	HORZ1		XY-Symmetry	15X	18S	3	5	1	1	1	5/8	A307	3	1	1	Long only	2.25	0	0.875	1.875	
0	0	0																			
g47X	HORZ1		X-GenXY	15S	18S	3	5	1	1	1	5/8	A307	3	1	1	Long only	2.25	0	0.875	1.875	
0	0	0																			
g47XY	HORZ1		XY-GenXY	15Y	18Y	3	5	1	1	1	5/8	A307	3	1	1	Long only	2.25	0	0.875	1.875	
0	0	0																			
g47Y	HORZ1		Y-GenXY	15XY	18Y	3	5	1	1	1	5/8	A307	3	1	1	Long only	2.25	0	0.875	1.875	
0	0	0																			
g48P	HORZ1		XY-Symmetry	15S	19X	3	5	1	1	1	5/8	A307	3	1	1	Long only	2.25	0	0.875	1.875	
0	0	0																			
g48X	HORZ1		X-GenXY	15X	19S	3	5	1	1	1	5/8	A307	3	1	1	Long only	2.25	0	0.875	1.875	
0	0	0																			
g48XY	HORZ1		XY-GenXY	15XY	19S	3	5	1	1	1	5/8	A307	3	1	1	Long only	2.25	0	0.875	1.875	
0	0	0																			
g48Y	HORZ1		Y-GenXY	15Y	19X	3	5	1	1	1	5/8	A307	3	1	1	Long only	2.25	0	0.875	1.875	
0	0	0																			
g49P	ARM1		XY-Symmetry	20X	1X	3	5	1	0.5	0.5	5/8	A307	5	1.88	1	Long only	0.875	2.25	0.875	2	
0	0	0																			
g49X	ARM1		X-GenXY	20P	1P	3	5	1	0.5	0.5	5/8	A307	5	1.88	1	Long only	0.875	2.25	0.875	2	
0	0	0																			
g49XY	ARM1		XY-GenXY	20P	1Y	3	5	1	0.5	0.5	5/8	A307	5	1.88	1	Long only	0.875	2.25	0.875	2	
0	0	0																			
g49Y	ARM1		Y-GenXY	20X	1XY	3	5	1	0.5	0.5	5/8	A307	5	1.88	1	Long only	0.875	2.25	0.875	2	
0	0	0																			
g50P	ARM1		Y-Symmetry	1X	1P	3	6	1	1	1	5/8	A307	0	0	0		0	0	0	0	
0	0	0																			
g50Y	ARM1		Y-Gen	1XY	1Y	3	6	1	1	1	5/8	A307	0	0	0		0	0	0	0	
0	0	0																			
g51P	ARM2		XY-Symmetry	21X	3X	3	5	1	1	1	5/8	A307	3	1.3	1	Long only	1.375	2.75	2	4.25	
0	0	0																			
g51X	ARM2		X-GenXY	21P	3P	3	5	1	1	1	5/8	A307	3	1.3	1	Long only	1.375	2.75	2	4.25	
0	0	0																			
g51XY	ARM2		XY-GenXY	21P	3Y	3	5	1	1	1	5/8	A307	3	1.3	1	Long only	1.375	2.75	2	4.25	
0	0	0																			

g51Y	ARM2		Y-GenXY	21X	3XY	3	5	1	1	1	5/8	A307	3	1.3	1	Long only	1.375	2.75	2	4.25	0	0	0
g52P	ARM2		Y-Symmetry	3X	3P	3	6	1	1	1	5/8	A307	0	0	0		0	0	0	0	0	0	0
g52Y	ARM2		Y-Gen	3XY	3Y	3	6	1	1	1	5/8	A307	0	0	0		0	0	0	0	0	0	0
g53P	ARM1		XY-Symmetry	22X	6X	3	5	1	0.5	0.5	5/8	A307	5	1.83	1	Long only	0.875	2.25	1.25	2.25	0	0	0
g53X	ARM1		X-GenXY	22P	6P	3	5	1	0.5	0.5	5/8	A307	5	1.83	1	Long only	0.875	2.25	1.25	2.25	0	0	0
g53XY	ARM1		XY-GenXY	22P	6Y	3	5	1	0.5	0.5	5/8	A307	5	1.83	1	Long only	0.875	2.25	1.25	2.25	0	0	0
g53Y	ARM1		Y-GenXY	22X	6XY	3	5	1	0.5	0.5	5/8	A307	5	1.83	1	Long only	0.875	2.25	1.25	2.25	0	0	0
g54P	ARM1		Y-Symmetry	6X	6P	3	6	1	1	1	5/8	A307	0	0	0		0	0	0	0	0	0	0
g54Y	ARM1		Y-Gen	6XY	6Y	3	6	1	1	1	5/8	A307	0	0	0		0	0	0	0	0	0	0
g55P	ARM2		XY-Symmetry	23X	8X	3	5	1	1	1	5/8	A307	4	1.67	1	Long only	1.125	2.5	1.5	3.125	0	0	0
g55X	ARM2		X-GenXY	23P	8P	3	5	1	1	1	5/8	A307	4	1.67	1	Long only	1.125	2.5	1.5	3.125	0	0	0
g55XY	ARM2		XY-GenXY	23P	8Y	3	5	1	1	1	5/8	A307	4	1.67	1	Long only	1.125	2.5	1.5	3.125	0	0	0
g55Y	ARM2		Y-GenXY	23X	8XY	3	5	1	1	1	5/8	A307	4	1.67	1	Long only	1.125	2.5	1.5	3.125	0	0	0
g56P	ARM2		Y-Symmetry	8X	8P	3	6	1	1	1	5/8	A307	0	0	0		0	0	0	0	0	0	0
g56Y	ARM2		Y-Gen	8XY	8Y	3	6	1	1	1	5/8	A307	0	0	0		0	0	0	0	0	0	0
g57P	M1		X-Symmetry	20X	21X	1	4	1	1	1	5/8	A307	2	2	2	Long only	2	0	0.875	1.875	0	0	0
g57X	M1		X-Gen	20P	21P	1	4	1	1	1	5/8	A307	2	2	2	Long only	2	0	0.875	1.875	0	0	0
g58P	M2		X-Symmetry	1X	1XY	3	6	1	1	1	5/8	A307	2	1	1	Long only	1.5	0	0.875	1.625	0	0	0
g58X	M2		X-Gen	1P	1Y	3	6	1	1	1	5/8	A307	2	1	1	Long only	1.5	0	0.875	1.625	0	0	0
g59P	M2		X-Symmetry	3X	3XY	3	6	1	1	1	5/8	A307	2	1	1	Long only	1.5	0	0.875	2.25	0	0	0
g59X	M2		X-Gen	3P	3Y	3	6	1	1	1	5/8	A307	2	1	1	Long only	1.5	0	0.875	2.25	0	0	0
g60P	M2		X-Symmetry	6X	6XY	3	6	1	1	1	5/8	A307	3	1	1	Long only	1.5	0	0.875	1.625	0	0	0
g60X	M2		X-Gen	6P	6Y	3	6	1	1	1	5/8	A307	3	1	1	Long only	1.5	0	0.875	1.625	0	0	0
g61P	M3		X-Symmetry	8X	8XY	3	6	1	1	1	5/8	A307	3	1	1	Long only	1.5	0	0.875	1.875	0	0	0
g61X	M3		X-Gen	8P	8Y	3	6	1	1	1	5/8	A307	3	1	1	Long only	1.5	0	0.875	1.875	0	0	0
g62P	M4		XY-Symmetry	21X	2X	1	4	1	1	1	5/8	A307	2	1	1	Both	1	0	0.875	1.8125	0	0	0
g62X	M4		X-GenXY	21P	2P	1	4	1	1	1	5/8	A307	2	1	1	Both	1	0	0.875	1.8125	0	0	0
g62XY	M4		XY-GenXY	21P	2Y	1	4	1	1	1	5/8	A307	2	1	1	Both	1	0	0.875	1.8125	0	0	0
g62Y	M4		Y-GenXY	21X	2XY	1	4	1	1	1	5/8	A307	2	1	1	Both	1	0	0.875	1.8125	0	0	0
g63P	M4		XY-Symmetry	22X	5X	1	4	1	1	1	5/8	A307	2	1	1	Both	1	0	0.875	1.8125			

0	0	0																			
	g63X	M4		X-GenXY	22P	5P	1	4	1	1	1	5/8	A307	2	1	1	Both	1	0	0.875	1.8125
0	0	0																			
	g63XY	M4		XY-GenXY	22P	5Y	1	4	1	1	1	5/8	A307	2	1	1	Both	1	0	0.875	1.8125
0	0	0																			
	g63Y	M4		Y-GenXY	22X	5XY	1	4	1	1	1	5/8	A307	2	1	1	Both	1	0	0.875	1.8125
0	0	0																			
	g64P	M8		XY-Symmetry	23X	7X	1	4	1	1	1	5/8	A307	2	1	1	Both	0.875	0	0.875	1.9375
0	0	0																			
	g64X	M8		X-GenXY	23P	7P	1	4	1	1	1	5/8	A307	2	1	1	Both	0.875	0	0.875	1.9375
0	0	0																			
	g64XY	M8		XY-GenXY	23P	7Y	1	4	1	1	1	5/8	A307	2	1	1	Both	0.875	0	0.875	1.9375
0	0	0																			
	g64Y	M8		Y-GenXY	23X	7XY	1	4	1	1	1	5/8	A307	2	1	1	Both	0.875	0	0.875	1.9375
0	0	0																			
	g65P	M7		Y-Symmetry	2X	2P	1	4	1	1	1	5/8	A307	1	1	1	Both	1	0	0.875	0
0	0	0																			
	g65Y	M7		Y-Gen	2XY	2Y	1	4	1	1	1	5/8	A307	1	1	1	Both	1	0	0.875	0
0	0	0																			
	g66P	M7		Y-Symmetry	5X	5P	1	4	1	1	1	5/8	A307	1	1	1	Both	1	0	0.875	0
0	0	0																			
	g66Y	M7		Y-Gen	5XY	5Y	1	4	1	1	1	5/8	A307	1	1	1	Both	1	0	0.875	0
0	0	0																			
	g67P	M8		Y-Symmetry	7X	7P	1	4	1	1	1	5/8	A307	1	1	1	Both	0.875	0	0.875	0
0	0	0																			
	g67Y	M8		Y-Gen	7XY	7Y	1	4	1	1	1	5/8	A307	1	1	1	Both	0.875	0	0.875	0
0	0	0																			
	g68P	M2		XY-Symmetry	1X	24P	3	4	2	1	1	5/8	A307	2	1	1	Short only	0.875	1.75	1.25	1.6875
0	0	0																			
	g68X	M2		X-GenXY	1P	24P	3	4	2	1	1	5/8	A307	2	1	1	Short only	0.875	1.75	1.25	1.6875
0	0	0																			
	g68XY	M2		XY-GenXY	1Y	24P	3	4	2	1	1	5/8	A307	2	1	1	Short only	0.875	1.75	1.25	1.6875
0	0	0																			
	g68Y	M2		Y-GenXY	1XY	24P	3	4	2	1	1	5/8	A307	2	1	1	Short only	0.875	1.75	1.25	1.6875
0	0	0																			
	g69P	M2		XY-Symmetry	3X	25P	3	4	2	1	1	5/8	A307	2	1	1	Short only	0.875	1.75	1.375	1.625
0	0	0																			
	g69X	M2		X-GenXY	3P	25P	3	4	2	1	1	5/8	A307	2	1	1	Short only	0.875	1.75	1.375	1.625
0	0	0																			
	g69XY	M2		XY-GenXY	3Y	25P	3	4	2	1	1	5/8	A307	2	1	1	Short only	0.875	1.75	1.375	1.625
0	0	0																			
	g69Y	M2		Y-GenXY	3XY	25P	3	4	2	1	1	5/8	A307	2	1	1	Short only	0.875	1.75	1.375	1.625
0	0	0																			
	g70P	M2		XY-Symmetry	6X	26P	3	4	2	1	1	5/8	A307	2	1	1	Short only	0.875	1.75	1.125	1.5625
0	0	0																			
	g70X	M2		X-GenXY	6P	26P	3	4	2	1	1	5/8	A307	2	1	1	Short only	0.875	1.75	1.125	1.5625
0	0	0																			
	g70XY	M2		XY-GenXY	6Y	26P	3	4	2	1	1	5/8	A307	2	1	1	Short only	0.875	1.75	1.125	1.5625
0	0	0																			
	g70Y	M2		Y-GenXY	6XY	26P	3	4	2	1	1	5/8	A307	2	1	1	Short only	0.875	1.75	1.125	1.5625
0	0	0																			
	g71P	M2		XY-Symmetry	8X	27P	3	4	2	1	1	5/8	A307	2	1	1	Short only	0.875	1.75	1.25	1.5625
0	0	0																			
	g71X	M2		X-GenXY	8P	27P	3	4	2	1	1	5/8	A307	2	1	1	Short only	0.875	1.75	1.25	1.5625
0	0	0																			
	g71XY	M2		XY-GenXY	8Y	27P	3	4	2	1	1	5/8	A307	2	1	1	Short only	0.875	1.75	1.25	1.5625
0	0	0																			
	g71Y	M2		Y-GenXY	8XY	27P	3	4	2	1	1	5/8	A307	2	1	1	Short only	0.875	1.75	1.25	1.5625
0	0	0																			

g72P	M5	XY-Symmetry	13X	28P	3	4	2	1	1	5/8	A307	1	1	1	Long only	0.875	0	0.875	0	0	0	0
g72X	M5	X-GenXY	13S	28P	3	4	2	1	1	5/8	A307	1	1	1	Long only	0.875	0	0.875	0	0	0	0
g72XY	M5	XY-GenXY	13Y	28P	3	4	2	1	1	5/8	A307	1	1	1	Long only	0.875	0	0.875	0	0	0	0
g72Y	M5	Y-GenXY	13XY	28P	3	4	2	1	1	5/8	A307	1	1	1	Long only	0.875	0	0.875	0	0	0	0
g73P	M5	XY-Symmetry	14X	29P	3	4	2	1	1	5/8	A307	1	1	1	Long only	0.875	0	0.875	0	0	0	0
g73X	M5	X-GenXY	14S	29P	3	4	2	1	1	5/8	A307	1	1	1	Long only	0.875	0	0.875	0	0	0	0
g73XY	M5	XY-GenXY	14Y	29P	3	4	2	1	1	5/8	A307	1	1	1	Long only	0.875	0	0.875	0	0	0	0
g73Y	M5	Y-GenXY	14XY	29P	3	4	2	1	1	5/8	A307	1	1	1	Long only	0.875	0	0.875	0	0	0	0
g74P	M5	XY-Symmetry	15X	30P	3	4	2	1	1	5/8	A307	1	1	1	Long only	0.875	0	0.875	0	0	0	0
g74X	M5	X-GenXY	15S	30P	3	4	2	1	1	5/8	A307	1	1	1	Long only	0.875	0	0.875	0	0	0	0
g74XY	M5	XY-GenXY	15Y	30P	3	4	2	1	1	5/8	A307	1	1	1	Long only	0.875	0	0.875	0	0	0	0
g74Y	M5	Y-GenXY	15XY	30P	3	4	2	1	1	5/8	A307	1	1	1	Long only	0.875	0	0.875	0	0	0	0
g75P	Pwmnt	None	32P	31P	1	4	1	1	1			0	0	0		0	0	0	0	0	0	0
g76P	Pwmnt	None	33P	32P	1	4	1	1	1			0	0	0		0	0	0	0	0	0	0
g77P	Pwmnt	None	34P	33P	1	4	1	1	1			0	0	0		0	0	0	0	0	0	0
g78P	Pwmnt	None	35P	34P	1	4	1	1	1			0	0	0		0	0	0	0	0	0	0
g79P	Pwmnt	None	36P	35P	1	4	1	1	1			0	0	0		0	0	0	0	0	0	0
g80P	Pwmnt	None	37P	36P	1	4	1	1	1			0	0	0		0	0	0	0	0	0	0
g81P	Pwmnt	None	38P	37P	1	4	1	1	1			0	0	0		0	0	0	0	0	0	0
g82P	Pwmnt	None	39P	38P	1	4	1	1	1			0	0	0		0	0	0	0	0	0	0
g83P	PMBR5	X-Symmetry	1XY	32P	3	4	1	1	1	5/8	A325	1	1	1	Long only	0	0	0	0	0	0	0
g83X	PMBR5	X-Gen	1Y	32P	3	4	1	1	1	5/8	A325	1	1	1	Long only	0	0	0	0	0	0	0
g84P	PMBR5	X-Symmetry	3XY	33P	3	4	1	1	1	5/8	A325	1	1	1	Long only	0	0	0	0	0	0	0
g84X	PMBR5	X-Gen	3Y	33P	3	4	1	1	1	5/8	A325	1	1	1	Long only	0	0	0	0	0	0	0
g85P	PMBR1	X-Symmetry	6XY	34P	3	4	1	1	1	5/8	A325	1	1	1	Long only	0	0	0	0	0	0	0
g85X	PMBR1	X-Gen	6Y	34P	3	4	1	1	1	5/8	A325	1	1	1	Long only	0	0	0	0	0	0	0
g86P	PMBR1	X-Symmetry	8XY	35P	3	4	1	1	1	5/8	A325	1	1	1	Long only	0	0	0	0	0	0	0
g86X	PMBR1	X-Gen	8Y	35P	3	4	1	1	1	5/8	A325	1	1	1	Long only	0	0	0	0	0	0	0
g87P	Plate	None	32P	24P	3	4	1	1	1	5/8	A325	1	1	1	Long only	0	0	0	0	0	0	0
g88P	Plate	None	33P	25P	3	4	1	1	1	5/8	A325	1	1	1	Long only	0	0	0	0	0	0	0

0	0	0																			
g89P	PMBR1		None	34P	26P	3	4	1	1	1	5/8	A325	1	1	1	Long only	0	0	0	0	
0	0	0																			
g90P	PMBR1		None	35P	27P	3	4	1	1	1	5/8	A325	1	1	1	Long only	0	0	0	0	
0	0	0																			
g91P	PMBR2		X-Symmetry	13XY	36P	3	4	1	1	1	5/8	A325	1	1	1	Long only	0	0	0	0	
0	0	0																			
g91X	PMBR2		X-Gen	13Y	36P	3	4	1	1	1	5/8	A325	1	1	1	Long only	0	0	0	0	
0	0	0																			
g92P	PMBR1		None	36P	28P	3	4	1	1	1	5/8	A325	1	1	1	Long only	0	0	0	0	
0	0	0																			
g93P	PMBR3		X-Symmetry	14XY	37P	3	4	1	1	1	5/8	A325	1	1	1	Long only	0	0	0	0	
0	0	0																			
g93X	PMBR3		X-Gen	14Y	37P	3	4	1	1	1	5/8	A325	1	1	1	Long only	0	0	0	0	
0	0	0																			
g94P	PMBR4		X-Symmetry	15XY	38P	3	4	1	1	1	5/8	A325	1	1	1	Long only	0	0	0	0	
0	0	0																			
g94X	PMBR4		X-Gen	15Y	38P	3	4	1	1	1	5/8	A325	1	1	1	Long only	0	0	0	0	
0	0	0																			
g95P	HORZ3		None	18S	30P	3	4	1	1	1	5/8	A307	1	1	1	Short only	1.5	0	0.875	0	
0	0	0																			
g96P	HORZ3		None	38P	30P	3	4	1	1	1	5/8	A307	1	1	1	Short only	1.5	0	0.875	0	
0	0	0																			
g97P	HORZ3		None	38P	18Y	3	4	1	1	1	5/8	A307	1	1	1	Short only	1.5	0	0.875	0	
0	0	0																			
g98P	HORZ2		None	37P	29P	3	4	1	1	1	5/8	A307	1	1	1	Short only	1.25	5	0.875	0	
0	0	0																			

Member Capacities and Overrides:

Member Label	Group Label	Design Control	Comp. Capacity	Design Control	Tension Capacity	L/r Criterion	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. Capacity (kips)	Override Comp. Capacity (kips)	Override Unsup. (kips)	Override Warnings or Errors
g1P	LEG1	53.509	L/r	64.020	Net Sect	75	5.00	53.509	0.000	0.000	64.020	0.000	0.000	0.000	0.000	0.000	0.000	Automatic
g1X	LEG1	53.509	L/r	64.020	Net Sect	75	5.00	53.509	0.000	0.000	64.020	0.000	0.000	0.000	0.000	0.000	0.000	Automatic
g1XY	LEG1	53.509	L/r	64.020	Net Sect	75	5.00	53.509	0.000	0.000	64.020	0.000	0.000	0.000	0.000	0.000	0.000	Automatic
g1Y	LEG1	53.509	L/r	64.020	Net Sect	75	5.00	53.509	0.000	0.000	64.020	0.000	0.000	0.000	0.000	0.000	0.000	Automatic
g2P	LEG1	36.840	Shear	36.840	Shear	75	5.00	53.509	36.840	84.375	52.676	93.750	0.000	0.000	0.000	0.000	0.000	Automatic
g2X	LEG1	36.840	Shear	36.840	Shear	75	5.00	53.509	36.840	84.375	52.676	93.750	0.000	0.000	0.000	0.000	0.000	Automatic
g2XY	LEG1	36.840	Shear	36.840	Shear	75	5.00	53.509	36.840	84.375	52.676	93.750	0.000	0.000	0.000	0.000	0.000	Automatic

g2Y	LEG1	36.840	Shear	36.840	Shear	75	5.00	53.509	36.840	84.375	52.676	93.750	0.000	0.000	0.000	0.000
0.000		Automatic														
g3P	LEG2	111.058	L/r	85.099	Net Sect	48	4.00	111.058	0.000	0.000	85.099	0.000	0.000	0.000	0.000	0.000
0.000		Automatic														
g3X	LEG2	111.058	L/r	85.099	Net Sect	48	4.00	111.058	0.000	0.000	85.099	0.000	0.000	0.000	0.000	0.000
0.000		Automatic														
g3XY	LEG2	111.058	L/r	85.099	Net Sect	48	4.00	111.058	0.000	0.000	85.099	0.000	0.000	0.000	0.000	0.000
0.000		Automatic														
g3Y	LEG2	111.058	L/r	85.099	Net Sect	48	4.00	111.058	0.000	0.000	85.099	0.000	0.000	0.000	0.000	0.000
0.000		Automatic														
g4P	LEG2	111.058	L/r	85.099	Net Sect	48	4.00	111.058	0.000	0.000	85.099	0.000	0.000	0.000	0.000	0.000
0.000		Automatic														
g4X	LEG2	111.058	L/r	85.099	Net Sect	48	4.00	111.058	0.000	0.000	85.099	0.000	0.000	0.000	0.000	0.000
0.000		Automatic														
g4XY	LEG2	111.058	L/r	85.099	Net Sect	48	4.00	111.058	0.000	0.000	85.099	0.000	0.000	0.000	0.000	0.000
0.000		Automatic														
g4Y	LEG2	111.058	L/r	85.099	Net Sect	48	4.00	111.058	0.000	0.000	85.099	0.000	0.000	0.000	0.000	0.000
0.000		Automatic														
g5P	**LEG2**	**85.960**	**Shear**	**85.099**	**Net Sect**	**48**	**4.00**	**111.058**	**85.960**	**295.312**	**85.099**	**328.124**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g5P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**													
g5X	**LEG2**	**85.960**	**Shear**	**85.099**	**Net Sect**	**48**	**4.00**	**111.058**	**85.960**	**295.312**	**85.099**	**328.124**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g5X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**													
g5XY	**LEG2**	**85.960**	**Shear**	**85.099**	**Net Sect**	**48**	**4.00**	**111.058**	**85.960**	**295.312**	**85.099**	**328.124**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g5XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**													
g5Y	**LEG2**	**85.960**	**Shear**	**85.099**	**Net Sect**	**48**	**4.00**	**111.058**	**85.960**	**295.312**	**85.099**	**328.124**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g5Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**													
g6P	LEG3	175.609	L/r	144.375	Net Sect	51	5.00	175.609	0.000	0.000	144.375	0.000	0.000	0.000	0.000	0.000
0.000		Automatic														
g6X	LEG3	175.609	L/r	144.375	Net Sect	51	5.00	175.609	0.000	0.000	144.375	0.000	0.000	0.000	0.000	0.000
0.000		Automatic														
g6XY	LEG3	175.609	L/r	144.375	Net Sect	51	5.00	175.609	0.000	0.000	144.375	0.000	0.000	0.000	0.000	0.000
0.000		Automatic														
g6Y	LEG3	175.609	L/r	144.375	Net Sect	51	5.00	175.609	0.000	0.000	144.375	0.000	0.000	0.000	0.000	0.000
0.000		Automatic														
g7P	**LEG3**	**159.640**	**Shear**	**148.799**	**Net Sect**	**51**	**5.00**	**175.609**	**159.640**	**731.249**	**148.799**	**812.499**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g7P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**													
g7X	**LEG3**	**159.640**	**Shear**	**148.799**	**Net Sect**	**51**	**5.00**	**175.609**	**159.640**	**731.249**	**148.799**	**812.499**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g7X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**													
g7XY	**LEG3**	**159.640**	**Shear**	**148.799**	**Net Sect**	**51**	**5.00**	**175.609**	**159.640**	**731.249**	**148.799**	**812.499**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g7XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**													
g7Y	**LEG3**	**159.640**	**Shear**	**148.799**	**Net Sect**	**51**	**5.00**	**175.609**	**159.640**	**731.249**	**148.799**	**812.499**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g7Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**													
g8P	LEG4	234.345	L/r	210.375	Net Sect	54	7.14	234.345	0.000	0.000	210.375	0.000	0.000	0.000	0.000	0.000
0.000		Automatic														
g8X	LEG4	234.345	L/r	210.375	Net Sect	54	7.14	234.345	0.000	0.000	210.375	0.000	0.000	0.000	0.000	0.000
0.000		Automatic														
g8XY	LEG4	234.345	L/r	210.375	Net Sect	54	7.14	234.345	0.000	0.000	210.375	0.000	0.000	0.000	0.000	0.000
0.000		Automatic														
g8Y	LEG4	234.345	L/r	210.375	Net Sect	54	7.14	234.345	0.000	0.000	210.375	0.000	0.000	0.000	0.000	0.000
0.000		Automatic														
g9P	LEG4	234.345	L/r	233.062	Net Sect	54	7.14	234.345	0.000	0.000	233.062	0.000	0.000	0.000	0.000	0.000

0.000		Automatic															
g9X	LEG4	234.345	L/r	233.062	Net Sect	54	7.14	234.345	0.000	0.000	233.062	0.000	0.000	0.000	0.000	0.000	
0.000		Automatic															
g9XY	LEG4	234.345	L/r	233.062	Net Sect	54	7.14	234.345	0.000	0.000	233.062	0.000	0.000	0.000	0.000	0.000	
0.000		Automatic															
g9Y	LEG4	234.345	L/r	233.062	Net Sect	54	7.14	234.345	0.000	0.000	233.062	0.000	0.000	0.000	0.000	0.000	
0.000		Automatic															
g10P	LEG4	234.345	L/r	233.062	Net Sect	54	7.14	234.345	0.000	0.000	233.062	0.000	0.000	0.000	0.000	0.000	
0.000		Automatic															
g10X	LEG4	234.345	L/r	233.062	Net Sect	54	7.14	234.345	0.000	0.000	233.062	0.000	0.000	0.000	0.000	0.000	
0.000		Automatic															
g10XY	LEG4	234.345	L/r	233.062	Net Sect	54	7.14	234.345	0.000	0.000	233.062	0.000	0.000	0.000	0.000	0.000	
0.000		Automatic															
g10Y	LEG4	234.345	L/r	233.062	Net Sect	54	7.14	234.345	0.000	0.000	233.062	0.000	0.000	0.000	0.000	0.000	
0.000		Automatic															
g11P	**LEG4**	**184.200**	**Shear**	**184.200**	**Shear**	**62**	**8.16**	**227.792**	**184.200**	**843.749**	**213.211**	**937.499**	**0.000**	**0.000**	**0.000**	**0.000**	
0.000		**Automatic**	**Member "g11P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**														
g11X	**LEG4**	**184.200**	**Shear**	**184.200**	**Shear**	**62**	**8.16**	**227.792**	**184.200**	**843.749**	**213.211**	**937.499**	**0.000**	**0.000**	**0.000**	**0.000**	
0.000		**Automatic**	**Member "g11X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**														
g11XY	**LEG4**	**184.200**	**Shear**	**184.200**	**Shear**	**62**	**8.16**	**227.792**	**184.200**	**843.749**	**213.211**	**937.499**	**0.000**	**0.000**	**0.000**	**0.000**	
0.000		**Automatic**	**Member "g11XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**														
g11Y	**LEG4**	**184.200**	**Shear**	**184.200**	**Shear**	**62**	**8.16**	**227.792**	**184.200**	**843.749**	**213.211**	**937.499**	**0.000**	**0.000**	**0.000**	**0.000**	
0.000		**Automatic**	**Member "g11Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**														
g12P	**LEG5**	**196.480**	**Shear**	**196.480**	**Shear**	**77**	**20.40**	**262.274**	**196.480**	**1124.998**	**263.956**	**1249.998**	**0.000**	**0.000**	**0.000**	**0.000**	
0.000		**Automatic**	**Member "g12P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**														
g12X	**LEG5**	**196.480**	**Shear**	**196.480**	**Shear**	**77**	**20.40**	**262.274**	**196.480**	**1124.998**	**263.956**	**1249.998**	**0.000**	**0.000**	**0.000**	**0.000**	
0.000		**Automatic**	**Member "g12X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**														
g12XY	**LEG5**	**196.480**	**Shear**	**196.480**	**Shear**	**77**	**20.40**	**262.274**	**196.480**	**1124.998**	**263.956**	**1249.998**	**0.000**	**0.000**	**0.000**	**0.000**	
0.000		**Automatic**	**Member "g12XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**														
g12Y	**LEG5**	**196.480**	**Shear**	**196.480**	**Shear**	**77**	**20.40**	**262.274**	**196.480**	**1124.998**	**263.956**	**1249.998**	**0.000**	**0.000**	**0.000**	**0.000**	
0.000		**Automatic**	**Member "g12Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**														
g13P	**LEG5**	**196.480**	**Shear**	**196.480**	**Shear**	**77**	**20.40**	**262.274**	**196.480**	**1124.998**	**232.052**	**1249.998**	**0.000**	**0.000**	**0.000**	**0.000**	
0.000		**Automatic**	**Member "g13P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**														
g13X	**LEG5**	**196.480**	**Shear**	**196.480**	**Shear**	**77**	**20.40**	**262.274**	**196.480**	**1124.998**	**232.052**	**1249.998**	**0.000**	**0.000**	**0.000**	**0.000**	
0.000		**Automatic**	**Member "g13X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**														
g13XY	**LEG5**	**196.480**	**Shear**	**196.480**	**Shear**	**77**	**20.40**	**262.274**	**196.480**	**1124.998**	**232.052**	**1249.998**	**0.000**	**0.000**	**0.000**	**0.000**	
0.000		**Automatic**	**Member "g13XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**														
g13Y	**LEG5**	**196.480**	**Shear**	**196.480**	**Shear**	**77**	**20.40**	**262.274**	**196.480**	**1124.998**	**232.052**	**1249.998**	**0.000**	**0.000**	**0.000**	**0.000**	
0.000		**Automatic**	**Member "g13Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**														
g14P	**LEG5**	**208.760**	**Shear**	**208.760**	**Shear**	**74**	**19.38**	**267.622**	**208.760**	**1195.311**	**260.411**	**1328.123**	**0.000**	**0.000**	**0.000**	**0.000**	
0.000		**Automatic**	**Member "g14P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**														
g14X	**LEG5**	**208.760**	**Shear**	**208.760**	**Shear**	**74**	**19.38**	**267.622**	**208.760**	**1195.311**	**260.411**	**1328.123**	**0.000**	**0.000**	**0.000**	**0.000**	
0.000		**Automatic**	**Member "g14X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**														
g14XY	**LEG5**	**208.760**	**Shear**	**208.760**	**Shear**	**74**	**19.38**	**267.622**	**208.760**	**1195.311**	**260.411**	**1328.123**	**0.000**	**0.000**	**0.000**	**0.000**	

0.000 Automatic Member "g14XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

g14Y LEG5 208.760 Shear 208.760 Shear 74 19.38 267.622 208.760 1195.311 260.411 1328.123 0.000 0.000 0.000 0.000

0.000 Automatic Member "g14Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

g15P	XBR1	18.420	Shear	18.420	Shear	72	7.07	37.913	18.420	42.187	37.663	26.977	0.000	0.000	0.000	0.000
0.000	Automatic															
g15X	XBR1	18.420	Shear	18.420	Shear	72	7.07	37.913	18.420	42.187	37.663	26.977	0.000	0.000	0.000	0.000
0.000	Automatic															
g15XY	XBR1	18.420	Shear	18.420	Shear	72	7.07	37.913	18.420	42.187	37.663	26.977	0.000	0.000	0.000	0.000
0.000	Automatic															
g15Y	XBR1	18.420	Shear	18.420	Shear	72	7.07	37.913	18.420	42.187	37.663	26.977	0.000	0.000	0.000	0.000
0.000	Automatic															
g16P	XBR1	18.420	Shear	18.420	Shear	72	7.07	37.913	18.420	42.187	37.663	26.977	0.000	0.000	0.000	0.000
0.000	Automatic															
g16X	XBR1	18.420	Shear	18.420	Shear	72	7.07	37.913	18.420	42.187	37.663	26.977	0.000	0.000	0.000	0.000
0.000	Automatic															
g16XY	XBR1	18.420	Shear	18.420	Shear	72	7.07	37.913	18.420	42.187	37.663	26.977	0.000	0.000	0.000	0.000
0.000	Automatic															
g16Y	XBR1	18.420	Shear	18.420	Shear	72	7.07	37.913	18.420	42.187	37.663	26.977	0.000	0.000	0.000	0.000
0.000	Automatic															
g17P	XBR1	18.420	Shear	18.420	Shear	72	7.07	37.913	18.420	42.187	37.663	26.977	0.000	0.000	0.000	0.000
0.000	Automatic															
g17X	XBR1	18.420	Shear	18.420	Shear	72	7.07	37.913	18.420	42.187	37.663	26.977	0.000	0.000	0.000	0.000
0.000	Automatic															
g17XY	XBR1	18.420	Shear	18.420	Shear	72	7.07	37.913	18.420	42.187	37.663	26.977	0.000	0.000	0.000	0.000
0.000	Automatic															
g17Y	XBR1	18.420	Shear	18.420	Shear	72	7.07	37.913	18.420	42.187	37.663	26.977	0.000	0.000	0.000	0.000
0.000	Automatic															
g18P	XBR1	18.420	Shear	18.420	Shear	72	7.07	37.913	18.420	42.187	37.663	26.977	0.000	0.000	0.000	0.000
0.000	Automatic															
g18X	XBR1	18.420	Shear	18.420	Shear	72	7.07	37.913	18.420	42.187	37.663	26.977	0.000	0.000	0.000	0.000
0.000	Automatic															
g18XY	XBR1	18.420	Shear	18.420	Shear	72	7.07	37.913	18.420	42.187	37.663	26.977	0.000	0.000	0.000	0.000
0.000	Automatic															
g18Y	XBR1	18.420	Shear	18.420	Shear	72	7.07	37.913	18.420	42.187	37.663	26.977	0.000	0.000	0.000	0.000
0.000	Automatic															
g19P	**XBR2**	**24.560**	**Shear**	**24.560**	**Shear**	**55**	**6.40**	**47.548**	**24.560**	**56.250**	**42.893**	**43.750**	**0.000**	**0.000**	**0.000**	**0.000**

0.000 Automatic Member "g19P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

g19X	**XBR2**	**24.560**	**Shear**	**24.560**	**Shear**	**55**	**6.40**	**47.548**	**24.560**	**56.250**	**42.893**	**43.750**	**0.000**	**0.000**	**0.000**	**0.000**

0.000 Automatic Member "g19X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

g19XY	**XBR2**	**24.560**	**Shear**	**24.560**	**Shear**	**55**	**6.40**	**47.548**	**24.560**	**56.250**	**42.893**	**43.750**	**0.000**	**0.000**	**0.000**	**0.000**

0.000 Automatic Member "g19XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

g19Y	**XBR2**	**24.560**	**Shear**	**24.560**	**Shear**	**55**	**6.40**	**47.548**	**24.560**	**56.250**	**42.893**	**43.750**	**0.000**	**0.000**	**0.000**	**0.000**

0.000 Automatic Member "g19Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

g20P	**XBR2**	**24.560**	**Shear**	**24.560**	**Shear**	**55**	**6.40**	**47.548**	**24.560**	**56.250**	**42.893**	**43.750**	**0.000**	**0.000**	**0.000**	**0.000**

0.000 Automatic Member "g20P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

g20X	**XBR2**	**24.560**	**Shear**	**24.560**	**Shear**	**55**	**6.40**	**47.548**	**24.560**	**56.250**	**42.893**	**43.750**	**0.000**	**0.000**	**0.000**	**0.000**

0.000 Automatic Member "g20X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

g20XY	**XBR2**	**24.560**	**Shear**	**24.560**	**Shear**	**55**	**6.40**	**47.548**	**24.560**	**56.250**	**42.893**	**43.750**	**0.000**	**0.000**	**0.000**	**0.000**

0.000 Automatic Member "g20XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

g20Y	XBR2	24.560	Shear	24.560	Shear	55	6.40	47.548	24.560	56.250	42.893	43.750	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g20Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g21P	XBR2	24.560	Shear	24.560	Shear	55	6.40	47.548	24.560	56.250	42.893	43.750	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g21P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g21X	XBR2	24.560	Shear	24.560	Shear	55	6.40	47.548	24.560	56.250	42.893	43.750	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g21X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g21XY	XBR2	24.560	Shear	24.560	Shear	55	6.40	47.548	24.560	56.250	42.893	43.750	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g21XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g21Y	XBR2	24.560	Shear	24.560	Shear	55	6.40	47.548	24.560	56.250	42.893	43.750	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g21Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g22P	XBR2	24.560	Shear	24.560	Shear	55	6.40	47.548	24.560	56.250	42.893	43.750	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g22P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g22X	XBR2	24.560	Shear	24.560	Shear	55	6.40	47.548	24.560	56.250	42.893	43.750	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g22X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g22XY	XBR2	24.560	Shear	24.560	Shear	55	6.40	47.548	24.560	56.250	42.893	43.750	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g22XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g22Y	XBR2	24.560	Shear	24.560	Shear	55	6.40	47.548	24.560	56.250	42.893	43.750	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g22Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g23P	XBR2	24.560	Shear	24.560	Shear	55	6.40	47.548	24.560	56.250	42.893	43.750	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g23P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g23X	XBR2	24.560	Shear	24.560	Shear	55	6.40	47.548	24.560	56.250	42.893	43.750	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g23X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g23XY	XBR2	24.560	Shear	24.560	Shear	55	6.40	47.548	24.560	56.250	42.893	43.750	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g23XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g23Y	XBR2	24.560	Shear	24.560	Shear	55	6.40	47.548	24.560	56.250	42.893	43.750	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g23Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g24P	XBR2	24.560	Shear	24.560	Shear	55	6.40	47.548	24.560	56.250	42.893	43.750	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g24P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g24X	XBR2	24.560	Shear	24.560	Shear	55	6.40	47.548	24.560	56.250	42.893	43.750	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g24X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g24XY	XBR2	24.560	Shear	24.560	Shear	55	6.40	47.548	24.560	56.250	42.893	43.750	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g24XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g24Y	XBR2	24.560	Shear	24.560	Shear	55	6.40	47.548	24.560	56.250	42.893	43.750	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g24Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g25P	XBR3	36.840	Shear	36.840	Shear	43	7.07	88.907	36.840	105.469	79.462	82.031	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g25P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g25X	XBR3	36.840	Shear	36.840	Shear	43	7.07	88.907	36.840	105.469	79.462	82.031	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g25X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g25XY	XBR3	36.840	Shear	36.840	Shear	43	7.07	88.907	36.840	105.469	79.462	82.031	0.000	0.000	0.000	0.000

0.000 Automatic Member "g25XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

g25Y	XBR3	36.840	Shear	36.840	Shear	43	7.07	88.907	36.840	105.469	79.462	82.031	0.000	0.000	0.000	0.000

0.000 Automatic Member "g25Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

g26P	XBR3	36.840	Shear	36.840	Shear	43	7.07	88.907	36.840	105.469	79.462	82.031	0.000	0.000	0.000	0.000

0.000 Automatic Member "g26P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

g26X	XBR3	36.840	Shear	36.840	Shear	43	7.07	88.907	36.840	105.469	79.462	82.031	0.000	0.000	0.000	0.000

0.000 Automatic Member "g26X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

g26XY	XBR3	36.840	Shear	36.840	Shear	43	7.07	88.907	36.840	105.469	79.462	82.031	0.000	0.000	0.000	0.000

0.000 Automatic Member "g26XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

g26Y	XBR3	36.840	Shear	36.840	Shear	43	7.07	88.907	36.840	105.469	79.462	82.031	0.000	0.000	0.000	0.000

0.000 Automatic Member "g26Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

g27P	XBR3	36.840	Shear	36.840	Shear	43	7.07	88.907	36.840	105.469	77.612	82.031	0.000	0.000	0.000	0.000

0.000 Automatic Member "g27P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

g27X	XBR3	36.840	Shear	36.840	Shear	43	7.07	88.907	36.840	105.469	77.612	82.031	0.000	0.000	0.000	0.000

0.000 Automatic Member "g27X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

g27XY	XBR3	36.840	Shear	36.840	Shear	43	7.07	88.907	36.840	105.469	77.612	82.031	0.000	0.000	0.000	0.000

0.000 Automatic Member "g27XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

g27Y	XBR3	36.840	Shear	36.840	Shear	43	7.07	88.907	36.840	105.469	77.612	82.031	0.000	0.000	0.000	0.000

0.000 Automatic Member "g27Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

g28P	XBR3	36.840	Shear	36.840	Shear	43	7.07	88.907	36.840	105.469	77.612	82.031	0.000	0.000	0.000	0.000

0.000 Automatic Member "g28P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

g28X	XBR3	36.840	Shear	36.840	Shear	43	7.07	88.907	36.840	105.469	77.612	82.031	0.000	0.000	0.000	0.000

0.000 Automatic Member "g28X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

g28XY	XBR3	36.840	Shear	36.840	Shear	43	7.07	88.907	36.840	105.469	77.612	82.031	0.000	0.000	0.000	0.000

0.000 Automatic Member "g28XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

g28Y	XBR3	36.840	Shear	36.840	Shear	43	7.07	88.907	36.840	105.469	77.612	82.031	0.000	0.000	0.000	0.000

0.000 Automatic Member "g28Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

g29P	XBR4	18.420	Shear	18.420	Shear	79	9.27	49.239	18.420	42.187	48.991	84.539	0.000	0.000	0.000	0.000

0.000 Automatic

g29X	XBR4	18.420	Shear	18.420	Shear	79	9.27	49.239	18.420	42.187	48.991	84.539	0.000	0.000	0.000	0.000

0.000 Automatic

g29XY	XBR4	18.420	Shear	18.420	Shear	79	9.27	49.239	18.420	42.187	48.991	84.539	0.000	0.000	0.000	0.000

0.000 Automatic

g29Y	XBR4	18.420	Shear	18.420	Shear	79	9.27	49.239	18.420	42.187	48.991	84.539	0.000	0.000	0.000	0.000

0.000 Automatic

g30P	XBR4	18.420	Shear	18.420	Shear	79	9.27	49.239	18.420	42.187	48.991	84.539	0.000	0.000	0.000	0.000

0.000 Automatic

g30X	XBR4	18.420	Shear	18.420	Shear	79	9.27	49.239	18.420	42.187	48.991	84.539	0.000	0.000	0.000	0.000

0.000 Automatic

g30XY	XBR4	18.420	Shear	18.420	Shear	79	9.27	49.239	18.420	42.187	48.991	84.539	0.000	0.000	0.000	0.000

0.000 Automatic

g30Y	XBR4	18.420	Shear	18.420	Shear	79	9.27	49.239	18.420	42.187	48.991	84.539	0.000	0.000	0.000	0.000

0.000 Automatic

g31P	XBR4	18.420	Shear	18.420	Shear	90	10.66	46.440	18.420	42.187	52.513	51.562	0.000	0.000	0.000	0.000

0.000		Automatic														
g31X	XBR4	18.420	Shear	18.420	Shear	90	10.66	46.440	18.420	42.187	52.513	51.562	0.000	0.000	0.000	0.000
0.000		Automatic														
g31XY	XBR4	18.420	Shear	18.420	Shear	90	10.66	46.440	18.420	42.187	52.513	51.562	0.000	0.000	0.000	0.000
0.000		Automatic														
g31Y	XBR4	18.420	Shear	18.420	Shear	90	10.66	46.440	18.420	42.187	52.513	51.562	0.000	0.000	0.000	0.000
0.000		Automatic														
g32P	XBR4	18.420	Shear	18.420	Shear	90	10.66	46.440	18.420	42.187	52.513	51.562	0.000	0.000	0.000	0.000
0.000		Automatic														
g32X	XBR4	18.420	Shear	18.420	Shear	90	10.66	46.440	18.420	42.187	52.513	51.562	0.000	0.000	0.000	0.000
0.000		Automatic														
g32XY	XBR4	18.420	Shear	18.420	Shear	90	10.66	46.440	18.420	42.187	52.513	51.562	0.000	0.000	0.000	0.000
0.000		Automatic														
g32Y	XBR4	18.420	Shear	18.420	Shear	90	10.66	46.440	18.420	42.187	52.513	51.562	0.000	0.000	0.000	0.000
0.000		Automatic														
g33P	XBR2	18.420	Shear	18.420	Shear	116	12.22	33.813	18.420	42.187	45.088	51.562	0.000	0.000	0.000	0.000
0.000		Automatic														
g33X	XBR2	18.420	Shear	18.420	Shear	116	12.22	33.813	18.420	42.187	45.088	51.562	0.000	0.000	0.000	0.000
0.000		Automatic														
g33XY	XBR2	18.420	Shear	18.420	Shear	116	12.22	33.813	18.420	42.187	45.088	51.562	0.000	0.000	0.000	0.000
0.000		Automatic														
g33Y	XBR2	18.420	Shear	18.420	Shear	116	12.22	33.813	18.420	42.187	45.088	51.562	0.000	0.000	0.000	0.000
0.000		Automatic														
g34P	XBR2	18.420	Shear	18.420	Shear	116	12.22	33.813	18.420	42.187	45.088	51.562	0.000	0.000	0.000	0.000
0.000		Automatic														
g34X	XBR2	18.420	Shear	18.420	Shear	116	12.22	33.813	18.420	42.187	45.088	51.562	0.000	0.000	0.000	0.000
0.000		Automatic														
g34XY	XBR2	18.420	Shear	18.420	Shear	116	12.22	33.813	18.420	42.187	45.088	51.562	0.000	0.000	0.000	0.000
0.000		Automatic														
g34Y	XBR2	18.420	Shear	18.420	Shear	116	12.22	33.813	18.420	42.187	45.088	51.562	0.000	0.000	0.000	0.000
0.000		Automatic														
g35P	DIAG1	18.420	Shear	18.420	Shear	92	9.76	37.785	18.420	42.187	37.663	32.812	0.000	0.000	0.000	0.000
0.000		Automatic														
g35X	DIAG1	18.420	Shear	18.420	Shear	92	9.76	37.785	18.420	42.187	37.663	32.812	0.000	0.000	0.000	0.000
0.000		Automatic														
g35XY	DIAG1	18.420	Shear	18.420	Shear	92	9.76	37.785	18.420	42.187	37.663	32.812	0.000	0.000	0.000	0.000
0.000		Automatic														
g35Y	DIAG1	18.420	Shear	18.420	Shear	92	9.76	37.785	18.420	42.187	37.663	32.812	0.000	0.000	0.000	0.000
0.000		Automatic														
g36P	DIAG1	18.420	Shear	18.420	Shear	92	9.76	37.785	18.420	42.187	37.663	32.812	0.000	0.000	0.000	0.000
0.000		Automatic														
g36X	DIAG1	18.420	Shear	18.420	Shear	92	9.76	37.785	18.420	42.187	37.663	32.812	0.000	0.000	0.000	0.000
0.000		Automatic														
g36XY	DIAG1	18.420	Shear	18.420	Shear	92	9.76	37.785	18.420	42.187	37.663	32.812	0.000	0.000	0.000	0.000
0.000		Automatic														
g36Y	DIAG1	18.420	Shear	18.420	Shear	92	9.76	37.785	18.420	42.187	37.663	32.812	0.000	0.000	0.000	0.000
0.000		Automatic														
g37P	**XBR5**	**10.178**	**L/r**	**30.700**	**Shear**	**281**	**25.82**	**10.178**	**30.700**	**87.890**	**51.289**	**87.890**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g37P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**													
g37X	**XBR5**	**10.178**	**L/r**	**30.700**	**Shear**	**281**	**25.82**	**10.178**	**30.700**	**87.890**	**51.289**	**87.890**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g37X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**													
g37XY	**XBR5**	**10.178**	**L/r**	**30.700**	**Shear**	**281**	**25.82**	**10.178**	**30.700**	**87.890**	**51.289**	**87.890**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g37XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**													
g37Y	**XBR5**	**10.178**	**L/r**	**30.700**	**Shear**	**281**	**25.82**	**10.178**	**30.700**	**87.890**	**51.289**	**87.890**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g37Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**													

g38P	XBR5	10.178	L/r	30.700	Shear	281	25.82	10.178	30.700	87.890	51.289	87.890	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g38P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g38X	XBR5	10.178	L/r	30.700	Shear	281	25.82	10.178	30.700	87.890	51.289	87.890	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g38X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g38XY	XBR5	10.178	L/r	30.700	Shear	281	25.82	10.178	30.700	87.890	51.289	87.890	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g38XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g38Y	XBR5	10.178	L/r	30.700	Shear	281	25.82	10.178	30.700	87.890	51.289	87.890	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g38Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g39P	XBR6	4.099	L/r	18.420	Shear	379	29.69	4.099	18.420	42.187	37.663	32.812	0.000	0.000	0.000	0.000
0.000	Automatic															
g39X	XBR6	4.099	L/r	18.420	Shear	379	29.69	4.099	18.420	42.187	37.663	32.812	0.000	0.000	0.000	0.000
0.000	Automatic															
g39XY	XBR6	4.099	L/r	18.420	Shear	379	29.69	4.099	18.420	42.187	37.663	32.812	0.000	0.000	0.000	0.000
0.000	Automatic															
g39Y	XBR6	4.099	L/r	18.420	Shear	379	29.69	4.099	18.420	42.187	37.663	32.812	0.000	0.000	0.000	0.000
0.000	Automatic															
g40P	XBR6	4.099	L/r	18.420	Shear	379	29.69	4.099	18.420	42.187	37.663	32.812	0.000	0.000	0.000	0.000
0.000	Automatic															
g40X	XBR6	4.099	L/r	18.420	Shear	379	29.69	4.099	18.420	42.187	37.663	32.812	0.000	0.000	0.000	0.000
0.000	Automatic															
g40XY	XBR6	4.099	L/r	18.420	Shear	379	29.69	4.099	18.420	42.187	37.663	32.812	0.000	0.000	0.000	0.000
0.000	Automatic															
g40Y	XBR6	4.099	L/r	18.420	Shear	379	29.69	4.099	18.420	42.187	37.663	32.812	0.000	0.000	0.000	0.000
0.000	Automatic															
g41P	DIAG2	12.280	Shear	12.280	Shear	191	24.36	24.206	12.280	35.156	55.729	27.344	0.000	0.000	0.000	0.000
0.000	Automatic															
g41X	DIAG2	12.280	Shear	12.280	Shear	191	24.36	24.206	12.280	35.156	55.729	27.344	0.000	0.000	0.000	0.000
0.000	Automatic															
g41XY	DIAG2	12.280	Shear	12.280	Shear	191	24.36	24.206	12.280	35.156	55.729	27.344	0.000	0.000	0.000	0.000
0.000	Automatic															
g41Y	DIAG2	12.280	Shear	12.280	Shear	191	24.36	24.206	12.280	35.156	55.729	27.344	0.000	0.000	0.000	0.000
0.000	Automatic															
g42P	DIAG2	12.280	Shear	12.280	Shear	191	24.36	24.206	12.280	35.156	55.729	27.344	0.000	0.000	0.000	0.000
0.000	Automatic															
g42X	DIAG2	12.280	Shear	12.280	Shear	191	24.36	24.206	12.280	35.156	55.729	27.344	0.000	0.000	0.000	0.000
0.000	Automatic															
g42XY	DIAG2	12.280	Shear	12.280	Shear	191	24.36	24.206	12.280	35.156	55.729	27.344	0.000	0.000	0.000	0.000
0.000	Automatic															
g42Y	DIAG2	12.280	Shear	12.280	Shear	191	24.36	24.206	12.280	35.156	55.729	27.344	0.000	0.000	0.000	0.000
0.000	Automatic															
g43P	HORZ1	24.560	Shear	24.560	Shear	127	6.62	35.481	24.560	56.250	48.225	43.750	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g43P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g43X	HORZ1	24.560	Shear	24.560	Shear	127	6.62	35.481	24.560	56.250	48.225	43.750	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g43X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g43XY	HORZ1	24.560	Shear	24.560	Shear	127	6.62	35.481	24.560	56.250	48.225	43.750	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g43XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g43Y	HORZ1	24.560	Shear	24.560	Shear	127	6.62	35.481	24.560	56.250	48.225	43.750	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g43Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g44P	HORZ1	24.560	Shear	24.560	Shear	127	6.62	35.481	24.560	56.250	48.225	43.750	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g44P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than														

zero); however, end, edge and spacing distances will be checked. ??
g44X HORZ1 24.560 Shear 24.560 Shear 127 6.62 35.481 24.560 56.250 48.225 43.750 0.000 0.000 0.000 0.000
0.000 Automatic Member "g44X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
g44XY HORZ1 24.560 Shear 24.560 Shear 127 6.62 35.481 24.560 56.250 48.225 43.750 0.000 0.000 0.000 0.000
0.000 Automatic Member "g44XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
g44Y HORZ1 24.560 Shear 24.560 Shear 127 6.62 35.481 24.560 56.250 48.225 43.750 0.000 0.000 0.000 0.000
0.000 Automatic Member "g44Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
g45P HORZ1 18.420 Shear 18.420 Shear 143 18.92 29.408 18.420 42.187 52.513 32.812 0.000 0.000 0.000 0.000
0.000 Automatic
g45Y HORZ1 18.420 Shear 18.420 Shear 143 18.92 29.408 18.420 42.187 52.513 32.812 0.000 0.000 0.000 0.000
0.000 Automatic
g46P HORZ1 18.420 Shear 18.420 Shear 143 18.92 29.408 18.420 42.187 52.513 32.812 0.000 0.000 0.000 0.000
0.000 Automatic
g46X HORZ1 18.420 Shear 18.420 Shear 143 18.92 29.408 18.420 42.187 52.513 32.812 0.000 0.000 0.000 0.000
0.000 Automatic
g47P HORZ1 18.420 Shear 18.420 Shear 186 12.30 19.194 18.420 42.187 52.513 32.812 0.000 0.000 0.000 0.000
0.000 Automatic
g47X HORZ1 18.420 Shear 18.420 Shear 186 12.30 19.194 18.420 42.187 52.513 32.812 0.000 0.000 0.000 0.000
0.000 Automatic
g47XY HORZ1 18.420 Shear 18.420 Shear 186 12.30 19.194 18.420 42.187 52.513 32.812 0.000 0.000 0.000 0.000
0.000 Automatic
g47Y HORZ1 18.420 Shear 18.420 Shear 186 12.30 19.194 18.420 42.187 52.513 32.812 0.000 0.000 0.000 0.000
0.000 Automatic
g48P HORZ1 18.420 Shear 18.420 Shear 186 12.30 19.194 18.420 42.187 52.513 32.812 0.000 0.000 0.000 0.000
0.000 Automatic
g48X HORZ1 18.420 Shear 18.420 Shear 186 12.30 19.194 18.420 42.187 52.513 32.812 0.000 0.000 0.000 0.000
0.000 Automatic
g48XY HORZ1 18.420 Shear 18.420 Shear 186 12.30 19.194 18.420 42.187 52.513 32.812 0.000 0.000 0.000 0.000
0.000 Automatic
g48Y HORZ1 18.420 Shear 18.420 Shear 186 12.30 19.194 18.420 42.187 52.513 32.812 0.000 0.000 0.000 0.000
0.000 Automatic
g49P ARM1 30.700 Shear 30.700 Shear 90 11.52 57.564 30.700 87.890 64.036 68.359 0.000 0.000 0.000 0.000
0.000 Automatic Member "g49P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
g49X ARM1 30.700 Shear 30.700 Shear 90 11.52 57.564 30.700 87.890 64.036 68.359 0.000 0.000 0.000 0.000
0.000 Automatic Member "g49X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
g49XY ARM1 30.700 Shear 30.700 Shear 90 11.52 57.564 30.700 87.890 64.036 68.359 0.000 0.000 0.000 0.000
0.000 Automatic Member "g49XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
g49Y ARM1 30.700 Shear 30.700 Shear 90 11.52 57.564 30.700 87.890 64.036 68.359 0.000 0.000 0.000 0.000
0.000 Automatic Member "g49Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
g50P ARM1 60.534 L/r 84.480 Net Sect 78 5.00 60.534 0.000 0.000 84.480 0.000 0.000 0.000 0.000 0.000
0.000 Automatic
g50Y ARM1 60.534 L/r 84.480 Net Sect 78 5.00 60.534 0.000 0.000 84.480 0.000 0.000 0.000 0.000 0.000
0.000 Automatic
g51P ARM2 18.420 Shear 18.420 Shear 116 7.67 38.378 18.420 42.187 50.982 60.662 0.000 0.000 0.000 0.000
0.000 Automatic Member "g51P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
g51X ARM2 18.420 Shear 18.420 Shear 116 7.67 38.378 18.420 42.187 50.982 60.662 0.000 0.000 0.000 0.000
0.000 Automatic Member "g51X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than
zero); however, end, edge and spacing distances will be checked. ??
g51XY ARM2 18.420 Shear 18.420 Shear 116 7.67 38.378 18.420 42.187 50.982 60.662 0.000 0.000 0.000 0.000
0.000 Automatic Member "g51XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than

zero); however, end, edge and spacing distances will be checked. ??

g51Y	**ARM2**	**18.420**	**Shear**	**18.420**	**Shear**	**116**	**7.67**	**38.378**	**18.420**	**42.187**	**50.982**	**60.662**	**0.000**	**0.000**	**0.000**	**0.000**

0.000 Automatic Member "g51Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

g52P	ARM2	46.393	L/r	64.020	Net Sect	75	5.00	46.393	0.000	0.000	64.020	0.000	0.000	0.000	0.000	0.000

0.000 Automatic

g52Y	ARM2	46.393	L/r	64.020	Net Sect	75	5.00	46.393	0.000	0.000	64.020	0.000	0.000	0.000	0.000	0.000

0.000 Automatic

g53P	**ARM1**	**30.700**	**Shear**	**30.700**	**Shear**	**94**	**12.01**	**56.576**	**30.700**	**87.890**	**64.355**	**80.423**	**0.000**	**0.000**	**0.000**	**0.000**

0.000 Automatic Member "g53P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

g53X	**ARM1**	**30.700**	**Shear**	**30.700**	**Shear**	**94**	**12.01**	**56.576**	**30.700**	**87.890**	**64.355**	**80.423**	**0.000**	**0.000**	**0.000**	**0.000**

0.000 Automatic Member "g53X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

g53XY	**ARM1**	**30.700**	**Shear**	**30.700**	**Shear**	**94**	**12.01**	**56.576**	**30.700**	**87.890**	**64.355**	**80.423**	**0.000**	**0.000**	**0.000**	**0.000**

0.000 Automatic Member "g53XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

g53Y	**ARM1**	**30.700**	**Shear**	**30.700**	**Shear**	**94**	**12.01**	**56.576**	**30.700**	**87.890**	**64.355**	**80.423**	**0.000**	**0.000**	**0.000**	**0.000**

0.000 Automatic Member "g53Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

g54P	ARM1	60.534	L/r	84.480	Net Sect	78	5.00	60.534	0.000	0.000	84.480	0.000	0.000	0.000	0.000	0.000

0.000 Automatic

g54Y	ARM1	60.534	L/r	84.480	Net Sect	78	5.00	60.534	0.000	0.000	84.480	0.000	0.000	0.000	0.000	0.000

0.000 Automatic

g55P	**ARM2**	**24.560**	**Shear**	**24.560**	**Shear**	**123**	**8.14**	**36.436**	**24.560**	**56.250**	**49.093**	**66.176**	**0.000**	**0.000**	**0.000**	**0.000**

0.000 Automatic Member "g55P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

g55X	**ARM2**	**24.560**	**Shear**	**24.560**	**Shear**	**123**	**8.14**	**36.436**	**24.560**	**56.250**	**49.093**	**66.176**	**0.000**	**0.000**	**0.000**	**0.000**

0.000 Automatic Member "g55X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

g55XY	**ARM2**	**24.560**	**Shear**	**24.560**	**Shear**	**123**	**8.14**	**36.436**	**24.560**	**56.250**	**49.093**	**66.176**	**0.000**	**0.000**	**0.000**	**0.000**

0.000 Automatic Member "g55XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

g55Y	**ARM2**	**24.560**	**Shear**	**24.560**	**Shear**	**123**	**8.14**	**36.436**	**24.560**	**56.250**	**49.093**	**66.176**	**0.000**	**0.000**	**0.000**	**0.000**

0.000 Automatic Member "g55Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??

g56P	ARM2	46.393	L/r	64.020	Net Sect	75	5.00	46.393	0.000	0.000	64.020	0.000	0.000	0.000	0.000	0.000

0.000 Automatic

g56Y	ARM2	46.393	L/r	64.020	Net Sect	75	5.00	46.393	0.000	0.000	64.020	0.000	0.000	0.000	0.000	0.000

0.000 Automatic

g57P	M1	24.560	Shear	24.560	Shear	119	10.77	66.338	24.560	56.250	90.176	43.750	0.000	0.000	0.000	0.000

0.000 Automatic

g57X	M1	24.560	Shear	24.560	Shear	119	10.77	66.338	24.560	56.250	90.176	43.750	0.000	0.000	0.000	0.000

0.000 Automatic

g58P	M2	12.280	Shear	12.280	Shear	101	5.00	23.348	12.280	21.094	28.544	16.406	0.000	0.000	0.000	0.000

0.000 Automatic

g58X	M2	12.280	Shear	12.280	Shear	101	5.00	23.348	12.280	21.094	28.544	16.406	0.000	0.000	0.000	0.000

0.000 Automatic

g59P	M2	12.280	Shear	12.280	Shear	101	5.00	23.348	12.280	21.094	28.544	16.406	0.000	0.000	0.000	0.000

0.000 Automatic

g59X	M2	12.280	Shear	12.280	Shear	101	5.00	23.348	12.280	21.094	28.544	16.406	0.000	0.000	0.000	0.000

0.000 Automatic

g60P	M2	18.420	Shear	18.420	Shear	101	5.00	23.348	18.420	31.641	28.544	23.396	0.000	0.000	0.000	0.000

0.000 Automatic

g60X	M2	18.420	Shear	18.420	Shear	101	5.00	23.348	18.420	31.641	28.544	23.396	0.000	0.000	0.000	0.000

0.000 Automatic

g61P	M3	18.420	Shear	18.420	Shear	101	5.00	30.742	18.420	42.187	37.663	32.812	0.000	0.000	0.000	0.000

0.000 Automatic

g61X	M3	18.420	Shear	18.420	Shear	101	5.00	30.742	18.420	42.187	37.663	32.812	0.000	0.000	0.000	0.000
0.000		Automatic														
g62P	M4	8.070	L/r	8.121	Net Sect	110	9.15	8.070	12.280	21.094	8.121	16.406	0.000	0.000	0.000	0.000
0.000		Automatic														
g62X	M4	8.070	L/r	8.121	Net Sect	110	9.15	8.070	12.280	21.094	8.121	16.406	0.000	0.000	0.000	0.000
0.000		Automatic														
g62XY	M4	8.070	L/r	8.121	Net Sect	110	9.15	8.070	12.280	21.094	8.121	16.406	0.000	0.000	0.000	0.000
0.000		Automatic														
g62Y	M4	8.070	L/r	8.121	Net Sect	110	9.15	8.070	12.280	21.094	8.121	16.406	0.000	0.000	0.000	0.000
0.000		Automatic														
g63P	M4	4.649	L/r	8.121	Net Sect	152	12.66	4.649	12.280	21.094	8.121	16.406	0.000	0.000	0.000	0.000
0.000		Automatic														
g63X	M4	4.649	L/r	8.121	Net Sect	152	12.66	4.649	12.280	21.094	8.121	16.406	0.000	0.000	0.000	0.000
0.000		Automatic														
g63XY	M4	4.649	L/r	8.121	Net Sect	152	12.66	4.649	12.280	21.094	8.121	16.406	0.000	0.000	0.000	0.000
0.000		Automatic														
g63Y	M4	4.649	L/r	8.121	Net Sect	152	12.66	4.649	12.280	21.094	8.121	16.406	0.000	0.000	0.000	0.000
0.000		Automatic														
g64P	M8	2.095	L/r	6.636	Net Sect	212	9.56	2.095	12.280	21.094	6.636	16.406	0.000	0.000	0.000	0.000
0.000		Automatic														
g64X	M8	2.095	L/r	6.636	Net Sect	212	9.56	2.095	12.280	21.094	6.636	16.406	0.000	0.000	0.000	0.000
0.000		Automatic														
g64XY	M8	2.095	L/r	6.636	Net Sect	212	9.56	2.095	12.280	21.094	6.636	16.406	0.000	0.000	0.000	0.000
0.000		Automatic														
g64Y	M8	2.095	L/r	6.636	Net Sect	212	9.56	2.095	12.280	21.094	6.636	16.406	0.000	0.000	0.000	0.000
0.000		Automatic														
g65P	M7	6.140	Shear	6.140	Shear	60	5.00	11.091	6.140	10.547	8.121	8.203	0.000	0.000	0.000	0.000
0.000		Automatic														
g65Y	M7	6.140	Shear	6.140	Shear	60	5.00	11.091	6.140	10.547	8.121	8.203	0.000	0.000	0.000	0.000
0.000		Automatic														
g66P	M7	6.140	Shear	6.140	Shear	60	5.00	11.091	6.140	10.547	8.121	8.203	0.000	0.000	0.000	0.000
0.000		Automatic														
g66Y	M7	6.140	Shear	6.140	Shear	60	5.00	11.091	6.140	10.547	8.121	8.203	0.000	0.000	0.000	0.000
0.000		Automatic														
g67P	M8	6.140	Shear	6.140	Shear	111	5.00	7.015	6.140	10.547	6.636	8.203	0.000	0.000	0.000	0.000
0.000		Automatic														
g67Y	M8	6.140	Shear	6.140	Shear	111	5.00	7.015	6.140	10.547	6.636	8.203	0.000	0.000	0.000	0.000
0.000		Automatic														
g68P	**M2**	**12.280**	**Shear**	**12.280**	**Shear**	**90**	**3.54**	**24.499**	**12.280**	**21.094**	**28.544**	**19.301**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g68P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**													
g68X	**M2**	**12.280**	**Shear**	**12.280**	**Shear**	**90**	**3.54**	**24.499**	**12.280**	**21.094**	**28.544**	**19.301**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g68X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**													
g68XY	**M2**	**12.280**	**Shear**	**12.280**	**Shear**	**90**	**3.54**	**24.499**	**12.280**	**21.094**	**28.544**	**19.301**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g68XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**													
g68Y	**M2**	**12.280**	**Shear**	**12.280**	**Shear**	**90**	**3.54**	**24.499**	**12.280**	**21.094**	**28.544**	**19.301**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g68Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**													
g69P	**M2**	**12.280**	**Shear**	**12.280**	**Shear**	**90**	**3.54**	**24.499**	**12.280**	**21.094**	**28.544**	**19.301**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g69P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**													
g69X	**M2**	**12.280**	**Shear**	**12.280**	**Shear**	**90**	**3.54**	**24.499**	**12.280**	**21.094**	**28.544**	**19.301**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g69X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**													
g69XY	**M2**	**12.280**	**Shear**	**12.280**	**Shear**	**90**	**3.54**	**24.499**	**12.280**	**21.094**	**28.544**	**19.301**	**0.000**	**0.000**	**0.000**	**0.000**
0.000		**Automatic**	**Member "g69XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??**													

g69Y	M2	12.280	Shear	12.280	Shear	90	3.54	24.499	12.280	21.094	28.544	19.301	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g69Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g70P	M2	12.280	Shear	12.280	Shear	90	3.54	24.499	12.280	21.094	28.544	19.301	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g70P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g70X	M2	12.280	Shear	12.280	Shear	90	3.54	24.499	12.280	21.094	28.544	19.301	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g70X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g70XY	M2	12.280	Shear	12.280	Shear	90	3.54	24.499	12.280	21.094	28.544	19.301	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g70XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g70Y	M2	12.280	Shear	12.280	Shear	90	3.54	24.499	12.280	21.094	28.544	19.301	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g70Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g71P	M2	12.280	Shear	12.280	Shear	90	3.54	24.499	12.280	21.094	28.544	19.301	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g71P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g71X	M2	12.280	Shear	12.280	Shear	90	3.54	24.499	12.280	21.094	28.544	19.301	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g71X" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g71XY	M2	12.280	Shear	12.280	Shear	90	3.54	24.499	12.280	21.094	28.544	19.301	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g71XY" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g71Y	M2	12.280	Shear	12.280	Shear	90	3.54	24.499	12.280	21.094	28.544	19.301	0.000	0.000	0.000	0.000
0.000	Automatic	Member "g71Y" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than zero); however, end, edge and spacing distances will be checked. ??														
g72P	M5	1.014	L/r	6.140	Shear	418	9.36	1.014	6.140	10.547	14.585	6.873	0.000	0.000	0.000	0.000
0.000	Automatic															
g72X	M5	1.014	L/r	6.140	Shear	418	9.36	1.014	6.140	10.547	14.585	6.873	0.000	0.000	0.000	0.000
0.000	Automatic															
g72XY	M5	1.014	L/r	6.140	Shear	418	9.36	1.014	6.140	10.547	14.585	6.873	0.000	0.000	0.000	0.000
0.000	Automatic															
g72Y	M5	1.014	L/r	6.140	Shear	418	9.36	1.014	6.140	10.547	14.585	6.873	0.000	0.000	0.000	0.000
0.000	Automatic															
g73P	M5	0.496	L/r	6.140	Shear	598	13.38	0.496	6.140	10.547	14.585	6.873	0.000	0.000	0.000	0.000
0.000	Automatic															
g73X	M5	0.496	L/r	6.140	Shear	598	13.38	0.496	6.140	10.547	14.585	6.873	0.000	0.000	0.000	0.000
0.000	Automatic															
g73XY	M5	0.496	L/r	6.140	Shear	598	13.38	0.496	6.140	10.547	14.585	6.873	0.000	0.000	0.000	0.000
0.000	Automatic															
g73Y	M5	0.496	L/r	6.140	Shear	598	13.38	0.496	6.140	10.547	14.585	6.873	0.000	0.000	0.000	0.000
0.000	Automatic															
g74P	M5	0.294	L/r	6.140	Shear	777	17.40	0.294	6.140	10.547	14.585	6.873	0.000	0.000	0.000	0.000
0.000	Automatic															
g74X	M5	0.294	L/r	6.140	Shear	777	17.40	0.294	6.140	10.547	14.585	6.873	0.000	0.000	0.000	0.000
0.000	Automatic															
g74XY	M5	0.294	L/r	6.140	Shear	777	17.40	0.294	6.140	10.547	14.585	6.873	0.000	0.000	0.000	0.000
0.000	Automatic															
g74Y	M5	0.294	L/r	6.140	Shear	777	17.40	0.294	6.140	10.547	14.585	6.873	0.000	0.000	0.000	0.000
0.000	Automatic															
g75P	Pwmnt	630.072	L/r	679.999	Net Sect	41	15.00	630.072	0.000	0.000	679.999	0.000	0.000	0.000	0.000	0.000
0.000	Automatic															
g76P	Pwmnt	657.809	L/r	679.999	Net Sect	27	10.00	657.809	0.000	0.000	679.999	0.000	0.000	0.000	0.000	0.000
0.000	Automatic															
g77P	Pwmnt	648.046	L/r	679.999	Net Sect	33	12.00	648.046	0.000	0.000	679.999	0.000	0.000	0.000	0.000	0.000
0.000	Automatic															
g78P	Pwmnt	657.809	L/r	679.999	Net Sect	27	10.00	657.809	0.000	0.000	679.999	0.000	0.000	0.000	0.000	0.000

0.000	Automatic																
g79P	Pwmnt	493.382	L/r	679.999	Net Sect	79	29.00	493.382	0.000	0.000	679.999	0.000	0.000	0.000	0.000	0.000	
0.000	Automatic																
g80P	Pwmnt	591.240	L/r	679.999	Net Sect	55	20.00	591.240	0.000	0.000	679.999	0.000	0.000	0.000	0.000	0.000	
0.000	Automatic																
g81P	Pwmnt	591.240	L/r	679.999	Net Sect	55	20.00	591.240	0.000	0.000	679.999	0.000	0.000	0.000	0.000	0.000	
0.000	Automatic																
g82P	Pwmnt	599.894	L/r	679.999	Net Sect	52	19.00	599.894	0.000	0.000	679.999	0.000	0.000	0.000	0.000	0.000	
0.000	Automatic																
g83P	PMBR5	13.594	Bearing	13.594	Bearing	66	2.69	31.213	16.800	13.594	32.987	15.104	0.000	0.000	0.000	0.000	
0.000	Automatic																
g83X	PMBR5	13.594	Bearing	13.594	Bearing	66	2.69	31.213	16.800	13.594	32.987	15.104	0.000	0.000	0.000	0.000	
0.000	Automatic																
g84P	PMBR5	13.594	Bearing	13.594	Bearing	66	2.69	31.213	16.800	13.594	32.987	15.104	0.000	0.000	0.000	0.000	
0.000	Automatic																
g84X	PMBR5	13.594	Bearing	13.594	Bearing	66	2.69	31.213	16.800	13.594	32.987	15.104	0.000	0.000	0.000	0.000	
0.000	Automatic																
g85P	PMBR1	10.195	Bearing	10.195	Bearing	82	2.69	17.361	16.800	10.195	18.827	10.343	0.000	0.000	0.000	0.000	
0.000	Automatic																
g85X	PMBR1	10.195	Bearing	10.195	Bearing	82	2.69	17.361	16.800	10.195	18.827	10.343	0.000	0.000	0.000	0.000	
0.000	Automatic																
g86P	PMBR1	10.195	Bearing	10.195	Bearing	82	2.69	17.361	16.800	10.195	18.827	10.343	0.000	0.000	0.000	0.000	
0.000	Automatic																
g86X	PMBR1	10.195	Bearing	10.195	Bearing	82	2.69	17.361	16.800	10.195	18.827	10.343	0.000	0.000	0.000	0.000	
0.000	Automatic																
g87P	**Plate**	**16.800**	**Shear**	**16.800**	**Shear**	**83**	**1.50**	**109.447**	**16.800**	**40.781**	**129.094**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	
0.000	**Automatic**												**Unable to calculate rupture capacity for**				
member "g87P" because it has a long and short edge distance of 0. ??																	
g88P	**Plate**	**16.800**	**Shear**	**16.800**	**Shear**	**83**	**1.50**	**109.447**	**16.800**	**40.781**	**129.094**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	
0.000	**Automatic**												**Unable to calculate rupture capacity for**				
member "g88P" because it has a long and short edge distance of 0. ??																	
g89P	PMBR1	10.195	Bearing	10.195	Bearing	46	1.50	20.044	16.800	10.195	18.827	10.343	0.000	0.000	0.000	0.000	
0.000	Automatic																
g90P	PMBR1	10.195	Bearing	10.195	Bearing	46	1.50	20.044	16.800	10.195	18.827	10.343	0.000	0.000	0.000	0.000	
0.000	Automatic																
g91P	PMBR2	10.195	Bearing	10.195	Bearing	168	8.37	10.990	16.800	10.195	31.139	11.328	0.000	0.000	0.000	0.000	
0.000	Automatic																
g91X	PMBR2	10.195	Bearing	10.195	Bearing	168	8.37	10.990	16.800	10.195	31.139	11.328	0.000	0.000	0.000	0.000	
0.000	Automatic																
g92P	PMBR1	10.195	Bearing	10.195	Bearing	46	1.50	20.044	16.800	10.195	18.827	10.343	0.000	0.000	0.000	0.000	
0.000	Automatic																
g93P	PMBR3	13.594	Bearing	13.594	Bearing	187	12.36	15.943	16.800	13.594	57.287	15.104	0.000	0.000	0.000	0.000	
0.000	Automatic																
g93X	PMBR3	13.594	Bearing	13.594	Bearing	187	12.36	15.943	16.800	13.594	57.287	15.104	0.000	0.000	0.000	0.000	
0.000	Automatic																
g94P	PMBR4	16.800	Shear	16.800	Shear	198	16.37	26.243	16.800	20.391	108.611	22.656	0.000	0.000	0.000	0.000	
0.000	Automatic																
g94X	PMBR4	16.800	Shear	16.800	Shear	198	16.37	26.243	16.800	20.391	108.611	22.656	0.000	0.000	0.000	0.000	
0.000	Automatic																
g95P	**HORZ3**	**6.140**	**Shear**	**6.140**	**Shear**	**227**	**12.30**	**9.408**	**6.140**	**14.062**	**37.663**	**10.937**	**0.000**	**0.000**	**0.000**	**0.000**	
0.000	**Automatic**																
KL/R value of 226.75 exceeds maximum of 200.00 for member "g95P" ??																	
g96P	HORZ3	6.140	Shear	6.140	Shear	28	1.50	47.009	6.140	14.062	37.663	10.937	0.000	0.000	0.000	0.000	
0.000	Automatic																
g97P	HORZ3	6.140	Shear	6.140	Shear	199	10.80	12.202	6.140	14.062	37.663	10.937	0.000	0.000	0.000	0.000	
0.000	Automatic																
g98P	**HORZ2**	**6.140**	**Shear**	**6.140**	**Shear**	**34**	**1.50**	**35.833**	**6.140**	**14.062**	**30.090**	**10.937**	**0.000**	**0.000**	**0.000**	**0.000**	
0.000	**Automatic**	**Member "g98P" will not be checked for block shear since more than one gage line exists (long edge distance (g) greater than**															
zero); however, end, edge and spacing distances will be checked. ??																	

The model contains 299 angle members.

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

Joint Label	Dead Load (kips)	X-Drag Area (ft^2)	Y-Drag Area (ft^2)
1P	0.139	6.040	3.801
2P	0.111	5.835	5.150
3P	0.171	7.047	6.047
4P	0.123	4.701	4.701
5P	0.135	6.152	5.094
6P	0.273	9.917	7.574
7P	0.252	8.567	7.937
8P	0.339	11.273	10.190
9P	0.529	15.438	15.438
20P	0.163	6.258	2.500
21P	0.125	5.455	3.223
22P	0.121	6.965	1.828
23P	0.0644	3.928	1.649
24P	0.0377	1.250	1.625
25P	0.0377	1.250	1.625
26P	0.0281	1.250	1.375
27P	0.0281	1.250	1.375
28P	0.0415	1.931	2.056
29P	0.0601	2.759	2.947
30P	0.114	3.588	5.888
31P	0.372	7.969	7.969
32P	0.643	13.802	13.865
33P	0.568	12.208	12.271
34P	0.554	12.104	11.979
35P	0.976	21.135	21.010
36P	1.25	27.686	27.436
37P	1.08	24.403	24.091
38P	1.2	25.844	27.269
39P	0.471	10.094	10.094
1X	0.139	6.040	3.801
1XY	0.144	6.301	3.905
1Y	0.144	6.301	3.905
2X	0.111	5.835	5.150
2XY	0.111	5.835	5.150
2Y	0.111	5.835	5.150
3X	0.171	7.047	6.047
3XY	0.176	7.307	6.151
3Y	0.176	7.307	6.151
4X	0.123	4.701	4.701
4XY	0.123	4.701	4.701
4Y	0.123	4.701	4.701
5X	0.135	6.152	5.094
5XY	0.135	6.152	5.094
5Y	0.135	6.152	5.094
6X	0.273	9.917	7.574
6XY	0.277	10.126	7.657
6Y	0.277	10.126	7.657
7X	0.252	8.567	7.937
7XY	0.252	8.567	7.937
7Y	0.252	8.567	7.937

8X	0.339	11.273	10.190
8XY	0.343	11.482	10.273
8Y	0.343	11.482	10.273
9X	0.529	15.438	15.438
9XY	0.529	15.438	15.438
9Y	0.529	15.438	15.438
20X	0.163	6.258	2.500
21X	0.125	5.455	3.223
22X	0.121	6.965	1.828
23X	0.0644	3.928	1.649
10S	0.32	10.376	10.376
11S	0.33	10.469	10.469
12S	0.329	10.821	10.821
13S	0.681	18.657	18.657
14S	1.14	32.210	32.210
15S	0.896	23.334	23.334
16S	0.1	5.439	2.693
17S	0.1	2.693	5.439
18S	0.329	14.187	10.046
19S	0.293	7.996	14.187
10X	0.32	10.376	10.376
10XY	0.32	10.376	10.376
10Y	0.32	10.376	10.376
11X	0.33	10.469	10.469
11XY	0.33	10.469	10.469
11Y	0.33	10.469	10.469
12X	0.329	10.821	10.821
12XY	0.329	10.821	10.821
12Y	0.329	10.821	10.821
13X	0.681	18.657	18.657
13XY	0.696	19.484	19.297
13Y	0.696	19.484	19.297
14X	1.14	32.210	32.210
14XY	1.18	33.787	33.537
14Y	1.18	33.787	33.537
15X	0.896	23.334	23.334
15XY	0.996	25.897	25.584
15Y	0.996	25.897	25.584
16Y	0.1	5.439	2.693
17X	0.1	2.693	5.439
18Y	0.324	14.187	9.796
19X	0.293	7.996	14.187
Total	33.5	1009.527	952.135

Unadjusted Dead Load and Drag Areas by Section:

Section Label	Unfactored Dead Load (kips)	X-Drag Area All (ft^2)	Y-Drag Area All (ft^2)	X-Drag Area Face (ft^2)	Y-Drag Area Face (ft^2)
1	16.188	538.129	474.411	262.849	223.224
2	17.269	471.398	477.723	211.173	211.173
Total	33.457	1009.527	952.135	474.022	434.397

Angle Member Weights and Surface Areas by Section:

Section Label	Unfactored Weight (kips)	Factored Weight (kips)	Unfactored Surface Area (ft^2)	Factored Surface Area (ft^2)

1	16.188	16.997	2257.310	2370.175
2	17.269	18.133	2014.955	2115.703
Total	33.457	35.130	4272.265	4485.878

Section Joint Information:

Section Label	Joint Label	Joint Elevation (ft)
1	1X	120.000
1	2X	115.000
1	1P	120.000
1	2P	115.000
1	1Y	120.000
1	2Y	115.000
1	1XY	120.000
1	2XY	115.000
1	3X	110.000
1	3P	110.000
1	3Y	110.000
1	3XY	110.000
1	4X	106.000
1	4P	106.000
1	4Y	106.000
1	4XY	106.000
1	5X	102.000
1	5P	102.000
1	5Y	102.000
1	5XY	102.000
1	6X	98.000
1	6P	98.000
1	6Y	98.000
1	6XY	98.000
1	7X	93.000
1	7P	93.000
1	7Y	93.000
1	7XY	93.000
1	8X	88.000
1	8P	88.000
1	8Y	88.000
1	8XY	88.000
1	10X	81.000
1	10S	81.000
1	10Y	81.000
1	10XY	81.000
1	11X	74.000
1	11S	74.000
1	11Y	74.000
1	11XY	74.000
1	12X	67.000
1	12S	67.000
1	12Y	67.000
1	12XY	67.000
1	13X	59.000
1	13S	59.000
1	13Y	59.000
1	13XY	59.000

1	16S	59.000
1	16Y	59.000
1	17X	59.000
1	17S	59.000
1	20X	120.000
1	20P	120.000
1	21X	110.000
1	21P	110.000
1	22X	98.000
1	22P	98.000
1	23X	88.000
1	23P	88.000
1	24P	120.000
1	25P	110.000
1	26P	98.000
1	27P	88.000
1	28P	59.000
1	32P	120.000
1	31P	135.000
1	33P	110.000
1	34P	98.000
1	35P	88.000
1	36P	59.000
2	13X	59.000
2	14X	39.000
2	13S	59.000
2	14S	39.000
2	13Y	59.000
2	14Y	39.000
2	13XY	59.000
2	14XY	39.000
2	15X	19.000
2	15S	19.000
2	15Y	19.000
2	15XY	19.000
2	9X	0.000
2	9P	0.000
2	9Y	0.000
2	9XY	0.000
2	18S	19.000
2	18Y	19.000
2	19X	19.000
2	19S	19.000
2	29P	39.000
2	30P	19.000
2	37P	39.000
2	36P	59.000
2	38P	19.000
2	39P	0.000

Sections Information:

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

*** Insulator Data

Clamp Properties:

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

Clamp Insulator Connectivity:

Clamp Label	Structure And Tip Attach	Property Set	Min. Required Vertical Load (uplift) (lbs)
CLAMP1	20P	C-EX1	No Limit
CLAMP2	20X	C-EX1	No Limit
CLAMP3	21P	C-EX1	No Limit
CLAMP4	21X	C-EX1	No Limit
CLAMP5	22P	C-EX1	No Limit
CLAMP6	22X	C-EX1	No Limit
CLAMP7	23P	C-EX1	No Limit
CLAMP8	23X	C-EX1	No Limit
CLAMP9	1P	C-EX1	No Limit
CLAMP10	1X	C-EX1	No Limit
CLAMP11	3P	C-EX1	No Limit
CLAMP12	3X	C-EX1	No Limit
CLAMP13	6P	C-EX1	No Limit
CLAMP14	6X	C-EX1	No Limit
CLAMP15	8P	C-EX1	No Limit
CLAMP16	8X	C-EX1	No Limit
CLAMP17	13S	C-EX1	No Limit
CLAMP18	13X	C-EX1	No Limit
CLAMP19	14S	C-EX1	No Limit
CLAMP20	14X	C-EX1	No Limit
CLAMP21	15S	C-EX1	No Limit
CLAMP22	15X	C-EX1	No Limit
CLAMP23	31P	C-EX1	No Limit
CLAMP24	32P	C-EX1	No Limit
CLAMP25	33P	C-EX1	No Limit
CLAMP26	34P	C-EX1	No Limit
CLAMP27	35P	C-EX1	No Limit
CLAMP28	36P	C-EX1	No Limit
CLAMP29	37P	C-EX1	No Limit
CLAMP30	38P	C-EX1	No Limit
CLAMP31	1XY	C-EX1	No Limit
CLAMP32	3XY	C-EX1	No Limit
CLAMP33	6XY	C-EX1	No Limit
CLAMP34	8XY	C-EX1	No Limit
CLAMP35	13XY	C-EX1	No Limit
CLAMP36	14XY	C-EX1	No Limit
CLAMP37	15XY	C-EX1	No Limit

*** Loads Data

Loads from file: j:\jobs\2100500.wi\42_ctff740a_ct03xc329\05_structural\calcs\rev (2)\pls tower\cl&p # 1217.lca

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

Loading Method Parameters:

Structure Height Summary (used for calculating wind/ice adjust with height):

Z of ground for wind height adjust	0.00 (ft)	and structure Z coordinate that will be put on the centerline ground profile in PLS-CADD.
Ground elevation shift	0.00 (ft)	
Z of ground with shift	0.00 (ft)	
Z of structure top (highest joint)	135.00 (ft)	
Structure height	135.00 (ft)	
Structure height above ground	135.00 (ft)	
Tower Shape	Rectangular	

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

Vector Load Cases:

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

Point Loads for Load Case "NESC Heavy":

Joint Label	Vertical Load (lbs)	Transverse Load (lbs)	Longitudinal Load (lbs)	Load Comment
20P	781	986	10	Shield Wire
20X	781	986	10	Shield Wire
21P	2013	1539	14	Conductor
21X	2013	1539	14	Conductor
22P	2013	1539	14	Conductor
22X	2013	1539	14	Conductor
23P	2013	1539	14	Conductor
23X	2013	1539	14	Conductor
31P	830	99	0	Coax Cables on Powermount
32P	47	0	0	Coax Cables in Powermount
33P	103	0	0	Coax Cables in Powermount
34P	103	0	0	Coax Cables in Powermount
35P	183	0	0	Coax Cables in Powermount
36P	229	0	0	Coax Cables in Powermount
37P	187	0	0	Coax Cables in Powermount

38P	271	0	0	Coax Cables in Powermount
1XY	230	86	0	Coax Cables on Tower
3XY	506	189	0	Coax Cables on Tower
6XY	506	189	0	Coax Cables on Tower
8XY	897	335	0	Coax Cables on Tower
13XY	1127	421	0	Coax Cables on Tower
14XY	920	343	0	Coax Cables on Tower
15XY	1334	498	0	Coax Cables on Tower
31P	7712	1492	0	Antennas

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

Section Label	Z of Top (ft)	Z of Bottom (ft)	Ave. Elev. Above Ground (ft)	Res. Adj. Wind Pres. (psf)	Tran Adj. Wind Pres. (psf)	Tran Drag Coef	Tran Wind Load (lbs)	Long Adj. Wind Pres. (psf)	Long Drag Coef	Long Wind Load (lbs)	Ice Weight (lbs)	Total Weight (lbs)
1	135.00	59.00	97.00	10.00	10.00	3.350	7478.0	0.00	3.350	0.0	0	25495
2	59.00	0.00	29.50	10.00	10.00	3.500	7391.1	0.00	3.500	0.0	0	27199

Point Loads for Load Case "NESC Extreme":

Joint Label	Vertical Load (lbs)	Transverse Load (lbs)	Longitudinal Load (lbs)	Load Comment
20P	264	843	343	Shield Wire
20X	264	843	343	Shield Wire
21P	879	2331	1093	Conductor
21X	879	2331	1093	Conductor
22P	879	2331	1093	Conductor
22X	879	2331	1093	Conductor
23P	879	2331	1093	Conductor
23X	879	2331	1093	Conductor
31P	281	257	0	Coax Cables on Powermount
32P	31	0	0	Coax Cables in Powermount
33P	69	0	0	Coax Cables in Powermount
34P	69	0	0	Coax Cables in Powermount
35P	122	0	0	Coax Cables in Powermount
36P	153	0	0	Coax Cables in Powermount
37P	125	0	0	Coax Cables in Powermount
38P	181	0	0	Coax Cables in Powermount
1XY	62	257	0	Coax Cables on Tower
3XY	137	566	0	Coax Cables on Tower
6XY	137	566	0	Coax Cables on Tower
8XY	243	1003	0	Coax Cables on Tower
13XY	306	1260	0	Coax Cables on Tower
14XY	250	1028	0	Coax Cables on Tower
15XY	362	1491	0	Coax Cables on Tower
31P	4054	5900	0	Antennas

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

Section Label	Z of Top	Z of Bottom	Ave. Elev. Above	Res. Adj. Wind	Tran Adj. Wind	Tran Angle Face	Tran Round Face	Tran Gross Area	Tran Soli-dity	Tran Angle Drag	Tran Round Drag	Tran Wind Load	Long Adj. Wind	Long Angle Face	Long Round Face	Long Gross Area	Long Soli-dity	Long Angle Drag	Long Round Drag	Long Wind Load	Ice Weight	Total Weight

		Ground	Pres.	Pres.	Area	Area		Ratio	Coef	Coef		Pres.	Area	Area		Ratio	Coef	Coef		
	(ft)	(ft)	(ft)	(psf)	(psf)	(ft^2)	(ft^2)	(ft^2)				(lbs)	(psf)	(ft^2)	(ft^2)	(ft^2)				(lbs)	(lbs)	(lbs)
1	135.00	59.00	97.00	32.46	32.46	149.60	84.79	461.96	0.507	3.200	2.000	21040.7	0.00	191.20	84.79	901.46	0.306	3.200	2.000	0.0	0	16997
2	59.00	0.00	29.50	32.46	32.46	163.33	68.96	1275.54	0.182	3.200	2.000	21439.8	0.00	163.33	68.96	1275.54	0.182	3.200	2.000	0.0	0	18133

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

Joint Label	Vertical Load (lbs)	Transverse Load (lbs)	Longitudinal Load (lbs)	Load Comment
20P	781	986	10	Shield Wire
20X	839	782	7425	Shield Wire
21P	2013	1539	14	Conductor
21X	1904	656	9900	Conductor
22P	2013	1539	14	Conductor
22X	2013	1539	14	Conductor
23P	2013	1539	14	Conductor
23X	2013	1539	14	Conductor
31P	830	99	0	Coax Cables on Powermount
32P	47	0	0	Coax Cables in Powermount
33P	103	0	0	Coax Cables in Powermount
34P	103	0	0	Coax Cables in Powermount
35P	183	0	0	Coax Cables in Powermount
36P	229	0	0	Coax Cables in Powermount
37P	187	0	0	Coax Cables in Powermount
38P	271	0	0	Coax Cables in Powermount
1XY	230	86	0	Coax Cables on Tower
3XY	506	189	0	Coax Cables on Tower
6XY	506	189	0	Coax Cables on Tower
8XY	897	335	0	Coax Cables on Tower
13XY	1127	421	0	Coax Cables on Tower
14XY	920	343	0	Coax Cables on Tower
15XY	1334	498	0	Coax Cables on Tower
31P	7712	1492	0	Antennas

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

Section Label	Z of Top (ft)	Z of Bottom (ft)	Ave. Elev. Above Ground (ft)	Res. Adj. Wind Pres. (psf)	Tran Adj. Wind Pres. (psf)	Tran Drag Coef	Tran Wind Load (lbs)	Long Adj. Wind Pres. (psf)	Long Drag Coef	Long Wind Load (lbs)	Ice Weight (lbs)	Total Weight (lbs)
1	135.00	59.00	97.00	10.00	10.00	3.350	7478.0	0.00	3.350	0.0	0	25495
2	59.00	0.00	29.50	10.00	10.00	3.500	7391.1	0.00	3.500	0.0	0	27199

Point Loads for Load Case "NESC Extreme Longitudinal":

Joint Label	Vertical Load (lbs)	Transverse Load (lbs)	Longitudinal Load (lbs)	Load Comment
20P	264	118	344	Shield Wire

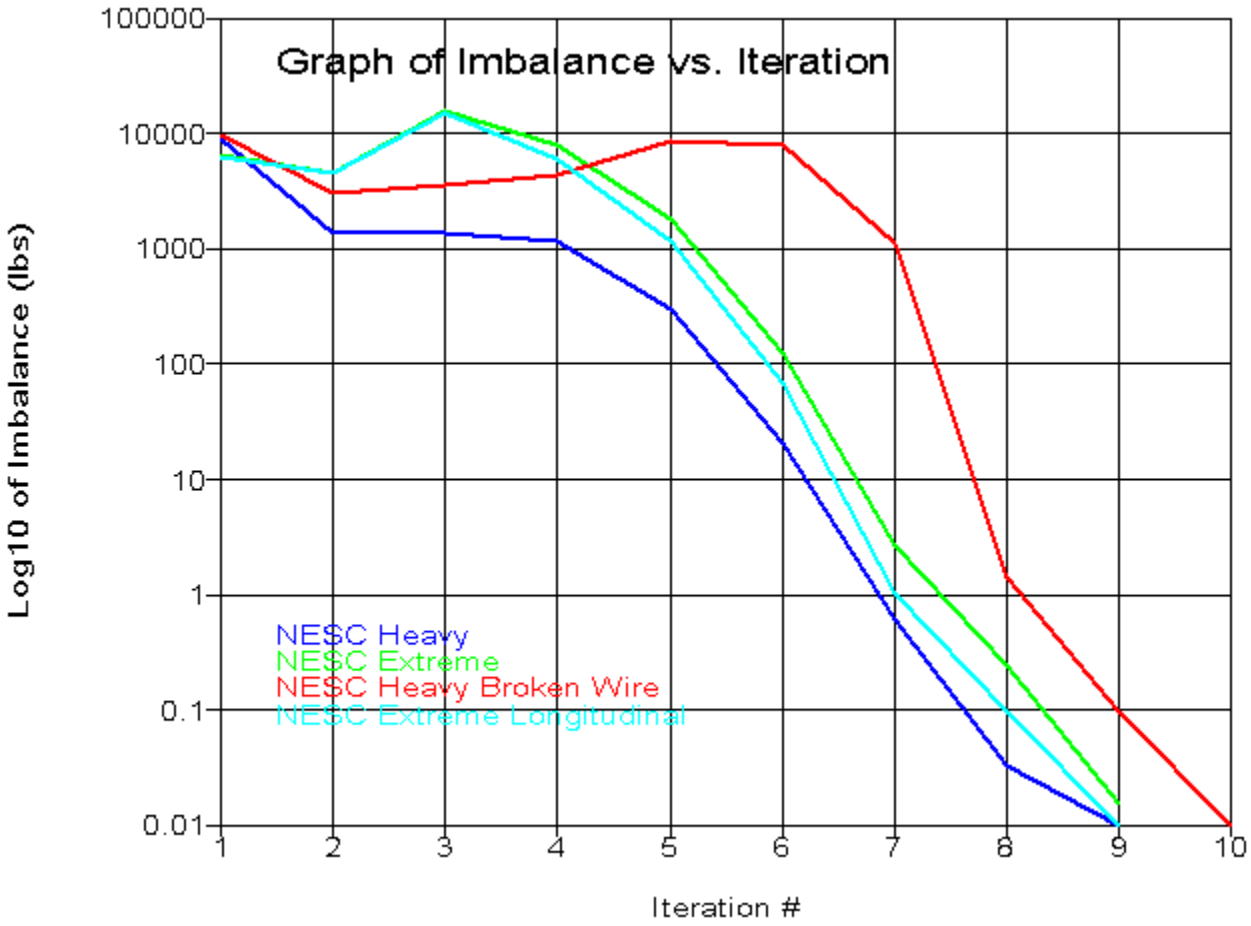
20X	264	118	344	Shield Wire
21P	879	131	256	Conductor
21X	879	131	256	Conductor
22P	879	131	256	Conductor
22X	879	131	256	Conductor
23P	879	131	256	Conductor
23X	879	131	256	Conductor
31P	281	0	0	Coax Cables on Powermount
32P	31	0	0	Coax Cables in Powermount
33P	69	0	0	Coax Cables in Powermount
34P	69	0	0	Coax Cables in Powermount
35P	122	0	0	Coax Cables in Powermount
36P	153	0	0	Coax Cables in Powermount
37P	125	0	0	Coax Cables in Powermount
38P	181	0	0	Coax Cables in Powermount
1XY	62	0	257	Coax Cables on Tower
3XY	137	0	566	Coax Cables on Tower
6XY	137	0	566	Coax Cables on Tower
8XY	243	0	1003	Coax Cables on Tower
13XY	306	0	1260	Coax Cables on Tower
14XY	250	0	1028	Coax Cables on Tower
15XY	362	0	1491	Coax Cables on Tower
31P	4054	0	5900	Antennas

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

Section Label	Z of Top (ft)	Z of Bottom (ft)	Ave. Elev. Above Ground (ft)	Res. Wind Pres. Adj. (psf)	Tran Wind Pres. Adj. (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. Adj. (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	135.00	59.00	97.00	32.46	0.00	149.60	84.79	461.96	0.507	3.200	2.000	0.0	32.46	191.20	84.79	901.46	0.306	3.200	2.000	25362.0	0	16997
2	59.00	0.00	29.50	32.46	0.00	163.33	68.96	1275.54	0.182	3.200	2.000	0.0	32.46	163.33	68.96	1275.54	0.182	3.200	2.000	21439.8	0	18133

*** Analysis Results:

Maximum element usage is 97.17% for Angle "g39P" in load case "NESC Extreme Longitudinal"
Maximum insulator usage is 20.30% for Clamp "CLAMP4" in load case "NESC Heavy Broken Wire"



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

Group Label	Angle Label	Max. Usage For All LC %	Max. Tens. For All LC (kips)	Max. Comp. For All LC (kips)	LC 1 (kips)	LC 2 (kips)	LC 3 (kips)	LC 4 (kips)
LEG1	g1P	11.12	5.727	-5.953	1.625	5.727	0.274	-5.953
LEG1	g1X	12.87	0.000	-6.885	-2.850	-6.885	-4.219	-6.074
LEG1	g1XY	14.67	4.611	-7.849	-3.257	-7.849	-1.970	4.611
LEG1	g1Y	11.11	7.116	0.000	1.808	7.116	2.479	4.680

LEG1	g2P	40.18	13.238	-14.801	3.468	13.238	-1.277	-14.801
LEG1	g2X	43.57	0.000	-16.052	-6.965	-16.052	-10.635	-15.099
LEG1	g2XY	46.98	11.688	-17.308	-7.643	-17.308	-3.937	11.688
LEG1	g2Y	42.41	15.625	0.000	3.941	15.625	7.940	11.990
LEG2	g3P	25.51	21.705	-25.239	7.062	21.705	-4.114	-25.239
LEG2	g3X	24.17	0.000	-26.847	-10.840	-26.847	-20.796	-25.843
LEG2	g3XY	24.48	20.829	-26.086	-11.550	-26.086	-1.506	20.829
LEG2	g3Y	29.98	25.510	0.000	7.057	25.510	16.381	21.360
LEG2	g4P	34.43	29.302	-32.293	10.079	29.302	-8.254	-32.293
LEG2	g4X	34.59	0.000	-38.410	-16.125	-38.410	-34.244	-33.239
LEG2	g4XY	31.23	26.573	-34.158	-16.580	-34.158	2.375	26.573
LEG2	g4Y	40.61	34.561	0.000	9.921	34.561	25.508	27.498
LEG2	g5P	42.31	34.227	-36.374	11.775	34.227	-12.332	-36.374
LEG2	g5X	52.99	0.000	-45.548	-19.791	-45.548	-42.134	-37.657
LEG2	g5XY	45.38	29.873	-39.007	-19.983	-39.007	4.095	29.873
LEG2	g5Y	46.58	39.635	0.000	11.416	39.635	32.475	31.248
LEG3	g6P	31.84	45.965	-46.350	17.498	45.965	-15.602	-46.350
LEG3	g6X	35.32	0.000	-62.026	-26.412	-62.026	-56.521	-48.164
LEG3	g6XY	29.32	38.511	-51.495	-26.709	-51.495	5.969	38.511
LEG3	g6Y	38.28	55.263	0.000	16.845	55.263	45.202	40.476
LEG3	g7P	36.45	54.234	-55.112	21.415	54.234	-19.293	-55.112
LEG3	g7X	47.13	0.000	-75.243	-32.326	-75.243	-67.720	-57.352
LEG3	g7XY	38.54	46.179	-61.532	-32.978	-61.532	6.041	46.179
LEG3	g7Y	45.93	68.346	0.000	21.306	68.346	56.417	48.954
LEG4	g8P	27.91	58.712	-61.817	24.667	58.712	-20.308	-61.817
LEG4	g8X	36.06	0.000	-84.503	-36.249	-84.503	-75.423	-64.414
LEG4	g8XY	28.35	52.245	-66.430	-37.025	-66.430	6.211	52.245
LEG4	g8Y	36.70	77.217	0.000	24.164	77.217	62.984	55.470
LEG4	g9P	27.45	60.616	-64.335	25.612	60.616	-18.799	-64.335
LEG4	g9X	38.99	0.000	-91.363	-40.515	-91.363	-80.157	-67.131
LEG4	g9XY	29.74	52.580	-69.691	-41.187	-69.691	2.053	52.580
LEG4	g9Y	35.10	81.801	0.000	25.450	81.801	63.461	56.208
LEG4	g10P	26.43	58.591	-61.931	25.166	58.591	-15.890	-61.931
LEG4	g10X	38.28	0.000	-89.710	-40.370	-89.710	-77.492	-64.725
LEG4	g10XY	28.68	50.442	-67.220	-40.939	-67.220	-0.265	50.442
LEG4	g10Y	34.37	80.094	0.000	25.253	80.094	60.399	54.198
LEG4	g11P	34.04	58.192	-62.696	24.969	58.192	-13.989	-62.696
LEG4	g11X	49.77	0.000	-91.675	-42.250	-91.675	-78.116	-65.532
LEG4	g11XY	36.89	49.818	-67.943	-42.737	-67.943	-3.766	49.818
LEG4	g11Y	43.74	80.560	0.000	25.282	80.560	58.588	53.736
LEG5	g12P	30.56	55.967	-60.037	23.781	55.967	-19.466	-60.037
LEG5	g12X	45.10	0.000	-88.617	-40.353	-87.425	-88.617	-63.272
LEG5	g12XY	32.81	48.729	-64.459	-40.842	-64.459	-13.007	48.729
LEG5	g12Y	39.15	76.929	0.000	23.410	76.929	54.187	52.006
LEG5	g13P	36.54	59.352	-71.796	24.858	59.352	-16.016	-71.796
LEG5	g13X	52.42	0.000	-102.994	-46.425	-102.994	-87.104	-74.942
LEG5	g13XY	40.99	52.263	-80.546	-47.026	-80.546	-16.254	52.263
LEG5	g13Y	41.78	82.095	0.000	24.129	82.095	55.267	54.604
LEG5	g14P	35.78	63.720	-74.688	24.431	63.720	-13.215	-74.688
LEG5	g14X	49.63	0.000	-103.609	-51.167	-103.609	-83.216	-78.369
LEG5	g14XY	38.74	57.609	-80.880	-51.967	-80.880	-16.968	57.609
LEG5	g14Y	42.79	89.321	0.000	22.389	89.321	54.474	60.252
XBR1	g15P	48.04	0.492	-8.849	-1.143	-5.186	-8.849	0.492
XBR1	g15X	48.95	9.016	0.000	3.022	5.928	9.016	0.735
XBR1	g15XY	54.84	10.102	-2.120	4.283	10.102	-2.120	0.020
XBR1	g15Y	49.01	5.341	-9.028	-2.445	-9.028	5.341	-0.058
XBR1	g16P	38.83	7.153	-3.561	0.561	3.123	-3.561	7.153
XBR1	g16X	43.59	8.029	-3.025	-1.435	-3.025	8.029	7.224
XBR1	g16XY	53.56	0.000	-9.866	-0.583	-0.662	-9.866	-7.618

XBR1	g16Y	40.80	3.724	-7.515	-0.332	-0.242	3.724	-7.515
XBR1	g17P	53.12	0.000	-9.786	-2.095	-6.711	-9.786	-3.335
XBR1	g17X	38.25	7.046	-3.113	2.615	6.374	7.046	-3.113
XBR1	g17XY	53.42	9.841	-1.096	3.584	9.841	-1.096	3.586
XBR1	g17Y	49.89	4.712	-9.191	-3.054	-9.191	4.712	3.486
XBR1	g18P	41.76	7.692	-4.148	-0.824	-0.438	-4.148	7.692
XBR1	g18X	49.51	9.119	-0.400	-0.400	0.487	9.119	7.787
XBR1	g18XY	50.16	2.243	-9.240	0.322	2.243	-9.240	-8.224
XBR1	g18Y	44.29	1.868	-8.159	-1.588	-3.568	1.868	-8.159
XBR2	g19P	67.54	0.000	-16.587	-3.599	-5.896	-16.587	-1.508
XBR2	g19X	52.36	12.859	-0.957	1.277	4.536	12.859	-0.957
XBR2	g19XY	42.23	5.540	-10.372	1.684	5.540	-10.372	0.479
XBR2	g19Y	39.25	9.640	-6.474	-3.976	-6.474	9.640	0.410
XBR2	g20P	25.34	4.467	-6.222	0.191	0.503	-6.222	4.467
XBR2	g20X	73.15	17.965	0.000	0.694	1.685	17.965	4.708
XBR2	g20XY	65.66	1.509	-16.125	1.217	1.509	-16.125	-4.264
XBR2	g20Y	24.61	6.043	-3.981	-0.398	-2.888	6.043	-3.981
XBR2	g21P	54.01	0.878	-13.265	-1.379	-4.922	-13.265	0.878
XBR2	g21X	68.10	16.726	0.000	3.688	6.317	16.726	1.435
XBR2	g21XY	38.65	6.952	-9.492	4.080	6.952	-9.492	0.103
XBR2	g21Y	43.94	10.791	-5.882	-1.782	-5.882	10.791	0.035
XBR2	g22P	24.64	4.534	-6.051	0.463	3.028	-6.051	4.534
XBR2	g22X	66.38	16.303	-1.575	-1.267	-1.575	16.303	4.810
XBR2	g22XY	73.79	0.000	-18.122	-0.736	-1.763	-18.122	-5.056
XBR2	g22Y	26.03	6.392	-4.802	-0.125	-0.387	6.392	-4.802
XBR2	g23P	59.30	0.000	-14.564	-1.952	-6.329	-14.564	-3.197
XBR2	g23X	47.00	11.543	-2.685	3.226	5.513	11.543	-2.685
XBR2	g23XY	30.64	7.526	-5.421	3.582	7.526	-5.421	3.374
XBR2	g23Y	43.67	10.725	-5.747	-2.304	-5.747	10.725	3.271
XBR2	g24P	28.43	4.786	-6.982	-0.910	-0.458	-6.982	4.786
XBR2	g24X	68.69	16.869	0.000	0.140	1.927	16.869	5.045
XBR2	g24XY	66.71	1.547	-16.383	0.652	1.547	-16.383	-5.794
XBR2	g24Y	22.55	4.531	-5.539	-1.489	-3.994	4.531	-5.539
XBR3	g25P	51.02	0.000	-18.797	-4.165	-9.711	-18.797	-2.211
XBR3	g25X	45.00	16.579	-1.253	4.421	9.038	16.579	-1.253
XBR3	g25XY	33.28	12.259	-7.664	5.423	12.259	-7.664	1.873
XBR3	g25Y	30.85	10.343	-11.364	-5.186	-11.364	10.343	1.763
XBR3	g26P	21.26	7.834	-6.035	1.170	4.576	-6.035	7.834
XBR3	g26X	50.29	18.528	-1.111	-1.111	-0.952	18.528	8.275
XBR3	g26XY	54.21	0.000	-19.972	-0.521	-2.804	-19.972	-8.335
XBR3	g26Y	21.02	7.527	-7.743	0.477	-0.709	7.527	-7.743
XBR3	g27P	54.83	0.000	-20.198	-4.163	-10.516	-20.198	-6.028
XBR3	g27X	34.15	12.580	-5.127	4.519	8.558	12.580	-5.127
XBR3	g27XY	34.69	12.781	-3.594	5.435	12.781	-3.594	5.685
XBR3	g27Y	31.69	11.675	-10.816	-5.149	-10.816	11.675	5.536
XBR3	g28P	23.23	7.813	-8.559	-1.895	-1.194	-8.559	7.813
XBR3	g28X	52.71	19.418	0.000	0.505	4.237	19.418	8.434
XBR3	g28XY	49.35	2.146	-18.181	1.078	2.146	-18.181	-9.219
XBR3	g28Y	23.92	4.315	-8.814	-2.576	-6.638	4.315	-8.814
XBR4	g29P	87.84	0.888	-16.181	-0.595	0.888	-16.181	-4.524
XBR4	g29X	50.17	9.242	-3.661	-0.965	-3.132	9.242	-3.661
XBR4	g29XY	54.05	2.956	-9.956	0.043	0.264	-9.956	2.956
XBR4	g29Y	73.06	13.457	-1.688	-1.688	0.129	13.457	3.525
XBR4	g30P	89.91	0.000	-16.561	-1.773	-3.107	-16.561	-2.882
XBR4	g30X	59.98	11.048	-1.962	1.389	4.203	11.048	-1.962
XBR4	g30XY	43.46	5.215	-8.006	2.119	5.215	-8.006	1.445
XBR4	g30Y	64.89	11.953	-7.022	-2.949	-7.022	11.953	2.126
XBR4	g31P	39.11	1.561	-7.204	0.183	1.561	-7.204	1.395
XBR4	g31X	53.06	9.773	-0.765	0.108	-0.765	9.773	1.960

XBR4	g31XY	46.16	0.822	-8.502	0.822	0.089	-8.502	-1.470
XBR4	g31Y	36.77	6.773	-1.086	-0.493	-0.339	6.773	-1.086
XBR4	g32P	46.51	3.303	-8.566	1.296	3.303	-8.566	-1.223
XBR4	g32X	29.99	5.523	-2.164	-0.953	-2.164	5.523	-0.740
XBR4	g32XY	36.88	0.941	-6.793	-0.470	-1.468	-6.793	0.941
XBR4	g32Y	56.48	10.404	0.000	0.522	0.761	10.404	1.517
XBR2	g33P	38.26	0.101	-7.047	-0.551	0.101	-7.047	-0.817
XBR2	g33X	30.49	5.617	-0.597	-0.144	-0.597	5.617	-0.405
XBR2	g33XY	29.13	0.572	-5.366	0.353	0.572	-5.366	0.132
XBR2	g33Y	28.48	5.246	-1.062	-1.062	-0.768	5.246	0.397
XBR2	g34P	39.23	0.244	-7.226	-0.113	0.244	-7.226	-0.629
XBR2	g34X	25.05	4.614	-0.230	-0.103	0.188	4.614	-0.230
XBR2	g34XY	24.64	0.625	-4.538	0.247	0.625	-4.538	-0.082
XBR2	g34Y	34.45	6.345	-1.645	-0.674	-1.645	6.345	0.296
DIAG1	g35P	37.94	0.424	-6.988	-0.182	0.424	-6.988	-0.097
DIAG1	g35X	38.50	7.091	-0.169	0.354	-0.169	7.091	0.339
DIAG1	g35XY	29.76	0.934	-5.482	0.895	0.934	-5.482	-0.004
DIAG1	g35Y	30.99	5.708	-0.724	-0.724	-0.644	5.708	0.305
DIAG1	g36P	41.17	1.020	-7.584	0.361	1.020	-7.584	-0.115
DIAG1	g36X	25.99	4.787	-0.120	-0.089	-0.120	4.787	0.296
DIAG1	g36XY	24.94	0.459	-4.594	0.284	0.459	-4.594	-0.022
DIAG1	g36Y	41.76	7.692	-0.817	-0.243	-0.817	7.692	0.384
XBR5	g37P	66.18	0.000	-6.736	-2.039	-4.679	0.000	-6.736
XBR5	g37X	55.76	11.858	-5.675	-0.013	0.463	11.858	-5.675
XBR5	g37XY	14.43	4.429	-1.293	0.617	3.685	-1.293	4.429
XBR5	g37Y	40.50	5.294	-4.122	-2.917	-4.122	4.978	5.294
XBR5	g38P	69.47	1.594	-7.071	-3.808	-7.071	0.000	1.594
XBR5	g38X	20.29	6.230	0.000	2.122	6.230	5.544	2.152
XBR5	g38XY	46.79	7.068	-4.763	2.385	7.068	-2.316	-4.763
XBR5	g38Y	91.60	11.504	-9.323	-4.469	-9.323	11.504	-4.314
XBR6	g39P	97.17	0.000	-3.983	-2.187	0.000	0.000	-3.983
XBR6	g39X	78.13	8.345	-3.202	0.660	5.016	8.345	-3.202
XBR6	g39XY	51.54	9.495	-0.056	1.142	9.495	-0.056	1.783
XBR6	g39Y	70.79	2.426	-2.902	-2.902	0.000	1.311	2.426
XBR6	g40P	48.15	6.413	-1.974	-1.974	0.459	0.000	6.413
XBR6	g40X	43.56	8.024	0.000	0.690	2.710	3.297	8.024
XBR6	g40XY	51.60	2.522	-2.115	0.886	2.522	-2.115	0.000
XBR6	g40Y	64.42	7.711	-2.640	-2.640	0.000	7.711	0.000
DIAG2	g41P	42.27	5.190	-0.086	2.067	5.190	4.882	-0.086
DIAG2	g41X	49.87	0.000	-6.124	-2.738	-6.124	-5.581	-0.896
DIAG2	g41XY	86.30	0.000	-10.597	-4.174	-10.597	-1.504	-0.113
DIAG2	g41Y	79.08	9.711	-0.713	3.514	9.711	0.868	-0.713
DIAG2	g42P	58.98	3.923	-7.243	-0.526	-0.402	3.923	-7.243
DIAG2	g42X	75.76	0.000	-9.303	-0.403	-0.956	-3.471	-9.303
DIAG2	g42XY	68.56	8.419	-0.072	-0.072	0.279	2.993	8.419
DIAG2	g42Y	51.76	6.357	-4.537	-0.090	-0.683	-4.537	6.357
HORZ1	g43P	19.81	4.865	-0.861	0.344	1.276	-0.861	4.865
HORZ1	g43X	35.70	4.620	-8.767	0.043	1.312	-8.767	4.620
HORZ1	g43XY	18.00	0.840	-4.420	-0.469	-1.428	0.840	-4.420
HORZ1	g43Y	22.16	0.440	-5.442	0.440	-0.246	-5.442	-4.594
HORZ1	g44P	23.24	5.707	0.000	2.849	5.707	0.007	0.598
HORZ1	g44X	22.07	0.000	-5.420	-2.104	-5.420	-4.413	-0.332
HORZ1	g44XY	23.39	0.855	-5.745	-2.313	-5.745	0.855	0.204
HORZ1	g44Y	34.90	6.738	-8.570	3.189	6.738	-8.570	0.675
HORZ1	g45P	39.10	6.001	-7.203	0.299	-1.153	-7.203	6.001
HORZ1	g45Y	28.20	0.182	-5.194	0.182	-4.418	-2.373	-5.194
HORZ1	g46P	33.84	4.255	-6.233	3.764	4.255	-6.233	-2.474
HORZ1	g46X	32.95	0.000	-6.069	-2.458	-6.069	-1.830	-3.686
HORZ1	g47P	36.07	1.903	-6.644	-1.781	-5.009	-6.644	1.903

HORZ1	g47X	13.03	2.400	-0.206	1.174	1.113	-0.206	2.400
HORZ1	g47XY	19.18	1.826	-3.533	1.826	1.719	-0.721	-3.533
HORZ1	g47Y	53.99	0.000	-9.945	-2.903	-9.945	-2.183	-3.164
HORZ1	g48P	27.70	1.479	-5.102	1.479	0.034	-5.102	0.760
HORZ1	g48X	10.95	1.025	-2.017	-0.975	-2.017	1.025	0.760
HORZ1	g48XY	50.65	0.000	-9.329	-1.179	-2.778	-2.956	-9.329
HORZ1	g48Y	36.86	1.210	-6.790	1.210	0.207	0.108	-6.790
ARM1	g49P	55.90	0.000	-17.162	-0.360	-1.313	-17.162	-1.552
ARM1	g49X	4.67	0.722	-1.433	0.722	-0.051	0.593	-1.433
ARM1	g49XY	5.76	1.769	0.000	0.740	1.439	0.868	1.769
ARM1	g49Y	54.74	16.804	-0.289	-0.289	0.356	16.804	1.647
ARM1	g50P	13.64	2.180	-8.254	-0.498	-0.913	-8.254	2.180
ARM1	g50Y	8.12	6.543	-4.917	-0.448	0.331	6.543	-4.917
ARM2	g51P	96.20	0.000	-17.720	-3.357	-3.693	-17.720	-2.053
ARM2	g51X	10.53	0.000	-1.940	-1.940	-1.797	-0.286	-1.894
ARM2	g51XY	17.62	2.051	-3.245	-1.627	2.051	-3.245	-0.510
ARM2	g51Y	64.93	11.961	-3.599	-3.599	-1.660	11.961	-0.629
ARM2	g52P	13.22	0.000	-6.132	-1.767	-1.936	-6.132	-1.157
ARM2	g52Y	3.96	2.536	-1.611	-1.611	0.061	2.536	1.042
ARM1	g53P	17.86	0.000	-5.483	-4.040	-5.239	-5.483	-2.819
ARM1	g53X	8.64	0.000	-2.654	-2.433	-2.540	-0.898	-2.654
ARM1	g53XY	12.63	2.103	-3.878	-2.345	2.103	-3.878	-0.442
ARM1	g53Y	13.08	0.000	-4.016	-4.016	-0.720	-2.570	-0.547
ARM1	g54P	5.62	2.087	-3.400	-3.400	-2.966	-0.510	2.087
ARM1	g54Y	9.71	0.000	-5.880	-3.198	-0.475	-5.880	-5.347
ARM2	g55P	15.07	0.000	-3.702	-2.540	-3.702	-3.184	-1.122
ARM2	g55X	4.21	0.758	-1.033	-0.923	-1.033	0.758	-0.936
ARM2	g55XY	10.18	2.099	-2.500	-0.816	2.099	-2.500	-0.713
ARM2	g55Y	10.41	0.000	-2.558	-2.558	-0.911	-1.909	-0.805
ARM2	g56P	4.95	0.000	-2.296	-1.773	-2.212	-2.296	-2.209
ARM2	g56Y	3.77	0.213	-1.749	-1.749	-0.015	-1.329	0.213
M1	g57P	4.45	0.000	-1.093	-1.068	-0.495	-1.093	-0.504
M1	g57X	4.40	0.000	-1.081	-1.081	-0.530	-1.068	-0.504
M2	g58P	5.68	0.226	-0.698	0.133	-0.698	0.226	-0.426
M2	g58X	7.38	0.906	-0.345	0.373	0.906	-0.105	-0.345
M2	g59P	6.81	0.836	0.000	0.836	0.014	0.622	0.377
M2	g59X	9.36	1.149	0.000	1.149	0.942	0.910	0.594
M2	g60P	4.65	0.856	-0.485	0.798	-0.485	0.856	0.378
M2	g60X	8.57	1.578	0.000	1.429	1.578	1.453	0.596
M3	g61P	19.81	3.650	-0.116	2.012	3.650	1.782	-0.116
M3	g61X	17.42	0.133	-3.209	-0.877	-3.209	-0.733	0.133
M4	g62P	33.04	2.683	0.000	2.683	0.680	2.262	1.084
M4	g62X	36.70	2.980	0.000	2.980	1.636	1.041	1.062
M4	g62XY	56.37	4.577	0.000	2.682	1.120	4.577	1.710
M4	g62Y	39.37	3.197	0.000	2.988	2.124	3.197	1.689
M4	g63P	59.66	4.845	0.000	3.360	1.344	4.845	1.341
M4	g63X	41.44	3.365	0.000	3.365	1.343	1.696	1.307
M4	g63XY	61.62	5.004	0.000	3.339	1.958	5.004	2.098
M4	g63Y	41.92	3.404	0.000	3.404	2.100	1.918	2.068
M8	g64P	41.10	2.728	0.000	1.967	0.638	2.728	0.074
M8	g64X	30.30	2.011	-0.015	2.011	0.763	-0.015	0.016
M8	g64XY	59.65	3.958	0.000	1.931	1.235	3.958	2.080
M8	g64Y	30.75	2.040	0.000	2.040	1.524	1.277	2.025
M7	g65P	43.07	2.644	0.000	1.289	0.745	2.063	2.644
M7	g65Y	21.22	1.303	-1.095	1.303	0.655	0.622	-1.095
M7	g66P	42.34	2.599	0.000	1.495	0.892	2.599	2.475
M7	g66Y	24.48	1.503	-0.863	1.503	0.677	0.365	-0.863
M8	g67P	71.66	4.400	0.000	1.006	1.160	3.726	4.400
M8	g67Y	49.72	1.031	-3.053	1.031	0.044	-1.595	-3.053

M2	g68P	46.53	4.328	-5.713	1.310	4.328	-3.156	-5.713
M2	g68X	47.18	3.465	-5.793	-1.299	-4.328	3.465	-5.793
M2	g68XY	40.16	4.931	-2.598	0.924	2.726	-2.598	4.931
M2	g68Y	39.26	4.821	-2.762	-0.832	-2.762	1.706	4.821
M2	g69P	31.22	3.833	-3.593	-0.768	-2.478	-3.593	3.833
M2	g69X	31.27	3.840	0.000	0.616	2.484	3.840	3.653
M2	g69XY	26.47	0.000	-3.251	-0.223	-1.548	-3.251	-3.162
M2	g69Y	27.46	2.532	-3.372	0.464	1.448	2.532	-3.372
M2	g70P	8.17	0.333	-1.003	-0.076	0.333	-0.362	-1.003
M2	g70X	9.54	0.000	-1.171	-0.426	-0.596	-0.357	-1.171
M2	g70XY	8.03	0.986	0.000	0.127	0.186	0.051	0.986
M2	g70Y	6.64	0.815	-0.292	-0.208	-0.292	0.267	0.815
M2	g71P	2.82	0.346	-0.308	-0.077	0.346	-0.199	-0.308
M2	g71X	6.95	0.000	-0.853	-0.668	-0.853	-0.623	-0.616
M2	g71XY	1.28	0.116	-0.157	0.074	0.116	-0.157	0.071
M2	g71Y	4.26	0.000	-0.523	-0.450	-0.523	-0.258	-0.235
M5	g72P	12.63	0.775	0.000	0.430	0.775	0.331	0.082
M5	g72X	65.80	0.000	-0.667	-0.214	-0.614	0.000	-0.667
M5	g72XY	12.47	0.766	0.000	0.353	0.544	0.193	0.766
M5	g72Y	38.19	0.046	-0.387	-0.263	-0.387	0.044	0.046
M5	g73P	9.28	0.570	-0.022	0.570	0.094	-0.022	0.144
M5	g73X	25.36	0.000	-0.126	-0.126	0.000	0.000	0.000
M5	g73XY	76.74	0.478	-0.381	0.383	-0.381	-0.098	0.478
M5	g73Y	51.49	0.557	-0.256	-0.256	0.557	0.181	0.334
M5	g74P	6.63	0.407	0.000	0.238	0.407	0.148	0.000
M5	g74X	0.00	0.000	0.000	0.000	0.000	0.000	0.000
M5	g74XY	33.84	0.456	-0.099	0.137	-0.099	-0.007	0.456
M5	g74Y	32.02	0.437	-0.094	-0.094	0.307	0.063	0.437
Pwmnt	g75P	1.45	0.000	-9.114	-9.113	-4.426	-9.114	-4.441
Pwmnt	g76P	1.54	0.000	-10.154	-10.154	-4.914	-9.255	-3.703
Pwmnt	g77P	1.71	0.000	-11.103	-11.103	-5.170	-9.282	-2.569
Pwmnt	g78P	1.83	0.000	-12.061	-12.061	-5.527	-9.781	-2.269
Pwmnt	g79P	2.79	0.000	-13.765	-13.765	-5.955	-11.192	-2.258
Pwmnt	g80P	2.71	0.000	-16.022	-16.022	-7.276	-13.441	-3.574
Pwmnt	g81P	3.04	0.000	-17.997	-17.997	-8.798	-15.397	-5.104
Pwmnt	g82P	3.39	0.000	-20.343	-20.343	-10.375	-17.726	-6.708
PMBR5	g83P	62.14	8.447	0.000	2.545	8.447	5.002	3.395
PMBR5	g83X	61.15	3.381	-8.312	-2.685	-8.312	-2.524	3.381
PMBR5	g84P	42.88	0.000	-5.828	-1.966	-5.828	-0.469	-2.584
PMBR5	g84X	42.56	5.786	-2.601	1.156	5.786	1.553	-2.601
PMBR1	g85P	13.41	1.367	-0.276	0.194	1.367	-0.276	0.181
PMBR1	g85X	14.77	0.173	-1.506	-1.024	-1.506	-0.928	0.173
PMBR1	g86P	0.98	0.100	-0.036	-0.015	-0.036	0.100	0.041
PMBR1	g86X	6.95	0.043	-0.709	-0.709	-0.127	-0.664	0.043
Plate	g87P	87.81	0.857	-14.753	-0.057	0.025	0.857	-14.753
Plate	g88P	61.45	10.323	-0.277	-0.277	0.076	0.694	10.323
PMBR1	g89P	24.31	0.000	-2.478	-0.297	-0.110	-0.750	-2.478
PMBR1	g90P	2.71	0.000	-0.277	-0.258	-0.062	-0.277	-0.134
PMBR2	g91P	6.85	0.698	0.000	0.568	0.698	0.395	0.430
PMBR2	g91X	5.44	0.442	-0.555	-0.446	-0.555	-0.382	0.442
PMBR1	g92P	6.14	0.089	-0.626	0.089	0.003	0.067	-0.626
PMBR3	g93P	5.33	0.725	0.000	0.631	0.353	0.301	0.725
PMBR3	g93X	5.52	0.751	-0.601	-0.256	-0.601	-0.470	0.751
PMBR4	g94P	12.09	2.030	0.000	0.511	0.883	0.429	2.030
PMBR4	g94X	12.11	2.035	-0.744	-0.428	-0.744	-0.487	2.035
HORZ3	g95P	11.70	0.718	-0.101	-0.026	-0.101	-0.038	0.718
HORZ3	g96P	14.86	0.912	0.000	0.112	0.041	0.028	0.912
HORZ3	g97P	14.69	0.000	-0.902	-0.037	-0.080	-0.032	-0.902
HORZ2	g98P	5.78	0.355	-0.074	0.224	-0.056	-0.074	0.355

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

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

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
1P	-0.000552	0.1401	-0.01229	-0.1869	-0.0129	-0.0186	2.499	2.64	120
2P	-0.0001716	0.1244	-0.01202	-0.1808	0.0013	-0.0170	2.5	2.624	115
3P	-0.0002425	0.1086	-0.01137	-0.1774	-0.0043	-0.0149	2.5	2.609	110
4P	-2.417e-005	0.09695	-0.01094	-0.1563	-0.0034	-0.0136	2.5	2.597	106
5P	9.391e-005	0.08634	-0.01031	-0.1541	0.0031	-0.0124	2.5	2.586	102
6P	-3.841e-005	0.07574	-0.009541	-0.1394	-0.0092	-0.0109	2.5	2.576	97.99
7P	0.0007001	0.06477	-0.008737	-0.1226	0.0035	-0.0081	2.501	2.565	92.99
8P	-6.836e-005	0.05453	-0.007757	-0.0997	-0.0045	-0.0053	2.5	2.555	87.99
9P	0	0	0	0.0000	0.0000	0.0000	15	15	0
20P	0.003676	0.1411	-0.053	-0.2028	0.0040	-0.0228	0.003676	13.89	119.9
21P	0.001439	0.1088	-0.0399	-0.2223	0.0039	-0.0154	0.001439	9.859	110
22P	0.002354	0.07576	-0.05493	-0.2587	-0.0011	-0.0128	0.002354	14.33	97.95
23P	0.001372	0.05482	-0.02827	-0.1743	-0.0010	-0.0113	0.001372	10.3	87.97
24P	-0.00135	0.1412	-0.004735	-0.2415	-0.0011	-0.0325	-0.00135	0.1412	120
25P	-0.0009884	0.1093	-0.004422	-0.1559	-0.0020	-0.0064	-0.0009884	0.1093	110
26P	-0.0006333	0.07641	-0.004013	-0.1352	-0.0016	-0.0124	-0.0006333	0.07641	98
27P	-0.0003966	0.05496	-0.003707	-0.1001	-0.0013	-0.0106	-0.0003966	0.05496	88
28P	-6.098e-005	0.02159	-0.003534	-0.0389	0.0369	-0.0136	-6.098e-005	0.02159	59
29P	2.301e-005	0.0101	-0.002284	-0.0260	0.0213	-0.0178	2.301e-005	0.0101	39
30P	0.0003867	0.00279	-0.001266	-0.0151	0.0131	-0.0097	0.0003867	0.00279	19
31P	-0.001899	0.257	-0.00555	-0.5170	-0.0023	-0.0238	-1.502	0.257	135
32P	-0.001349	0.142	-0.004763	-0.2816	-0.0023	-0.0238	-1.501	0.142	120
33P	-0.0009852	0.1095	-0.004453	-0.1502	-0.0021	-0.0144	-1.501	0.1095	110
34P	-0.0006116	0.07681	-0.00407	-0.1443	-0.0016	-0.0135	-1.501	0.07681	98
35P	-0.0003778	0.05534	-0.003741	-0.1037	-0.0012	-0.0127	-1.5	0.05534	88
36P	-6.72e-005	0.02199	-0.00271	-0.0405	0.0001	-0.0101	-1.5	0.02199	59
37P	1.427e-005	0.01052	-0.001894	-0.0267	-0.0008	-0.0082	-1.5	0.01052	39
38P	0.0003833	0.002999	-0.0009802	-0.0160	0.0009	-0.0056	-1.5	0.002999	19
39P	0	0	0	0.0000	0.0000	0.0000	-1.5	0	0
1X	-0.002113	0.1402	0.003449	-0.1731	0.0014	-0.0182	2.498	-2.36	120
1XY	-0.002134	0.1421	0.003332	-0.1731	-0.0088	-0.0171	-2.502	-2.358	120
1Y	-0.0006106	0.142	-0.01257	-0.1848	0.0127	-0.0166	-2.501	2.642	120
2X	-0.002307	0.1238	0.003331	-0.1849	-0.0040	-0.0161	2.498	-2.376	115
2XY	-0.001498	0.1253	0.003199	-0.1905	-0.0010	-0.0165	-2.501	-2.375	115
2Y	-0.0007102	0.1259	-0.01225	-0.1873	-0.0051	-0.0150	-2.501	2.626	115
3X	-0.001601	0.1088	0.003046	-0.1623	-0.0052	-0.0153	2.498	-2.391	110
3XY	-0.001734	0.1099	0.002872	-0.1636	0.0004	-0.0152	-2.502	-2.39	110
3Y	-0.0004242	0.1098	-0.01155	-0.1771	0.0018	-0.0143	-2.5	2.61	110
4X	-0.00161	0.09708	0.002793	-0.1698	0.0036	-0.0147	2.498	-2.403	106
4XY	-0.001366	0.09819	0.00262	-0.1703	-0.0090	-0.0134	-2.501	-2.402	106
4Y	-0.0004918	0.09807	-0.01109	-0.1574	0.0013	-0.0131	-2.5	2.598	106
5X	-0.001662	0.08567	0.002424	-0.1508	-0.0074	-0.0140	2.498	-2.414	102
5XY	-0.0009591	0.08674	0.002257	-0.1513	0.0022	-0.0117	-2.501	-2.413	102
5Y	-0.0004942	0.08742	-0.01044	-0.1545	-0.0046	-0.0118	-2.5	2.587	102
6X	-0.001079	0.07599	0.001986	-0.1317	0.0028	-0.0138	2.499	-2.424	98
6XY	-0.001205	0.07702	0.001833	-0.1323	-0.0071	-0.0096	-2.501	-2.423	98
6Y	-0.0002643	0.0768	-0.009662	-0.1396	0.0075	-0.0108	-2.5	2.577	97.99
7X	-0.001639	0.06425	0.001475	-0.1264	-0.0037	-0.0168	2.498	-2.436	93
7XY	-0.0002968	0.0652	0.001342	-0.1272	-0.0001	-0.0051	-2.5	-2.435	93
7Y	-0.0008539	0.06573	-0.008849	-0.1238	-0.0054	-0.0108	-2.501	2.566	92.99

8X	-0.0006851	0.05469	0.0008421	-0.0941	-0.0014	-0.0197	2.499	-2.445	88
8XY	-0.0009259	0.05557	0.0007124	-0.0959	-0.0028	-0.0005	-2.501	-2.444	88
8Y	3.667e-005	0.05541	-0.007849	-0.1007	0.0041	-0.0109	-2.5	2.555	87.99
9X	0	0	0	0.0000	0.0000	0.0000	15	-15	0
9XY	0	0	0	0.0000	0.0000	0.0000	-15	-15	0
9Y	0	0	0	0.0000	0.0000	0.0000	-15	15	0
20X	-0.00634	0.1412	0.03237	-0.1500	-0.0082	-0.0225	-0.00634	-13.61	120
21X	-0.003405	0.1099	0.02001	-0.1451	-0.0081	-0.0148	-0.003405	-9.64	110
22X	-0.003572	0.07719	0.01616	-0.0381	-0.0019	-0.0118	-0.003572	-14.17	98.02
23X	-0.002169	0.05556	0.01147	-0.0714	-0.0011	-0.0101	-0.002169	-10.19	88.01
10S	0.001103	0.04402	-0.007901	-0.0749	-0.0044	-0.0010	3.495	3.538	80.99
11S	0.0004721	0.0353	-0.007911	-0.0638	0.0014	0.0021	4.489	4.524	73.99
12S	0.0008042	0.02802	-0.007585	-0.0553	-0.0044	0.0033	5.484	5.511	66.99
13S	0.000655	0.02071	-0.007077	-0.0449	-0.0017	0.0060	6.62	6.64	58.99
14S	0.0009671	0.009026	-0.005677	-0.0269	-0.0028	0.0095	9.461	9.469	38.99
15S	0.0004361	0.001536	-0.003349	-0.0124	-0.0006	0.0115	12.3	12.3	19
16S	0.001331	0.02071	-0.002579	-0.0399	-0.0059	0.0034	6.621	0.02071	59
17S	-0.0004118	0.02798	0.001753	-0.0409	-0.0007	-0.0027	-0.0004118	-6.591	59
18S	0.00038	0.00128	-8.72e-005	-0.0140	-0.0130	0.0167	12.3	0.00128	19
19S	8.826e-005	0.08413	-0.01224	-0.0020	0.0001	0.0050	8.826e-005	-12.22	18.99
10X	-0.00144	0.04375	0.001498	-0.0756	-0.0022	-0.0274	3.493	-3.451	81
10XY	4.006e-005	0.04467	0.001349	-0.0781	-0.0023	0.0073	-3.494	-3.45	81
10Y	-0.0009256	0.04496	-0.007988	-0.0763	0.0047	-0.0119	-3.495	3.539	80.99
11X	-0.0006989	0.03509	0.00201	-0.0561	-0.0071	-0.0344	4.488	-4.454	74
11XY	-0.0005317	0.03611	0.001827	-0.0580	0.0029	0.0141	-4.489	-4.453	74
11Y	-9.969e-005	0.03633	-0.007993	-0.0644	-0.0015	-0.0121	-4.489	4.525	73.99
12X	-0.001037	0.02815	0.002135	-0.0479	-0.0035	-0.0442	5.482	-5.455	67
12XY	-1.559e-005	0.02926	0.001911	-0.0502	-0.0011	0.0240	-5.483	-5.454	67
12Y	-0.000284	0.02914	-0.007656	-0.0558	0.0045	-0.0101	-5.483	5.512	66.99
13X	-0.0006634	0.02067	0.002329	-0.0397	-0.0101	-0.0540	6.619	-6.599	59
13XY	-0.0001369	0.02186	0.002047	-0.0421	0.0055	0.0338	-6.619	-6.597	59
13Y	-5.504e-005	0.02185	-0.007139	-0.0453	0.0017	-0.0093	-6.619	6.641	58.99
14X	-0.0005549	0.008927	0.002241	-0.0146	-0.0083	-0.0672	9.46	-9.451	39
14XY	0.0002719	0.01012	0.001911	-0.0184	0.0029	0.0406	-9.46	-9.45	39
14Y	-0.0002986	0.01018	-0.005709	-0.0263	0.0029	-0.0067	-9.461	9.47	38.99
15X	-0.0004089	0.001669	0.001438	0.0012	-0.0172	-0.1102	12.3	-12.3	19
15XY	0.0006229	0.002683	0.001118	-0.0052	0.0123	0.0760	-12.3	-12.3	19
15Y	-0.0001443	0.002447	-0.003318	-0.0142	0.0014	-0.0062	-12.3	12.3	19
16Y	-0.0009448	0.02191	-0.002817	-0.0378	0.0036	-0.0066	-6.62	0.02191	59
17X	0.0003199	0.02058	-0.008395	-0.0451	-0.0004	-0.0066	0.0003199	6.64	58.99
18Y	0.0003916	0.002048	-0.0001947	-0.0110	0.0061	-0.0096	-12.3	0.002048	19
19X	0.0001162	-0.007401	-0.001182	-0.0133	-0.0001	-0.0045	0.0001162	12.29	19

Joint Support Reactions for Load Case "NESC Heavy":

Joint Label	X Force (kips)	X Usage %(kips)	Y Force	Y Usage %	H-Shear Usage %	Z Force (kips)	Comp. Usage %	Uplift Usage %	Result. Force (kips)	Result. Usage %	X Moment (ft-k)	X-M. Usage %	Y Moment (ft-k)	Y-M. Usage %	H-Bend-M Usage %	Z Moment (ft-k)	Z-M. Usage %	Max. Usage %
9P	-7.75	0.0	-8.85	0.0	0.0	-53.55	0.0	0.0	54.82	0.0	-0.01	0.0	0.0	0.0	0.0	-0.11	0.0	0.0
39P	-0.02	0.0	-0.38	0.0	0.0	-21.08	0.0	0.0	21.09	0.0	1.08	0.0	-0.2	0.0	0.0	0.21	0.0	0.0
9X	3.38	0.0	-5.01	0.0	0.0	24.42	0.0	0.0	25.16	0.0	-0.16	0.0	0.1	0.0	0.0	0.90	0.0	0.0
9XY	-3.47	0.0	-5.67	0.0	0.0	23.80	0.0	0.0	24.71	0.0	0.05	0.0	-0.1	0.0	0.0	-0.63	0.0	0.0
9Y	7.75	0.0	-9.81	0.0	0.0	-55.11	0.0	0.0	56.51	0.0	0.10	0.0	-0.1	0.0	0.0	0.05	0.0	0.0

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

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

Label	Load (kips)	Load (kips)	Load (kips)	Force (kips)	Force (kips)	Force (kips)	Disp. (ft)	Disp. (ft)	Disp. (ft)
1P	0.0000	0.0000	-0.2187	0.0000	0.0000	0.2187	-0.0006	0.1401	-0.0123
2P	0.0000	0.0000	-0.1754	0.0000	0.0000	0.1754	-0.0002	0.1244	-0.0120
3P	0.0000	0.0000	-0.2686	0.0000	0.0000	0.2686	-0.0002	0.1086	-0.0114
4P	0.0000	0.0000	-0.1945	0.0000	0.0000	0.1945	-0.0000	0.0969	-0.0109
5P	0.0000	0.0000	-0.2123	0.0000	0.0000	0.2123	0.0001	0.0863	-0.0103
6P	0.0000	0.0000	-0.4306	-0.0000	0.0000	0.4306	-0.0000	0.0757	-0.0095
7P	0.0000	0.0000	-0.3966	-0.0000	0.0000	0.3966	0.0007	0.0648	-0.0087
8P	0.0000	0.0000	-0.5346	-0.0000	0.0000	0.5346	-0.0001	0.0545	-0.0078
9P	0.0000	0.0000	-0.8328	7.7482	8.8525	-52.7141	0.0000	0.0000	0.0000
20P	0.0100	0.9860	-1.0373	-0.0100	-0.9860	1.0373	0.0037	0.1411	-0.0530
21P	0.0140	1.5390	-2.2096	-0.0140	-1.5390	2.2096	0.0014	0.1088	-0.0399
22P	0.0140	1.5390	-2.2031	-0.0140	-1.5390	2.2031	0.0024	0.0758	-0.0549
23P	0.0140	1.5390	-2.1145	-0.0140	-1.5390	2.1145	0.0014	0.0548	-0.0283
24P	0.0000	0.0000	-0.0594	-0.0000	0.0000	0.0594	-0.0013	0.1412	-0.0047
25P	0.0000	0.0000	-0.0594	-0.0000	0.0000	0.0594	-0.0010	0.1093	-0.0044
26P	0.0000	0.0000	-0.0442	-0.0000	0.0000	0.0442	-0.0006	0.0764	-0.0040
27P	0.0000	0.0000	-0.0442	-0.0000	0.0000	0.0442	-0.0004	0.0550	-0.0037
28P	0.0000	0.0000	-0.0654	-0.0000	0.0000	0.0654	-0.0001	0.0216	-0.0035
29P	0.0000	0.0000	-0.0947	-0.0000	0.0000	0.0947	0.0000	0.0101	-0.0023
30P	0.0000	0.0000	-0.1792	0.0000	0.0000	0.1792	0.0004	0.0028	-0.0013
31P	0.0000	1.8580	-9.1279	0.0000	-1.8580	9.1279	-0.0019	0.2570	-0.0056
32P	0.0000	0.4449	-1.0590	0.0000	-0.4449	1.0590	-0.0013	0.1420	-0.0048
33P	0.0000	0.3915	-0.9978	-0.0000	-0.3915	0.9978	-0.0010	0.1095	-0.0045
34P	0.0000	0.3915	-0.9755	0.0000	-0.3915	0.9755	-0.0006	0.0768	-0.0041
35P	0.0000	0.6941	-1.7196	-0.0000	-0.6941	1.7196	-0.0004	0.0553	-0.0037
36P	0.0000	0.8880	-2.1947	-0.0000	-0.8880	2.1947	-0.0001	0.0220	-0.0027
37P	0.0000	0.7437	-1.8832	-0.0000	-0.7437	1.8832	0.0000	0.0105	-0.0019
38P	0.0000	0.7252	-2.1677	-0.0000	-0.7252	2.1677	0.0004	0.0030	-0.0010
39P	0.0000	0.3533	-0.7421	0.0210	0.0289	-20.3428	0.0000	0.0000	0.0000
1X	0.0000	0.0750	-0.2187	0.0000	-0.0750	0.2187	-0.0021	0.1402	0.0034
1XY	0.0000	0.1610	-0.4574	-0.0000	-0.1610	0.4574	-0.0021	0.1421	0.0033
1Y	0.0000	0.0000	-0.2274	-0.0000	0.0000	0.2274	-0.0006	0.1420	-0.0126
2X	0.0000	0.1307	-0.1754	0.0000	-0.1307	0.1754	-0.0023	0.1238	0.0033
2XY	0.0000	0.1307	-0.1754	0.0000	-0.1307	0.1754	-0.0015	0.1253	0.0032
2Y	0.0000	0.0000	-0.1754	-0.0000	0.0000	0.1754	-0.0007	0.1259	-0.0123
3X	0.0000	0.1307	-0.2686	0.0000	-0.1307	0.2686	-0.0016	0.1088	0.0030
3XY	0.0000	0.3197	-0.7833	-0.0000	-0.3197	0.7833	-0.0017	0.1099	0.0029
3Y	0.0000	0.0000	-0.2773	-0.0000	0.0000	0.2773	-0.0004	0.1098	-0.0115
4X	0.0000	0.1184	-0.1945	0.0000	-0.1184	0.1945	-0.0016	0.0971	0.0028
4XY	0.0000	0.1184	-0.1945	-0.0000	-0.1184	0.1945	-0.0014	0.0982	0.0026
4Y	0.0000	0.0000	-0.1945	0.0000	0.0000	0.1945	-0.0005	0.0981	-0.0111
5X	0.0000	0.1316	-0.2123	-0.0000	-0.1316	0.2123	-0.0017	0.0857	0.0024
5XY	0.0000	0.1316	-0.2123	0.0000	-0.1316	0.2123	-0.0010	0.0867	0.0023
5Y	0.0000	0.0000	-0.2123	-0.0000	0.0000	0.2123	-0.0005	0.0874	-0.0104
6X	0.0000	0.1679	-0.4306	0.0000	-0.1679	0.4306	-0.0011	0.0760	0.0020
6XY	0.0000	0.3569	-0.9418	-0.0000	-0.3569	0.9418	-0.0012	0.0770	0.0018
6Y	0.0000	0.0000	-0.4358	-0.0000	0.0000	0.4358	-0.0003	0.0768	-0.0097
7X	0.0000	0.1961	-0.3966	-0.0000	-0.1961	0.3966	-0.0016	0.0643	0.0015
7XY	0.0000	0.1961	-0.3966	0.0000	-0.1961	0.3966	-0.0003	0.0652	0.0013
7Y	0.0000	0.0000	-0.3966	-0.0000	0.0000	0.3966	-0.0009	0.0657	-0.0088
8X	0.0000	0.2356	-0.5346	-0.0000	-0.2356	0.5346	-0.0007	0.0547	0.0008
8XY	0.0000	0.5706	-1.4368	0.0000	-0.5706	1.4368	-0.0009	0.0556	0.0007
8Y	0.0000	0.0000	-0.5398	0.0000	0.0000	0.5398	0.0000	0.0554	-0.0078
9X	0.0000	0.4004	-0.8328	-3.3816	4.6117	25.2528	0.0000	0.0000	0.0000
9XY	0.0000	0.4004	-0.8328	3.4667	5.2728	24.6347	0.0000	0.0000	0.0000
9Y	0.0000	0.0000	-0.8328	-7.7503	9.8070	-54.2770	0.0000	0.0000	0.0000

20X	0.0100	1.0697	-1.0373	-0.0100	-1.0697	1.0373	-0.0063	0.1412	0.0324
21X	0.0140	1.6470	-2.2096	-0.0140	-1.6470	2.2096	-0.0034	0.1099	0.0200
22X	0.0140	1.6002	-2.2031	-0.0140	-1.6002	2.2031	-0.0036	0.0772	0.0162
23X	0.0140	1.5942	-2.1145	-0.0140	-1.5942	2.1145	-0.0022	0.0556	0.0115
10S	0.0000	0.0000	-0.5041	-0.0000	0.0000	0.5041	0.0011	0.0440	-0.0079
11S	0.0000	0.0000	-0.5194	0.0000	0.0000	0.5194	0.0005	0.0353	-0.0079
12S	0.0000	0.0000	-0.5189	0.0000	0.0000	0.5189	0.0008	0.0280	-0.0076
13S	0.0000	0.0000	-1.0722	0.0000	0.0000	1.0722	0.0007	0.0207	-0.0071
14S	0.0000	0.0000	-1.7916	0.0000	0.0000	1.7916	0.0010	0.0090	-0.0057
15S	0.0000	0.0000	-1.4104	0.0000	0.0000	1.4104	0.0004	0.0015	-0.0033
16S	0.0000	0.0000	-0.1580	0.0000	0.0000	0.1580	0.0013	0.0207	-0.0026
17S	0.0000	0.1822	-0.1580	-0.0000	-0.1822	0.1580	-0.0004	0.0280	0.0018
18S	0.0000	0.0000	-0.5178	0.0000	-0.0000	0.5178	0.0004	0.0013	-0.0001
19S	0.0000	0.4965	-0.4616	-0.0000	-0.4965	0.4616	0.0001	0.0841	-0.0122
10X	0.0000	0.2686	-0.5041	0.0000	-0.2686	0.5041	-0.0014	0.0438	0.0015
10XY	0.0000	0.2686	-0.5041	-0.0000	-0.2686	0.5041	0.0000	0.0447	0.0013
10Y	0.0000	0.0000	-0.5041	-0.0000	0.0000	0.5041	-0.0009	0.0450	-0.0080
11X	0.0000	0.2767	-0.5194	0.0000	-0.2767	0.5194	-0.0007	0.0351	0.0020
11XY	0.0000	0.2767	-0.5194	-0.0000	-0.2767	0.5194	-0.0005	0.0361	0.0018
11Y	0.0000	0.0000	-0.5194	-0.0000	0.0000	0.5194	-0.0001	0.0363	-0.0080
12X	0.0000	0.2829	-0.5189	-0.0000	-0.2829	0.5189	-0.0010	0.0282	0.0021
12XY	0.0000	0.2829	-0.5189	-0.0000	-0.2829	0.5189	-0.0000	0.0293	0.0019
12Y	0.0000	0.0000	-0.5189	-0.0000	0.0000	0.5189	-0.0003	0.0291	-0.0077
13X	0.0000	0.5126	-1.0722	-0.0000	-0.5126	1.0722	-0.0007	0.0207	0.0023
13XY	0.0000	0.9336	-2.2236	-0.0000	-0.9336	2.2236	-0.0001	0.0219	0.0020
13Y	0.0000	0.0000	-1.0966	-0.0000	0.0000	1.0966	-0.0001	0.0219	-0.0071
14X	0.0000	0.8823	-1.7916	-0.0000	-0.8823	1.7916	-0.0006	0.0089	0.0022
14XY	0.0000	1.2253	-2.7758	0.0000	-1.2253	2.7758	0.0003	0.0101	0.0019
14Y	0.0000	0.0000	-1.8558	-0.0000	0.0000	1.8558	-0.0003	0.0102	-0.0057
15X	0.0000	0.6822	-1.4104	-0.0000	-0.6822	1.4104	-0.0004	0.0017	0.0014
15XY	0.0000	1.1802	-2.9030	-0.0000	-1.1802	2.9030	0.0006	0.0027	0.0011
15Y	0.0000	0.0000	-1.5690	-0.0000	0.0000	1.5690	-0.0001	0.0024	-0.0033
16Y	0.0000	0.0000	-0.1580	-0.0000	0.0000	0.1580	-0.0009	0.0219	-0.0028
17X	0.0000	0.0000	-0.1580	-0.0000	0.0000	0.1580	0.0003	0.0206	-0.0084
18Y	0.0000	0.0000	-0.5110	0.0000	0.0000	0.5110	0.0004	0.0020	-0.0002
19X	0.0000	0.0000	-0.4616	0.0000	-0.0000	0.4616	0.0001	-0.0074	-0.0012

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

Comp. Member Label	Tens. Member Label	Connect Leg for Comp. Member	Force In Comp. Member (kips)	Force In Tens. Member (kips)	Original Supported L/R Cap. (kips)	RLX	RLY	RLZ	Original Supported L/R	Original Supported KL/R	Original Supported Curve No.	Alternate Unsupported L/R Cap. (kips)	Alternate Unsupported RLOUT	Alternate Unsupported L/R	Alternate Unsupported KL/R	Alternate Unsupported Curve No.
g16X	g16XY	Long only	-1.43	-0.58	37.91	0.750	0.500	0.500	71.67	83.75	2	32.24	1.000	91.24	105.62	3
g16XY	g16X	Long only	-0.58	-1.43	37.91	0.750	0.500	0.500	71.67	83.75	2	32.24	1.000	91.24	105.62	3
g18P	g18Y	Long only	-0.82	-1.59	37.91	0.750	0.500	0.500	71.67	83.75	2	32.24	1.000	91.24	105.62	3
g18Y	g18P	Long only	-1.59	-0.82	37.91	0.750	0.500	0.500	71.67	83.75	2	32.24	1.000	91.24	105.62	3
g22X	g22XY	Long only	-1.27	-0.74	47.55	0.750	0.500	0.500	55.36	71.52	2	41.19	1.000	70.49	95.25	3
g22XY	g22X	Long only	-0.74	-1.27	47.55	0.750	0.500	0.500	55.36	71.52	2	41.19	1.000	70.49	95.25	3
g24P	g24Y	Long only	-0.91	-1.49	47.55	0.750	0.500	0.500	55.36	71.52	2	41.19	1.000	70.49	95.25	3
g24Y	g24P	Long only	-1.49	-0.91	47.55	0.750	0.500	0.500	55.36	71.52	2	41.19	1.000	70.49	95.25	3
g26X	g26XY	Long only	-1.11	-0.52	88.91	0.750	0.500	0.500	42.68	62.01	2	78.16	1.000	54.05	87.02	3
g26XY	g26X	Long only	-0.52	-1.11	88.91	0.750	0.500	0.500	42.68	62.01	2	78.16	1.000	54.05	87.02	3
g28P	g28Y	Long only	-1.89	-2.58	88.91	0.750	0.500	0.500	42.68	62.01	2	78.16	1.000	54.05	87.02	3
g28Y	g28P	Long only	-2.58	-1.89	88.91	0.750	0.500	0.500	42.68	62.01	2	78.16	1.000	54.05	87.02	3
g29P	g29X	Long only	-0.60	-0.97	49.24	0.783	0.567	0.567	79.33	89.50	2	43.87	1.000	88.99	104.49	3
g29X	g29P	Long only	-0.97	-0.60	49.24	0.783	0.567	0.567	79.33	89.50	2	43.87	1.000	88.99	104.49	3

g29Y	g29XY	Long only	-1.69	0.04	49.24	0.783	0.567	0.567	79.33	89.50	2	43.87	1.000	88.99	104.49	3
g30P	g30Y	Long only	-1.77	-2.95	49.24	0.783	0.567	0.567	79.33	89.50	2	43.87	1.000	88.99	104.49	3
g30Y	g30P	Long only	-2.95	-1.77	49.24	0.783	0.567	0.567	79.33	89.50	2	43.87	1.000	88.99	104.49	3
g32X	g32XY	Long only	-0.95	-0.47	46.44	0.780	0.560	0.560	90.14	97.60	2	41.21	1.000	102.37	111.19	3
g32XY	g32X	Long only	-0.47	-0.95	46.44	0.780	0.560	0.560	90.14	97.60	2	41.21	1.000	102.37	111.19	3
g33P	g33X	Long only	-0.55	-0.14	33.81	0.774	0.548	0.548	115.83	116.87	2	29.03	1.000	134.57	128.96	6
g33X	g33P	Long only	-0.14	-0.55	33.81	0.774	0.548	0.548	115.83	116.87	2	29.03	1.000	134.57	128.96	6
g34P	g34Y	Long only	-0.11	-0.67	33.81	0.774	0.548	0.548	115.83	116.87	2	29.03	1.000	134.57	128.96	6
g34Y	g34P	Long only	-0.67	-0.11	33.81	0.774	0.548	0.548	115.83	116.87	2	29.03	1.000	134.57	128.96	6

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

Clamp Label	Force (kips)	Input Holding Capacity (kips)	Factored Holding Capacity (kips)	Usage %
CLAMP1	1.431	50.00	50.00	2.86
CLAMP2	1.490	50.00	50.00	2.98
CLAMP3	2.693	50.00	50.00	5.39
CLAMP4	2.756	50.00	50.00	5.51
CLAMP5	2.687	50.00	50.00	5.37
CLAMP6	2.723	50.00	50.00	5.45
CLAMP7	2.615	50.00	50.00	5.23
CLAMP8	2.648	50.00	50.00	5.30
CLAMP9	0.219	50.00	50.00	0.44
CLAMP10	0.231	50.00	50.00	0.46
CLAMP11	0.269	50.00	50.00	0.54
CLAMP12	0.299	50.00	50.00	0.60
CLAMP13	0.431	50.00	50.00	0.86
CLAMP14	0.462	50.00	50.00	0.92
CLAMP15	0.535	50.00	50.00	1.07
CLAMP16	0.584	50.00	50.00	1.17
CLAMP17	1.072	50.00	50.00	2.14
CLAMP18	1.188	50.00	50.00	2.38
CLAMP19	1.792	50.00	50.00	3.58
CLAMP20	1.997	50.00	50.00	3.99
CLAMP21	1.410	50.00	50.00	2.82
CLAMP22	1.567	50.00	50.00	3.13
CLAMP23	9.315	50.00	50.00	18.63
CLAMP24	1.149	50.00	50.00	2.30
CLAMP25	1.072	50.00	50.00	2.14
CLAMP26	1.051	50.00	50.00	2.10
CLAMP27	1.854	50.00	50.00	3.71
CLAMP28	2.368	50.00	50.00	4.74
CLAMP29	2.025	50.00	50.00	4.05
CLAMP30	2.286	50.00	50.00	4.57
CLAMP31	0.485	50.00	50.00	0.97
CLAMP32	0.846	50.00	50.00	1.69
CLAMP33	1.007	50.00	50.00	2.01
CLAMP34	1.546	50.00	50.00	3.09
CLAMP35	2.412	50.00	50.00	4.82
CLAMP36	3.034	50.00	50.00	6.07
CLAMP37	3.134	50.00	50.00	6.27

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

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

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
1P	0.04457	0.3227	-0.02445	-0.4320	0.0167	-0.0591	2.545	2.823	120
2P	0.04139	0.2845	-0.02369	-0.4390	0.0542	-0.0544	2.541	2.784	115
3P	0.03643	0.2474	-0.02213	-0.4018	0.0426	-0.0494	2.536	2.747	110
4P	0.03359	0.2202	-0.02101	-0.3758	0.0371	-0.0468	2.534	2.72	106
5P	0.03063	0.1948	-0.01946	-0.3563	0.0561	-0.0443	2.531	2.695	102
6P	0.02689	0.1711	-0.01765	-0.3103	0.0233	-0.0414	2.527	2.671	97.98
7P	0.02509	0.1456	-0.01572	-0.2838	0.0466	-0.0403	2.525	2.646	92.98
8P	0.01997	0.1228	-0.01341	-0.2149	0.0260	-0.0391	2.52	2.623	87.99
9P	0	0	0	0.0000	0.0000	0.0000	15	15	0
20P	0.0584	0.3255	-0.1088	-0.4347	0.0614	-0.0756	0.0584	14.08	119.9
21P	0.04244	0.249	-0.07778	-0.4630	0.0612	-0.0526	0.04244	9.999	109.9
22P	0.03661	0.1725	-0.09287	-0.4012	0.0389	-0.0521	0.03661	14.42	97.91
23P	0.02555	0.1243	-0.05014	-0.3091	0.0290	-0.0430	0.02555	10.37	87.95
24P	0.04209	0.326	-0.004638	-0.6383	0.0583	-0.1009	0.04209	0.326	120
25P	0.03422	0.2493	-0.004122	-0.3547	0.0475	-0.0148	0.03422	0.2493	110
26P	0.02512	0.173	-0.00355	-0.3114	0.0444	-0.0393	0.02512	0.173	98
27P	0.01874	0.1242	-0.003204	-0.2261	0.0369	-0.0337	0.01874	0.1242	88
28P	0.008306	0.05229	-0.004645	-0.0817	0.1476	-0.0305	0.008306	0.05229	59
29P	0.006005	0.02832	-0.00426	-0.0616	0.1730	0.0126	0.006005	0.02832	39
30P	0.002063	0.00767	-0.001837	-0.0403	0.0595	0.0080	0.002063	0.00767	19
31P	0.05416	0.6715	-0.007065	-1.5745	0.0446	-0.0712	-1.446	0.6715	135
32P	0.04209	0.3285	-0.002971	-0.7739	0.0442	-0.0718	-1.458	0.3285	120
33P	0.03422	0.2498	-0.002534	-0.3315	0.0441	-0.0412	-1.466	0.2498	110
34P	0.02513	0.1742	-0.002135	-0.3366	0.0403	-0.0382	-1.475	0.1742	98
35P	0.01875	0.1252	-0.001873	-0.2320	0.0323	-0.0356	-1.481	0.1252	88
36P	0.00831	0.05317	-0.001343	-0.0838	0.0095	-0.0267	-1.492	0.05317	59
37P	0.006011	0.02822	-0.0009587	-0.0660	0.0105	-0.0196	-1.494	0.02822	39
38P	0.002062	0.007476	-0.0005014	-0.0438	0.0123	-0.0129	-1.498	0.007476	19
39P	0	0	0	0.0000	0.0000	0.0000	-1.5	0	0
1X	0.03966	0.3229	0.01324	-0.4294	0.0628	-0.0571	2.54	-2.177	120
1XY	0.03978	0.3288	0.01736	-0.4251	0.0142	-0.0511	-2.46	-2.171	120
1Y	0.04443	0.3287	-0.02091	-0.4297	0.0824	-0.0532	-2.456	2.829	120
2X	0.03494	0.2843	0.01289	-0.4383	0.0369	-0.0499	2.535	-2.216	115
2XY	0.03686	0.2888	0.01689	-0.4588	0.0498	-0.0479	-2.463	-2.211	115
2Y	0.03954	0.2889	-0.02005	-0.4577	0.0362	-0.0504	-2.46	2.789	115
3X	0.03217	0.2477	0.01184	-0.3995	0.0407	-0.0451	2.532	-2.252	110
3XY	0.03217	0.2512	0.01565	-0.4002	0.0460	-0.0450	-2.468	-2.249	110
3Y	0.03628	0.251	-0.01837	-0.4048	0.0499	-0.0489	-2.464	2.751	110
4X	0.0287	0.2202	0.01111	-0.3840	0.0538	-0.0428	2.529	-2.28	106
4XY	0.02961	0.2238	0.01477	-0.3832	0.0300	-0.0405	-2.47	-2.276	106
4Y	0.03253	0.2236	-0.01727	-0.3792	0.0559	-0.0447	-2.467	2.724	106
5X	0.02547	0.1945	0.01007	-0.3505	0.0290	-0.0403	2.525	-2.306	102
5XY	0.02707	0.1979	0.01353	-0.3546	0.0506	-0.0363	-2.473	-2.302	102
5Y	0.02904	0.1981	-0.01589	-0.3534	0.0340	-0.0404	-2.471	2.698	102
6X	0.0235	0.1714	0.008834	-0.3117	0.0519	-0.0388	2.524	-2.329	98.01
6XY	0.02358	0.1746	0.01209	-0.3091	0.0233	-0.0319	-2.476	-2.325	98.01
6Y	0.02665	0.1745	-0.01433	-0.3146	0.0586	-0.0361	-2.473	2.675	97.99
7X	0.01861	0.145	0.007528	-0.2832	0.0293	-0.0409	2.519	-2.355	93.01
7XY	0.022	0.1484	0.0105	-0.2876	0.0426	-0.0263	-2.478	-2.352	93.01
7Y	0.02149	0.1484	-0.01271	-0.2850	0.0293	-0.0306	-2.479	2.648	92.99

8X	0.01763	0.123	0.00595	-0.2159	0.0324	-0.0430	2.518	-2.377	88.01
8XY	0.01719	0.1258	0.008501	-0.2165	0.0236	-0.0206	-2.483	-2.374	88.01
8Y	0.02036	0.1258	-0.01081	-0.2208	0.0391	-0.0253	-2.48	2.626	87.99
9X	0	0	0	0.0000	0.0000	0.0000	15	-15	0
9XY	0	0	0	0.0000	0.0000	0.0000	-15	-15	0
9Y	0	0	0	0.0000	0.0000	0.0000	-15	15	0
20X	0.02713	0.3262	0.09571	-0.4088	0.0218	-0.0663	0.02713	-13.42	120.1
21X	0.02757	0.25	0.06561	-0.4243	0.0221	-0.0395	0.02757	-9.5	110.1
22X	0.01765	0.1736	0.07169	-0.2898	0.0366	-0.0262	0.01765	-14.08	98.07
23X	0.01373	0.1249	0.04005	-0.2542	0.0289	-0.0258	0.01373	-10.13	88.04
10S	0.01907	0.09957	-0.01406	-0.1606	0.0223	-0.0440	3.513	3.594	80.99
11S	0.01484	0.0803	-0.01441	-0.1297	0.0300	-0.0507	4.503	4.569	73.99
12S	0.01359	0.06496	-0.01385	-0.1071	0.0163	-0.0616	5.497	5.548	66.99
13S	0.011	0.04914	-0.01305	-0.0863	0.0216	-0.0718	6.63	6.668	58.99
14S	0.008197	0.02336	-0.01057	-0.0496	0.0263	-0.0821	9.468	9.484	38.99
15S	-0.0005262	0.003255	-0.006961	-0.0143	0.0301	-0.1368	12.3	12.3	18.99
16S	0.008172	0.04899	-0.003607	-0.0869	0.0104	0.0043	6.627	0.04899	59
17S	0.006074	0.06217	0.008325	-0.0866	0.0117	-0.0202	0.006074	-6.557	59.01
18S	0.002037	0.003014	9.265e-005	-0.0321	-0.0298	0.0593	12.3	0.003014	19
19S	0.0003291	0.1448	-0.02127	-0.0199	0.0052	0.0049	0.0003291	-12.16	18.98
10X	0.01189	0.09884	0.006712	-0.1640	0.0255	-0.0519	3.506	-3.395	81.01
10XY	0.01579	0.1028	0.009502	-0.1665	0.0175	-0.0092	-3.479	-3.391	81.01
10Y	0.01478	0.1025	-0.01115	-0.1671	0.0330	-0.0163	-3.48	3.597	80.99
11X	0.01058	0.08007	0.007253	-0.1254	0.0080	-0.0611	4.499	-4.409	74.01
11XY	0.01124	0.08423	0.01017	-0.1301	0.0256	0.0019	-4.477	-4.404	74.01
11Y	0.01395	0.08421	-0.01134	-0.1318	0.0127	-0.0066	-4.475	4.573	73.99
12X	0.007307	0.06467	0.007095	-0.1075	0.0158	-0.0769	5.49	-5.418	67.01
12XY	0.009728	0.06959	0.009882	-0.1097	0.0122	0.0185	-5.473	-5.413	67.01
12Y	0.01119	0.06918	-0.01089	-0.1133	0.0229	0.0097	-5.472	5.552	66.99
13X	0.005423	0.04885	0.006935	-0.0848	-0.0011	-0.0909	6.625	-6.57	59.01
13XY	0.006755	0.05414	0.00953	-0.0886	0.0219	0.0341	-6.613	-6.565	59.01
13Y	0.009548	0.05393	-0.01029	-0.0896	0.0060	0.0241	-6.61	6.673	58.99
14X	0.001531	0.02376	0.005784	-0.0432	-0.0037	-0.1148	9.462	-9.436	39.01
14XY	0.003574	0.03017	0.007657	-0.0525	0.0093	0.0506	-9.457	-9.43	39.01
14Y	0.006767	0.02868	-0.008652	-0.0594	0.0112	0.0403	-9.453	9.489	38.99
15X	-0.0009419	0.00411	0.003802	-0.0100	-0.0272	-0.1925	12.3	-12.3	19
15XY	0.00173	0.007585	0.005011	-0.0296	0.0230	0.1245	-12.3	-12.29	19.01
15Y	0.0003141	0.005785	-0.00496	-0.0289	-0.0029	0.0995	-12.3	12.31	19
16Y	0.008534	0.05411	-0.000384	-0.0841	0.0139	-0.0326	-6.611	0.05411	59
17X	0.01034	0.05945	-0.01265	-0.0880	0.0111	-0.0192	0.01034	6.679	58.99
18Y	0.00208	0.00541	-0.0004825	-0.0218	-0.0017	-0.0360	-12.3	0.00541	19
19X	-7.489e-005	0.1073	0.0147	-0.0214	0.0002	0.0005	-7.489e-005	12.41	19.01

Joint Support Reactions for Load Case "NESC Extreme":

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	H-Shear Usage %	Z Force (kips)	Comp. Usage %	Uplift Usage %	Result. Force (kips)	Result. Usage %	X Moment (ft-k)	X-M. Usage %	Y Moment (ft-k)	Y-M. Usage %	H-Bend-M Usage %	Z Moment (ft-k)	Z-M. Usage %	Max. Usage %
9P	-15.30	0.0	-18.99	0.0	0.0	-107.39	0.0	0.0	110.12	0.0	-0.45	0.0	0.4	0.0	0.0	1.14	0.0	0.0
39P	-0.00	0.0	-0.84	0.0	0.0	-11.07	0.0	0.0	11.10	0.0	2.31	0.0	-0.6	0.0	0.0	0.48	0.0	0.0
9X	8.87	0.0	-12.74	0.0	0.0	65.08	0.0	0.0	66.91	0.0	-0.34	0.0	0.3	0.0	0.0	1.53	0.0	0.0
9XY	-13.69	0.0	-19.29	0.0	0.0	94.66	0.0	0.0	97.57	0.0	0.15	0.0	-0.2	0.0	0.0	-1.02	0.0	0.0
9Y	12.88	0.0	-18.62	0.0	0.0	-88.80	0.0	0.0	91.64	0.0	-0.06	0.0	0.1	0.0	0.0	-0.77	0.0	0.0

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

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

Label	Load (kips)	Load (kips)	Load (kips)	Force (kips)	Force (kips)	Force (kips)	Disp. (ft)	Disp. (ft)	Disp. (ft)
1P	0.0000	0.2963	-0.2394	0.0000	-0.2963	0.2394	0.0446	0.3227	-0.0245
2P	0.0000	0.2963	-0.2394	0.0000	-0.2963	0.2394	0.0414	0.2845	-0.0237
3P	0.0000	0.2963	-0.2394	0.0000	-0.2963	0.2394	0.0364	0.2474	-0.0221
4P	0.0000	0.2963	-0.2394	0.0000	-0.2963	0.2394	0.0336	0.2202	-0.0210
5P	0.0000	0.2963	-0.2394	0.0000	-0.2963	0.2394	0.0306	0.1948	-0.0195
6P	0.0000	0.2963	-0.2394	-0.0000	-0.2963	0.2394	0.0269	0.1711	-0.0176
7P	0.0000	0.2963	-0.2394	0.0000	-0.2963	0.2394	0.0251	0.1456	-0.0157
8P	0.0000	0.2963	-0.2394	-0.0000	-0.2963	0.2394	0.0200	0.1228	-0.0134
9P	0.0000	0.8246	-0.6974	15.2974	18.1649	-106.6903	0.0000	0.0000	0.0000
20P	0.3430	1.1393	-0.5034	-0.3430	-1.1393	0.5034	0.0584	0.3255	-0.1088
21P	1.0930	2.6273	-1.1184	-1.0930	-2.6273	1.1184	0.0424	0.2490	-0.0778
22P	1.0930	2.6273	-1.1184	-1.0930	-2.6273	1.1184	0.0366	0.1725	-0.0929
23P	1.0930	2.6273	-1.1184	-1.0930	-2.6273	1.1184	0.0255	0.1243	-0.0501
24P	0.0000	0.2963	-0.2394	0.0000	-0.2964	0.2394	0.0421	0.3260	-0.0046
25P	0.0000	0.2963	-0.2394	0.0000	-0.2963	0.2394	0.0342	0.2493	-0.0041
26P	0.0000	0.2963	-0.2394	0.0000	-0.2963	0.2394	0.0251	0.1730	-0.0036
27P	0.0000	0.2963	-0.2394	0.0000	-0.2963	0.2394	0.0187	0.1242	-0.0032
28P	0.0000	0.2963	-0.2394	0.0000	-0.2963	0.2394	0.0083	0.0523	-0.0046
29P	0.0000	0.8246	-0.6974	0.0000	-0.8246	0.6974	0.0060	0.0283	-0.0043
30P	0.0000	0.8246	-0.6974	0.0000	-0.8246	0.6974	0.0021	0.0077	-0.0018
31P	0.0000	6.4533	-4.5744	0.0000	-6.4533	4.5744	0.0542	0.6715	-0.0071
32P	0.0000	0.2963	-0.2704	0.0000	-0.2963	0.2704	0.0421	0.3285	-0.0030
33P	0.0000	0.2963	-0.3084	0.0000	-0.2963	0.3084	0.0342	0.2498	-0.0025
34P	0.0000	0.2963	-0.3084	0.0000	-0.2963	0.3084	0.0251	0.1742	-0.0021
35P	0.0000	0.2963	-0.3614	-0.0000	-0.2963	0.3614	0.0187	0.1252	-0.0019
36P	0.0000	1.1210	-1.0898	0.0000	-1.1210	1.0898	0.0083	0.0532	-0.0013
37P	0.0000	0.8246	-0.8224	-0.0000	-0.8246	0.8224	0.0060	0.0282	-0.0010
38P	0.0000	0.8246	-0.8784	-0.0000	-0.8246	0.8784	0.0021	0.0075	-0.0005
39P	0.0000	0.8246	-0.6974	0.0012	0.0150	-10.3753	0.0000	0.0000	0.0000
1X	0.0000	0.2963	-0.2394	0.0000	-0.2963	0.2394	0.0397	0.3229	0.0132
1XY	0.0000	0.5533	-0.3014	-0.0000	-0.5533	0.3014	0.0398	0.3288	0.0174
1Y	0.0000	0.2963	-0.2394	0.0000	-0.2963	0.2394	0.0444	0.3287	-0.0209
2X	0.0000	0.2963	-0.2394	0.0000	-0.2963	0.2394	0.0349	0.2843	0.0129
2XY	0.0000	0.2963	-0.2394	0.0000	-0.2963	0.2394	0.0369	0.2888	0.0169
2Y	0.0000	0.2963	-0.2394	0.0000	-0.2963	0.2394	0.0395	0.2889	-0.0201
3X	0.0000	0.2963	-0.2394	0.0000	-0.2963	0.2394	0.0322	0.2477	0.0118
3XY	0.0000	0.8623	-0.3764	0.0000	-0.8623	0.3764	0.0322	0.2512	0.0156
3Y	0.0000	0.2963	-0.2394	-0.0000	-0.2963	0.2394	0.0363	0.2510	-0.0184
4X	0.0000	0.2963	-0.2394	0.0000	-0.2963	0.2394	0.0287	0.2202	0.0111
4XY	0.0000	0.2963	-0.2394	-0.0000	-0.2963	0.2394	0.0296	0.2238	0.0148
4Y	0.0000	0.2963	-0.2394	0.0000	-0.2963	0.2394	0.0325	0.2236	-0.0173
5X	0.0000	0.2963	-0.2394	-0.0000	-0.2963	0.2394	0.0255	0.1945	0.0101
5XY	0.0000	0.2963	-0.2394	0.0000	-0.2963	0.2394	0.0271	0.1979	0.0135
5Y	0.0000	0.2963	-0.2394	-0.0000	-0.2963	0.2394	0.0290	0.1981	-0.0159
6X	0.0000	0.2963	-0.2394	0.0000	-0.2963	0.2394	0.0235	0.1714	0.0088
6XY	0.0000	0.8623	-0.3764	-0.0000	-0.8623	0.3764	0.0236	0.1746	0.0121
6Y	0.0000	0.2963	-0.2394	0.0000	-0.2963	0.2394	0.0266	0.1745	-0.0143
7X	0.0000	0.2963	-0.2394	0.0000	-0.2963	0.2394	0.0186	0.1450	0.0075
7XY	0.0000	0.2963	-0.2394	0.0000	-0.2963	0.2394	0.0220	0.1484	0.0105
7Y	0.0000	0.2963	-0.2394	0.0000	-0.2963	0.2394	0.0215	0.1484	-0.0127
8X	0.0000	0.2963	-0.2394	-0.0000	-0.2963	0.2394	0.0176	0.1230	0.0060
8XY	0.0000	1.2993	-0.4824	0.0000	-1.2993	0.4824	0.0172	0.1258	0.0085
8Y	0.0000	0.2963	-0.2394	0.0000	-0.2963	0.2394	0.0204	0.1258	-0.0108
9X	0.0000	0.8246	-0.6974	-8.8676	11.9172	65.7798	0.0000	0.0000	0.0000
9XY	0.0000	0.8246	-0.6974	13.6919	18.4624	95.3612	0.0000	0.0000	0.0000
9Y	0.0000	0.8246	-0.6974	-12.8790	17.7980	-88.1022	0.0000	0.0000	0.0000

20X	0.3430	1.1393	-0.5034	-0.3430	-1.1393	0.5034	0.0271	0.3262	0.0957
21X	1.0930	2.6273	-1.1184	-1.0930	-2.6273	1.1184	0.0276	0.2500	0.0656
22X	1.0930	2.6273	-1.1184	-1.0930	-2.6273	1.1184	0.0177	0.1736	0.0717
23X	1.0930	2.6273	-1.1184	-1.0930	-2.6273	1.1184	0.0137	0.1249	0.0400
10S	0.0000	0.2963	-0.2394	0.0000	-0.2963	0.2394	0.0191	0.0996	-0.0141
11S	0.0000	0.2963	-0.2394	0.0000	-0.2963	0.2394	0.0148	0.0803	-0.0144
12S	0.0000	0.2963	-0.2394	0.0000	-0.2963	0.2394	0.0136	0.0650	-0.0138
13S	0.0000	1.1210	-0.9368	-0.0000	-1.1210	0.9368	0.0110	0.0491	-0.0130
14S	0.0000	0.8246	-0.6974	0.0000	-0.8246	0.6974	0.0082	0.0234	-0.0106
15S	0.0000	0.8246	-0.6974	-0.0000	-0.8246	0.6974	-0.0005	0.0033	-0.0070
16S	0.0000	0.2963	-0.2394	0.0000	-0.2963	0.2394	0.0082	0.0490	-0.0036
17S	0.0000	0.2963	-0.2394	0.0000	-0.2963	0.2394	0.0061	0.0622	0.0083
18S	0.0000	0.8246	-0.6974	0.0000	-0.8246	0.6974	0.0020	0.0030	0.0001
19S	0.0000	0.8246	-0.6974	0.0000	-0.8246	0.6974	0.0003	0.1448	-0.0213
10X	0.0000	0.2963	-0.2394	0.0000	-0.2963	0.2394	0.0119	0.0988	0.0067
10XY	0.0000	0.2963	-0.2394	-0.0000	-0.2963	0.2394	0.0158	0.1028	0.0095
10Y	0.0000	0.2963	-0.2394	0.0000	-0.2963	0.2394	0.0148	0.1025	-0.0111
11X	0.0000	0.2963	-0.2394	0.0000	-0.2963	0.2394	0.0106	0.0801	0.0073
11XY	0.0000	0.2963	-0.2394	-0.0000	-0.2963	0.2394	0.0112	0.0842	0.0102
11Y	0.0000	0.2963	-0.2394	-0.0000	-0.2963	0.2394	0.0140	0.0842	-0.0113
12X	0.0000	0.2963	-0.2394	0.0000	-0.2963	0.2394	0.0073	0.0647	0.0071
12XY	0.0000	0.2963	-0.2394	-0.0000	-0.2963	0.2394	0.0097	0.0696	0.0099
12Y	0.0000	0.2963	-0.2394	-0.0000	-0.2963	0.2394	0.0112	0.0692	-0.0109
13X	0.0000	1.1210	-0.9368	-0.0000	-1.1210	0.9368	0.0054	0.0488	0.0069
13XY	0.0000	2.3810	-1.2428	-0.0000	-2.3810	1.2428	0.0068	0.0541	0.0095
13Y	0.0000	1.1210	-0.9368	-0.0000	-1.1210	0.9368	0.0095	0.0539	-0.0103
14X	0.0000	0.8246	-0.6974	-0.0000	-0.8246	0.6974	0.0015	0.0238	0.0058
14XY	0.0000	1.8526	-0.9474	0.0000	-1.8526	0.9474	0.0036	0.0302	0.0077
14Y	0.0000	0.8246	-0.6974	0.0000	-0.8246	0.6974	0.0068	0.0287	-0.0087
15X	0.0000	0.8246	-0.6974	0.0000	-0.8246	0.6974	-0.0009	0.0041	0.0038
15XY	0.0000	2.3156	-1.0594	-0.0000	-2.3156	1.0594	0.0017	0.0076	0.0050
15Y	0.0000	0.8246	-0.6974	0.0000	-0.8246	0.6974	0.0003	0.0058	-0.0050
16Y	0.0000	0.2963	-0.2394	0.0000	-0.2963	0.2394	0.0085	0.0541	-0.0004
17X	0.0000	0.2963	-0.2394	0.0000	-0.2963	0.2394	0.0103	0.0595	-0.0126
18Y	0.0000	0.8246	-0.6974	0.0000	-0.8246	0.6974	0.0021	0.0054	-0.0005
19X	0.0000	0.8246	-0.6974	-0.0000	-0.8246	0.6974	-0.0001	0.1073	0.0147

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

Comp. Member Label	Tens. Member Label	Connect Leg for Comp. Member	Force In Comp. Member (kips)	Force In Tens. Member (kips)	Original Supported L/R Cap. (kips)	RLX	RLY	RLZ	Original Supported L/R	Original Supported KL/R	Original Supported Curve No.	Alternate Unsupported L/R Cap. (kips)	Alternate Unsupported RLOUT	Alternate Unsupported L/R	Alternate Unsupported KL/R	Alternate Unsupported Curve No.
g16X	g16XY	Long only	-3.02	-0.66	37.91	0.750	0.500	0.500	71.67	83.75	2	32.24	1.000	91.24	105.62	3
g16XY	g16X	Long only	-0.66	-3.02	37.91	0.750	0.500	0.500	71.67	83.75	2	32.24	1.000	91.24	105.62	3
g18P	g18Y	Long only	-0.44	-3.57	37.91	0.750	0.500	0.500	71.67	83.75	2	32.24	1.000	91.24	105.62	3
g18Y	g18P	Long only	-3.57	-0.44	37.91	0.750	0.500	0.500	71.67	83.75	2	32.24	1.000	91.24	105.62	3
g20Y	g20P	Long only	-2.89	0.50	47.55	0.750	0.500	0.500	55.36	71.52	2	41.19	1.000	70.49	95.25	3
g22X	g22XY	Long only	-1.57	-1.76	47.55	0.750	0.500	0.500	55.36	71.52	2	41.19	1.000	70.49	95.25	3
g22XY	g22X	Long only	-1.76	-1.57	47.55	0.750	0.500	0.500	55.36	71.52	2	41.19	1.000	70.49	95.25	3
g24P	g24Y	Long only	-0.46	-3.99	47.55	0.750	0.500	0.500	55.36	71.52	2	41.19	1.000	70.49	95.25	3
g24Y	g24P	Long only	-3.99	-0.46	47.55	0.750	0.500	0.500	55.36	71.52	2	41.19	1.000	70.49	95.25	3
g26X	g26XY	Long only	-0.95	-2.80	88.91	0.750	0.500	0.500	42.68	62.01	2	78.16	1.000	54.05	87.02	3
g26XY	g26X	Long only	-2.80	-0.95	88.91	0.750	0.500	0.500	42.68	62.01	2	78.16	1.000	54.05	87.02	3
g28P	g28Y	Long only	-1.19	-6.64	88.91	0.750	0.500	0.500	42.68	62.01	2	78.16	1.000	54.05	87.02	3
g28Y	g28P	Long only	-6.64	-1.19	88.91	0.750	0.500	0.500	42.68	62.01	2	78.16	1.000	54.05	87.02	3
g30P	g30Y	Long only	-3.11	-7.02	49.24	0.783	0.567	0.567	79.33	89.50	2	43.87	1.000	88.99	104.49	3

g30Y	g30P	Long only	-7.02	-3.11	49.24	0.783	0.567	0.567	79.33	89.50	2	43.87	1.000	88.99	104.49	3
g32X	g32XY	Long only	-2.16	-1.47	46.44	0.780	0.560	0.560	90.14	97.60	2	41.21	1.000	102.37	111.19	3
g32XY	g32X	Long only	-1.47	-2.16	46.44	0.780	0.560	0.560	90.14	97.60	2	41.21	1.000	102.37	111.19	3
g33X	g33P	Long only	-0.60	0.10	33.81	0.774	0.548	0.548	115.83	116.87	2	29.03	1.000	134.57	128.96	6
g34Y	g34P	Long only	-1.65	0.24	33.81	0.774	0.548	0.548	115.83	116.87	2	29.03	1.000	134.57	128.96	6

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

Clamp Label	Force (kips)	Input Holding Capacity (kips)	Factored Holding Capacity (kips)	Usage %
CLAMP1	1.292	50.00	50.00	2.58
CLAMP2	1.292	50.00	50.00	2.58
CLAMP3	3.058	50.00	50.00	6.12
CLAMP4	3.058	50.00	50.00	6.12
CLAMP5	3.058	50.00	50.00	6.12
CLAMP6	3.058	50.00	50.00	6.12
CLAMP7	3.058	50.00	50.00	6.12
CLAMP8	3.058	50.00	50.00	6.12
CLAMP9	0.381	50.00	50.00	0.76
CLAMP10	0.381	50.00	50.00	0.76
CLAMP11	0.381	50.00	50.00	0.76
CLAMP12	0.381	50.00	50.00	0.76
CLAMP13	0.381	50.00	50.00	0.76
CLAMP14	0.381	50.00	50.00	0.76
CLAMP15	0.381	50.00	50.00	0.76
CLAMP16	0.381	50.00	50.00	0.76
CLAMP17	1.461	50.00	50.00	2.92
CLAMP18	1.461	50.00	50.00	2.92
CLAMP19	1.080	50.00	50.00	2.16
CLAMP20	1.080	50.00	50.00	2.16
CLAMP21	1.080	50.00	50.00	2.16
CLAMP22	1.080	50.00	50.00	2.16
CLAMP23	7.910	50.00	50.00	15.82
CLAMP24	0.401	50.00	50.00	0.80
CLAMP25	0.428	50.00	50.00	0.86
CLAMP26	0.428	50.00	50.00	0.86
CLAMP27	0.467	50.00	50.00	0.93
CLAMP28	1.563	50.00	50.00	3.13
CLAMP29	1.165	50.00	50.00	2.33
CLAMP30	1.205	50.00	50.00	2.41
CLAMP31	0.630	50.00	50.00	1.26
CLAMP32	0.941	50.00	50.00	1.88
CLAMP33	0.941	50.00	50.00	1.88
CLAMP34	1.386	50.00	50.00	2.77
CLAMP35	2.686	50.00	50.00	5.37
CLAMP36	2.081	50.00	50.00	4.16
CLAMP37	2.546	50.00	50.00	5.09

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

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

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
1P	0.1448	0.1556	-0.02317	-0.1641	0.2066	0.4997	2.645	2.656	120
2P	0.1258	0.1403	-0.02274	-0.1834	0.2277	0.4626	2.626	2.64	115
3P	0.1066	0.1242	-0.02173	-0.1672	0.2083	0.4281	2.607	2.624	110
4P	0.09255	0.1122	-0.02089	-0.1658	0.1985	0.3866	2.593	2.612	106
5P	0.07919	0.1006	-0.01954	-0.1708	0.1895	0.3451	2.579	2.601	102
6P	0.06686	0.0892	-0.0179	-0.1294	0.1591	0.3058	2.567	2.589	97.98
7P	0.05362	0.07866	-0.01618	-0.1266	0.1588	0.2716	2.554	2.579	92.98
8P	0.04099	0.06754	-0.01412	-0.1022	0.1011	0.2375	2.541	2.568	87.99
9P	0	0	0	0.0000	0.0000	0.0000	15	15	0
20P	0.04474	0.133	-0.04949	-0.1866	0.1854	0.5137	0.04474	13.88	120
21P	0.04954	0.1042	-0.0378	-0.2042	0.1808	0.4726	0.04954	9.854	110
22P	0.001545	0.07491	-0.05165	-0.2419	0.1782	0.3212	0.001545	14.32	97.95
23P	0.007438	0.05674	-0.02675	-0.1591	0.1314	0.2550	0.007438	10.31	87.97
24P	0.1667	0.1334	-0.008203	-0.2160	0.2045	0.5167	0.1667	0.1334	120
25P	0.1255	0.1048	-0.007478	-0.1278	0.1941	0.4635	0.1255	0.1048	110
26P	0.08045	0.07576	-0.006609	-0.1190	0.1579	0.3082	0.08045	0.07576	97.99
27P	0.05169	0.057	-0.005706	-0.0866	0.1215	0.2426	0.05169	0.057	87.99
28P	0.01038	0.02931	-0.004281	-0.0307	0.0844	0.0813	0.01038	0.02931	59
29P	0.002432	0.01483	-0.002394	-0.0321	0.0371	0.0305	0.002432	0.01483	39
30P	0.0005464	0.003304	-0.001203	-0.0171	0.0155	-0.0040	0.0005464	0.003304	19
31P	0.2301	0.2277	-0.005108	-0.4864	0.2471	0.4810	-1.27	0.2277	135
32P	0.1668	0.1201	-0.004242	-0.2515	0.2424	0.4800	-1.333	0.1201	120
33P	0.1256	0.09282	-0.003885	-0.1141	0.2323	0.4430	-1.374	0.09282	110
34P	0.08053	0.06767	-0.003492	-0.1111	0.1920	0.3739	-1.419	0.06767	98
35P	0.05173	0.05072	-0.003188	-0.0792	0.1401	0.3210	-1.448	0.05072	88
36P	0.01037	0.02653	-0.002325	-0.0351	0.0390	0.1841	-1.49	0.02653	59
37P	0.002435	0.01347	-0.001638	-0.0363	0.0114	0.1011	-1.498	0.01347	39
38P	0.0005456	0.003051	-0.0008542	-0.0195	0.0033	0.0367	-1.499	0.003051	19
39P	0	0	0	0.0000	0.0000	0.0000	-1.5	0	0
1X	0.189	0.1564	-0.00918	-0.1640	0.2397	0.5214	2.689	-2.344	120
1XY	0.1892	0.1109	0.01125	-0.1720	0.2633	0.5217	-2.311	-2.389	120
1Y	0.145	0.1111	-0.0028	-0.1458	0.2649	0.5010	-2.355	2.611	120
2X	0.1663	0.1395	-0.009124	-0.1809	0.2615	0.4857	2.666	-2.36	115
2XY	0.1672	0.09783	0.01109	-0.1386	0.2522	0.4838	-2.333	-2.402	115
2Y	0.1254	0.09792	-0.002569	-0.1490	0.2108	0.4648	-2.375	2.598	115
3X	0.1448	0.1249	-0.008943	-0.1653	0.2460	0.4433	2.645	-2.375	110
3XY	0.1449	0.08524	0.01045	-0.1371	0.2630	0.4429	-2.355	-2.415	110
3Y	0.1066	0.0853	-0.002168	-0.1349	0.2243	0.4282	-2.393	2.585	110
4X	0.1267	0.1117	-0.008723	-0.1878	0.2638	0.3953	2.627	-2.388	106
4XY	0.1271	0.07747	0.009872	-0.1050	0.2490	0.3952	-2.373	-2.423	106
4Y	0.0922	0.07653	-0.002075	-0.1089	0.2002	0.3863	-2.408	2.577	106
5X	0.1093	0.09947	-0.008351	-0.1550	0.2387	0.3471	2.609	-2.401	102
5XY	0.1101	0.06935	0.008941	-0.1063	0.2464	0.3476	-2.39	-2.431	102
5Y	0.07879	0.06941	-0.002137	-0.0989	0.1812	0.3444	-2.421	2.569	102
6X	0.09387	0.08931	-0.007837	-0.1355	0.2067	0.3013	2.594	-2.411	97.99
6XY	0.09383	0.06245	0.00774	-0.0975	0.2012	0.3029	-2.406	-2.438	98.01
6Y	0.06673	0.06197	-0.002268	-0.1119	0.1777	0.3043	-2.433	2.562	98
7X	0.07642	0.07677	-0.007323	-0.1222	0.1835	0.2614	2.576	-2.423	92.99
7XY	0.07767	0.05419	0.006417	-0.0958	0.1851	0.2699	-2.422	-2.446	93.01
7Y	0.05224	0.05328	-0.002418	-0.0871	0.1492	0.2665	-2.448	2.553	93

8X	0.06241	0.06779	-0.006717	-0.1068	0.1478	0.2214	2.562	-2.432	87.99
8XY	0.06226	0.04654	0.004755	-0.0577	0.1478	0.2369	-2.438	-2.453	88
8Y	0.04113	0.04637	-0.002582	-0.0700	0.1101	0.2288	-2.459	2.546	88
9X	0	0	0	0.0000	0.0000	0.0000	15	-15	0
9XY	0	0	0	0.0000	0.0000	0.0000	-15	-15	0
9Y	0	0	0	0.0000	0.0000	0.0000	-15	15	0
20X	0.3037	0.1343	0.02627	-0.1308	0.3069	0.6053	0.3037	-13.62	120
21X	0.2086	0.1058	0.0155	-0.1282	0.3001	0.5422	0.2086	-9.644	110
22X	0.1581	0.07674	0.01046	-0.0203	0.1861	0.3155	0.1581	-14.17	98.01
23X	0.0956	0.05766	0.007589	-0.0550	0.1209	0.2538	0.0956	-10.19	88.01
10S	0.02785	0.06012	-0.01458	-0.0872	0.0678	0.2096	3.522	3.554	80.99
11S	0.01543	0.05265	-0.01479	-0.0743	0.0622	0.1854	4.504	4.541	73.99
12S	0.005858	0.04754	-0.01436	-0.0634	0.0506	0.1601	5.489	5.53	66.99
13S	-0.004121	0.04025	-0.01391	-0.0700	0.0335	0.1279	6.615	6.66	58.99
14S	-0.008484	0.01974	-0.01081	-0.0657	-0.0216	0.0709	9.452	9.48	38.99
15S	-0.003376	0.00274	-0.005993	-0.0302	-0.0228	0.0375	12.3	12.3	18.99
16S	0.01066	0.0413	-0.01112	-0.0194	0.0478	0.1240	6.63	0.0413	58.99
17S	0.02322	0.03527	-0.0003811	-0.0356	0.0476	0.1072	0.02322	-6.584	59
18S	0.0005369	0.002787	-7.102e-005	-0.0041	-0.0144	0.0237	12.3	0.002787	19
19S	0.001722	0.08381	-0.01219	-0.0098	0.0092	0.0099	0.001722	-12.22	18.99
10X	0.04885	0.05764	-0.006522	-0.0946	0.1203	0.1862	3.543	-3.437	80.99
10XY	0.05019	0.03776	0.005691	-0.0364	0.1195	0.2146	-3.444	-3.457	81.01
10Y	0.02605	0.03581	-0.002115	-0.0413	0.0777	0.1934	-3.468	3.53	81
11X	0.0396	0.05196	-0.006413	-0.0630	0.0897	0.1542	4.528	-4.437	73.99
11XY	0.03978	0.02881	0.006397	-0.0324	0.0979	0.1938	-4.449	-4.46	74.01
11Y	0.01479	0.02859	-0.001597	-0.0341	0.0616	0.1635	-4.474	4.517	74
12X	0.03122	0.04658	-0.006317	-0.0572	0.0835	0.1151	5.514	-5.436	66.99
12XY	0.03216	0.02293	0.006364	-0.0174	0.0848	0.1703	-5.451	-5.46	67.01
12Y	0.005063	0.02156	-0.001195	-0.0311	0.0531	0.1352	-5.478	5.505	67
13X	0.0227	0.04142	-0.006269	-0.0519	0.0620	0.0722	6.642	-6.578	58.99
13XY	0.02315	0.01654	0.006389	-0.0193	0.0756	0.1453	-6.596	-6.603	59.01
13Y	-0.003084	0.01597	-0.0006859	-0.0203	0.0288	0.0997	-6.622	6.635	59
14X	0.009744	0.02217	-0.003909	-0.0593	0.0280	0.0002	9.47	-9.438	39
14XY	0.01037	0.006716	0.005561	-0.0054	0.0374	0.0928	-9.45	-9.454	39.01
14Y	-0.00638	0.005909	-0.0006726	-0.0162	-0.0119	0.0419	-9.467	9.466	39
15X	0.001684	0.00424	-0.001301	-0.0224	0.0003	-0.0843	12.3	-12.3	19
15XY	0.002656	0.00111	0.003329	0.0029	0.0277	0.0886	-12.3	-12.3	19
15Y	-0.002273	0.0004739	-0.0008134	-0.0041	-0.0113	0.0053	-12.3	12.3	19
16Y	0.009295	0.01588	0.00343	-0.0362	0.0522	0.1091	-6.61	0.01588	59
17X	-0.004106	0.02693	-0.008576	-0.0452	0.0699	0.1009	-0.004106	6.646	58.99
18Y	0.000553	0.0006318	-0.0002124	-0.0145	0.0047	-0.0048	-12.3	0.0006318	19
19X	-0.002254	-0.009463	-0.001476	-0.0172	0.0266	-0.0028	-0.002254	12.29	19

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

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	H-Shear Usage %	Z Force (kips)	Comp. Usage %	Uplift Usage %	Result. Force (kips)	Result. Usage %	X Moment (ft-k)	X-M. Usage %	Y Moment (ft-k)	Y-M. Usage %	H-Bend-M Usage %	Z Moment (ft-k)	Z-M. Usage %	Max. Usage %
9P	-9.78	0.0	-14.54	0.0	0.0	-83.72	0.0	0.0	85.54	0.0	-0.11	0.0	0.5	0.0	0.0	-0.32	0.0	0.0
39P	0.00	0.0	-0.33	0.0	0.0	-18.47	0.0	0.0	18.47	0.0	0.78	0.0	-0.2	0.0	0.0	-1.37	0.0	0.0
9X	-3.43	0.0	-1.14	0.0	0.0	-12.68	0.0	0.0	13.19	0.0	0.02	0.0	0.1	0.0	0.0	0.67	0.0	0.0
9XY	-9.52	0.0	-8.84	0.0	0.0	55.59	0.0	0.0	57.09	0.0	-0.20	0.0	-0.2	0.0	0.0	-0.72	0.0	0.0
9Y	5.33	0.0	-3.78	0.0	0.0	-22.18	0.0	0.0	23.12	0.0	-0.05	0.0	0.2	0.0	0.0	-0.02	0.0	0.0

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

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

Label	Load (kips)	Load (kips)	Load (kips)	Force (kips)	Force (kips)	Force (kips)	Disp. (ft)	Disp. (ft)	Disp. (ft)
1P	0.0000	0.0000	-0.2187	-0.0000	0.0000	0.2187	0.1448	0.1556	-0.0232
2P	0.0000	0.0000	-0.1754	-0.0000	0.0000	0.1754	0.1258	0.1403	-0.0227
3P	0.0000	0.0000	-0.2686	-0.0000	0.0000	0.2686	0.1066	0.1242	-0.0217
4P	0.0000	0.0000	-0.1945	-0.0000	0.0000	0.1945	0.0925	0.1122	-0.0209
5P	0.0000	0.0000	-0.2123	-0.0000	0.0000	0.2123	0.0792	0.1006	-0.0195
6P	0.0000	0.0000	-0.4306	0.0000	-0.0000	0.4306	0.0669	0.0892	-0.0179
7P	0.0000	0.0000	-0.3966	0.0000	0.0000	0.3966	0.0536	0.0787	-0.0162
8P	0.0000	0.0000	-0.5346	0.0000	0.0000	0.5346	0.0410	0.0675	-0.0141
9P	0.0000	0.0000	-0.8328	9.7837	14.5381	-82.8885	0.0000	0.0000	0.0000
20P	0.0100	0.9860	-1.0373	-0.0100	-0.9860	1.0373	0.0447	0.1330	-0.0495
21P	0.0140	1.5390	-2.2096	-0.0140	-1.5390	2.2096	0.0495	0.1042	-0.0378
22P	0.0140	1.5390	-2.2031	-0.0140	-1.5390	2.2031	0.0015	0.0749	-0.0517
23P	0.0140	1.5390	-2.1145	-0.0140	-1.5390	2.1145	0.0074	0.0567	-0.0268
24P	0.0000	0.0000	-0.0594	0.0000	0.0000	0.0594	0.1667	0.1334	-0.0082
25P	0.0000	0.0000	-0.0594	0.0000	0.0000	0.0594	0.1255	0.1048	-0.0075
26P	0.0000	0.0000	-0.0442	0.0000	0.0000	0.0442	0.0804	0.0758	-0.0066
27P	0.0000	0.0000	-0.0442	0.0000	0.0000	0.0442	0.0517	0.0570	-0.0057
28P	0.0000	0.0000	-0.0654	0.0000	0.0000	0.0654	0.0104	0.0293	-0.0043
29P	0.0000	0.0000	-0.0947	0.0000	-0.0000	0.0947	0.0024	0.0148	-0.0024
30P	0.0000	0.0000	-0.1792	-0.0000	-0.0000	0.1792	0.0005	0.0033	-0.0012
31P	0.0000	1.8580	-9.1279	-0.0000	-1.8580	9.1279	0.2301	0.2277	-0.0051
32P	0.0000	0.4449	-1.0590	-0.0000	-0.4449	1.0590	0.1668	0.1201	-0.0042
33P	0.0000	0.3915	-0.9978	0.0000	-0.3915	0.9978	0.1256	0.0928	-0.0039
34P	0.0000	0.3915	-0.9755	0.0000	-0.3915	0.9755	0.0805	0.0677	-0.0035
35P	0.0000	0.6941	-1.7196	0.0000	-0.6941	1.7196	0.0517	0.0507	-0.0032
36P	0.0000	0.8880	-2.1947	0.0000	-0.8880	2.1947	0.0104	0.0265	-0.0023
37P	0.0000	0.7437	-1.8832	0.0000	-0.7437	1.8832	0.0024	0.0135	-0.0016
38P	0.0000	0.7252	-2.1677	0.0000	-0.7252	2.1677	0.0005	0.0031	-0.0009
39P	0.0000	0.3533	-0.7421	-0.0005	-0.0201	-17.7263	0.0000	0.0000	0.0000
1X	0.0000	0.0750	-0.2187	0.0000	-0.0750	0.2187	0.1890	0.1564	-0.0092
1XY	0.0000	0.1610	-0.4574	0.0000	-0.1610	0.4574	0.1892	0.1109	0.0112
1Y	0.0000	0.0000	-0.2274	-0.0000	0.0000	0.2274	0.1450	0.1111	-0.0028
2X	0.0000	0.1307	-0.1754	-0.0000	-0.1307	0.1754	0.1663	0.1395	-0.0091
2XY	0.0000	0.1307	-0.1754	-0.0000	-0.1307	0.1754	0.1672	0.0978	0.0111
2Y	0.0000	0.0000	-0.1754	-0.0000	0.0000	0.1754	0.1254	0.0979	-0.0026
3X	0.0000	0.1307	-0.2686	-0.0000	-0.1307	0.2686	0.1448	0.1249	-0.0089
3XY	0.0000	0.3197	-0.7833	-0.0000	-0.3197	0.7833	0.1449	0.0852	0.0105
3Y	0.0000	0.0000	-0.2773	-0.0000	0.0000	0.2773	0.1066	0.0853	-0.0022
4X	0.0000	0.1184	-0.1945	-0.0000	-0.1184	0.1945	0.1267	0.1117	-0.0087
4XY	0.0000	0.1184	-0.1945	-0.0000	-0.1184	0.1945	0.1271	0.0775	0.0099
4Y	0.0000	0.0000	-0.1945	-0.0000	0.0000	0.1945	0.0922	0.0765	-0.0021
5X	0.0000	0.1316	-0.2123	-0.0000	-0.1316	0.2123	0.1093	0.0995	-0.0084
5XY	0.0000	0.1316	-0.2123	0.0000	-0.1316	0.2123	0.1101	0.0694	0.0089
5Y	0.0000	0.0000	-0.2123	0.0000	0.0000	0.2123	0.0788	0.0694	-0.0021
6X	0.0000	0.1679	-0.4306	0.0000	-0.1679	0.4306	0.0939	0.0893	-0.0078
6XY	0.0000	0.3569	-0.9418	0.0000	-0.3569	0.9418	0.0938	0.0625	0.0077
6Y	0.0000	0.0000	-0.4358	0.0000	0.0000	0.4358	0.0667	0.0620	-0.0023
7X	0.0000	0.1961	-0.3966	0.0000	-0.1961	0.3966	0.0764	0.0768	-0.0073
7XY	0.0000	0.1961	-0.3966	0.0000	-0.1961	0.3966	0.0777	0.0542	0.0064
7Y	0.0000	0.0000	-0.3966	0.0000	0.0000	0.3966	0.0522	0.0533	-0.0024
8X	0.0000	0.2356	-0.5346	0.0000	-0.2356	0.5346	0.0624	0.0678	-0.0067
8XY	0.0000	0.5706	-1.4368	0.0000	-0.5706	1.4368	0.0623	0.0465	0.0048
8Y	0.0000	0.0000	-0.5398	0.0000	0.0000	0.5398	0.0411	0.0464	-0.0026
9X	0.0000	0.4004	-0.8328	3.4265	0.7404	-11.8518	0.0000	0.0000	0.0000
9XY	0.0000	0.4004	-0.8328	9.5244	8.4439	56.4204	0.0000	0.0000	0.0000
9Y	0.0000	0.0000	-0.8328	-5.3291	3.7836	-21.3492	0.0000	0.0000	0.0000

20X	7.4250	0.8657	-1.0953	-7.4250	-0.8657	1.0953	0.3037	0.1343	0.0263
21X	9.9000	0.7640	-2.1006	-9.9000	-0.7640	2.1006	0.2086	0.1058	0.0155
22X	0.0140	1.6002	-2.2031	-0.0140	-1.6002	2.2031	0.1581	0.0767	0.0105
23X	0.0140	1.5942	-2.1145	-0.0140	-1.5942	2.1145	0.0956	0.0577	0.0076
10S	0.0000	0.0000	-0.5041	0.0000	0.0000	0.5041	0.0279	0.0601	-0.0146
11S	0.0000	0.0000	-0.5194	0.0000	0.0000	0.5194	0.0154	0.0527	-0.0148
12S	0.0000	0.0000	-0.5189	0.0000	0.0000	0.5189	0.0059	0.0475	-0.0144
13S	0.0000	0.0000	-1.0722	0.0000	0.0000	1.0722	-0.0041	0.0403	-0.0139
14S	0.0000	0.0000	-1.7916	0.0000	0.0000	1.7916	-0.0085	0.0197	-0.0108
15S	0.0000	0.0000	-1.4104	0.0000	0.0000	1.4104	-0.0034	0.0027	-0.0060
16S	0.0000	0.0000	-0.1580	-0.0000	0.0000	0.1580	0.0107	0.0413	-0.0111
17S	0.0000	0.1822	-0.1580	0.0000	-0.1822	0.1580	0.0232	0.0353	-0.0004
18S	0.0000	0.0000	-0.5178	0.0000	0.0000	0.5178	0.0005	0.0028	-0.0001
19S	0.0000	0.4965	-0.4616	0.0000	-0.4965	0.4616	0.0017	0.0838	-0.0122
10X	0.0000	0.2686	-0.5041	0.0000	-0.2686	0.5041	0.0489	0.0576	-0.0065
10XY	0.0000	0.2686	-0.5041	0.0000	-0.2686	0.5041	0.0502	0.0378	0.0057
10Y	0.0000	0.0000	-0.5041	0.0000	0.0000	0.5041	0.0260	0.0358	-0.0021
11X	0.0000	0.2767	-0.5194	0.0000	-0.2767	0.5194	0.0396	0.0520	-0.0064
11XY	0.0000	0.2767	-0.5194	0.0000	-0.2767	0.5194	0.0398	0.0288	0.0064
11Y	0.0000	0.0000	-0.5194	0.0000	0.0000	0.5194	0.0148	0.0286	-0.0016
12X	0.0000	0.2829	-0.5189	0.0000	-0.2829	0.5189	0.0312	0.0466	-0.0063
12XY	0.0000	0.2829	-0.5189	0.0000	-0.2829	0.5189	0.0322	0.0229	0.0064
12Y	0.0000	0.0000	-0.5189	0.0000	0.0000	0.5189	0.0051	0.0216	-0.0012
13X	0.0000	0.5126	-1.0722	0.0000	-0.5126	1.0722	0.0227	0.0414	-0.0063
13XY	0.0000	0.9336	-2.2236	0.0000	-0.9336	2.2236	0.0232	0.0165	0.0064
13Y	0.0000	0.0000	-1.0966	0.0000	0.0000	1.0966	-0.0031	0.0160	-0.0007
14X	0.0000	0.8823	-1.7916	0.0000	-0.8823	1.7916	0.0097	0.0222	-0.0039
14XY	0.0000	1.2253	-2.7758	0.0000	-1.2253	2.7758	0.0104	0.0067	0.0056
14Y	0.0000	0.0000	-1.8558	0.0000	0.0000	1.8558	-0.0064	0.0059	-0.0007
15X	0.0000	0.6822	-1.4104	0.0000	-0.6822	1.4104	0.0017	0.0042	-0.0013
15XY	0.0000	1.1802	-2.9030	0.0000	-1.1802	2.9030	0.0027	0.0011	0.0033
15Y	0.0000	0.0000	-1.5690	0.0000	0.0000	1.5690	-0.0023	0.0005	-0.0008
16Y	0.0000	0.0000	-0.1580	0.0000	0.0000	0.1580	0.0093	0.0159	0.0034
17X	0.0000	0.0000	-0.1580	0.0000	0.0000	0.1580	-0.0041	0.0269	-0.0086
18Y	0.0000	0.0000	-0.5110	0.0000	-0.0000	0.5110	0.0006	0.0006	-0.0002
19X	0.0000	0.0000	-0.4616	-0.0000	-0.0000	0.4616	-0.0023	-0.0095	-0.0015

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

Clamp Label	Force (kips)	Input Holding Capacity (kips)	Factored Holding Capacity (kips)	Usage %
CLAMP1	1.431	50.00	50.00	2.86
CLAMP2	7.555	50.00	50.00	15.11
CLAMP3	2.693	50.00	50.00	5.39
CLAMP4	10.149	50.00	50.00	20.30
CLAMP5	2.687	50.00	50.00	5.37
CLAMP6	2.723	50.00	50.00	5.45
CLAMP7	2.615	50.00	50.00	5.23
CLAMP8	2.648	50.00	50.00	5.30
CLAMP9	0.219	50.00	50.00	0.44
CLAMP10	0.231	50.00	50.00	0.46
CLAMP11	0.269	50.00	50.00	0.54
CLAMP12	0.299	50.00	50.00	0.60
CLAMP13	0.431	50.00	50.00	0.86

CLAMP14	0.462	50.00	50.00	0.92
CLAMP15	0.535	50.00	50.00	1.07
CLAMP16	0.584	50.00	50.00	1.17
CLAMP17	1.072	50.00	50.00	2.14
CLAMP18	1.188	50.00	50.00	2.38
CLAMP19	1.792	50.00	50.00	3.58
CLAMP20	1.997	50.00	50.00	3.99
CLAMP21	1.410	50.00	50.00	2.82
CLAMP22	1.567	50.00	50.00	3.13
CLAMP23	9.315	50.00	50.00	18.63
CLAMP24	1.149	50.00	50.00	2.30
CLAMP25	1.072	50.00	50.00	2.14
CLAMP26	1.051	50.00	50.00	2.10
CLAMP27	1.854	50.00	50.00	3.71
CLAMP28	2.368	50.00	50.00	4.74
CLAMP29	2.025	50.00	50.00	4.05
CLAMP30	2.286	50.00	50.00	4.57
CLAMP31	0.485	50.00	50.00	0.97
CLAMP32	0.846	50.00	50.00	1.69
CLAMP33	1.007	50.00	50.00	2.01
CLAMP34	1.546	50.00	50.00	3.09
CLAMP35	2.412	50.00	50.00	4.82
CLAMP36	3.034	50.00	50.00	6.07
CLAMP37	3.134	50.00	50.00	6.27

*** Analysis Results for Load Case No. 4 "NESC Extreme Longitudinal" - Number of iterations in SAPS 9

Equilibrium Joint Positions and Rotations for Load Case "NESC Extreme 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	0.2601	0.007077	-0.01959	0.0040	0.3284	0.0185	2.76	2.507	120
2P	0.228	0.006901	-0.01895	-0.0137	0.3773	0.0136	2.728	2.507	115
3P	0.1974	0.005554	-0.01751	-0.0025	0.3177	0.0118	2.697	2.506	110
4P	0.1753	0.005676	-0.01647	-0.0001	0.3073	0.0131	2.675	2.506	106
5P	0.1548	0.005088	-0.01514	-0.0174	0.2831	0.0146	2.655	2.505	102
6P	0.1362	0.004097	-0.01366	0.0021	0.2425	0.0161	2.636	2.504	97.99
7P	0.1157	0.004611	-0.01217	-0.0113	0.2269	0.0185	2.616	2.505	92.99
8P	0.09791	0.002863	-0.01042	0.0010	0.1651	0.0210	2.598	2.503	87.99
9P	0	0	0	0.0000	0.0000	0.0000	15	15	0
20P	0.2579	0.006356	-0.008375	-0.0223	0.3647	0.0064	0.2579	13.76	120
21P	0.196	0.004802	-0.007502	-0.0279	0.3475	0.0087	0.196	9.755	110
22P	0.1338	0.003151	-0.01249	-0.0643	0.2424	0.0094	0.1338	14.25	97.99
23P	0.0966	0.002295	-0.006191	-0.0343	0.1673	0.0049	0.0966	10.25	87.99
24P	0.2618	0.006372	-0.009756	-0.0077	0.3071	0.0146	0.2618	0.006372	120
25P	0.1974	0.005002	-0.006423	-0.0074	0.2847	0.0141	0.1974	0.005002	110
26P	0.137	0.003485	-0.005747	-0.0062	0.2183	0.0128	0.137	0.003485	97.99
27P	0.0984	0.002476	-0.004635	-0.0047	0.1663	0.0117	0.0984	0.002476	88
28P	0.04372	0.0008838	-0.005413	-0.0012	0.1980	-0.0016	0.04372	0.0008838	58.99
29P	0.02536	0.001125	-0.00503	-0.0004	0.2152	0.0057	0.02536	0.001125	38.99
30P	0.007287	0.0006147	-0.002267	-0.0017	0.0765	0.0027	0.007287	0.0006147	19
31P	0.5791	0.008127	-0.005186	-0.0079	1.4677	0.0139	-0.9209	0.008127	135
32P	0.262	0.005995	-0.001663	-0.0078	0.6920	0.0140	-1.238	0.005995	120
33P	0.1972	0.004639	-0.00136	-0.0075	0.2524	0.0135	-1.303	0.004639	110
34P	0.1372	0.003155	-0.001132	-0.0063	0.2698	0.0122	-1.363	0.003155	98
35P	0.09842	0.002185	-0.0009988	-0.0047	0.1812	0.0111	-1.402	0.002185	88
36P	0.04378	0.0009136	-0.0007813	-0.0003	0.0606	0.0077	-1.456	0.0009136	59
37P	0.02536	0.0009745	-0.0005915	-0.0002	0.0552	0.0058	-1.475	0.0009745	39
38P	0.00726	0.0005262	-0.0003245	-0.0020	0.0422	0.0031	-1.493	0.0005262	19
39P	0	0	0	0.0000	0.0000	0.0000	-1.5	0	0
1X	0.2614	0.00693	-0.01891	-0.0198	0.3284	0.0106	2.761	-2.493	120
1XY	0.2616	0.005904	0.01198	-0.0287	0.4208	0.0033	-2.238	-2.494	120
1Y	0.2603	0.005573	0.01131	0.0131	0.4207	0.0261	-2.24	2.506	120
2X	0.2293	0.005686	-0.01828	-0.0022	0.3775	0.0149	2.729	-2.494	115
2XY	0.2293	0.005307	0.01167	-0.0019	0.3512	0.0113	-2.271	-2.495	115
2Y	0.228	0.004803	0.01101	-0.0135	0.3512	0.0177	-2.272	2.505	115
3X	0.1986	0.005657	-0.01687	-0.0129	0.3180	0.0162	2.699	-2.494	110
3XY	0.1986	0.004339	0.0107	-0.0192	0.3388	0.0193	-2.301	-2.496	110
3Y	0.1973	0.004431	0.01006	0.0044	0.3383	0.0094	-2.303	2.504	110
4X	0.1765	0.004425	-0.01585	-0.0154	0.3081	0.0137	2.677	-2.496	106
4XY	0.1765	0.00449	0.009944	0.0005	0.3024	0.0156	-2.324	-2.496	106
4Y	0.1753	0.003256	0.009328	-0.0146	0.3018	0.0120	-2.325	2.503	106
5X	0.1559	0.003951	-0.01456	0.0028	0.2838	0.0112	2.656	-2.496	102
5XY	0.156	0.003582	0.008946	-0.0143	0.2824	0.0122	-2.344	-2.496	102
5Y	0.1548	0.003185	0.008365	0.0008	0.2819	0.0143	-2.345	2.503	102
6X	0.1373	0.003956	-0.01313	-0.0152	0.2434	0.0087	2.637	-2.496	97.99
6XY	0.1373	0.003107	0.007796	-0.0001	0.2515	0.0088	-2.363	-2.497	98.01
6Y	0.1361	0.002746	0.007268	-0.0121	0.2513	0.0168	-2.364	2.503	98.01
7X	0.1168	0.002312	-0.0117	-0.0009	0.2271	0.0047	2.617	-2.498	92.99
7XY	0.1167	0.003214	0.006625	-0.0099	0.2236	0.0069	-2.383	-2.497	93.01
7Y	0.1156	0.001619	0.006155	-0.0012	0.2230	0.0172	-2.384	2.502	93.01

8X	0.09893	0.003059	-0.01001	-0.0116	0.1664	0.0006	2.599	-2.497	87.99
8XY	0.09897	0.001966	0.005188	0.0014	0.1702	0.0050	-2.401	-2.498	88.01
8Y	0.09792	0.001985	0.004802	-0.0094	0.1694	0.0177	-2.402	2.502	88
9X	0	0	0	0.0000	0.0000	0.0000	15	-15	0
9XY	0	0	0	0.0000	0.0000	0.0000	-15	-15	0
9Y	0	0	0	0.0000	0.0000	0.0000	-15	15	0
20X	0.2649	0.006403	-0.004699	0.0069	0.3658	0.0225	0.2649	-13.74	120
21X	0.2008	0.005202	-0.004914	0.0121	0.3486	0.0194	0.2008	-9.745	110
22X	0.1401	0.003818	-0.009214	0.0505	0.2425	0.0159	0.1401	-14.25	97.99
23X	0.1007	0.002657	-0.004321	0.0227	0.1667	0.0181	0.1007	-10.25	88
10S	0.07998	0.00426	-0.01066	-0.0016	0.1239	0.0261	3.574	3.499	80.99
11S	0.06552	0.00253	-0.01077	-0.0115	0.0982	0.0324	4.554	4.491	73.99
12S	0.05388	0.002815	-0.01028	-0.0019	0.0818	0.0427	5.537	5.486	66.99
13S	0.04201	0.002108	-0.009629	-0.0098	0.0652	0.0522	6.661	6.621	58.99
14S	0.02183	0.00186	-0.007797	-0.0041	0.0475	0.0378	9.482	9.462	38.99
15S	0.003778	0.0007387	-0.004917	-0.0068	0.0247	0.0345	12.3	12.3	19
16S	0.05188	0.001572	-0.009791	-0.0021	0.0653	0.0089	6.671	0.001572	58.99
17S	0.04395	0.001837	-0.00196	-0.0018	0.0638	0.0181	0.04395	-6.617	59
18S	0.007467	0.0002158	0.0008525	-0.0005	-0.0341	0.0018	12.31	0.0002158	19
19S	0.004721	0.01623	-0.002499	0.0024	0.0100	0.0035	0.004721	-12.28	19
10X	0.08114	0.0007604	-0.01019	-0.0077	0.1252	-0.0063	3.575	-3.494	80.99
10XY	0.081	0.002848	0.005841	-0.0004	0.1269	0.0002	-3.413	-3.491	81.01
10Y	0.0797	-8.533e-005	0.005427	-0.0051	0.1257	0.0207	-3.415	3.494	81.01
11X	0.06698	0.00179	-0.01025	0.0041	0.0985	-0.0143	4.556	-4.487	73.99
11XY	0.06686	0.001144	0.006284	-0.0072	0.0987	-0.0060	-4.422	-4.487	74.01
11Y	0.06537	0.0006418	0.005877	0.0029	0.0980	0.0254	-4.423	4.489	74.01
12X	0.05556	0.0009353	-0.00973	-0.0048	0.0828	-0.0267	5.539	-5.482	66.99
12XY	0.05563	0.001426	0.006092	0.0012	0.0838	-0.0163	-5.427	-5.482	67.01
12Y	0.05385	-0.0004258	0.005735	-0.0045	0.0836	0.0343	-5.429	5.483	67.01
13X	0.0439	0.001004	-0.009065	0.0036	0.0653	-0.0384	6.663	-6.618	58.99
13XY	0.04393	0.0006564	0.005883	-0.0074	0.0676	-0.0255	-6.575	-6.619	59.01
13Y	0.04186	-0.0004197	0.005603	0.0055	0.0679	0.0418	-6.577	6.619	59.01
14X	0.02423	-0.0001583	-0.007203	-0.0007	0.0496	-0.0291	9.484	-9.46	38.99
14XY	0.02547	0.0006681	0.004627	0.0025	0.0484	-0.0050	-9.435	-9.46	39
14Y	0.02266	-0.001079	0.004608	-0.0014	0.0469	0.0177	-9.438	9.459	39
15X	0.004876	-0.0001988	-0.004577	0.0038	0.0301	-0.0317	12.31	-12.3	19
15XY	0.006772	0.000533	0.003235	0.0010	0.0392	0.0074	-12.29	-12.3	19
15Y	0.005117	-0.0009333	0.003226	0.0011	0.0327	-0.0011	-12.3	12.3	19
16Y	0.05294	0.0001097	0.0055	-0.0014	0.0677	0.0093	-6.566	0.0001097	59.01
17X	0.04194	-7.698e-005	-0.002462	-0.0022	0.0656	-0.0070	0.04194	6.619	59
18Y	0.007459	-0.0001597	-0.001235	-0.0007	-0.0109	0.0041	-12.29	-0.0001597	19
19X	0.003623	-0.01549	-0.002393	-0.0028	0.0141	-0.0025	0.003623	12.29	19

Joint Support Reactions for Load Case "NESC Extreme 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 %
9P	-16.25	0.0	-12.27	0.0	0.0	-83.89	0.0	0.0	86.32	0.0	-0.01	0.0	0.1	0.0	0.0	-0.25	0.0	0.0
39P	-0.85	0.0	-0.02	0.0	0.0	-7.41	0.0	0.0	7.45	0.0	0.27	0.0	-2.3	0.0	0.0	-0.12	0.0	0.0
9X	-16.92	0.0	11.49	0.0	0.0	-81.25	0.0	0.0	83.79	0.0	0.05	0.0	-0.0	0.0	0.0	0.24	0.0	0.0
9XY	-14.34	0.0	-8.89	0.0	0.0	64.38	0.0	0.0	66.56	0.0	-0.02	0.0	-0.4	0.0	0.0	-0.05	0.0	0.0
9Y	-12.75	0.0	8.67	0.0	0.0	60.65	0.0	0.0	62.58	0.0	-0.04	0.0	-0.2	0.0	0.0	0.03	0.0	0.0

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

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

Label	Load (kips)	Load (kips)	Load (kips)	Force (kips)	Force (kips)	Force (kips)	Disp. (ft)	Disp. (ft)	Disp. (ft)
1P	0.3572	0.0000	-0.2394	-0.3572	0.0000	0.2394	0.2601	0.0071	-0.0196
2P	0.3572	0.0000	-0.2394	-0.3572	0.0000	0.2394	0.2280	0.0069	-0.0189
3P	0.3572	0.0000	-0.2394	-0.3572	0.0000	0.2394	0.1974	0.0056	-0.0175
4P	0.3572	0.0000	-0.2394	-0.3572	-0.0000	0.2394	0.1753	0.0057	-0.0165
5P	0.3572	0.0000	-0.2394	-0.3572	0.0000	0.2394	0.1548	0.0051	-0.0151
6P	0.3572	0.0000	-0.2394	-0.3572	0.0000	0.2394	0.1362	0.0041	-0.0137
7P	0.3572	0.0000	-0.2394	-0.3572	0.0000	0.2394	0.1157	0.0046	-0.0122
8P	0.3572	0.0000	-0.2394	-0.3572	-0.0000	0.2394	0.0979	0.0029	-0.0104
9P	0.8246	0.0000	-0.6974	15.4230	12.2668	-83.1911	0.0000	0.0000	0.0000
20P	0.7012	0.1180	-0.5034	-0.7012	-0.1180	0.5034	0.2579	0.0064	-0.0084
21P	0.6132	0.1310	-1.1184	-0.6132	-0.1310	1.1184	0.1960	0.0048	-0.0075
22P	0.6132	0.1310	-1.1184	-0.6132	-0.1310	1.1184	0.1338	0.0032	-0.0125
23P	0.6132	0.1310	-1.1184	-0.6132	-0.1310	1.1184	0.0966	0.0023	-0.0062
24P	0.3572	0.0000	-0.2394	-0.3572	0.0000	0.2394	0.2618	0.0064	-0.0098
25P	0.3572	0.0000	-0.2394	-0.3572	-0.0000	0.2394	0.1974	0.0050	-0.0064
26P	0.3572	0.0000	-0.2394	-0.3572	0.0000	0.2394	0.1370	0.0035	-0.0057
27P	0.3572	0.0000	-0.2394	-0.3572	0.0000	0.2394	0.0984	0.0025	-0.0046
28P	0.3572	0.0000	-0.2394	-0.3572	0.0000	0.2394	0.0437	0.0009	-0.0054
29P	0.8246	0.0000	-0.6974	-0.8246	0.0000	0.6974	0.0254	0.0011	-0.0050
30P	0.8246	0.0000	-0.6974	-0.8246	-0.0000	0.6974	0.0073	0.0006	-0.0023
31P	6.2572	0.0000	-4.5744	-6.2572	0.0000	4.5744	0.5791	0.0081	-0.0052
32P	0.3572	0.0000	-0.2704	-0.3572	-0.0000	0.2704	0.2620	0.0060	-0.0017
33P	0.3572	0.0000	-0.3084	-0.3572	0.0000	0.3084	0.1972	0.0046	-0.0014
34P	0.3572	0.0000	-0.3084	-0.3572	0.0000	0.3084	0.1372	0.0032	-0.0011
35P	0.3572	0.0000	-0.3614	-0.3572	-0.0000	0.3614	0.0984	0.0022	-0.0010
36P	1.1818	0.0000	-1.0898	-1.1818	0.0000	1.0898	0.0438	0.0009	-0.0008
37P	0.8246	0.0000	-0.8224	-0.8246	-0.0000	0.8224	0.0254	0.0010	-0.0006
38P	0.8246	0.0000	-0.8784	-0.8246	-0.0000	0.8784	0.0073	0.0005	-0.0003
39P	0.8246	0.0000	-0.6974	0.0221	0.0176	-6.7077	0.0000	0.0000	0.0000
1X	0.3572	0.0000	-0.2394	-0.3572	0.0000	0.2394	0.2614	0.0069	-0.0189
1XY	0.6142	0.0000	-0.3014	-0.6142	-0.0000	0.3014	0.2616	0.0059	0.0120
1Y	0.3572	0.0000	-0.2394	-0.3572	0.0000	0.2394	0.2603	0.0056	0.0113
2X	0.3572	0.0000	-0.2394	-0.3572	0.0000	0.2394	0.2293	0.0057	-0.0183
2XY	0.3572	0.0000	-0.2394	-0.3572	0.0000	0.2394	0.2293	0.0053	0.0117
2Y	0.3572	0.0000	-0.2394	-0.3572	-0.0000	0.2394	0.2280	0.0048	0.0110
3X	0.3572	0.0000	-0.2394	-0.3572	0.0000	0.2394	0.1986	0.0057	-0.0169
3XY	0.9232	0.0000	-0.3764	-0.9232	-0.0000	0.3764	0.1986	0.0043	0.0107
3Y	0.3572	0.0000	-0.2394	-0.3572	0.0000	0.2394	0.1973	0.0044	0.0101
4X	0.3572	0.0000	-0.2394	-0.3572	0.0000	0.2394	0.1765	0.0044	-0.0158
4XY	0.3572	0.0000	-0.2394	-0.3572	-0.0000	0.2394	0.1765	0.0045	0.0099
4Y	0.3572	0.0000	-0.2394	-0.3572	0.0000	0.2394	0.1753	0.0033	0.0093
5X	0.3572	0.0000	-0.2394	-0.3572	-0.0000	0.2394	0.1559	0.0040	-0.0146
5XY	0.3572	0.0000	-0.2394	-0.3572	0.0000	0.2394	0.1560	0.0036	0.0089
5Y	0.3572	0.0000	-0.2394	-0.3572	-0.0000	0.2394	0.1548	0.0032	0.0084
6X	0.3572	0.0000	-0.2394	-0.3572	0.0000	0.2394	0.1373	0.0040	-0.0131
6XY	0.9232	0.0000	-0.3764	-0.9232	-0.0000	0.3764	0.1373	0.0031	0.0078
6Y	0.3572	0.0000	-0.2394	-0.3572	0.0000	0.2394	0.1361	0.0027	0.0073
7X	0.3572	0.0000	-0.2394	-0.3572	-0.0000	0.2394	0.1168	0.0023	-0.0117
7XY	0.3572	0.0000	-0.2394	-0.3572	0.0000	0.2394	0.1167	0.0032	0.0066
7Y	0.3572	0.0000	-0.2394	-0.3572	-0.0000	0.2394	0.1156	0.0016	0.0062
8X	0.3572	0.0000	-0.2394	-0.3572	0.0000	0.2394	0.0989	0.0031	-0.0100
8XY	1.3602	0.0000	-0.4824	-1.3602	0.0000	0.4824	0.0990	0.0020	0.0052
8Y	0.3572	0.0000	-0.2394	-0.3572	-0.0000	0.2394	0.0979	0.0020	0.0048
9X	0.8246	0.0000	-0.6974	16.0921	-11.4857	-80.5575	0.0000	0.0000	0.0000
9XY	0.8246	0.0000	-0.6974	13.5140	8.8891	65.0796	0.0000	0.0000	0.0000
9Y	0.8246	0.0000	-0.6974	11.9225	-8.6657	61.3499	0.0000	0.0000	0.0000

20X	0.7012	0.1180	-0.5034	-0.7012	-0.1180	0.5034	0.2649	0.0064	-0.0047
21X	0.6132	0.1310	-1.1184	-0.6132	-0.1310	1.1184	0.2008	0.0052	-0.0049
22X	0.6132	0.1310	-1.1184	-0.6132	-0.1310	1.1184	0.1401	0.0038	-0.0092
23X	0.6132	0.1310	-1.1184	-0.6132	-0.1310	1.1184	0.1007	0.0027	-0.0043
10S	0.3572	0.0000	-0.2394	-0.3572	0.0000	0.2394	0.0800	0.0043	-0.0107
11S	0.3572	0.0000	-0.2394	-0.3572	0.0000	0.2394	0.0655	0.0025	-0.0108
12S	0.3572	0.0000	-0.2394	-0.3572	0.0000	0.2394	0.0539	0.0028	-0.0103
13S	1.1818	0.0000	-0.9368	-1.1818	0.0000	0.9368	0.0420	0.0021	-0.0096
14S	0.8246	0.0000	-0.6974	-0.8246	-0.0000	0.6974	0.0218	0.0019	-0.0078
15S	0.8246	0.0000	-0.6974	-0.8246	-0.0000	0.6974	0.0038	0.0007	-0.0049
16S	0.3572	0.0000	-0.2394	-0.3572	0.0000	0.2394	0.0519	0.0016	-0.0098
17S	0.3572	0.0000	-0.2394	-0.3572	0.0000	0.2394	0.0439	0.0018	-0.0020
18S	0.8246	0.0000	-0.6974	-0.8246	-0.0000	0.6974	0.0075	0.0002	0.0009
19S	0.8246	0.0000	-0.6974	-0.8246	0.0000	0.6974	0.0047	0.0162	-0.0025
10X	0.3572	0.0000	-0.2394	-0.3572	-0.0000	0.2394	0.0811	0.0008	-0.0102
10XY	0.3572	0.0000	-0.2394	-0.3572	-0.0000	0.2394	0.0810	0.0028	0.0058
10Y	0.3572	0.0000	-0.2394	-0.3572	0.0000	0.2394	0.0797	-0.0001	0.0054
11X	0.3572	0.0000	-0.2394	-0.3572	-0.0000	0.2394	0.0670	0.0018	-0.0102
11XY	0.3572	0.0000	-0.2394	-0.3572	-0.0000	0.2394	0.0669	0.0011	0.0063
11Y	0.3572	0.0000	-0.2394	-0.3572	0.0000	0.2394	0.0654	0.0006	0.0059
12X	0.3572	0.0000	-0.2394	-0.3572	-0.0000	0.2394	0.0556	0.0009	-0.0097
12XY	0.3572	0.0000	-0.2394	-0.3572	-0.0000	0.2394	0.0556	0.0014	0.0061
12Y	0.3572	0.0000	-0.2394	-0.3572	0.0000	0.2394	0.0539	-0.0004	0.0057
13X	1.1818	0.0000	-0.9368	-1.1818	-0.0000	0.9368	0.0439	0.0010	-0.0091
13XY	2.4418	0.0000	-1.2428	-2.4418	-0.0000	1.2428	0.0439	0.0007	0.0059
13Y	1.1818	0.0000	-0.9368	-1.1818	0.0000	0.9368	0.0419	-0.0004	0.0056
14X	0.8246	0.0000	-0.6974	-0.8246	0.0000	0.6974	0.0242	-0.0002	-0.0072
14XY	1.8526	0.0000	-0.9474	-1.8526	0.0000	0.9474	0.0255	0.0007	0.0046
14Y	0.8246	0.0000	-0.6974	-0.8246	-0.0000	0.6974	0.0227	-0.0011	0.0046
15X	0.8246	0.0000	-0.6974	-0.8246	0.0000	0.6974	0.0049	-0.0002	-0.0046
15XY	2.3156	0.0000	-1.0594	-2.3156	0.0000	1.0594	0.0068	0.0005	0.0032
15Y	0.8246	0.0000	-0.6974	-0.8246	-0.0000	0.6974	0.0051	-0.0009	0.0032
16Y	0.3572	0.0000	-0.2394	-0.3572	0.0000	0.2394	0.0529	0.0001	0.0055
17X	0.3572	0.0000	-0.2394	-0.3572	0.0000	0.2394	0.0419	-0.0001	-0.0025
18Y	0.8246	0.0000	-0.6974	-0.8246	0.0000	0.6974	0.0075	-0.0002	-0.0012
19X	0.8246	0.0000	-0.6974	-0.8246	-0.0000	0.6974	0.0036	-0.0155	-0.0024

Crossing Diagonal Check for Load Case "NESC Extreme 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.
g17P	g17X	Long only	-3.33	-3.11	37.91	0.750	0.500	0.500	71.67	83.75	2	32.24	1.000	91.24	105.62	3
g17X	g17P	Long only	-3.11	-3.33	37.91	0.750	0.500	0.500	71.67	83.75	2	32.24	1.000	91.24	105.62	3
g19P	g19X	Long only	-1.51	-0.96	47.55	0.750	0.500	0.500	55.36	71.52	2	41.19	1.000	70.49	95.25	3
g19X	g19P	Long only	-0.96	-1.51	47.55	0.750	0.500	0.500	55.36	71.52	2	41.19	1.000	70.49	95.25	3
g23P	g23X	Long only	-3.20	-2.68	47.55	0.750	0.500	0.500	55.36	71.52	2	41.19	1.000	70.49	95.25	3
g23X	g23P	Long only	-2.68	-3.20	47.55	0.750	0.500	0.500	55.36	71.52	2	41.19	1.000	70.49	95.25	3
g25P	g25X	Long only	-2.21	-1.25	88.91	0.750	0.500	0.500	42.68	62.01	2	78.16	1.000	54.05	87.02	3
g25X	g25P	Long only	-1.25	-2.21	88.91	0.750	0.500	0.500	42.68	62.01	2	78.16	1.000	54.05	87.02	3
g27P	g27X	Long only	-6.03	-5.13	88.91	0.750	0.500	0.500	42.68	62.01	2	78.16	1.000	54.05	87.02	3
g27X	g27P	Long only	-5.13	-6.03	88.91	0.750	0.500	0.500	42.68	62.01	2	78.16	1.000	54.05	87.02	3
g29P	g29X	Long only	-4.52	-3.66	49.24	0.783	0.567	0.567	79.33	89.50	2	43.87	1.000	88.99	104.49	3
g29X	g29P	Long only	-3.66	-4.52	49.24	0.783	0.567	0.567	79.33	89.50	2	43.87	1.000	88.99	104.49	3
g31XY	g31Y	Long only	-1.47	-1.09	46.44	0.780	0.560	0.560	90.14	97.60	2	41.21	1.000	102.37	111.19	3
g31Y	g31XY	Long only	-1.09	-1.47	46.44	0.780	0.560	0.560	90.14	97.60	2	41.21	1.000	102.37	111.19	3

g33P	g33X	Long only	-0.82	-0.41	33.81	0.774	0.548	0.548	115.83	116.87	2	29.03	1.000	134.57	128.96	6
g33X	g33P	Long only	-0.41	-0.82	33.81	0.774	0.548	0.548	115.83	116.87	2	29.03	1.000	134.57	128.96	6
g34X	g34XY	Long only	-0.23	-0.08	33.81	0.774	0.548	0.548	115.83	116.87	2	29.03	1.000	134.57	128.96	6
g34XY	g34X	Long only	-0.08	-0.23	33.81	0.774	0.548	0.548	115.83	116.87	2	29.03	1.000	134.57	128.96	6

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

Clamp Label	Force (kips)	Input Holding Capacity (kips)	Factored Holding Capacity (kips)	Usage %
CLAMP1	0.871	50.00	50.00	1.74
CLAMP2	0.871	50.00	50.00	1.74
CLAMP3	1.282	50.00	50.00	2.56
CLAMP4	1.282	50.00	50.00	2.56
CLAMP5	1.282	50.00	50.00	2.56
CLAMP6	1.282	50.00	50.00	2.56
CLAMP7	1.282	50.00	50.00	2.56
CLAMP8	1.282	50.00	50.00	2.56
CLAMP9	0.430	50.00	50.00	0.86
CLAMP10	0.430	50.00	50.00	0.86
CLAMP11	0.430	50.00	50.00	0.86
CLAMP12	0.430	50.00	50.00	0.86
CLAMP13	0.430	50.00	50.00	0.86
CLAMP14	0.430	50.00	50.00	0.86
CLAMP15	0.430	50.00	50.00	0.86
CLAMP16	0.430	50.00	50.00	0.86
CLAMP17	1.508	50.00	50.00	3.02
CLAMP18	1.508	50.00	50.00	3.02
CLAMP19	1.080	50.00	50.00	2.16
CLAMP20	1.080	50.00	50.00	2.16
CLAMP21	1.080	50.00	50.00	2.16
CLAMP22	1.080	50.00	50.00	2.16
CLAMP23	7.751	50.00	50.00	15.50
CLAMP24	0.448	50.00	50.00	0.90
CLAMP25	0.472	50.00	50.00	0.94
CLAMP26	0.472	50.00	50.00	0.94
CLAMP27	0.508	50.00	50.00	1.02
CLAMP28	1.608	50.00	50.00	3.22
CLAMP29	1.165	50.00	50.00	2.33
CLAMP30	1.205	50.00	50.00	2.41
CLAMP31	0.684	50.00	50.00	1.37
CLAMP32	0.997	50.00	50.00	1.99
CLAMP33	0.997	50.00	50.00	1.99
CLAMP34	1.443	50.00	50.00	2.89
CLAMP35	2.740	50.00	50.00	5.48
CLAMP36	2.081	50.00	50.00	4.16
CLAMP37	2.546	50.00	50.00	5.09

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

Group Summary (Compression Portion):

Group Label	Group Desc.	Angle Type	Angle Size	Steel Strength (ksi)	Max Usage Cont-rol %	Max Use In Comp. %	Comp. Control Member	Comp. Force (kips)	Comp. Control Load Case	L/R Capacity (kips)	Comp. Connect. Shear Capacity (kips)	Comp. Connect. Bearing Capacity (kips)	RLX	RLY	RLZ	L/R KL/R Comp.	Length (ft)	Curve No.	No. Of Member Bolts	Comp.
LEG1	L4X4X1/4	SAE	4X4X0.25	33.0	46.98	Comp 46.98	g2XY	-17.308	NESC Ext	53.509	36.840	84.375	1.000	1.000	1.000	75.47	75.47	5.000	1	6
LEG2	L5X5X3/8	SAE	5X5X0.375	33.0	52.99	Comp 52.99	g5X	-45.548	NESC Ext	111.058	85.960	295.312	1.000	1.000	1.000	48.48	48.48	4.000	1	14
LEG3	L6X6X1/2	SAE	6X6X0.5	33.0	47.13	Comp 47.13	g7X	-75.243	NESC Ext	175.609	159.640	731.249	1.000	1.000	1.000	50.85	50.85	5.000	1	26
LEG4	L8X8X1/2	SAE	8X8X0.5	33.0	49.77	Comp 49.77	g11X	-91.675	NESC Ext	227.792	184.200	843.749	1.000	1.000	1.000	61.58	61.58	8.160	1	30
LEG5	L8X8X5/8	SAE	8X8X0.625	33.0	52.42	Comp 52.42	g13X	-102.994	NESC Ext	262.274	196.480	1124.998	0.500	0.500	0.500	77.47	77.47	20.400	1	32
XBR1	L3x3x1/4	SAE	3X3X0.25	33.0	54.84	Tens 53.56	g16XY	-9.866	NESC Hea	37.913	18.420	42.187	0.750	0.500	0.500	71.67	83.75	7.071	2	3
XBR2	L3.5X3.5X1/4	SAE	3.5X3.5X0.25	33.0	73.79	Comp 73.79	g22XY	-18.122	NESC Hea	47.548	24.560	56.250	0.750	0.500	0.500	55.36	71.52	6.403	2	4
XBR3	L5X5X5/16	SAE	5X5X0.3125	33.0	54.83	Comp 54.83	g27P	-20.198	NESC Hea	88.907	36.840	105.469	0.750	0.500	0.500	42.68	62.01	7.071	2	6
XBR4	L4X4X1/4	SAE	4X4X0.25	33.0	89.91	Comp 89.91	g30P	-16.561	NESC Hea	49.239	18.420	42.187	0.783	0.567	0.567	79.33	89.50	9.269	2	3
XBR5	L4X3X5/16	SAU	4X3X0.3125	33.0	91.60	Comp 91.60	g38Y	-9.323	NESC Ext	10.178	30.700	87.890	0.586	0.793	0.586	280.62	242.43	25.819	5	5
XBR6	L3.5X2.5X1/4	SAU	3.5X2.5X0.25	33.0	97.17	Comp 97.17	g39P	-3.983	NESC Ext	4.099	18.420	42.187	0.563	0.781	0.563	378.61	317.10	29.692	5	3
DIAG1	L4X3X1/4	SAU	4X3X0.25	33.0	41.76	Tens 41.17	g36P	-7.584	NESC Hea	37.785	18.420	42.187	1.000	0.500	0.500	91.55	105.77	9.765	3	3
DIAG2	L5X3.5X5/16	SAU	5X3.5X0.3125	33.0	86.30	Comp 86.30	g41XY	-10.597	NESC Ext	24.206	12.280	35.156	1.000	0.500	0.500	190.79	173.98	24.357	5	2
HORZ1	**L4X4X1/4**	**SAE**	**4X4X0.25**	**33.0**	**53.99**	**Comp 53.99**	**g47Y**	**-9.945**	**NESC Ext**	**19.194**	**18.420**	**42.187**	**1.000**	**1.000**	**1.000**	**185.68**	**170.09**	**12.301**	**5**	**3 A potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize moments): g48P g48X g48XY g48Y ??**
ARM1	L5X3.5X5/16	SAU	5X3.5X0.3125	33.0	55.90	Comp 55.90	g49P	-17.162	NESC Hea	57.564	30.700	87.890	1.000	0.500	0.500	90.27	105.13	11.524	3	5
ARM2	L4X4X1/4	SAE	4X4X0.25	33.0	96.20	Comp 96.20	g51P	-17.720	NESC Hea	38.378	18.420	42.187	1.000	1.000	1.000	115.76	117.88	7.669	3	3
M1	LL3.5X3.5X1/4	DAE	3.5X3.5X0.25	33.0	4.45	Comp 4.45	g57P	-1.093	NESC Hea	66.338	24.560	56.250	1.000	1.000	1.000	118.57	118.57	10.770	1	2
M2	L3X3X3/16	SAE	3X3X0.1875	33.0	47.18	Comp 47.18	g68X	-5.793	NESC Ext	24.499	12.280	21.094	2.000	1.000	1.000	90.37	105.18	3.536	3	2

M3	L3X3X1/4	SAE	3X3X0.25	33.0	19.81	Tens	17.42	g61X	-3.209NESC Ext	30.742	18.420	42.187	1.000	1.000	1.000	101.35	110.68	5.000	3	3	
M4	BAR 2X3/16	Bar	2x3/16	33.0	61.62	Tens	0.00	g63Y	0.000	4.649	12.280	21.094	1.000	1.000	1.000	151.94	151.94	12.661	4	2	
M5	1.75x1.75x3/16	SAE	1.75X1.75X0.1875	33.0	76.74	Comp	76.74	g73XY	-0.381NESC Ext	0.496	6.140	10.547	2.000	1.000	1.000	597.93	597.93	13.379	4	1	
Pwmnt	12" Std. Pipe	Pwmnt	Pipe 12" Std.	50.0	3.39	Comp	3.39	g82P	-20.343NESC Hea	599.894	0.000	0.000	1.000	1.000	1.000	51.94	51.94	19.000	1	0	
PMBR1	L2x2x3/16	SAE	2X2X0.1875	36.0	24.31	Comp	24.31	g89P	-2.478NESC Ext	20.044	16.800	10.195	1.000	1.000	1.000	45.69	82.84	1.500	3	1	
PMBR2	L3x3x3/16	SAE	3X3X0.1875	36.0	6.85	Tens	5.44	g91X	-0.555NESC Ext	10.990	16.800	10.195	1.000	1.000	1.000	168.48	168.48	8.368	4	1	
PMBR3	L4x4x1/4	SAE	4X4X0.25	36.0	5.52	Tens	4.42	g93X	-0.601NESC Ext	15.943	16.800	13.594	1.000	1.000	1.000	186.62	186.62	12.364	4	1	
PMBR4	L5x5x3/8	SAE	5X5X0.375	36.0	12.11	Tens	4.43	g94X	-0.744NESC Ext	26.243	16.800	20.391	1.000	1.000	1.000	198.43	198.43	16.370	4	1	
HORZ2	**L3X2.5X1/4**	**SAU**	**3X2.5X0.25**	**33.0**	**5.78**	**Tens**	**1.21**	**g98P**	**-0.074NESC Hea**	**35.833**	**6.140**	**14.062**	**1.000**	**1.000**	**1.000**	**34.09**	**77.05**	**1.500**	**3**	**1**	**A potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize moments): g98P ??**
HORZ3	L4X3X1/4	SAU	4X3X0.25	33.0	14.86	Tens	14.69	g97P	-0.902NESC Ext	12.202	6.140	14.062	1.000	1.000	1.000	199.10	199.10	10.801	4	1	
M6	1.75x1.75x3/16	SAE	1.75X1.75X0.1875	33.0	0.00		0.00		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00	0.00	0.000	0	0	
M7	BAR 2X3/16	Bar	2x3/16	33.0	43.07	Tens	17.84	g65Y	-1.095NESC Ext	11.091	6.140	10.547	1.000	1.000	1.000	60.00	60.00	5.000	1	1	
M8	BAR 1.75X3/16	Bar	1.75x3/16	33.0	71.66	Tens	49.72	g67Y	-3.053NESC Ext	7.015	6.140	10.547	1.000	1.000	1.000	111.11	111.11	5.000	1	1	
Plate	PL6x3/4	Bar	6x3/4	36.0	87.81	Comp	87.81	g87P	-14.753NESC Ext	109.447	16.800	40.781	1.000	1.000	1.000	83.14	101.57	1.500	3	1	
PMBR5	**L2.5x2.5x1/4**	**SAE**	**2.5X2.5X0.25**	**36.0**	**62.14**	**Tens**	**61.15**	**g83X**	**-8.312NESC Ext**	**31.213**	**16.800**	**13.594**	**1.000**	**1.000**	**1.000**	**65.81**	**92.90**	**2.693**	**3**	**1**	**A potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize moments): g83P g83X g84P g84X ??**

Group Summary (Tension Portion):

Group Label	Group Desc.	Angle Type	Angle Size	Steel Strength (ksi)	Max Usage %	Usage Control	Max Use In Tens. %	Tension Control Member	Tension Force (kips) / Tension Control Load Case	Net Section Capacity (kips)	Tension Connect. Shear Capacity (kips)	Tension Connect. Bearing Capacity (kips)	Tension Connect. Rupture Capacity (kips)	Length Tens. Member (ft)	No. Of Bolts Tens.	No. Of Holes	Hole Diameter (in)
LEG1	L4X4X1/4	SAE	4X4X0.25	33.0	46.98	Comp	42.41	g2Y	15.625NESC Ext	52.676	36.840	84.375	93.750	5.000	6	2.000	0.6875
LEG2	L5X5X3/8	SAE	5X5X0.375	33.0	52.99	Comp	46.58	g5Y	39.635NESC Ext	85.099	85.960	295.312	328.124	4.000	14	4.000	0.6875
LEG3	L6X6X1/2	SAE	6X6X0.5	33.0	47.13	Comp	45.93	g7Y	68.346NESC Ext	148.799	159.640	731.249	812.499	5.000	26	3.610	0.6875
LEG4	L8X8X1/2	SAE	8X8X0.5	33.0	49.77	Comp	43.74	g11Y	80.560NESC Ext	213.211	184.200	843.749	937.499	8.160	30	3.750	0.6875
LEG5	L8X8X5/8	SAE	8X8X0.625	33.0	52.42	Comp	42.79	g14Y	89.321NESC Ext	260.411	208.760	1195.311	1328.123	19.380	34	4.000	0.6875
XBR1	L3x3x1/4	SAE	3X3X0.25	33.0	54.84	Tens	54.84	g15XY	10.102NESC Ext	37.663	18.420	42.187	26.977	7.071	3	1.000	0.6875
XBR2	L3.5X3.5X1/4	SAE	3.5X3.5X0.25	33.0	73.79	Comp	73.15	g20X	17.965NESC Hea	42.893	24.560	56.250	43.750	6.403	4	1.430	

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0.6875
  XBR3      L5X5X5/16   SAE       5X5X0.3125     33.0 54.83  Comp 52.71    g28X  19.418NESC Hea   77.612   36.840  105.469   82.031  7.071     6 1.940
0.6875
  XBR4       L4X4X1/4   SAE         4X4X0.25     33.0 89.91  Comp 73.06    g29Y  13.457NESC Hea   48.991   18.420   42.187   84.539  9.269     3 1.690
0.6875
  XBR5      L4X3X5/16   SAU       4X3X0.3125     33.0 91.60  Comp 38.63    g37X  11.858NESC Hea   51.289   30.700   87.890   87.890 25.819     5 1.690
0.6875
  XBR6   L3.5X2.5X1/4   SAU     3.5X2.5X0.25     33.0 97.17  Comp 51.54   g39XY   9.495NESC Ext   37.663   18.420   42.187   32.812 29.692     3 1.000
0.6875
 DIAG1       L4X3X1/4   SAU         4X3X0.25     33.0 41.76  Tens 41.76    g36Y   7.692NESC Hea   37.663   18.420   42.187   32.812  9.765     3 1.000
0.6875
 DIAG2    L5X3.5X5/16   SAU     5X3.5X0.3125     33.0 86.30  Comp 79.08    g41Y   9.711NESC Ext   55.729   12.280   35.156   27.344 24.357     2 1.000
0.6875
 HORZ1       L4X4X1/4   SAE         4X4X0.25     33.0 53.99  Comp 32.58    g45P   6.001NESC Ext   52.513   18.420   42.187   32.812 18.920     3 1.000
0.6875 A potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize moments): g48P g48X g48XY
g48Y  ??
  ARM1    L5X3.5X5/16   SAU     5X3.5X0.3125     33.0 55.90  Comp 54.74    g49Y  16.804NESC Hea   64.036   30.700   87.890   68.359 11.524     5 1.880
0.6875
  ARM2       L4X4X1/4   SAE         4X4X0.25     33.0 96.20  Comp 64.93    g51Y  11.961NESC Hea   50.982   18.420   42.187   60.662  7.669     3 1.300
0.6875
    M1  LL3.5X3.5X1/4   DAE     3.5X3.5X0.25     33.0  4.45  Comp  0.00    g57X   0.000           90.176   24.560   56.250   43.750 10.770     2 2.000
0.6875
    M2      L3X3X3/16   SAE       3X3X0.1875     33.0 47.18  Comp 40.16   g68XY   4.931NESC Ext   28.544   12.280   21.094   19.301  3.536     2 1.000
0.6875
    M3       L3X3X1/4   SAE         3X3X0.25     33.0 19.81  Tens 19.81    g61P   3.650NESC Ext   37.663   18.420   42.187   32.812  5.000     3 1.000
0.6875
    M4     BAR 2X3/16   Bar           2x3/16     33.0 61.62  Tens 61.62   g63XY   5.004NESC Hea    8.121   12.280   21.094   16.406 12.661     2 1.000
0.6875
    M5 1.75x1.75x3/16   SAE 1.75X1.75X0.1875     33.0 76.74  Comp 12.63    g72P   0.775NESC Ext   14.585    6.140   10.547    6.873  9.361     1 1.000
0.6875
 Pwmnt  12" Std. Pipe Pwmnt    Pipe 12" Std.     50.0  3.39  Comp  0.00    g82P   0.000          679.999    0.000    0.000    0.000 19.000     0 0.000
0
 PMBR1      L2x2x3/16   SAE       2X2X0.1875     36.0 24.31  Comp 13.41    g85P   1.367NESC Ext   18.827   16.800   10.195   10.343  2.693     1 1.000
0.6875
 PMBR2      L3x3x3/16   SAE       3X3X0.1875     36.0  6.85  Tens  6.85    g91P   0.698NESC Ext   31.139   16.800   10.195   11.328  8.368     1 1.000
0.6875
 PMBR3       L4x4x1/4   SAE         4X4X0.25     36.0  5.52  Tens  5.52    g93X   0.751NESC Ext   57.287   16.800   13.594   15.104 12.364     1 1.000
0.6875
 PMBR4       L5x5x3/8   SAE        5X5X0.375     36.0 12.11  Tens 12.11    g94X   2.035NESC Ext  108.611   16.800   20.391   22.656 16.370     1 1.000
0.6875
 HORZ2     L3X2.5X1/4   SAU       3X2.5X0.25     33.0  5.78  Tens  5.78    g98P   0.355NESC Ext   30.090    6.140   14.062   10.937  1.500     1 1.000
0.6875 A potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize moments): g98P  ??
 HORZ3       L4X3X1/4   SAU         4X3X0.25     33.0 14.86  Tens 14.86    g96P   0.912NESC Ext   37.663    6.140   14.062   10.937  1.500     1 1.000
0.6875
    M6 1.75x1.75x3/16   SAE 1.75X1.75X0.1875     33.0  0.00        0.00           0.000            0.000    0.000    0.000    0.000  0.000     0 0.000
0
    M7     BAR 2X3/16   Bar           2x3/16     33.0 43.07  Tens 43.07    g65P   2.644NESC Ext    8.121    6.140   10.547    8.203  5.000     1 1.000
0.6875
    M8  BAR 1.75X3/16   Bar        1.75x3/16     33.0 71.66  Tens 71.66    g67P   4.400NESC Ext    6.636    6.140   10.547    8.203  5.000     1 1.000
0.6875
 Plate        PL6x3/4   Bar            6x3/4     36.0 87.81  Comp 61.45    g88P  10.323NESC Ext  129.094   16.800   40.781    0.000  1.500     1 1.000
0.6875
 PMBR5   L2.5x2.5x1/4   SAE     2.5X2.5X0.25     36.0 62.14  Tens 62.14    g83P   8.447NESC Ext   32.987   16.800   13.594   15.104  2.693     1 1.000
0.6875 A potentially damaging moment exists in the following members (make sure your system is well triangulated to minimize moments): g83P g83X g84P
g84X  ??
```

*** Maximum Stress Summary for Each Load Case

Summary of Maximum Usages by Load Case:

Load Case	Maximum Usage %	Element Label	Element Type
NESC Heavy	70.79	g39Y	Angle
NESC Extreme	91.60	g38Y	Angle
NESC Heavy Broken Wire	96.20	g51P	Angle
NESC Extreme Longitudinal	97.17	g39P	Angle

Summary of Insulator Usages:

Insulator Label	Insulator Type	Maximum Usage %	Load Case	Weight (lbs)
CLAMP1	Clamp	2.86	NESC Heavy	0.0
CLAMP2	Clamp	15.11	NESC Heavy Broken Wire	0.0
CLAMP3	Clamp	6.12	NESC Extreme	0.0
CLAMP4	Clamp	20.30	NESC Heavy Broken Wire	0.0
CLAMP5	Clamp	6.12	NESC Extreme	0.0
CLAMP6	Clamp	6.12	NESC Extreme	0.0
CLAMP7	Clamp	6.12	NESC Extreme	0.0
CLAMP8	Clamp	6.12	NESC Extreme	0.0
CLAMP9	Clamp	0.86	NESC Extreme Longitudinal	0.0
CLAMP10	Clamp	0.86	NESC Extreme Longitudinal	0.0
CLAMP11	Clamp	0.86	NESC Extreme Longitudinal	0.0
CLAMP12	Clamp	0.86	NESC Extreme Longitudinal	0.0
CLAMP13	Clamp	0.86	NESC Heavy	0.0
CLAMP14	Clamp	0.92	NESC Heavy	0.0
CLAMP15	Clamp	1.07	NESC Heavy	0.0
CLAMP16	Clamp	1.17	NESC Heavy	0.0
CLAMP17	Clamp	3.02	NESC Extreme Longitudinal	0.0
CLAMP18	Clamp	3.02	NESC Extreme Longitudinal	0.0
CLAMP19	Clamp	3.58	NESC Heavy	0.0
CLAMP20	Clamp	3.99	NESC Heavy	0.0
CLAMP21	Clamp	2.82	NESC Heavy	0.0
CLAMP22	Clamp	3.13	NESC Heavy	0.0
CLAMP23	Clamp	18.63	NESC Heavy	0.0
CLAMP24	Clamp	2.30	NESC Heavy	0.0
CLAMP25	Clamp	2.14	NESC Heavy	0.0
CLAMP26	Clamp	2.10	NESC Heavy	0.0
CLAMP27	Clamp	3.71	NESC Heavy	0.0
CLAMP28	Clamp	4.74	NESC Heavy	0.0
CLAMP29	Clamp	4.05	NESC Heavy	0.0
CLAMP30	Clamp	4.57	NESC Heavy	0.0
CLAMP31	Clamp	1.37	NESC Extreme Longitudinal	0.0
CLAMP32	Clamp	1.99	NESC Extreme Longitudinal	0.0
CLAMP33	Clamp	2.01	NESC Heavy	0.0
CLAMP34	Clamp	3.09	NESC Heavy	0.0
CLAMP35	Clamp	5.48	NESC Extreme Longitudinal	0.0
CLAMP36	Clamp	6.07	NESC Heavy	0.0
CLAMP37	Clamp	6.27	NESC Heavy	0.0

Loads At Insulator Attachments For All Load Cases:

Load Case	Insulator Label	Insulator Type	Structure Attach Label	Structure Attach Load X (kips)	Structure Attach Load Y (kips)	Structure Attach Load Z (kips)	Structure Attach Load Res. (kips)
NESC Heavy	CLAMP1	Clamp	20P	0.010	0.986	1.037	1.431
NESC Heavy	CLAMP2	Clamp	20X	0.010	1.070	1.037	1.490
NESC Heavy	CLAMP3	Clamp	21P	0.014	1.539	2.210	2.693
NESC Heavy	CLAMP4	Clamp	21X	0.014	1.647	2.210	2.756
NESC Heavy	CLAMP5	Clamp	22P	0.014	1.539	2.203	2.687
NESC Heavy	CLAMP6	Clamp	22X	0.014	1.600	2.203	2.723
NESC Heavy	CLAMP7	Clamp	23P	0.014	1.539	2.115	2.615
NESC Heavy	CLAMP8	Clamp	23X	0.014	1.594	2.115	2.648
NESC Heavy	CLAMP9	Clamp	1P	0.000	0.000	0.219	0.219
NESC Heavy	CLAMP10	Clamp	1X	0.000	0.075	0.219	0.231
NESC Heavy	CLAMP11	Clamp	3P	0.000	0.000	0.269	0.269
NESC Heavy	CLAMP12	Clamp	3X	0.000	0.131	0.269	0.299
NESC Heavy	CLAMP13	Clamp	6P	0.000	0.000	0.431	0.431
NESC Heavy	CLAMP14	Clamp	6X	0.000	0.168	0.431	0.462
NESC Heavy	CLAMP15	Clamp	8P	0.000	0.000	0.535	0.535
NESC Heavy	CLAMP16	Clamp	8X	0.000	0.236	0.535	0.584
NESC Heavy	CLAMP17	Clamp	13S	0.000	0.000	1.072	1.072
NESC Heavy	CLAMP18	Clamp	13X	0.000	0.513	1.072	1.188
NESC Heavy	CLAMP19	Clamp	14S	0.000	0.000	1.792	1.792
NESC Heavy	CLAMP20	Clamp	14X	0.000	0.882	1.792	1.997
NESC Heavy	CLAMP21	Clamp	15S	0.000	0.000	1.410	1.410
NESC Heavy	CLAMP22	Clamp	15X	0.000	0.682	1.410	1.567
NESC Heavy	CLAMP23	Clamp	31P	0.000	1.858	9.128	9.315
NESC Heavy	CLAMP24	Clamp	32P	0.000	0.445	1.059	1.149
NESC Heavy	CLAMP25	Clamp	33P	0.000	0.392	0.998	1.072
NESC Heavy	CLAMP26	Clamp	34P	0.000	0.392	0.976	1.051
NESC Heavy	CLAMP27	Clamp	35P	0.000	0.694	1.720	1.854
NESC Heavy	CLAMP28	Clamp	36P	0.000	0.888	2.195	2.368
NESC Heavy	CLAMP29	Clamp	37P	0.000	0.744	1.883	2.025
NESC Heavy	CLAMP30	Clamp	38P	0.000	0.725	2.168	2.286
NESC Heavy	CLAMP31	Clamp	1XY	0.000	0.161	0.457	0.485
NESC Heavy	CLAMP32	Clamp	3XY	0.000	0.320	0.783	0.846
NESC Heavy	CLAMP33	Clamp	6XY	0.000	0.357	0.942	1.007
NESC Heavy	CLAMP34	Clamp	8XY	0.000	0.571	1.437	1.546
NESC Heavy	CLAMP35	Clamp	13XY	0.000	0.934	2.224	2.412
NESC Heavy	CLAMP36	Clamp	14XY	0.000	1.225	2.776	3.034
NESC Heavy	CLAMP37	Clamp	15XY	0.000	1.180	2.903	3.134
NESC Extreme	CLAMP1	Clamp	20P	0.343	1.139	0.503	1.292
NESC Extreme	CLAMP2	Clamp	20X	0.343	1.139	0.503	1.292
NESC Extreme	CLAMP3	Clamp	21P	1.093	2.627	1.118	3.058
NESC Extreme	CLAMP4	Clamp	21X	1.093	2.627	1.118	3.058
NESC Extreme	CLAMP5	Clamp	22P	1.093	2.627	1.118	3.058
NESC Extreme	CLAMP6	Clamp	22X	1.093	2.627	1.118	3.058
NESC Extreme	CLAMP7	Clamp	23P	1.093	2.627	1.118	3.058
NESC Extreme	CLAMP8	Clamp	23X	1.093	2.627	1.118	3.058
NESC Extreme	CLAMP9	Clamp	1P	0.000	0.296	0.239	0.381
NESC Extreme	CLAMP10	Clamp	1X	0.000	0.296	0.239	0.381
NESC Extreme	CLAMP11	Clamp	3P	0.000	0.296	0.239	0.381
NESC Extreme	CLAMP12	Clamp	3X	0.000	0.296	0.239	0.381
NESC Extreme	CLAMP13	Clamp	6P	0.000	0.296	0.239	0.381
NESC Extreme	CLAMP14	Clamp	6X	0.000	0.296	0.239	0.381
NESC Extreme	CLAMP15	Clamp	8P	0.000	0.296	0.239	0.381
NESC Extreme	CLAMP16	Clamp	8X	0.000	0.296	0.239	0.381
NESC Extreme	CLAMP17	Clamp	13S	0.000	1.121	0.937	1.461

NESC Extreme	CLAMP18	Clamp	13X	0.000	1.121	0.937	1.461
NESC Extreme	CLAMP19	Clamp	14S	0.000	0.825	0.697	1.080
NESC Extreme	CLAMP20	Clamp	14X	0.000	0.825	0.697	1.080
NESC Extreme	CLAMP21	Clamp	15S	0.000	0.825	0.697	1.080
NESC Extreme	CLAMP22	Clamp	15X	0.000	0.825	0.697	1.080
NESC Extreme	CLAMP23	Clamp	31P	0.000	6.453	4.574	7.910
NESC Extreme	CLAMP24	Clamp	32P	0.000	0.296	0.270	0.401
NESC Extreme	CLAMP25	Clamp	33P	0.000	0.296	0.308	0.428
NESC Extreme	CLAMP26	Clamp	34P	0.000	0.296	0.308	0.428
NESC Extreme	CLAMP27	Clamp	35P	0.000	0.296	0.361	0.467
NESC Extreme	CLAMP28	Clamp	36P	0.000	1.121	1.090	1.563
NESC Extreme	CLAMP29	Clamp	37P	0.000	0.825	0.822	1.165
NESC Extreme	CLAMP30	Clamp	38P	0.000	0.825	0.878	1.205
NESC Extreme	CLAMP31	Clamp	1XY	0.000	0.553	0.301	0.630
NESC Extreme	CLAMP32	Clamp	3XY	0.000	0.862	0.376	0.941
NESC Extreme	CLAMP33	Clamp	6XY	0.000	0.862	0.376	0.941
NESC Extreme	CLAMP34	Clamp	8XY	0.000	1.299	0.482	1.386
NESC Extreme	CLAMP35	Clamp	13XY	0.000	2.381	1.243	2.686
NESC Extreme	CLAMP36	Clamp	14XY	0.000	1.853	0.947	2.081
NESC Extreme	CLAMP37	Clamp	15XY	0.000	2.316	1.059	2.546
NESC Heavy Broken Wire	CLAMP1	Clamp	20P	0.010	0.986	1.037	1.431
NESC Heavy Broken Wire	CLAMP2	Clamp	20X	7.425	0.866	1.095	7.555
NESC Heavy Broken Wire	CLAMP3	Clamp	21P	0.014	1.539	2.210	2.693
NESC Heavy Broken Wire	CLAMP4	Clamp	21X	9.900	0.764	2.101	10.149
NESC Heavy Broken Wire	CLAMP5	Clamp	22P	0.014	1.539	2.203	2.687
NESC Heavy Broken Wire	CLAMP6	Clamp	22X	0.014	1.600	2.203	2.723
NESC Heavy Broken Wire	CLAMP7	Clamp	23P	0.014	1.539	2.115	2.615
NESC Heavy Broken Wire	CLAMP8	Clamp	23X	0.014	1.594	2.115	2.648
NESC Heavy Broken Wire	CLAMP9	Clamp	1P	0.000	0.000	0.219	0.219
NESC Heavy Broken Wire	CLAMP10	Clamp	1X	0.000	0.075	0.219	0.231
NESC Heavy Broken Wire	CLAMP11	Clamp	3P	0.000	0.000	0.269	0.269
NESC Heavy Broken Wire	CLAMP12	Clamp	3X	0.000	0.131	0.269	0.299
NESC Heavy Broken Wire	CLAMP13	Clamp	6P	0.000	0.000	0.431	0.431
NESC Heavy Broken Wire	CLAMP14	Clamp	6X	0.000	0.168	0.431	0.462
NESC Heavy Broken Wire	CLAMP15	Clamp	8P	0.000	0.000	0.535	0.535
NESC Heavy Broken Wire	CLAMP16	Clamp	8X	0.000	0.236	0.535	0.584
NESC Heavy Broken Wire	CLAMP17	Clamp	13S	0.000	0.000	1.072	1.072
NESC Heavy Broken Wire	CLAMP18	Clamp	13X	0.000	0.513	1.072	1.188
NESC Heavy Broken Wire	CLAMP19	Clamp	14S	0.000	0.000	1.792	1.792
NESC Heavy Broken Wire	CLAMP20	Clamp	14X	0.000	0.882	1.792	1.997
NESC Heavy Broken Wire	CLAMP21	Clamp	15S	0.000	0.000	1.410	1.410
NESC Heavy Broken Wire	CLAMP22	Clamp	15X	0.000	0.682	1.410	1.567
NESC Heavy Broken Wire	CLAMP23	Clamp	31P	0.000	1.858	9.128	9.315
NESC Heavy Broken Wire	CLAMP24	Clamp	32P	0.000	0.445	1.059	1.149
NESC Heavy Broken Wire	CLAMP25	Clamp	33P	0.000	0.392	0.998	1.072
NESC Heavy Broken Wire	CLAMP26	Clamp	34P	0.000	0.392	0.976	1.051
NESC Heavy Broken Wire	CLAMP27	Clamp	35P	0.000	0.694	1.720	1.854
NESC Heavy Broken Wire	CLAMP28	Clamp	36P	0.000	0.888	2.195	2.368
NESC Heavy Broken Wire	CLAMP29	Clamp	37P	0.000	0.744	1.883	2.025
NESC Heavy Broken Wire	CLAMP30	Clamp	38P	0.000	0.725	2.168	2.286
NESC Heavy Broken Wire	CLAMP31	Clamp	1XY	0.000	0.161	0.457	0.485
NESC Heavy Broken Wire	CLAMP32	Clamp	3XY	0.000	0.320	0.783	0.846
NESC Heavy Broken Wire	CLAMP33	Clamp	6XY	0.000	0.357	0.942	1.007
NESC Heavy Broken Wire	CLAMP34	Clamp	8XY	0.000	0.571	1.437	1.546
NESC Heavy Broken Wire	CLAMP35	Clamp	13XY	0.000	0.934	2.224	2.412
NESC Heavy Broken Wire	CLAMP36	Clamp	14XY	0.000	1.225	2.776	3.034
NESC Heavy Broken Wire	CLAMP37	Clamp	15XY	0.000	1.180	2.903	3.134
NESC Extreme Longitudinal	CLAMP1	Clamp	20P	0.701	0.118	0.503	0.871
NESC Extreme Longitudinal	CLAMP2	Clamp	20X	0.701	0.118	0.503	0.871

NESC Extreme Longitudinal	CLAMP3	Clamp	21P	0.613	0.131	1.118	1.282
NESC Extreme Longitudinal	CLAMP4	Clamp	21X	0.613	0.131	1.118	1.282
NESC Extreme Longitudinal	CLAMP5	Clamp	22P	0.613	0.131	1.118	1.282
NESC Extreme Longitudinal	CLAMP6	Clamp	22X	0.613	0.131	1.118	1.282
NESC Extreme Longitudinal	CLAMP7	Clamp	23P	0.613	0.131	1.118	1.282
NESC Extreme Longitudinal	CLAMP8	Clamp	23X	0.613	0.131	1.118	1.282
NESC Extreme Longitudinal	CLAMP9	Clamp	1P	0.357	0.000	0.239	0.430
NESC Extreme Longitudinal	CLAMP10	Clamp	1X	0.357	0.000	0.239	0.430
NESC Extreme Longitudinal	CLAMP11	Clamp	3P	0.357	0.000	0.239	0.430
NESC Extreme Longitudinal	CLAMP12	Clamp	3X	0.357	0.000	0.239	0.430
NESC Extreme Longitudinal	CLAMP13	Clamp	6P	0.357	0.000	0.239	0.430
NESC Extreme Longitudinal	CLAMP14	Clamp	6X	0.357	0.000	0.239	0.430
NESC Extreme Longitudinal	CLAMP15	Clamp	8P	0.357	0.000	0.239	0.430
NESC Extreme Longitudinal	CLAMP16	Clamp	8X	0.357	0.000	0.239	0.430
NESC Extreme Longitudinal	CLAMP17	Clamp	13S	1.182	0.000	0.937	1.508
NESC Extreme Longitudinal	CLAMP18	Clamp	13X	1.182	0.000	0.937	1.508
NESC Extreme Longitudinal	CLAMP19	Clamp	14S	0.825	0.000	0.697	1.080
NESC Extreme Longitudinal	CLAMP20	Clamp	14X	0.825	0.000	0.697	1.080
NESC Extreme Longitudinal	CLAMP21	Clamp	15S	0.825	0.000	0.697	1.080
NESC Extreme Longitudinal	CLAMP22	Clamp	15X	0.825	0.000	0.697	1.080
NESC Extreme Longitudinal	CLAMP23	Clamp	31P	6.257	0.000	4.574	7.751
NESC Extreme Longitudinal	CLAMP24	Clamp	32P	0.357	0.000	0.270	0.448
NESC Extreme Longitudinal	CLAMP25	Clamp	33P	0.357	0.000	0.308	0.472
NESC Extreme Longitudinal	CLAMP26	Clamp	34P	0.357	0.000	0.308	0.472
NESC Extreme Longitudinal	CLAMP27	Clamp	35P	0.357	0.000	0.361	0.508
NESC Extreme Longitudinal	CLAMP28	Clamp	36P	1.182	0.000	1.090	1.608
NESC Extreme Longitudinal	CLAMP29	Clamp	37P	0.825	0.000	0.822	1.165
NESC Extreme Longitudinal	CLAMP30	Clamp	38P	0.825	0.000	0.878	1.205
NESC Extreme Longitudinal	CLAMP31	Clamp	1XY	0.614	0.000	0.301	0.684
NESC Extreme Longitudinal	CLAMP32	Clamp	3XY	0.923	0.000	0.376	0.997
NESC Extreme Longitudinal	CLAMP33	Clamp	6XY	0.923	0.000	0.376	0.997
NESC Extreme Longitudinal	CLAMP34	Clamp	8XY	1.360	0.000	0.482	1.443
NESC Extreme Longitudinal	CLAMP35	Clamp	13XY	2.442	0.000	1.243	2.740
NESC Extreme Longitudinal	CLAMP36	Clamp	14XY	1.853	0.000	0.947	2.081
NESC Extreme Longitudinal	CLAMP37	Clamp	15XY	2.316	0.000	1.059	2.546

Overturning Moments For User Input Concentrated Loads:

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

Load Case	Total Tran. Load (kips)	Total Long. Load (kips)	Total Vert. Load (kips)	Transverse Overturning Moment (ft-k)	Longitudinal Overturning Moment (ft-k)	Torsional Moment (ft-k)
NESC Heavy	14.858	0.104	28.825	1451.382	-41.730	-16.542
NESC Extreme	28.000	7.244	12.384	2782.769	711.457	-51.622
NESC Heavy Broken Wire	13.771	17.405	28.774	1330.038	1935.530	181.803
NESC Extreme Longitudinal	1.022	14.295	12.384	95.581	1392.286	42.386

*** Weight of structure (lbs):
Weight of Angles*Section DLF: 35129.8
Total: 35129.8

*** End of Report

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Subject:	Foundation Analysis Tower # 1217
Location:	Stamford, CT
Rev. 2: 8/25/22	Prepared by: T.J.L. Checked by: C.F.C. Job No. 21005.42

Foundation Analysis

Input Data:

Max. Reactions at Tower Leg:

Shear =	Shear := 24.4·1.1·kips = 26.8·kips	(User Input)
Compression =	Comp := 107.4·1.1·kips = 118.1·kips	(User Input)
Uplift =	Uplift := 94.7·1.1·kips = 104.2·kips	(User Input)

Tower Properties:

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

Foundation Properties:

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

Subgrade Properties:

Concrete Unit Weight =	$\gamma c := 150 \cdot pcf$	(User Input)
Water Unit Weight =	$\gamma w := 62.4 \cdot pcf$	(User Input)
Soil Unit Weight =	$\gamma s := 90 \cdot pcf$	(User Input)
Uplift Angle =	$\psi := 30.0 \cdot deg$	(User Input)
Soil Bearing Capacity =	$BC_{soil} := 4000 \cdot psf$	(User Input)
Coefficient of Friction =	$\mu := 0.45$	(User Input)
Coefficient of Lateral Soil Pressure =	$K_p := \frac{1 + \sin(\psi)}{1 - \sin(\psi)} = 3$	
Depth to Neglect =	$n := 4 \cdot ft$	(User Input)

Calculated Data:

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

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

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

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

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

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

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

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

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

Volume of Soil Above Pier = $V_{soil.ap} := (P_H - P_P) \cdot B_1 - V_{pier} = 285 \cdot ft^3$

Mass of Soil Above Pier = $Mass_{Soil.ap} := V_{soil.ap} \cdot \gamma s = 26 \cdot kips$

Check Uplift:

Required Factor of Safety = $F_S := 1.0$

$Uplift\_Check := if\left(\frac{Mass_{tot}}{Uplift} \geq F_S, "OK", "Overstressed"\right)$ $\quad ActualFS := \frac{Mass_{tot}}{Uplift} = 2.35$

Uplift_Check = "OK"

Check Sliding:

Passive Pressure = $P_{top} := 0 = 0 \cdot ksf$

$P_{bot} := K_p \cdot \gamma s \cdot (P_H - P_P - n) = 2.16 \cdot ksf$

$P_{ave} := \frac{P_{top} + P_{bot}}{2} = 1.08 \cdot ksf$

$A_p := P_{w1} \cdot (P_H - P_P - n) = 20\,ft^2$

Ultimate Shear = $S_u := P_{ave} \cdot A_p = 21.6 \cdot kip$

Passive Pressure Resistance to Sliding = $PP_R := \min\left[Shear, (S_u)\right] = 21.6 \cdot kip$

Resisting Mass 1 = $Res_{mass1} := Mass_{Soil} + Mass_{Conc} - Uplift = 140.812\,kips$

Resisting Mass 2 = $Res_{mass2} := Mass_{Soil.ap} + Mass_{Conc} = 71.107\,kips$

Concrete Weight Resistance to Sliding = $W_R := \mu \cdot \min\left(Res_{mass1}, Res_{mass2}\right) = 31.998 \cdot kip$

$Sliding\_Check := if\left(Shear \leq PP_R + W_R, "OK", "No Good"\right)$ $\quad ActualFS := \frac{PP_R + W_R}{Shear} = 2$

Sliding_Check = "OK"

RAN Template:	A&L Template:
67E3998E 6160	67E3998E_1OP+1QP

CTFF740A_Sprint Retain_1_draft

Print Name: Standard
PORs: New Build_Sprint Keep

Section 1 - Site Information

Site ID: CTFF740A
Status: Draft
Version: 1
Project Type: Sprint Retain
Approved: Not Approved
Approved By: Not Approved
Last Modified: 12/6/2021 3:32:01 PM
Last Modified By: Farhan.Badar@T-Mobile.com

Site Name: CT03XC329
Site Class: Utility Lattice Tower
Site Type: Structure Non Building
Plan Year: 2021
Market: CONNECTICUT CT
Vendor: Ericsson
Landlord: Not Specified

Latitude: 41.05407800
Longitude: -73.52551900
Address: 63 Myrtle Ave
City, State: Stamford, CT
Region: NORTHEAST

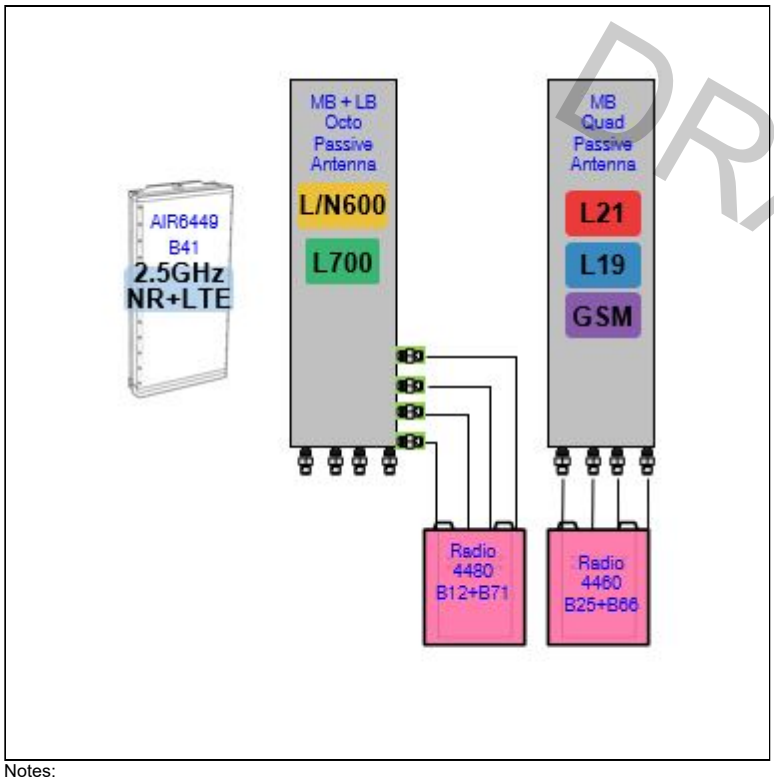
RAN Template: 67E3998E 6160			AL Template: 67E3998E_1OP+1QP	
Sector Count: 3	**Antenna Count:** 6	**Coax Line Count:** 18	**TMA Count:** 6	**RRU Count:** 6

Section 2 - Existing Template Images

----- This section is intentionally blank. -----

Section 3 - Proposed Template Images

67E5A998E.JPG



Notes:

Section 4 - Siteplan Images

----- This section is intentionally blank. -----

RAN Template:	A&L Template:
67E3998E 6160	67E3998E_1OP+1QP

CTFF740A_Sprint Retain_1_draft

Print Name: Standard
PORs: New Build_Sprint Keep

Section 5 - RAN Equipment

Existing RAN Equipment

----- This section is intentionally blank. -----

Proposed RAN Equipment

Template: 67E3998E 6160

Enclosure	1	2	3
Enclosure Type	Enclosure 6160 AC V1	B160	RBS 6601
Baseband	BB 6648 L700 L600 N600 L2100 L1900		DUG20 G1900
Hybrid Cable System	PSU 4813 vR2A (Kit) Ericsson Hybrid Trunk 6/24 4AWG 100m **(x 3)**		
Transport System	CSR IXRe V2 (Gen2)		

RAN Scope of Work:

Limited space for generator on site. 200amp power available on site.

RAN Template:	A&L Template:
67E3998E 6160	67E3998E_1OP+1QP

CTFF740A_Sprint Retain_1_draft

Print Name: Standard
PORs: New Build_Sprint Keep

Section 6 - A&L Equipment

Existing Template: Custom
Proposed Template: 67E3998E_1OP+1QP

Sector 1 (Proposed) view from behind

Coverage Type	A - Outdoor Macro					
Antenna	1				2	
Antenna Model	RFS - APXVAALL24_43-U-NA20 (Octo)				Commscope_VV-65A-R1 (Quad)	
Azimuth	70				70	
M. Tilt						
Height	135				135	
Ports	**P1**	**P2**	**P3**	**P4**	**P5**	**P6**
Active Tech.	L700 L600 N600	L700 L600 N600			L2100 L1900 G1900	L2100 L1900 G1900
Dark Tech.						
Restricted Tech.						
Decomm. Tech.						
E. Tilt						
Cables	1-5/8" Coax - 175 ft. **(x4)**	SHARED 1-5/8" Coax - 175 ft. **(x4)**			1-5/8" Coax - 175 ft. **(x2)**	SHARED 1-5/8" Coax - 175 ft. **(x2)**
TMAs	Commscope - Smart BiasT - ATSBT-TOP-MF-4G (AtAntenna)	SHARED Commscope - Smart BiasT - ATSBT-TOP-MF-4G (AtAntenna)			Commscope - Smart BiasT - ATSBT-TOP-MF-4G (AtAntenna)	SHARED Commscope - Smart BiasT - ATSBT-TOP-MF-4G (AtAntenna)
Diplexers / Combiners						
Radio	Radio 4480 B71+B85 (At Cabinet)	SHARED Radio 4480 B71+B85 (At Cabinet)			Radio 4460 B25+B66 (At Cabinet)	SHARED Radio 4460 B25+B66 (At Cabinet)
Sector Equipment						

Unconnected Equipment:

Scope of Work:

*A dashed border indicates shared equipment. Any connected equipment is denoted with the SHARED keyword.

RAN Template:	A&L Template:
67E3998E 6160	67E3998E_1OP+1QP

CTFF740A_Sprint Retain_1_draft

Print Name: Standard
PORs: New Build_Sprint Keep

Sector 2 (Proposed) view from behind

Coverage Type	A - Outdoor Macro					
Antenna	1				2	
Antenna Model	RFS - APXVAALL24_43-U-NA20 (Octo)				Commscope_VV-65A-R1 (Quad)	
Azimuth	220				220	
M. Tilt						
Height	135				135	
Ports	**P1**	**P2**	**P3**	**P4**	**P5**	**P6**
Active Tech.	L700 L600 N600	L700 L600 N600			L2100 L1900 G1900	L2100 L1900 G1900
Dark Tech.						
Restricted Tech.						
Decomm. Tech.						
E. Tilt						
Cables	1-5/8" Coax - 175 ft. **(x4)**	SHARED 1-5/8" Coax - 175 ft. **(x4)**			1-5/8" Coax - 175 ft. **(x2)**	SHARED 1-5/8" Coax - 175 ft. **(x2)**
TMAs	Commscope - Smart BiasT - ATSBT-TOP-MF-4G (AtAntenna)	SHARED Commscope - Smart BiasT - ATSBT-TOP-MF-4G (AtAntenna)			Commscope - Smart BiasT - ATSBT-TOP-MF-4G (AtAntenna)	SHARED Commscope - Smart BiasT - ATSBT-TOP-MF-4G (AtAntenna)
Diplexers / Combiners						
Radio	Radio 4480 B71+B85 (At Cabinet)	SHARED Radio 4480 B71+B85 (At Cabinet)			Radio 4460 B25+B66 (At Cabinet)	SHARED Radio 4460 B25+B66 (At Cabinet)
Sector Equipment						

Unconnected Equipment:

Scope of Work:

*A dashed border indicates shared equipment. Any connected equipment is denoted with the SHARED keyword.

RAN Template:	A&L Template:
67E3998E 6160	67E3998E_1OP+1QP

CTFF740A_Sprint Retain_1_draft

Print Name: Standard
PORs: New Build_Sprint Keep

Sector 3 (Proposed) view from behind

Coverage Type	A - Outdoor Macro					
Antenna	1				2	
Antenna Model	RFS - APXVAALL24_43-U-NA20 (Octo)				Commscope_VV-65A-R1 (Quad)	
Azimuth	340				340	
M. Tilt						
Height	135				135	
Ports	**P1**	**P2**	**P3**	**P4**	**P5**	**P6**
Active Tech.	L700 L600 N600	L700 L600 N600			L2100 L1900 G1900	L2100 L1900 G1900
Dark Tech.						
Restricted Tech.						
Decomm. Tech.						
E. Tilt						
Cables	1-5/8" Coax - 170 ft. **(x4)**	SHARED 1-5/8" Coax - 170 ft. **(x4)**			1-5/8" Coax - 170 ft. **(x2)**	SHARED 1-5/8" Coax - 170 ft. **(x2)**
TMAs	Commscope - Smart BiasT - ATSBT-TOP-MF-4G (AtAntenna)	SHARED Commscope - Smart BiasT - ATSBT-TOP-MF-4G (AtAntenna)			Commscope - Smart BiasT - ATSBT-TOP-MF-4G (AtAntenna)	SHARED Commscope - Smart BiasT - ATSBT-TOP-MF-4G (AtAntenna)
Diplexers / Combiners						
Radio	Radio 4480 B71+B85 (At Cabinet)	SHARED Radio 4480 B71+B85 (At Cabinet)			Radio 4460 B25+B66 (At Cabinet)	SHARED Radio 4460 B25+B66 (At Cabinet)
Sector Equipment						

Unconnected Equipment:

Scope of Work:

*A dashed border indicates shared equipment. Any connected equipment is denoted with the SHARED keyword.

RAN Template:	A&L Template:
67E3998E 6160	67E3998E_1OP+1QP

CTFF740A_Sprint Retain_1_draft

Print Name: Standard
PORs: New Build_Sprint Keep

Section 7 - Power Systems Equipment

Existing Power Systems Equipment
----- This section is intentionally blank. -----

	Proposed Power Systems Equipment
Enclosure	1
Enclosure Type	Enclosure 6160 AC V1

VV-65A-R1

4-port sector antenna, 4x 1695–2690 MHz, 65° HPBW, 1x RET,The two high band arrays utilize a common tilt.

- The RET interface comprises one pair of AISG input/output ports

General Specifications

Antenna Type	Sector
Band	Single band
Color	Light gray
Grounding Type	RF connector inner conductor and body grounded to reflector and mounting bracket
Performance Note	Outdoor usage
Radome Material	PVC, UV resistant
Reflector Material	Aluminum
RF Connector Interface	4.3-10 Female
RF Connector Location	Bottom
RF Connector Quantity, high band	4
RF Connector Quantity, total	4

Remote Electrical Tilt (RET) Information

RET Hardware	CommRET v2
RET Interface	8-pin DIN Female | 8-pin DIN Male
RET Interface, quantity	1 female | 1 male
Input Voltage	10–30 Vdc
Internal RET	High band (1)
Power Consumption, idle state, maximum	2 W
Power Consumption, normal conditions, maximum	10 W
Protocol	3GPP/AISG 2.0

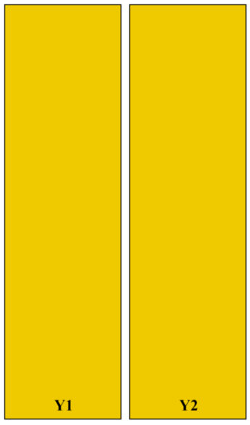
Dimensions

Width	307 mm | 12.087 in
Depth	118 mm | 4.646 in
Length	1390 mm | 54.724 in

VV-65A-R1

Net Weight, without mounting kit	10.8 kg | 23.81 lb

Array Layout



Array ID	Frequency (MHz)	RF Connector	HPBW	RET (SRET)	AISG No.	AISG RET UID
Y1	1695-2690	1 - 2	65°	1	AISG1	CPxxxxxxxxxxxxxxxY1
Y2	1695-2690	3 - 4	65°			

(Sizes of colored boxes are not true depictions of array sizes)

Port Configuration

Electrical Specifications

Impedance	50 ohm
Operating Frequency Band	1695 – 2690 MHz
Polarization	±45°
Total Input Power, maximum	400 W @ 50 °C

Electrical Specifications

Frequency Band, MHz	**1695–1880**	**1850–1990**	**1920–2200**	**2300–2500**	**2490–2690**

PRODUCT DATASHEET

APXVAALL24_43-U-NA20

RADIO FREQUENCY SYSTEMS

Dual Slant Polarized Quad Band (8 Port) Antenna, 617-894/617-894/1695-2690/1695-2690MHz, 65deg, 16.2/16.1/18.9/18.7dBi, 2.4m (8ft), VET, RET, 2-12°/2-12°/2-12°/2-12°

FEATURES / BENEFITS

This antenna provides a 8 Port multi-band flexible platform for advanced use for flexible use in deployment scenarios for encompassing 600, 700, 800, AWS, PCS & BRS applications.

- **24 Inch Width For Easier Zoning**
- **Field Replaceable (Integrated) AISG RET platform for reduced environmental exposure and long lasting quality**
- **Superior elevation pattern performance across the entire electrical down tilt range**
- **Includes three AISG RET motors - Includes 0.5m AISG jumper for optional daisy chain of two high band RET motors for one single AISG point of high band tilt control.**
- **Low band arrays driven by a single RET motor**

Technical Features

LOW BAND LEFT ARRAY (617-894 MHZ) [R1]

Frequency Band	MHz	617-698	698-806	806-894
Gain Typical	dBi	15.5	16.1	16.2
Gain Over All Tilts	dBi	15.2 +/- .3	15.6 +/- .5	15.8 +/- .4
Horizontal Beamwidth @3dB	Deg	65 +/-3	64 +/-2	62 +/-3
Vertical Beamwidth @3dB	Deg	9.9 +/- .7	8.6 +/- .7	7.6 +/-.4
Electrical Downtilt Range	Deg	2 to 12		
Upper Side Lobe Suppression Peak to +20	dB	15	14	14
Front-to-Back, at +/-30°, Copolar	dB	25	25	29
Cross Polar Discrimination (XPD) @ Boresight	dB	18	18	17
Cross Polar Discrimination (XPD) @ +/-60	dB	5	5	6
3rd Order PIM 2 x 43dBm	dBc	-153		
VSWR	-	1.5:1		
Cross Polar Isolation	dB	25		
Maximum Effective Power per Port	Watt	400		

RADIO FREQUENCY SYSTEMS

Dual Slant Polarized Quad Band (8 Port) Antenna, 617-894/617-894/1695-2690/1695-2690MHz, 65deg, 16.2/16.1/18.9/18.7dBi, 2.4m (8ft), VET, RET, 2-12°/2-12°/2-12°/2-12°

HIGH BAND RIGHT ARRAY (1695-2690 MHZ) [Y2]

Frequency Band	MHz	1695-1880	1850-1990	1920-2200	2200-2490	2490-2690
Gain Typical	dBi	17.7	18.1	18.7	18.5	18.0
Gain Over All Tilts	dBi	17.1 +/- .6	17.6 +/- .5	18 +/- .7	17.9 +/- .6	17.4 +/- .6
Horizontal Beamwidth @3dB	Deg	67 +/- 5	64 +/- 5	65 +/- 5	62 +/- 7	60 +/- 9
Vertical Beamwidth @3dB	Deg	5.7 +/- .5	5.2 +/- .3	4.7 +/- .6	4.2 +/- .3	4.2 +/- .3
Electrical Downtilt Range	Deg	2 to 12				
Upper Side Lobe Suppression Peak to +20	dB	15	15	14	14	13
Front-to-Back, at +/-30°, Copolar	dB	27	28	26	23	21
Cross Polar Discrimination (XPD) @ Boresight	dB	21	17	14	16	18
Cross Polar Discrimination (XPD) @ +/-60	dB	10	8	7	4	1
3rd Order PIM 2 x 43dBm	dBc	-153				
VSWR	-	1.5:1				
Cross Polar Isolation	dB	25				
Maximum Effective Power per Port	Watt	300				

ELECTRICAL SPECIFICATIONS

Impedance	Ohm	50.0
Polarization	Deg	±45°

MECHANICAL SPECIFICATIONS

Dimensions - H x W x D	mm (in)	2436 x 609 x 215 (95.9 x 24 x 8.5)
Weight (Antenna Only)	kg (lb)	55.7 (122.8)
Weight (Mounting Hardware only)	kg (lb)	12.3 (27.1)
Packing size- HxWxD	mm (in)	2565 x 735 x 390 (101 x 28.9 x 15.4)
Shipping Weight	kg (lb)	77.9 (171.7)
Connector type		8 x 4.3-10 female at bottom + 6 AISG connectors (3 male, 3 female)
Adjustment mechanism		Integrated RET solution AISG compliant (Field Replaceable) + Manual Override + External Tilt Indicator
Radome Material / Color		Fiber Glass / Light Grey RAL7035

TESTING AND ENVIRONMENTAL

Temperature Range	°C (°F)	-40 to 60 (-40 to 140)
Grounding type		DC Grounded
Lightning protection		IEC 61000-4-5
Survival/Rated Wind Velocity	km/h	240 (150)
Wind Load @Rated Wind Front	N	1428.0
Wind Load @Rated Wind Side	N	434.0
Wind Load @Rated Wind Rear	N	1544.0
Environmental		ETSI 300-019-2-4 Class 4.1E

Product Specifications

COMMSCOPE®

POWERED BY ANDREW®

ATSBT-TOP-FM-4G

Teletilt® Top Smart Bias Tee

- Injects AISG power and control signals onto a coaxial cable line
- Reduces cable and site lease costs by eliminating the need for AISG home run cables
- AISG 1.1 and 2.0 compliant
- Operates at 10-30 Vdc
- Weatherproof AISG connectors
- Intuitive schematics simplify and ensure proper installation
- Enhanced lightning protection plus grounding stud for additional surge protection
- 7-16 DIN female connector (BTS)
- 7-16 DIN male connector (ANT)

General Specifications

Smart Bias Tee Type	10–30 V Top
Brand	Teletilt®
Operating Frequency Band	694 – 2690 MHz

Electrical Specifications

EU Certification	CE
Protocol	AISG 1.1 | AISG 2.0
Antenna Interface Signal	dc Blocked | RF
BTS Interface Signal	AISG data | dc | RF
Interface Protocol Signal	Data | dc
Voltage Range	10–30 Vdc
VSWR | Return Loss	1.17:1 | 22 dB, typical
Power Consumption, maximum	0.6 W
RF Power, maximum	250 W @ 1850 MHz 500 W @ 850 MHz
Impedance	50 ohm
Insertion Loss, typical	0.1 dB
3rd Order IMD	-158.0 dBc (relative to carrier)
3rd Order IMD Test Method	Two +43 dBm carriers
Electromagnetic Compatibility (EMC)	CFR 47 Part 15, Subpart B, Class B | EN 55022, Class B | ICES-003 Issue 4 CAN/CSA-CEI/IEC CISPR 22:02

Mechanical Specifications

Antenna Interface	7-16 DIN Male
BTS Interface	7-16 DIN Female
AISG Input Connector	8-pin DIN Female
Color	Silver
Grounding Lug Thread Size	M8
Material Type	Aluminum
Lightning Surge Capability	5 times @ -3 kA 5 times @ 3 kA

Product Specifications

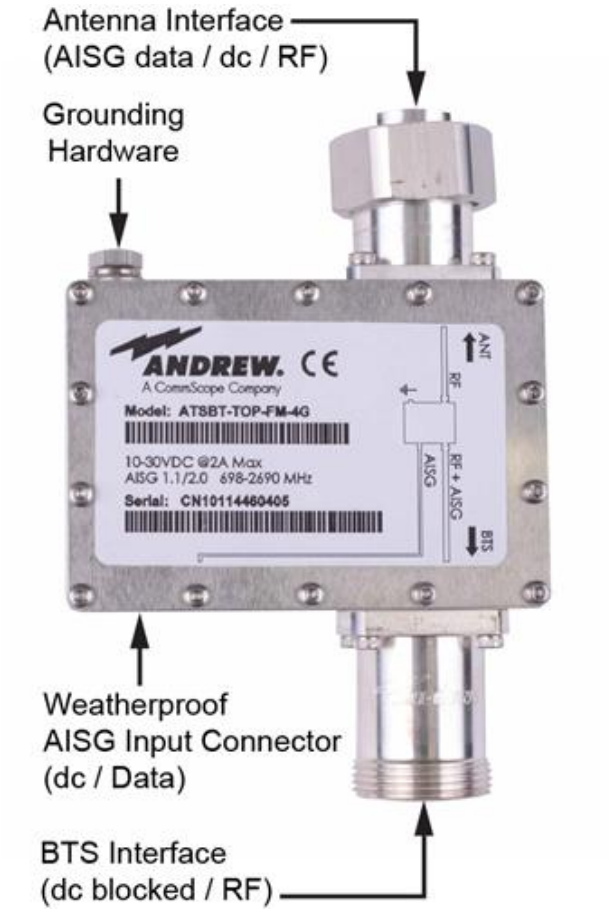
ATSBT-TOP-FM-4G

Lightning Surge Capability Test Method	IEC 61000-4-5, Level X
Lightning Surge Capability Waveform	1.2/50 voltage and 8/20 current combination waveform

Environmental Specifications

Ingress Protection Test Method	IEC 60529:2001, IP66
Operating Temperature	-40 °C to +70 °C (-40 °F to +158 °F)

Interface Port Drawing



Dimensions

Width	94.0 mm | 3.7 in
Depth	50.0 mm | 2.0 in
Height	143.00 mm | 5.63 in
Net Weight	0.8 kg | 1.8 lb

Regulatory Compliance/Certifications

Agency	Classification
RoHS 2011/65/EU	Compliant by Exemption

CENTEK engineering

Centered on Solutions℠

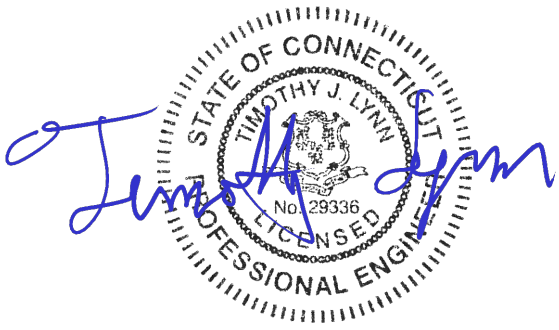
Antenna Mount Analysis Report

T-Mobile Site #: CTFF740A

63-69 Myrtle Ave
Stamford, CT

Centek Project No. 21005.42

Date: January 11, 2023



Max Stress Ratio =90%

Prepared for:

T-Mobile USA
35 Griffin Road
Bloomfield, CT 06002

Table of Contents

CENTEK engineering

Centered on Solutions℠

January 11, 2023

Mr. Dan Reid
Transcend Wireless
10 Industrial Ave
Mahwah, NJ 07430

Re: Structural Letter ~ Antenna Mount
T-Mobile – Site Ref: CTFF740A
63-69 Myrtle Ave
Stamford, CT

Centek Project No. 21005.42

Dear Mr. Reid,

Centek Engineering, Inc. has reviewed the T-Mobile antenna installation at the above-referenced site. The purpose of the review is to determine the structural adequacy of the existing 14-ft low profile platform mount. The review considered the effects of wind load, dead load and ice load in accordance with the 2021 International Building Code as modified by the 2022 Connecticut State Building Code (CTBC) including ASCE 7-16 and ANSI/TIA-222-H *Structural Standard for Antenna Supporting Structures, Antennas and Small Wind Turbine Support Structures"*.

The loads considered in this analysis consist of the following:

- T-Mobile:
  Platform: Three (3) Commscope VV-65A-R1 panel antennas, three (3) RFS APXVAALL24_43 panel antennas and six (6) ATSBT-TOP-FM-4G Bias Tees mounted on one (1) platform with handrail with a RAD center elevation of 135 ft +/- AGL.

The antenna mount was analyzed per the requirements of the 2021 International Building Code as modified by the 2022 Connecticut State Building Code considering a Ultimate design wind speed of 120 mph for Stamford as required in Appendix P of the 2022 Connecticut State Building Code.

Based on our review of the installation, it is our opinion that the subject antenna mount with the installation of (1) handrail kit (Sitepro HRK-14) has sufficient capacity to support the aforementioned antenna configuration.

If there are any questions regarding this matter, please feel free to call.

Respectfully Submitted by:

Timothy J. Lynn, PE
Structural Engineer

STATE OF CONNECTICUT · TIMOTHY J. LYNN · No. 29336 · LICENSED PROFESSIONAL ENGINEER

Section 2 - Calculations

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

Subject: TIA-222-H Loads

Location: Stamford, CT

Rev. 0: 1/11/23

Prepared by: T.J.L. Checked by: C.F.C.
Job No. 21005.42

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

Wind Speeds

Basic Wind Speed	$V := 120$	mph	(User Input - CSBC 2022 Appendix P)
Basic Wind Speed with Ice	$V_i := 50$	mph	(User Input - TIA-222-H Annex B)
Basic Wind Speed (Mount)	$V_m := 30$	mph	(User Input - TIA-222-H Section 16.3)

Input

Structure Type =	Structure_Type := Flexible		(User Input)
Structure Category =	SC := II		(User Input)
Exposure Category =	Exp := C		(User Input)
Structure Height =	$h := 120$	ft	(User Input)
Height to Center of Antennas =	$z_{ant} := 135$	ft	(User Input)
Radial Ice Thickness =	$t_i := 1.0$	in	(User Input per Annex B of TIA-222-H)
Radial Ice Density =	$Id := 56.00$	pcf	(User Input)
Topograpic Factor =	$K_{zt} := 1$		(User Input)
Shielding Factor for Appurtenances =	$K_a := 1.0$		(User Input)
Rooftop Wind Speed-up Factor =	$K_s := 1.0$		(User Input)
Ground Elevation Factor =	$K_e = 0.996$		(User Input)
Gust Response Factor =	$G_H = 1.35$		(User Input)

Output

Wind Direction Probability Factor = $K_d := 0.95$ (Per Table 2-2 of TIA-222-H)

Importance Factors = (Per Table 2-3 of TIA-222-H)

$$I_{ice} := \begin{cases} 0 & \text{if } SC = 1 \\ 1.00 & \text{if } SC = 2 \\ 1.15 & \text{if } SC = 3 \\ 1.25 & \text{if } SC = 4 \end{cases} = 1$$

$$I_{Seismic} := \begin{cases} 0 & \text{if } SC = 1 \\ 1.00 & \text{if } SC = 2 \\ 1.25 & \text{if } SC = 3 \\ 1.50 & \text{if } SC = 4 \end{cases} = 1$$

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

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

Velocity Pressure w/o Ice Antennas = $qz_{ant} := 0.00256 \cdot K_{zt} \cdot K_s \cdot K_e \cdot K_d \cdot Kz_{ant} \cdot V^2 = 47.006$

Velocity Pressure with Ice Antennas = $qz_{ice.ant} := 0.00256 \cdot K_{zt} \cdot K_s \cdot K_e \cdot K_d \cdot Kz_{ant} \cdot V_i^2 = 8.161$

Velocity Pressure with Ice Antennas = $qz_m := 0.00256 \cdot K_{zt} \cdot K_s \cdot K_e \cdot K_d \cdot Kz_{ant} \cdot V_m^2 = 2.938$

Development of Wind & Ice Load on Appurtenances

Appurtenance Data:

Appurtenance Model =	RFSAPXVAALL24_43		
Appurtenance Shape =	Flat		(User Input)
Appurtenance Height=	$L_{app} := 95.9$	in	(User Input)
Appurtenance Width =	$W_{app} := 24$	in	(User Input)
Appurtenance Thickness =	$T_{app} := 8.5$	in	(User Input)
Appurtenance Weight =	$WT_{app} := 150$	lbs	(User Input)
Number of Appurtenances=	$N_{app} := 1$		(User Input)
Appurtenance Aspect Ratio =	$Ar_{app} := \frac{L_{app}}{W_{app}} = 4.0$		
Appurtenance Force Coefficient =	$Ca_{app} = 1.27$		

Wind Load (without ice)

Surface Area for One Appurtenance (Front) =	$SA_{appF} := \frac{L_{app} \cdot W_{app}}{144} = 16$	sf
Total Appurtenance Wind Force =	$F_{app} := qz_{ant} \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{appF} = 1285$	lbs
Surface Area for One Appurtenance (Side) =	$SA_{appS} := \frac{L_{app} \cdot T_{app}}{144} = 5.7$	sf
Total Appurtenance Wind Force =	$F_{app} := qz_{ant} \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{appS} = 455$	lbs

Wind Load (with ice)

Surface Area for One Appurtenance w/ Ice (Front)=	$SA_{ICEappF} := \frac{(L_{app} + 2 \cdot t_{iz}) \cdot (W_{app} + 2 \cdot t_{iz})}{144} = 17.9$	sf
Total Appurtenance Wind Force w/ Ice =	$Fi_{app} := qz_{ice.ant} \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{ICEappF} = 250$	lbs
Surface Area for One Appurtenance w/ Ice (Side) =	$SA_{ICEappS} := \frac{(L_{app} + 2 \cdot t_{iz}) \cdot (T_{app} + 2 \cdot t_{iz})}{144} = 7.4$	sf
Total Appurtenance Wind Force w/ Ice =	$Fi_{app} := qz_{ice.ant} \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{ICEappS} = 103$	lbs

Wind Load (Mount)

Surface Area for One Appurtenance (Front) =	$SA_{appF} := \frac{L_{app} \cdot W_{app}}{144} = 16$	sf
Total Appurtenance Wind Force =	$F_{app} := qz_m \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{appF} = 80$	lbs
Surface Area for One Appurtenance (Side) =	$SA_{appS} := \frac{L_{app} \cdot T_{app}}{144} = 5.7$	sf
Total Appurtenance Wind Force =	$F_{app} := qz_m \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{appS} = 28$	lbs

Gravity Loads (ice only)

Volume of Each Appurtenance =	$V_{app} := L_{app} \cdot W_{app} \cdot T_{app} = 2 \times 10^4$	cu in
Volume of Ice on Each Appurtenance =	$V_{ice} := (L_{app} + 2 \cdot t_{iz})(W_{app} + 2 \cdot t_{iz}) \cdot (T_{app} + 2 \cdot t_{iz}) - V_{app} = 8339$	cu in
Weight of Ice on Each Appurtenance =	$W_{ICEapp} := \frac{V_{ice}}{1728} \cdot Id = 270$	lbs
Weight of Ice on All Appurtenances =	$W_{ICEapp} \cdot N_{app} = 270$	lbs

Development of Wind & Ice Load on Appurtenances

Appurtenance Data:

Appurtenance Model =	Commscope VV-65A-R1		
Appurtenance Shape =	Flat		(User Input)
Appurtenance Height=	$L_{app} := 54.724$	in	(User Input)
Appurtenance Width =	$W_{app} := 12.087$	in	(User Input)
Appurtenance Thickness =	$T_{app} := 4.646$	in	(User Input)
Appurtenance Weight =	$WT_{app} := 30$	lbs	(User Input)
Number of Appurtenances=	$N_{app} := 1$		(User Input)
Appurtenance Aspect Ratio =	$Ar_{app} := \frac{L_{app}}{W_{app}} = 4.5$		
Appurtenance Force Coefficient =	$Ca_{app} = 1.29$		

Wind Load (without ice)

Surface Area for One Appurtenance (Front) =	$SA_{appF} := \frac{L_{app} \cdot W_{app}}{144} = 4.6$	sf
Total Appurtenance Wind Force =	$F_{app} := qz_{ant} \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{appF} = 376$	lbs
Surface Area for One Appurtenance (Side) =	$SA_{appS} := \frac{L_{app} \cdot T_{app}}{144} = 1.8$	sf
Total Appurtenance Wind Force =	$F_{app} := qz_{ant} \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{appS} = 145$	lbs

Wind Load (with ice)

Surface Area for One Appurtenance w/ Ice (Front)=	$SA_{ICEappF} := \frac{(L_{app} + 2 \cdot t_{iz}) \cdot (W_{app} + 2 \cdot t_{iz})}{144} = 5.7$	sf
Total Appurtenance Wind Force w/ Ice =	$Fi_{app} := qz_{ice.ant} \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{ICEappF} = 81$	lbs
Surface Area for One Appurtenance w/ Ice (Side) =	$SA_{ICEappS} := \frac{(L_{app} + 2 \cdot t_{iz}) \cdot (T_{app} + 2 \cdot t_{iz})}{144} = 2.8$	sf
Total Appurtenance Wind Force w/ Ice =	$Fi_{app} := qz_{ice.ant} \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{ICEappS} = 39$	lbs

Wind Load (Mount)

Surface Area for One Appurtenance (Front) =	$SA_{appF} := \frac{L_{app} \cdot W_{app}}{144} = 4.6$	sf
Total Appurtenance Wind Force =	$F_{app} := qz_m \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{appF} = 24$	lbs
Surface Area for One Appurtenance (Side) =	$SA_{appS} := \frac{L_{app} \cdot T_{app}}{144} = 1.8$	sf
Total Appurtenance Wind Force =	$F_{app} := qz_m \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{appS} = 9$	lbs

Gravity Loads (ice only)

Volume of Each Appurtenance =	$V_{app} := L_{app} \cdot W_{app} \cdot T_{app} = 3073$	cu in
Volume of Ice on Each Appurtenance =	$V_{ice} := (L_{app} + 2 \cdot t_{iz})(W_{app} + 2 \cdot t_{iz}) \cdot (T_{app} + 2 \cdot t_{iz}) - V_{app} = 2629$	cu in
Weight of Ice on Each Appurtenance =	$W_{ICEapp} := \frac{V_{ice}}{1728} \cdot Id = 85$	lbs
Weight of Ice on All Appurtenances =	$W_{ICEapp} \cdot N_{app} = 85$	lbs

Development of Wind & Ice Load on Appurtenances

Appurtenance Data:

Appurtenance Model =	ATSBT-TOP-F M4G Bias Tee		
Appurtenance Shape =	Flat		(User Input)
Appurtenance Height=	$L_{app} := 5.63$	in	(User Input)
Appurtenance Width =	$W_{app} := 3.7$	in	(User Input)
Appurtenance Thickness =	$T_{app} := 2$	in	(User Input)
Appurtenance Weight =	$WT_{app} := 2$	lbs	(User Input)
Number of Appurtenances=	$N_{app} := 1$		(User Input)
Appurtenance Aspect Ratio =	$Ar_{app} := \frac{L_{app}}{W_{app}} = 1.5$		
Appurtenance Force Coefficient =	$Ca_{app} = 1.2$		

Wind Load (without ice)

Surface Area for One Appurtenance (Front) =	$SA_{appF} := \frac{L_{app} \cdot W_{app}}{144} = 0.1$	sf
Total Appurtenance Wind Force =	$F_{app} := qz_{ant} \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{appF} = 11$	lbs
Surface Area for One Appurtenance (Side) =	$SA_{appS} := \frac{L_{app} \cdot T_{app}}{144} = 0.1$	sf
Total Appurtenance Wind Force =	$F_{app} := qz_{ant} \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{appS} = 6$	lbs

Wind Load (with ice)

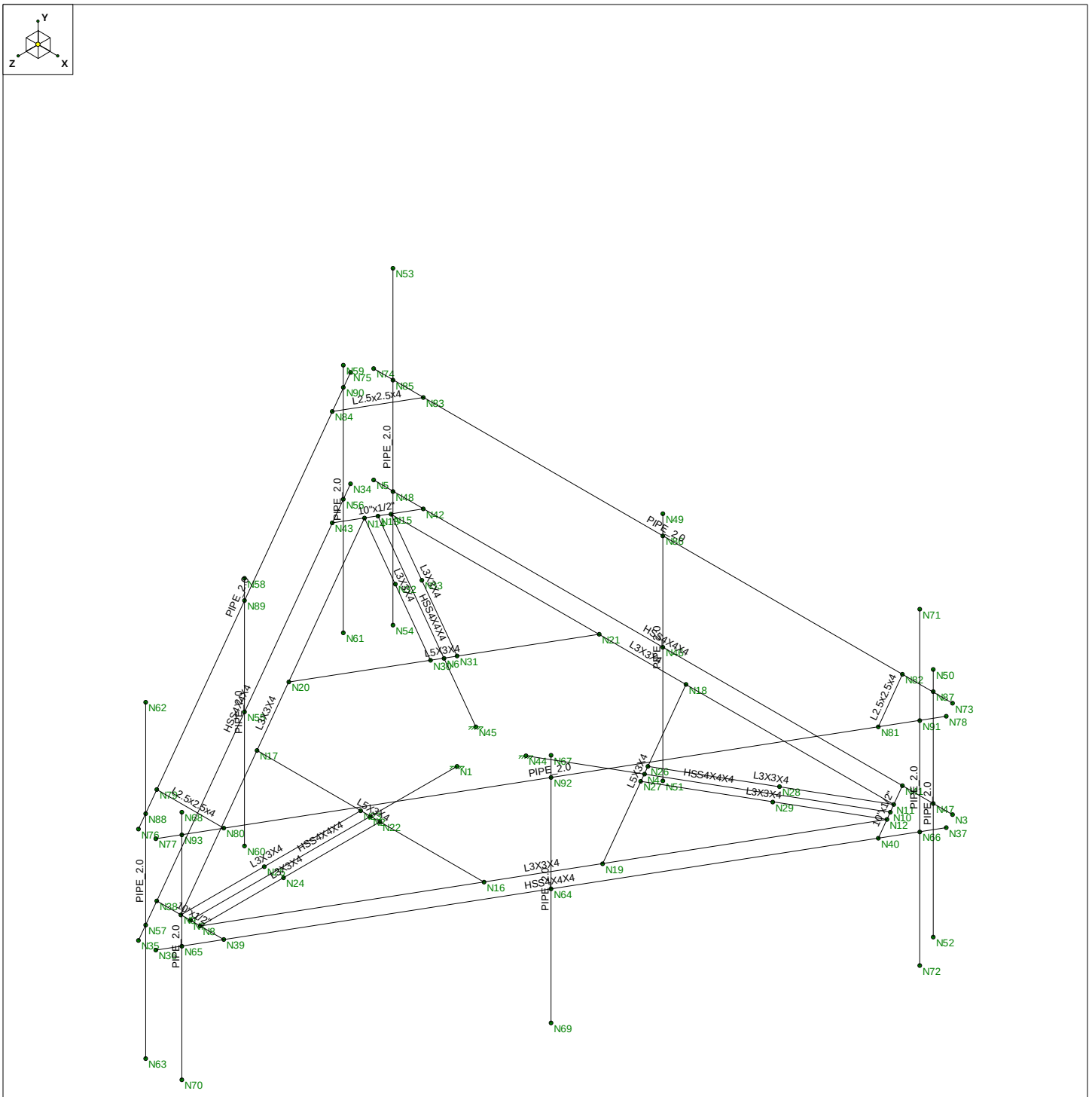
Surface Area for One Appurtenance w/ Ice (Front)=	$SA_{ICEappF} := \frac{(L_{app} + 2 \cdot t_{iz}) \cdot (W_{app} + 2 \cdot t_{iz})}{144} = 0.3$	sf
Total Appurtenance Wind Force w/ Ice =	$Fi_{app} := qz_{ice.ant} \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{ICEappF} = 4$	lbs
Surface Area for One Appurtenance w/ Ice (Side) =	$SA_{ICEappS} := \frac{(L_{app} + 2 \cdot t_{iz}) \cdot (T_{app} + 2 \cdot t_{iz})}{144} = 0.2$	sf
Total Appurtenance Wind Force w/ Ice =	$Fi_{app} := qz_{ice.ant} \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{ICEappS} = 3$	lbs

Wind Load (Mount)

Surface Area for One Appurtenance (Front) =	$SA_{appF} := \frac{L_{app} \cdot W_{app}}{144} = 0.1$	sf
Total Appurtenance Wind Force =	$F_{app} := qz_m \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{appF} = 1$	lbs
Surface Area for One Appurtenance (Side) =	$SA_{appS} := \frac{L_{app} \cdot T_{app}}{144} = 0.1$	sf
Total Appurtenance Wind Force =	$F_{app} := qz_m \cdot G_H \cdot Ca_{app} \cdot K_a \cdot SA_{appS} = 0$	lbs

Gravity Loads (ice only)

Volume of Each Appurtenance =	$V_{app} := L_{app} \cdot W_{app} \cdot T_{app} = 42$	cu in
Volume of Ice on Each Appurtenance =	$V_{ice} := (L_{app} + 2 \cdot t_{iz})(W_{app} + 2 \cdot t_{iz}) \cdot (T_{app} + 2 \cdot t_{iz}) - V_{app} = 163$	cu in
Weight of Ice on Each Appurtenance =	$W_{ICEapp} := \frac{V_{ice}}{1728} \cdot Id = 5$	lbs
Weight of Ice on All Appurtenances =	$W_{ICEapp} \cdot N_{app} = 5$	lbs



Centek Engineering		
TJL	CTFF740A - Mount	Jan 11, 2023 at 4:24 PM
21005.42	Member Framing	Mount.R3D

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (ft/sec^2)	32.2
Wall Mesh Size (in)	12
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 15th(360-16): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 14th(360-10): ASD
Cold Formed Steel Code	AISI S100-10: ASD
Wood Code	AWC NDS-12: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-11
Masonry Code	ACI 530-11: ASD
Aluminum Code	AA ADM1-10: ASD - Building
Stainless Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)

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

(Global) Model Settings, Continued

Seismic Code	ASCE 7-10
Seismic Base Elevation (ft)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	1
Cd X	1
Rho Z	1
Rho X	1
Footing Overturning Safety Factor	1
Optimize for OTM/Sliding	No
Check Concrete Bearing	No
Footing Concrete Weight (k/ft^3)	150.001
Footing Concrete f'c (ksi)	4
Footing Concrete Ec (ksi)	3644
Lambda	1
Footing Steel fy (ksi)	60
Minimum Steel	0.0018
Maximum Steel	0.0075
Footing Top Bar	#3
Footing Top Bar Cover (in)	2
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 (\...	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 Grade B	29000	11154	.3	.65	.49	35	1.5	58	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rul...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Outrigger	HSS4X4X4	Beam	Tube	A500 Gr.46	Typical	3.37	7.8	7.8	12.8
2	Horz	HSS4X4X4	Beam	Pipe	A500 Gr.46	Typical	3.37	7.8	7.8	12.8
3	Antenna Mast	PIPE_2.0	Column	Wide Flange	A53 Grade B	Typical	1.02	.627	.627	1.25
4	Support	L5X3X4	Beam	Pipe	A36 Gr.36	Typical	1.94	1.41	5.09	.044
5	Support 2	L3X3X4	Beam	Pipe	A36 Gr.36	Typical	1.44	1.23	1.23	.031
6	Plate	10"x1/2"	Beam	Pipe	A36 Gr.36	Typical	5	.104	41.667	.404
7	Handrail	PIPE_2.0	Beam	Pipe	A53 Grade B	Typical	1.02	.627	.627	1.25
8	Handrail Corner	L2.5x2.5x4	Beam	Pipe	A36 Gr.36	Typical	1.19	.692	.692	.026

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[...	Lcomp bot[...	L-torq...	Kyy	Kzz	Cb	Functi...
1	M1	Outrigger	6.92			Lbyy						Lateral
2	M2	Outrigger	6.92			Lbyy						Lateral
3	M3	Outrigger	6.92			Lbyy						Lateral
4	M4	Horz	15			Lbyy						Lateral
5	M5	Plate	1.732			Lbyy						Lateral
6	M6	Support 2	13.035			Lbyy						Lateral
7	M7	Support	5.892			Lbyy						Lateral
8	M8	Support 2	13.035			Lbyy						Lateral
9	M9	Support 2	13.035			Lbyy						Lateral
10	M10	Support	5.892			Lbyy						Lateral
11	M11	Support	5.892			Lbyy						Lateral
12	M12	Support 2	4.67			Lbyy						Lateral
13	M13	Support 2	4.67			Lbyy						Lateral
14	M14	Support 2	4.67			Lbyy						Lateral
15	M15	Support 2	4.67			Lbyy						Lateral
16	M16	Support 2	4.67			Lbyy						Lateral
17	M17	Support 2	4.67			Lbyy						Lateral
18	M18	Horz	15			Lbyy						Lateral
19	M19	Horz	15			Lbyy						Lateral
20	M20	Plate	1.732			Lbyy						Lateral
21	M21	Plate	1.732			Lbyy						Lateral
22	M22	Antenna Mast	8			Lbyy						Lateral
23	M23	Antenna Mast	6			Lbyy						Lateral
24	M24	Antenna Mast	6			Lbyy						Lateral
25	M25	Antenna Mast	8			Lbyy						Lateral
26	M26	Antenna Mast	6			Lbyy						Lateral
27	M27	Antenna Mast	6			Lbyy						Lateral
28	M28	Antenna Mast	8			Lbyy						Lateral
29	M29	Antenna Mast	6			Lbyy						Lateral
30	M30	Antenna Mast	6			Lbyy						Lateral
31	M31	Handrail	15			Lbyy						Lateral
32	M32	Handrail Corner	1.732			Lbyy						Lateral
33	M33	Handrail	15			Lbyy						Lateral
34	M34	Handrail	15			Lbyy						Lateral
35	M35	Handrail Corner	1.732			Lbyy						Lateral
36	M36	Handrail Corner	1.732			Lbyy						Lateral

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design ...
1	M1	N1	N7			Outrigger	Beam	Tube	A500 Gr.46	Typical
2	M2	N44	N10			Outrigger	Beam	Tube	A500 Gr.46	Typical
3	M3	N45	N13			Outrigger	Beam	Tube	A500 Gr.46	Typical
4	M4	N3	N5			Horz	Beam	Pipe	A500 Gr.46	Typical
5	M5	N38	N39			Plate	Beam	Pipe	A36 Gr.36	Typical
6	M6	N8	N12		270	Support 2	Beam	Pipe	A36 Gr.36	Typical
7	M7	N17	N16		90	Support	Beam	Pipe	A36 Gr.36	Typical
8	M8	N11	N15		270	Support 2	Beam	Pipe	A36 Gr.36	Typical
9	M9	N14	N9		270	Support 2	Beam	Pipe	A36 Gr.36	Typical
10	M10	N19	N18		90	Support	Beam	Pipe	A36 Gr.36	Typical
11	M11	N21	N20		90	Support	Beam	Pipe	A36 Gr.36	Typical
12	M12	N8	N22			Support 2	Beam	Pipe	A36 Gr.36	Typical
13	M13	N9	N23		270	Support 2	Beam	Pipe	A36 Gr.36	Typical
14	M14	N11	N26			Support 2	Beam	Pipe	A36 Gr.36	Typical
15	M15	N12	N27		270	Support 2	Beam	Pipe	A36 Gr.36	Typical
16	M16	N14	N30			Support 2	Beam	Pipe	A36 Gr.36	Typical
17	M17	N15	N31		270	Support 2	Beam	Pipe	A36 Gr.36	Typical
18	M18	N34	N35			Horz	Beam	Pipe	A500 Gr.46	Typical
19	M19	N36	N37			Horz	Beam	Pipe	A500 Gr.46	Typical
20	M20	N40	N41			Plate	Beam	Pipe	A36 Gr.36	Typical
21	M21	N42	N43			Plate	Beam	Pipe	A36 Gr.36	Typical
22	M22	N54	N53			Antenna Mast	Column	Wide Flan...	A53 Grade B	Typical
23	M23	N51	N49			Antenna Mast	Column	Wide Flan...	A53 Grade B	Typical
24	M24	N52	N50			Antenna Mast	Column	Wide Flan...	A53 Grade B	Typical
25	M25	N63	N62			Antenna Mast	Column	Wide Flan...	A53 Grade B	Typical
26	M26	N60	N58			Antenna Mast	Column	Wide Flan...	A53 Grade B	Typical
27	M27	N61	N59			Antenna Mast	Column	Wide Flan...	A53 Grade B	Typical
28	M28	N72	N71			Antenna Mast	Column	Wide Flan...	A53 Grade B	Typical
29	M29	N69	N67			Antenna Mast	Column	Wide Flan...	A53 Grade B	Typical
30	M30	N70	N68			Antenna Mast	Column	Wide Flan...	A53 Grade B	Typical
31	M31	N73	N74			Handrail	Beam	Pipe	A53 Grade B	Typical
32	M32	N79	N80			Handrail Corner	Beam	Pipe	A36 Gr.36	Typical
33	M33	N75	N76			Handrail	Beam	Pipe	A53 Grade B	Typical
34	M34	N77	N78			Handrail	Beam	Pipe	A53 Grade B	Typical
35	M35	N81	N82			Handrail Corner	Beam	Pipe	A36 Gr.36	Typical
36	M36	N83	N84			Handrail Corner	Beam	Pipe	A36 Gr.36	Typical

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	N1	0	0	.75	0	
2	N2	0	0	3	0	
3	N3	7.5	0	-4.585	0	
4	N4	2.598076	0	-1.5	0	
5	N5	-7.5	0	-4.585	0	
6	N6	-2.598076	0	-1.5	0	
7	N7	0	0	7.67	0	
8	N8	.25	0	7.67	0	
9	N9	-.25	0	7.67	0	
10	N10	6.642415	0	-3.835	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
11	N11	6.517415	0	-4.051506	0	
12	N12	6.767415	0	-3.618494	0	
13	N13	-6.642415	0	-3.835	0	
14	N14	-6.767415	0	-3.618494	0	
15	N15	-6.517415	0	-4.051506	0	
16	N16	2.946226	0	3	0	
17	N17	-2.946226	0	3	0	
18	N18	1.124963	0	-4.051506	0	
19	N19	4.071189	0	1.051506	0	
20	N20	-4.071189	0	1.051506	0	
21	N21	-1.124963	0	-4.051506	0	
22	N22	.25	0	3	0	
23	N23	-.25	0	3	0	
24	N24	.25	0	5.5	0	
25	N25	-.25	0	5.5	0	
26	N26	2.473076	0	-1.716506	0	
27	N27	2.723076	0	-1.283494	0	
28	N28	4.63814	0	-2.966506	0	
29	N29	4.88814	0	-2.533494	0	
30	N30	-2.723076	0	-1.283494	0	
31	N31	-2.473076	0	-1.716506	0	
32	N32	-4.88814	0	-2.533494	0	
33	N33	-4.63814	0	-2.966506	0	
34	N34	-7.720726	0	-4.202691	0	
35	N35	-0.220726	0	8.787691	0	
36	N36	0.220726	0	8.787691	0	
37	N37	7.720726	0	-4.202691	0	
38	N38	-0.866025	0	7.67	0	
39	N39	0.866025	0	7.67	0	
40	N40	7.075427	0	-3.085001	0	
41	N41	6.209402	0	-4.585	0	
42	N42	-6.209402	0	-4.585	0	
43	N43	-7.075427	0	-3.085001	0	
44	N44	0.649519	0	-.375	0	
45	N45	-0.649519	0	-.375	0	
46	N46	0	0	-4.585	0	
47	N47	7	0	-4.585	0	
48	N48	-7	0	-4.585	0	
49	N49	0	3	-4.585	0	
50	N50	7	3	-4.585	0	
51	N51	0	-3	-4.585	0	
52	N52	7	-3	-4.585	0	
53	N53	-7	5	-4.585	0	
54	N54	-7	-3	-4.585	0	
55	N55	-3.970726	0	2.2925	0	
56	N56	-7.470726	0	-3.769678	0	
57	N57	-0.470726	0	8.354678	0	
58	N58	-3.970726	3	2.2925	0	
59	N59	-7.470726	3	-3.769678	0	
60	N60	-3.970726	-3	2.2925	0	
61	N61	-7.470726	-3	-3.769678	0	
62	N62	-0.470726	5	8.354678	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
63	N63	-0.470726	-3	8.354678	0	
64	N64	3.970726	0	2.2925	0	
65	N65	0.470726	0	8.354678	0	
66	N66	7.470726	0	-3.769678	0	
67	N67	3.970726	3	2.2925	0	
68	N68	0.470726	3	8.354678	0	
69	N69	3.970726	-3	2.2925	0	
70	N70	0.470726	-3	8.354678	0	
71	N71	7.470726	5	-3.769678	0	
72	N72	7.470726	-3	-3.769678	0	
73	N73	7.5	2.5	-4.585	0	
74	N74	-7.5	2.5	-4.585	0	
75	N75	-7.720726	2.5	-4.202691	0	
76	N76	-0.220726	2.5	8.787691	0	
77	N77	0.220726	2.5	8.787691	0	
78	N78	7.720726	2.5	-4.202691	0	
79	N79	-0.866025	2.5	7.67	0	
80	N80	0.866025	2.5	7.67	0	
81	N81	7.075427	2.5	-3.085001	0	
82	N82	6.209402	2.5	-4.585	0	
83	N83	-6.209402	2.5	-4.585	0	
84	N84	-7.075427	2.5	-3.085001	0	
85	N85	-7	2.5	-4.585	0	
86	N86	0	2.5	-4.585	0	
87	N87	7	2.5	-4.585	0	
88	N88	-0.470726	2.5	8.354678	0	
89	N89	-3.970726	2.5	2.2925	0	
90	N90	-7.470726	2.5	-3.769678	0	
91	N91	7.470726	2.5	-3.769678	0	
92	N92	3.970726	2.5	2.2925	0	
93	N93	0.470726	2.5	8.354678	0	

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N1	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N44	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N45	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Member Point Loads (BLC 2 : Dead Load)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M22	Y	-.075	.5
2	M25	Y	-.075	.5
3	M28	Y	-.075	.5
4	M22	Y	-.075	7.5
5	M25	Y	-.075	7.5
6	M28	Y	-.075	7.5
7	M23	Y	-.015	1
8	M26	Y	-.015	1
9	M29	Y	-.015	1

Member Point Loads (BLC 2 : Dead Load) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
10	M23	Y	-.015	5
11	M26	Y	-.015	5
12	M29	Y	-.015	5
13	M22	Y	-.002	%50
14	M23	Y	-.002	%50
15	M25	Y	-.002	%50
16	M26	Y	-.002	%50
17	M28	Y	-.002	%50
18	M29	Y	-.002	%50

Member Point Loads (BLC 3 : Ice Load)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M22	Y	-.135	.5
2	M25	Y	-.135	.5
3	M28	Y	-.135	.5
4	M22	Y	-.135	7.5
5	M25	Y	-.135	7.5
6	M28	Y	-.135	7.5
7	M23	Y	-.043	1
8	M26	Y	-.043	1
9	M29	Y	-.043	1
10	M23	Y	-.043	5
11	M26	Y	-.043	5
12	M29	Y	-.043	5
13	M22	Y	-.007	%50
14	M23	Y	-.007	%50
15	M25	Y	-.007	%50
16	M26	Y	-.007	%50
17	M28	Y	-.007	%50
18	M29	Y	-.007	%50

Member Point Loads (BLC 6 : Wind with Ice X)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M22	X	.052	.5
2	M22	X	.052	7.5
3	M25	X	.125	.5
4	M28	X	.125	.5
5	M25	X	.125	7.5
6	M28	X	.125	7.5
7	M23	X	.02	1
8	M23	X	.02	5
9	M26	X	.041	1
10	M29	X	.041	1
11	M26	X	.041	5
12	M29	X	.041	5
13	M22	X	.004	%50
14	M23	X	.004	%50
15	M25	X	.004	%50
16	M26	X	.004	%50
17	M28	X	.004	%50
18	M29	X	.004	%50

Member Point Loads (BLC 7 : Wind X)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M22	X	.228	.5
2	M22	X	.228	7.5
3	M25	X	.643	.5
4	M28	X	.643	.5
5	M25	X	.643	7.5
6	M28	X	.643	7.5
7	M23	X	.073	1
8	M23	X	.073	5
9	M26	X	.188	1
10	M29	X	.188	1
11	M26	X	.188	5
12	M29	X	.188	5
13	M22	X	.011	%50
14	M23	X	.011	%50
15	M25	X	.011	%50
16	M26	X	.011	%50
17	M28	X	.011	%50
18	M29	X	.011	%50

Member Point Loads (BLC 8 : Wm Wind X)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M22	X	.014	.5
2	M22	X	.014	7.5
3	M25	X	.04	.5
4	M28	X	.04	.5
5	M25	X	.04	7.5
6	M28	X	.04	7.5
7	M23	X	.005	1
8	M23	X	.005	5
9	M26	X	.012	1
10	M29	X	.012	1
11	M26	X	.012	5
12	M29	X	.012	5
13	M22	X	.001	%50
14	M23	X	.001	%50
15	M25	X	.001	%50
16	M26	X	.001	%50
17	M28	X	.001	%50
18	M29	X	.001	%50

Member Point Loads (BLC 9 : Wind with Ice Z)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M22	Z	.125	.5
2	M22	Z	.125	7.5
3	M25	Z	.052	.5
4	M28	Z	.052	.5
5	M25	Z	.052	7.5
6	M28	Z	.052	7.5
7	M23	Z	.041	1
8	M23	Z	.041	5
9	M26	Z	.02	1

Member Point Loads (BLC 9 : Wind with Ice Z) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
10	M29	Z	.02	1
11	M26	Z	.02	5
12	M29	Z	.02	5
13	M22	Z	.004	%50
14	M23	Z	.004	%50
15	M25	Z	.004	%50
16	M26	Z	.004	%50
17	M28	Z	.004	%50
18	M29	Z	.004	%50

Member Point Loads (BLC 10 : Wind Z)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M22	Z	.643	.5
2	M22	Z	.643	7.5
3	M25	Z	.228	.5
4	M28	Z	.228	.5
5	M25	Z	.228	7.5
6	M28	Z	.228	7.5
7	M23	Z	.188	1
8	M23	Z	.188	5
9	M26	Z	.073	1
10	M29	Z	.073	1
11	M26	Z	.073	5
12	M29	Z	.073	5
13	M22	Z	.011	%50
14	M23	Z	.011	%50
15	M25	Z	.011	%50
16	M26	Z	.011	%50
17	M28	Z	.011	%50
18	M29	Z	.011	%50

Member Point Loads (BLC 11 : Wm Wind Z)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M22	Z	.04	.5
2	M22	Z	.04	7.5
3	M25	Z	.014	.5
4	M28	Z	.014	.5
5	M25	Z	.014	7.5
6	M28	Z	.014	7.5
7	M23	Z	.012	1
8	M23	Z	.012	5
9	M26	Z	.005	1
10	M29	Z	.005	1
11	M26	Z	.005	5
12	M29	Z	.005	5
13	M22	Z	.001	%50
14	M23	Z	.001	%50
15	M25	Z	.001	%50
16	M26	Z	.001	%50
17	M28	Z	.001	%50
18	M29	Z	.001	%50

Member Distributed Loads (BLC 6 : Wind with Ice X)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,k...	Start Location[ft..	End Location[ft,...
1	M18	X	.003	.003	0	0
2	M19	X	.003	.003	0	0
3	M22	X	.003	.003	0	0
4	M23	X	.003	.003	0	0
5	M24	X	.003	.003	0	0
6	M27	X	.003	.003	0	0
7	M30	X	.003	.003	0	0
8	M33	X	.003	.003	0	0
9	M34	X	.003	.003	0	0

Member Distributed Loads (BLC 7 : Wind X)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,k...	Start Location[ft..	End Location[ft,...
1	M18	X	.016	.016	0	0
2	M19	X	.016	.016	0	0
3	M22	X	.016	.016	0	0
4	M23	X	.016	.016	0	0
5	M24	X	.016	.016	0	0
6	M27	X	.016	.016	0	0
7	M30	X	.016	.016	0	0
8	M33	X	.016	.016	0	0
9	M34	X	.016	.016	0	0

Member Distributed Loads (BLC 8 : Wm Wind X)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,k...	Start Location[ft..	End Location[ft,...
1	M18	X	.002	.002	0	0
2	M19	X	.002	.002	0	0
3	M22	X	.002	.002	0	0
4	M23	X	.002	.002	0	0
5	M24	X	.002	.002	0	0
6	M27	X	.002	.002	0	0
7	M30	X	.002	.002	0	0
8	M33	X	.002	.002	0	0
9	M34	X	.002	.002	0	0

Member Distributed Loads (BLC 9 : Wind with Ice Z)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,k...	Start Location[ft..	End Location[ft,...
1	M4	Z	.003	.003	0	0
2	M18	Z	.003	.003	0	0
3	M19	Z	.003	.003	0	0
4	M24	Z	.003	.003	0	0
5	M25	Z	.003	.003	0	0
6	M26	Z	.003	.003	0	0
7	M27	Z	.003	.003	0	0
8	M28	Z	.003	.003	0	0
9	M29	Z	.003	.003	0	0
10	M30	Z	.003	.003	0	0
11	M31	Z	.003	.003	0	0
12	M33	Z	.003	.003	0	0
13	M34	Z	.003	.003	0	0

Member Distributed Loads (BLC 10 : Wind Z)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,k...	Start Location[ft..	End Location[ft,...
1	M4	Z	.016	.016	0	0
2	M18	Z	.016	.016	0	0
3	M19	Z	.016	.016	0	0
4	M24	Z	.016	.016	0	0
5	M25	Z	.016	.016	0	0
6	M26	Z	.016	.016	0	0
7	M27	Z	.016	.016	0	0
8	M28	Z	.016	.016	0	0
9	M29	Z	.016	.016	0	0
10	M30	Z	.016	.016	0	0
11	M31	Z	.016	.016	0	0
12	M33	Z	.016	.016	0	0
13	M34	Z	.016	.016	0	0

Member Distributed Loads (BLC 11 : Wm Wind Z)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,k...	Start Location[ft..	End Location[ft,...
1	M4	Z	.002	.002	0	0
2	M18	Z	.002	.002	0	0
3	M19	Z	.002	.002	0	0
4	M24	Z	.002	.002	0	0
5	M25	Z	.002	.002	0	0
6	M26	Z	.002	.002	0	0
7	M27	Z	.002	.002	0	0
8	M28	Z	.002	.002	0	0
9	M29	Z	.002	.002	0	0
10	M30	Z	.002	.002	0	0
11	M31	Z	.002	.002	0	0
12	M33	Z	.002	.002	0	0
13	M34	Z	.002	.002	0	0

Member Distributed Loads (BLC 12 : BLC 2 Transient Area Loads)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,k...	Start Location[ft..	End Location[ft,...
1	M7	Y	-.023	-.012	0	.982
2	M7	Y	-.012	-.003	.982	1.964
3	M7	Y	-.003	.0009243	1.964	2.946
4	M9	Y	-.015	-.011	0	2.172
5	M9	Y	-.011	-.007	2.172	4.345
6	M9	Y	-.007	-.004	4.345	6.517
7	M9	Y	-.004	-.005	6.517	8.69
8	M9	Y	-.005	-.006	8.69	10.862
9	M9	Y	-.006	-.0006379	10.862	13.035
10	M11	Y	.0007167	-.008	3.535	4.007
11	M11	Y	-.008	-.017	4.007	4.478
12	M11	Y	-.017	-.018	4.478	4.95
13	M11	Y	-.018	-.026	4.95	5.421
14	M11	Y	-.026	-.041	5.421	5.892
15	M13	Y	-.002	-.005	0	.934
16	M13	Y	-.005	-.011	.934	1.868
17	M13	Y	-.011	-.01	1.868	2.802
18	M13	Y	-.01	-.0007838	2.802	3.736
19	M8	Y	-.0006379	-.006	0	2.172

Member Distributed Loads (BLC 12 : BLC 2 Transient Area Loads) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,k...	Start Location[ft..	End Location[ft,...
20	M8	Y	-.006	-.006	2.172	4.345
21	M8	Y	-.006	-.005	4.345	6.517
22	M8	Y	-.005	-.007	6.517	8.69
23	M8	Y	-.007	-.011	8.69	10.862
24	M8	Y	-.011	-.015	10.862	13.035
25	M10	Y	-.000926	-.006	3.535	4.321
26	M10	Y	-.006	-.012	4.321	5.107
27	M10	Y	-.012	-.02	5.107	5.892
28	M11	Y	-.039	-.023	0	.589
29	M11	Y	-.023	-.014	.589	1.178
30	M11	Y	-.014	-.01	1.178	1.768
31	M11	Y	-.01	-.003	1.768	2.357
32	M14	Y	-.002	-.005	0	.934
33	M14	Y	-.005	-.011	.934	1.868
34	M14	Y	-.011	-.01	1.868	2.802
35	M14	Y	-.01	-.0007838	2.802	3.736
36	M6	Y	-.015	-.011	0	2.172
37	M6	Y	-.011	-.006	2.172	4.345
38	M6	Y	-.006	-.003	4.345	6.517
39	M6	Y	-.003	-.005	6.517	8.69
40	M6	Y	-.005	-.006	8.69	10.862
41	M6	Y	-.006	-.0006379	10.862	13.035
42	M7	Y	.001	-.007	3.535	4.007
43	M7	Y	-.007	-.016	4.007	4.478
44	M7	Y	-.016	-.015	4.478	4.95
45	M7	Y	-.015	-.028	4.95	5.421
46	M7	Y	-.028	-.057	5.421	5.892
47	M10	Y	-.029	-.013	0	.786
48	M10	Y	-.013	-.005	.786	1.571
49	M10	Y	-.005	-.005	1.571	2.357
50	M15	Y	-.002	-.005	0	.934
51	M15	Y	-.005	-.011	.934	1.868
52	M15	Y	-.011	-.01	1.868	2.802
53	M15	Y	-.01	-.0007838	2.802	3.736

Member Distributed Loads (BLC 13 : BLC 3 Transient Area Loads)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,k...	Start Location[ft..	End Location[ft,...
1	M7	Y	-.046	-.023	0	.982
2	M7	Y	-.023	-.005	.982	1.964
3	M7	Y	-.005	.002	1.964	2.946
4	M9	Y	-.031	-.021	0	2.172
5	M9	Y	-.021	-.015	2.172	4.345
6	M9	Y	-.015	-.009	4.345	6.517
7	M9	Y	-.009	-.01	6.517	8.69
8	M9	Y	-.01	-.011	8.69	10.862
9	M9	Y	-.011	-.001	10.862	13.035
10	M11	Y	.001	-.016	3.535	4.007
11	M11	Y	-.016	-.034	4.007	4.478
12	M11	Y	-.034	-.036	4.478	4.95
13	M11	Y	-.036	-.053	4.95	5.421
14	M11	Y	-.053	-.081	5.421	5.892

Member Distributed Loads (BLC 13 : BLC 3 Transient Area Loads) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,k...	Start Location[ft..	End Location[ft,...
15	M13	Y	-.003	-.011	0	.934
16	M13	Y	-.011	-.021	.934	1.868
17	M13	Y	-.021	-.019	1.868	2.802
18	M13	Y	-.019	-.002	2.802	3.736
19	M8	Y	-.001	-.011	0	2.172
20	M8	Y	-.011	-.013	2.172	4.345
21	M8	Y	-.013	-.011	4.345	6.517
22	M8	Y	-.011	-.015	6.517	8.69
23	M8	Y	-.015	-.021	8.69	10.862
24	M8	Y	-.021	-.031	10.862	13.035
25	M10	Y	-.002	-.012	3.535	4.321
26	M10	Y	-.012	-.025	4.321	5.107
27	M10	Y	-.025	-.04	5.107	5.892
28	M11	Y	-.078	-.045	0	.589
29	M11	Y	-.045	-.028	.589	1.178
30	M11	Y	-.028	-.02	1.178	1.768
31	M11	Y	-.02	-.006	1.768	2.357
32	M14	Y	-.003	-.011	0	.934
33	M14	Y	-.011	-.021	.934	1.868
34	M14	Y	-.021	-.019	1.868	2.802
35	M14	Y	-.019	-.002	2.802	3.736
36	M6	Y	-.031	-.021	0	2.172
37	M6	Y	-.021	-.013	2.172	4.345
38	M6	Y	-.013	-.007	4.345	6.517
39	M6	Y	-.007	-.01	6.517	8.69
40	M6	Y	-.01	-.011	8.69	10.862
41	M6	Y	-.011	-.001	10.862	13.035
42	M7	Y	.003	-.015	3.535	4.007
43	M7	Y	-.015	-.032	4.007	4.478
44	M7	Y	-.032	-.029	4.478	4.95
45	M7	Y	-.029	-.056	4.95	5.421
46	M7	Y	-.056	-.113	5.421	5.892
47	M10	Y	-.058	-.025	0	.786
48	M10	Y	-.025	-.009	.786	1.571
49	M10	Y	-.009	-.009	1.571	2.357
50	M15	Y	-.003	-.011	0	.934
51	M15	Y	-.011	-.021	.934	1.868
52	M15	Y	-.021	-.019	1.868	2.802
53	M15	Y	-.019	-.002	2.802	3.736

Basic Load Cases

	BLC Description	Category	X Gra...	Y Gra...	Z Gra...	Joint	Point	Distrib..	Area(...	Surfa...
1	Self Weight	None		-1						
2	Dead Load	None					18		3	
3	Ice Load	None					18		3	
4	Lm Maintenance Load (500lb)	None								
5	Lv Maintenance Load (250lb)	None								
6	Wind with Ice X	None					18	9		
7	Wind X	None					18	9		
8	Wm Wind X	None					18	9		

Basic Load Cases (Continued)

	BLC Description	Category	X Gra...	Y Gra...	Z Gra...	Joint	Point	Distrib..	Area(...	Surfa...
9	Wind with Ice Z	None					18	13		
10	Wind Z	None					18	13		
11	Wm Wind Z	None					18	13		
12	BLC 2 Transient Area Loads	None						53		
13	BLC 3 Transient Area Loads	None						53		

Load Combinations

	Description	So..	P...	S...	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac..	BLC	Fac...
1	1.4D	Yes	Y		1	1.4	2	1.4																		
2	1.2D +1.5Lv	Yes	Y		1	1.2	2	1.2	5	1.5																
3	1.2D + 1.0W (X-directi...	Yes	Y		1	1.2	2	1.2	7	1																
4	1.2D + 1.0Di + 1.0Wi (...	Yes	Y		1	1.2	2	1.2	3	1	6	1														
5	1.2D +1.5Lm+ 1.0Wm ...	Yes	Y		1	1.2	2	1.2	4	1.5	8	1														
6	1.2D + 1.0W (Z-directi...	Yes	Y		1	1.2	2	1.2	10	1																
7	1.2D + 1.0Di + 1.0Wi (...	Yes	Y		1	1.2	2	1.2	3	1	9	1														
8	1.2D +1.5Lm+ 1.0Wm ...	Yes	Y		1	1.2	2	1.2	4	1.5	11	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	-.005	2	1.911	7	.502	4	-4.535	3	-.008	2	.501	3
2		min	-.882	3	1.1	3	-2.944	6	-7.924	7	-1.812	3	-.057	6
3	N44	max	1.837	6	1.873	4	1.834	3	3.791	4	.004	1	6.741	4
4		min	-2.084	3	.912	6	-.573	6	1.332	6	-1.29	3	3.353	6
5	N45	max	-.244	2	1.84	7	-.138	2	3.776	4	.005	1	-2.367	3
6		min	-2.499	3	.799	3	-2.154	3	1.478	6	-1.48	6	-6.564	7
7	Totals:	max	0	8	5.524	7	0	5						
8		min	-5.464	3	3.324	2	-5.108	6						

Envelope Joint Displacements

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
1	N1	max	0	8	0	8	0	8	0	8	0	8	0	8
2		min	0	1	0	1	0	1	0	1	0	1	0	1
3	N2	max	.029	3	-.091	3	.001	6	1.036e-02	7	1.468e-03	3	1.283e-04	6
4		min	0	2	-.16	7	0	4	5.923e-03	3	3.105e-06	2	-1.137e-03	3
5	N3	max	0	1	-.374	6	0	2	4.636e-03	6	3.223e-03	6	4.665e-04	6
6		min	-.046	6	-.95	4	-.094	6	-1.168e-04	1	4.004e-06	2	-3.455e-03	3
7	N4	max	0	2	-.071	6	0	1	-1.255e-03	6	1.214e-03	3	-4.546e-03	6
8		min	-.01	3	-.156	4	-.02	3	-4.875e-03	4	-1.5e-06	1	-8.842e-03	4
9	N5	max	0	1	-.313	3	.084	3	2.95e-03	6	4.623e-04	3	1.257e-03	7
10		min	-.045	6	-.928	7	0	2	-1.21e-03	4	-7.592e-04	6	-1.999e-03	3
11	N6	max	0	1	-.057	3	.021	6	-1.534e-03	6	1.231e-03	3	8.565e-03	7
12		min	-.011	6	-.152	7	0	2	-4.974e-03	4	-1.949e-06	1	2.775e-03	3
13	N7	max	.114	3	-.55	3	.002	6	1.566e-02	7	1.313e-03	3	4.571e-04	7
14		min	0	1	-.965	7	0	4	8.898e-03	3	-1.165e-05	1	-3.912e-03	3
15	N8	max	.114	3	-.556	2	0	6	1.298e-02	7	1.314e-03	3	4.354e-04	7
16		min	0	1	-.963	7	-.003	3	7.486e-03	2	-3.628e-05	8	-3.962e-03	3
17	N9	max	.114	3	-.538	3	.007	6	1.322e-02	7	1.826e-03	6	4.797e-04	7

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
18		min	0	1	-.966	7	0	1	6.675e-03	3	5.423e-05	2	-3.881e-03	3
19	N10	max	0	1	-.418	6	0	1	-3.239e-04	6	1.183e-03	3	-7.499e-03	6
20		min	-.04	3	-.938	4	-.072	3	-7.014e-03	4	-6.027e-06	1	-1.352e-02	4
21	N11	max	0	1	-.408	6	0	1	6.225e-04	6	1.23e-03	6	-5.883e-03	6
22		min	-.042	3	-.936	4	-.071	3	-5.698e-03	4	-7.245e-05	1	-1.12e-02	4
23	N12	max	0	1	-.429	6	0	1	-1.233e-06	6	2.196e-03	3	-6.537e-03	2
24		min	-.035	3	-.941	4	-.075	3	-5.807e-03	4	4.594e-05	2	-1.146e-02	4
25	N13	max	0	1	-.324	3	.081	6	-6.295e-04	6	1.17e-03	3	1.294e-02	7
26		min	-.046	6	-.911	7	0	1	-7.754e-03	4	-5.837e-06	1	3.405e-03	3
27	N14	max	0	1	-.319	3	.083	6	-2.383e-04	6	1.848e-03	3	1.081e-02	7
28		min	-.043	6	-.912	7	0	1	-6.418e-03	4	-4.112e-05	1	2.063e-03	3
29	N15	max	0	1	-.33	3	.08	6	2.659e-04	6	7.25e-04	3	1.072e-02	7
30		min	-.047	6	-.91	7	0	1	-6.597e-03	4	1.9e-05	2	2.707e-03	3
31	N16	max	.029	3	-.179	2	0	1	9.196e-03	7	9.105e-04	3	-3.522e-03	2
32		min	0	2	-.317	7	-.046	3	5.1e-03	2	2.084e-05	2	-6.499e-03	4
33	N17	max	.029	3	-.138	3	.046	3	8.756e-03	7	8.975e-04	3	6.274e-03	7
34		min	0	2	-.316	7	0	1	4.832e-03	3	-2.542e-05	1	2.035e-03	3
35	N18	max	0	1	-.101	6	.003	6	-3.492e-03	6	7.844e-04	3	-1.893e-03	6
36		min	-.043	3	-.304	4	-.001	3	-9.538e-03	4	1.401e-05	2	-4.637e-03	3
37	N19	max	.03	3	-.177	2	0	1	1.864e-03	6	8.414e-04	3	-5.038e-03	6
38		min	0	2	-.315	4	-.043	3	2.869e-04	3	-1.939e-05	1	-1.053e-02	4
39	N20	max	.03	3	-.098	3	.044	3	1.924e-03	6	9.169e-04	3	1.068e-02	7
40		min	0	1	-.312	7	0	1	4.794e-04	2	2.688e-05	2	3.571e-03	3
41	N21	max	0	1	-.117	6	.004	6	-3.593e-03	6	7.438e-04	3	4.601e-03	7
42		min	-.043	3	-.309	4	0	1	-9.768e-03	4	-3.143e-05	1	5.005e-04	3
43	N22	max	.029	3	-.093	2	0	2	1.467e-02	7	1.433e-03	3	-6.094e-04	2
44		min	0	2	-.162	7	-.004	3	8.358e-03	3	-1.904e-05	1	-1.733e-03	3
45	N23	max	.029	3	-.089	3	.005	6	1.488e-02	7	1.468e-03	3	1.212e-03	7
46		min	0	2	-.162	7	0	1	8.465e-03	3	1.539e-05	2	-4.88e-04	3
47	N24	max	.075	3	-.348	3	0	8	1.446e-02	7	1.59e-03	3	-1.93e-04	6
48		min	0	1	-.604	7	-.004	3	8.33e-03	3	5.992e-07	2	-2.926e-03	3
49	N25	max	.078	3	-.344	3	.006	6	1.439e-02	7	1.597e-03	3	8.199e-04	7
50		min	0	2	-.608	7	0	1	8.149e-03	3	-3.649e-05	1	-2.304e-03	3
51	N26	max	0	2	-.068	6	0	1	-2.569e-03	6	1.17e-03	3	-5.926e-03	6
52		min	-.013	3	-.157	4	-.018	3	-8.046e-03	4	-2.074e-05	1	-1.209e-02	4
53	N27	max	0	2	-.076	6	0	1	-1.714e-03	6	1.344e-03	3	-6.492e-03	6
54		min	-.007	6	-.158	4	-.022	3	-6.115e-03	4	1.306e-05	2	-1.323e-02	4
55	N28	max	0	1	-.264	6	0	1	-1.189e-03	6	1.13e-03	3	-6.473e-03	6
56		min	-.03	3	-.592	4	-.048	3	-7.054e-03	4	1.966e-05	2	-1.207e-02	4
57	N29	max	0	2	-.27	6	0	2	-8.236e-04	6	7.738e-04	3	-6.783e-03	6
58		min	-.02	6	-.593	4	-.046	3	-6.143e-03	4	-2.675e-05	1	-1.262e-02	4
59	N30	max	0	1	-.056	3	.023	3	-2.029e-03	6	1.318e-03	3	1.264e-02	7
60		min	-.008	6	-.154	7	0	2	-5.973e-03	4	-2.253e-05	1	4.099e-03	3
61	N31	max	0	1	-.06	3	.019	6	-2.908e-03	6	1.205e-03	3	1.146e-02	7
62		min	-.014	6	-.153	7	0	2	-7.895e-03	4	1.345e-05	2	3.685e-03	3
63	N32	max	0	1	-.208	3	.054	6	-1.159e-03	6	1.249e-03	6	1.225e-02	7
64		min	-.026	6	-.572	7	0	1	-6.604e-03	4	8.966e-06	2	3.639e-03	3
65	N33	max	0	2	-.211	3	.057	6	-1.568e-03	6	1.416e-03	6	1.171e-02	7
66		min	-.034	6	-.571	7	0	2	-7.53e-03	4	-1.365e-05	1	3.44e-03	3
67	N34	max	0	2	-.269	3	.114	3	3.09e-03	6	3.209e-03	3	2.339e-03	6
68		min	-.061	3	-.925	7	0	1	-6.43e-04	4	-2.506e-04	6	-4.391e-03	3
69	N35	max	.114	3	-.514	3	.012	3	3.858e-03	6	2.368e-03	6	4.315e-04	7

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
70		min	0	1	-.994	7	0	1	-1.64e-03	3	-4.994e-05	5	-3.169e-03	3
71	N36	max	.101	3	-.562	2	.006	6	4.484e-03	6	-5.373e-06	2	3.946e-04	7
72		min	0	1	-.985	7	-.022	3	4.678e-04	2	-1.031e-03	3	-4.608e-03	3
73	N37	max	0	2	-.437	6	0	1	2.536e-03	6	3.033e-03	3	-6.338e-04	2
74		min	-.052	3	-.965	4	-.112	3	-3.784e-04	4	1.625e-05	2	-3.139e-03	3
75	N38	max	.115	3	-.51	3	.03	6	3.92e-03	6	2.423e-03	6	5.143e-04	7
76		min	0	1	-.97	7	0	1	-1.556e-03	3	-2.148e-04	3	-3.799e-03	3
77	N39	max	.115	3	-.554	2	.007	6	4.309e-03	6	-4.685e-06	2	3.901e-04	7
78		min	0	1	-.96	7	-.015	3	4.875e-04	2	-1.057e-03	3	-4.068e-03	3
79	N40	max	0	2	-.454	6	0	1	2.702e-03	6	3.207e-03	3	-6.628e-04	2
80		min	-.03	6	-.946	4	-.089	3	-2.811e-04	4	1.121e-05	2	-3.758e-03	3
81	N41	max	0	1	-.382	6	0	1	4.326e-03	6	3.264e-03	6	4.778e-04	6
82		min	-.046	6	-.932	4	-.072	3	-1.359e-04	1	3.358e-06	2	-3.28e-03	3
83	N42	max	0	1	-.344	3	.082	6	3.571e-03	6	4.306e-04	3	1.272e-03	7
84		min	-.045	6	-.908	7	0	2	-1.302e-03	4	-9.894e-04	6	-2.089e-03	3
85	N43	max	0	2	-.305	3	.09	6	2.705e-03	6	3.257e-03	3	2.149e-03	6
86		min	-.031	6	-.915	7	0	1	-6.528e-04	4	-2.335e-04	6	-4.121e-03	3
87	N44	max	0	8	0	8	0	8	0	8	0	8	0	8
88		min	0	1	0	1	0	1	0	1	0	1	0	1
89	N45	max	0	8	0	8	0	8	0	8	0	8	0	8
90		min	0	1	0	1	0	1	0	1	0	1	0	1
91	N46	max	0	1	-.413	6	.154	6	4.635e-03	6	1.038e-03	3	2.598e-04	7
92		min	-.045	6	-.905	4	0	2	-4.943e-04	4	-5.35e-06	1	-3.115e-03	3
93	N47	max	0	1	-.377	6	0	2	4.636e-03	6	3.223e-03	6	4.667e-04	6
94		min	-.046	6	-.943	4	-.084	3	-1.168e-04	1	4.004e-06	2	-3.454e-03	3
95	N48	max	0	1	-.325	3	.081	3	2.95e-03	6	4.623e-04	3	1.257e-03	7
96		min	-.045	6	-.92	7	0	2	-1.21e-03	4	-7.595e-04	6	-1.999e-03	3
97	N49	max	.194	3	-.413	6	.497	6	1.11e-02	6	1.102e-03	6	2.189e-04	7
98		min	-.046	6	-.905	4	-.005	1	-6.024e-05	1	-8.105e-04	3	-4.68e-03	3
99	N50	max	.214	3	-.377	6	.216	6	8.775e-03	6	5.377e-03	3	4.193e-04	7
100		min	-.044	6	-.943	4	-.051	3	2.532e-04	2	8.105e-05	2	-7.875e-03	3
101	N51	max	.005	1	-.413	6	.092	6	9.122e-04	6	1.038e-03	3	2.594e-04	7
102		min	-.092	3	-.905	4	.011	2	-4.935e-04	4	-5.35e-06	1	-9.557e-04	3
103	N52	max	-.012	8	-.377	6	.004	1	3.922e-03	6	3.223e-03	6	4.666e-04	6
104		min	-.146	3	-.943	4	-.222	6	-1.168e-04	1	4.004e-06	2	-2.741e-03	3
105	N53	max	.57	3	-.325	3	1.33	6	3.304e-02	6	1.154e-03	3	6.733e-04	6
106		min	-.066	6	-.921	7	-.007	1	-2.598e-04	4	-1.138e-04	8	-1.474e-02	3
107	N54	max	.092	3	-.325	3	.488	6	-5.219e-04	2	4.623e-04	3	5.759e-03	3
108		min	-.042	6	-.92	7	.019	2	-1.691e-02	6	-7.595e-04	6	6.604e-05	6
109	N55	max	.145	3	-.449	3	.099	6	4.051e-03	6	8.141e-04	3	1.513e-03	6
110		min	-.044	6	-.93	7	-.005	3	-8.186e-04	3	-6.489e-06	1	-4.529e-03	3
111	N56	max	0	2	-.283	3	.105	3	3.09e-03	6	3.21e-03	3	2.339e-03	6
112		min	-.045	3	-.922	7	0	1	-6.428e-04	4	-2.508e-04	6	-4.391e-03	3
113	N57	max	.114	3	-.513	3	.019	6	3.858e-03	6	2.368e-03	6	4.316e-04	7
114		min	0	1	-.985	7	0	1	-1.64e-03	3	-4.997e-05	5	-3.169e-03	3
115	N58	max	.475	3	-.449	3	.391	6	6.802e-03	6	2.556e-03	6	3.104e-03	6
116		min	-.109	6	-.93	7	-.049	3	-2.954e-03	3	-8.283e-05	1	-9.797e-03	3
117	N59	max	.231	3	-.283	3	.418	6	1.028e-02	6	3.732e-03	3	1.234e-03	6
118		min	-.106	6	-.922	7	-.003	1	-3.354e-04	3	-4.405e-03	6	-8.424e-03	3
119	N60	max	.087	3	-.449	3	.024	3	1.891e-03	6	8.141e-04	3	1.512e-03	6
120		min	.01	6	-.93	7	-.005	1	-8.18e-04	3	-6.489e-06	1	-8.059e-04	3
121	N61	max	.055	6	-.283	3	.1	3	2.376e-03	6	3.21e-03	3	2.338e-03	6

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
122		min	-.183	3	-.922	7	-.003	6	-6.426e-04	4	-2.508e-04	6	-3.677e-03	3
123	N62	max	1.378	3	-.513	3	.653	6	1.484e-02	6	2.011e-03	6	5.724e-04	7
124		min	-.015	7	-.986	7	-.15	3	-2.796e-03	3	-8.505e-05	5	-3.323e-02	3
125	N63	max	.52	3	-.513	3	.084	6	9.708e-04	4	2.368e-03	6	1.67e-02	3
126		min	.006	2	-.985	7	-.033	4	-3.904e-03	6	-4.997e-05	5	1.752e-04	2
127	N64	max	.166	3	-.552	2	.014	3	3.7e-03	6	9.59e-04	3	-1.937e-04	2
128		min	0	1	-.921	4	0	2	1.653e-04	2	-6.477e-06	1	-5.1e-03	3
129	N65	max	.106	3	-.559	2	.006	6	4.483e-03	6	-5.373e-06	2	3.945e-04	7
130		min	0	1	-.976	7	-.019	3	4.676e-04	2	-1.031e-03	3	-4.608e-03	3
131	N66	max	0	2	-.444	6	0	1	2.536e-03	6	3.034e-03	3	-6.337e-04	2
132		min	-.041	6	-.958	4	-.103	3	-3.782e-04	4	1.625e-05	2	-3.138e-03	3
133	N67	max	.544	3	-.552	2	.238	6	5.7e-03	6	1.993e-03	3	1.906e-05	1
134		min	.001	2	-.922	4	.004	2	4.711e-05	2	-2.079e-04	7	-1.082e-02	3
135	N68	max	.504	3	-.559	2	.243	6	6.754e-03	6	1.084e-03	6	2.669e-04	7
136		min	-.007	1	-.976	7	-.003	4	-5.055e-04	4	-4.589e-03	3	-1.211e-02	3
137	N69	max	.087	3	-.552	2	-.006	2	1.54e-03	6	9.59e-04	3	-1.935e-04	2
138		min	-.008	1	-.921	4	-.072	6	1.652e-04	2	-6.477e-06	1	-1.376e-03	3
139	N70	max	.076	6	-.559	2	-.017	2	3.77e-03	6	-5.373e-06	2	3.944e-04	7
140		min	-.04	3	-.976	7	-.136	6	4.675e-04	2	-1.031e-03	3	-3.894e-03	3
141	N71	max	1.099	3	-.444	6	.586	6	1.551e-02	6	1.859e-03	3	2.124e-04	1
142		min	-.006	1	-.959	4	-.029	3	2.353e-04	2	-2.532e-05	1	-3.051e-02	3
143	N72	max	.371	3	-.444	6	.053	6	-2.561e-06	3	3.034e-03	3	1.673e-02	3
144		min	-.121	6	-.958	4	-.103	3	-5.223e-03	6	1.625e-05	2	-2.234e-03	6
145	N73	max	.167	3	-.378	6	.134	6	8.772e-03	6	5.377e-03	3	4.184e-04	7
146		min	-.045	6	-.95	4	-.085	3	2.532e-04	2	8.105e-05	2	-7.873e-03	3
147	N74	max	.166	3	-.266	3	.443	6	2.026e-02	6	1.154e-03	3	6.731e-04	6
148		min	-.046	6	-.92	7	-.005	1	-2.588e-04	4	-1.134e-04	8	-9.788e-03	3
149	N75	max	.161	3	-.26	3	.343	6	1.028e-02	6	3.729e-03	3	1.234e-03	6
150		min	-.076	6	-.911	7	-.003	1	-3.362e-04	3	-4.403e-03	6	-8.42e-03	3
151	N76	max	.487	3	-.56	3	.24	6	9.896e-03	6	2.009e-03	6	5.699e-04	7
152		min	-.007	1	-.993	7	-.07	3	-2.791e-03	3	-8.469e-05	5	-2.046e-02	3
153	N77	max	.407	3	-.551	3	.206	6	6.751e-03	6	1.085e-03	6	2.673e-04	7
154		min	-.006	1	-.981	7	-.013	3	-5.048e-04	4	-4.586e-03	3	-1.211e-02	3
155	N78	max	.274	3	-.394	6	.154	6	1.056e-02	6	1.856e-03	3	2.115e-04	1
156		min	0	2	-.964	4	-.09	3	2.341e-04	2	-2.532e-05	1	-1.774e-02	3
157	N79	max	.471	3	-.453	3	.255	6	7.182e-03	6	2.308e-03	6	6.286e-04	7
158		min	-.007	1	-.975	7	-.061	3	-3.524e-03	3	-1.176e-04	5	-1.424e-02	3
159	N80	max	.471	3	-.561	2	.197	6	5.728e-03	6	1.683e-03	6	3.087e-04	7
160		min	-.007	1	-.967	7	0	1	-3.505e-04	1	-4.621e-03	3	-9.133e-03	3
161	N81	max	.301	3	-.51	6	.168	6	7.572e-03	6	3.276e-03	3	8.986e-05	1
162		min	0	2	-.951	4	-.074	3	2.315e-04	2	4.102e-05	2	-1.263e-02	3
163	N82	max	.167	3	-.376	6	.209	6	7.855e-03	6	6.278e-03	3	4.259e-04	7
164		min	-.045	6	-.934	4	.003	3	-9.351e-04	3	8.908e-05	2	-5.815e-03	3
165	N83	max	.166	3	-.397	6	.433	6	1.444e-02	6	1.548e-03	3	2.896e-07	7
166		min	-.046	6	-.923	4	-.005	1	-6.351e-04	3	-4.718e-04	6	-6.798e-03	3
167	N84	max	.211	3	-.318	3	.379	6	7.01e-03	6	3.486e-03	3	6.356e-04	6
168		min	-.138	6	-.937	7	-.004	1	-5.612e-04	3	-4.826e-03	6	-7.753e-03	3
169	N85	max	.166	3	-.325	3	.438	6	2.026e-02	6	1.154e-03	3	6.722e-04	6
170		min	-.046	6	-.92	7	-.005	1	-2.588e-04	4	-1.138e-04	8	-9.789e-03	3
171	N86	max	.166	3	-.413	6	.431	6	1.11e-02	6	1.102e-03	6	2.189e-04	7
172		min	-.045	6	-.905	4	-.005	1	-6.024e-05	1	-8.105e-04	3	-4.677e-03	3
173	N87	max	.167	3	-.377	6	.163	6	8.772e-03	6	5.377e-03	3	4.193e-04	7

Envelope Joint Displacements (Continued)

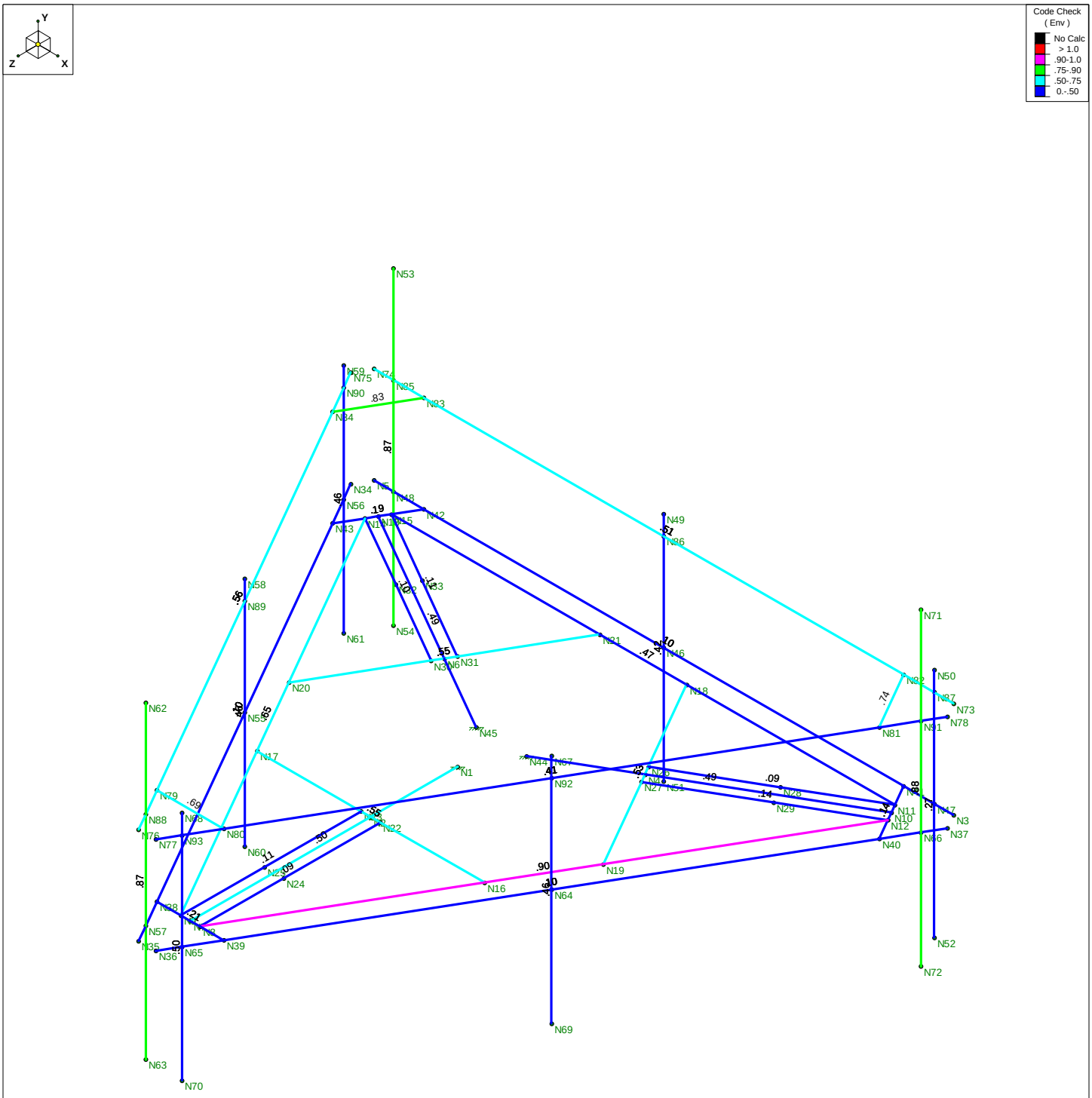
	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
174		min	-.045	6	-.943	4	-.053	3	2.532e-04	2	8.105e-05	2	-7.872e-03	3
175	N88	max	.48	3	-.513	3	.246	6	9.895e-03	6	2.011e-03	6	5.703e-04	7
176		min	-.007	1	-.985	7	-.066	3	-2.791e-03	3	-8.505e-05	5	-2.046e-02	3
177	N89	max	.416	3	-.449	3	.35	6	6.799e-03	6	2.556e-03	6	3.104e-03	6
178		min	-.09	6	-.93	7	-.031	3	-2.954e-03	3	-8.283e-05	1	-9.797e-03	3
179	N90	max	.181	3	-.283	3	.356	6	1.028e-02	6	3.732e-03	3	1.234e-03	6
180		min	-.099	6	-.922	7	-.003	1	-3.354e-04	3	-4.405e-03	6	-8.42e-03	3
181	N91	max	.284	3	-.444	6	.159	6	1.056e-02	6	1.859e-03	3	2.12e-04	1
182		min	0	2	-.958	4	-.085	3	2.349e-04	2	-2.532e-05	1	-1.774e-02	3
183	N92	max	.479	3	-.552	2	.204	6	5.697e-03	6	1.993e-03	3	1.906e-05	1
184		min	.001	2	-.922	4	.004	2	4.711e-05	2	-2.079e-04	7	-1.082e-02	3
185	N93	max	.431	3	-.559	2	.203	6	6.751e-03	6	1.084e-03	6	2.669e-04	7
186		min	-.006	1	-.976	7	0	4	-5.055e-04	4	-4.589e-03	3	-1.211e-02	3

Envelope AISC 15th(360-16): LRFD Steel Code Checks

	Memb...	Shape	Code Check	L...	LC	Sh...	L...	Dir	...phi*P...	phi*Pn...	phi*Mn y-y [k-ft]	phi*...	Cb	Eqn
1	M6	L3X3X4	.903	5....	3	.023	5....	z	7 4.55	46.656	1.688	2.895	1....	H2..
2	M28	PIPE_2.0	.882	3	3	.094	5.5		3 14.916	32.13	1.872	1.872	1....	H1..
3	M25	PIPE_2.0	.867	3	3	.098	5.5		3 14.916	32.13	1.872	1.872	1....	H1..
4	M22	PIPE_2.0	.866	3	6	.103	5.5		6 14.916	32.13	1.872	1.872	4....	H1..
5	M36	L2.5x2.5x4	.825	0	6	.079	1....	y	6 34.961	38.556	1.114	2.537	2....	H2..
6	M35	L2.5x2.5x4	.741	0	3	.068	0	y	3 34.961	38.556	1.114	2.537	1....	H2..
7	M32	L2.5x2.5x4	.693	0	3	.069	1....	y	3 34.961	38.556	1.114	2.537	2....	H2..
8	M9	L3X3X4	.649	5....	6	.025	5....	y	6 4.55	46.656	1.688	2.89	1....	H2..
9	M33	PIPE_2.0	.563	1...	3	.438	1...		3 4.372	32.13	1.872	1.872	2....	H3..
10	M7	L5X3X4	.551	2....	7	.213	2....	z	7 32.208	62.856	1.939	6.351	1....	H2..
11	M11	L5X3X4	.549	2....	7	.194	3....	z	7 32.208	62.856	1.939	6.38	1....	H2..
12	M10	L5X3X4	.532	2....	4	.212	2....	y	3 32.208	62.856	1.939	6.352	1....	H2..
13	M31	PIPE_2.0	.514	1...	6	.515	1...		6 4.372	32.13	1.872	1.872	4....	H3..
14	M1	HSS4X4X4	.504	0	7	.065	0	y	3 114.1...	139.518	16.181	16....	2....	H1..
15	M30	PIPE_2.0	.496	3	3	.133	3		3 20.867	32.13	1.872	1.872	1....	H1..
16	M2	HSS4X4X4	.492	0	4	.062	0	y	6 114.1...	139.518	16.181	16....	2....	H1..
17	M3	HSS4X4X4	.486	0	7	.056	0	y	6 114.1...	139.518	16.181	16....	2....	H1..
18	M8	L3X3X4	.471	5....	4	.023	7....	z	7 4.55	46.656	1.688	2.651	1....	H2..
19	M29	PIPE_2.0	.461	3	3	.081	3		3 20.867	32.13	1.872	1.872	1....	H1..
20	M27	PIPE_2.0	.456	3	6	.144	3		6 20.867	32.13	1.872	1.872	2....	H1..
21	M26	PIPE_2.0	.446	3	6	.105	3		6 20.867	32.13	1.872	1.872	2....	H1..
22	M23	PIPE_2.0	.420	3	3	.104	3		3 20.867	32.13	1.872	1.872	1....	H1..
23	M34	PIPE_2.0	.407	1...	3	.434	1...		3 4.372	32.13	1.872	1.872	2....	H3..
24	M24	PIPE_2.0	.272	3	3	.124	3		3 20.867	32.13	1.872	1.872	1....	H1..
25	M5	10"x1/2"	.210	1....	3	.445	.6...	y	4 54.473	162	1.688	31....	1....	H1..
26	M21	10"x1/2"	.189	1....	6	.449	1....	y	4 54.474	162	1.688	31....	1....	H1..
27	M15	L3X3X4	.140	0	3	.007	4....	z	4 28.781	46.656	1.688	3.729	2....	H2..
28	M20	10"x1/2"	.137	1....	3	.451	1....	y	4 54.474	162	1.688	33.75	1....	H1..
29	M13	L3X3X4	.112	0	6	.012	4....	z	3 28.781	46.656	1.688	3.722	1....	H2..
30	M17	L3X3X4	.107	0	6	.009	4....	z	6 28.781	46.656	1.688	3.406	1....	H2..
31	M4	HSS4X4X4	.100	7.5	6	.077	1....	z	6 54.386	139.518	16.181	16....	1....	H1..
32	M18	HSS4X4X4	.100	7.5	3	.064	1....	z	3 54.386	139.518	16.181	16....	1....	H1..
33	M16	L3X3X4	.100	0	3	.008	4....	y	4 28.781	46.656	1.688	3.342	1....	H2..
34	M19	HSS4X4X4	.099	7.5	3	.082	1....	y	3 54.386	139.518	16.181	16....	1....	H1..

Envelope AISC 15th(360-16): LRFD Steel Code Checks (Continued)

	Memb...	Shape	Code Check	L...	LC	Sh...	L...	Dir	...	phi*P...	phi*Pn...	phi*Mn y-y [k-ft]	phi*...	Cb	Eqn
35	M12	L3X3X4	.093	0	7	.008	4....	y	7	28.781	46.656	1.688	3.722	1....	H2..
36	M14	L3X3X4	.087	.2..	6	.010	4....	y	7	28.781	46.656	1.688	3.404	1....	H2..



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Centek Engineering		
TJL	CTFF740A - Mount	Jan 11, 2023 at 4:23 PM
21005.42	Unity Check	Mount.R3D

RAN Template:	A&L Template:
67E3998E 6160	67E3998E_1OP+1QP

CTFF740A_Sprint Retain_1_draft

Print Name: Standard
PORs: New Build_Sprint Keep

Section 1 - Site Information

Site ID: CTFF740A
Status: Draft
Version: 1
Project Type: Sprint Retain
Approved: Not Approved
Approved By: Not Approved
Last Modified: 12/6/2021 3:32:01 PM
Last Modified By: Farhan.Badar@T-Mobile.com

Site Name: CT03XC329
Site Class: Utility Lattice Tower
Site Type: Structure Non Building
Plan Year: 2021
Market: CONNECTICUT CT
Vendor: Ericsson
Landlord: Not Specified

Latitude: 41.05407800
Longitude: -73.52551900
Address: 63 Myrtle Ave
City, State: Stamford, CT
Region: NORTHEAST

RAN Template: 67E3998E 6160			AL Template: 67E3998E_1OP+1QP	
Sector Count: 3	**Antenna Count:** 6	**Coax Line Count:** 18	**TMA Count:** 6	**RRU Count:** 6

Section 2 - Existing Template Images

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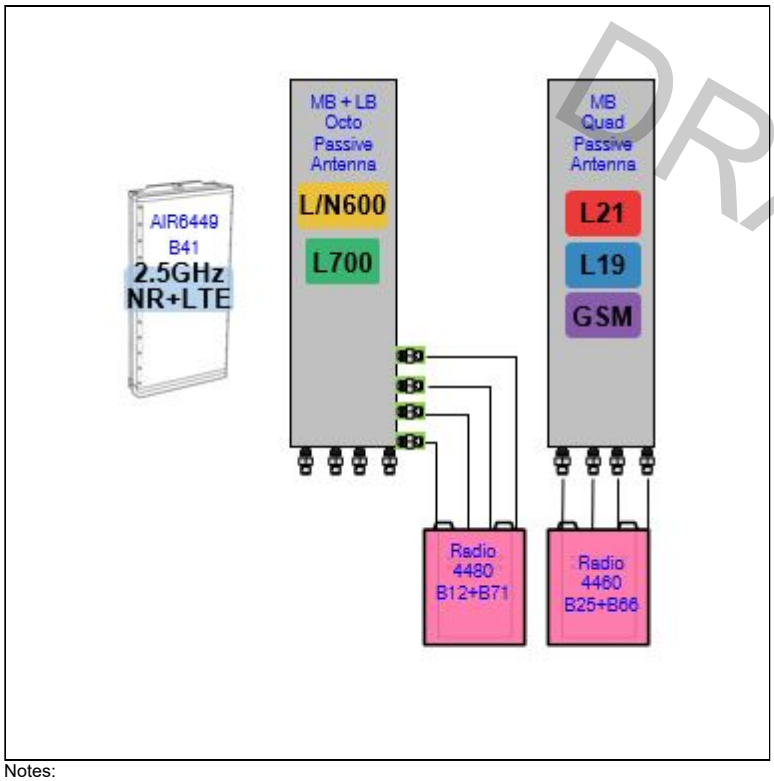
Section 3 - Proposed Template Images

67E5A998E.JPG



Notes:

Section 4 - Siteplan Images

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RAN Template:	A&L Template:
67E3998E 6160	67E3998E_1OP+1QP

CTFF740A_Sprint Retain_1_draft

Print Name: Standard
PORs: New Build_Sprint Keep

Section 5 - RAN Equipment

Existing RAN Equipment

----- This section is intentionally blank. -----

Proposed RAN Equipment

Template: 67E3998E 6160

Enclosure	1	2	3
Enclosure Type	Enclosure 6160 AC V1	B160	RBS 6601
Baseband	BB 6648 L700 L600 N600 L2100 L1900		DUG20 G1900
Hybrid Cable System	PSU 4813 vR2A (Kit) Ericsson Hybrid Trunk 6/24 4AWG 100m **(x 3)**		
Transport System	CSR IXRe V2 (Gen2)		

RAN Scope of Work:

Limited space for generator on site. 200amp power available on site.

RAN Template:	A&L Template:
67E3998E 6160	67E3998E_1OP+1QP

CTFF740A_Sprint Retain_1_draft

Print Name: Standard
PORs: New Build_Sprint Keep

Section 6 - A&L Equipment

Existing Template: Custom
Proposed Template: 67E3998E_1OP+1QP

Sector 1 (Proposed) view from behind

Coverage Type	A - Outdoor Macro					
Antenna	1				2	
Antenna Model	RFS - APXVAALL24_43-U-NA20 (Octo)				Commscope_VV-65A-R1 (Quad)	
Azimuth	70				70	
M. Tilt						
Height	135				135	
Ports	**P1**	**P2**	**P3**	**P4**	**P5**	**P6**
Active Tech.	L700 L600 N600	L700 L600 N600			L2100 L1900 G1900	L2100 L1900 G1900
Dark Tech.						
Restricted Tech.						
Decomm. Tech.						
E. Tilt						
Cables	1-5/8" Coax - 175 ft. **(x4)**	SHARED 1-5/8" Coax - 175 ft. **(x4)**			1-5/8" Coax - 175 ft. **(x2)**	SHARED 1-5/8" Coax - 175 ft. **(x2)**
TMAs	Commscope - Smart BiasT - ATSBT-TOP-MF-4G (AtAntenna)	SHARED Commscope - Smart BiasT - ATSBT-TOP-MF-4G (AtAntenna)			Commscope - Smart BiasT - ATSBT-TOP-MF-4G (AtAntenna)	SHARED Commscope - Smart BiasT - ATSBT-TOP-MF-4G (AtAntenna)
Diplexers / Combiners						
Radio	Radio 4480 B71+B85 (At Cabinet)	SHARED Radio 4480 B71+B85 (At Cabinet)			Radio 4460 B25+B66 (At Cabinet)	SHARED Radio 4460 B25+B66 (At Cabinet)
Sector Equipment						

Unconnected Equipment:

Scope of Work:

*A dashed border indicates shared equipment. Any connected equipment is denoted with the SHARED keyword.

RAN Template:	A&L Template:
67E3998E 6160	67E3998E_1OP+1QP

CTFF740A_Sprint Retain_1_draft

Print Name: Standard
PORs: New Build_Sprint Keep

Sector 2 (Proposed) view from behind

Coverage Type	A - Outdoor Macro					
Antenna	1				2	
Antenna Model	RFS - APXVAALL24_43-U-NA20 (Octo)				Commscope_VV-65A-R1 (Quad)	
Azimuth	220				220	
M. Tilt						
Height	135				135	
Ports	**P1**	**P2**	**P3**	**P4**	**P5**	**P6**
Active Tech.	L700 L600 N600	L700 L600 N600			L2100 L1900 G1900	L2100 L1900 G1900
Dark Tech.						
Restricted Tech.						
Decomm. Tech.						
E. Tilt						
Cables	1-5/8" Coax - 175 ft. **(x4)**	SHARED 1-5/8" Coax - 175 ft. **(x4)**			1-5/8" Coax - 175 ft. **(x2)**	SHARED 1-5/8" Coax - 175 ft. **(x2)**
TMAs	Commscope - Smart BiasT - ATSBT-TOP-MF-4G (AtAntenna)	SHARED Commscope - Smart BiasT - ATSBT-TOP-MF-4G (AtAntenna)			Commscope - Smart BiasT - ATSBT-TOP-MF-4G (AtAntenna)	SHARED Commscope - Smart BiasT - ATSBT-TOP-MF-4G (AtAntenna)
Diplexers / Combiners						
Radio	Radio 4480 B71+B85 (At Cabinet)	SHARED Radio 4480 B71+B85 (At Cabinet)			Radio 4460 B25+B66 (At Cabinet)	SHARED Radio 4460 B25+B66 (At Cabinet)
Sector Equipment						

Unconnected Equipment:

Scope of Work:

*A dashed border indicates shared equipment. Any connected equipment is denoted with the SHARED keyword.

RAN Template:	A&L Template:
67E3998E 6160	67E3998E_1OP+1QP

CTFF740A_Sprint Retain_1_draft

Print Name: Standard
PORs: New Build_Sprint Keep

Sector 3 (Proposed) view from behind

Coverage Type	A - Outdoor Macro					
Antenna	1				2	
Antenna Model	RFS - APXVAALL24_43-U-NA20 (Octo)				Commscope_VV-65A-R1 (Quad)	
Azimuth	340				340	
M. Tilt						
Height	135				135	
Ports	**P1**	**P2**	**P3**	**P4**	**P5**	**P6**
Active Tech.	L700 L600 N600	L700 L600 N600			L2100 L1900 G1900	L2100 L1900 G1900
Dark Tech.						
Restricted Tech.						
Decomm. Tech.						
E. Tilt						
Cables	1-5/8" Coax - 170 ft. **(x4)**	SHARED 1-5/8" Coax - 170 ft. **(x4)**			1-5/8" Coax - 170 ft. **(x2)**	SHARED 1-5/8" Coax - 170 ft. **(x2)**
TMAs	Commscope - Smart BiasT - ATSBT-TOP-MF-4G (AtAntenna)	SHARED Commscope - Smart BiasT - ATSBT-TOP-MF-4G (AtAntenna)			Commscope - Smart BiasT - ATSBT-TOP-MF-4G (AtAntenna)	SHARED Commscope - Smart BiasT - ATSBT-TOP-MF-4G (AtAntenna)
Diplexers / Combiners						
Radio	Radio 4480 B71+B85 (At Cabinet)	SHARED Radio 4480 B71+B85 (At Cabinet)			Radio 4460 B25+B66 (At Cabinet)	SHARED Radio 4460 B25+B66 (At Cabinet)
Sector Equipment						

Unconnected Equipment:

Scope of Work:

*A dashed border indicates shared equipment. Any connected equipment is denoted with the SHARED keyword.

RAN Template:	A&L Template:
67E3998E 6160	67E3998E_1OP+1QP

CTFF740A_Sprint Retain_1_draft

Print Name: Standard
PORs: New Build_Sprint Keep

Section 7 - Power Systems Equipment

Existing Power Systems Equipment
----- This section is intentionally blank. -----

	Proposed Power Systems Equipment
Enclosure	1
Enclosure Type	Enclosure 6160 AC V1

EBI Consulting

environmental | engineering | due diligence

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

T-Mobile Existing Facility

Site ID: CTFF740A

CT03XC329
63 Myrtle Avenue
Stamford, Connecticut 06902

December 27, 2022

EBI Project Number: 6222007213

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**0.10%**

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

December 27, 2022

T-Mobile
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, Connecticut 06002

Emissions Analysis for Site: CTFF740A - CT03XC329

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **63 Myrtle Avenue** in **Stamford, Connecticut** 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 ($\mu W/cm^2$). 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 population 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 population 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 limits for the 600 MHz and 700 MHz frequency bands are approximately 400 $\mu W/cm^2$ and 467 $\mu W/cm^2$, respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 11 GHz frequency 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 63 Myrtle Avenue in Stamford, Connecticut using the equipment information listed below. Modeling of the antennas and associated equipment was completed using RoofMaster™ software, which is a widely-used predictive modeling program that has been developed to predict RF power density values for rooftop and tower telecommunications sites produced by vertical collinear antennas that are typically used in the cellular, PCS, paging and other communications services. Using the computational methods set forth in Federal Communications (FCC) Office of Engineering & Technology (OET) Bulletin 65, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields" (OET-65), RoofMaster™ calculates predicted power density in a scalable grid based on the contributions of all RF sources characterized in the study scenario. At each grid location, the cumulative power density is expressed as a percentage of the FCC limits. Manufacturer antenna pattern data is utilized in these calculations. RoofMaster™ models consist of the Far Field model as specified in OET-65 and an implementation of the OET-65 Cylindrical Model (Sula9). The models utilize several operational specifications for different types of antennas to produce a plot of spatially-averaged power densities that can be expressed as a percentage of the applicable exposure limit.

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 manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, 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, telecommunications equipment was modeled using the following assumptions:

1) 1 LTE channel (600 MHz Band) was considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

2) 1 NR channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 80 Watts.

3) 1 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.

4) 1 GSM channel (PCS Band - 1900 MHz) was considered for each sector of the proposed installation. These Channels have a transmit power of 10 Watts per Channel.

5) 1 LTE channel (PCS Band - 1900 MHz) was considered for each sector of the proposed installation. These Channels have a transmit power of 120/160 Watts per Channel.

6) 1 LTE channel (AWS Band – 2100 MHz) was considered for each sector of the proposed installation. These Channels have a transmit power of 120/160 Watts per Channel.

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 manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, 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 APXVAALL24_43-U-NA20 02DT 600 for the 600 MHz / 600 MHz / 600 MHz channel(s), the COMMSCOPE VV-65A-R1 00DT 1900 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s) in Sector A, the RFS APXVAALL24_43-U-NA20 02DT 600 for the 600 MHz / 600 MHz / 700 MHz channel(s), the COMMSCOPE VV-65A-R1 00DT 1900 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s) in Sector B, the RFS APXVAALL24_43-U-NA20 02DT 600 for the 600 MHz / 600 MHz / 700 MHz channel(s), the COMMSCOPE VV-65A-R1 00DT 1900 for the 1900 MHz / 1900 MHz / 2100 MHz

channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, 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 135 feet above ground level (AGL).

11) Emissions from additional carriers were not included because emissions data for the site location are not available.

12) All calculations were done with respect to uncontrolled / general population threshold limits.

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	RFS APXVAALL24_43-U-NA20 02DT 600	Make / Model:	RFS APXVAALL24_43-U-NA20 02DT 600	Make / Model:	RFS APXVAALL24_43-U-NA20 02DT 600
Frequency Bands:	600 MHz / 600 MHz / 600 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd
Height (AGL):	135 feet	Height (AGL):	135 feet	Height (AGL):	135 feet
Channel Count:	3	Channel Count:	3	Channel Count:	3
Total TX Power (W):	160.00 Watts	Total TX Power (W):	160.00 Watts	Total TX Power (W):	160.00 Watts
ERP (W):	1,867.26	ERP (W):	1,867.26	ERP (W):	1,867.26
Antenna A1 MPE %:	**0.97%**	Antenna B1 MPE %:	**0.97%**	Antenna C1 MPE %:	**0.97%**
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	COMMSCOPE VV-65A-R1 00DT 1900	Make / Model:	COMMSCOPE VV-65A-R1 00DT 1900	Make / Model:	COMMSCOPE VV-65A-R1 00DT 1900
Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz
Gain:	15.8 dBd / 15.8 dBd / 16.43 dBd	Gain:	15.8 dBd / 15.8 dBd / 16.43 dBd	Gain:	15.8 dBd / 15.8 dBd / 16.43 dBd
Height (AGL):	135 feet	Height (AGL):	135 feet	Height (AGL):	135 feet
Channel Count:	3	Channel Count:	3	Channel Count:	3
Total TX Power (W):	330.00 Watts	Total TX Power (W):	330.00 Watts	Total TX Power (W):	330.00 Watts
ERP (W):	6,752.29	ERP (W):	6,752.29	ERP (W):	6,752.29
Antenna A2 MPE %:	**1.46%**	Antenna B2 MPE %:	**1.46%**	Antenna C2 MPE %:	**1.46%**

Site Composite MPE %	
Carrier	**MPE %**
T-Mobile (Combined Sectors):	0.10%
no additional carriers	N/A
Site Total MPE % :	0.10%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	0.10%
T-Mobile Sector B Total:	0.10%
T-Mobile Sector C Total:	0.09%
T-Mobile Total MPE % :	0.10%

T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
T-Mobile 600 MHz LTE	1	447.2599298	135	0.966266921	600 MHz LTE	400.0	0.24%
T-Mobile 600 MHz NR	1	894.5198597	135	1.932533842	600 MHz NR	400.0	0.48%
T-Mobile 700 MHz LTE	1	525.484598	135	1.135264643	700 MHz LTE	467.0	0.24%
T-Mobile 1900 MHz GSM	1	190.2172944	135	0.410948236	1900 MHz GSM	1000.0	0.04%
T-Mobile 1900 MHz LTE	1	3043.47671	135	6.575171781	1900 MHz LTE	1000.0	0.66%
T-Mobile 2100 MHz LTE	1	3518.600683	135	7.60163659	2100 MHz LTE	1000.0	0.76%
						T-Mobile Total:	**0.10%**

• NOTE: Total T-Mobile MPE values reflect all T-Mobile antennas as reported by RoofMaster™ combined modeling.
• NOTE: Totals may vary by approximately 0.01% due to summation of remainders in calculations.

Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general population 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 population exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector A:	0.10%
Sector B:	0.10%
Sector C:	0.09%
T-Mobile Maximum MPE % (Sector A):	0.10%
T-Mobile Combined Sectors MPE %:	0.10%
Site Total:	0.10%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **0.10%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions or documents available on the Connecticut Siting Council website.

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.